

Harrison & Bonini

Fastening Hardware

Since 1946



GET THE ANSWERS AND OTHER INFORMATION YOU NEED HERE.

Contact Information:
Harrison & Bonini, Inc.
1122 Harrison Street
San Francisco, CA 94103
(between 7th & 8th streets)

Hours: Mon. through Fri.
7:30AM - 4:00PM PST
(Closed 12:00-12:30)

866.442.2658 toll free
415.861.8300 in California
415.552.0796 fax

email: paul@hbbolt.com

Order Processing:

We stock upwards of 18,000 line items in our warehouse in San Francisco. If we do not have the items on our shelf, many times we can fulfill the order by shipping from a vendor's warehouse direct to you. Whether the parts are shipped from our warehouse or our vendor's all sales will be processed here in San Francisco.

We accept Visa, MC, & American Express. Purchase orders are accepted from customers with open accounts.

Shipping information:

We ship daily by using UPS Ground. This is our standard method of shipment. UPS 3-day, 2-day, Next Day Air, and UPS 100 weight are optional methods of shipping available. We determine shipping cost based on the weight and size of the order and will supply it when we take your order.

Federal Express is available if required.

LTL trucking companies are available for shipments over 100 pounds, items longer than 6 feet, large bulky items too big for standard UPS.

Will Calls:

Please remember that you can place an order by phone, fax, or email and come down pick your order up at our warehouse here in San Francisco.

Credit Cards:

We Accept Visa, Mastercard, and American Express. We have a \$15.00 (USD) minimum order.

Privacy Notice

Harrison & Bonini respects the privacy of its users. It is our promise that:
We never engage in the selling of our customer names or list.

Delivery Times. Will Calls:

Most will calls are available for same day pick up. Please ask your salesperson how soon your order would be available to pick up.

Bay Area Shipments:

UPS delivers packages in one day to almost every location in the Bay Area. As far south as Monterey, to as far north as Ukiah, East to Stockton.

Shipment via UPS Ground to surrounding states are usually a 3-5 day delivery.

The Midwest is typically a 4-5 day delivery, The East Coast is a 7 days.

Hawaiian shipments are shipped by 3-Day air as a standard shipping method.

IF YOU HAVE ANY QUESTIONS, COMMENTS, OR TECHNICAL QUESTIONS PLEASE CONTACT US:

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Harrison & Bonini
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In California: 415-861-8300 or Toll Free: 866-442-2658

OUR HISTORY

When friends Sam Harrison and Eugene Bonini headed off to World War II, they had no idea that upon their return in 1946, they would create the most respected hardware company in San Francisco. Eugene and Sam founded their company on one principle: the only way to do business is to offer unparalleled customer service and supply the best parts at a competitive price.

Harrison & Bonini grew from providing surplus military goods into purchasing new and specialty fastening hardware for a growing base of clients. These clients included: the U.S. Navy, local ship repair facilities and commercial businesses, Aerojet General, and Campbell Soup.

Eugene's son, Paul Bonini, was raised to honor his father's traditional work ethic and at the early age of thirteen, began working for his father; doing everything from sweeping floors to inventory tracking. He worked alongside his father until Eugene passed away and left Paul to carry on the tradition of excellence.

In 1986, Paul became president of Harrison & Bonini. Not forgetting his childhood teachings, he and his staff of industry veterans still believe the best way to do business is to provide old-fashioned customer support and supply quality parts at competitive prices--just like the first day it opened over 70 years ago.

Since the mid 80's the City and it's industries have changed greatly. Almost all of the ship repair businesses have disappeared. All of the Military Business, which the company worked with for years, was decommissioned by the end of the 80's

So Harrison & Bonini revised its inventories and pursued the industries current with the market place. Commercial construction, steel fabrication, infrastructure projects, tenant improvement projects, and the occasional movie and television production companys.

Our client's jobs have allowed us to supply parts to the Golden Gate Bridge to the Nash Bridges TV series, Local transportation vehicles maintenance products and materials to fasteners to help erect some of the newer skyscrapers in town.

We are constantly looking for quality products to make our customers' jobs go easier and get done faster.





Many items in this Catalog are considered standard and semi-standard items. If you do not see something that meets your requirements, please feel free to contact us. Please note, we have done our best to make this Catalog as accurate as possible.

**FASTENER
TECHNICAL DATA
AND CHARTS SECTION**

IMPORTANT DISCLAIMER

All of the information provided in this section has been assembled with concern for accuracy.

It is intended for advisory purposes only and use of this information is completely voluntary.

We do not guarantee its completeness or validity and assume no responsibility for any loss, claims or damages resulting from use or application of this information.

All information is subject to change without prior notice.

BE SURE TO VERIFY!

We will gladly provide specific product information and/or certifications prior to your purchase.

Paul Bonini, President

**A307 HEX BOLTS
ZINC PLATED**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/4-20	1/2	100	HCZ 142012
	5/8	100	HCZ 142058
	3/4	100	HCZ 142034
	7/8	100	HCZ 142078
	1	100	HCZ 14201
	1 1/4	100	HCZ 1420114
	1 1/2	100	HCZ 1420112
	1 3/4	100	HCZ 1420134
	2	100	HCZ 14202
	2 1/4	100	HCZ 1420214
	2 1/2	100	HCZ 1420212
	2 3/4	100	HCZ 1420234
	3	100	HCZ 14203
	3 1/4	100	HCZ 1420314
	3 1/2	100	HCZ 1420312
	3 3/4	100	HCZ 1420334
4	100	HCZ 14204	
4 1/2	100	HCZ 1420412	
5	100	HCZ 14205	
5 1/2	100	HCZ 1420512	
6	100	HCZ 14206	
6 1/2	1	HBZ 1420612	
7	1	HBZ 14207	
7 1/2	1	HBZ 1420712	
8	1	HBZ 14208	
5/16-18	1/2	100	HCZ 5161812
	5/8	100	HCZ 5161858
	3/4	100	HCZ 5161834
	7/8	100	HCZ 5161878
	1	100	HCZ 516181
	1 1/4	100	HCZ 51618114
	1 1/2	100	HCZ 51618112
	1 3/4	100	HCZ 51618134
	2	100	HCZ 516182
	2 1/4	100	HCZ 51618214
	2 1/2	100	HCZ 51618212
	2 3/4	100	HCZ 51618234
	3	100	HCZ 516183
	3 1/4	50	HCZ 51618314
	3 1/2	50	HCZ 51618312
	3 3/4	50	HCZ 51618334
	4	50	HCZ 516184
	4 1/2	50	HCZ 51618412
	5	50	HCZ 516185
	5 1/2	50	HCZ 51618512
6	50	HCZ 516186	
6 1/2	1	HBZ 51618612	
7	1	HBZ 516187	
7 1/2	1	HBZ 51618712	
8	1	HBZ 516188	
3/8-16	1/2	100	HCZ 381612
	5/8	100	HCZ 381658
	3/4	100	HCZ 381634
	7/8	100	HCZ 381678
	1	100	HCZ 38161
	1 1/4	100	HCZ 3816114
	1 1/2	100	HCZ 3816112
	1 3/4	100	HCZ 3816134
	2	100	HCZ 38162
	2 1/4	50	HCZ 3816214
	2 1/2	50	HCZ 3816212
	2 3/4	50	HCZ 3816234
3	50	HCZ Z38163	
3 1/4	50	HCZ 3816314	

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
3/8-16	3 1/2	50	HCZ 3816312
	3 3/4	50	HCZ 3816334
	4	50	HCZ 38164
	4 1/2	50	HCZ 3816412
	5	50	HCZ 38165
	5 1/2	50	HCZ 3816512
	6	50	HCZ 38166
	6 1/2	1	HBZ 3816612
	7	1	HBZ 38167
	7 1/2	1	HBZ 3816712
	8	1	HBZ 38168
	8 1/2	1	HBZ 3816812
9	1	HBZ 38169	
10	1	HBZ 381610	
11	1	HBZ 381611	
12	1	HBZ 3816120	
1/2-13	3/4	50	HCZ 121334
	7/8	50	HCZ 121378
	1	50	HCZ 12131
	1 1/4	50	HCZ 1213114
	1 1/2	50	HCZ 1213112
	1 3/4	50	HCZ 1213134
	2	50	HCZ 12132
	2 1/4	50	HCZ 1213214
	2 1/2	50	HCZ 1213212
	2 3/4	50	HCZ 1213234
	3	50	HCZ 12133
	3 1/4	25	HCZ 1213314
	3 1/2	25	HCZ 1213312
	3 3/4	25	HCZ 1213334
4	25	HCZ 12134	
4 1/2	25	HCZ 1213412	
5	25	HCZ 12135	
5 1/2	25	HCZ 1213512	
6	25	HCZ 12136	
6 1/2	1	HBZ 1213612	
7	1	HBZ 12137	
7 1/2	1	HBZ 1213712	
8	1	HBZ 12138	
8 1/2	1	HBZ 1213812	
9	1	HBZ 12139	
9 1/2	1	HBZ 1213912	
10	1	HBZ 121310	
11	1	HBZ 121311	
12	1	HBZ 121312	
13	1	HBZ 121313	
14	1	HBZ 121314	
5/8-11	1	25	HCZ 58111
	1 1/4	25	HCZ 5811114
	1 1/2	25	HCZ 5811112
	1 3/4	25	HCZ 5811134
	2	25	HCZ 58112
	2 1/4	25	HCZ 5811214
	2 1/2	25	HCZ 5811212
	2 3/4	25	HCZ 5811234
	3	25	HCZ 58113
	3 1/4	25	HCZ 5811314
	3 1/2	25	HCZ 5811312
	3 3/4	25	HCZ 5811334
	4	25	HCZ 58114
	4 1/2	25	HCZ 5811412
	5	25	HCZ 58115
	5-1/2	25	HCZ 5811512
	6	25	HCZ 58116
	6 1/2	1	HBZ 5811612
7	1	HBZ 58117	
7 1/2	1	HBZ 5811712	
8	1	HBZ 58118	
8 1/2	1	HBZ 5811812	
9	1	HBZ 58119	
9 1/2	1	HBZ 5811912	

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
5/8-11	10	1	HBZ 581110
	11	1	HBZ 581111
	12	1	HBZ 581112
	13	1	HBZ 581113
	14	1	HBZ 581114
3/4-10	1	20	HCZ 34101
	1 1/4	20	HCZ 3410114
	1 1/2	20	HCZ 3410112
	1 3/4	20	HCZ 3410134
	2	20	HCZ 34102
	2 1/4	20	HCZ 3410214
	2 1/2	20	HCZ 3410212
	2 3/4	20	HCZ 3410234
	3	20	HCZ 34103
	3 1/4	20	HCZ 3410314
	3 1/2	20	HCZ 3410312
	3 3/4	20	HCZ 3410334
	4	20	HCZ 34104
	4 1/2	15	HCZ 3410412
	5	15	HCZ 34105
	5 1/2	15	HCZ 3410512
6	15	HCZ 34106	
6 1/2	1	HBZ 3410612	
7	1	HBZ 34107	
7 1/2	1	HBZ 3410712	
8	1	HBZ 34108	
8 1/2	1	HBZ 3410812	
9	1	HBZ 34109	
9 1/2	1	HBZ 3410912	
10	1	HBZ 341010	
11	1	HBZ 341011	
12	1	HBZ 341012	
13	1	HBZ 341013	
14	1	HBZ 341014	
15	1	HBZ 341015	
16	1	HBZ 341016	
7/8-9	1 1/2	15	HCZ 789112
	1 3/4	15	HCZ 789134
	2	15	HCZ 7892
	2 1/4	15	HCZ 789214
	2 1/2	15	HCZ 789212
	2 3/4	15	HCZ 789234
	3	15	HCZ 7893
	3 1/4	15	HCZ 789314
	3 1/2	15	HCZ 789312
	3 3/4	15	HCZ 789334
	4	15	HCZ 7894
	4 1/2	10	HCZ 789412
	5	10	HCZ 7895
	5 1/2	10	HCZ 789512
	6	10	HCZ 7896
	6 1/2	1	HBZ 789612
	7	1	HBZ 7897
	7 1/2	1	HBZ 789712
8	1	HBZ 7898	
8 1/2	1	HBZ 789812	
9	1	HBZ 7899	
9 1/2	1	HBZ 789912	
10	1	HBZ 78910	
11	1	HBZ 78911	
12	1	HBZ 78912	
13	1	HBZ 78913	
14	1	HBZ 78914	
1-8	1 1/2	10	HCZ 18112
	2	10	HCZ 182
	2 1/4	10	HCZ 18214
	2 1/2	10	HCZ 18212
	2 3/4	10	HCZ 18234

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**A307 TAP BOLTS
ZINC PLATED**

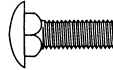


DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/4-20	1	100	TBZ 14201
	1 1/4	100	TBZ 1420114
	1 1/2	100	TBZ 1420112
	1 3/4	100	TBZ 1420134
	2	100	TBZ 14202
	2 1/4	100	TBZ 1420214
	2 1/2	100	TBZ 1420212
	3	100	TBZ 14203
	3 1/2	100	TBZ 1420312
	4	100	TBZ 14204
5/16-18	1 1/4	100	TBZ 51618114
	1 1/2	100	TBZ 51618112
	1 3/4	100	TBZ 51618134
	2	100	TBZ 516182
	2 1/4	100	TBZ 51618214
	2 1/2	100	TBZ 51618212
	2 3/4	100	TBZ 51618234
	3	100	TBZ 516183
	3 1/2	50	TBZ 51618312
	4	50	TBZ 516184
3/8-16	1 1/4	100	TBZ 3816114
	1 1/2	100	TBZ 3816112
	1 3/4	100	TBZ 3816134
	2	100	TBZ 38162
	2 1/4	50	TBZ 3816214
	2 1/2	50	TBZ 3816212
	2 3/4	50	TBZ 3816234
	3	50	TBZ 38163
	3 1/2	50	TBZ 3816312
	4	50	TBZ 38164
1/2-13	1 1/2	50	TBZ 1213112
	1 3/4	50	TBZ 1213134
	2	50	TBZ 12132
	2 1/4	50	TBZ 1213214
	2 1/2	50	TBZ 1213212
	3	50	TBZ 12133
	3 1/2	25	TBZ 1213312
	4	25	TBZ 12134
	4 1/2	25	TBZ 1213412
	5	25	TBZ 12135
5/8-11	2	25	TBZ 58112
	2 1/2	25	TBZ 5811212
	3	25	TBZ 58113
	3 1/2	25	TBZ 5811312
	4	25	TBZ 58114
	4 1/2	25	TBZ 5811412
	5	25	TBZ 58115
	5 1/2	25	TBZ 5811512
	6	25	TBZ 58116

DIAMETER	LENGTH	PKG.	PART NO. (ZINC YELLOW)
3/4-10	2	20	TBZ 34102
	2 1/4	20	TBZ 3410214
	2 1/2	20	TBZ 3410212
	3	20	TBZ 34103
	3 1/2	20	TBZ 3410312
	4	20	TBZ 34104
	4 1/2	15	TBZ 3410412
	5	15	TBZ 34105
6	15	TBZ 34106	

**GRADE 5 & GRADE 8
AVAILABLE UPON
REQUEST**

**A307 CARRIAGE BOLTS
ZINC PLATED AND
HOT DIP GALVANIZED**



DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)	
10-24	3/4	CBZ 102434	CBG 102434	
	1	CBZ 10241	CBG 10241	
	1 1/4	CBZ 1024114	CBG 1024114	
	1 1/2	CBZ 1024112	CBG 1024112	
	2	CBZ 10242	CBG 10242	
	2 1/2	CBZ 1024212	CBG 1024212	
	3	CBZ 10243	CBG 10243	
	3 1/2	CBZ 1024312	CBG 1024312	
	1/4-20	1/2	CBZ 142012	CBG 142012
		5/8	CBZ 142058	CBG 142058
3/4		CBZ 142034	CBG 142034	
1		CBZ 14201	CBG 14201	
1 1/4		CBZ 1420114	CBG 1420114	
1 1/2		CBZ 1420112	CBG 1420112	
1 3/4		CBZ 1420134	CBG 1420134	
2		CBZ 14202	CBG 14202	
2 1/4		CBZ 1420214	CBG 1420214	
2 1/2		CBZ 1420212	CBG 1420212	
5/16-18	1/2	CBZ 5161812	CBG 5161812	
	5/8	CBZ 5161858	CBG 5161858	
	3/4	CBZ 5161834	CBG 5161834	
	1	CBZ 516181	CBG 516181	
	1 1/4	CBZ 51618114	CBG 51618114	
	1 1/2	CBZ 51618112	CBG 51618112	
	1 3/4	CBZ 51618134	CBG 51618134	
	2	CBZ 516182	CBG 516182	
	2 1/4	CBZ 51618214	CBG 51618214	
	2 1/2	CBZ 51618212	CBG 51618212	

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DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)	
5/16-18	4	CBZ 516184	CBG 516184	
	4 1/2	CBZ 51618412	CBG 51618412	
	5	CBZ 516185	CBG 516185	
	5 1/2	CBZ 51618512	CBG 51618512	
	6	CBZ 516186	CBG 516186	
	6 1/2	CBZ 51618612	CBG 51618612	
	7	CBZ 516187	CBG 516187	
	7 1/2	CBZ 51618712	CBG 51618712	
8	CBZ 516188	CBG 516188		
3/8-16	3/4	CBZ 381634	CBG 381634	
	1	CBZ 38161	CBG 38161	
	1 1/4	CBZ 3816114	CBG 3816114	
	1 1/2	CBZ 3816112	CBG 3816112	
	1 3/4	CBZ 3816134	CBG 3816134	
	2	CBZ 38162	CBG 38162	
	2 1/4	CBZ 3816214	CBG 3816214	
	2 1/2	CBZ 3816212	CBG 3816212	
	2 3/4	CBZ 3816234	CBG 3816234	
	3	CBZ 38163	CBG 38163	
	3 1/4	CBZ 3816314	CBG 3816314	
	3 1/2	CBZ 3816312	CBG 3816312	
7/16-14	3 3/4	CBZ 3816334	CBG 3816334	
	4	CBZ 38164	CBG 38164	
	4 1/2	CBZ 3816412	CBG 3816412	
	5	CBZ 38165	CBG 38165	
	5 1/2	CBZ 3816512	CBG 3816512	
	6	CBZ 38166	CBG 38166	
	6 1/2	CBZ 3816612	CBG 3816612	
	7	CBZ 38167	CBG 38167	
	7 1/2	CBZ 3816712	CBG 3816712	
	8	CBZ 38168	CBG 38168	
	8 1/2	CBZ 3816812	CBG 3816812	
	9	CBZ 38169	CBG 38169	
1/2-13	10	CBZ 381610	CBG 381610	
	10 1/2	CBZ 38161012	CBG 38161012	
	11	CBZ 381611	CBG 381611	
	12	CBZ 381612	CBG 381612	
	5/8-11	1	CBZ 716141	CBG 716141
		1 1/4	CBZ 71614114	CBG 71614114
		1 1/2	CBZ 71614112	CBG 71614112
		2	CBZ 716142	CBG 716142
		2 1/2	CBZ 71614212	CBG 71614212
		3	CBZ 716143	CBG 716143
		3 1/2	CBZ 71614312	CBG 71614312
		4	CBZ 716144	CBG 716144
4 1/2		CBZ 71614412	CBG 71614412	
5		CBZ 716145	CBG 716145	
5 1/2	CBZ 71614512	CBG 71614512		
6	CBZ 716146	CBG 716146		
1/2-13	1	CBZ 12131	CBG 12131	
	1 1/4	CBZ 1213114	CBG 1213114	
	1 1/2	CBZ 1213112	CBG 1213112	
	1 3/4	CBZ 1213134	CBG 1213134	
	2	CBZ 12132	CBG 12132	
	2 1/4	CBZ 1213214	CBG 1213214	
	2 1/2	CBZ 1213212	CBG 1213212	
	2 3/4	CBZ 1213234	CBG 1213234	
	3	CBZ 12133	CBG 12133	
	3 1/2	CBZ 1213312	CBG 1213312	
5/8-11	4	CBZ 12134	CBG 12134	
	4 1/2	CBZ 1213412	CBG 1213412	
	5	CBZ 12135	CBG 12135	
	5 1/2	CBZ 1213512	CBG 1213512	
	6	CBZ 12136	CBG 12136	
	6 1/2	CBZ 1213612	CBG 1213612	
	7	CBZ 12137	CBG 12137	
	7 1/2	CBZ 1213712	CBG 1213712	
	8	CBZ 12138	CBG 12138	
	8 1/2	CBZ 1213812	CBG 1213812	
5/8-11	9	CBZ 12139	CBG 12139	
	9 1/2	CBZ 1213912	CBG 1213912	

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**A307 CARRIAGE BOLTS
ZINC PLATED AND
HOT DIP GALVANIZED (Cont.)**

DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
1/2-13	10	CBZ 121310	CBG 121310
	11	CBZ 121311	CBG 121311
	12	CBZ 121312	CBG 121312
DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
5/8-11	1 1/2	CBZ 5811112	CBG 5811112
	1 3/4	CBZ 5811134	CBG 5811134
	2	CBZ 58112	CBG 58112
	2 1/4	CBZ 5811214	CBG 5811214
	2 1/2	CBZ 5811212	CBG 5811212
	2 3/4	CBZ 5811234	CBG 5811234
	3	CBZ 58113	CBG 58113
	3 1/2	CBZ 5811312	CBG 5811312
	4	CBZ 58114	CBG 58114
	4 1/2	CBZ 5811412	CBG 5811412
	5	CBZ 58115	CBG 58115
	5 1/2	CBZ 5811512	CBG 5811512
3/4-10	1 1/2	CBZ 3410112	CBG 3410112
	2	CBZ 34102	CBG 34102
	2 1/2	CBZ 3410212	CBG 3410212
	3	CBZ 34103	CBG 34103
	3 1/2	CBZ 3410312	CBG 3410312
	4	CBZ 34104	CBG 34104
	4 1/2	CBZ 3410412	CBG 3410412
	5	CBZ 34105	CBG 34105
	5 1/2	CBZ 3410512	CBG 3410512
	6	CBZ 34106	CBG 34106
	6 1/2	CBZ 3410612	CBG 3410612
	7	CBZ 34107	CBG 34107
8	CBZ 34108	CBG 34108	
9	CBZ 34109	CBG 34109	
10	CBZ 341010	CBG 341010	
12	CBZ 341012	CBG 341012	

**PLEASE CALL
WITH QUESTIONS
415-861-8300**

**HEX HEAD LAG SCREWS
ZINC PLATED AND
HOT DIP GALVANIZED**

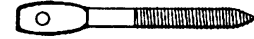


DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
1/4	1	LBZ 141	LBG 141
	1 1/4	LBZ 14114	LBG 14114
	1 1/2	LBZ 14112	LBG 14112
	1 3/4	LBZ 14134	LBG 14134
	2	LBZ 142	LBG 142
	2 1/2	LBZ 14212	LBG 14212
	3	LBZ 143	LBG 143
	3 1/2	LBZ 14312	LBG 14312
	4	LBZ 144	LBG 144
	4 1/2	LBZ 14412	LBG 14412
	5	LBZ 145	LBG 145
	5 1/2	LBZ 14512	LBG 14512
6	LBZ 146	LBG 146	

CONTINUED NEXT COLUMN

DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
5/16	3/4	LBZ 51634	LBG 51634
	1	LBZ 5161	LBG 5161
	1 1/4	LBZ 516114	LBG 516114
	1 1/2	LBZ 516112	LBG 516112
	1 3/4	LBZ 516134	LBG 516134
	2	LBZ 5162	LBG 5162
	2 1/2	LBZ 516212	LBG 516212
	3	LBZ 5163	LBG 5163
	3 1/2	LBZ 516312	LBG 516312
	4	LBZ 5164	LBG 5164
	4 1/2	LBZ 516412	LBG 516412
	5	LBZ 5165	LBG 5165
5 1/2	LBZ 516512	LBG 516512	
6	LBZ 5166	LBG 5166	
DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
3/8	1	LBZ 381	LBG 381
	1 1/4	LBZ 38114	LBG 38114
	1 1/2	LBZ 38112	LBG 38112
	1 3/4	LBZ 38134	LBG 38134
	2	LBZ 382	LBG 382
	2 1/2	LBZ 38212	LBG 38212
	3	LBZ 383	LBG 383
	3 1/2	LBZ 38312	LBG 38312
	4	LBZ 384	LBG 384
	4 1/2	LBZ 38412	LBG 38412
	5	LBZ 385	LBG 385
	5 1/2	LBZ 38512	LBG 38512
6	LBZ 386	LBG 386	
6 1/2	LBZ 38612	LBG 38612	
7	LBZ 387	LBG 387	
8	LBZ 388	LBG 388	
DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
1/2	1 1/2	LBZ 12112	LBG 12112
	2	LBZ 122	LBG 122
	2 1/2	LBZ 12212	LBG 12212
	3	LBZ 123	LBG 123
	3 1/2	LBZ 12312	LBG 12312
	4	LBZ 124	LBG 124
	4 1/2	LBZ 12412	LBG 12412
	5	LBZ 125	LBG 125
	5 1/2	LBZ 12512	LBG 12512
	6	LBZ 126	LBG 126
	6 1/2	LBZ 12612	LBG 12612
	7	LBZ 127	LBG 127
8	LBZ 128	LBG 128	
9	LBZ 129	LBG 129	
10	LBZ 1210	LBG 1210	
11	LBZ 1211	LBG 1211	
12	LBZ 1212	LBG 1212	
DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
5/8	2	LBZ 582	LBG 582
	2 1/2	LBZ 58212	LBG 58212
	3	LBZ 583	LBG 583
	3 1/2	LBZ 58312	LBG 58312
	4	LBZ 584	LBG 584
	4 1/2	LBZ 58412	LBG 58412
	5	LBZ 585	LBG 585
	5 1/2	LBZ 58512	LBG 58512
	6	LBZ 586	LBG 586
	7	LBZ 587	LBG 587
	8	LBZ 588	LBG 588
	9	LBZ 589	LBG 589
10	LBZ 5810	LBG 5810	
12	LBZ 5812	LBG 5812	
DIAMETER	LGTH	PART NO. (ZINC)	PART NO. (H.D. GALV.)
3/4	2	LBZ 342	LBG 342
	2 1/2	LBZ 34212	LBG 34212
	3	LBZ 343	LBG 343
	3 1/2	LBZ 34312	LBG 34312
	4	LBZ 344	LBG 344
	5	LBZ 345	LBG 345
	6	LBZ 346	LBG 346
	8	LBZ 348	LBG 348
	10	LBZ 3410	LBG 3410
	12	LBZ 3412	LBG 3412

ACOUSTICAL LAG SCREWS



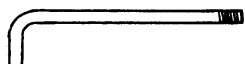
DIAMETER	LENGTH	PKG.	PART NO. (PLAIN)
1/4	3	100	AL 143
	3 1/2	100	AL 14312
	4	100	AL 144
	5	100	AL 145

ELEVATOR BOLTS



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)	
1/4-20	3/4	100	EB 142034	
	1	100	EB 14201	
	1 1/4	100	EB 1420114	
	1 1/2	100	EB 1420112	
	1 3/4	100	EB 1420134	
	2	100	EB 14202	
5/16-18	2 1/2	100	EB 1420212	
	3	100	EB 14203	
	DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
	3/8-16	3/4	50	EB 5161834
		1	50	EB 516181
		1 1/4	50	EB 51618114
1 1/2		50	EB 51618112	
1 3/4		50	EB 51618134	
2		50	EB 516182	
3/8-16	2 1/2	50	EB 51618212	
	3	50	EB 516183	
	1	50	EB 38161	
	1 1/4	50	EB 3816114	
	1 1/2	50	EB 3816112	
	1 3/4	50	EB 3816134	
2	50	EB 38162		
2 1/4	50	EB 3816214		
2 1/2	50	EB 3816212		
3	50	EB 38163		

BENT BOLTS

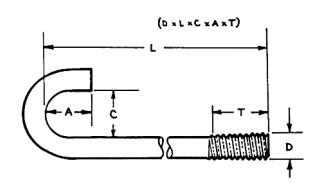


DIAMETER	LGTH	PART NO. (PLAIN)	PART NO. (GALV.)
1/2-13	6	AB 126	ABG 126
	8	AB 128	ABG 128
	10	AB 1210	ABG 1210
	12	AB 1212	ABG 1212
	18	AB 1218	ABG 1218
5/8-11	12	AB 5812	ABG 5812
	16	AB 5816	ABG 5816
	18	AB 5818	ABG 5818
3/4-10	12	AB 3412	ABG 3412
	16	AB 3416	ABG 3416
	18	AB 3418	ABG 3418
	24	AB 3424	ABG 3424
	30	AB 3436	ABG 3436
7/8-9	6	AB 786	ABG 786
	8	AB 788	ABG 788
	10	AB 7810	ABG 7810
	12	AB 7812	ABG 7812
	18	AB 7818	ABG 7818
1-8	8	AB 18	ABG 18
	10	AB 110	ABG 110
	12	AB 112	ABG 112
	18	AB 118	ABG 118
	36	AB 136	ABG 136

BENT BOLTS

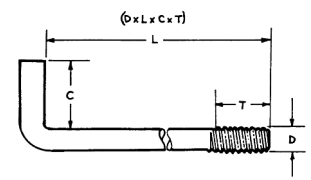
ROUND BEND ANCHOR BOLT

D= _____
L= _____
C= _____
A= _____
T= _____



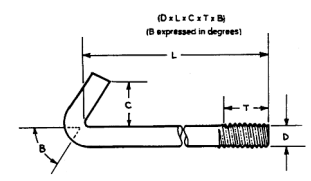
ANGLE BEND ANCHOR BOLT

D= _____
L= _____
C= _____
T= _____



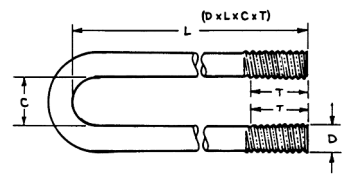
J-BOLT

D= _____
L= _____
C= _____
B= _____
T= _____



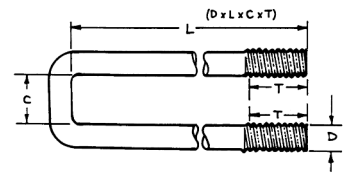
ROUND BEND U-BOLT

D= _____
L= _____
C= _____
T= _____

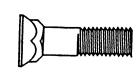


SQUARE BEND U-BOLT

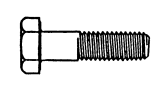
D= _____
L= _____
C= _____
T= _____



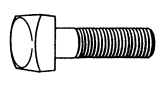
OTHER BOLTS AND CAP SCREWS AVAILABLE



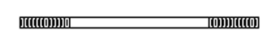
PLOW BOLTS



A307 GRADE B HEAVY HEAD HEX BOLTS



GRADE 2, 5, 8 SQUARE HEAD BOLTS



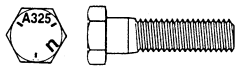
SHORT STRAIGHT ROD (THREADS ON EACH END ONLY)



SHORT STRAIGHT ROD (WITH FULL THREADS)

“PARTS MADE TO ORDER”

A325 STRUCTURAL PLAIN BOLTS
(HOT DIP GALVANIZED ALSO AVAILABLE)



DIAMETER	LENGTH	PART NO. (PLAIN)
1/2-13	1 1/4	A325 1213114
	1 1/2	A325 1213112
	1 3/4	A325 1213134
	2	A325 12132
	2 1/4	A325 1213214
2 1/2	A325 1213212	

DIAMETER	LENGTH	PART NO. (PLAIN)
5/8-11	1 1/2	A325 5811112
	1 3/4	A325 5811134
	2	A325 58112
	2 1/4	A325 5811214
	2 1/2	A325 5811212
	2 3/4	A325 5811234
	3	A325 58113
	3 1/2	A325 5811312
4	A325 58114	

DIAMETER	LENGTH	PART NO. (PLAIN)
3/4-10	1 1/2	A325 3410112
	1 3/4	A325 3410134
	2	A325 34102
	2 1/4	A325 3410214
	2 1/2	A325 3410212
	2 3/4	A325 3410234
	3	A325 34103
	3 1/4	A325 3410314
	3 1/2	A325 3410312
	3 3/4	A325 3410334
	4	A325 34104
	4 1/4	A325 3410414
	4 1/2	A325 3410412
	4 3/4	A325 3410434
	5	A325 34105
	5 1/2	A325 3410512
	6	A325 34106
	7	A325 34107
8	A325 34108	

DIAMETER	LENGTH	PART NO. (PLAIN)
7/8-9	1 3/4	A325 789134
	2	A325 7892
	2 1/4	A325 789214
	2 1/2	A325 789212
	2 3/4	A325 789234
	3	A325 7893
	3 1/4	A325 789314
	3 1/2	A325 789312
	4	A325 7894
	4 1/4	A325 789414
	4 1/2	A325 789412
	4 3/4	A325 789434
5	A325 7895	
5 1/2	A325 789512	
6	A325 7896	
6 1/2	A325 789612	

DIAMETER	LENGTH	PART NO. (PLAIN)
1-8	2	A325 182
	2 1/4	A325 18214
	2 1/2	A325 18212
	2 3/4	A325 18234
	3	A325 183
	3 1/4	A325 18314
	3 1/2	A325 18312
	3 3/4	A325 18334

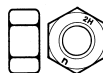
CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PART NO. (PLAIN)
1-8	4	A325 184
	4 1/4	A325 18414
	4 1/2	A325 18412
	4 3/4	A325 18434
	5	A325 185
	5 1/2	A325 18512
6	A325 186	

DIAMETER	LENGTH	PART NO. (PLAIN)	
1 1/8-7	2 1/4	A325 1187214	
	2 1/2	A325 1187212	
	2 3/4	A325 1187234	
	3	A325 11873	
	3 1/4	A325 1187314	
	3 1/2	A325 1187312	
	3 3/4	A325 1187334	
	4	A325 11874	
	4 1/4	A325 1187414	
	4 1/2	A325 1187412	
	4 3/4	A325 1187434	
	5	A325 11875	
	5 1/2	A325 1187512	
	6	A325 11876	

A490 AVAILABLE AND A490 TENSION CONTROL BOLTS AVAILABLE

A194 GRADE 2H HEAVY HEX NUT PLAIN AND HOT DIP GALVANIZED



DIAMETER	LGTH	PART NO. (PLAIN)	PART NO. (H.D. GALV.)
1/2-13	100	2HHHN 1213	2HHHNG 1213
5/8-11	50	2HHHN 5811	2HHHNG 5811
3/4-10	25	2HHHN 3410	2HHHNG 3410
7/8-9	25	2HHHN 789	2HHHNG 789
1-8	10	2HHHN 18	2HHHNG 18
1 1/8-7	10	2HHHN 1187	2HHHNG 1187
1 1/4-7	10	2HHHN 1147	2HHHNG 1147

DH ALSO AVAILABLE

F436 HARDENED SAE FLAT WASHERS



DIA.	O.D.	PART NO. (PLAIN)	PART NO. (ZINC)	PART NO. (H.D. GALV.)
1/2	1 3/8	F436SP 12	F436SZ 12	F436SG 12
9/16	1 1/2	F436SP 916	F436SZ 916	F436SG 916
5/8	1 3/4	F436SP 58	F436SZ 58	F436SG 58
3/4	2	F436SP 34	F436SZ 34	F436SG 34
7/8	2 1/4	F436SP 78	F436SZ 78	F436SG 78
1	2 1/2	F436SP 1	F436SZ 1	F436SG 1
1 1/8	2 3/4	F436SP 118	F436SZ 118	F436SG 118
1 1/4	3	F436SP 114	F436SZ 114	F436SG 114
1 3/8	3 1/4	F436SP 138	F436SZ 138	F436SG 138
1 1/2	3 1/2	F436SP 112	F436SZ 112	F436SG 112

OTHER STRUCTURAL FASTENERS AVAILABLE



A325 TYPE III BOLTS - WEATHERING STEEL



A490 STRUCTURAL BOLTS



GRADE DH HEAVY HEX NUTS



GRADE C3 HEAVY HEX NUTS - WEATHERING STEEL



METRIC STRUCTURAL FASTENERS



A325T DOMESTIC STRUCTURAL BOLTS (FULL THREAD)

FINISHED HEX NUTS COARSE THREAD ZINC PLATED



DIAMETER	PART NO. (PLAIN)	PART NO. (ZINC)	PART NO. (H.D. GALV.)
2-56	—	HNZ 256	—
3-48	—	HNZ 348	—
4-40	—	HNZ 440	—
5-40	—	HNZ 540	—
6-32	—	HNZ 632	—
8-32	—	HNZ 832	—
10-24	—	HNZ 1024	—
12-24	—	HNZ 1224	—
1/4-20	HNP 1420	HNZ 1420	HNG 1420
5/16-18	HNP 51618	HNZ 51618	HNG 51618
3/8-16	HNP 3816	HNZ 3816	HNG 3816
7/16-14	HNP 71614	HNZ 71614	HNG 71614
1/2-13	HNP 1213	HNZ 1213	HNG 1213
9/16-12	HNP 91612	HNZ 91612	HNG 91612
5/8-11	HNP 5811	HNZ 5811	HNG 5811
3/4-10	HNP 3410	HNZ 3410	HNG 3410
7/8-9	HNP 789	HNZ 789	HNG 789
1-8	HNP 18	HNZ 18	HNG 18
1 1/8-7	HNP 1187	HNZ 1187	HNG 1187
1 1/4-7	HNP 1147	HNZ 1147	HNG 1147
1 3/8-6	HNP 1386	HNZ 1386	HNG 1386
1 1/2-6	HNP 1126	HNZ 1126	HNG 1126
1 3/4-5	HNP 1345	HNZ 1345	HNG 1345
2-4 1/2	HNP 2412	HNZ 2412	HNG 2412
2 1/4-4 1/2	HNP 214412	HNZ 214412	HNG 214412
2 1/2-4	—	HNZ 2124	HNG 2124

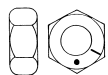
**FINISHED HEX NUTS FINE THREAD
ZINC PLATED**



DIAMETER	PART NO. (PLAIN)	PART NO. (ZINC)
6-40	—	HNZ 640
8-36	—	HNZ 836
10-32	—	HNZ 1032
1/4-28	HNP 1428	HNZ 1428
5/16-24	HNP 51624	HNZ 51624
3/8-24	HNP 3824	HNZ 3824
7/16-20	HNP 71620	HNZ 71620
1/2-20	HNP 1220	HNZ 1220
9/16-18	HNP 91618	HNZ 91618
5/8-18	HNP 5818	HNZ 5818
3/4-16	HNP 3416	HNZ 3416
7/8-14	HNP 7814	HNZ 7814
1 - 14	HNP 114	HNZ 114
1 1/8-12	HNP 11812	HNZ 11812
1 1/4-12	HNP 11412	HNZ 11412
1 3/8-12	HNP 13812	HNZ 13812
1 1/2-12	HNP 11212	HNZ 11212

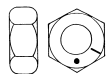
**“ACME” NUTS
AND
“OTHER NUTS AVAILABLE”**

**GRADE 5 HEX NUTS
ZINC PLATED
COARSE THREAD**



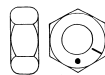
DIAMETER	PKG.	PART NO. (ZINC)
1/4-20	100	HNZ5 1420
5/16-18	100	HNZ5 51618
3/8-16	100	HNZ5 3816
7/16-14	100	HNZ5 71614
1/2-13	100	HNZ5 1213
5/8-11	50	HNZ5 5811
3/4-10	25	HNZ5 3410
7/8-9	10	HNZ5 789
1-8	10	HNZ5 18

**GRADE 5 HEX NUTS
ZINC PLATED
FINE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
1/4-28	100	HNZ5 1428
5/16-24	100	HNZ5 51624
3/8-24	100	HNZ5 3824
7/16-20	100	HNZ5 71620
1/2-20	100	HNZ5 1220
5/8-18	50	HNZ5 5818
3/4-16	25	HNZ5 3416
7/8-14	10	HNZ5 7814
1-14	10	HNZ5 114

**GRADE 8 HEX NUTS
ZINC YELLOW PLATED
COARSE THREAD**



DIAMETER	PKG.	PART NO. (ZINC YELLOW)
1/4-20	100	HNZ8 1420
5/16-18	100	HNZ8 51618
3/8-16	100	HNZ8 3816
7/16-14	100	HNZ8 71614
1/2-13	100	HNZ8 1213
9/16-12	50	HNZ8 91612
5/8-11	50	HNZ8 5811
3/4-10	25	HNZ8 3410
7/8-9	25	HNZ8 789
1-8	10	HNZ8 18
1 1/8-7	10	HNZ8 1187
1 1/4-7	10	HNZ8 1147
1 3/8-6	10	HNZ8 1386
1 1/2-6	10	HNZ8 1126
1 3/4-5	1	HNZ8 1345
2-4	1	HNZ8 24
2 1/4-4	1	HNZ8 2144
2 1/2-4	1	HNZ8 2124
2 3/4-4	1	HNZ8 2344
3-4	1	HNZ8 34

**GRADE 8 HEX NUTS
ZINC YELLOW PLATED
FINE THREAD**



DIAMETER	PKG.	PART NO. (ZINC YELLOW)
1/4-28	100	HNZ8 1428
5/16-24	100	HNZ8 51624
3/8-24	100	HNZ8 3824
7/16-20	100	HNZ8 71620
1/2-20	100	HNZ8 1220
9/16-18	50	HNZ8 91618
5/8-18	50	HNZ8 5818
3/4-16	25	HNZ8 3416
7/8-14	25	HNZ8 7814
1-14	10	HNZ8 114
1 1/8-12	10	HNZ8 11812
1 1/4-12	10	HNZ8 11412
1 3/8-12	10	HNZ8 13812
1 1/2-12	10	HNZ8 11212
1 3/4-12	1	HNZ8 13412
2-12	1	HNZ8 212
2 1/4-12	1	HNZ8 21412
2 1/2-12	1	HNZ8 21212
2 3/4-12	1	HNZ8 23412
3-12	1	HNZ8 312

**HEAVY HEX NUTS
COARSE THREAD**



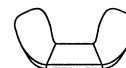
DIAMETER	PKG.	PART NO. (ZINC)
1/4-20	100	HHNZ 1420
5/16-18	100	HHNZ 51618
3/8-16	100	HHNZ 3816
7/16-14	100	HHNZ 71614
1/2-13	100	HHNZ 1213
9/16-12	50	HHNZ 91612
5/8-11	50	HHNZ 5811
3/4-10	25	HHNZ 3410
7/8-9	25	HHNZ 789
1-8	10	HHNZ 18
1 1/8-7	10	HHNZ 1187
1 1/4-7	10	HHNZ 1147

TEE NUTS COARSE THREAD



DIAMETER	BARREL	PKG.	PART NO. (ZINC)
4-40	1/4	100	TNZ 44014
6-32	1/4	100	TNZ 63214
8-32	1/4	100	TNZ 83214
10-24	5/16	100	TNZ 1024516
1/4-20	5/16	100	TNZ 1420516
1/4-20	7/16	100	TNZ 1420716
1/4-20	9/16	100	TNZ 1420916
1/2-13	3/8	100	TNZ 121338
5/16-18	3/8	100	TNZ 5161838
3/8-16	7/16	100	TNZ 3816716

**WING NUTS (COLD FORGED)
ZINC PLATED**



DIAMETER	PKG.	PART NO. (ZINC)
4-40	100	WNZ 440
6-32	100	WNZ 632
8-32	100	WNZ 832
10-32	100	WNZ 1032
10-24	100	WNZ 1024
1/4-20	100	WNZ 1420
5/16-18	100	WNZ 51618
3/8-16	100	WNZ 3816
7/16-14	100	WNZ 71614
1/2-13	100	WNZ 1213

**ACORN CAP NUTS
COARSE THREAD**



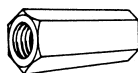
DIAMETER	PKG.	PART NO. (NICKEL)
6-32	100	CNP 632
8-32	100	CNP 832
10-32	100	CNP 1032
10-24	100	CNP 1024
1/4-20	100	CNP 1420
5/16-18	100	CNP 51618
3/8-16	100	CNP 3816
1/2-13	100	CNP 1213
5/8-11	50	CNP 5811

**HEX SERRATED FLANGE NUTS
CASE HARDENED ZINC PLATED**



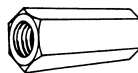
DIAMETER	PKG.	PART NO. (ZINC)
6-32	100	FNZ 632
8-32	100	FNZ 832
10-32	100	FNZ 1032
10-24	100	FNZ 1024
1/4-20	100	FNZ 1420
1/4-28	100	FNZ 1428
5/16-18	100	FNZ 51618
5/16-24	100	FNZ 51624
3/8-16	100	FNZ 3816
3/8-24	100	FNZ 3824
7/16-14	100	FNZ 71614
7/16-20	100	FNZ 71620
1/2-13	100	FNZ 1213
1/2-20	100	FNZ 1220
5/8-11	50	FNZ 5811
5/8-18	50	FNZ 5818
3/4-10	25	FNZ 3410
3/4-16	25	FNZ 3416

**HEX COUPLING NUTS
COARSE THREAD**



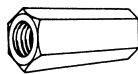
DIAMETER	LENGTH	A/F	PART NO. (ZINC)
10-24	3/4	5/16	HCNZ 1024
1/4-20	1 3/4	7/16	HCNZ 1420
5/16-18	1 3/4	1/2	HCNZ 51618
3/8-16	1 3/4	9/16	HCNZ 3816
7/16-14	1 3/4	5/8	HCNZ 71614
1/2-13	1 3/4	11/16	HCNZ 1213
5/8-11	2 1/8	13/16	HCNZ 5811
3/4-10	2 1/4	1	HCNZ 3410
7/8-9	2 1/2	1 1/4	HCNZ 789
1-8	2 3/4	1 3/8	HCNZ 18
1 1/8-7	3	1 1/2	HCNZ 1187
1 1/4-7	3	1 5/8	HCNZ 1147
1 3/8-6	3 3/8	1 7/8	HCNZ 1386
1 1/2-6	3 1/2	2	HCNZ 1126

**ECONOMY HEX COUPLING NUTS
COARSE THREAD**



DIAMETER	LENGTH	A/F	PART NO. (ZINC)
1/4-20	7/8	3/8	HCNZE 1420
5/16-18	7/8	7/16	HCNZE 51618
3/8-16	1 1/8	1/2	HCNZE 3816
1/2-13	1 1/4	5/8	HCNZE 1213

**HEX REDUCER COUPLING NUTS
COARSE THREAD**



SIZES	PART NO.
3/8-16 to 1/4-40	HCNZR 3814
1/2-13 to 3/8-16	HCNZR 1238
5/8-11 to 1/2-13	HCNZR 5812
3/4-10 to 5/8-11	HCNZR 3458
1-8 to 7/8-9	HCNZR 178
1 1/8-7 to 1-8	HCNZR 1181

**GRADE C METAL LOCKNUTS
COARSE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
1/4-20	100	GCLNZ 1420
5/16-18	100	GCLNZ 51618
3/8-16	100	GCLNZ 3816
7/16-14	100	GCLNZ 71614
1/2-13	100	GCLNZ 1213
9/16-12	50	GCLNZ 91612
5/8-11	50	GCLNZ 5811
3/4-10	25	GCLNZ 3410
7/8-9	25	GCLNZ 789
1-8	10	GCLNZ 18
1 1/8-7	10	GCLNZ 1187
1 1/4-7	10	GCLNZ 1147
1 1/2-6	10	GCLNZ 1126
2-4 1/2	1	GCLNZ 2412

**GRADE C METAL LOCKNUTS
FINE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
1/4-28	100	GCLNZ 1428
5/16-24	100	GCLNZ 51624
3/8-24	100	GCLNZ 3824
7/16-20	100	GCLNZ 71620
1/2-20	100	GCLNZ 1220
9/16-18	50	GCLNZ 91618
5/8-18	50	GCLNZ 5818
3/4-16	25	GCLNZ 3416
7/8-14	25	GCLNZ 7814
1-14	10	GCLNZ 114
1 1/8-12	10	GCLNZ 11812
1 1/4-12	10	GCLNZ 11412
1 3/8-12	10	GCLNZ 13812
1 1/2-12	10	GCLNZ 11212

**NYLON INSERT LOCKNUTS
COARSE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
2-56	100	NLNZ 256
4-40	100	NLNZ 440
5-40	100	NLNZ 540
6-32	100	NLNZ 632
8-32	100	NLNZ 832
10-24	100	NLNZ 1024
12-24	100	NLNZ 1224
1/4-20	100	NLNZ 1420
5/16-18	100	NLNZ 51618
3/8-16	100	NLNZ 3816
7/16-14	100	NLNZ 71614
1/2-13	100	NLNZ 1213
9/16-12	50	NLNZ 91612
5/8-11	50	NLNZ 5811
3/4-10	25	NLNZ 3410
7/8-9	25	NLNZ 789
1-8	25	NLNZ 18
1 1/8-7	10	NLNZ 1187
1 1/4-7	10	NLNZ 1147
1 3/8-6	10	NLNZ 1386
1 1/2-6	10	NLNZ 1126

**NYLON INSERT LOCKNUTS
FINE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
10-32	100	NLNZ 1032
1/4-28	100	NLNZ 1428
5/16-24	100	NLNZ 51624
3/8-24	100	NLNZ 3824
7/16-20	100	NLNZ 71620
1/2-20	100	NLNZ 1220
9/16-18	50	NLNZ 91618
5/8-18	50	NLNZ 5818
3/4-16	25	NLNZ 3416
7/8-14	25	NLNZ 7814
1-14	10	NLNZ 114
1 1/8-12	10	NLNZ 11812
1 1/4-12	10	NLNZ 11412
1 3/8-12	10	NLNZ 13812
1 1/2-12	10	NLNZ 11212

**THIN AND HEAVY PATTERN
AVAILABLE IN MOST SIZES**

**FINISHED HEX JAM NUTS
COARSE THREAD**



DIAMETER	PKG.	PART NO. (ZINC)
1/4-20	100	HJNZ 1420
5/16-18	100	HJNZ 51618
3/8-16	100	HJNZ 3816
7/16-14	100	HJNZ 71614
1/2-13	100	HJNZ 1213
9/16-12	50	HJNZ 91612
5/8-11	50	HJNZ 5811
3/4-10	25	HJNZ 3410
7/8-9	25	HJNZ 789
1-8	10	HJNZ 18
1 1/8-7	10	HJNZ 1187
1 1/4-7	10	HJNZ 1147
1 3/8-6	10	HJNZ 1386
1 1/2-6	10	HJNZ 1126
1 3/4-5	1	HJNZ 1345
2-4 1/2	1	HJNZ 2412

**FINISHED HEX JAM NUTS
FINE THREAD**




DIAMETER	PKG.	PART NO. (ZINC)
1/4-28	100	HJNZ 1428
5/16-24	50	HJNZ 51624
3/8-24	50	HJNZ 3824
7/16-20	25	HJNZ 71620
1/2-20	25	HJNZ 1220
9/16-18	25	HJNZ 91618
5/8-18	25	HJNZ 5818
3/4-16	20	HJNZ 3416
7/8-14	10	HJNZ 7814
1-14	10	HJNZ 114
1 1/8-12	1	HJNZ 11812
1 1/4-12	1	HJNZ 11412
1 1/2-12	1	HJNZ 11212

HEX K-LOCK (KEP) NUTS Z/P




DIAMETER	PKG.	PART NO. (ZINC)
4-40	100	KNZ 440
6-32	100	KNZ 632
8-32	100	KNZ 832
10-32	100	KNZ 1032
1/4-20	100	KNZ 1420
5/16-18	100	KNZ 51618
3/8-16	100	KNZ 3816


OTHER NUTS AVAILABLE




SUPER 9 HEX LOCKNUTS




CAGE NUTS




CENTER LOCKNUTS - 2 WAY REVERSIBLE




SMALL PATTERN MACHINE SCREW NUTS




PUSH NUTS



SLIP ON LOCKNUTS



SPEED NUTS



WELD NUTS

Other Nuts (Not Pictured) Available
Square Nuts, Left Hand Nuts, Castle Nuts, Slotted Hex Nuts, High Hex Nuts, Coil Thread Nuts

SAE FLAT WASHERS



DIAMETER	O.D.	PKG.	PCS/LB.	PART NO. (ZINC)
#2	1/4	100	6,250	SAEFWZ #2
#4	5/16	100	2,778	SAEFWZ #4
#5	9/32	100	3,030	SAEFWZ #5
#6	3/8	100	790	SAEFWZ #6
#8	7/16	100	585	SAEFWZ #8
#10	1/2	100	435	SAEFWZ #10
#12	9/16	100	362	SAEFWZ #12
1/4	5/8	100	222	SAEFWZ 14
5/16	11/16	100	192	SAEFWZ 516
3/8	13/16	100	140	SAEFWZ 38
7/16	59/64	100	105	SAEFWZ 716
1/2	1 1/16	100	55	SAEFWZ 12
9/16	1 3/16	50	43	SAEFWZ 916
5/8	1 5/16	50	36	SAEFWZ 58
3/4	1 1/2	25	21	SAEFWZ 34
7/8	1 3/4	25	16	SAEFWZ 78
1	2	10	12	SAEFWZ 1

USS FLAT WASHERS



DIAMETER	O.D.	PKG.	PCS/LB.	PART NO. (ZINC)
3/16	9/16	100	362	FWZ 10
1/4	3/4	100	149	FWZ 14
5/16	7/8	100	90	FWZ 516
3/8	1	100	67	FWZ 38
7/16	1 1/4	100	41	FWZ 716
1/2	1 3/8	100	26	FWZ 12
9/16	1 1/2	50	22	FWZ 916
5/8	1 3/4	50	13	FWZ 58
3/4	2	25	9	FWZ 34
7/8	2 1/4	25	6.5	FWZ 78
1	2 1/2	10	5.3	FWZ 1
1 1/8	2 3/4	10	4.5	FWZ 118
1 1/4	3	10	3.8	FWZ 114
1 3/8	3 1/4	10	3	FWZ 138
1 1/2	3 1/2	10	2.6	FWZ 112
1 5/8	3 3/4	1	2.3	FWZ 158
1 3/4	4	1	2	FWZ 134
1 7/8	4 1/4	1	1.8	FWZ 178
2	4 1/2	1	1.6	FWZ 2
2 1/4	4 3/4	1	1.2	FWZ 214
2 1/2	5	1	1	FWZ 212
2 3/4	5 1/4	1	0.9	FWZ 234
3	5 1/2	1	0.8	FWZ 3

HARDENED USS FLAT WASHERS



DIAMETER	O.D.	PKG.	PART NO. (ZINC YELLOW)
1/4	3/4	100	F436UZ 14
5/16	7/8	100	F436UZ 516
3/8	1	100	F436UZ 38
7/16	1 1/4	100	F436UZ 716
1/2	1 3/8	100	F436UZ 12
9/16	1 1/2	50	F436UZ 916
5/8	1 3/4	50	F436UZ 58
3/4	2	25	F436UZ 34
7/8	2 1/4	25	F436UZ 78
1	2 1/2	10	F436UZ 1
1 1/8	2 3/4	10	F436UZ 118
1 1/4	3	10	F436UZ 114
1 3/8	3 1/4	10	F436UZ 138
1 1/2	3 1/2	10	F436UZ 112

FENDER WASHERS



DIAMETER	O.D.	PKG.	PCS./LB.	PART NO. (ZINC)
1/8-9/64	9/16	100	—	FENDWZ 18
3/16-7/32	1	100	—	FENDWZ 101
3/16-7/32	1 1/4	100	—	FENDWZ 10114
3/16	1	100	70	FENDWZ 3161
	1 1/4	100	66	FENDWZ 316114
	1	100	94	FENDWZ 141
1/4	1 1/4	100	58	FENDWZ 14114
	1 1/2	100	38	FENDWZ 14112
5/16	1 1/4	100	64	FENDWZ 516114
	1 1/2	100	43	FENDWZ 516112
	1 1/4	100	45	FENDWZ 38114
3/8	1 1/2	100	44	FENDWZ 38112
	2	100	19	FENDWZ 382
1/2	1 1/2	100	38	FENDWZ 12112
	2	100	19	FENDWZ 122

MEDIUM SPLIT LOCK WASHERS



DIAMETER	PKG.	PART NO. (ZINC)
#2	100	LWZ 2
#4	100	LWZ 4
#5	100	LWZ 5
#6	100	LWZ 6
#8	100	LWZ 8
#10	100	LWZ 10
#12	100	LWZ 12
1/4	100	LWZ 14
5/16	100	LWZ 516
3/8	100	LWZ 38
7/16	100	LWZ 716
1/2	100	LWZ 12
9/16	100	LWZ 916
5/8	100	LWZ 58
3/4	100	LWZ 34
7/8	100	LWZ 78
1	100	LWZ 1
1 1/8	50	LWZ 118
1 1/4	25	LWZ 114
1 3/8	25	LWZ 138
1 1/2	25	LWZ 112

HIGH COLLAR LOCK WASHERS



DIAMETER	PKG.	PART NO. (STEEL)	PART NO. (STAINLESS STEEL)
#4	100	HCLW 4	HCLWS 4
#6	100	HCLW 6	HCLWS 6
#8	100	HCLW 8	HCLWS 8
#10	100	HCLW 10	HCLWS 10
1/4	100	HCLW 14	HCLWS 14
5/16	100	HCLW 516	HCLWS 516
3/8	100	HCLW 38	HCLWS 38
7/16	100	HCLW 716	HCLWS 716
1/2	100	HCLW 12	HCLWS 12
5/8	50	HCLW 58	HCLWS 58
3/4	25	HCLW 34	HCLWS 34
7/8	15	HCLW 78	HCLWS 78
1	10	HCLW 1	HCLWS 1
1 1/8	5	HCLW 118	HCLWS 118
1 1/4	5	HCLW 114	HCLWS 114
1 1/2	5	HCLW 112	HCLWS 112

ALLOY LOCK WASHERS ZINC YELLOW



DIAMETER	PKG.	PART NO. (ZINC)
1/4	100	LW8 14
5/16	100	LW8 516
3/8	100	LW8 38
7/16	100	LW8 716
1/2	100	LW8 12
9/16	50	LW8 916
5/8	50	LW8 58
3/4	25	LW8 34
7/8	25	LW8 78
1	10	LW8 1

**EXTERNAL TOOTH
LOCK WASHERS**



DIAMETER	PKG.	PART NO. (ZINC)
#4	100	LWEZ 4
#5	100	LWEZ 5
#6	100	LWEZ 6
#8	100	LWEZ 8
#10	100	LWEZ 10
#12	100	LWEZ 12
1/4	100	LWEZ 14
5/16	100	LWEZ 516
3/8	100	LWEZ 38
7/16	100	LWEZ 716
1/2	100	LWEZ 12
9/16	100	LWEZ 916
5/8	100	LWEZ 58
3/4	100	LWEZ 34
7/8	100	LWEZ 78
1	100	LWEZ 1

**INTERNAL TOOTH
LOCK WASHERS**



DIAMETER	PKG.	PART NO. (ZINC)
#2	100	LWIZ 2
#4	100	LWIZ 4
#6	100	LWIZ 6
#8	100	LWIZ 8
#10	100	LWIZ 10
#12	100	LWIZ 12
1/4	100	LWIZ 14
5/16	100	LWIZ 516
3/8	100	LWIZ 38
7/16	100	LWIZ 716
1/2	100	LWIZ 12
9/16	100	LWIZ 916
5/8	100	LWIZ 58
3/4	100	LWIZ 34
7/8	100	LWIZ 78
1	100	LWIZ 1

MALLEABLE BEVEL WASHERS



DIAMETER	PKG.	PART NO. (PLAIN)	PART NO. (H.D. GALV.)
3/8	1	BW 38	BWG 38
1/2	1	BW 12	BWG 12
5/8	1	BW 58	BWG 58
3/4	1	BW 34	BWG 34
7/8	1	BW 78	BWG 78
1	1	BW 1	BWG 1

**FINISHING WASHERS
STEEL NICKEL PLATED,
STAINLESS STEEL & BRASS**



DIA.	PKG.	PART NO. (STEEL (N/P)	PART NO. (STAINLESS STEEL) (SS)	PART NO. (BRASS) (BR)
#6	100	FCWP 6	FCWS 6	FCWB 6
#8	100	FCWP 8	FCWS 8	FCWB 8
#10	100	FCWP 10	FCWS 10	FCWB 10
#12	100	FCWP 12	FCWS 12	FCWB 12
1/4	100	FCWP 14	FCWS 14	FCWB 14

AN960 WASHERS



DIA.	I.D.	O.D.	THK.	MATERIAL		
				STEEL YELLOW ZINC	S.S.	BRASS
#2	0.099	0.25	0.016 0.032	2L 2	C2L C2	— B2
#3	0.109	0.25	0.016 0.032	3L 3	C3L C3	— B3
#4	0.125	0.312	0.016 0.032	4L 4	C4L C4	— B4
#6	0.149	0.375	0.016 0.032	6L 6	C6L C6	— B6
#8	0.174	0.375	0.016 0.032	8L 8	C8L C8	— B8
#10	0.203	0.438	0.032 0.064	10L 10	C10L C10	— B10
1/4"	0.265	0.5	0.032 0.062	416L 416	C416L C416	— B416
5/16"	0.238	0.562	0.032 0.064	516L 516	C516L C516	— B516
3/8"	0.39	0.625	0.032 0.064	616L 616	C616L C616	— B616
7/16"	0.453	0.75	0.032 0.062	716L 716	C716L C716	— B716
1/2"	0.515	0.875	0.032 0.064	816L 816	C816L C816	— B816
9/16"	0.578	1.062	0.032 0.064	916L 916	C916L C916	— B916
5/8"	0.64	1.188	0.032 0.064	1016L 1016	C1016L C1016	— B1016
3/4"	0.765	1.312	0.032 0.091	1216L 1216	C1216L C1216	— B1216
7/8"	890	1.5	0.032 0.091	1416L 1416	C1416L C1416	— B1416
1"	1.015	1.75	0.032 0.091	1616L 1616	C1616L C1616	— B1616

HOW TO ORDER AN "AN" WASHER

EXAMPLE: 1/4 STD. THICKNESS STEEL Y/P AN 960- 416
 EXAMPLE: 3/8 STD. THICKNESS S.S. AN 960- C616
 EXAMPLE: 5/8 THIN THICKNESS S.S. AN 960- C1016L

**NEOPRENE WASHERS
WITH STEEL OR STAINLESS STEEL
METAL BACKING**



DIA.	O.D.	PKG.	PART NO. (STEEL GALV.)	PART NO. (STAINLESS STEEL)
#8	1/2	100	SW 128	SWS 812
#10	1/2	100	SW 1210	SWS 1012
#12	1/2	100	SW 1212	SWS 1258
1/4	5/8	100	SW 5814	SWS 1458
5/16	3/4	100	SW 78516	SWS 51634
3/8	3/4	100	SW 3438	SWS 3878
1/2	1-1/2	100	—	SWS 12112

**NEOPRENE WASHERS
NO METAL BACKING**



DIAMETER	O.D.	PART NO.
#6	1/4	NEO 6
#8	5/16	NEO 8
#10	3/8	NEO 10
#12	7/16	NEO 12
1/4	5/8	NEO 14
5/16	11/16	NEO 516
3/8	5/8	NEO 38
1/2	1-1/16	NEO 1/2
5/8	1-5/16	NEO 58
3/4	1-1/2	NEO 34

OTHER WASHERS AVAILABLE

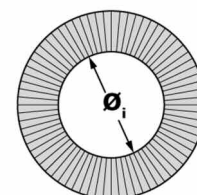
-  PLATE WASHERS
-  BELLEVILLE WASHERS
-  COUNTERSUNK
EXTERNAL TOOTH
LOCK WASHERS
-  COMBINATION TOOTH
LOCK WASHERS
-  NORD-LOCK®

Other Washers (Not Pictured) Available
Direct Tension Indicator Washers

NORD-LOCK® WASHERS
ELECTRO ZINC PLATED (YELLOW CHROMATED) or ZINC FLAKED COATED



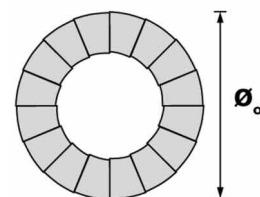
WASHER Size	BOLT SIZE		Ø _i (inch)	Ø _o (inch)	THICKNESS (inch)	MIN. PACKAGE Pairs	APPROX. WEIGHT, Lbs. / 100 Pairs
	UNC	Metric					
NL3	#5	M3	0.13	0.28	0.07	200	0.08
NL3.5	#6	M3.5	0.15	0.29	0.07	200	0.09
NL3.5 sp	#6	M3.5	0.15	0.35	0.07	200	0.09
NLN4	#8	M4	0.17	0.29	0.07	200	0.09
NL4 sp	#8	M4	0.17	0.35	0.07	200	0.13
NL5	#10	M5	0.21	0.35	0.07	200	0.11
NLN5 sp	#10	M5	0.21	0.43	0.07	200	0.22
NL6	—	M6	0.26	0.43	0.07	200	0.15
NL6 sp	—	M6	0.26	0.53	0.10	200	0.43
NL1/4"	1/4"	—	0.28	0.45	0.10	200	0.17
NL1/4" sp	1/4"	—	0.28	0.53	0.10	200	0.40
NL8	5/16"	M8	0.34	0.53	0.10	200	0.32
NL8 sp	5/16"	M8	0.34	0.65	0.10	200	0.61
NL3/8"	3/8"	—	0.41	0.65	0.10	200	0.52
NL3/8" sp	3/8"	—	0.41	0.83	0.10	200	1.03
NL10	—	M10	0.42	0.65	0.10	200	0.49
NL10 sp	—	M10	0.42	0.83	0.10	200	1.00
NL11	7/16"	M11	0.45	0.73	0.10	200	0.65
NL12	—	M12	0.51	0.77	0.10	200	0.64
NL12 sp	—	M12	0.51	1.00	0.13	100	2.05
NL1/2"	1/2"	—	0.53	0.77	0.10	200	0.60
NL1/2" sp	1/2"	—	0.53	1.00	0.13	100	1.99
NL14	9/16"	M14	0.60	0.91	0.13	100	1.27
NL14 sp	9/16"	M14	0.60	1.21	0.13	100	3.06
NL16	5/8"	M16	0.67	1.00	0.13	100	1.52
NL16 sp	5/8"	M16	0.67	1.21	0.13	100	2.80
NL18	—	M18	0.77	1.14	0.13	100	1.97
NL18 sp	—	M18	0.77	1.36	0.13	100	3.72
NL3/4"	3/4"	—	0.79	1.21	0.13	100	2.32
NL3/4" sp	3/4"	—	0.79	1.54	0.13	100	4.82
NL20	—	M20	0.84	1.21	0.13	100	2.07
NL20 sp	—	M20	0.84	1.54	0.13	100	4.56
NL22	7/8"	M22	0.92	1.36	0.13	100	2.75
NL22 sp	7/8"	M22	0.92	1.65	0.18	50	7.25
NL24	—	M24	1.00	1.54	0.13	100	3.77
NL24 sp	—	M24	1.00	1.91	0.18	50	10.2
NL1"	1"	—	1.10	1.54	0.13	100	3.17
NL1" sp	1"	—	1.10	1.91	0.18	50	9.39
NL27	—	M27	1.12	1.65	0.26	50	8.07
NL27 sp	—	M27	1.12	1.91	0.26	25	13.0
NL30	1-1/8"	M30	1.24	1.85	0.26	50	10.3
NL30 sp	1-1/8"	M30	1.24	2.30	0.26	25	21.7
NL33	1-1/4"	M33	1.35	1.91	0.26	25	9.85
NL36	1-3/8"	M36	1.47	2.17	0.26	25	13.7
NL39	1-1/2"	M39	1.59	2.30	0.26	25	15.1
NL42	—	M42	1.70	2.48	0.26	25	17.6
NL45	1-3/4"	M45	1.82	2.76	0.37	—	34.8
NL48	—	M48	1.95	2.95	0.37	—	39.9
NL52	2"	M52	2.11	3.15	0.37	—	44.3
NL56	2-1/4"	M56	2.33	3.35	0.37	—	47.0
NL60	—	M60	2.48	3.54	0.37	—	51.8
NL64	2-1/2"	M64	2.64	3.74	0.37	—	56.9
NL68	—	M68	2.80	3.94	0.37	—	62.1
NL72	—	M72	2.96	4.13	0.37	—	67.7
NL76	3"	M76	3.11	4.33	0.37	—	73.4
NL80	—	M80	3.27	4.53	0.37	—	79.4
NL85	—	M85	3.47	4.72	0.37	—	83.3
NL90	—	M90	3.64	5.12	0.37	—	105.0
NL95	—	M95	3.83	5.31	0.37	—	110.0
NL100	—	M100	4.07	5.71	0.37	—	130.0
NL105	—	M105	4.27	5.91	0.37	—	135.0
NL110	—	M110	4.46	6.10	0.37	—	140.0
NL115	—	M115	4.66	6.50	0.37	—	166.0
NL120	—	M120	4.86	6.69	0.37	—	171.8
NL125	—	M125	5.06	6.81	0.37	—	168.9
NL130	—	M130	5.25	7.01	0.37	—	174.5



NL3 - NL8
Ø, ±0.004 inch

NL10 - NL42
Ø, ±0.008 inch

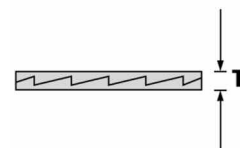
NL45 - NL130
Ø, ±0.02/-0 inch



NL3 - NL24
Øo ±0.008 inch

NL27 - NL42
Øo ±0.012 inch

NL45 - NL130
Øo ±0/-0.08 inch



NL3 - NL24
T ±0.01 inch

NL27 - NL42
T ±0/-0.02 inch

NL45 - NL130
T ±0.03 inch

ALSO AVAILABLE IN STAINLESS

**FLAT HEAD PHILLIPS
WOOD SCREWS**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#4	3/8	100	FHPWSZ 438
	1/2	100	FHPWSZ 412
	5/8	100	FHPWSZ 458
	3/4	100	FHPWSZ 434
	1	100	FHPWSZ 41
	1 1/2	100	FHPWSZ 4112
#5	1/2	100	FHPWSZ 512
	5/8	100	FHPWSZ 558
	3/4	100	FHPWSZ 534
	1	100	FHPWSZ 51
	1 1/4	100	FHPWSZ 5114
	1 1/2	100	FHPWSZ 5112
#6	1/2	100	FHPWSZ 612
	5/8	100	FHPWSZ 658
	3/4	100	FHPWSZ 634
	7/8	100	FHPWSZ 678
	1	100	FHPWSZ 61
	1 1/4	100	FHPWSZ 6114
	1 1/2	100	FHPWSZ 6112
	1 3/4	100	FHPWSZ 6134
	2	100	FHPWSZ 62
	2 1/2	100	FHPWSZ 6212
#8	3/8	100	FHPWSZ 838
	1/2	100	FHPWSZ 812
	5/8	100	FHPWSZ 858
	3/4	100	FHPWSZ 834
	7/8	100	FHPWSZ 878
	1	100	FHPWSZ 81
	1 1/4	100	FHPWSZ 8114
	1 1/2	100	FHPWSZ 8112
	1 3/4	100	FHPWSZ 8134
	2	100	FHPWSZ 82
	2 1/4	100	FHPWSZ 8214
	2 1/2	100	FHPWSZ 8212
	3	100	FHPWSZ 83
3 1/2	100	FHPWSZ 8312	
4	100	FHPWSZ 84	
#10	1/2	100	FHPWSZ 1012
	5/8	100	FHPWSZ 1058
	3/4	100	FHPWSZ 1034
	1	100	FHPWSZ 101
	1 1/4	100	FHPWSZ 10114
	1 1/2	100	FHPWSZ 10112
	1 3/4	100	FHPWSZ 10134
	2	100	FHPWSZ 102
	2 1/4	100	FHPWSZ 10214
	2 1/2	100	FHPWSZ 10212
2 3/4	100	FHPWSZ 10234	
3	100	FHPWSZ 103	
3 1/2	100	FHPWSZ 10312	
4	100	FHPWSZ 104	
#12	3/4	100	FHPWSZ 1234
	1	100	FHPWSZ 121
	1 1/4	100	FHPWSZ 12114
	1 1/2	100	FHPWSZ 12112
	1 3/4	100	FHPWSZ 12134
	2	100	FHPWSZ 122
	2 1/4	100	FHPWSZ 12214
	2 1/2	100	FHPWSZ 12212
	3	100	FHPWSZ 123
	3 1/2	100	FHPWSZ 12312
	4	100	FHPWSZ 124

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#14	3/4	100	FHPWSZ 1434
	1	100	FHPWSZ 141
	1 1/4	100	FHPWSZ 14114
	1 1/2	100	FHPWSZ 14112
	1 3/4	100	FHPWSZ 14134
	2	100	FHPWSZ 142
	2 1/4	100	FHPWSZ 14214
	2 1/2	100	FHPWSZ 14212
	3	100	FHPWSZ 143
	3 1/2	100	FHPWSZ 14312
	4	100	FHPWSZ 144
5	100	FHPWSZ 145	
#20	3	100	FHPWSZ 203
	4	100	FHPWSZ 204
	5	100	FHPWSZ 205
#24	3	100	FHPWSZ 243
	4	100	FHPWSZ 244
	5	100	FHPWSZ 245
	6	100	FHPWSZ 246

**PAN HEAD PHILLIPS TYPE "F"
THREAD CUTTING SCREWS -
COARSE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
4-40	1/4	100	PHTSFPZ 44014
	3/8	100	PHTSFPZ 44038
	1/2	100	PHTSFPZ 44012
6-32	3/8	100	PHTSFPZ 63238
	1/2	100	PHTSFPZ 63212
	3/4	100	PHTSFPZ 63234
8-32	3/8	100	PHTSFPZ 83238
	1/2	100	PHTSFPZ 83212
	3/4	100	PHTSFPZ 83234
	1	100	PHTSFPZ 8321
10-24	3/8	100	PHTSFPZ 102438
	1/2	100	PHTSFPZ 102412
	3/4	100	PHTSFPZ 102434
	1	100	PHTSFPZ 10241
	1 1/2	100	PHTSFPZ 1024112
12-24	1/2	100	PHTSFPZ 122412
	3/4	100	PHTSFPZ 122434
1/4-20	1/2	100	PHTSFPZ 142012
	3/4	100	PHTSFPZ 142034
	1	100	PHTSFPZ 14201
	1 1/2	100	PHTSFPZ 1420112

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

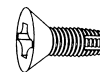
**PAN HEAD PHILLIPS TYPE "F"
THREAD CUTTING SCREWS -
FINE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
10-32	3/8	100	PHTSFPZ 103238
	1/2	100	PHTSFPZ 103212
	3/4	100	PHTSFPZ 103234

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

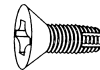
**FLAT HEAD PHILLIPS TYPE "F"
THREAD CUTTING SCREWS -
COARSE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
6-32	3/8	100	FHTSFPZ 63238
	1/2	100	FHTSFPZ 63212
	3/4	100	FHTSFPZ 63234
	1	100	FHTSFPZ 6321
8-32	1/2	100	FHTSFPZ 83212
	5/8	100	FHTSFPZ 83258
	3/4	100	FHTSFPZ 83234
	1	100	FHTSFPZ 8321
10-24	1/2	100	FHTSFPZ 102412
	3/4	100	FHTSFPZ 102434
	1	100	FHTSFPZ 10241
	1-1/4	100	FHTSFPZ 1024114
	1 1/2	100	FHTSFPZ 1024112
1/4-20	3/4	100	FHTSFPZ 142034
	1	100	FHTSFPZ 14201
	1 1/4	100	FHTSFPZ 1420114
	1 1/2	100	FHTSFPZ 1420112
	2	100	FHTSFPZ 14202

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**FLAT HEAD PHILLIPS TYPE "F"
THREAD CUTTING SCREWS -
FINE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
10-32	1/2	100	FHTSFPZ 103212
	1	100	FHTSFPZ 10321

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**INDENTED SLOTTED HEX WASHER
HEAD TYPE "F" SCREWS -
COARSE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
8-32	3/8	100	HHTSFZ 83238
	1/2	100	HHTSFZ 83212
	3/4	100	HHTSFZ 83234
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
10-24	3/8	100	HHTSFZ 102438
	1/2	100	HHTSFZ 102412
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/4-20	1/2	100	HHTSFZ 142012
	3/4	100	HHTSFZ 142034
	1	100	HHTSFZ 14201
	1 1/2	100	HHTSFZ 1420112
	2	100	HHTSFZ 14202
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
5/16-18	3/4	100	HHTSFZ 5161834
	1	100	HHTSFZ 516181
	1 1/2	100	HHTSFZ 51618112
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
3/8-16	1	100	HHTSFZ 38161
	1 1/4	100	HHTSFZ 3816114
	1 1/2	100	HHTSFZ 3816112
	2	100	HHTSFZ 38162
	3	100	HHTSFZ 38163
4	100	HHTSFZ 38164	

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**INDENTED SLOTTED HEX WASHER
HEAD TYPE "F" SCREWS -
FINE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
10-32	5/16	100	HHTSFZ 1032516
	3/8	100	HHTSFZ 103238
	1/2	100	HHTSFZ 103212
	3/4	100	HHTSFZ 103234

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**OTHER TYPE "F" SCREWS
AVAILABLE**



SLOT HEX WASHER

**FLAT HEAD TORX DRIVE
FLOOR BOARD SCREWS**



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/4-20	1 1/2	100	FHTF 1420112
	2	100	FHTF 14202
	2 1/2	100	FHTF 1420212
	3	100	FHTF 14203
5/16-18	3 1/2	100	FHTF 1420312
	2	100	FHTF 516182
	2 1/2	100	FHTF 51618212
	3	100	FHTF 516183

**OTHER SIZES AVAILABLE,
SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**SUGGESTED HOLE SIZES FOR
THREAD ROLLING TAPPING
SCREWS and TYPES D, F, G and T
THREAD CUTTING TAPPING
SCREWS (PER IFI)**

Nominal Screw Size	Hole Diameter			Closest Drill Size to Mean Hole Diameter	
	Max.	Mean	Min.	Size	Dia.
2-56	0.078	0.076	0.074	48	0.076
2-64		0.077			
3-48	0.090	0.087	0.084	44	0.086
3-56		0.089			
4-40	0.100	0.097	0.094	41	0.096
4-48		0.100			
5-40	0.113	0.110	0.107	35	0.110
5-44		0.112			
6-32	0.123	0.119	0.115	31	0.120
6-40		0.124			
8-32	0.150	0.146	0.141	20	0.147
8-36		0.148			
10-24	0.170	0.165	0.160	19	0.166
10-32	0.177	0.172	0.167	11/64	0.1719
12-24	0.198	0.192	0.186	11	0.191
12-28		0.196			
1/4-20	0.228	0.221	0.214	2	0.221
1/4-28		0.230			
5/16-18	0.289	0.281	0.273	K	0.281
5/16-24		0.290			
3/8-16	0.349	0.339	0.329	R	0.339
3/8-24		0.353			
7/16-14	0.409	0.397	0.385	X	0.397
7/16-20		0.411			
1/2-13	0.471	0.457	0.443	29/64	0.4531
1/2-20		0.475			

STRONG-POINT® UNSLOTTED INDENTED HEX WASHER HEAD - ZINC PLATED



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing

- Zinc plating meets ASTM B-117 for salt spray corrosion
- Manufactured to SAE J78 for dimensional specifications

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
HWHTEK 638	6-20 x 3/8	2	20M	40	.035 - .090	2,500 RPM	Attaches metal to metal
HWHTEK 612	6-20 x 1/2	2	15M	35	.035 - .090	2,500 RPM	Attaches metal to metal
HWHTEK 658	6-20 x 5/8	2	15M	39	.035 - .090	2,500 RPM	Attaches metal to metal
HWHTEK 634	6-20 x 3/4	2	10M	31	.035 - .090	2,500 RPM	Attaches metal to metal
HWHTEK 812	8-18 x 1/2	2	10M	35	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 858	8-18 x 5/8	2	10M	40	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 834	8-18 x 3/4	2	10M	45	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 81	8-18 x 1	2	8M	44	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 8114	8-18 x 1 1/4	2	5M	33	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 8112	8-18 x 1 1/2	2	5M	38	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 82	8-18 x 2	2	3M	29	.035 - .100	2,500 RPM	Attaches metal to metal
HWHTEK 1012	10-16 x 1/2	2	8M	40	.035 - .110	2,500 RPM	Attaches metal to metal
HWHTEK 1058	10-16 x 5/8	2	8M	44	.035 - .110	2,500 RPM	Attaches metal to metal
HWHTEK 1034	10-16 x 3/4	2	8M	50	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 1034H	10-16 x 3/4**	2	6M	42	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 101	10-16 x 1	2	5M	40	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 10114	10-16 x 1 1/4	2	4M	37	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 10112	10-16 x 1 1/2	2	3M	32	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 102	10-16 x 2	2	2M	26	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 10212	10-16 x 2 1/2	2	1M	15	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 103	10-16 x 3	2	1M	18	.035 - .176	2,500 RPM	Attaches metal to metal
HWHTEK 1234	12-14 x 3/4	3	4M	33	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 121	12-14 x 1	3	4M	40	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 12114	12-14 x 1 1/4	3	3M	35	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 12112	12-14 x 1 1/2	3	3M	40	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 122	12-14 x 2	3	2M	33	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 12212	12-14 x 2 1/2	3	1.5M	30	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 123	12-14 x 3	3	1M	23	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 124	12-14 x 4	3	.5M	16	.035 - .210	2,000 RPM	Attaches metal to metal
HWHTEK 1434	14-14 x 3/4	3	4M	50	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 141	14-14 x 1	3	3M	45	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 14114	14-14 x 1 1/4	3	2M	35	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 14112	14-14 x 1 1/2	3	2M	40	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 14134	14-14 1-3/4	3	1.5M	34	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 142	14-14 x 2	3	1.5M	38	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 14212	14-14 x 2 1/2	3	1M	30	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 143	14-14 x 3	3	1M	35	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 144	14-14 x 4	3	.5M	22	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 14412	14-14 x 4 1/2	3	.5M	24	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 145	14-14 x 5	3	.5M	27	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 146	14-14 x 6	3	.5M	31	.060 - .220	1,750 RPM	Attaches metal to metal
HWHTEK 1478	14-14 x 7/8	1	3M	36	.018 - .090	2,000 RPM	Attaches metal to metal. Lap/Stitching

* Carton weights are approximate and may vary.

** Hi-Hex Head w/Reverse Serrations - Head Height: .160 - .178



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing

- Zinc plating meets ASTM B-117 for salt spray corrosion
- Manufactured to SAE J78 for dimensional specifications

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
HWHTEK5 1224114	12-24 x 1 1/4	5	3.5M	36	.125 - .500	1,500 RPM	Attaches metal to metal
HWHTEK5 1224112	12-24 x 1 1/2	5	2.5M	33	.125 - .500	1,500 RPM	Attaches metal to metal
HWHTEK5 12242	12-24 x 2	5	2M	33	.125 - .500	1,500 RPM	Attaches metal to metal

* Carton weights are approximate and may vary.

STRONG-POINT® UNSLOTTED INDENTED HEX WASHER HEAD - ZINC PLATED w/NEO-EPDM WASHER



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- Bonded washer creates leak proof seal
- Zinc plating meets ASTM B-117 for salt spray corrosion

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION	BONDED WASHER SIZE
HWHSTEK 812	8-18 x 1/2	2	5M	28	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 858	8-18 x 5/8	2	5M	30	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 834	8-18 x 3/4	2	5M	33	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 81	8-18 x 1	2	4M	30	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 8114	8-18 x 1 1/4	2	3M	26	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 8112	8-18 x 1 1/2	2	2.5M	24	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 82	8-18 x 2	2	2.5M	29	.035 - .100	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 1012	10-16 x 1/2	2	4M	30	.035 - .110	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 1058	10-16 x 5/8	2	4M	32	.035 - .110	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 1034	10-16 x 3/4	3	4M	35	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 101	10-16 x 1	3	3M	32	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 10114	10-16 x 1 1/4	3	2.5M	30	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 10112	10-16 x 1 1/2	3	2M	26	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 102	10-16 x 2	3	1.5M	23	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 10212	10-16 x 2 1/2	3	1M	18	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 103	10-16 x 3	3	1M	21	.035 - .176	2,500 RPM	Attaches metal to metal	1/2" Outside Diameter
HWHSTEK 1234	12-14 x 3/4	3	3M	32	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 121	12-14 x 1	3	3M	37	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 12114	12-14 x 1-1/4	3	2.5M	35	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 12112	12-14 x 1 1/2	3	2M	31	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 122	12-14 x 2	3	1.5M	29	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 12212	12-14 x 2 1/2	3	1M	22	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 123	12-14 x 3	3	1M	26	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 124	12-14 x 4	3	.5M	16	.035 - .210	2,000 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK 1434	14-14 x 3/4	3	3M	45	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 141	14-14 x 1	3	2.5M	44	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 14114	14-14 x 1 1/4	3	2M	40	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 14112	14-14 x 1 1/2	3	2M	45	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 14134	14-14 x 1 3/4	3	1.5M	38	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 142	14-14 x 2	3	1.5M	41	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 14212	14-14 x 2 1/2	3	1M	33	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 143	14-14 x 3	3	1M	38	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 144	14-14 x 4	3	.5M	23	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 145	14-14 x 5	3	.5M	27	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 146	14-14 x 6	3	.5M	32	.060 - .220	1,750 RPM	Attaches metal to metal	5/8" Outside Diameter
HWHSTEK 1478	14-14 x 7/8 #12 HD	1	2.5M	38	.018 - .090	2,000 RPM	Attaches metal to metal	5/8" Outside Diameter

* Carton weights are approximate and may vary.

SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- Bonded washer creates leak proof seal
- Zinc plating meets ASTM B-117 for salt spray corrosion

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION	BONDED WASHER SIZE
HWHSTEK5 122478	12-24 x 7/8	4	3M	38	.125 - .250	1,500 RPM	Attaches metal to metal	9/16" Outside Diameter

* Carton weights are approximate and may vary.

SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- Bonded washer creates leak proof seal
- Used for metal roofing applications

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION	BONDED WASHER SIZE
HWHSTEK5 1224114	12-24 x 1 1/4	5	3M	42	.125 - .500	1,500 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK5 1224112	12-24 x 1 1/2	5	2.5M	41	.125 - .500	1,500 RPM	Attaches metal to metal	9/16" Outside Diameter
HWHSTEK5 12242	12-24 x 2	5	2M	38	.125 - .500	1,500 RPM	Attaches metal to metal	9/16" Outside Diameter

* Carton weights are approximate and may vary.

SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE

STRONG-POINT® PAN HEAD PHILLIPS SELF DRILLING - ZINC PLATED



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- Zinc plating meets ASTM B-117 for salt spray corrosion
- Manufactured to SAE J78 for dimensional specifications

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
PHTEK 638	6-20 x 3/8	2	20M	36	.035 - .090	2,500 RPM	Attaches metal to metal
PHTEK 612	6-20 x 1/2	2	20M	42	.035 - .090	2,500 RPM	Attaches metal to metal
PHTEK 658	6-20 x 5/8	2	15M	35	.035 - .090	2,500 RPM	Attaches metal to metal
PHTEK 634	6-20 x 3/4	2	10M	29	.035 - .090	2,500 RPM	Attaches metal to metal
PHTEK 61	6-20 x 1	2	10M	35	.035 - .090	2,500 RPM	Attaches metal to metal
PHTEK 838	8-18 x 3/8	2	10M	28	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 812	8-18 x 1/2	2	10M	32	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 858	8-18 x 5/8	2	10M	37	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 834	8-18 x 3/4	2	10M	42	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 81	8-18 x 1	2	8M	41	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 8114	8-18 x 1 1/4	2	5M	41	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 8112	8-18 x 1 1/2	2	5M	35	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 82	8-18 x 2	2	3M	27	.035 - .100	2,500 RPM	Attaches metal to metal
PHTEK 1012	10-16 x 1/2	2	10M	45	.035 - .110	2,500 RPM	Attaches metal to metal
PHTEK 1058	10-16 x 5/8	2	10M	52	.035 - .110	2,500 RPM	Attaches metal to metal
PHTEK 1034	10-16 x 3/4	2	8M	47	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 101	10-16 x 1	2	5M	38	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 10114	10-16 x 1 1/4	2	5M	41	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 10112	10-16 x 1 1/2	2	4M	40	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 102	10-16 x 2	2	3M	38	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 10212	10-16 x 2 1/2	2	1.5M	21	.035 - .176	2,500 RPM	Attaches metal to metal
PHTEK 103	10-16 x 3	2	1M	19	.035 - .176	2,500 RPM	Attaches metal to metal

* Carton weights are approximate and may vary.

SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE

PAN HEAD PHILLIPS SELF DRILLING



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#6	7/16	100	PHF 6716

STRONG-POINT® FLAT HEAD PHILLIPS SELF DRILLING SCREWS - ZINC PLATED



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- For counter-sunk holes
- Zinc plating meets ASTM B-117 for salt spray corrosion

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
FHTEK 812	8-18 x 1/2	2	10M	25	.035 - .100	2,500 RPM	Attaches metal to metal
FHTEK 834	8-18 x 3/4	2	10M	35	.035 - .100	2,500 RPM	Attaches metal to metal
FHTEK 81	8-18 x 1	2	8M	34	.035 - .100	2,500 RPM	Attaches metal to metal
FHTEK 8114	8-18 x 1 1/4	2	5M	26	.035 - .100	2,500 RPM	Attaches metal to metal
FHTEK 8112	8-18 x 1 1/2	2	5M	31	.035 - .100	2,500 RPM	Attaches metal to metal
FHTEK 1034	10-16 x 3/4	3	8M	39	.035 - .176	2,500 RPM	Attaches metal to metal
FHTEK 101	10-16 x 1	3	5M	32	.035 - .176	2,500 RPM	Attaches metal to metal
FHTEK 10114	10-16 x 1 1/4	3	3M	31	.035 - .176	2,500 RPM	Attaches metal to metal
FHTEK 10112	10-16 x 1 1/2	3	4M	37	.035 - .176	2,500 RPM	Attaches metal to metal
FHTEK 102	10-16 x 2	3	3M	35	.035 - .176	2,500 RPM	Attaches metal to metal

* Carton weights are approximate and may vary.

OVAL HEAD PHILLIPS SELF DRILLING SCREWS - ZINC PLATED

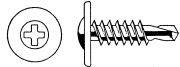


- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- For counter-sunk holes
- Zinc plating meets ASTM B-117 for salt spray corrosion

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
OHTEK 834	8-18 x 3/4	2	10M	40	.035 - .100	2,500 RPM	Attaches metal to metal
OHTEK 81	8-18 x 1	2	7.5M	38	.035 - .100	2,500 RPM	Attaches metal to metal
OHTEK 8114	8-18 x 1 1/4	2	6M	36	.035 - .100	2,500 RPM	Attaches metal to metal
OHTEK 8112	8-18 x 1 1/2	2	5M	36	.035 - .100	2,500 RPM	Attaches metal to metal

* Carton weights are approximate and may vary.

MODIFIED TRUSS PHILLIPS SELF DRILLING SCREWS - ZINC PLATED (LATH SCREWS)



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#8	1-7/8	100	PRW 8178
	2-1/2	100	PRW 8212
	3	100	PRW 83
	3/4	100	PRW 1034
#10	1-1/2	100	PRW 10112
	2	100	PRW 102
	2-1/2	100	PRW 10212
#12	3	100	PRW 103
	1-1/2	100	PRW 12112
#14	2	100	PRW 122
	3	100	PRW 143
8-18	1/2	100	PRW 812
	3/4	100	PRW 834
	1	100	PRW 81
	1-1/4	100	PRW 8114
	1-5/8	100	PRW 8158

OTHER SIZES AVAILABLE, SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE

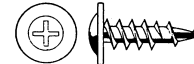
WAFER HEAD PHILLIPS SELF DRILLING SCREWS



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
10-24	3/4	100	PWTEK 102434
	1	100	PWTEK 10241
	1 1/4	100	PWTEK 1024114
	1-7/16* (with wings)	100	RTEK 10241716
	1 1/2	100	PWTEK 1024112

OTHER SIZES AVAILABLE, SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE

MODIFIED SHARP POINT LATH SCREWS - ZINC PLATED



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#8	1-7/8	100	KLATH 8178
	2-1/2	100	KLATH 8212
	3	100	KLATH 83
8-18	1/2	100	KLATH 812
	9/16	100	KLATH 8916
	3/4	100	KLATH 834
	1	100	KLATH 81
	1 1/4	100	KLATH 8114
	1 5/8	100	KLATH 8158
1-7/8	100	KLATH 8178	

ALSO AVAILABLE IN BLACK OXIDE OTHER SIZES AVAILABLE, SUBJECT TO AVAILABILITY AND MINIMUM QUANTITY PURCHASE

STRONG-POINT® PHILLIPS FLAT HEAD REAMER W/WINGS - ZINC PLATED



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Used for attaching lumber or headers to steel
- Wings ream hole in wood preventing "jacking action"
- Zinc plating meets ASTM B-117 for salt spray corrosion

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
RTEK 1016158	10-16 x 1-5/8	3	4M	36	.060 - .176	2,500 RPM	Attaches wood to metal
RTEK 12242	12-24 x 2	3	2M	32	.110 - .210	2,000 RPM	Attaches wood to metal
RTEK 1224214	12-24 x 2 1/4	3	1.5M	27	.100 - .210	2,000 RPM	Attaches wood to metal
RTEK 1224212	12-24 x 2 1/2	3	1.5M	30	.110 - .210	2,000 RPM	Attaches wood to metal
RTEK 1224212	12-24 x 2 1/2	4	1.5M	30	.110 - .250	2,000 RPM	Attaches wood to metal
RTEK 1420234	1/4-20 x 2 3/4	4	1M	30	.110 - .375	1,750 RPM	Attaches wood to metal
RTEK 1420314	1/4-20 x 3 1/4	4	1M	35	.110 - .375	1,750 RPM	Attaches wood to metal
RTEK 1420312	1/4-20 x 3 1/2	4	8M	30	.110 - .375	1,750 RPM	Attaches wood to metal
RTEK 1420334	1/4-20 x 3 3/4	4	5M	20	.110 - .375	1,750 RPM	Attaches wood to metal

* Carton weights are approximate and may vary.

BUGLE HEAD PHILLIPS DRYWALL SCREWS, BLACK - FINE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (PLAIN)
#6	3/4	100	DWF 634
	1	100	DWF 61
	1 1/8	100	DWF 6118
	1 1/4	100	DWF 6114
	1 5/8	100	DWF 6158
	2	100	DWF 62
#8	2 1/4	100	DWF 6214
	2 1/2	100	DWF 8212
#8	3	100	DWF 83
	4	100	DWF 104
#10	4 1/2	100	DWF 10412
	5	100	DWF 105
	6	100	DWF 106

BUGLE HEAD PHILLIPS DRYWALL SCREWS, BLACK - COARSE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (PLAIN)
#6	3/4	100	DWC 634
	1	100	DWC 61
	1 1/8	100	DWC 6118
	1 1/4	100	DWC 6114
	1 1/2	100	DWC 6112
	1 5/8	100	DWC 6158
	2	100	DWC 62
#7	2 1/4	100	DWC 6214
	2	100	DWC 72
#8	1 5/8	100	DWC 8158
	2 1/2	100	DWC 8212
	2 3/4	100	DWC 8234

DIAMETER	LENGTH	PKG.	PART NO. (PLAIN)
#8	3	100	DWC 83
	3 1/2	100	DWC 8312
#10	3 1/2	100	DWC 10312
	4	100	DWC 104

CONTINUED NEXT COLUMN

BUGLE HEAD PHILLIPS DRYWALL SCREWS, ZINC YELLOW - COARSE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#6	3/4	100	DWCZ 634
	1	100	DWCZ 61
	1 1/8	100	DWCZ 6118
	1 1/4	100	DWCZ 6114
	1 5/8	100	DWCZ 6158
	2	100	DWCZ 62
#8	2 1/4	100	DWCZ 6214
	3	100	DWCZ 83
#10	4	100	DWCZ 104
	4 1/2	100	DWCZ 10412
	5	100	DWCZ 105
	6	100	DWCZ 106

BUGLE HEAD PHILLIPS SELF DRILLING DRYWALL SCREWS, BLACK



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#6	1	100	DWTEK 61
	1 1/4	100	DWTEK 6114
	1 5/8	100	DWTEK 6158
	1 7/8	100	DWTEK 6178
#8	2 3/8	100	DWTEK 8238
	2 5/8	100	DWTEK 8258
	3	100	DWTEK 83

BUGLE HEAD PHILLIPS SELF DRILLING DRYWALL SCREWS - ZINC PLATED



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
#6	1	100	DWTEKZP 61
	1 1/4	100	DWTEKZP 6114
	1 5/8	100	DWTEKZP 6158
#8	2 3/8	100	DWTEKZP 8238
	2 5/8	100	DWTEKZP 8258
	3	100	DWTEKZP 83

STRONG-POINT® PHILLIPS PANCAKE TEK SCREWS - ZINC PLATED



- Meets F.I.P.-1000.7 for torsional strength & drill speed
- Meets ASTM A 510 for carbon steel manufacturing
- Zinc plating meets ASTM B-117 for salt spray corrosion
- Used in framing - Attaches panel clips to steel studs

PART NO. (ZINC)	SIZE	PT.	QTY.	LBS.*	DRILL CAPACITY (IN.)	DRILL SPEED	MATERIAL APPLICATION
PCTEK 1058	10-16 x 5/8	3	8M	41	.035 - .176	2,500 RPM	Attaches panel clips to metal studs
PCTEK 101	10-16 x 1	3	5M	34	.035 - .176	2,500 RPM	Attaches panel clips to metal studs
PCTEK 10112	10-16 x 1 1/2	3	4M	36	.035 - .176	2,500 RPM	Attaches panel clips to metal studs

* Carton weights are approximate and may vary.

STRONG-POINT® PHILLIPS PANCAKE TAPPING SCREWS - ZINC PLATED



- Meets ASTM A 510 for carbon steel manufacturing
- Multipurpose sheet metal screw
- Zinc plating meets ASTM B-117 for salt spray corrosion
- Type 'A' for wood applications

PART NO. (ZINC)	SIZE	QTY.	LBS.*	MATERIAL APPLICATION
PCPTSZ 101	10-12 x 1	5M	34	Attaches panel clips to wood
PCPTSZ 10112	10-12 x 1 1/2	3M	28	Attaches panel clips to wood

* Carton weights are approximate and may vary.

STRONG-POINT® NIBBED HEAVY DUTY PHILLIPS FLAT HEAD WOOD SCREWS, TYPE T-17 - ZINC PLATED

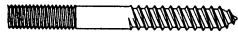


- Asymmetrical thread pattern
- Type '17' reduces wood splitting
- Superior holding power
- Counter sinking nibs for a flush finish

PART NO. (ZINC)	SIZE	QTY.	LBS.*	MATERIAL APPLICATION
WSNIB 81	8 x 1	10M	40	Wood screw for interior wood applications
WSNIB 8114	8 x 1 1/4	8M	38	Wood screw for interior wood applications
WSNIB 8112	8 x 1 1/2	6M	33	Wood screw for interior wood applications
WSNIB 8158	8 x 1 5/8	5M	30	Wood screw for interior wood applications
WSNIB 8134	8 x 1 3/4	4M	26	Wood screw for interior wood applications
WSNIB 82	8 x 2	3.5M	25	Wood screw for interior wood applications
WSNIB 9212	9 x 2 1/2	2.5M	24	Wood screw for interior wood applications
WSNIB 93	9 x 3	2M	23	Wood screw for interior wood applications

* Carton weights are approximate and may vary.











HANGER BOLTS



DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
3/16	1 1/2	100	HB 316112
	2	100	HB 3162
	2 1/2	100	HB 316212
	3	100	HB 3163
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/4	1 1/2	100	HB 14112
	2	100	HB 142
	2 1/4	100	HB 14214
	2 1/2	100	HB 14212
	3	100	HB 143
	4	100	HB 144
5	100	HB 145	
6	100	HB 146	
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
5/16	1 1/2	100	HB 516112
	2	100	HB 5162
	2 1/2	100	HB 516212
	3	100	HB 5163
	4	50	HB 5164
5	50	HB 5165	
6	50	HB 5166	
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
3/8	2 1/2	50	HB 38212
	3	50	HB 383
	3 1/2	50	HB 38312
	4	50	HB 384
	5	50	HB 385
6	50	HB 386	
DIAMETER	LENGTH	PKG.	PART NO. (ZINC)
1/2	3	50	HB 123
	4	50	HB 124
	6	50	HB 126











**SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

OTHER SCREWS AVAILABLE

-  MACHINE SCREWS WITH SEMS
-  HEX HEAD MACHINE SCREWS - ALSO INDENTED HEX
-  FILLISTER HEAD MACHINE SCREWS
-  OVAL HEAD MACHINE SCREWS
-  FLAT HEAD UNDERCUT MACHINE SCREWS
-  SQUARE DRIVE MACHINE SCREWS
-  B POINT SELF TAPPING SCREWS
-  OVAL HEAD SELF TAPPING SCREWS
-  SQUARE DRIVE SELF TAPPING SCREWS
-  SERRATED HEX WASHER HEAD SELF TAPPING SCREWS

CONTINUED NEXT COLUMN

OTHER SCREWS AVAILABLE (Cont.)

-  TYPE I (D) THREAD CUTTING SCREWS
-  TYPE 23 AND 25 THREAD CUTTING SCREWS
-  THREAD FORMING SCREWS - ROLOK, THREAD ROLLING
-  U-DRIVE SCREWS
-  WHIZ LOCK SCREWS
-  SQUARE DRIVE DRYWALL SCREWS
-  SQUARE DRIVE TRIM HEX DRYWALL SCREWS
-  HI-LO DRYWALL SCREWS
-  THUMB SCREWS
-  DOWEL SCREWS

THREADED RODS - COARSE THREAD



DIAMETER	LENGTH	PART NO. (ZINC)
4-40	3'	TRZ 4403
6-32	3'	TRZ 6323
8-32	3'	TRZ 8323
10-24	3'	TRZ 10243
10-32	3'	TRZ 10323
12-24	3'	TRZ 12243

DIAMETER	LENGTH	PART NO. (ZINC)
1/4-20	3'	TRZ 14203
5/16-18	10'	TRZ 142010
3/8-16	3'	TRZ 38163
3/8-16	10'	TRZ 381610
7/16-14	3'	TRZ 716143
7/16-14	10'	TRZ 7161410
1/2-13	3'	TRZ 12133
1/2-13	10'	TRZ 121310
9/16-12	3'	TRZ 916123
9/16-12	10'	TRZ 9161210
5/8-11	3'	TRZ 58113
5/8-11	10'	TRZ 581110
3/4-10	3'	TRZ 34103
3/4-10	10'	TRZ 341010
7/8-9	3'	TRZ 7893
7/8-9	10'	TRZ 78910
1-8	3'	TRZ 183
1-8	10'	TRZ 1810

DIAMETER	LENGTH	PART NO. (ZINC)
1 1/8-7	3'	TRZ 11876
1 1/4-7	3'	TRZ 11476
1 3/8-6	3'	TRZ 13866
1 1/2-6	3'	TRZ 11266
1 3/4-5	3'	TRZ 13456
2 - 4 1/2	3'	TRZ 24126
3 - 4	3'	TRZ 346

THREADED RODS - FINE THREAD



DIAMETER	LENGTH	PART NO. (ZINC)
10-32	3'	TRZ 10323
1/4-28	3'	TRZ 14283
5/16-24	3	TRZ 516243
3/8-24	3'	TRZ 38243
7/16-20	3'	TRZ 716203
1/2-20	3'	TRZ 12203
9/16-18	3'	TRZ 916183
5/8-18	3'	TRZ 58183
3/4-16	3'	TRZ 34163
7/8-14	3'	TRZ 78143
1-14	3'	TRZ 1143

B7 ALL THREAD RODS - COARSE THREAD



DIAMETER	LENGTH	PART NO. (PLAIN)
3/8-16	3'	TRB7 38163
3/8-16	12'	TRB7 381612
1/2-13	3'	TRB7 12133
1/2-13	12'	TRB7 121312
9/16-12	3'	TRB7 916123
9/16-12	12'	TRB7 9161212
5/8-11	3'	TRB7 58113
5/8-11	12'	TRB7 581112
3/4-10	3'	TRB7 34103
3/4-10	12'	TRB7 341012
7/8-9	3'	TRB7 7893
7/8-9	12'	TRB7 78912
1-8	3'	TRB7 183
1-8	12'	TRB7 1812
1 1/8-7	3'	TRB7 11873
1 1/8-7	12'	TRB7 118712
1 1/4-7	3'	TRB7 11473
1 1/4-7	12'	TRB7 114712
1 3/8-6	3'	TRB7 13863
1 3/8-6	12'	TRB7 138612
1 1/2-6	3'	TRB7 11263
1 1/2-6	12'	TRB7 112612

B7 ALL THREAD RODS - FINE THREAD



DIAMETER	LENGTH	PART NO. (PLAIN)
5/8-18	3'	TRB7 58183
3/4-16	3'	TRB7 34163
7/8-14	3'	TRB7 78143
1-14	3'	TRB7 1143
1 1/8-12	3'	TRB7 118123
1 1/4-12	3'	TRB7 114123
1 1/2-12	3'	TRB7 112123

OTHER THREADED ROD PRODUCTS AVAILABLE

 MILD STEEL, B7 AND STAINLESS STEEL FULL THREAD STUDS

OTHER THREADED RODS (Not Pictured) AVAILABLE

BRASS FULL THREAD STUDS, NYLON AND BRASS THREADED RODS.



STAINLESS STEEL HEX HEAD
CAP SCREWS - 316SS (Cont.)

Table of stainless steel hex head cap screws with columns: DIAMETER, LENGTH, PKG., PART NO. (316 S.S.)

CONTINUED NEXT PAGE

Table of stainless steel all thread rods with columns: DIAMETER, LENGTH, PKG., PART NO. (316 S.S.)

SOME SIZES SUBJECT TO
AVAILABILITY AND MINIMUM
QUANTITY PURCHASE

STAINLESS STEEL ALL THREAD
RODS - COARSE THREAD



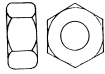
Table of stainless steel all thread rods - coarse thread with columns: DIAMETER, PKG., PART NO. (18.8 S.S.)

STAINLESS STEEL ALL THREAD
RODS - FINE THREAD



Table of stainless steel all thread rods - fine thread with columns: DIAMETER, PKG., PART NO. (18.8 S.S.)

**STAINLESS STEEL FINISHED
HEX NUTS - COARSE THREAD**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
2-56	100	HNS 256
3-48	100	HNS 348
4-40	100	HNS 440
5-40	100	HNS 540
6-32	100	HNS 632
8-32	100	HNS 832
10-24	100	HNS 1024
12-24	100	HNS 1224
1/4-20	100	HNS 1420
5/16-18	100	HNS 51618
3/8-16	100	HNS 3816
7/16-14	100	HNS 71614
1/2-13	100	HNS 1213
9/16-12	50	HNS 91612
5/8-11	50	HNS 5811
3/4-10	25	HNS 3410
7/8-9	25	HNS 789
1-8	10	HNS 18
1 1/8-7	10	HNS 1187
1 1/4-7	10	HNS 1147
1 3/8-6	10	HNS 1386
1 1/2-6	10	HNS 1126

**STAINLESS STEEL FINISHED
HEX NUTS - COARSE THREAD**



DIAMETER	PKG.	PART NO. (316 S.S.)
2-56	100	HN316 256
3-48	100	HN316 348
4-40	100	HN316 440
5-40	100	HN316 540
6-32	100	HN316 632
8-32	100	HN316 832
10-24	100	HN316 1024
12-24	100	HN316 1224
1/4-20	100	HN316 1420
5/16-18	100	HN316 51618
3/8-16	100	HN316 3816
7/16-14	100	HN316 71614
1/2-13	100	HN316 1213
9/16-12	50	HN316 91612
5/8-11	50	HN316 5811
3/4-10	25	HN316 3410
7/8-9	25	HN316 789
1-8	10	HN316 18
1 1/8-7	10	HN316 1187
1 1/4-7	10	HN316 1147
1 3/8-6	10	HN316 1386
1 1/2-6	10	HN316 1126

**STAINLESS STEEL FINISHED
HEX NUTS - FINE THREAD**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
10-32	100	HNS 1032
1/4-28	100	HNS 1428
5/16-24	100	HNS 51624
3/8-24	100	HNS 3824
7/16-20	100	HNS 71620
1/2-20	100	HNS 1220
5/8-18	50	HNS 5818
3/4-16	25	HNS 3416
7/8-14	25	HNS 7814
1-14	10	HNS 114

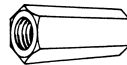
**STAINLESS STEEL HEAVY
HEX NUTS - COARSE THREAD**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
1/4-20	100	HNHS 1420
3/8-16	100	HNHS 3816
1/2-13	100	HNHS 1213
5/8-11	50	HNHS 5811
3/4-10	25	HNHS 3410
7/8-9	25	HNHS 789
1-8	10	HNHS 18
1 1/8-7	10	HNHS 1187
1 1/4-7	10	HNHS 1147
1 3/8-6	10	HNHS 1386
1 1/2-6	10	HNHS 1126

ALSO AVAILABLE IN 316 S.S.

**STAINLESS STEEL
HEX COUPLING NUTS**



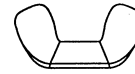
DIAMETER	PKG.	PART NO. (18.8 S.S.)
1/4-20	50	HCNS 1420
5/16-18	50	HCNS 51618
3/8-16	25	HCNS 3816
1/2-13	25	HCNS 1213
5/8-11	10	HCNS 5811
3/4-10	10	HCNS 3410
1-8	5	HCNS 18
1 1/4-7	1	HCNS 1147

**STAINLESS STEEL
HEX K-LOCK (KEP) NUTS**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
4-40	100	KNS 440
6-32	100	KNS 632
8-32	100	KNS 832
10-24	100	KNS 1024
1/4-20	100	KNS 1402
5/16-18	100	KNS 51618
3/8-16	100	KNS 3816

**STAINLESS STEEL
WING NUTS - COLD FORGED**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
6-32	100	WINGNS 632
8-32	100	WINGNS 832
10-32	100	WINGNS 1032
10-24	100	WINGNS 1024
1/4-20	100	WINGNS 1420
1/4-28	100	WINGNS 1428
5/16-18	100	WINGNS 51618
5/16-24	100	WINGNS 51624
3/8-16	100	WINGNS 3816
3/8-24	100	WINGNS 3824
1/2-13	100	WINGNS 1213
1/2-20	100	WINGNS 1220

**STAINLESS STEEL
ACORN CAP NUTS**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
4-40	100	CAPNS 440
6-32	100	CAPNS 632
8-32	100	CAPNS 832
10-24	100	CAPNS 1024
1/4-20	100	CAPNS 1420
1/4-28	100	CAPNS 1428
5/16-24	100	CAPNS 51624
3/8-16	100	CAPNS 3816
3/8-24	100	CAPNS 3824
7/16-14	100	CAPNS 71614
7/16-20	100	CAPNS 71620
1/2-13	100	CAPNS 1213
1/2-20	100	CAPNS 1220
5/8-11	100	CAPNS 5811
3/4-10	100	CAPNS 3410
1-8	100	CAPNS 18

**STAINLESS STEEL NYLON INSERT
LOCK NUTS (NYLOCKS)**



DIAMETER	PKG.	PART NO. (18.8 S.S.)
4-40	100	LNS 440
6-32	100	LNS 632
8-32	100	LNS 832
10-24	100	LNS 1024
10-32	100	LNS 1032
1/4-20	100	LNS 1420
1/4-28	100	LNS 1428
5/16-18	100	LNS 51618
5/16-24	100	LNS 51624
3/8-16	100	LNS 3816
3/8-24	100	LNS 3824
7/16-14	100	LNS 71614
7/16-24	100	LNS 71624
1/2-13	100	LNS 1213
1/2-20	100	LNS 1220
5/8-11	50	LNS 5811
5/8-18	50	LNS 5818
3/4-10	25	LNS 3410
3/4-16	25	LNS 3416
7/8-9	25	LNS 789
1-8	25	LNS 18
1 1/4-7	25	LNS 1147
1 1/2-6	25	LNS 1126

ALSO AVAILABLE IN 316 S.S.

Tired of never having the right fastener for your job?

Ask our sales people about FAS-KIT'S fastener assortments.

- Screws
- Nuts & Washers
- Electrical Terminals
- Plittings
- Steel & Stainless Retaining Rings
- Metric
- And More!

STAINLESS STEEL HEX JAM NUTS



DIAMETER	PKG.	PART NO. (18.8 S.S.)
1/4-20	100	HJNS 1420
1/4-28	100	HJNS 1428
5/16-18	100	HJNS 51618
5/16-24	100	HJNS 51624
3/8-16	100	HJNS 3816
3/8-24	100	HJNS 3824
7/16-20	100	HJNS 71620
1/2-13	100	HJNS 1213
1/2-20	100	HJNS 1220
5/8-11	50	HJNS 5811
5/8-18	50	HJNS 5818
3/4-10	25	HJNS 3410
3/4-16	25	HJNS 3416
7/8-9	25	HJNS 789
7/8-14	25	HJNS 7814
1-8	10	HJNS 18
1 1/8-7	10	HJNS 1187
1 1/4-7	10	HJNS 1147

SUBJECT TO AVAILABILITY

STAINLESS STEEL FLAT WASHERS



DIAMETER	PKG.	PART NO. (18.8 S.S.)	PART NO. (316 S.S.)
#12	100	FWS #12	—
1/4	100	FWS 14	FW316 14
5/16	100	FWS 516	FW316 516
3/8	100	FWS 38	FW316 38
7/16	100	FWS 716	FW316 716
1/2	100	FWS 12	FW316 12
9/16	50	FWS 916	FW316 916
5/8	50	FWS 58	FW316 58
3/4	25	FWS 34	FW316 34
7/8	25	FWS 78	FW316 78
1	10	FWS 1	FW316 1
1 1/8	10	FWS 118	FW316 118
1 1/4	10	FWS 114	FW316 114
1 1/2	10	FWS 112	FW316 112

STAINLESS STEEL FENDER WASHERS



DIAMETER	O.D.	PKG.	PART NO. (18.8 S.S.)
#6	5/8	100	FENDWS 658
#8	3/4	100	FENDWS 834
#10	5/8	100	FENDWS 1058
	3/4	100	FENDWS 1034
	1	100	FENDWS 101
	1 1/4	100	FENDWS 10114
1/4	1	100	FENDWS 141
	1 1/4	100	FENDWS 14114
	1 1/2	100	FENDWS 14112
	2	100	FENDWS 142
5/16	1 1/4	100	FENDWS 516114
	1 1/2	100	FENDWS 516112
	2	100	FENDWS 5162
3/8	1 1/4	100	FENDWS 38114
	1 1/2	100	FENDWS 38112
	2	100	FENDWS 382
1/2	1 1/2	100	FENDWS 12112
	2	100	FENDWS 122

AN 960 WASHERS

HOW TO ORDER AN "AN" WASHER(s)

EXAMPLE: 1/4 STD. THICKNESS, STEEL Y/P AN 960- 416
 EXAMPLE: 3/8 STD. THICKNESS, STAINLESS STEEL AN 960- C616
 EXAMPLE: 5/8 THIN THICKNESS, STAINLESS STEEL AN 960- C1016L



DIAMETER	I.D.	O.D.	THK.	MATERIAL		
				STEEL YELLOW PLATED	STAINLESS STEEL	BRASS
#2	0.099	0.25	0.016	2L	C2L	—
				2	C2	B2
#3	0.109	0.25	0.016	3L	C3L	—
				3	C3	B3
#4	0.125	0.312	0.016	4L	C4L	—
				4	C4	B4
#6	0.149	0.375	0.016	6L	C6L	—
				6	C6	B6
#8	0.174	0.375	0.016	8L	C8L	—
				8	C8	B8
#10	0.203	0.438	0.032	10L	C10L	—
				10	C10	B10
1/4"	0.265	0.5	0.032	416L	C416L	—
				416	C416	B416
5/16"	0.328	0.562	0.032	516L	C516L	—
				516	C516	B516
3/8"	0.39	0.625	0.032	616L	C616L	—
				616	C616	B616
7/16"	0.453	0.75	0.032	716L	C716L	—
				716	C716	B716
1/2"	0.515	0.875	0.032	816L	C816L	—
				816	C816	B816
9/16"	0.578	1.062	0.032	916L	C916L	—
				916	C916	B916
5/8"	0.64	1.188	0.032	1016L	C1016L	—
				1016	C1016	B1016
3/4"	0.765	1.312	0.032	1216L	C1216L	—
				1216	C1216	B1216
7/8"	0.890	1.5	0.032	1416L	C1416L	—
				1416	C1416	B1416
1"	1.015	1.75	0.032	1616L	C1616L	—
				1616	C1616	B1616

STAINLESS STEEL MEDIUM SPLIT LOCK WASHERS



DIAMETER	PKG.	PART NO. (18.8 S.S.)	PART NO. (316 S.S.)
#2	100	LWS 2	—
#3	100	LWS 3	—
#4	100	LWS 4	—
#6	100	LWS 6	LW316 6
#8	100	LWS 8	—
#10	100	LWS 10	—
#12	100	LWS 12	—
1/4	100	LWS 14	—
5/16	100	LWS 516	—
3/8	100	LWS 38	—
7/16	100	LWS 716	—
1/2	100	LWS 12	—
9/16	100	LWS 916	—
5/8	100	LWS 58	—
3/4	100	LWS 34	—
7/8	100	LWS 78	—
1	100	LWS 1	—
1 1/8	50	LWS 118	—
1 1/4	25	LWS 114	—
1 1/2	25	LWS 112	—

STAINLESS STEEL EXTERNAL TOOTH LOCKWASHERS



DIAMETER	PKG.	PART NO. (420 S.S.)
#6	100	LWES 6
#8	100	LWES 8
#10	100	LWES 10
1/4	100	LWES 14
5/16	100	LWES 516
3/8	100	LWES 38
7/16	100	LWES 716
1/2	100	LWES 12
9/16	100	LWES 916
5/8	100	LWES 58
3/4	100	LWES 34

STAINLESS STEEL INTERNAL TOOTH LOCKWASHERS



DIAMETER	PKG.	PART NO. (420 S.S.)
#2	100	LWIS 2
#4	100	LWIS 4
#6	100	LWIS 6
#8	100	LWIS 8
#10	100	LWIS 10
#12	100	LWIS 12
1/4	100	LWIS 14
5/16	100	LWIS 516
3/8	100	LWIS 38
7/16	100	LWIS 716
1/2	100	LWIS 12
5/8	100	LWIS 58
3/4	100	LWIS 34

STAINLESS STEEL SOCKET CAP SCREWS - COARSE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
2-56	1/8	100	SCS 25618	
	3/16	100	SCS 256316	
	1/4	100	SCS 25614	
5/64 Hex	3/8	100	SCS 25638	
	1/2	100	SCS 25612	
	3/4	100	SCS 25634	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	4-40	1/4	100	SCS 44014
		3/8	100	SCS 44038
1/2		100	SCS 44012	
3/32 Hex	5/8	100	SCS 44058	
	3/4	100	SCS 44034	
	7/8	100	SCS 44078	
	1	100	SCS 4401	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	6-32	3/16	100	SCS 632316
		1/4	100	SCS 63214
5/16		100	SCS 632516	
3/8		100	SCS 63238	
1/2		100	SCS 63212	
7/64 Hex		5/8	100	SCS 63258
		3/4	100	SCS 63234
		7/8	100	SCS 63278
	1	100	SCS 6321	
8-32	1 1/4	100	SCS 632114	
	1 1/2	100	SCS 632112	
	1 3/4	100	SCS 632134	
	2	100	SCS 6322	
	DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
8-32		1/4	100	SCS 83214
		5/16	100	SCS 832516
	3/8	100	SCS 83238	
	1/2	100	SCS 83212	
	9/64 Hex	5/8	100	SCS 83258
3/4		100	SCS 83234	
7/8		100	SCS 83278	
1		100	SCS 8321	
10-24	1 1/4	100	SCS 832114	
	1 1/2	100	SCS 832112	
	2	100	SCS 8322	
	DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
10-24		1/4	100	SCS 102414
		5/16	100	SCS 1024516
	3/8	100	SCS 102438	

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
10-24	1/2	100	SCS 102412	
	5/8	100	SCS 102458	
	3/4	100	SCS 102434	
	7/8	100	SCS 102478	
5/32 Hex	1	100	SCS 10241	
	1 1/4	100	SCS 1024114	
	1 1/2	100	SCS 1024112	
	2	100	SCS 1024	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	1/4-20	3/8	100	SCS 142038
		1/2	100	SCS 142012
5/8		100	SCS 142058	
3/4		100	SCS 142034	
7/8		100	SCS 142078	
3/16 Hex		1	100	SCS 14201
	1 1/4	100	SCS 1420114	
	1 1/2	100	SCS 1420112	
	1 3/4	100	SCS 1420134	
	2	100	SCS 14202	
	2 1/4	100	SCS 1420214	
	2 1/2	100	SCS 1420212	
	3	100	SCS 14203	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	5/16-18	1/4	100	SCS 5161814
		3/8	100	SCS 5161838
1/2		100	SCS 5161812	
5/8		100	SCS 5161858	
3/4		100	SCS 5161834	
1/4 Hex		1	100	SCS 516181
	1 1/4	100	SCS 51618114	
	1 1/2	100	SCS 51618112	
	1 3/4	100	SCS 51618134	
	2	100	SCS 516182	
	2 1/4	100	SCS 51618214	
	2 1/2	100	SCS 51618212	
	3	100	SCS 516183	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	3/8-16	1/2	100	SCS 381612
		5/8	100	SCS 381658
3/4		100	SCS 381634	
5/16 Hex	1	100	SCS 38161	
	1 1/4	100	SCS 3816114	
	1 1/2	100	SCS 3816112	

STAINLESS STEEL SOCKET CAP SCREWS - FINE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
10-32	1/4	100	SCS 103214	
	5/16	100	SCS 1032516	
	3/8	100	SCS 103238	
	1/2	100	SCS 103212	
	5/32 Hex	5/8	100	SCS 103258
3/4		100	SCS 103234	
7/8		100	SCS 103278	
1		100	SCS 10321	
9/64 Hex	1 1/4	100	SCS 1032114	
	1 1/2	100	SCS 1032112	
	2	100	SCS 10322	
	DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
1/4-28		1/2	100	SCS 142812
		5/8	100	SCS 142858
	3/4	100	SCS 142834	
3/16 Hex	1	100	SCS 14281	
	1 1/4	100	SCS 1428114	
	1 1/2	100	SCS 1428112	

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
5/16-24	1/2	100	SCS 5162412	
	3/4	100	SCS 5162434	
1/4 Hex	1	100	SCS 516241	
	1 1/2	100	SCS 51624112	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	3/8-24	3/4	100	SCS 382434
		1	100	SCS 38241
5/16 Hex	1 1/4	100	SCS 3824114	
	1 1/2	100	SCS 3824112	

STAINLESS STEEL BUTTON HEAD SOCKET CAP SCREWS - COARSE THREAD



DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
2-56	1/4	100	BHSS 25614	
	3/8	100	BHSS 25638	
	1/2	100	BHSS 25612	
.050 Hex	1/2	100	BHSS 25612	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	4-40	1/8	100	BHSS 44018
		3/16	100	BHSS 440316
1/4		100	BHSS 44014	
5/16		100	BHSS 440516	
1/16 Hex	3/8	100	BHSS 44038	
	1/2	100	BHSS 44012	
	3/4	100	BHSS 44034	
	1	100	BHSS 4401	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	6-32	1/4	100	BHSS 63214
		3/8	100	BHSS 63238
1/2		100	BHSS 63212	
5/64 Hex	5/8	100	BHSS 63258	
	3/4	100	BHSS 63234	
	1	100	BHSS 6321	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	8-32	1/4	100	BHSS 83214
		3/8	100	BHSS 83238
1/2		100	BHSS 83212	
5/8		100	BHSS 83258	
3/32 Hex	3/4	100	BHSS 83234	
	7/8	100	BHSS 83278	
	1	100	BHSS 8321	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	10-24	3/8	100	BHSS 102438
		1/2	100	BHSS 102412
5/8		100	BHSS 102458	
3/4		100	BHSS 102434	
7/8		100	BHSS 102478	
1/8 Hex	1	100	BHSS 10241	
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)	
	1/4-20	3/8	100	BHSS 142038
		1/2	100	BHSS 142012
5/8		100	BHSS 142058	
3/4		100	BHSS 142034	
5/32 Hex	1	100	BHSS 14201	
	1 1/4	100	BHSS 1420114	
	1 1/2	100	BHSS 1420112	
	DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
5/16-18		1/2	100	BHSS 5161812
		3/4	100	BHSS 5161834
3/16 Hex	1	100	BHSS 516181	
	1 1/2	100	BHSS 51618112	

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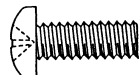
**STAINLESS STEEL SOCKET SET
SCREWS, CUP POINT
- FINE THREAD**



DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
10-32	1/8	100	SSS 103218
	1/4	100	SSS 103214
	5/16	100	SSS 1032516
	3/8	100	SSS 103238
	1/2	100	SSS 103212
3/32 Hex	5/8	100	SSS 103258
	3/4	100	SSS 103234
	1	100	SSS 10321
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
1/4-28	3/16	100	SSS 1428316
	1/4	100	SSS 142814
	3/8	100	SSS 142838
	1/2	100	SSS 142812
1/8 Hex	5/8	100	SSS 142858
	3/4	100	SSS 142834
	1	100	SSS 14281
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
5/16-24	1/4	100	SSS 5162414
	5/16	100	SSS 51624516
5/32 Hex	3/8	100	SSS 5162438
	1/2	100	SSS 5162412
	1	100	SSS 516241
DIAMETER	LENGTH	PKG.	PART NO. (18.8 S.S.)
3/8-24	1/4	100	SSS 382414
	3/8	100	SSS 382438
3/16 Hex	1/2	100	SSS 382412
	3/4	100	SSS 382434
	1	100	SSS 38241

**SUBJECT TO AVAILABILITY
AND MINIMUM QUANTITY
PURCHASE**

**STAINLESS STEEL PAN PHILLIPS
MACHINE SCREWS
- COARSE & FINE THREADS**



DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
2-56	3/16	PHMPS 256316	—
	1/4	PHMPS 25614	—
	5/16	PHMPS 256516	—
	3/8	PHMPS 25638	—
	1/2	PHMPS 25612	—
	5/8	PHMPS 25658	—
4-40	3/4	PHMPS 44034	—
	1	PHMPS 4401	—
	1 1/4	PHMPS 440114	—
	1 1/2	PHMPS 440112	—
	3/8	PHMPS 44038	—
	1/2	PHMPS 44012	—
DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
6-32	3/16	PHMPS 632316	—
	1/4	PHMPS 63214	—
	3/8	PHMPS 63238	—
	1/2	PHMPS 63212	—

CONTINUED NEXT COLUMN

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
6-32	5/8	PHMPS 63258	—
	3/4	PHMPS 63234	—
	1	PHMPS 6321	—
	1 1/4	PHMPS 632114	—
	1 1/2	PHMPS 632112	—
	1 3/4	PHMPS 632134	—
	2	PHMPS 6322	—
	2 1/2	PHMPS 632212	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
8-32	1/4	PHMPS 83214	—
	3/8	PHMPS 83238	—
	1/2	PHMPS 83212	—
	5/8	PHMPS 83258	—
	3/4	PHMPS 83234	—
	7/8	PHMPS 83278	—
	1	PHMPS 8321	—
	1 1/4	PHMPS 832114	—
	1 1/2	PHMPS 832112	—
	1 3/4	PHMPS 832134	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
10-24	1/4	PHMPS 102414	—
	3/8	PHMPS 102438	—
	1/2	PHMPS 102412	—
	5/8	PHMPS 102458	—
	3/4	PHMPS 102434	—
	1	PHMPS 10241	—
	1 1/4	PHMPS 1024114	—
	1 1/2	PHMPS 1024112	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
10-32	1/4	—	PHMPS 103214
	3/8	—	PHMPS 103238
	1/2	—	PHMPS 103212
	3/4	—	PHMPS 103234
	1	—	PHMPS 10321
	1 1/4	—	PHMPS 1032114
	1 1/2	—	PHMPS 1032112
	1 3/4	—	PHMPS 1032134
	2	—	PHMPS 10322
	2 1/2	—	PHMPS 1032212

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
12-24	3/8	PHMPS 122438	—
	1/2	PHMPS 122412	—
	5/8	PHMPS 122458	—
	3/4	PHMPS 122434	—
	1	PHMPS 12241	—
	1 1/4	PHMPS 1224114	—
	1 1/2	PHMPS 1224112	—
	3	PHMPS 12243	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
1/4-20	3/8	PHMPS 142038	—
	1/2	PHMPS 142012	—
	3/4	PHMPS 142034	—
	1	PHMPS 14201	—
	1 1/4	PHMPS 1420114	—
	1 1/2	PHMPS 1420112	—
	2	PHMPS 14202	—
	2 1/2	PHMPS 1420212	—
	3	PHMPS 14203	—
	3 1/2	PHMPS 1420312	—

CONTINUED NEXT COLUMN

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
5/16-18	1/2	PHMPS 5161812	—
	3/4	PHMPS 5161834	—
	1	PHMPS 516181	—
	1 1/4	PHMPS 51618114	—
	1 1/2	PHMPS 51618112	—
	2	PHMPS 516182	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
3/8-16	1/2	PHMPS 381612	—
	3/4	PHMPS 381634	—
	1	PHMPS 38161	—
	1 1/4	PHMPS 3816114	—
	1 1/2	PHMPS 3816112	—
	2	PHMPS 38162	—
	2 1/2	PHMPS 3816212	—
	3	PHMPS 38163	—

**STAINLESS STEEL FLAT HEAD
PHILLIPS MACHINE SCREWS
- COARSE & FINE THREADS**



DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
0-80	3/16	FHMPS 080316	—
	1/4	FHMPS 08014	—
	5/16	FHMPS 080516	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
4-40	3/16	FHMPS 440316	—
	1/4	FHMPS 44014	—
	3/8	FHMPS 44038	—
	1/2	FHMPS 44012	—
	5/8	FHMPS 44058	—
	3/4	FHMPS 44034	—
	1	FHMPS 4401	—
	1 1/4	FHMPS 440114	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
6-32	1/4	FHMPS 63214	—
	3/8	FHMPS 63238	—
	1/2	FHMPS 63212	—
	5/8	FHMPS 63258	—
	3/4	FHMPS 63234	—
	1	FHMPS 6321	—
	1 1/4	FHMPS 632114	—
	1 1/2	FHMPS 632112	—
	1 3/4	FHMPS 632134	—
	2	FHMPS 6322	—

DIAMETER	PKG.	PART NO. (COARSE)	PART NO. (FINE)
8-32	1/4	FHMPS 83214	—
	3/8	FHMPS 83238	—
	1/2	FHMPS 83212	—
	3/4	FHMPS 83234	—
	1	FHMPS 8321	—
	1 1/4	FHMPS 832114	—
	1 1/2	FHMPS 832112	—
	1 3/4	FHMPS 832134	—
	2	FHMPS 8322	—
	2 1/2	FHMPS 832212	—

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**SELF DRILLING SCREWS
- 410 STAINLESS STEEL**



Pan Head Phillips



Flat Head Phillips

SIZE	HWH	PAN HEAD PHILLIPS	FLAT HEAD PHILLIPS
6 x 3/8	—	100	—
6 x 1/2	100	100	—
6 x 3/4	—	100	—
6 x 1	100	100	—
8 x 3/8	—	100	—
8 x 1/2	100	100	100
8 x 5/8**	—	—	—
9 x 3/4	100	100	100
8 x 1	100	100	100
8 x 1 1/4	100	100	100
8 x 1 1/2	100	100	100
8 x 2	100	100	—
10 x 1/2	100	100	—
10 x 3/4	100	100	100
10 x 1	100	100	100
10 x 1 1/4	100	100	100
10 x 1 1/2	100	100	100
10 x 2	100	100	100
10 x 2 1/2	100	100	100
10 x 3	100	100	100
10 x 4	100	—	—
12 x 3/4	100	100	100
12 x 1	100	100	100
12 x 1 1/4	100	100	100
12 x 1 1/2	100	100	100
12 x 1 3/4	100	—	100
12 x 2	100	100	100
12 x 2 1/2	100	100	100
12 x 3	100	100	100
12 x 4	100	—	100
14 x 3/4	100	100	100
14 x 1	100	100	100
14 x 1 1/4	100	100	100
14 x 1 1/2	100	100	100
14 x 1 3/4	100	—	100
14 x 2	100	100	—
14 x 2 1/2	100	100	100
14 x 3	100	100	100
14 x 4	100	—	100
14 x 5**	—	—	—
14 x 6**	—	—	—
14 x 7**	—	—	—
14 x 8**	—	—	—

** Subject To Availability

**OTHER STAINLESS STEEL
FASTENERS AVAILABLE**



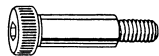
NYLON INSERT
JAM NUTS



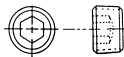
SAE FLAT
WASHERS



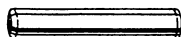
BELLEVILLE
WASHERS



SOCKET HEAD
SHOULDER SCREWS



PIPE PLUGS



DOWEL PINS



ELCO STANDARD DRILL SCREWS



PART NO.	DESCRIPTION	POINT TYPE	FINISH	CARTON QUANTITY	WEIGHT/CARTON
#8 DIAMETER, 1/4" HEX WASHER HEAD					
EDA 236-I	8-18 x 1/2"	#2 Drillit	Stalgard	10,000	36
EDA 261-I	8-18 x 3/4"	#2 Drillit	Stalgard	8,000	37
EDA 286-I	8-18 x 1"	#2 Drillit	Stalgard	5,000	27
#8 DIAMETER, #2 PHILLIPS PAN HEAD					
EDD 251-I	8-18 x 1/2"	#2 Drillit	Stalgard	10,000	34
EDD 266-I	8-18 x 3/4"	#2 Drillit	Stalgard	10,000	44
EDD 291	8-18 x 1"	#2 Drillit	Stalgard	8,000	43
#10 DIAMETER, 5/16" HIGH HEX WASHER HEAD					
EDB 401	10-16 x 1/2"	#3 Drillit	Stalgard	8,000	39
EDB 426	10-16 x 5/8"	#3 Drillit	Stalgard	6,000	45
EDB 446	10-16 x 3/4"	#3 Drillit	Stalgard	6,000	47
EFC 460-I	10-16 x 3/4"	#3 Drillit	Zinc	6,000	47
EDC 450	10-16 x 3/4"	#1 Drillit	Stalgard	5,000	39
EDB 486	10-16 x 1"	#3 Drillit	Stalgard	5,000	46
EDB541	10-16 x 1 1/2"	#3 Drillit	Stalgard	3,000	35
EDB 571	10-16 x 2"	#3 Drillit	Stalgard	2,000	29
#12 DIAMETER, 5/16" HEX WASHER HEAD					
EDC 745	12-14 x 3/4"	#1 Drillit	Stalgard	5,000	45
EDB 741	12-14 x 3/4"	#3 Drillit	Stalgard	5,000	46
EDB 761	12-14 x 1"	#3 Drillit	Stalgard	4,000	41
EDB 782	12-14 x 1 1/4"	#3 Drillit	Stalgard	3,000	36
EDB 801	12-14 x 1 1/2"	#3 Drillit	Stalgard	2,500	35
EDB 821	12-14 x 2"	#3 Drillit	Stalgard	2,000	34
EDB 840	12-14 x 3"	#3 Drillit	Stalgard	1,000	24
EDB 845	12-14 x 4"	#3 Drillit	Stalgard	500	15
1/4" DIAMETER, 3/8" HEX WASHER HEAD					
EDB 936	1/4-14 x 3/4"	#3 Drillit	Stalgard	3,500	48
EDC 930	1/4-14 x 7/8"	#1 Drillit	Stalgard	4,000	38
EDB 946	1/4-14 x 1"	#3 Drillit	Stalgard	3,000	47
EDB 956	1/4-14 x 1 1/4"	#3 Drillit	Stalgard	2,000	37
EDB 961	1/4-14 x 1 1/2"	#3 Drillit	Stalgard	2,000	39
EDB 971	1/4-14 x 2"	#3 Drillit	Stalgard	1,500	38
EDB 981	1/4-14 x 3"	#3 Drillit	Stalgard	800	28
EDB 983	1/4-14 x 4"	#3 Drillit	Stalgard	500	23

ELCO DRIL-IT® DRILL SCREWS



PART NO.	DESCRIPTION	POINT TYPE	FINISH	TYPICAL WOOD THICKNESS	DRILLING CAPACITY (min. - max. in steel)	QTY. PER SHIPPER	WT. PER SHIPPER
#10 DIAMETER, #2 PHILLIPS WAFER HEAD							
EDM 582	10-24 x 3/4"	#3	Gray Stalgard	3/8"	.036" - .187"	8,000	43
EDM 592	10-24 x 1"	##	Gray Stalgard	1/2"	.036" - .187"	6,000	43
EDM 607	10-24 x 1 1/4"	#3	Gray Stalgard	5/8"	.036" - .187"	5,000	38
EDT 602	10-24 x 1 7/16"	#3 w/wings	Gray Stalgard	3/4"	.036" - .187"	4,000	40
EDM 622	10-16 x 1 1/2"	#3	Gray Stalgard	3/4"	.036" - .187"	3,500	35
EDM 635	10-16 x 1 13/16"	#3	Gray Stalgard	3/4"	.036" - .150"	2,500	29
#12 DIAMETER, #3 PHILLIPS WAFER HEAD							
EDT 720	12-24 x 1 3/4"	#4 w/wings	Gray Stalgard	1"	.060" - .250"	2,000	29
#12 DIAMETER, #3 PHILLIPS FLAT HEAD							
EDT 267	12-24 x 2 1/4"	#4 w/wings	Gray Stalgard	1 1/4"	.060" - .250"	2,000	32
EDT 282	12-24 x 2 3/4"	#4 w/wings	Gray Stalgard	1 5/8"	.060" - .250"	1,500	30
EDJ 867	12-14 x 3 5/8"	#2 w/pilot	Gray Stalgard	1 3/4"	.030" - .150"	1,000	24
1/4" DIAMETER, #3 PHILLIPS FLAT HEAD							
EDT 442	1/4-20 x 3"	#4 w/wings	Gray Stalgard	2"	.060" - .250"	1,000	30
EDT 470	1/4-20 x 4"	#4 w/wings	Gray Stalgard	3"	.060" - .250"		



**ELCO BI-FLEX™ BI-METAL 300 SERIES STAINLESS STEEL FASTENERS
- FLAT HEAD REAMERS w/WINGS**



PART NO.	DIA. - TPI	LENGTH	DRIVE SYSTEM	POINT SIZE	MAX. LOAD-BEARING LENGTH	PIECES PER 1/4 KEG	WEIGHT/ 1/4 KEG
EBN 140	10-16	1 1/2"	#2 Phillips	3	0.800"	3,500	30
EBN 345	12-24	2 13/16"	#3 Phillips	5	1.710"	1,000	21
EBN 645	1/4-20	2 13/16"	#3 Phillips	5	1.710"	1,000	28

ELCO DRILL SCREWS WITH EXTENDED DRILLING CAPACITY



PART NO.	DESCRIPTION	POINT TYPE	FINISH	CARTON QUANTITY	CARTON WEIGHT
#12 DIAMETER DECKING FASTENERS AND DRILL SCREWS FOR STEEL THICKNESSES OF .175" TO .500"					
EDC 801	12-24 x 7/8"	#4 Drilit	Stalgard	4,500	47
EDC 816	12-24 x 1 1/4"	#4.5 Drilit	Stalgard	3,500	50
EDC 720	12-24 x 1 1/4"	#5 Drilit	Stalgard	4,000	45
EDC 740	12-24 x 1 1/2"	#5 Drilit	Stalgard	2,500	40
EDC 750	12-24 x 2"	#5 Drilit	Stalgard	2,000	35
1/4" DIAMETER DECKING FASTENERS AND DRILL SCREWS FOR STEEL THICKNESSES OF .175" to .500"					
ECC 940	1/4-20 x 3"	#5 Drilit	Stalgard	1,000	36
ECC 950	1/4-20 x 4"	#5 Drilit	Stalgard	1,000	46
ECC 960	1/4-20 x 5"	#5 Drilit	Stalgard	500	31
ECC 970	1/4-20 x 6"	#5 Drilit	Stalgard	500	37
ECC 980	1/4-20 x 8"	#5 Drilit	Stalgard	150	16

NOTE: 1/4-20 drill screws with #5 points are available with bonded washers.

ELCO ARCHITECTURAL ROOF CLIP FASTENERS



PART NO.	DESCRIPTION	DRIVE SYSTEM	POINT TYPE	FINISH	CARTON QUANTITY	CARTON WEIGHT
FOR STEEL						
EDO 450	10-16 x 1"	#2 Phillips	#3	Silver Stalgard	4,000	34
EDO 460	10-16 x 1 1/2"	#2 Phillips	#3	Silver Stalgard	3,000	34
EDO 470	10-16 x 2"	#2 Phillips	#3	Silver Stalgard	2,000	28
EDC 735	12-14 x 1"	#2 Phillips	#3	Silver Stalgard	4,000	40
FOR WOOD/LIGHT GAUGE STEEL						
ETA 850	10-12 x 1"	#2 Phillips	Pierce	Gray Stalgard	4,000	37
ETA 855	10-12 x 1 1/2"	#2 Phillips	Pierce	Gray Stalgard	3,000	33
ETA 860	10-12 x 2"	#2 Phillips	Pierce	Gray Stalgard	2,000	27
ETA 870	12-11 x 1"	#2 Phillips	Pierce	Gray Stalgard	4,000	40

* Gray Stalgard coating is ACQ-compatible.

ELCO TAP-FLEX™ THREAD-FORMING STRUCTURAL SCREWS

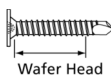


PART NO.	SIZE	FINISH	LOAD-BEARING LENGTH	QUANTITY	WEIGHT
3/8" DIAMETER, HEX WASHER HEAD					
ESU 310	3/8-16 x 1-1/2	Stalgard SUB	1.00"	500	34
ESU 320	3/8-16 x 2	Stalgard SUB	1.49"	500	40
ESU 330	3/8-16 x 2-1/2	Stalgard SUB	1.99"	500	46
1/2" DIAMETER, HEX WASHER HEAD					
ESU 410	1/2-13 x 1-1/2	Stalgard SUB	0.875"	250	36
ESU 420	1/2-13 x 2	Stalgard SUB	1.365"	250	41
ESU 430	1/2-13 x 2-1/2	Stalgard SUB	1.865"	250	47
3/8" DIAMETER, HEX WASHER HEAD					
ESU 510	5/8-11 x 1-1/2	Stalgard SUB	0.800"	250	46
ESU 520	5/8-11 x 2	Stalgard SUB	1.24"	150	33
ESU 530	5/8-11 x 2-1/2	Stalgard SUB	1.74"	150	38



ELCO DRIL-FLEX® STRUCTURAL DRILL SCREWS

Load-Bearing Area:



PART NO.	DESCRIPTION	POINT	LOAD-BEARING AREA	FINISH	CARTON QUANTITY	CARTON WEIGHT
#10 DIAMETER, 5/16" HEX WASHER HEAD						
EAF 430	10-16 x 3/4"	#3	.380"	Stalgard SUB	6,000	48
EAF 460	10-16 x 1-1/2"	#3	1.25"	Stalgard SUB	2,500	30
EAF 470	10-16 x 2"	#3	1.50"	Stalgard SUB	2,000	28
EAF 480	10-16 x 2-1/2"	#3	2.25"	Stalgard SUB	1,500	25
#10 DIAMETER, #2 PHILLIPS PAN HEAD						
EDX 445	10-16 x 3/4"	#2	.380"	Stalgard	6,000	36
#10 DIAMETER, #2 PHILLIPS WAFER HEAD						
EBL 530	10-24 x 1-1/4"	#3	.750"	Stalgard	5,000	44
#12 DIAMETER, 5/16" HEX WASHER HEAD						
EAF 628*	12-14 x 7/8"	#3	.380"	Stalgard SUB	45,000	54
EAF 641	12-14 x 1"	#3	.500"	Stalgard SUB	4,000	44
EAF 681	12-14 x 1-1/2"	#3	1.00"	Stalgard SUB	2,500	38
EAF 690	12-14 x 2"	#3	1.50"	Stalgard SUB	2,000	37
EAF 715	12-14 x 3"	#2	2.35"	Stalgard SUB	1,000	27
#12 DIAMETER, #3 PHILLIPS UNDERCUT FLAT HEAD						
EBL 215	12-14 x 1"	#3	.500"	Stalgard	4,000	36
EBL 223	12-14 x 1-1/2"	#3	1.00"	Stalgard	2,500	26
1/4" DIAMETER, 3/8" HEX WASHER HEAD						
EAF 816	1/4-14 x 1"	#3	.450"	Stalgard SUB	3,000	54
EAF 841	1/4-14 x 1-1/2"	#3	.950"	Stalgard SUB	2,000	45
EAF 876	1/4-20 x 1-1/2"	#4	.830"	Stalgard SUB	2,000	48
EAF 846	1/4-14 x 2"	#3	1.45"	Stalgard SUB	1,500	41
EAF 886	1/4-20 x 2"	#4	1.33"	Stalgard SUB	1,500	45
EAF 865	1/4-20 x 1-1/8"	#4	.500"	Stalgard SUB	2,500	51
EAF 888	1/4-20 x 1-3/4"	#5	.800"	Stalgard SUB	1,000	27
EAF 890	1/4-20 x 2-1/2"	#4	1.83	Stalgard SUB	1,000	45
EAF 900	1/4-20 x 3-3/8"	#4	2.70"	Stalgard SUB	500	22
EAF 910	1/4-20 x 4"	#4	3.50"	Stalgard SUB	500	23
1/4" DIAMETER, #3 PHILLIPS UNDERCUT FLAT HEAD						
EBL 330	1/4-20 x 3"	#4	2.50"	Stalgard	500	20
EBL 340	1/4-20 x 4"	#4	3.50"	Stalgard	500	23
5/16" DIAMETER, 3/8" HEX WASHER HEAD						
EAF 940	5/16-18 x 1-1/2"	#3	.800"	Stalgard SUB	1,000	37
EAF 960	5/16-24 x 1-1/2"	#4	.800"	Stalgard SUB	1,000	40
EAF 970	5/16-24 x 2"	#4	1.25"	Stalgard SUB	1,000	49
3/8" DIAMETER, 3/8" HEX WASHER HEAD						
EAF 310	3/8-16 x 1-3/4"	#1	.850"	Stalgard SUB	500	18

* For Aluminum Applications Only.

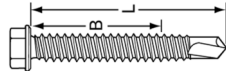
ELCO ALUMI-FLEX™ 302 (18-8) STAINLESS STEEL DRILL SCREWS



PART NO.	DESCRIPTION	POINT TYPE	FINISH	CARTON QUANTITY	CARTON WEIGHT
#10 DIAMETER, HEX WASHER HEAD					
EAH 430	10-16 x 1/2"	#3	Stalgard GB	8,000	51
EAH 445	10-16 x 3/4"	#3	Stalgard GB	6,000	46
EAH 460	10-16 x 1"	#3	Stalgard GB	5,000	45
#10 DIAMETER, UNDERCUT FLAT HEAD					
EBM 160	10-16 x 3/4"	#3	Stalgard GB	10,000	44
#12 DIAMETER, HEX WASHER HEAD					
EAH 630	12-14 x 3/4"	#3	Stalgard GB	5,000	40
EAH 650	12-14 x 1"	#3	Stalgard GB	5,000	52
EAH 680	12-14 x 1-1/2"	#3	Stalgard GB	3,000	44
1/4" DIAMETER, HEX WASHER HEAD					
EAH 800	1/4-14 x 3/4"	#3	Stalgard GB	3,500	51
EAH 820	1/4-14 x 1"	#3	Stalgard GB	3,000	48
EAH 835	1/4-14 x 1-1/2"	#3	Stalgard GB	2,000	41
EAH 870	1/4-20 x 1"	#4	Stalgard GB	2,000	35
EAH 880	1/4-20 x 1-1/2"	#4	Stalgard GB	2,000	42
1/4" DIAMETER, UNDERCUT FLAT HEAD					
EBM 260	1/4-14 x 3/4"	#3	Stalgard GB	4,500	42



ELCO BI-FLEX™ 300 SERIES STAINLESS STEEL BI-METAL SELF-DRILLING SCREWS



PART NO.	DIA. - TPI	(L) LENGTH	DRIVE SYSTEM	POINT SIZE	B MAXIMUM LOAD-BEARING LENGTH*	PIECES PER 1/4 Keg	WEIGHT PER 1/4 Keg
HEX WASHER HEAD							
EAJ 100	8-18	3/4"	5/16" hex	2	0.32"	5,000	23
EAJ 102	8-18	1"	5/16" hex	2	0.50"	5,000	27
EAJ 110	10-16	3/4"	5/16" hex	2	0.32"	5,000	32
EAJ 120	10-16	1"	5/16" hex	2	0.50"	5,000	46
EAJ 140	10-16	1-1/2"	5/16" hex	2	1.10"	2,500	39
EAJ 185	12-14	1"	5/16" hex	2	0.50"	3,000	31
EAJ 215	12-14	1-1/2"	5/16" hex	2	1.00"	2,500	34
EAJ 190	12-14	1"	5/16" hex	3	0.50"	4,000	41
EAJ 220	12-14	1-1/2"	5/16" hex	3	1.00"	2,500	34
EAJ 260	12-14	2-1/2"	5/16" hex	3	2.00"	1,000	21
EAJ 240	12-14	2"	5/16" hex	2	1.50"	1,500	26
EAJ 320	12-24	1-1/2"	5/16" hex	5	0.60"	2,500	40
EAJ 340	12-24	2"	5/16" hex	5	1.10"	2,000	35
EAJ 415	1/4-14	1"	3/8" hex	2	0.50"	2,500	40
EAJ 430	1/4-14	1-1/2"	3/8" hex	2	1.00"	1,000	30
EAJ 445	1/4-14	2"	3/8" hex	2	1.50"	1,500	25
EAJ 540	1/4-20	1"	3/8" hex	3	0.50"	2,500	40
EAJ 580	1/4-20	1-1/2"	3/8" hex	3	1.00"	1,000	32
EAJ 600	1/4-20	1-1/2"	3/8" hex	5	.060"	1,000	32
EAJ 610	1/4-20	2"	3/8" hex	3	1.50"	1,500	38
EAJ 615	1/4-20	2"	3/8" hex	5	1.10"	1,500	38
EAJ 640	1/4-20	2-1/2"	3/8" hex	3	2.00"	1,000	32
EAJ 650	1/4-20	3"	3/8" hex	3	2.50"	500	18
EAJ 630	1/4-20	3"	3/8" hex	5	2.10"	500	18
EAJ 660	1/4-20	4"	3/8" hex	3	3.50"	500	22
EAJ 670	1/4-20	4"	3/8" hex	5	3.10"	500	23
EAJ 675	1/4-20	5"	3/8" hex	5	4.10"	250	16
EAJ 680	1/4-20	6"	3/8" hex	5	5.10"	250	18
EAJ 690C	1/4-20	8"	3/8" hex	5	7.10"	150	15
FLAT HEAD REAMERS w/WINGS							
EBN 140	10-16	1-1/2"	#2 phillips	3	0.800"	3,500	30
EBN 345	12-24	2-13/16"	#3 phillips	5	1.710"	1,000	21
EBN 645	1/4-20	2-13/16"	#3 phillips	5	1.710"	1,000	28
FLAT HEAD UNDERCUT							
EBN 200	12-14	1"	#3 phillips	2	0.500"	4,000	31
EBN 240	12-14	1-1/2"	#3 phillips	2	1.00"	2,500	29
EBN 630	1/4-20	3"	#3 phillips	2	2.500"	500	18
EBN 640	1/4-20	4"	#3 phillips	2	3.500"	500	22
PAN HEAD							
EAX 100	8-18	3/4"	#2 phillips	2	0.320"	5,000	22
EAX 102	8-18	1"	#2 phillips	2	0.500"	5,000	27
EAX 110	10-16	3/4"	#2 phillips	2	0.320"	5,000	30
EAX 120	10-16	1"	#2 phillips	2	0.500"	5,000	37
PANCAKE HEAD							
EBN 300	10-16	1"	#2 phillips	2	0.500"	4,000	29
EBN 320	12-14	1"	#2 phillips	3	0.500"	4,000	40

* The load-bearing length is the length of 300 series stainless under the hex, pan or pancake head or including the flat head. Hardened steel length (lead threads and point) should be through the connection and not in the load bearing section of the connection.



ELCO ALL-FLEX™ 302 STAINLESS STEEL FASTENERS



PART NO.	DESCRIPTION	FINISH	CARTON QUANTITY	CARTON WEIGHT
TYPE F THREAD-CUTTING, HEX WASHER HEAD				
EHE 310	1/4-20 x 3/4"	Stalgard GB	2,500	55
EHE 312	1/4-20 x 1"	Stalgard GB	2,500	45
EHE 314	1/4-20 x 1-1/4"	Stalgard GB	2,000	41
TYPE F THREAD-CUTTING, PHILLIPS FLAT HEAD				
EHE 321	1/4-20 x 1"	Stalgard GB	2,500	30
TYPE F THREAD-CUTTING, PHILLIPS FLAT UNDERCUT HEAD				
EHE 110	10-24 x 1/2"	Stalgard GB	8,000	32
EHE 211	10-24 x 1/2"	Stalgard GB	1,000	30
TYPE B SELF-TAPPING WITH 1/4" LEAD POINT, HEX WASHER HEAD				
EHE 336	14 x 1-1/2"	Stalgard GB	2,000	44
TYPE AB SELF-TAPPING, HEX WASHER HEAD				
EHE 122	10 x 3/4"	Stalgard GB	5,000	33
EHE 124	10 x 1"	Stalgard GB	5,000	39
EHE 220	12 x 3/4"	Stalgard GB	4,000	34
EHE 222	12 x 1"	Stalgard GB	4,000	41
EHE 224	12 x 1-1/2"	Stalgard GB	2,500	34
EHE 342	14 x 1"	Stalgard GB	2,500	40
EHE 344	14 x 1-1/4"	Stalgard GB	2,000	35
EHE 346	14 x 1-1/2"	Stalgard GB	2,000	43
TYPE AB SELF-TAPPING, PHILLIPS FLAT UNDERCUT HEAD				
EHE 352	14 x 1"	Stalgard GB	2,500	44
TYPE AB SELF-TAPPING, PHILLIPS FLAT HEAD				
EHE 232	12 x 1"	Stalgard GB	4,000	33
EHE 234	12 x 1-1/2"	Stalgard GB	2,500	39
EHE 362	14 x 1"	Stalgard GB	2,500	34
EHE 366	14 x 1-1/2"	Stalgard GB	2,000	41
TYPE AB SELF-TAPPING, PHILLIPS PAN HEAD				
EHE 240	12 x 3/4"	Stalgard GB	4,000	34
EHE 244	12 x 1-1/2"	Stalgard GB	2,500	40
EHE 370	14 x 3/4"	Stalgard GB	3,500	35
EHE 372	14 x 1"	Stalgard GB	2,500	43

ELCO AGGRE-GATOR® 300 SERIES STAINLESS BI-METAL MASONRY FASTENERS



PART NO.	LENGTH	DRIVE SYSTEM	QUANTITY PER SHIPPER	WEIGHT PER SHIPPER
1/4" DIAMETER, HEX WASHER HEAD				
EML 315-050	1-3/4"	5/16" hex	300	6
EML 325-050	2-1/4"	5/16" hex	300	7
EML 335-050	2-3/4"	5/16" hex	300	8
EML 345-050	3-1/4"	5/16" hex	300	11
EML 365-050	4"	5/16" hex	300	12
1/4" DIAMETER, TRIMFIT FLAT HEAD				
EMM 310-050	1-3/4"	#3 phillips	300	6
EMM 320-050	2-1/4"	#3 phillips	300	7
EMM 330-050	2-3/4"	#3 phillips	300	8
EMM 340-050	3-1/4"	#3 phillips	300	11
EMM 360-050	4"	#3 phillips	300	12



ELCO ULTRACON® MASONRY FASTENING SYSTEM



PART NO. BLUE STALGARD	SIZE	DRIVE SYSTEM	QUANTITY PER SHIPPER	WEIGHT PER SHIPPER
SLOTTED HEX WASHER HEAD				
ELE 300-100	3/16 x 1-1/4"	5/16" hex with slot	600	5
ELE 310-100	3/16 x 1-3/4"	5/16" hex with slot	600	7
ELE 320-100	3/16 x 2-1/4"	5/16" hex with slot	600	8
ELE 330-100	3/16 x 2-3/4"	5/16" hex with slot	600	10
ELE 340-100	3/16 x 3-1/4"	5/16" hex with slot	600	11
ELE 350-100	3/16 x 3-3/4"	5/16" hex with slot	600	13
ELE 360-100	3/16 x 4"	5/16" hex with slot	600	13
ELE 405-100	1/4 x 1-1/4"	5/16" hex with slot	600	9
ELE 415-100	1/4 x 1-3/4"	5/16" hex with slot	600	12
ELE 425-100	1/4 x 2-1/4"	5/16" hex with slot	600	14
ELE 435-100	1/4 x 2-3/4"	5/16" hex with slot	600	16
ELE 445-100	1/4 x 3-1/4"	5/16" hex with slot	600	19
ELE 455-100	1/4 x 3-3/4"	5/16" hex with slot	600	21
ELE 465-100	1/4 x 4"	5/16" hex with slot	600	22
ELE 475-100	1/4 x 5"	5/16" hex with slot	100	5
ELE 485-100	1/4 x 6"	5/16" hex with slot	100	6
PHILLIPS FLAT HEAD				
ELF 305-100	3/16 x 1-1/4"	#2 phillips	600	4
ELF 315-100	3/16 x 1-3/4"	#2 phillips	600	6
ELF 325-100	3/16 x 2-1/4"	#2 phillips	600	7
ELF 335-100	3/16 x 2-3/4"	#2 phillips	600	9
ELF 345-100	3/16 x 3-1/4"	#2 phillips	600	10
ELF 355-100	3/16 x 3-3/4"	#2 phillips	600	12
ELF 365-100	3/16 x 4"	#2 phillips	600	13
ELF 400-100	1/4 x 1-1/4"	#3 phillips	600	8
ELF 410-100	1/4 x 1-3/4"	#3 phillips	600	10
ELF 420-100	1/4 x 2-1/4"	#3 phillips	600	12
ELF 430-100	1/4 x 2-3/4"	#3 phillips	600	14
ELF 440-100	1/4 x 3-1/4"	#3 phillips	600	16
ELF 450-100	1/4 x 3-3/4"	#3 phillips	600	18
ELF 460-100	1/4 x 4"	#3 phillips	600	19
ELF 470-100	1/4 x 5"	#3 phillips	100	4
ELF 480-100	1/4 x 6"	#3 phillips	100	5

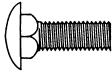
ELCO CON-FLEX® LARGE DIAMETER CONCRETE SCREW ANCHORS



PART NO.	LENGTH	THREAD LENGTH	DRIVE SIZE	DRILL BIT SIZE	BOX QUANTITY*	BOX WEIGHT
3/8" DIAMETER, HEX WASHER HEAD WITH LOCKING SERRATIONS						
EMR 215-050	2-1/2"	2-1/4"	9/16" hex	3/8"	50	5
EMR 235-050	3"	2-1/4"	9/16" hex	3/8"	50	6
EMR 255-050	4"	3-1/2"	9/16" hex	3/8"	50	7
EMR 265-025	5"	3-1/2"	9/16" hex	3/8"	25	4
EMR 285-025	7-1/2"	3-1/2"	9/16" hex	3/8"	25	6
1/2" DIAMETER, HEX WASHER HEAD WITH LOCKING SERRATIONS						
EMR 320-050	2-1/2"	2-1/4"	3/4" hex	7/16"	50	8
EMR 340-050	3"	2-1/4"	3/4" hex	7/16"	50	9
EMR 360-050	4"	3-1/2"	3/4" hex	7/16"	50	11
EMR 370-025	5"	3-1/2"	3/4" hex	7/16"	25	7
EMR 380-025	6"	3-1/2"	3/4" hex	7/16"	25	7

* Note: Also available in bulk quantities.

STAINLESS STEEL CARRIAGE BOLTS



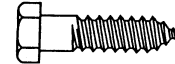
DIAMETER	LENGTH	PKG.	PART NO. (S.S.)
1/4-20	1/2	100	CBS 142012
	5/8	100	CBS 142058
	3/4	100	CBS 142034
	1	100	CBS 14201
	1 1/4	100	CBS 1420114
	1 1/2	100	CBS 1420112
	1 3/4	100	CBS 1420134
	2	100	CBS 14202
	2 1/4	100	CBS 1420214
	2 1/2	100	CBS 1420212
	2 3/4	100	CBS 1420234
	3	100	CBS 14203
	3 1/4	100	CBS 1420314
	3 1/2	100	CBS 1420312
	3 3/4	100	CBS 1420334
	4	100	CBS 14204
	4 1/2	100	CBS 1420412
	5	100	CBS 14205
5 1/2	100	CBS 1420512	
6	100	CBS 14206	
5/16-18	1/2	100	CBS 5161812
	5/8	100	CBS 5161858
	3/4	100	CBS 5161834
	1	100	CBS 516181
	1 1/4	100	CBS 51618114
	1 1/2	100	CBS 51618112
	1 3/4	100	CBS 51618134
	2	100	CBS 516182
	2 1/4	100	CBS 51618214
	2 1/2	100	CBS 51618212
	3	100	CBS 516183
	3 1/4	50	CBS 51618314
	3 1/2	50	CBS 51618312
	3 3/4	50	CBS 51618334
	4	50	CBS 516184
	4 1/2	50	CBS 51618412
	5	50	CBS 516185
	5 1/2	50	CBS 51618512
6	50	CBS 516186	
3/8-16	3/4	100	CBS 381634
	1	100	CBS 38161
	1 1/4	100	CBS 3816114
	1 1/2	100	CBS 3816112
	1 3/4	100	CBS 3816134
	2	100	CBS 38162
	2 1/4	50	CBS 3816214
	2 1/2	50	CBS 3816212
	2 3/4	50	CBS 3816234
	3	50	CBS 38163
	3 1/4	50	CBS 3816314
	3 1/2	50	CBS 3816312
	3 3/4	50	CBS 3816334
	4	50	CBS 38164
	4 1/2	50	CBS 3816412
	5	50	CBS 38165
	5 1/2	50	CBS 3816512
	6	50	CBS 38166
6 1/2	1	CBS 3816612	
7	1	CBS 38167	
7 1/2	1	CBS 3816712	
8	1	CBS 38168	
1/2-13	1	50	CBS 12131
	1 1/4	50	CBS 1213114
	1 1/2	50	CBS 1213112
	1 3/4	50	CBS 1213134
	2	50	CBS 12132

CONTINUED NEXT COLUMN

DIAMETER	LENGTH	PKG.	PART NO. (S.S.)
1/2-13	2	50	CBS 12132
	2 1/4	50	CBS 1213214
	2 1/2	50	CBS 1213212
	2 3/4	50	CBS 1213234
	3	50	CBS 12133
	3 1/2	25	CBS 1213312
	4	25	CBS 12134
	4 1/2	25	CBS 1213412
	5	25	CBS 12135
	5 1/2	25	CBS 1213512
	6	25	CBS 12136
	6 1/2	1	CBS 1213612
	7	1	CBS 12137
	7 1/2	1	CBS 1213712
	8	1	CBS 12138
	8 1/2	1	CBS 1213812
	9	1	CBS 12139
	9 1/2	1	CBS 1213912
10	1	CBS 121310	
5/8-11	1 1/2	25	CBS 5811112
	1 3/4	25	CBS 5811134
	2	25	CBS 58112
	2 1/4	25	CBS 5811214
	2 1/2	25	CBS 5811212
	2 3/4	25	CBS 5811234
	3	25	CBS 58113
	3 1/2	25	CBS 5811312
	4	25	CBS 58114
	4 1/2	25	CBS 5811412
	5	25	CBS 58115
	5 1/2	25	CBS 5811512
3/4-10	6	25	CBS 58116
	6 1/2	1	CBS 5811612
	7	1	CBS 58117
	8	1	CBS 58118
	9	1	CBS 58119
	10	1	CBS 581110
	12	1	CBS 581112
	1 1/2	20	CBS 3410112
	2	20	CBS 34102
	2 1/2	20	CBS 3410212
	3	20	CBS 34103
	3 1/2	20	CBS 3410312
4	20	CBS 34104	
4 1/2	20	CBS 3410412	
5	20	CBS 34105	
5 1/2	20	CBS 3410512	
6	20	CBS 34106	
6 1/2	1	CBS 3410612	
7	1	CBS 34107	
8	1	CBS 34108	
9	1	CBS 34109	
10	1	CBS 341010	
12	1	CBS 341012	

LONGER LENGTHS AVAILABLE UPON REQUEST, NOT ALL LENGTHS STOCKED

STAINLESS STEEL LAG SCREWS



DIAMETER	LENGTH	PKG.	PART NO. (S.S.)
1/4	1	100	LBS 141
	1 1/4	100	LBS 14114
	1 1/2	100	LBS 14112
	1 3/4	100	LBS 14134
	2	100	LBS 142
	2 1/2	100	LBS 14212
	3	100	LBS 143
	3 1/2	100	LBS 14312
	4	100	LBS 144
	4 1/2	100	LBS 14412
	5	100	LBS 145
5 1/2	100	LBS 14512	
6	100	LBS 146	
5/16	3/4	100	LBS 51634
	1	100	LBS 5161
	1 1/4	100	LBS 516114
	1 1/2	100	LBS 516112
	1 3/4	100	LBS 516134
	2	100	LBS 5162
	2 1/2	100	LBS 516212
	3	100	LBS 5163
	3 1/2	50	LBS 516312
	4	50	LBS 5164
	4 1/2	50	LBS 516412
5	50	LBS 5165	
5 1/2	50	LBS 516512	
6	50	LBS 5166	
3/8	1	100	LBS 381
	1 1/4	100	LBS 38114
	1 1/2	100	LBS 38112
	1 3/4	100	LBS 38134
	2	100	LBS 382
	2 1/2	50	LBS 38212
	3	50	LBS 383
	3 1/2	50	LBS 38312
	4	50	LBS 384
	4 1/2	50	LBS 38412
	5	50	LBS 385
5 1/2	50	LBS 38512	
6	50	LBS 386	
1/2	1 1/2	50	LBS 12112
	2	50	LBS 122
	2 1/2	50	LBS 12212
	3	50	LBS 123
	3 1/2	25	LBS 12312
	4	25	LBS 124
	4 1/2	25	LBS 12412
	5	25	LBS 125
	5 1/2	25	LBS 12512
	6	25	LBS 126
	6 1/2	1	LBS 12612
7	1	LBS 127	
8	1	LBS 128	
9	1	LBS 129	
10	1	LBS 1210	
5/8	2	25	LBS 582
	2 1/2	25	LBS 58212
	3	25	LBS 583
	3 1/2	25	LBS 58312
	4	25	LBS 584
	4 1/2	25	LBS 58412
	5	25	LBS 585
5 1/2	25	LBS 58512	

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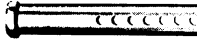
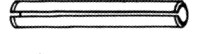
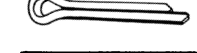
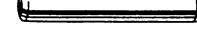
STAINLESS STEEL LAG SCREWS

(Cont.)

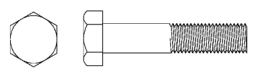
DIAMETER	LENGTH	PKG.	PART NO. (S.S.)
5/8	6	25	LBS 586
	7	1	LBS 587
	8	1	LBS 588
	9	1	LBS 589
	10	1	LBS 5810
	12	1	LBS 5812
DIAMETER	LENGTH	PKG.	PART NO. (S.S.)
3/4	2	20	LBS 342
	2 1/2	20	LBS 34212
	3	20	LBS 343
	3 1/2	20	LBS 34312
	4	20	LBS 344
	5	20	LBS 345
	6	20	LBS 346
	8	1	LBS 348
	10	1	LBS 3410
	12	1	LBS 3412

LONGER LENGTHS AVAILABLE UPON REQUEST, NOT ALL LENGTHS STOCKED

OTHER PINS AVAILABLE

-  CLEVIS PINS
-  UNIVERSAL CLEVIS PINS
-  ROLL PINS/ SPRING PINS
-  COTTER PINS
-  DOWEL PINS

METRIC HEX BOLTS



NOM. SIZE	#931ZP 8.8 Z/P MHC	#921-10ZP 10.9 Z/P MHC10	#932 A2 304 SS MHCS
4 x 25	-	-	-
4 x 30	X	-	-
4 x 35	X	-	-
4 x 40	X	-	-
4 x 45	X	-	-
4 x 50	X	-	-
4 x 55	X	-	-
4 x 60	X	-	-
4 x 65	-	-	-
4 x 70	X	-	-
4 x 75	X	-	-
4 x 80	-	-	-
5 x 30	X	-	X
5 x 35	X	-	X
5 x 40	X	-	X
5 x 45	X	-	X
5 x 50	X	-	X
5 x 55	X	-	X
5 x 60	X	-	X
5 x 65	X	-	X
5 x 70	X	-	X
6 x 30	X	-	X
6 x 35	X	X	X
6 x 40	X	X	X
6 x 45	X	X	X
6 x 50	X	X	X
6 x 55	X	X	X
6 x 60	X	X	X
6 x 65	X	X	X
6 x 70	X	X	X
6 x 75	X	X	X
6 x 80	X	X	X
6 x 85	-	-	-
6 x 90	X	-	X
6 x 100	X	-	X
6 x 110	X	-	X
6 x 120	X	-	X
8 x 35	X	-	X
8 x 40	X	X	X
8 x 45	X	X	X
8 x 50	X	X	X
8 x 55	X	X	X
8 x 60	X	X	X
8 x 65	X	X	X
8 x 70	X	X	X
8 x 75	X	X	X
8 x 80	X	X	X
8 x 85	-	-	-
8 x 90	X	X	X
8 x 100	X	X	X
8 x 110	X	-	X
8 x 120	X	-	X
10 x 40	X	-	X
10 x 45	X	X	X
10 x 50	X	X	X
10 x 55	X	X	X
10 x 60	X	X	X
10 x 65	X	X	X
10 x 70	X	X	X
10 x 75	X	X	X
10 x 80	X	X	X
10 x 85	X	-	-
10 x 90	X	X	X
10 x 100	X	X	X
10 x 110	X	X	X

CONTINUED NEXT COLUMN

NOM. SIZE	#931ZP 8.8 Z/P MHC	#921-10ZP 10.9 Z/P MHC10	#932 A2 304 SS MHCS
10 x 120	X	X	X
10 x 130	X	X	X
10 x 140	X	X	X
10 x 150	X	-	X
12 x 40	X	-	X
12 x 45	X	X	X
12 x 50	X	X	X
12 x 55	X	X	X
12 x 60	X	X	X
12 x 65	X	X	X
12 x 70	X	X	X
12 x 75	X	X	X
12 x 80	X	X	X
12 x 85	-	-	-
12 x 90	X	X	X
12 x 100	X	X	X
12 x 110	X	X	X
12 x 120	X	X	X
12 x 130	X	X	X
12 x 140	X	X	X
12 x 150	X	X	X
14 x 50	-	-	-
14 x 55	X	-	-
14 x 60	X	-	X
14 x 65	X	-	-
14 x 70	X	-	X
14 x 75	-	-	-
14 x 80	X	-	X
14 x 85	-	-	-
14 x 90	X	-	X
14 x 100	X	-	X
14 x 110	X	-	X
14 x 120	X	-	X
14 x 130	X	-	X
14 x 140	-	-	-
14 x 150	-	-	-
16 x 50	-	-	X
16 x 55	-	-	X
16 x 60	X	X	X
16 x 65	X	X	X
16 x 70	X	X	X
16 x 75	X	X	X
16 x 80	X	X	X
16 x 85	-	-	-
16 x 90	X	X	X
16 x 100	X	X	X
16 x 110	X	X	X
16 x 120	X	X	X
16 x 130	X	X	X
16 x 140	X	X	X
16 x 150	X	X	X
18 x 60	-	-	-
18 x 65	-	-	-
18 x 70	-	-	-
18 x 75	-	-	-
18 x 80	-	-	-
18 x 85	-	-	-
18 x 90	-	-	-
18 x 100	-	-	-
18 x 110	-	-	-
18 x 120	-	-	-
18 x 130	-	-	-
18 x 140	-	-	-
18 x 150	-	-	-
18 x 160	-	-	-
18 x 180	-	-	-
18 x 200	-	-	-
18 x 220	-	-	-
18 x 240	-	-	-
18 x 260	-	-	-

CONTINUED NEXT PAGE

"Also available in Fully Threaded Bolts" and other sizes and lengths may be available, please ask your salesperson

How To Order:

#931 ZP 8.8 Z/P MHC	=	5 x 30	=	MHC 530
#931 10 ZP 10.9 Z/P MHC 10	=	5 x 30	=	MHC10 530
#931 A2 304 SS MHCS	=	5 x 30	=	MHCS 530

Comparison Chart on ISO/DIN standards across flats sizes differences.

Thread Dia.	M10		M12		M14	
	Max.	Min.	Max.	Min.	Max.	Min.
	ISO mm	16	15.73	18	17.73	21	20.67
DIN mm	17	16.73	19	18.67	22	21.57

METRIC HEX BOLTS (Cont.)

NOM. SIZE	#931ZP 8.8 Z/P MHC	#921-10ZP 10.9 Z/P MHC10	#932 A2 304 SS MHCS
18 x 280	-	-	-
18 x 300	-	-	-
20 x 65	X	-	X
20 x 70	X	X	X
20 x 75	X	X	X
20 x 80	X	X	X
20 x 85	-	-	-
20 x 90	X	X	X
20 x 100	X	X	X
20 x 110	X	X	X
20 x 120	X	X	X
20 x 130	X	X	X
20 x 140	X	X	X
20 x 150	X	X	X
20 x 170	-	-	-
20 x 180	X	X	-
20 x 200	X	-	X
20 x 220	X	-	X
20 x 240	X	-	X
20 x 260	X	-	-
20 x 280	X	-	X
20 x 300	-	-	-
20 x 320	-	-	-
20 x 340	-	-	-
20 x 380	-	-	-
20 x 400	-	-	-
22 x 70	-	-	-
22 x 75	-	-	-
22 x 80	-	-	X
22 x 90	-	-	X
22 x 100	-	-	X
22 x 110	-	-	-
22 x 120	-	-	-
22 x 130	-	-	-
22 x 140	-	-	-
22 x 150	-	-	-
22 x 160	-	-	-
22 x 180	-	-	-
22 x 200	-	-	-
22 x 220	-	-	-
22 x 240	-	-	-
22 x 260	-	-	-
22 x 280	-	-	-
22 x 300	-	-	-
24 x 75	-	-	-
24 x 80	X	X	X
24 x 85	-	-	-
24 x 90	X	X	X
24 x 100	X	X	X
24 x 110	X	X	X
24 x 120	X	X	X
24 x 130	X	X	X
24 x 140	X	X	X
24 x 150	X	X	X
24 x 180	X	X	X
24 x 200	X	X	X
24 x 220	X	-	X
24 x 240	X	-	X
24 x 260	X	-	-
24 x 280	-	-	-
24 x 300	-	-	-
24 x 320	-	-	-
24 x 340	-	-	-
24 x 360	-	-	-
24 x 380	-	-	-
24 x 400	-	-	-
27 x 80	-	-	X
27 x 90	-	-	X
27 x 100	-	-	X

METRIC SOCKET HEAD CAP SCREWS



NOM. SIZE	#912 12 12.9 BLACK MSC	#912 A2 304 SS MSCS
1.6 x 2	X	-
1.6 x 3	X	X
3 x 4	X	-
3 x 5	X	-
3 x 6	X	-
3 x 8	X	-
3 x 10	X	-
3 x 12	X	-
3 x 14	X	-
3 x 16	X	-
3 x 18	X	-
3 x 20	X	-
3 x 22	X	-
3 x 25	X	-
3 x 30	X	-
3 x 35	X	-
3 x 40	X	-
3 x 45	X	-
3 x 50	X	-
4 x 5	X	-
4 x 6	X	X
4 x 8	X	X
4 x 10	X	X
4 x 12	X	X
4 x 14	X	X
4 x 16	X	X
4 x 18	X	X
4 x 20	X	X
4 x 22	X	X
4 x 25	X	X
4 x 30	X	X
4 x 35	X	X
4 x 40	X	X
4 x 45	X	X
4 x 50	X	X
5 x 6	X	-
5 x 8	X	X
5 x 10	X	X
5 x 12	X	X
5 x 14	X	X
5 x 16	X	X
5 x 18	X	X
5 x 20	X	X
5 x 22	X	X
5 x 25	X	X
5 x 30	X	X
5 x 35	X	X
5 x 40	X	X
5 x 45	X	X
5 x 50	X	X
5 x 55	X	X
5 x 60	X	X
5 x 65	X	-
5 x 70	X	X
5 x 75	X	-
5 x 80	X	X
5 x 85	X	-
5 x 90	X	X
5 x 100	X	X
6 x 6	X	-
6 x 8	X	X
6 x 10	X	X
6 x 12	X	X
6 x 14	X	X

CONTINUED NEXT COLUMN

NOM. SIZE	#912 12 12.9 BLACK MSC	#912 A2 304 SS MSCS
6 x 16	X	X
6 x 18	X	X
6 x 20	X	X
6 x 22	X	X
6 x 25	X	X
6 x 30	X	X
6 x 35	X	X
6 x 40	X	X
6 x 45	X	X
6 x 50	X	X
6 x 55	X	X
6 x 60	X	X
6 x 65	X	-
6 x 70	X	X
6 x 75	X	-
6 x 80	X	X
6 x 85	X	-
6 x 90	X	X
6 x 100	X	X
8 x 10	X	X
8 x 12	X	X
8 x 14	X	X
8 x 16	X	X
8 x 18	X	X
8 x 20	X	X
8 x 22	X	X
8 x 25	X	X
8 x 30	X	X
8 x 35	X	X
8 x 40	X	X
8 x 45	X	X
8 x 50	X	X
8 x 55	X	X
8 x 60	X	X
8 x 65	X	-
8 x 70	X	X
8 x 75	X	-
8 x 80	X	X
8 x 85	X	-
8 x 90	X	X
8 x 100	X	X
8 x 110	X	X
8 x 120	X	X
10 x 12	X	-
10 x 16	X	X
10 x 18	X	-
10 x 20	X	X
10 x 22	X	-
10 x 25	X	X
10 x 30	X	X
10 x 35	X	X
10 x 40	X	X
10 x 45	X	X
10 x 50	X	X
10 x 55	X	X
10 x 60	X	X
10 x 65	X	X
10 x 70	X	X
10 x 75	X	-
10 x 80	X	X
10 x 85	X	-
10 x 90	X	X
10 x 100	X	X
10 x 110	X	X
10 x 120	X	X
10 x 130	X	X
10 x 140	X	X
10 x 150	X	X
12 x 16	X	-
12 x 18	X	-

CONTINUED NEXT PAGE

Other sizes and lengths may be available, please ask your salesperson.

How To Order These Bolts:
 #912 12 12.9 MSC = 5 x 30 = MSC 530
 #912 A2 304 SS = 5 x 30 = MSCS 530

METRIC SOCKET HEAD CAP SCREWS (Cont.)

NOM. SIZE	#912 12 12.9 BLACK MSC	#912 A2 304 SS MSCS
12 x 20	X	X
12 x 22	X	-
12 x 25	X	X
12 x 30	X	X
12 x 35	X	X
12 x 40	X	X
12 x 45	X	X
12 x 50	X	X
12 x 55	X	X
12 x 60	X	X
12 x 65	X	-
12 x 70	X	X
12 x 75	X	-
12 x 80	X	X
12 x 85	X	-
12 x 90	X	X
12 x 100	X	X
12 x 110	X	X
12 x 120	X	X
12 x 130	X	X
12 x 140	X	X
12 x 150	X	X
14 x 20	X	-
14 x 25	X	-
14 x 30	X	-
14 x 35	X	-
14 x 40	X	-
14 x 45	X	-
14 x 50	X	-
14 x 55	X	-
14 x 60	X	-
14 x 65	X	-
14 x 70	X	-
14 x 75	X	-
14 x 80	X	-
14 x 90	X	-
14 x 100	X	-
14 x 110	X	-
14 x 120	X	-

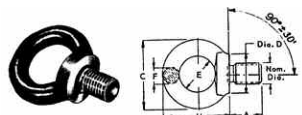
METRIC PAN HEAD PHILLIPS MACHINE SCREWS



NOM. SIZE	#7985 4.8 STEEL Z/P MPPS	#7985 A2 304 SS MPPSS
2 x 3	X	X
2 x 4	X	X
2 x 5	X	X
2 x 6	X	X
2 x 8	X	X
2 x 10	X	X
2 x 12	X	X
2 x 16	X	X
2 x 20	X	X
2.5 x 3	X	X
2.5 x 4	X	X
2.5 x 5	X	X
2.5 x 6	X	X
2.5 x 8	X	X
2.5 x 10	X	X
2.5 x 12	X	X
2.5 x 16	X	X
2.5 x 20	X	X
2.5 x 30	X	-
3 x 4	X	-
3 x 5	X	X
3 x 6	X	X
3 x 8	X	X
3 x 10	X	X
3 x 12	X	X
3 x 14	X	X
3 x 16	X	X
3 x 18	X	X
3 x 20	X	X
3 x 25	X	X
3 x 30	X	X
3 x 35	X	X
3 x 40	X	X
3 x 45	X	X
3 x 50	X	X
3.5 x 6	X	-
3.5 x 8	X	-
3.5 x 10	X	-
3.5 x 12	X	-
3.5 x 14	X	-
3.5 x 16	X	-
3.5 x 18	X	-
3.5 x 20	X	-
3.5 x 25	X	-
3.5 x 30	X	-
3.5 x 35	X	-
3.5 x 40	X	-
4 x 5	X	X
4 x 6	X	X
4 x 8	X	X
4 x 10	X	X
4 x 12	X	X
4 x 14	X	X
4 x 16	X	X
4 x 18	X	X
4 x 20	X	X
4 x 25	X	X
4 x 30	X	X
4 x 35	X	X
4 x 40	X	X
4 x 45	X	X
4 x 50	X	X
4 x 60	X	X
4 x 70	X	-

NOM. SIZE	#7985 4.8 STEEL Z/P MPPS	#7985 A2 304 SS MPPSS
4 x 80	X	-
5 x 6	X	-
5 x 8	X	X
5 x 10	X	X
5 x 12	X	X
5 x 14	X	X
5 x 16	X	X
5 x 18	X	X
5 x 20	X	X
5 x 25	X	X
5 x 30	X	X
5 x 35	X	X
5 x 40	X	X
5 x 45	X	X
5 x 50	X	X
5 x 60	X	X
5 x 70	X	X
5 x 80	X	X
6 x 8	X	X
6 x 10	X	X
6 x 12	X	X
6 x 14	X	X
6 x 16	X	X
6 x 18	X	X
6 x 20	X	X
6 x 25	X	X
6 x 30	X	X
6 x 35	X	X
6 x 40	X	X
6 x 45	X	X
6 x 50	X	X
6 x 60	X	X
6 x 70	X	-
6 x 80	X	-
6 x 90	X	-
6 x 100	X	-
8 x 12	X	-
8 x 16	X	X
8 x 20	X	X
8 x 25	X	X
8 x 30	X	X
8 x 35	X	X
8 x 40	X	X
8 x 45	X	X
8 x 50	X	X
8 x 60	X	X
8 x 70	X	-
8 x 80	X	-
8 x 90	X	-
8 x 100	X	-
10 x 16	X	-
10 x 20	X	-
10 x 25	X	-
10 x 30	X	-
10 x 35	X	-
10 x 40	X	-
10 x 45	X	-
10 x 50	X	-
10 x 60	X	-
10 x 70	X	-
10 x 80	X	-
10 x 90	X	-
10 x 100	X	-

METRIC LIFTING EYEBOLT



NOM. SIZE (COARSE THREAD)	#580 C 15 STEEL MEB
(6 x 1)	X
8 x 1.25	X
10 x 1.5	X
12 x 1.75	X
(14 x 2)	X
16 x 2	X
(18 x 2.5)	X
20 x 2.5	X
(22 x 2.5)	X
24 x 3	X
(27 x 3)	X
30 x 3.5	X
36 x 4	X
(39 x 4)	X
42 x 4.5	X
48 x 5	X
56 x 5.5	X
64 x 6	X

Other sizes or materials may be available, please ask your salesperson.

How To Order These EYE Bolts:
#580 C 15 Steel 8.125 = MEB 8

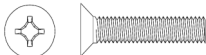
CONTINUED NEXT COLUMN

NOM. THREAD DIA.	M 1.6	M 2	M 2.5	M 3	M 3.5	M 4	M 5	M 6	M 8	M 10
PITCH (Coarse)	0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5
d1 DIAMETER MAX.	3.2	4	5	6	7	8	10	12	16	20
HEAD k OVERALL HEIGHT MAX.	1.3	1.6	2	2.4	2.7	3.1	3.8	4.6	6	7.5
v HEIGHT (exclude Radius Top)	0.8	1.1	1.3	1.5	1.9	2	2.5	3	3.7	4.8
SCREWDRIVER SIZE	0	0	1	1	2	2	2	3	4	4

Other materials may be available, please ask your salesperson

How To Order These Bolts:
#7985 4.8 STEEL Z/P = 5 x 30 = MPPS 530
#7985 A2 304 SS = 5 x 30 = MPPSS 530

**METRIC FLAT HEAD PHILLIPS
MACHINE SCREWS**



NOM. SIZE	#965 4.8 STEEL Z/P MFHS	#965 A2 304 SS MFHSS
2 x 4	X	X
2 x 5	X	X
2 x 6	X	X
2 x 8	X	X
2 x 10	X	X
2 x 12	X	X
2 x 16	X	X
2 x 20	X	-
2.5 x 5	X	-
2.5 x 6	X	X
2.5 x 8	X	X
2.5 x 10	X	X
2.5 x 12	X	X
2.5 x 16	X	X
2.5 x 20	X	X
3 x 4	X	X
3 x 5	X	X
3 x 6	X	X
3 x 8	X	X
3 x 10	X	X
3 x 12	X	X
3 x 14	X	X
3 x 16	X	X
3 x 18	X	X
3 x 20	X	X
3 x 25	X	X
3 x 30	X	X
3 x 35	X	X
3 x 40	X	X
3 x 45	X	-
3 x 50	X	-
3 x 55	X	-
3 x 60	X	-
3 x 70	X	-
3 x 80	X	-
4 x 5	X	X
4 x 6	X	X
4 x 8	X	X
4 x 10	X	X
4 x 12	X	X
4 x 14	X	X
4 x 16	X	X
4 x 18	X	X
4 x 20	X	X
4 x 25	X	X
4 x 30	X	X
4 x 35	X	X
4 x 40	X	X
4 x 45	X	X
4 x 50	X	X
4 x 55	X	-
4 x 60	X	-
4 x 70	X	-
4 x 80	X	-
5 x 8	X	X
5 x 10	X	X
5 x 12	X	X
5 x 14	X	-
5 x 16	X	X
5 x 18	X	-
5 x 20	X	X
5 x 25	X	X
5 x 30	X	X
5 x 35	X	X
5 x 40	X	X
5 x 45	X	X
5 x 50	X	X
5 x 55	X	-
5 x 60	X	-
5 x 70	X	-
5 x 80	X	-

CONTINUED NEXT COLUMN

**METRIC FLAT HEAD PHILLIPS
MACHINE SCREWS (Cont.)**

NOM. SIZE	#965 4.8 STEEL Z/P MFHS	#965 A2 304 SS MFHSS
6 x 8	X	-
6 x 10	X	X
6 x 12	X	X
6 x 14	X	X
6 x 16	X	X
6 x 18	X	X
6 x 20	X	X
6 x 25	X	X
6 x 30	X	X
6 x 35	X	X
6 x 40	X	X
6 x 45	X	X
6 x 50	X	X
6 x 55	X	-
6 x 60	X	X
6 x 70	X	-
6 x 80	X	-
8 x 12	X	X
8 x 16	X	X
8 x 20	X	X
8 x 25	X	X
8 x 30	X	X
8 x 35	X	X
8 x 40	X	X
8 x 45	X	X
8 x 50	X	X
8 x 55	X	-
8 x 60	X	X
8 x 70	X	-
8 x 80	X	-
10 x 20	X	-
10 x 25	X	-
10 x 30	X	-
10 x 35	X	-
10 x 40	X	-
10 x 45	X	-
10 x 50	X	-
10 x 55	X	-
10 x 60	-	-
10 x 70	-	-
10 x 80	-	-

Other materials may be available,
please ask your salesperson

How To Order These Screws:
#965 4.8 STEEL Z/P = 5 x 30 = MFHS 530
#965 A2 304 SS = 5 x 30 = MFHSS 530

METRIC HEX NUTS Din 934



SIZE DESIGNATION DIA. x PITCH	#934 ZP CL 8 Z/P MHN	#934 10ZP CL 10 Z/P MHN10	#934 A2 304SS MHNS
M 2 x .4	X	-	X
M 2.5 x .45	X	-	X
M 3 x .5	X	-	X
M 3.5 x .6	X	-	X
M 4 x .7	X	-	X
M 5 x .8	X	X	X
M 6 x 1	X	X	-
M 6 x .75	-	-	X
M 7 x 1	X	-	X
M 8 x 1.25	X	X	X
M 8 x 1	X	-	X
M 10 x 1.5	X	X	X
M 10 x 1.25	X	-	X
M 10 x 1	X	-	X

CONTINUED NEXT COLUMN

SIZE DESIGNATION DIA. x PITCH	#934 ZP CL 8 Z/P MHN	#934 10ZP CL 10 Z/P MHN10	#934 A2 304 SS MHNS
M 12 x 1.75	X	X	X
M 12 x 1.5	X	-	X
M 12 x 1.25	X	-	X
M 12 x 1	-	-	-
M 14 x 2	X	X	X
M 14 x 1.5	X	-	X
M 16 x 2	X	X	X
M 16 x 1.5	X	-	X
M 16 x 1	-	-	-
M 18 x 2.5	X	-	X
M 18 x 2	-	-	-
M 18 x 1.5	X	-	X
M 20 x 2.5	X	X	X
M 20 x 2	-	-	-
M 20 x 1.5	X	-	X
M 20 x 1	-	-	-
M 22 X 2.5	X	-	X
M 22 x 2	-	-	-
M 22 x 1.5	-	-	-
M 24 x 3	X	X	X
M 24 x 2	-	-	-
M 24 x 1.5	-	-	X

May also be available in other materials,
please ask your salesperson

How To Order These Nuts:

#934 ZP
CL 8 Z/P = A 5mm HEX NUT Z/P CLASS 8 = MHN 5
#934 10 ZP
CL 10 ZP = A 5mm HEX NUT Z/P CLASS 10 = MHN10 5
#934 A2
304 SS = A 5mm HEX NUT A2 STAINLESS = MHNS 5

DIMENSIONAL CHART

SIZE DESIGNATION DIA x PITCH	HEIGHT mm max.	ACROSS FLATS mm
M 2 x .4	1.6	4
M 2.5 x .45	2	5
M 3 x .5	2.4	5.5
M 3.5 x .6	2.6	6
M 4 x .7	3.2	7
M 5 x .8	4	8
M 6 x 1	5	10
M 6 x .75	5	10
M 7 x 1	5.5	11
M 8 x 1.25	6.5	13
M 8 x 1	6.5	13
M 10 x 1.5	8	17
M 10 x 1.25	8	17
M 10 x 1	8	17
M 12 x 1.75	10	19
M 12 x 1.5	10	19
M 12 x 1.25	10	19
M 12 x 1	10	19
M 14 x 2	11	22
M 14 x 1.5	11	22
M 16 x 2	13	24
M 16 x 1.5	13	24
M 16 x 1	13	24
M 18 x 2.5	15	27
M 18 x 2	15	27
M 18 x 1.5	15	27
M 20 x 2.5	16	30
M 20 x 2	16	30
M 20 x 1.5	16	30
M 20 x 1	16	30
M 22 X 2.5	18	32
M 22 x 2	18	32
M 22 x 1.5	18	32
M 24 x 3	19	38
M 24 x 2	19	38
M 24 x 1.5	19	38

METRIC NYLON INSERT LOCK NUTS (NYLOCKS) Din 985



NOMINAL THREAD DIAMETER	PITCH	#985 ZP CL 8 Z/P MLN	#985 10ZP CL 10 Z/P MLN10	#985 A2 304SS MLNS
M 3 x .5-	0.5	X	-	X
M 4 x .7-	0.7	X	-	X
M 5 x .8-	0.8	X	X	X
M 6 x 1	1	X	X	X
M 7 x 1	1	X	-	-
M 8 x 1.25	1.25	X	X	X
M 8 x 1	1	X	X	-
M 10 x 1.5	1.5	X	X	X
M 10 x 1.25	1.25	X	X	-
M 10 x 1	1	X	X	-
M 12 x 1.75	1.75	X	X	X1
M 12 x 1.5	1.5	X	X	-
M 12 x 1.25	1.25	X	X	-
M 14 x 2	2	X	X	X
M 14 x 1.5	1.5	X	X	-
M 16 x 2	2	X	X	X
M 16 x 1.5	1.5	X	X	-
M 18 x 2.5	2.5	X	X	X
M 18 x 1.5	1.5	X	X	-
M 20 x 2.5	2.5	X	X	X
M 20 x 1.5	1.5	X	X	-
M 22 x 2.5	2.5	X	X	X
M 24 x 3	3	X	X	X
M 24 x 2	2	X	X	-
M 24 x 1.5	1.5	X	X	-
M 27 x 3	3	X	X	X
M 30 x 3.5	3.5	X	X	X
M 30 x 2	2	X	-	-
M 30 x 1.5	1.5	X	-	-
M 33 x 3.5	3.5	X	X	-
M 36 x 4	4	X	X	-
M 42 x 4.5	4.5	X	-	-
M 48 x 5	5	X	-	-

May also be available in other materials, please ask your salesperson

How To Order These Nuts:

#985 ZP CL 8 Z/P = A 5mm NYLOCK NUT Z/P CLASS 8 = MLN 5
#985 10 ZP CL 10 Z/P = A 5mm HEX NUT Z/P CLASS 10 = MLN10 5
#985 A2 304 SS = A 5mm HEX NUT A2 STAINLESS = MLNS 5

DIMENSIONAL CHART

NOMINAL THREAD DIAMETER	DATA mm		
	ACROSS FLATS/ WRENCH SIZE s	OVERALL HEIGHT m	USABLE WRENCH HEIGHT m1
M 3 x .5-	5.5	4	2.4
M 4 x .7-	7	5	2.9
M 5 x .8-	8	5	3.2
M 6 x 1	10	6	4
M 7 x 1	11	7.5	4.7
M 8 x 1.25	13	8	5.5
M 8 x 1	13	8	5.5
M 10 x 1.5	17	10	6.5
M 10 x 1.25	17	10	6.5
M 10 x 1	17	10	6.5
M 12 x 1.75	19	12	8
M 12 x 1.5	19	12	8
M 12 x 1.25	19	12	8
M 14 x 2	22	14	9.5
M 14 x 1.5	22	14	9.5
M 16 x 2	24	16	10.5
M 16 x 1.5	24	16	10.5
M 18 x 2.5	27	18.5	13
M 18 x 1.5	27	18.5	13
M 20 x 2.5	30	20	14

CONTINUED NEXT COLUMN

NOMINAL THREAD DIAMETER	DATA mm		
	ACROSS FLATS/ WRENCH SIZE s	OVERALL HEIGHT m	USABLE WRENCH HEIGHT m1
M 20 x 1.5	30	20	14
M 22 x 2.5	32	22	15
M 24 x 3	36	24	15
M 24 x 2	36	24	15
M 24 x 1.5	36	24	15
M 27 x 3	41	27	17
M 30 x 3.5	46	30	19
M 30 x 2	46	30	19
M 30 x 1.5	46	30	19
M 33 x 3.5	50	33	22
M 36 x 4	55	36	25
M 42 x 4.5	65	42	29
M 48 x 5	75	48	36

SERRATED FLANGE NUTS Din 6923



THREAD	#6923 CL 8 Z/P MFN	#6923 A2 304 SS MFNS
M 5 x .8	X	X
M 6 x 1	X	X
M 8 x 1.25	X	X
M 10 x 1.75	X	X
M 12 x 1.75	X	X
M 14 x 2	X	-
M 16 x 2	X	-
M 20 x 2.5	X	-

How To Order These Nuts:

#6923 CL 8 Z/P = A 5mm FLANGE NUT Z/P CLASS 8 = MFN 5
#6923 A2 SS = A 5mm FLANGE NUT A2 STAINLESS = MFNS 5

DIMENSIONAL CHART

THREAD	HEIGHT (max) h	ACROSS FLATS s	FLANGE O.D. (max) d	MAX HEIGHT (min) m
M 5 x .8	5	8	11.8	2.2
M 6 x 1	6	10	14.2	3.1
M 8 x 1.25	8	13	17.9	4.5
M 10 x 1.75	10	15	21.8	5.5
M 12 x 1.75	12	18	26	6.7
M 14 x 2	14	21	29.9	7.8
M 16 x 2	18	24	34.5	9
M 20 x 2.5	20	30	42.8	11

METRIC FLAT WASHERS



SCREW DIAMETER	#125 A STEEL Z/P MFW	#125 A2 304 SS MFWS
1.6	X	X
1.7	X	-
2	X	X
2.3	X	-
2.5	X	X
2.6	X	-
3	X	X
3.5	X	X
4	X	X
5	X	X
6	X	X
7	X	-
8	X	X
10	X	X
12	X	X
14	X	-
16	X	X

CONTINUED NEXT COLUMN

SCREW DIAMETER	#125 A STEEL Z/P MFW	#125 A2 304 SS MFWS
18	X	X
20	X	X
22	X	X
24	X	X
27	X	X
30	X	X
32	-	-
33	-	X
36	-	X
39	-	X
42	-	X
45	-	-
48	-	X
52	-	X
56	-	-
58	-	-
60	-	-
62	-	-
64	-	-
68	-	-
72	-	-
76	-	-
80	-	-
85	-	-
90	-	-

How To Order These Washers:

#125 A STEEL Z/P = A 5mm FLAT WASHER Z/P = MFW 5
#125 A2 304 SS = A 5mm FLAT WASHER SS = MFWS 5

DIMENSIONAL CHART

SCREW DIAMETER	I.D. mm	O.D. mm	THICK-NESS m
1.6	1.7	4	0.3
1.7	1.8	4.5	0.3
2	2.2	5	0.3
2.3	2.5	6	0.5
2.5	2.7	6	0.5
2.6	2.8	7	0.5
3	3.2	7	0.5
3.5	3.7	8	0.5
4	4.3	9	0.8
5	5.3	10	1
6	6.4	12	1.6
7	7.4	14	1.6
8	8.4	16	1.6
10	10.5	20	2
12	13	24	2.5
14	15	28	2.5
16	17	30	3
18	19	34	3
20	21	37	3
22	23	39	3
24	25	44	4
27	28	50	4
30	31	56	4
32	33	60	5
33	34	60	5
36	37	66	5
39	40	72	6
42	43	78	7
45	46	85	7
48	50	92	8
52	54	98	8
56	58	105	9
58	60	110	9
60	62	110	9
62	64	110	9
64	66	115	9
68	70	120	10
72	74	125	10
76	78	135	10
80	82	140	10
85	87	145	12
90	93	160	12

METRIC LOCK WASHERS



SCREW DIAMETER mm	#127 B STEEL Z/P MLW	#127 B2 304 SS MLWS
2	X	X
2.3	X	-
2.5	X	X
2.6	X	-
3	X	X
3.5	X	X
4	X	X
5	X	X
6	X	X
7	X	-
8	X	X
10	X	X
12	X	X
14	X	X
16	X	X
18	X	X
20	X	X
22	X	X
24	X	X
27	X	X
30	X	X
33	X	-
36	X	-
39	X	-
42	X	-
45	X	-
48	X	-
52	X	-
64	X	-
72	X	-

How To Order These Washers:

#127 B
STEEL Z/P = A 5mm LOCK WASHER Z/P = MLW 5

#127 B2
304 SS = A 5mm LOCK WASHER SS = MLWS 5

Also available in other materials,
please ask your salesperson

DIMENSIONAL CHART

SCREW DIAMETER mm	I.D. d mm	O.D. d1 mm	THICK- NESS m s
2	2.1	4.4	0.5
2.3	2.4	4.9	0.6
2.5	2.6	5.1	0.6
2.6	2.7	5.2	0.6
3	3.1	6.2	0.8
3.5	3.6	6.7	0.8
4	4.1	7.6	0.9
5	5.1	9.2	1.2
6	6.0	11.8	1.6
7	7.1	12.8	1.6
8	8.1	14.8	2
10	10.2	18.1	2.2
12	12.2	21.1	2.5
14	14.2	24.1	3
16	16.2	27.4	3.5
18	18.2	29.4	3.5
20	20.2	33.5	4
22	22.5	35.9	4
24	24.5	40	5
27	27.5	43	5
30	30.5	48.2	6
33	33.5	55.2	6
36	36.5	58.2	6
39	39.5	61.2	6
42	42.5	68.2	7
45	45.5	71.2	7
48	49	75	7
52	53	83	8
64	65	95	8
72	73	103	8

RIVETS



DIA.	ALUM./ALUM.	ALUM./STEEL	COPPER	STEEL/STEEL	S.S./S.S.	MATL. GRIP
DOME HEAD RIVETS						
3/32	AD32ABS	AD32BS	—	SD32BS	—	.032 - .125
3/32	AD34ABS	AD34BS	—	SD34BS	—	.126 - .250
1/8	AD41ABS	AD41BS	—	SD41BS	—	.032 - .062
1/8	AD42ABS	AD42BS	CB42C	SD42BS	SSD42SSBS	.063 - .125
1/8	AD43ABS	AD43BS	—	SD43BS	SSD43SSBS	.126 - .187
1/8	AD44ABS	AD44BS	CB44C	SD44BS	SSD44SSBS	.188 - .250
1/8	AD45ABS	AD45BS	—	SD45BS	—	.251 - .312
1/8	AD46ABS	AD46BS	—	SD46BS	SSD46SSBS	.313 - .375
1/8	AD48ABS	AD48BS	—	SD48BS	SSD48SSBS	.376 - .500
1/8	AD410ABS	AD410BS	—	SD410BS	—	.501 - .625
5/32	AD52ABS	AD52BS	—	SD52BS	SSD52SSBS	.062 - .125
5/32	AD54ABS	AD54BS	—	SD54BS	SSD54SSBS	.188 - .250
5/32	AD56ABS	AD56BS	—	SD56BS	SSD56SSBS	.251 - .375
5/32	AD58ABS	AD58BS	—	SD58BS	SSD58SSBS	.376 - .500
3/16	AD62ABS	AD62BS	—	SD62BS	SSD62SSBS	.062 - .125
3/16	AD64ABS	AD64BS	—	SD64BS	SSD64SSBS	.126 - .250
3/16	AD667ABS	AD66BS	—	SD66BS	SSD66SSBS	.251 - .375
3/16	AD68ABS	AD68BS	—	SD68BS	SSD68SSBS	.376 - .500
3/16	AD610ABS	AD610BS	—	SD610BS	SSD610SSBS	.501 - .625
3/16	AD612ABS	AD612BS	—	SD612BS	SSD612SSBS	.626 - .750
3/16	AD614ABS	AD614BS	—	SD614BS	SSD614SSBS	.751 - .875
3/16	AD616ABS	AD616BS	—	SD616BS	SSD616SSBS	.876 - 1.00
1/4	AD84ABS	AD84BS	—	SD84BS	SSD84SSBS	.062 - .250
1/4	AD86ABS	AD86BS	—	SD86BS	SSD86SSBS	.251 - .375
1/4	AD88ABS	AD88BS	—	SD88BS	SSD88SSBS	.376 - .500
1/4	AD810ABS	AD810BS	—	SD810BS	SSD810SSBS	.501 - .625
1/4	AD812ABS	AD812BS	—	SD812BS	SSD812SSBS	.626 - .750
1/4	AD814ABS	AD814BS	—	SD814BS	—	.751 - .875
1/4	—	—	—	SD816BS	—	.876 - 1.00

LARGE FLANGE

1/8	AD42ABSLF	AD42BSLF	—	SD42BSLF	SSD42SSBSLF	.032 - .125
1/8	AD43ABSLF	AD43BSLF	—	SD43BSLF	SSD43SSBSLF	.126 - .187
1/8	AD44ABSLF	AD44BSLF	—	SD44BSLF	SSD44SSBSLF	.188 - .250
1/8	AD46ABSLF	AD46BSLF	—	SD46BSLF	—	.251 - .375
1/8	AD48ABSLF	—	—	SD48BSLF	—	.376 - .500
5/32	AD54ABSLF	AD54BSLF	—	SD54BSLF	—	.063 - .250
5/32	—	—	—	SD56BSLF	—	.251 - .375
5/32	—	—	—	SD58BSLF	—	.376 - .500
3/16	AD64ABSLF	AD64BSLF	—	SD64BSLF	SSD64SSBSLF	.126 - .250
3/16	AD66ABSLF	AD66BSLF	—	SD66BSLF	SSD66SSBSLF	.251 - .375
3/16	AD68ABSLF	AD68BSLF	—	SD68BSLF	SSD68SSBSLF	.376 - .500
3/16	AD610ABSLF	AD610BSLF	—	SD610BSLF	SSD610SSBSLF	.501 - .625
3/16	AD612ABSLF	AD612BSLF	—	SD612BSLF	SSD612SSBSLF	.626 - .750
3/16	—	AD614BSLF	—	SD614BSLF	—	.751 - .875
3/16	AD616ABSLF	AD616BSLF	—	SD616BSLF	—	.876 - 1.00

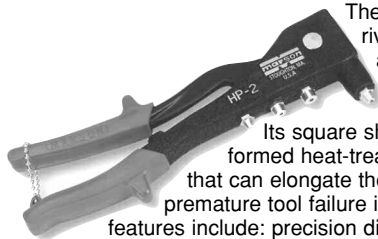
120 DEGREE COUNTERSUNK

1/8	AK42ABS	AK42BS	—	SK42BS	SSK42SSBS	.063 - .125
1/8	AK43ABS	AK43BS	—	SK43BS	SSK43SSBS	.126 - .187
1/8	AD44ABS	AK44BS	—	SK44BS	SSK44SSBS	.188 - .250
1/8	—	AK45BS	—	SK45BS	SSK45SSBS	.251 - .312
1/8	AK46ABS	—	—	SK46BS	—	.313 - .375
1/8	—	—	—	SK48BS	—	.376 - .500
5/32	AK54ABS	AK54BS	—	SK54BS	—	.188 - .250
5/32	AK46ABS	AK56BS	—	—	—	.251 - .375
3/16	AK64ABS	AK64BS	—	SK64BS	SSK64SSBS	.126 - .250
3/16	AK66ABS	AK66BS	—	SK66BS	—	.251 - .375
3/16	AK68ABS	AK68BS	—	—	—	.376 - .500

**SUBJECT TO AVAILABILITY
AND
MINIMUM QUANTITY PURCHASE**

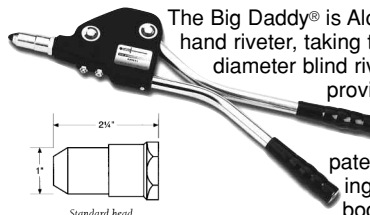
ALCOA FASTENING SYSTEMS HAND RIVET TOOLS

HP-2®/39000



The HP-2 is the largest selling hand rivet tool in the industry. Known and trusted for durability, quality and performance, the HP-2 is often copied but never equaled. Its square shoulder fulcrum pin of cold-formed heat-treated steel prevents pin rotation that can elongate the engaging holes and cause premature tool failure in imitation tools. Other quality features include: precision die-case, high-strength aluminum alloy body; drop-forged carbon steel upper handle; and thick, cushion-molded vinyl grips for comfort. The HP-2 sets up to 3/16" steel rivets and comes with four mounted nosepieces (3/32", 1/8", 5/32" and 3/16") and a service wrench. Refer to the Riveter Capacity Chart for specific capabilities. **Weight:** 1.2 lbs.; 1/carton.

BIG DADDY®/39031



The Big Daddy® is Alcoa's most versatile and powerful hand riveter, taking the hard work out of setting large diameter blind rivets. Its extra-long handles provide excellent leverage and permit working a foot beyond natural reach. Other features include a patented bearing design, self-adjusting two-piece jaws and single-unit body construction with a steel insert to provide stronger threads for the nosepieces included. In addition, the Big Daddy® features a double-gear reduction system which easily sets from 1/8" to 1/4" diameter Klik-Fast rivets in all alloys, including 1/4" Klik-Split® and 3/16" and 1/4" Klik-Lock® rivets. And a one-piece collet case eliminates the need to adjust the tool when changing rivet diameters. The Big Daddy® comes with 5/32", 3/16" and 1/4" nosepieces which are stored in the body. **Weight:** 3-3/4 lbs.; 1/case.
*When setting Alcoa Klik-Lock rivets, no special nosepiece is required.

BACK-UP WASHERS

Back-Up washers are .056"-.062" thick. They are used when fastening soft materials or to compensate for oversize holes where access to both sides of the work is possible.



PART NO.	BULK PART NO.	500 PACK NO.	STD. CARTON QTY.	MATERIAL	FOR HOLE SIZES	Size/ SHAPE
SS-3	50653	40653	5M	Steel	3/32"	1/2" SQ
SS-4	50654	40654	5M	Steel	1/8"	1/2" SQ
SS-6	50656	40656	5M	Steel	3/16"	1/2" SQ
SS-8	50658	40658	10M	Steel	1/8"	3/8" RD
SS-9	50655	40655	10M	Steel	5/32"	7/16" RD
SS-10	50661	40661	10M	Steel	3/16"	1/2" RD
SS-12	50662	40662	10M	Steel	1/4"	1/2" RD
AS-8	50657	40657	10M	Aluminum	1/8"	3/8" RD
AS-9	50659	40659	10M	Aluminum	5/32"	7/16" RD
AS-10	50660	40660	10M	Aluminum	3/16"	1/2" RD
AS-12	50665	40665	10M	Aluminum	1/4"	1/2" RD

AUTOMATIC TOOLS



MP-3V / M39045

Stroke: 3/4"
Pulling Force: 1,800 lbs.
Capacity: 3/32" - 3/16" all alloys.
Weight: 2.9 lbs.



MP-4V / M39048

Stroke: 1"
Pulling Force: 3,420 lbs.
Capacity: 5/32" - 1/4", all alloys, 1/4" monobolt nosepiece included.
Weight: 3.7 lbs.



302-E / M39062

Stroke: .812"
Pulling Force: 2,000 lbs.
Capacity: 3/32" - 3/16" diameter in all alloys and up to 1/4" in aluminum / steel combinations.
Weight: 4 lbs.



304-E / M39064

Stroke: 1"
Pulling Force: 4,200 lbs.
Capacity: 3/16" to 1/4" all alloys including structural rivets. Also included are 3/16" and 1/4" Monobolt® & Magnalok assemblies.
Weight: 5.5 lbs.



BT-1 / M39020

Stroke: .79" (20mm)
Pulling Force: 1,870 lbs.
Capacity: 3/32" - 3/16" diameter in all alloys.
Weight: 4.6 lbs. (with battery pack).



EXTENDED HEAD ACCESSORY FOR 302-E & 304-E

PART NO.	TOOL	DESCRIPTION
M88082	302-E / M39062	5" Extension Head
M88086	302-E / M39062	8" Extension Head
M88220-39	304-E / M39064	5" Extension Head
M723358	304-E / M399064	5" Extension Head



AccuBIRD 12 VOLT CORDLESS RIVETING TOOL

Work Capacity: 3/32" to 3/16" blind rivets.
Weight: 4.8 lbs. (2.2 kg)
Working Stroke: .79" (20 mm)
Traction Power: 1,900 lbs. (8,500 N)
Power Pack: 12 Volt, rechargeable NiCad
Battery Charger: 110V/60Hz, 60 minute charge time.



Optional retaining nosepieces hold rivet securely in the tool nose prior to setting the rivet. Extra length nosepieces are available.

A-T SERIES KNURLED THREADED INSERTS



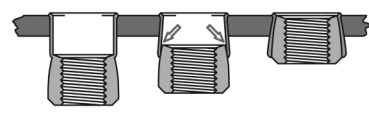
PROFILE:

The A-T Series Insert is unique in that it can be installed into most any material above .030/.76 mm thickness. As the A-T Series is installed, the threaded portion is completely swaged 360° into the sleeve portion and the hole. This permits the A-T Series to be used with Grade 8/metric 12.9 mating screws.

The A-T Series Insert is installed using lightweight, hand held pneumatic tools that can be located at any position in your product's assembly sequence. The A-T Series Insert can be installed either prior to or after finish.

**360° SWAGING
HOW IT WORKS FOR YOU**

As the A-T Series Insert is installed, the threaded nut portion is drawn into the upper sleeve portion.



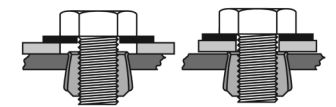
As this occurs, a 360° swaging action takes place anchoring the A-T Series in the parent material.

BENEFITS:

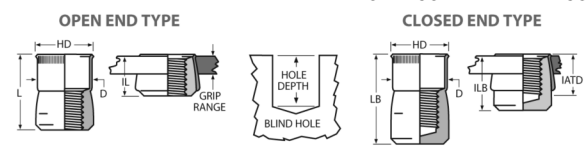
- REDUCED OVERALL LENGTH of the installed A-T Series Insert allows it to be used in limited clearance applications.
- QUALITY INSTALLATIONS even in variable thickness materials are assured by our spin/spin torque stall tools.
- INVENTORY REDUCTION is possible because one A-T Series Insert will work in any thickness material about .030/.76 mm.
- INSTALLS INTO MOST ANY MATERIAL with a thickness over .030/.76 mm.
- CAN BE USED WITH GRADE 8/METRIC 12.9 SCREWS due to the A-T Series high shear load capability.
- AVAILABLE in Steel, Aluminum, Brass and Series 304 Stainless Steel.

JOINT DESIGN PRACTICES:

AVK recommends that the mating part comes in contact with the head of the A-T Series Insert. If a gap or clearance hole exists between the mating part and the A-T Series Insert, the threaded nut portion may rotate or pull through the parent material.



**UNIFIED (INCH) THREAD SIZES
(See Thread Class Note*)**



THREAD SIZE	THREAD CALL OUT	HD ± .005	L ± .015	D MAX.	IL MAX.	LB. ± .015	ILB MAX.	IATDD** MAX.	HOLE DEPTH MIN.
4-40 UNC	440	.211	.370	.1875	.205	.660	.495	.395	.400
6-32 UNC	632	.240	.370	.2185	.205	.675	.505	.410	.400
8-32 UNC	832	.269	.370	.2495	.205	.675	.505	.410	.400
10-24 UNC	1024	.306	.370	.2805	.205	.685	.520	.385	.400
10-32 UNC	1032	.306	.370	.2805	.205	.685	.520	.385	.400
1/4-20 UNC	420	.400	.515	.3745	.275	1.005	.760	.615	.540
5/16-18 UNC	518	.528	.615	.4995	.325	1.065	.770	.630	.640
3/8-16 UNC	616	.588	.745	.5615	.390	1.450	1.095	.890	.770
1/2-13 UNC	813	.800	.935	.7485	.485	N/A	N/A	N/A	.960

** Dimensions in minimum grip condition. Additional UNF tread sizes available.

HOLE SIZE/MATERIAL THICKNESS CHART

Installation hole size for the A-T Series Insert is determined by the parent material's thickness and density. The thicker the material the larger the hole required to allow full 360° installation swaging. The application should be tested before hole size is specified.

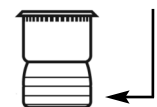
THREAD SIZE	.030-.090 MAT. THICKNESS		.091-.124 MAT. THICKNESS		.125-.186 MAT THICKNESS		.187-OVER MAT. THICKNESS	
	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL
4-40 UNC	3/16	.1875	#10	.1935	#10	.1935	#9	.1960
6-32 UNC	7/32	.2188	#2	.2210	#1	.2280	#1	.2280
8-32 UNC	1/4	.2500	"F"	.2570	17/64	.2656	17/64	.2656
10-24 UNC	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
10-32 UNF	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
1/4-20 UNC	3/8	.3750	3/8	.3750	"W"	.3860	25/64	.3906
5/16-18 UNC	1/2	.5000	1/2	.5000	33/64	.5156	33/64	.5156
3/8-16 UNC	9/16	.5625	9/16	.5625	37/64	.5781	37/64	.5781
1/2-13 UNC	3/4	.7500	49/64	.7656	25/32	.7810	51/64	.7970

FINISH: The standard specified finishes for the A-T Series Insert are cadmium and tin. Alteration to these finishes will reduce performance.

***THREAD CLASS:** The A-T Series Insert's internal thread are manufactured oversized to compensate for resulting thread portion shrinkage during the installation swaging process. They are not gaugeable prior to or after installation but will be compatible with class 2A/3A screws after installation.

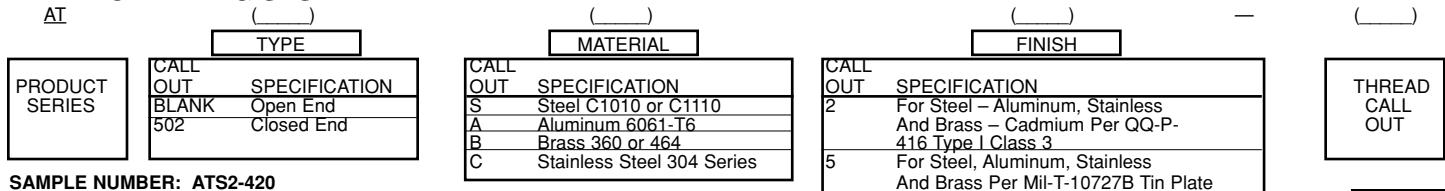
All materials for the A-T Series are plated cadmium or tin and look similar. Radial grooves are machined into the part for material identification.

MATERIAL TYPE IDENTIFICATION GROOVES



- NONE – STEEL
- 1 – STAINLESS
- 2 – BRASS
- 3 – ALUMINUM

PART NUMBERING SYSTEM



SAMPLE NUMBER: ATS2-420

A-L SERIES KNURLED THREADED INSERTS

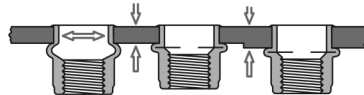


PROFILE:

The A-L Series Insert features a large diameter, low profile head making it ideal for use in punched or drilled holes. It offers the highest all around strength characteristics and has been designed to be used with grade 5 or metric 8.8/9.8 mating screws. The A-L Series is AVK's most versatile performer.

SPINWALL TECHNOLOGY™ HOW HOLE FILL WORKS FOR YOU

As the A-L Series Insert is installed, the knurled body expands 360° FILLING THE HOLE. This Feature provides exceptional torque strength and vibration resistance.



The installation tool then continues to exert a torque load on the insert forming a backside flange even in multiple or variable thickness materials - WITHOUT ADJUSTMENT.



BENEFITS:

- EXCEPTIONAL TORQUE STRENGTH is achieved as the insert's knurled body expands FILLING THE HOLE.
- QUALITY INSTALLATIONS even in variable thickness materials are assured by our spin/spin torque stall tools.
- SUPERIOR THREAD STRENGTH is provided due to our internal rolled thread manufacturing process.
- THREADS GAUGE before and after installation due to the increased cross-sectional thickness of the thread area. Thread dilation is prevented.
- INVENTORY REDUCTION is possible because of the A-L Series' wide grip range capacity. It is 2.5 times greater than conventional rivet nuts.
- SUPERIOR CORROSION RESISTANCE is provided by our standard zinc/yellow dichromate finish (96 hrs. salt spray to white corrosion). For exceptional corrosion protection we offer a zinc/tin alloy finish.
- AVAILABLE in Steel, Aluminum, Brass or Monel.

ADDITIONAL DESIGN TYPES:

CLOSED END

- Thread area is enclosed eliminating leakage past the threads from either side of the application.



SEALED HEAD

- A PVC foam seal is bonded to the underside of the head and when installed provides a weathertight seal. (Also available in the closed end version).

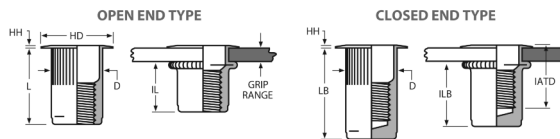


WEDGE HEAD

- The addition of 9 wedges under the head provides even greater torque capability, especially in soft or thin materials, and is excellent for electrical grounding applications.



UNIFIED (INCH) THREAD SIZES (CLASS 2B Per ASME B1.1/21)



THREAD SIZE	THREAD CALL OUT	GRIP RANGE	GRIP CALL OUT	HOLE SIZE		HD ± .010	HH ± .003	L ± .015	D MAX.	IL MAX.	LB ± .015	ILB MAX.	IATD* MAX.
				+ .006	-.000								
6-32 UNC	632	.020-.080	80	17/64 (.2656)	.390	.030	.420	.265	.305	.740	.640	.610	
6-32 UNC	632	.080-.130	130	17/64 (.2656)	.390	.030	.420	.265	.305	.740	.580	.670	
8-32 UNC	832	.020-.080	80	17/64 (.2656)	.390	.030	.420	.265	.305	.740	.640	.610	
8-32 UNC	832	.080-.130	130	17/64 (.2656)	.390	.030	.470	.265	.305	.740	.580	.670	
10-24 UNC	1024	.020-.130	130	19/64 (.2969)	.415	.030	.475	.296	.315	.990	.845	.730	
10-24 UNC	1024	.130-.225	225	19/64 (.2969)	.415	.030	.585	.296	.315	.990	.735	.840	
10-32 UNF	1032	.020-.130	130	19/64 (.2969)	.415	.030	.475	.296	.315	.990	.845	.730	
10-32 UNF	1032	.130-.225	225	19/64 (.2969)	.415	.030	.585	.296	.315	.990	.735	.840	
1/4-20 UNC	420	.027-.165	165	25/64 (.3906)	.500	.030	.580	.390	.380	1.190	1.005	.895	
1/4-20 UNC	420	.165-.260	260	25/64 (.3906)	.500	.030	.680	.390	.380	1.190	.905	1.035	
5/16-18 UNC	518	.027-.150	150	17/32 (.5312)	.685	.035	.690	.530	.470	1.390	1.175	.995	
5/16-18 UNC	518	.150-.312	312	17/32 (.5312)	.685	.035	.805	.530	.425	1.390	1.025	1.120	
3/8-16 UNC	616	.027-.150	150	17/32 (.5312)	.685	.035	.690	.530	.470	1.390	1.175	.995	
3/8-16 UNC	616	.150-.312	312	17/32 (.5312)	.685	.035	.805	.530	.425	1.390	1.025	1.120	
1/2-13 UNC	813	.063-.200	200	11/16 (.6875)	.865	.047	1.150	.685	.850	2.365	2.070	1.505	
1/2-13 UNC	813	.200-.350	350	11/16 (.6875)	.865	.047	1.300	.685	.850	2.365	1.920	1.505	
1/2-13 UNC	813	.350-.500	500	11/16 (.6875)	.865	.047	1.450	.685	.860	2.365	1.770	1.505	

NOTE 1: Grip range can be affected by parent material density and actual hole size. AVK suggests trial installations to determine optimum grip.

NOTE 2: Additional UNF fine threads are available.

NOTE 3: Additional grip lengths are available in certain thread sizes.

* Dimensions in minimum grip condition.

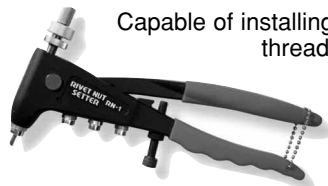
PART NUMBERING SYSTEM

AL	()	()	()	()	()
PRODUCT SERIES	MATERIAL	FINISH	THREAD CALL OUT	GRIP CALL OUT	TYPE
CALL OUT SPECIFICATION	CALL OUT SPECIFICATION	CALL OUT SPECIFICATION	CALL OUT	CALL OUT	CALL OUT TYPE
S Steel 1010/1008	4 For Steel - Zinc/Yellow Dichromate Per ASTM-B-633 Type II FE/ZN (.0003) With Clear Protective Coating	BLANK Open End			B Closed End
A Aluminum 5056	9 For Steel - Yellow Tin Zinc Per BPS-TZ-327 (.0003) With Clear Protective Coating	S Sealed			W Wedge Head
B Brass 270/260	1 For Aluminum Or Monel - Clear Protective Coating				
M Monel 400	2 For Brass - CAD Per QQP 416 Type I, Class 3 With Clear Protective Coating				

SAMPLE NUMBER: ALS4-420-165B

MARSON FASTENING SYSTEMS RIVET NUT TOOLS AND KITS

RIVET NUT SETTER™ RN-1/M39300



Capable of installing all sizes of rivet nuts and threaded inserts up to 1/4-20 and 6mm threads in steel, the next-generation Rivet Nut Setter features a quick-change mandrel and longer handles for improved leverage and an

adjustable stroke, positive-stop locking feature. Rivet Nut Setter is ergonomically designed, with a forged, heat-treated steel upper handle, precision die-cast body of high-strength aluminum alloy, patented fulcrum pin design, and comfortable hand grips. Supplied with 8-32, 10-24 and 10-32 mandrels and nosepieces. Available in a variety of kit forms. **Weight:** 1.2 lbs.

RIVET NUT KIT/M39301



Model M39301 Rivet Nut Kit contains the M39300 Rivet Nut Tool in a molded plastic case; mandrels and nosepieces for 6-32, 8-32, 10-24 and 1/4-20, instructions and wrench. The kit also includes 103 assorted Klik Rivet Nuts and Klik Poly-Nuts: 25 each M57210, M57425, M57130; 20 each of M57250;

8 each M57445. **Weight:** 2.75 lbs.

POLY-NUT KIT/M39302

Model M39302 Poly-Nut Kit contains the M39300 Rivet Nut Tool in a molded plastic case with 8-32, 10-32 and 1/4-20 mandrels and nosepieces, wrench and instructions. The kit contains 52 assorted Klik Poly-Nuts: 12 each M57425, M57435, M57445; 16 each M57455. **Weight:** 3 lbs.

METRIC POLY-NUT KIT/M39303

Model M39303 Metric Poly-Nut Kit contains the M39300 Rivet Nut Tool in a molded plastic case with 4mm, 5mm, 6mm and 8mm mandrels and nosepieces, wrench and instructions. The kit contains 75 assorted Klik Poly-Nuts: 25 each M57407, M57409; 15 each M57411; 10 each M57413. **Weight:** 3.25 lbs.

RIBBED RIVET NUT KIT/M39315

Model M39315 Ribbed Rivet Nut Kit contains the M39300 Rivet Nut Tool in a molded plastic case; mandrels, nosepieces, wrench and instructions for setting 8-32, 10-24, 10-32 and 1/4-20 Rivet Nuts. The kit also includes 50 assorted Ribbed style Rivet Nuts; 12 each M57320, M57330, M57340; 8 each M57350; 6 each M57354. **Weight:** 2.75 lbs.

METRIC RIBBED RIVET NUT KIT/M39316

Model M39316 Ribbed Rivet Nut Kit contains the M39300 Rivet Nut Tool in a molded plastic case with 4mm, 5mm and 6mm mandrels and nosepieces, wrench and instructions. The kit also included 50 assorted Ribbed style Rivet Nuts; 12 each M57360, M57385, M57384; 8 each M57386; 6 each M57387. **Weight:** 2.75 lbs.

STEEL KLIK THREAD-SERT KIT/M39314

Model M39314 Thread-sert Kit contains the M39300 Rivet Nut Tool in a plastic case with 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18 and 3/8-16 mandrels and nosepieces, wrench and instructions. The kit contains 62 assorted Steel Klik Thread-serts: 10 each M57810, M57820, M57830, M57840, M57850; 6 each M57871, M57881. **Weight:** 3.25 lbs.

MANDREL/NOSEPIECE CHART

THREAD SIZE	MANDREL NO.	NOSEPIECE NO.	COMPLETE SET NO.
6-32	M39354	M39361	M39380
8-32	M39355	M39362	M39381
10-24	M39356	M39363	M39382
10-32	M39357	M39363	M39383
1/4-20	M39358	M39379	M39384
1/4-28	M39371	M39379	—
5/16-18*	M39359	Not Needed	—
5/16-24*	M39372	Not Needed	—
3/8-16*	M39360	Not Needed	—
4mm	M39366	M39374	M39385
5mm	M39367	M39373	M39386
6mm	M39368	M39375	M39387
8mm	M39369	Not Needed	—

For tool RN-1 M39300.

* Not recommended for steel rivet nut.

STEEL KLIK THREAD-SERT KIT/M39314

Model M39314 Thread-sert Kit contains the M39300 Rivet Nut Tool in a plastic case with 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18 and 3/8-16 mandrels and nosepieces, wrench and instructions. The kit contains 62 assorted Steel Klik Thread-serts: 10 each M57810, M57820, M57830, M57840, M57850; 6 each M57871, M57881. **Weight:** 3.25 lbs.

ALUMINUM KLIK THREAD-SERT KIT/M39313

Model M39313 Thread-sert Kit contains the M39300 Rivet Nut Tool in a molded plastic case with 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18 and 3/8-16 mandrels and nosepieces, wrench and instructions. The kit contains 62 assorted Aluminum Klik Thread-serts: 10 each M57910, M57920, M57930, M57940, M57950; 6 each M57971, M57981. **Weight:** 3 lbs.

QUAD LEG NUT INSTALLATION TOOL (MJN-1/M39042)



The MJN-1 hand-held Quad Leg Nut Installation Tool is designed to effortlessly set quad leg nuts and Jack Nuts® in sizes ranging from 6-32 – 1/4-20, and M4 – M6. It works by threading the bolt to the quad leg nut, then dropping the component in the slot of the tool, inserting it

into the pre-drilled hole, and squeezing until set. Pressing the release lever releases the tool. Then tightening the exposed bolt completes the installation.

Jack Nut® is a registered trademark of The Black & Decker Corporation.

325RN/M34604



Choose the M34604 for installing larger size Rivet Nuts. Model M34604 is a heavy-duty tool that will install 10-24 through 3/8"-16, and 5mm through 10mm threaded inserts

in aluminum or steel. Quick-change mandrels, easily adjustable stroke. Supplied with 1/4"-20 mandrel and nosepiece only.

Weight: 4.25 lbs.

325RNK KIT/M34606



The M34606 / 325RNK Kit comes complete with the heavy-duty 325RN Rivet Nut Tool, mandrels and nosepieces to set 10-24", 10-32", 1/4-20", 5/16-18" and 3/8-16" Rivet-Nuts, and service/adjustment tools all contained within a sturdy carrying case. Optional external thread adapters available.

MARSON FASTENING SYSTEMS RIVET NUT TOOLS AND KITS (Cont..)

425RN/M34607



Like the 325RN, the 425RN will install the full range of Rivet Nuts. It offers quick-change mandrels, easy adjust stroke, and a fast-action Push/Pull plunger that can be used to spin on and spin off rivet nuts for more speed. Supplied with 1/4-20 mandrel and nosepiece only. **Weight:** 4.5 lbs.

spin on and spin off rivet nuts for more speed. Supplied with 1/4-20 mandrel and nosepiece only. **Weight:** 4.5 lbs.

425RNK KIT/M34008



The M34008 / 425RNK Kit comes complete with the heavy-duty 425RN Rivet Nut Tool, mandrels and nosepieces to set 10-24", 10-32", 1/4-20", 5/16-18" and 3/8-16" Rivet-Nuts, and service/adjustment tools all contained within a sturdy carrying case. Optional external thread adapters available.

MANDREL/NOSEPIECE CHART FOR M34604 AND M34607

THREAD SIZE	MANDREL NO.	NOSEPIECE NO.	MANDREL/NOSEPIECE COMBO NO.	MET EXTERNAL THREAD.
10-24	M95635	M95645	M34615	M34635
10-32	M95636	M95645	M34616	M34636
1/4-20	M95637	M95647	M34617	M34637
5/16-18	M95638	M95648	M34618	M34638
3/8-16	M95639	M95649	M34619	—
5mm	M95630	M95640	M34625	M34645
6mm	M95631	M95641	M34626	M34647
8mm	M95632	M95642	M34627	M34648
10mm	M95633	M95643	M34628	—

E-Z LOK

E-Z LOK INSERTS FOR WOOD AND PLASTIC KNIFE THREAD INSERTS - FOR WOOD



PART NUMBER		INTERNAL THREAD	LENGTH OVERALL	MAJOR DIAMETER EXTERNAL THREAD	HOLE SIZE*
INSERT	DRIVE TOOL				
400-004	N/A	4-40	.375	.350	1/4"
400-006	500-006	6-32	.375	.350	1/4"
400-008	500-1	8-32	.375	.350	1/4"
400-3	500-2	10-24	.500	.453	3/8"
400-332	500-2	10-32	.500	.453	3/8"
400-4	500-3	1/4-20	.500	.453	3/8"
400-5	500-4	5/16-18	.625	.600	1/2"
400-6	500-5	3/8-16	.625	.600	1/2"

* Material: Brass



External knife threads provide superior holding power in hard and soft woods, particle board and all wood products. Use wherever field assembly or disassembly could lead to thread erosion or stripping. The long pilot ensures straight driving into a drilled hole. Install with screw driver, bolt and nut, tapping head, or E-Z Lok driving tool.

HEX DRIVE KNIFE THREAD INSERTS - FOR WOOD



PART NUMBER		DESCRIPTION	LENGTH	HOLE SIZE*	HEX DIMENSIONS
INSERT	DRIVE TOOL				
9015	8500	8-32 Flanged	11mm	6mm	4mm
9030	9000	1/4-20 Flanged	13mm	9mm	6mm
9035	9000	1/4-20 Flanged	20mm	9mm	6mm
9040	9000	1/4-20 Flush	13mm	9mm	6mm
9045	9000	1/4-20 Flush	20mm	9mm	6mm

* Material: Die Cast Zinc Alloy.

NOTE: 11mm approximately 7/16"; 13mm approximately 1/2"; 20mm approximately 3/4".



An inexpensive insert for use in ready-to-assemble furniture, drawer pulls and wherever ease of assembly or avoidance of thread stripping is desired. Install with hex drive wrench or E-Z Lok drive tool.

**CABLE TIES AVAILABLE
CALL US, WE CAN HELP**



DURHAM®
LARGE SCOOP
COMPARTMENT BOXES

18"W x 3"H x 12"D

Durham Large Scoop Compartment Boxes (DL) are produced using the same high quality construction as the small Durham boxes.



MODEL 107*
(DL32C)



MODEL 109*
(DL21C)



MODEL 102*
(DL24C)



MODEL 111*
(DL20C)



MODEL 113*
(DL16C)



MODEL 125*
(DL6HC)



MODEL 115*
(DL12C)



MODEL 117*
(DL6VC)

Adjustable Series. Durham Scoop Compartment Boxes with adjustable dividers offer the opportunity to customize the number, size, and shape of compartments.



MODEL 119* (ADLC) Adjustable Drawer with catch and nine straight dividers.



MODEL 099* (ADLHC) Horizontal Adjustable Compartment Box with twelve dividers.



MODEL 131* (EXLC) Expando-Box with moveable dividers.



	MODEL										
SPECIFICATIONS	107* (DL32C)	102* (DL24C)	109* (DL21C)	111* (DL20C)	113* (DL16C)	115* (DL12C)	117* (DL6VC)	125* (DL6HC)	119* (ADLC)	099* (ADLHC)	131* (EXLC)
Width, inches	18	18	18	18	18	18	18	18	18	18	18
Height, inches	3	3	3	3	3	3	3	3	3	3	3
Depth, inches	12	12	12	12	12	12	12	12	12	12	12
Material	Prime cold rolled steel - interlocked and welded construction										
Color	Gray baked enamel										
No. of Compartments	32	24	21	20	16	12	6 Vert.	6 Horiz.	Variable	Variable	Variable
Packing per Carton	4	4	4	4	4	4	4	4	4	4	
Weight per Carton, lbs.	32	32	32	32	32	32	32	32	32	32	



RACKS FOR LARGE SCOOP COMPARTMENT BOXES

Durham's Large Racks (LR) for Large Scoop Compartment Boxes are produced using the same high quality construction as the small racks. A specially designed Triple-Track space saver model has telescoping tracks which allows stacking on 12" Deep Bins and Drawer Cabinets.



MODEL 310*
(4LR-TT)
Triple-Track Rack.

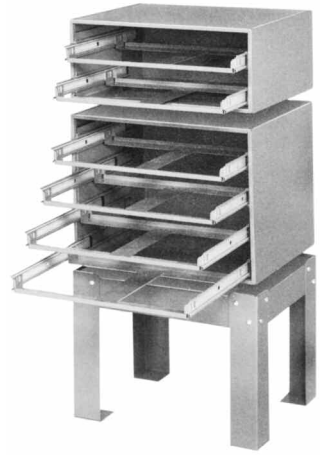
MODEL 311*
(BLR-TT)
Rack Base (20-3/8" x 15-1/8"H x 12-1/8"D; weight 13 lbs.) is available for use with 4LR-TT.

MODEL 302*
(2LR)

MODEL 303*
(4LR)

MODEL 304*
(BLR)

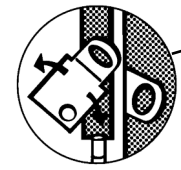
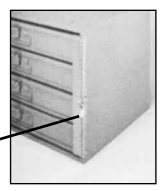
Rack Base (20-3/8"W x 15-1/8"H x 16"D; weight 13 lbs.) is available for use with Models 302 and 303.



Large Scoop Compartment Boxes (DL) are sold separately.



MODEL 312* plated locking hinge with swivel padlock attachment is available for Models 303 (4LR) and 310 (4LR-TT) to lock drawers into the racks and hold them securely in place. They have mounting holes and can be easily installed using sheet metal screws or pop rivets. Padlock not provided.



SPECIFICATIONS	MODEL		
	302* (2LR)	303* (4LR)	310* (4LR-TT)
Weight, inches	20	20	20-1/4
Height, inches	8-1/8	15	15
Depth, inches	15-3/4	12-1/2	
Material	Prime cold rolled steel - interlocked and welded construction		
Color	Gray baked enamel		
No. of Drawers	2	4	4
Packing per Carton	1	1	1
Weight per Carton, lbs.	20	37	30

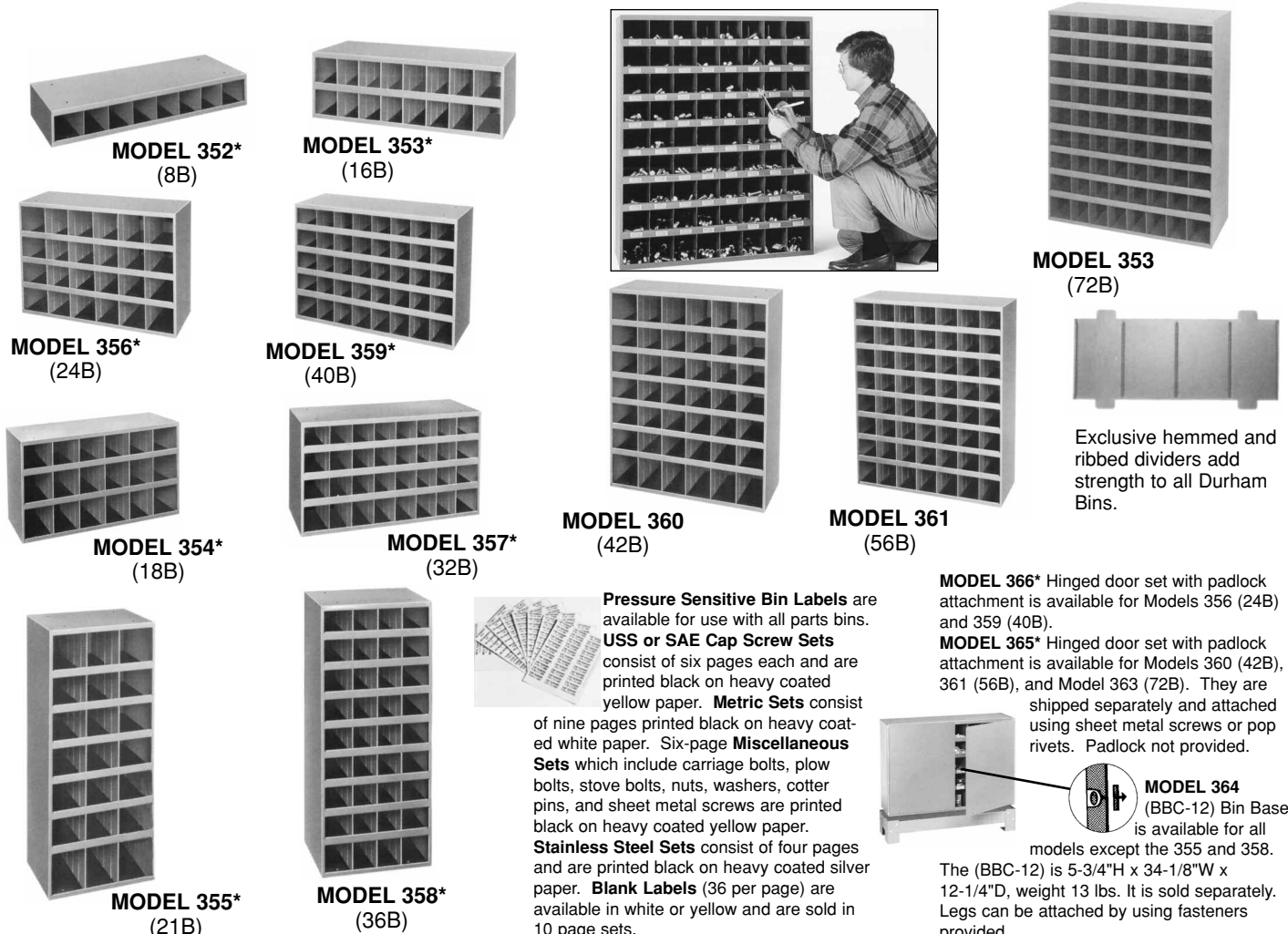


DURHAM®

12" DEEP BINS

Designed as heavy duty units for storing a wide variety of small parts, Durham Bins are extremely sturdy and are welded on specially designed machines. They are produced of prime cold rolled steel and will not warp, twist or sag. Each shelf has a fully hemmed 1-1/8" turn on the front providing space to hold labels

for content identification. Dividers are hemmed in a tear drop design to avoid sharp edges, and vertical ribs provide added strength. Doors with padlock attachments and bases are available for most models.



Pressure Sensitive Bin Labels are available for use with all parts bins. **USS or SAE Cap Screw Sets** consist of six pages each and are printed black on heavy coated yellow paper. **Metric Sets** consist of nine pages printed black on heavy coated white paper. Six-page **Miscellaneous Sets** which include carriage bolts, plow bolts, stove bolts, nuts, washers, cotter pins, and sheet metal screws are printed black on heavy coated yellow paper. **Stainless Steel Sets** consist of four pages and are printed black on heavy coated silver paper. **Blank Labels** (36 per page) are available in white or yellow and are sold in 10 page sets.

MODEL 366* Hinged door set with padlock attachment is available for Models 356 (24B) and 359 (40B). **MODEL 365*** Hinged door set with padlock attachment is available for Models 360 (42B), 361 (56B), and Model 363 (72B). They are shipped separately and attached using sheet metal screws or pop rivets. Padlock not provided.

MODEL 364 (BBC-12) Bin Base is available for all models except the 355 and 358. The (BBC-12) is 5-3/4"H x 34-1/8"W x 12-1/4"D, weight 13 lbs. It is sold separately. Legs can be attached by using fasteners provided.



All 12" Deep Bins are modular for use with 12" Deep Drawer Cabinets.

SPECIFICATIONS	MODEL											
	352* (8B)	353* (16B)	354* (18B)	355* (21B)	356* (24B)	357* (32B)	358* (36B)	359* (40B)	360 (42B)	361 (56B)	363 (72B)	
Width, inches	33-3/4	33-3/4	33-3/4	17-7/8	33-3/4	33-3/4	17-7/8	33-3/4	33-3/4	33-3/4	33-3/4	
Height, inches	5-1/4	11-1/2	19-1/4	42	23-7/8	19-1/4	42	23-7/8	42	42	42	
Depth, inches	12	12	12	12	12	12	12	12	12	12	12	
No. of Bins	8	16	18	21	24	32	36	40	42	56	72	
Bin Width, inches	4	4	5-3/8	5-3/8	5-3/8	4	4	4	5-3/8	4-7/8	4	
Bin Height, inches	5-1/4	5-1/8	6-3/8	5-3/8	5-1/2	4-1/2	4-1/2	4-1/2	5-1/2	5-1/8	4-1/2	
Bin Depth, inches	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	
Material	Prime cold rolled steel - interlocked and welded construction											
Color	Gray baked enamel											
Packing per Carton	1	1	1	1	1	1	1	1	1	1	1	
Weight per Carton, lbs.	15	25	38	37	44	41	50	50	71	75	80	

TURNBUCKLES AND DIMENSIONS



HOOK AND HOOK



HOOK AND EYE



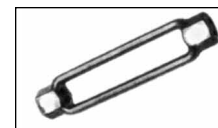
EYE AND EYE



JAW AND EYE



JAW AND JAW



BODY ONLY

- Turnbuckles are designed for use in straight line, do not subject to bending or unusual angles.
- End fittings are hot galvanized after threading.
- Hexagon ends on all bodies provide full wrench bearings.

Meets design requirements according to Federal Specification FF-T-791B

SIZE DIAMETER x TAKE-UP	AVG. OVERALL LENGTH w/ ENDS IN CLOSED POSITION	APPROX. WEIGHT EACH (LBS.)				WORK LOAD LIMIT (LBS.)	
		EYES AND/OR HOOKS	JAW & EYE	JAW & JAW	BODIES ONLY	HOOK & HOOK	EYE & EYE JAW & EYE JAW & JAW STUB END
5/16 x 4-1/2	9-9/16	.5	.53	.58	.25	700	800
3/8 x 6	11-7/8	.75	.82	.93	.3	1000	1200
1/2 x 6	13-5/16	1.5	1.62	1.68	.55	1500	2200
1/2 x 9	16-5/16	1.75	1.82	1.85	.74	1500	2200
1/2 x 12	19-5/16	2.18	2.19	2.20	.93	1500	2200
5/8 x 6	15-1/2	2.63	2.59	2.82	.91	2250	3500
5/8 x 9	18-1/2	3.00	3.01	3.25	1.2	2250	3500
5/8 x 12	21-1/2	3.25	3.5	3.75	1.5	2250	3500
3/4 x 6	17	3.75	4.25	4.68	1.3	3000	5200
3/4 x 9	20	4.5	5.00	5.38	1.7	3000	5200
3/4 x 12	23	5.75	5.75	6.12	2.12	3000	5200
3/4 x 18	29	7.00	7.25	7.75	2.93	3000	5200
7/8 x 6	18	—	—	—	2.0	—	7200
7/8 x 12	24-5/8	8.38	8.88	9.36	3.0	4000	7200
7/8 x 18	30-5/8	10.25	10.60	11.44	4.12	4000	7200
1 x 620-5/8	—	—	—	2.5	—	10000	—
1 x 1226-5/8	11.25	12.00	12.88	3.86	5000	10000	—
1 x 1832-5/8	14.00	14.75	16.1	5.5	5000	10000	—
1 x 2438-5/8	17.00	17.75	18.6	7	5000	10000	—

Larger sizes available. Do not exceed work load limit or 20% of the product's break strength.

DIMENSIONS

EYE

DIMENSIONS IN INCHES APPROX.					WORK LOAD LIMIT POUNDS
A	B	C	D	E	
5/16	7/16	9/32	15/16	2-3/16	800
3/8	17/32	11/32	1-1/8	2-9/16	1200
1/2	23/32	7/16	1-7/16	3-7/32	2200
5/8	7/8	1/2	1-3/4	3-7/8	3500
3/4	1	5/8	2-1/8	4-11/16	5200
7/8	1-1/4	3/4	2-3/8	5-1/4	7200
1	1-7/16	7/8	3	6-3/8	10000

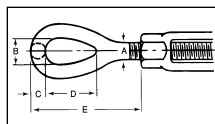
JAW

DIMENSIONS IN INCHES APPROX.					WORK LOAD LIMIT POUNDS
A	B	C	D	E	
5/16	7/8	1/4	15/32	9/32	800
3/8	7/8	5/16	1/2	5/16	1200
1/2	1-1/16	3/8	5/8	13/32	2200
5/8	1-5/16	1/2	3/4	1/2	3500
3/4	1-1/2	5/8	15/16	9/16	5200
7/8	1-3/4	3/4	1-1/8	11/16	7200
1	2-1/16	7/8	1-3/16	25/32	10000

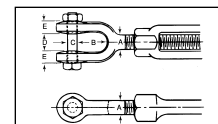
HOOK

DIMENSIONS IN INCHES APPROX.					WORK LOAD LIMIT POUNDS
A	B	C	D	E	
5/16	5/16	1/2	1/2	1-31/32	700
3/8	3/8	39/64	9/16	2-23/64	1000
1/2	1/2	25/32	21/32	2-15/16	1500
5/8	5/8	1	27/32	3-11/16	2250
3/4	3/4	1-13/64	63/64	4-33/64	3000
7/8	7/8	1-3/8	1-1/8	5-3/16	4000
1	1	1-17/32	1-1/4	5-27/32	5000

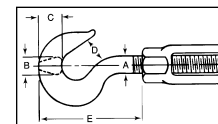
DO NOT EXCEED WORK LOAD LIMIT OR 20% OF THE PRODUCT'S BREAK STRENGTH.



EYE



JAW



HOOK



ZINC PLATED TURNED EYE BOLTS MACHINE THREAD

Turned eye bolts are manufactured from low carbon cold drawn steel wire and are supplied with NC rolled machine threads with one hex nut unassembled. Zinc plated finish is standard; other rust preventive finishes or self-colored available on a special basis. When it is not feasible to utilize a standard eye bolt, we can manufacture to your specifications.



Some sizes also available in Stainless Steel

STOCK NO.	PART NO.	DIMENSIONS - INCHES					WEIGHT PER 100 IN. LBS.	WORKING LOAD LIMIT (LBS.)
		THREAD DIA. (A)	SHANK LENGTH (B)	I.D. EYE (C)	OVERALL LENGTH (D)	THREAD LENGTH (T)		
A-1	07005 8	1/8" (6-32)	3/4"	1/4"	1-1/4"	5/8"	.75	22
B-1	07010 2	5/32" (8-32)	1-1/8"	1/4"	1-11/16"	1"	1.31	36
C-1	07015 7	3/16" (10-24)	1"	3/8"	1-11/16"	7/8"	1.81	38
C-2	07020 1	3/16" (10-24)	1-3/8"	5/16"	2"	1-1/4"	1.875	38
C-3	07025 6	3/16" (10-24)	2"	3/8"	2-11/16"	1"	2.375	38
C-4	07030 0	3/16" (10-24)	3"	3/8"	3-11/16"	1-1/2"	2.94	38
D-1	07035 5	7/32" (12-24)	1-1/2"	3/8"	2-1/4"	1-3/8"	1.67	52
E-1	07040 9	1/4"-20	1"	1/2"	2"	7/8"	3.75	74
E-2	07045 4	1/4"-20	1-1/2"	1/2"	2-1/2"	1-1/4"	4.375	74
E-2A	07050 8	1/4"-20	1-7/8"	7/16"	2-3/4"	1-5/8"	5.2	74
E-3	07055 3	1/4"-20	2"	1/2"	3"	1-1/4"	5	74
E-4	07060 7	1/4"-20	2-1/2"	1/2"	3-1/2"	1-1/4"	5.6	74
E-5	07065 2	1/4"-20	3"	1/2"	4"	1-1/2"	6.3	74
E-6	07070 6	1/4"-20	3-1/2"	1/2"	4-1/2"	2"	6.9	74
E-7	07075 1	1/4"-20	4"	1/2"	5"	2-1/2"	7.5	74
E-8	07080 5	1/4"-20	5"	1/2"	6"	3"	8	74
E-9	07085 0	1/4"-20	6"	1/2"	7"	4"	9	74
F-1	07090 4	5/16"-18	1"	5/8"	2-1/8"	7/8"	7	96
F-2	07095 9	5/16"-18	2"	5/8"	3-1/8"	1-1/4"	9	96
F-2A	07100 0	5/16"-18	2-1/4"	9/16"	3-3/8"	2"	9.7	96
F-3	07105 5	5/16"-18	2-1/2"	5/8"	3-5/8"	1-1/4"	10	96
F-4	07110 9	5/16"-18	3"	5/8"	4-1/8"	1-1/2"	11	96
F-5	07115 4	5/16"-18	3-1/2"	5/8"	4-5/8"	2"	11	96
F-6	07120 8	5/16"-18	4"	5/8"	5-1/8"	2-1/2"	12	96
F-7	07125 3	5/16"-18	5"	5/8"	6-1/8"	3"	14	96
F-8	07130 7	5/16"-18	6"	5/8"	7-1/8"	4"	15	96
F-9	07135 2	5/16"-18	6-1/2"	7/8"	7-3/4"	4"	18	96
G-1	07140 6	3/8"-16	1"	3/4"	2-1/2"	7/8"	12	144
G-2	07145 1	3/8"-16	2"	3/4"	3-1/2"	1-1/4"	15	144
G-2A	07150 5	3/8"-16	2-1/2"	21/32"	3-3/4"	2-1/4"	15.7	144
G-3	07155 0	3/8"-16	2-1/2"	3/4"	4"	1-1/2"	15.5	144
G-4	07160 4	3/8"-16	3"	3/4"	4-1/2"	1-1/2"	17	144
G-5	07165 9	3/8"-16	3-1/2"	3/4"	5"	2"	18	144
G-6	07170 3	3/8"-16	4"	3/4"	5-1/2"	2-1/2"	21	144
G-7	07175 8	3/8"-16	5"	3/4"	6-1/2"	3"	22	144
G-8	07180 2	3/8"-16	6"	3/4"	7-1/2"	4"	24	144
G-9	07185 7	3/8"-16	8"	3/4"	9-1/2"	4"	30	144
G-10	07190 1	3/8"-16	10"	3/4"	11-1/2"	4"	34	144
G-11	07195 6	3/8"-16	12"	3/4"	13-1/2"	4"	39	144
H-1	07200 7	7/16"-14	6"	7/8"	7-3/4"	4"	36	216
H-2	07205 2	7/16"-14	8"	7/8"	9-3/4"	4"	42	216
J-1	07210 6	1/2"-13	2"	1"	4"	1-1/2"	33	298
J-2	07215 1	1/2"-13	4"	1"	6"	2-1/2"	41	298
J-3	07220 5	1/2"-13	6"	1"	8"	4"	50	298
J-4	07225 0	1/2"-13	8"	1"	10"	4"	58	298
J-5	07230 4	1/2"-13	10"	1"	12"	4"	68	298

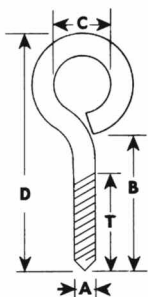
Standard Pack
A-1 through D-1: 50 Pieces
E-1 through J-5: 10 Pieces

"AVAILABLE, NOT ALL ITEMS STOCKED"



ZINC PLATED TURNED EYE BOLTS LAG THREADS

Lag Screw Threaded Turned Eye Bolts are comparable in steel specification, finish and packaging to machine thread Turned Eye bolts. Lag screw threads are rolled to fit standard anchors and shields and supplied with gimlet point.



STOCK NO.	PART NO.	DIMENSIONS – INCHES					WEIGHT PER 100 IN. LBS.
		THREAD DIA. (A)	SHANK LENGTH (B)	I.D. EYE (C)	OVERALL LENGTH (D)	THREAD LENGTH (T)	
LS-1	07855 9	1/4"	2-3/4"	1/2"	3-11/16"	2"	5
LS-2	07860 3	1/4"	4"	1/2"	4-7/8"	2"	6
LS-3	07865 8	5/16"	2-3/4"	5/8"	3-7/8"	2"	8
LS-4	07870 2	5/16"	4-3/4"	5/8"	5-13/16"	2"	11
LS-5	07875 7	3/8"	3"	3/4"	4-3/8"	2-1/2"	13
LS-6	07880 1	3/8"	6"	3/4"	7-5/16"	2-1/2"	19
LS-7	07885 6	1/2"	3-1/2"	1"	5-1/4"	2-3/4"	30

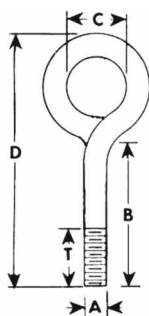
TURNED EYE BOLT

STOCK NO.	DIAMETER & SHANK LENGTH	STOCK NO.	DIAMETER & SHANK LENGTH
C-1	3/16" x 1"	F-4	5/16" x 3"
C-2	3/16" x 1-3/8"	F-6	5/16" x 4"
C-3	3/16" x 2"	F-7	5/16" x 5"
E-1	1/4" x 1"	G-3	3/8" x 2-1/2"
E-2	1/4" x 1-1/2"	G-5	3/8" x 3-1/2"
E-3	1/4" x 2"	G-6	3/8" x 4"
E-5	1/4" x 3"	G-8	3/8" x 6"
E-7	1/4" x 4"	J-2	1/2" x 4"
F-2	5/16" x 2"	J-3	1/2" x 6"
		J-4	1/2" x 8"



WELDED – MACHINE THREADS

Comparable in specifications, finish and standard packaging with exception of Eyes are resistance welded closed.



STOCK NO.	PART NO.	DIMENSIONS – INCHES					WEIGHT PER 100 IN. LBS.	WORKING LOAD LIMIT (LBS.)
		THREAD DIA. (A)	SHANK LENGTH (B)	I.D. EYE (C)	OVERALL LENGTH (D)	THREAD LENGTH (T)		
F-3W	07755 2	5/16"-18	2-1/2"	5/8"	3-5/8"	1-1/4"	10	240
G-3W	07760 6	3/8"-16	2-1/2"	3/4"	4"	1-1/2"	16	400
G-6W	07765 1	3/8"-16	4"	3/4"	5-1/2"	2-1/2"	20	400
J-2W	07770 5	1/2"-13	4"	1"	6"	2-1/2"	41	1000
J-3W	07775 0	1/2"-13	6"	1"	8"	4"	50	1000

Standard Pack: 10 Pieces

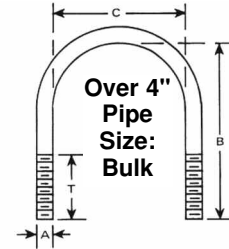
“AVAILABLE, NOT ALL ITEMS STOCKED”

ROUND BEND U-BOLTS

Round Bend U-Bolts for Steel or Wrought Iron pipe sizes 1/4"-18" inclusive, as listed on this and next pages, are produced from low carbon steel and supplied with NC rolled threads and two (2) hex nuts. In addition, U-Bolt plate is available is required.



Standard Pack:
10 Pieces



ZINC PLATED

Some sizes also available in
Stainless Steel

U-BOLT DIMENSIONS – INCHES				FOR PIPE SIZE	U-BOLTS & 2 NUTS			U-BOLTS, PLATES & 2 NUTS		
DIAMETER & THREAD (A)	I.D. (C)	INSIDE LENGTH (B)	THREAD LENGTH (T)		STOCK NO.	PART NO.	WEIGHT PER 100	STOCK NO.	PART NO.	WEIGHT PER 100
1/4"-20	9/16"	1-1/4"	3/4"	1/4"	01	50005 0	5	1	50205 4	7
1/4"-20	3/4"	1-1/4"	5/8"	3/8"	02	50008 1	5	2	50208 5	7
1/4"-20	3/4"	2-1/4"	1-1/2"	3/8"	03	50011 1	7	3	50211 5	9
1/4"-20	1"	1-3/4"	1"	1/2"	04	50014 2	7	4	50214 6	9
1/4"-20	1"	2-3/4"	1-1/4"	1/2"	04L	50017 3	8	4L	50217 7	11
1/4"-20	1-1/8"	2"	1"	3/4"	05	50020 3	7	5	50220 7	9
1/4"-20	1-1/8"	3-1/8"	1-1/2"	3/4"	05L	50023 4	9	5L	50223 8	12
1/4"-20	1-1/4"	2-1/4"	1-1/4"	3/4"	06	50026 5	7.5	6	50226 9	10
1/4"-20	1-1/2"	2-3/4"	1-3/8"	1"	07	50029 6	9	7	50229 0	12
1/4"-20	1-3/4"	3"	1-3/8"	1-1/4"	08	50032 6	9	8	50232 0	12
1/4"-20	2"	3-1/4"	1-3/8"	1-1/2"	09	50035 7	9.5	9	50235 1	14
5/16"-18	1"	2-3/16"	1-3/8"	1/2"	010	50038 8	11	10	50238 2	14
5/16"-18	1-1/8"	2-3/16"	1"	3/4"	0101	50041 8	12	101	50244 3	14.5
5/16"-18	1-3/8"	2-3/16"	1"	1"	011	50044 9	12	11	50247 4	15
5/16"-18	1-3/8"	3-5/8"	2"	1"	011L	50047 0	16	11L	50250 4	20
5/16"-18	1-1/2"	2-3/16"	1"	1"	012	50050 0	12	12	50253 5	15
5/16"-18	1-3/4"	2-11/16"	1-1/8"	1-1/4"	013	50053 1	13	13	50256 6	17.5
5/16"-18	1-3/4"	4-1/2"	2"	1-1/4"	013L	50056 2	19	13L	50259 7	24
5/16"-18	2"	2-11/16"	1"	1-1/2"	014	50059 3	14	14	50262 7	19
5/16"-18	2"	4-3/4"	3"	1-1/2"	014L	50062 3	20	14L	50265 8	25
5/16"-18	2-1/2"	3-3/16"	1"	2"	015	50065 4	16	15	50268 9	21
5/16"-18	2-1/2"	5-5/8"	3"	2"	015L	50068 5	23	15L	50271 9	29
5/16"-18	3"	3-11/16"	1"	2-1/2"	016	50071 5	18	16	50274 0	24
3/8"-16	1"	2-1/4"	1-1/4"	1/2"	017	50074 6	17.5	17	50274 0	22.5
3/8"-16	1-1/4"	2-1/4"	1-1/4"	3/4"	018	50077 7	18	18	50277 1	24
3/8"-16	1-1/2"	2-1/2"	1-1/4"	1"	019	50080 7	18.5	19	50280 1	26
3/8"-16	1-3/4"	2-3/4"	1-1/8"	1-1/4"	020	50083 8	20	20	50283 2	27.5
3/8"-16	2"	2-5/8"	1-1/4"	1-1/2"	021	50086 9	20	21	50286 3	29
3/8"-16	2-1/2"	3-1/8"	1-1/4"	2"	022	50089 0	24.5	22	50289 4	33
3/8"-16	3"	3-5/8"	1-1/4"	2-1/2"	023	50092 0	28	23	50292 4	38
3/8"-16	3"	6-5/8"	3"	2-1/2"	023L	50095 1	41	23L	50295 5	52.5
3/8"-16	3-1/2"	4-1/8"	1-1/4"	3"	024	50098 2	30	24	50298 6	42.5
1/2"-13	3"	4-1/2"	1-5/8"	2-1/2"	025	50101 9	59	25	50301 3	71
1/2"-13	3-1/2"	5"	1-1/2"	3"	026	50104 0	64	26	05304 4	78
1/2"-13	3-1/2"	8-1/2"	3"	3"	026L	50107 1	95	26L	50307 5	110
1/2"-13	4"	5-1/2"	1-1/2"	3-1/2"	027	50110 1	70	27	50310 5	87
1/2"-13	4-1/2"	6"	1-1/2"	4"	028	50113 2	75	28	50313 6	92.5
1/2"-13	5-5/8"	7-1/4"	2"	5"	029	50116 3	90	N/A	N/A	N/A
1/2"-13	6-3/4"	8-3/8"	2"	6"	030	50119 4	101	N/A	N/A	N/A
1/2"-13	8-3/4"	10-3/8"	2"	8"	031	50122 4	120	N/A	N/A	N/A
*3/4"-10	10-7/8"	13-13/16"	4"	10"	032	50125 5	440	N/A	N/A	N/A
*7/8"-9	12-7/8"	16-1/16"	4-1/4"	12"	033	50128 6	710	N/A	N/A	N/A
*7/8"-9	14-1/8"	17-5/16"	4-1/4"	14"	034	50131 6	755	N/A	N/A	N/A
*7/8"-9	16-1/8"	19-5/16"	4-1/4"	16"	035	50134 7	850	N/A	N/A	N/A
*1"-8	18-1/8"	21-11/16"	4-3/4"	18"	036	50137 8	1245	N/A	N/A	N/A

*Full Stock Diameter with Cut Thread.

“AVAILABLE, NOT ALL ITEMS STOCKED”

ZINC PLATED S-HOOKS

Low carbon cold drawn steel wire. Supplied with blunt ends and zinc plated finish. **Standard Pack – 50 pieces.** Other rust preventive coatings and self-colored (black) available on a special basis. “S” Hooks also manufactured to specifications. Some sizes available in stainless steel.



WARNING:

Any deviations such as angular lifts, shock loads, modification of the “S” hook will result in drastically reduced working load limits.

STOCK NO.	PART NO.	DIMENSIONS – INCHES				WEIGHT PER 100 (LBS.)	WORKING LOAD LIMIT (LBS.)
		WIRE DIA.	OVERALL LENGTH	HOOK INSIDE DIA.	OPENING HOOKS		
S-1	06105 6	.080"	3/4"	1/4"	1/8"	.26	7
S-1A	06108 7	.105"	1"	5/16"	5/32"	.55	16
S-2	06111 7	.114"	1-1/4"	3/8"	3/16"	.83	17
S-2A	06114 8	.148"	1-1/2"	7/16"	7/32"	1.62	26
S-3	06117 9	.186"	1-3/4"	1/2"	1/4"	2.97	40
S-4	06120 9	.220"	2-1/8"	5/8"	5/16"	5.15	58
S-5	06123 0	.250"	2-1/2"	3/4"	7/16"	7.5	70
S-6	06126 1	.312"	3"	7/8"	1/2"	13.9	132
S-7	06129 2	.375"	3-1/2"	1"	1/2"	23.44	170

ROUND BEND U-BOLTS

Zinc plated and hot galvanized finishes are standard. Other types of rust preventative coatings or self-colored (black) available on a special basis. Round, Square or “V” type U-Bolts to 1" diameter manufactured to specifications in both ferrous and non-ferrous metals.

Stock numbers followed by “L” denote long length u-bolts designed for use in applications requiring longer tangents.



HOT GALVANIZED

Some sizes also available in Stainless Steel

U-BOLT DIMENSIONS – INCHES				FOR PIPE SIZE	U-BOLTS & 2 NUTS			U-BOLTS, PLATES & 2 NUTS		
DIAMETER & THREAD (A)	I.D. (C)	INSIDE LENGTH (B)	THREAD LENGTH (T)		STOCK NO.	PART NO.	WEIGHT PER 100	STOCK NO.	PART NO.	WEIGHT PER 100
1/4"-20	9/16"	1-1/4"	3/4"	1/4"	01HG	53005 7	5	1HG	53605 9	7
1/4"-20	3/4"	1-1/4"	5/8"	3/8"	02HG	53008 8	5	2HG	53508 0	7
1/4"-20	3/4"	2-1/4"	1-1/2"	3/8"	03HG	53011 8	7	3HG	53611 0	9
1/4"-20	1"	1-3/4"	1"	1/2"	04HG	53014 9	7	4HG	53614 1	9
1/4"-20	1"	2-3/4"	1-1/4"	1/2"	04LHG	53017 0	8	4LHG	53617 2	11
1/4"-20	1-1/8"	2"	1"	3/4"	05HG	53020 0	7	5HG	53620 2	9
1/4"-20	1-1/8"	3-1/8"	1-1/2"	3/4"	05LHG	53023 1	9	5LHG	53623 3	12
1/4"-20	1-1/4"	2-1/4"	1-1/4"	3/4"	06HG	53026 2	7.5	6HG	53626 4	10
1/4"-20	1-1/2"	2-3/4"	1-3/8"	1"	07HG	53029 3	9	7HG	53629 5	12
1/4"-20	1-3/4"	3"	1-3/8"	1-1/4"	08HG	53032 3	9	8HG	53632 5	12
1/4"-20	2"	3-1/4"	1-3/8"	1-1/2"	09HG	53035 4	9.5	9HG	53635 6	14
5/16"-18	1"	2-3/16"	1-3/8"	1/2"	010HG	53038 5	11	10HG	53638 7	14
5/16"-18	1-1/8"	2-3/16"	1"	3/4"	010LHG	5341 5	12	10LHG	53641 7	14.5
5/16"-18	1-3/8"	2-3/16"	1"	1"	011HG	53044 6	12	11HG	53644 8	15
5/16"-18	1-3/8"	3-5/8"	2"	1"	011LHG	53047 7	16	11LHG	53647 9	20
5/16"-18	1-1/2"	2-3/16"	1"	1"	012HG	53050 7	12	12HG	53650 9	15
5/16"-18	1-3/4"	2-11/16"	1-1/8"	1-1/4"	013HG	53053 8	13	13HG	53653 0	17.5
5/16"-18	1-3/4"	4-1/2"	2"	1-1/4"	013LHG	53056 9	19	13LHG	53656 1	24
5/16"-18	2"	2-11/16"	1"	1-1/2"	014HG	53059 0	14	14HG	53659 2	19
5/16"-18	2"	4-3/4"	3"	1-1/2"	014LHG	53062 0	20	14LHG	53662 2	25
5/16"-18	2-1/2"	3-3/16"	1"	2"	015HG	53065 1	16	15HG	53662 2	25
5/16"-18	2-1/2"	5-5/8"	3"	2"	015LHG	53068 2	23	15LHG	53668 4	29
5/16"-18	3"	3-11/16"	1"	2-1/2"	016HG	53071 2	18	16HG	53671 4	24
3/8"-16	1"	2-1/4"	1-1/4"	1/2"	017HG	53074 3	17.5	17HG	53674 5	22.5
3/8"-16	1-1/4"	2-1/4"	1-1/4"	3/4"	018HG	53077 4	18	18HG	53677 6	24
3/8"-16	1-1/2"	2-1/2"	1-1/4"	1"	019HG	53080 4	18.5	19HG	53680 6	26
3/8"-16	1-3/4"	2-3/4"	1-1/8"	1-1/4"	020HG	53083 5	20	20HG	53683 7	27.5
3/8"-16	2"	2-5/8"	1-1/4"	1-1/2"	021HG	53086 6	20	21HG	53686 8	29
3/8"-16	2-1/2"	3-1/8"	1-1/4"	2"	022HG	53089 7	24.5	22HG	53689 9	33
3/8"-16	3"	3-5/8"	1-1/4"	2-1/2"	023HG	53092 7	26	23HG	53692 9	38
3/8"-16	3"	6-5/8"	3"	2-1/2"	023LHG	53095 8	41	23LHG	53695 0	52.5
3/8"-16	3-1/2"	4-1/8"	1-1/4"	3"	024HG	05398 9	30	24HG	53698 1	42.5
1/2"-13	3"	4-1/2"	1-5/8"	2-1/2"	025HG	53101 6	59	25HG	53701 8	71
1/2"-13	3-1/2"	5"	1-1/2"	3"	026HG	53104 7	64	26HG	53704 9	78
1/2"-13	3-1/2"	8-1/2"	3-1/2"	3"	026LHG	53107 8	95	26LHG	53707 0	110
1/2"-13	4-1/2"	6"	1-1/2"	4"	028HG	53113 9	75	28HG	53713 1	92.5
1/2"-13	5-5/8"	7-1/4"	2"	5"	029HG	53116 0	90	N/A	N/A	N/A
1/2"-13	6-3/4"	8-3/8"	2"	6"	030HG	53119 1	101	N/A	N/A	N/A
1/2"-13	8-3/4"	10-3/8"	2"	8"	031HG	53122 1	120	N/A	N/A	N/A
*3/4"-10	10-7/8"	13-13/16"	4"	10"	032HG	53125 2	440	N/A	N/A	N/A
*7/8"-9	12-7/8"	16-1/16"	4-1/4"	12"	033HG	53128 3	710	N/A	N/A	N/A
*7/8"-9	14-1/8"	17-5/16"	4-1/4"	14"	034HG	53131 3	755	N/A	N/A	N/A
*7/8"-9	16-1/8"	19-5/16"	4-1/4"	16"	035HG	53134 4	850	N/A	N/A	N/A
*1"-8	18-1/8"	21-11/16"	4-3/4"	18"	036HG	53137 5	1245	N/A	N/A	N/A

*Full Stock Diameter with Cut Thread.

“AVAILABLE, NOT ALL ITEMS STOCKED”

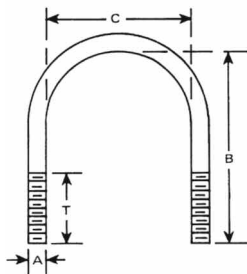


**ROUND BEND U-BOLTS
TYPE 304 STAINLESS STEEL**



DIMENSIONS U-BOLTS ONLY (A x C x B)	PIPE SIZE	STAINLESS STEEL U-BOLTS & 2 NUTS			STAINLESS STEEL U-BOLTS PLATES & 2 NUTS		
		STOCK NO.	PART NO.	WEIGHT PER 100	STOCK NO.	PART NO.	WEIGHT PER 100
1/4" x 9/16" x 1-1/4"	1/4"	01SS	50405 8	5	1SS	50605 2	7
1/4" x 3/4" x 1-1/4"	3/8"	02SS	50408 9	5	2SS	50608 3	7
1/4" x 3/4" x 2-1/4"	3/8"	03SS	50411 9	7	3SS	50611 3	9
1/4" x 1" x 1-3/4"	1/2"	04SS	50414 0	7	4SS	50614 4	9
1/4" x 1-1/8" x 2"	3/4"	05SS	50420 1	7	5SS	50620 5	9
1/4" x 1-1/4" x 2-1/4"	3/4"	06SS	50426 3	7.5	6SS	50626 7	10
1/4" x 1-1/2" x 2-3/4"	1"	07SS	50429 4	9	7SS	50629 8	12
1/4" x 1-3/4" x 3"	1-1/4"	08SS	50432 4	9	8SS	50632 8	12
1/4" x 2" x 3-1/4"	1-1/2"	09SS	50435 5	9.5	9SS	50635 9	14
5/16" x 1" x 2-3/16"	1/2"	010SS	50438 6	11	10SS	50638 0	14
5/16" x 1-3/8" x 2-3/16"	1"	011SS	50444 7	12	11SS	50644 1	15
5/16" x 1-1/2" x 2-3/16"	1"	012SS	50450 8	12	12SS	50650 2	15
5/16" x 1-3/8" x 2-3/16"	1"	011SS	50444 7	12	11SS	50644 1	15
5/16" x 1-1/2" x 2-3/16"	1"	012SS	50450 8	12	12SS	50650 2	15
5/16" x 1-3/4" x 2-11/16"	1-1/4"	013SS	50453 9	13	13SS	50653 3	17.5
5/16" x 2" x 2-11/16"	1-1/2"	014SS	50459 1	14	14SS	50659 5	19
5/16" x 2-1/2" x 3-3/16"	2"	015SS	50465 2	16	15SS	50665 6	21
5/16" x 3" x 3-11/16"	2-1/2"	016SS	50471 3	18	16SS	50671 7	24
3/8" x 1" x 2-1/4"	1/2"	017SS	50474 4	17.5	17SS	50674 8	22.5
3/8" x 1-1/4" x 2-1/4"	3/4"	018SS	50477 5	16	18SS	50677 9	24
3/8" x 1-1/2" x 2-1/2"	1"	019SS	50480 5	18.5	19SS	50680 9	26
3/8" x 1-3/4" x 2-3/4"	1-1/4"	020SS	50483 6	20	20SS	50683 0	27.5
3/8" x 2" x 2-5/8"	1-1/2"	021SS	50486 7	20	21SS	50686 1	29
3/8" x 2-1/2" x 3-1/8"	2"	022SS	50489 8	24.5	22SS	50689 2	33
3/8" x 3" x 3-5/8"	2-1/2"	023SS	50492 8	26	23SS	50692 2	38
3/8" x 3-1/2" x 4-1/8"	3"	024SS	50495 9	30	24SS	50698 4	42.5
1/2" x 3" x 4-1/2"	2-1/2"	025SS	50497 3	59	25SS	50701 1	71
1/2" x 3-1/2" x 5"	3"	026SS	50500 0	64	26SS	50704 2	78
1/2" x 4" x 5-1/2"	3-1/2"	027SS	50503 1	70	27SS	50710 3	87
1/2" x 4-1/2" x 6"	4"	028SS	50506 2	75	28SS	50713 4	92.5
1/2" x 5-5/8" x 7-1/4"	5"	029SS	50509 3	90	N/A	N/A	N/A
1/2" x 6-3/4" x 8-3/8"	6"	030SS	50512 3	101	N/A	N/A	N/A
1/2" x 8-3/4" x 10-3/8"	8"	031SS	50515 4	120	N/A	N/A	N/A
*3/4" x 15-7/8" x 13-13/16"	10"	032SS	50560 4	440	N/A	N/A	N/A
*7/8" x 12-7/8" x 16-1/16"	12"	033SS	50570 3	710	N/A	N/A	N/A
*7/8" x 14-1/8" x 17-5/16"	14"	034SS	50574 1	755	N/A	N/A	N/A
*7/8" x 16-1/8" x 19-5/16"	16"	035SS	50578 9	850	N/A	N/A	N/A

*Full Stock Diameter with Cut Thread.



“AVAILABLE, NOT ALL ITEMS STOCKED”



TURNED EYE BOLTS – MACHINE THREAD TYPE 304 STAINLESS STEEL



STOCK NO.	THREAD DIAMETER	PART NO.	SHANK LENGTH	WEIGHT PER 100	STOCK NO.	THREAD DIAMETER	PART NO.	SHANK LENGTH	WEIGHT PER 100
A-1SS	1/8" (6-32)	07255 7	3/4"	.75	F-4SS	5/16"-18	07360 8	3"	11
B-1SS	5/32" (8-32)	07260 1	1-1/8"	1.31	F-5SS	5/16"-18	07365 3	3-1/2"	11
C-1SS	3/16" (10-24)	07265 6	1"	1.81	F-6SS	5/16"-18	07370 7	4"	12
C-2SS	3/16" (10-24)	07270 0	1-3/8"	1.875	F-7SS	5/16"-18	07375 2	5"	14
C-3SS	3/16" (10-24)	07275 5	2"	2.375	F-8SS	5/16"-18	07380 6	6"	15
C-4SS	3/16" (10-24)	07280 9	3"	2.94	F-9SS	5/16"-18	07385 1	6-1/2"	16
E-1SS	1/4"-20	07290 8	1"	3.75	G-1SS	3/8"-16	07390 5	1"	12
E-2SS	1/4"-20	07295 3	1-1/2"	4.375	G-2SS	3/8"-16	07395 0	2"	15
E-2SS-A	1/4"-20	07297 7	1-7/8"	5.2	G-2SS-A	3/8"-16	07397 4	2-1/2"	15.7
E-3SS	1/4"-20	07305 9	2"	5	G-3SS	3/8"-16	07405 6	2-1/2"	15.5
E-4SS	1/4"-20	07310 3	2-1/2"	5.6	G-4SS	3/8"-16	07410 0	3"	17
E-5SS	1/4"-20	07315 8	3"	6.3	G-5SS	3/8"-16	07415 5	3-1/2"	18
E-6SS	1/4"-20	07320 2	3-1/2"	6.9	G-6SS	3/8"-16	07420 9	4"	21
E-7SS	1/4"-20	07325 7	4"	7.5	G-7SS	3/8"-16	07425 4	5"	22
E-8SS	1/4"-20	07330 1	5"	8	G-8SS	3/8"-16	07430 8	6"	24
E-9SS	1/4"-20	07335 6	6"	9	G-9SS	3/8"-16	07435 3	8"	30
F-1SS	5/16"-18	07340 0	1"	7	J-1SS	1/2"-13	07460 5	2"	33
F-2SS	5/16"-18	07345 5	2"	9	J-2SS	1/2"-13	07465 0	4"	41
F-2SS-A	5/16"-18	07347 9	2-1/4"	9.7	J-3SS	1/2"-13	07470 4	6"	50
F-3SS	5/16"-18	07355 4	2-1/2"	10	J-4SS	1/2"-13	07475 9	8"	58

DROP FORGED EYE BOLTS TYPE 316 STAINLESS STEEL

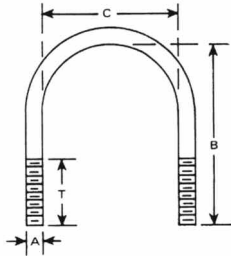


DIAMETER & SHANK LENGTH	REGULAR		SHOULDER	
	PART NO.	WEIGHT PER 100	PART NO.	WEIGHT PER 100
1/4" x 2"	08205 1	6.4	08605 9	7.4
1/4" x 3"	08208 2	8	N/A	N/A
1/4" x 4"	08211 2	9.3	08611 0	10.7
1/4" x 5"	08214 3	10.4	N/A	N/A
1/4" x 6"	08217 4	11.8	N/A	N/A
5/16" x 2-1/4"	08222 8	12.7	08622 6	12.9
5/16" x 3-1/4"	08225 9	15	N/A	N/A
5/16" x 4-1/4"	08228 0	16.5	08628 8	16.8
3/8" x 2-1/2"	08239 6	19.2	08639 4	21
3/8" x 4-1/4"	08245 7	24.4	08645 5	29
1/2" x 3-1/4"	08262 4	46	08662 2	46
1/2" x 6"	08268 6	60	08668 4	63
5/8" x 4-1/2"	08282 2	79	08682 0	99

“AVAILABLE, NOT ALL ITEMS STOCKED”

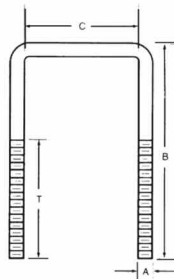


ROUND BEND LONG TANGENT U-BOLTS WITH 4 NUTS
TYPE 304 STAINLESS STEEL



STOCK NO.	PART NO.	PIPE SIZE	DIAMETER (A)	INSIDE WIDTH (C)	INSIDE LENGTH (B)	THREAD LENGTH (T)	WEIGHT PER 100
LT-BSS	51660 0	1/2"	1/4"-20	7/8"	2-15/16"	2-1/2"	9
LT-CSS	51665 5	3/4"	1/4"-20	1-1/8"	3-3/16"	2-1/2"	10
LT-DSS	51670 9	1"	1/4"-20	1-3/8"	3-7/16"	2-1/2"	11
LT-1SS	51705 8	1/2"	3/8"-16	15/16"	3"	2-3/8"	24
LT-2SS	51710 2	3/4"	3/8"-16	1-1/8"	3-5/16"	2-3/8"	25.5
LT-3SS	51715 7	1"	3/8"-16	1-3/8"	3-7/16"	2-3/8"	26.5
LT-4SS	51720 1	1-1/4"	3/8"-16	1-11/16"	3-23/32"	2-3/8"	28
LT-5SS	51725 6	1-1/2"	3/8"-16	2"	4"	2-1/2"	30
LT-6SS	51730 0	2"	3/8"-16	2-7/16"	4-7/16"	2-1/2"	33
LT-7SS	51735 5	2-1/2"	1/2"-13	2-15/16"	5-7/32"	3"	71
LT-8SS	51740 9	3"	1/2"-13	3-9/16"	5-3/4"	3"	77
LT-9SS	51745 4	3-1/2"	1/2"-13	4-1/16"	6-1/4"	3"	82
LT-10SS	51750 8	4"	1/2"-13	4-9/16"	6-3/4"	3"	89
LT-11SS	51755 3	5"	1/2"-13	5-5/8"	7-13/16"	3"	101
LT-12SS	51760 7	6"	5/8"-11	6-3/4"	9-1/2"	3-3/4"	194.5
LT-13SS	51765 2	8"	5/8"-11	8-3/4"	11-1/8"	3-3/4"	223.5
LT-14SS	51770 6	10"	3/4"-10	10-7/8"	13-13/16"	4"	460

SQUARE BEND U-BOLTS WITH 2 NUTS AND 2 WASHERS
TYPE 304 STAINLESS STEEL



STOCK NO.	PART NO.	DIAMETER (A)	INSIDE WIDTH (C)	OVERALL LENGTH (B)	THREAD LENGTH (T)	WEIGHT PER 100
SB-1SS	51105 6	3/8"-16	2"	3"	1-1/2"	25.5
SB-2SS	51110 0	3/8"-16	2"	5"	3"	35.5
SB-3SS	51115 5	3/8"-16	2"	7"	3-3/4"	44.5
SB-4SS	51120 9	3/8"-16	4"	3"	1-1/2"	29.5
SB-5SS	51125 4	3/8"-16	4"	5"	3"	40
SB-6SS	51130 8	3/8"-16	4"	7"	3-3/4"	49.5
SB-7SS	51135 3	3/8"-16	6"	5"	3"	44.5
SB-8SS	51140 7	3/8"-16	6"	7"	3-3/4"	56
SB-9SS	51145 2	3/8"-16	6"	9"	5-5/8"	63

“AVAILABLE, NOT ALL ITEMS STOCKED”

DROP FORGED TURNBUCKLES

Turnbuckles Meet Performance Requirements of ASTM Specification F1145-92 Type 1, Grade 1
(Supercedes FF-T-791B)

Available with hot galvanized or self-colored finish.



DIAMETER & TAKE-UP	EYE AND EYE			HOOK AND HOOK			WEIGHT PER 100 IN LBS.
	PART NO.		CLOSED LENGTH	PART NO.		CLOSED LENGTH	
	SC	GALV.		SC	GALV.		
1/4" x 4"	01105 1	01255 3	8"	02005 3	02155 5	8-1/2"	35
5/16" x 4-1/2"	01110 5	01260 7	9"	02010 7	02160 9	9-1/2"	47.5
3/8" x 6"	01115 0	01265 2	11-1/2"	02015 2	02165 4	12"	90.6
1/2" x 2"	01120 4	01270 6	8-1/2"	02020 6	02170 8	10"	111
1/2" x 6"	01123 5	01273 7	13"	02023 7	02173 9	14-1/4"	170
1/2" x 9"	01126 6	01276 8	16"	02026 8	02176 0	17-1/4"	202
1/2" x 12"	01129 7	01279 9	19"	02029 9	02179 1	20-1/4"	232.5
5/8" x 6"	01134 1	01284 3	13-1/2"	02034 3	02184 5	14-3/4"	260
5/8" x 9"	01137 2	01287 4	17"	02037 4	02187 6	17-3/4"	320
5/8" x 12"	01140 2	01290 4	20-1/2"	02040 4	02190 6	20-3/4"	392.5
5/8" x 18"	01143 3	01293 5	26-1/2"	02043 5	02193 7	26-3/4"	557
3/4" x 6"	01148 8	01298 0	14-3/4"	02048 0	02198 2	16-3/4"	397.5
3/4" x 9"	01151 8	01301 7	18"	02051 0	02201 9	19-3/4"	512.5
3/4" x 12"	01154 9	01304 8	21-3/4"	02054 1	02204 0	22-3/4"	581
3/4" x 18"	01157 0	01307 9	27-3/4"	02057 2	02207 1	28-3/4"	666
7/8" x 6"	01162 4	01312 3	18"	02062 6	02212 5	19"	650
7/8" x 12"	01165 5	01315 4	22-1/2"	02065 7	02215 6	23-3/4"	787.5
7/8" x 18"	01168 6	01318 5	28-1/2"	02068 8	02218 7	29-3/4"	1212
1" x 6"	01173 0	01323 9	17"	02073 2	02223 1	20"	805
1" x 12"	01176 1	01326 0	25"	02076 3	02226 2	25-1/2"	1077.5
1" x 18"	01179 2	01329 1	31"	02079 4	02229 3	31-1/2"	1386



(Class D)



(Class D)

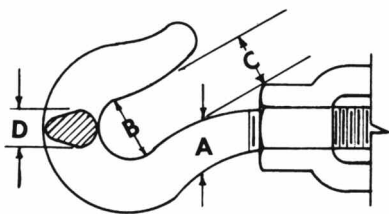


(Class E)

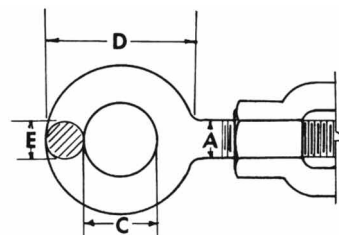


(Class E)

To ascertain extended length add amount of take-up to length in closed position.
Eye, Jaw and Hook fittings are heat treated.



HOOK



EYE

DIMENSIONS IN INCHES APPROX.				WORKING LOAD LIMIT IN LBS.†
A	B	C	D	
1/4"	5/16"	9/32"	7/32"	400
5/16"	1/2"	1/2"	5/16"	700
3/8"	1/2"	1/2"	3/8"	1,000
1/2"	7/8"	13/16"	17/32"	1,500
5/8"	29/32"	27/32"	5/8"	2,250
3/4"	1-1/8"	29/32"	11/16"	3,000
7/8"	1-3/16"	1-1/16"	13/16"	3,200
1"	1-3/8"	1-1/4"	7/8"	5,000

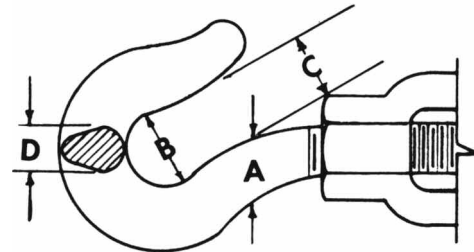
DIMENSIONS IN INCHES APPROX.				WORKING LOAD LIMIT IN LBS.†
A	C	D	E	
1/4"	1/2"	1"	7/32"	500
5/16"	5/8"	1-1/4"	9/32"	800
3/8"	3/4"	1-1/2"	11/32"	1,200
1/2"	1"	2"	7/16"	2,200
5/8"	1-1/4"	2-5/16"	17/32"	3,500
3/4"	1-1/2"	2-3/4"	5/8"	5,200
7/8"	1-3/4"	3-1/2"	7/8"	7,200
1"	2"	3-3/4"	7/8"	10,000

† Loads are based on a safety factor of 5 to 1. Maximum load ratings are based on a straight vertical lift in a gradually increasing manner. Any deviations as angular lifts, shock loads, modifications of the basic part, etc., will result in drastically reduced maximum loads.

“AVAILABLE, NOT ALL ITEMS STOCKED”

DROP FORGED TURNBUCKLES

Turnbuckles Meet Performance Requirements of ASTM Specification F1145-92 Type 1, Grade 1
(Supercedes FF-T-791B)



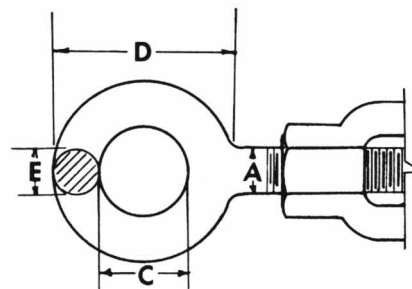
Available with hot galvanized or self-colored finish.
Eye, Jaw, and Hook fittings are heat treated.

HOOK DIMENSIONS - STRENGTH

DIAMETER & TAKE-UP	HOOK & EYE		CLOSED LENGTH	WEIGHT PER 100 IN. LBS.
	PART NO.			
	SC	GALV.		
1/4" x 4"	01555 4	01705 3	8-1/4"	35
5/16" x 4-1/2"	01560 8	01710 7	9-1/4"	47.5
3/8" x 6"	01565 3	01715 2	11-3/4"	90.6
1/2" x 2"	01570 7	01720 6	9-1/4"	109
1/2" x 6"	01573 8	01723 7	13-5/8"	170
1/2" x 9"	01576 9	01726 8	16-3/8"	202
1/2" x 12"	01579 0	01729 9	19-5/8"	232.5
5/8" x 6"	01584 4	01734 3	14-1/8"	260
5/8" x 9"	01587 5	01737 4	17-3/8"	320
5/8" x 12"	01590 5	01740 4	20-5/8"	392.5
5/8" x 18"	01593 6	01743 5	26-5/8"	557
3/4" x 6"	01598 1	01748 0	15-3/4"	397.5
3/4" x 9"	01601 8	01751 0	18-7/8"	512.5
3/4" x 12"	01604 9	01754 1	22-1/8"	581
3/4" x 18"	01607 0	01757 2	28-1/8"	666
7/8" x 6"	01612 4	01762 6	18-1/2"	650
7/8" x 12"	01615 5	01765 7	23-1/8"	787.5
7/8" x 18"	01618 6	01768 8	29-1/8"	1212
1" x 6"	01623 0	01773 2	19-1/2"	805
1" x 12"	01625 1	01776 3	25-1/4"	1077.5
1" x 18"	01629 2	01779 4	31-1/4"	1386

DIMENSIONS INCHES				WORKING LOAD LIMIT IN LBS.†
A	B	C	D	
1/4"	5/16"	6/32"	7/32"	400
5/16"	1/2"	1/2"	5/16"	700
3/8"	1/2"	1/2"	3/8"	1,000
1/2"	7/8"	13/16"	17/32"	1,500
5/8"	29/32"	27/32"	5/8"	2,250
3/4"	1-1/8"	29/32"	11/16"	3,000
7/8"	1-3/16"	1-1/16"	13/16"	3,200
1"	1-3/8"	1-1/4"	7/8"	5,000

† Loads are based on a safety factor of 5 to 1.



EYE DIMENSIONS - STRENGTH

DIMENSIONS INCHES				WORKING LOAD LIMIT IN LBS.†
A	C	D	E	
1/4"	1/2"	1"	7/32"	500
5/16"	5/8"	1-1/4"	9/32"	800
3/8"	3/4"	1-1/2"	11/32"	1,200
1/2"	1"	2"	7/16"	2,200
5/8"	1-1/4"	2-5/16"	17/32"	3,500
3/4"	1-1/2"	2-3/4"	5/8"	5,200
7/8"	1-3/4"	3-1/2"	7/8"	7,200
1"	2"	3-3/4"	7/8"	10,000

† Loads are based on a safety factor of 5 to 1.

Maximum load ratings are based on a straight vertical lift in a gradually increasing manner. Any deviations as angular lifts, shock loads, modification of the basic part, etc., will result in drastically reduced maximum loads.

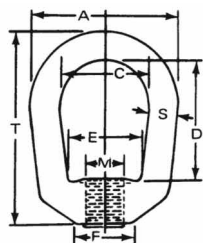
“AVAILABLE, NOT ALL ITEMS STOCKED”



DROP FORGED EYE NUTS

Stock Eye Nuts listed below, other than Blanks, are drilled and tapped standard regardless of finish. Both types drilled only, with special tapping or finish supplied to specification. Loads are based on a safety factor of 5 to 1. Blanks are self-colored.

NOTE: Loads shown apply to Eye Nuts only, based on a vertical pull, and not to any connecting bolt or stud.



REGULAR EYE NUTS

STOCK NO.	BALL SIZE	TAP SIZE	BLANK	DRILLED & TAPPED	
			SELF-COLORED PART NO.	SELF-COLORED PART NO.	HOT GALVANIZED PART NO.
C-186A	1/4"	1/4"-20	16005 6	16255 5	16755 5
C-186B	1/4"	5/16"-18	16010 0	16260 9	16760 9
C-187A	5/16"	3/8"-16	16015 5	16265 4	16765 9
C-185B	3/8"	7/16"-14	16020 9	16270 8	16770 8
C-185A	3/8"	1/2"-13	16025 4	16275 3	16775 8
C-181A	1/2"	5/8"-11	16030 8	16280 8	16780 2
C-184A	5/8"	3/4"-10	16035 3	16285 2	16785 7
C-188A	3/4"	7/8"-9	16040 7	16290 6	16790 1
C-188B	3/4"	1"-8	16045 2	16295 1	16795 6

Some sizes also available in Stainless Steel

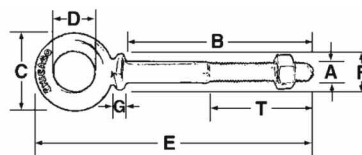
SPECIFICATIONS

STOCK NO.	TAP SIZES		DIMENSIONS - INCHES							WORKING LOAD LIMIT (TONS)	DRILLED & TAPPED WEIGHT PER 100	BLANK WEIGHT PER 100
	STD. M	MAX. N	A	C	D	E	F	S	T			
C-186A	1/4"-20	3/8"	1-1/4"	3/4"	1-1/16"	19/32"	1/2"	1/4"	1-11/16"	.26	8.2	9
C-186B	5/16"-18	3/8"	1-1/4"	3/4"	1-1/16"	19/32"	1/2"	1/4"	1-11/16"	.42	8	9
C-187A	3/8"-16	7/16"	1-5/8"	1"	1-1/4"	3/4"	9/16"	5/16"	2-1/16"	.62	15.7	16
C-185B	7/16"-14	1/2"	2"	1-1/4"	1-1/2"	1"	13/16"	3/8"	2-1/2"	.85	29.7	31
C-185A	1/2"-13	1/2"	2"	1-1/4"	1-1/2"	1"	13/16"	3/8"	2-1/2"	1.12	29.3	31
C-181A	5/8"-11	3/4"	2-1/2"	1-1/2"	2"	1-3/16"	1"	1/2"	3-3/16"	1.8	61.5	66
C-184A	3/4"-10	7/8"	3"	1-3/4"	2-3/8"	1-3/8"	1-1/8"	5/8"	3-7/8"	2.6	103	112
C-188A	7/8"-9	1"	3-1/2"	2"	2-5/8"	1-5/8"	1-5/16"	3/4"	4-5/16"	3.6	163	183
C-188B	1"-8	1"	3-1/2"	2"	2-5/8"	1-5/8"	1-5/16"	3/4"	4-5/16"	3.6	161	183

MACHINE THREAD

WARNING:

Any deviation such as angular lifts, shock loads, modification of the basic forging, etc., will result in drastically reduced working load limits.



SHOULDER



DIAMETER (A) AND SHANK LENGTH (B)	PART NO.	DIMENSIONS - INCHES						WEIGHT PER 100 PCS.	WORKING LOAD LIMIT†
		OUTSIDE EYE (C)	INSIDE EYE (D)	OVERALL LENGTH (E)	OUTSIDE SHOULDER (F)	THICKNESS AT SHOULDER (G)	THREAD LENGTH (T)		
1/4" x 2"	08405 5	1"	1/2"	3-1/8"	7/16"	5/64"	1-1/2"	7.4	500
1/4" x 4"	08411 6	1"	1/2"	5-1/8"	7/16"	5/64"	2"	10.7	500
5/16" x 2-1/4"	08422 2	1-1/4"	5/8"	3-5/8"	9/16"	3/32"	1-1/2"	12.9	800
5/16" x 4-1/4"	08428 4	1-1/4"	5/8"	5-5/8"	9/16"	3/32"	2-1/2"	16.8	800
3/8" x 2-1/2"	08439 0	1-1/2"	3/4"	4-1/4"	11/16"	1/8"	1-1/2"	21	1020
3/8" x 4-1/2"	08445 1	1-1/2"	3/4"	6-1/4"	11/16"	1/8"	2"	29	1200
1/2" x 2"	08459 8	2"	1"	4-5/16"	7/8"	5/32"	1-7/8"	44	2200
1/2" x 3-1/4"	08462 8	2"	1"	5-1/2"	7/8"	5/32"	1-1/2"	46	2200
1/2" x 6"	08468 0	2"	1"	8-1/4"	7/8"	5/32"	3"	63	2200
5/8" x 4-1/2"	08482 6	2-5/16"	1-1/4"	7-1/4"	1-1/8"	13/64"	2"	99	3500
5/8" x 6"	08485 7	2-5/16"	1-1/4"	8-9/16"	1-1/8"	13/64"	3"	103	3500
3/4" x 4-1/2"	08508 3	2-3/4"	1-1/2"	7-3/4"	1-3/8"	1/4"	2-1/2"	152	5200
3/4" x 6"	08511 3	2-3/4"	1-1/2"	9-1/8"	1-3/8"	1/4"	3"	166	5200
7/8" x 5"	08534 2	3-1/2"	1-3/4"	9-1/4"	1-1/2"	9/32"	2-1/2"	222	7000
7/8" x 8"	08537 3	3-1/2"	1-3/4"	12-1/8"	1-1/2"	9/32"	4"	269	7000
1" x 6"	08551 9	3-3/4"	2"	10-1/2"	1-3/4"	5/16"	3"	331	10000
1" x 9"	08554 0	3-3/4"	2"	13-1/4"	1-3/4"	5/16"	4"	404	10000

† Loads are based on a safety factor of 5 to 1. Some sizes also available in Stainless Steel. Special shank and thread lengths are also available.

"AVAILABLE, NOT ALL ITEMS STOCKED"

DROP FORGED EYE BOLTS REGULAR - MACHINED THREAD

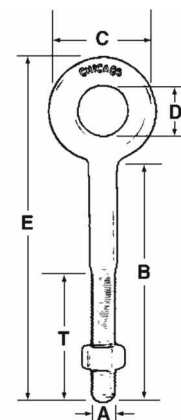
Regular and screw thread drop forged heat treated steel eye bolts supplied as standard with hot galvanized finish. Machine thread eye bolts are threaded National Coarse before galvanizing and assembled with hex nuts tapped oversize. Loads are based on safety factor of 5 to 1. When tested all eye bolts are pulled at a uniform rate of speed in a direct tension.



DIAMETER (A) AND SHANK LENGTH (B)	PART NO.	DIMENSIONS - INCHES				WEIGHT PER 100 PCS.	WORKING LOAD LIMIT
		OUTSIDE EYE (C)	INSIDE EYE (D)	OVERALL LENGTH (E)	THREAD LENGTH (T)		
1/4" x 2"	08005 7	1"	1/2"	3"	1-1/2"	6.4	500
1/4" x 3"	08008 8	1"	1/2"	4"	1-1/2"	8	500
1/4" x 4"	08011 8	1"	1/2"	5"	2"	9.3	500
1/4" x 5"	08014 9	1"	1/2"	6"	2-1/2"	10.4	500
1/4" x 6"	08017 0	1"	1/2"	7"	3"	11.8	500
5/16" x 2-1/4"	008022 4	1-1/4"	5/8"	3-1/2"	1-1/2"	12.7	800
5/16" x 3-1/4"	008025 5	1-1/4"	5/8"	4-1/2"	1-1/2"	15	800
5/16" x 4-1/4"	08028 6	1-1/4"	5/8"	5-1/2"	2-1/2"	16.5	800
5/16" x 5"	08031 6	1-1/4"	5/8"	6-1/4"	2-1/2"	18.6	800
5/16" x 6"	08034 7	1-1/4"	5/8"	7-1/4"	3"	24.5	800
3/8" x 2-1/2"	08039 2	1-1/2"	3/4"	4"	1-1/2"	19.2	1200
3/8" x 3"	08042 2	1-1/2"	3/4"	4-1/2"	1-1/2"	21.2	1200
3/8" x 4-1/4"	08045 3	1-1/2"	3/4"	6"	2"	24.4	1200
3/8" x 5"	08048 4	1-1/2"	3/4"	6-1/2"	2-1/2"	27.8	1200
3/8" x 6"	08051 4	1-1/2"	3/4"	7-1/2"	3"	30	1200
3/8" x 8"	08054 5	1-1/2"	3/4"	9-1/2"	4"	36	1200
1/2" x 2"	08059 0	2"	1"	4"	1-7/8"	38.5	2200
1/2" x 3-1/4"	08062 0	2"	1"	5-1/4"	1-1/2"	46	2200
1/2" x 4-1/2"	08065 1	2"	1"	6-1/2"	2"	53	2200
1/2" x 6"	08068 2	2"	1"	8"	3"	60	2200
1/2" x 8"	08071 2	2"	1"	10"	4"	71	2200
1/2" x 10"	08074 3	2"	1"	12"	4"	83	2200
1/2" x 12"	08077 4	2"	1"	14"	4"	96	2200
5/8" x 4-1/2"	08082 8	2-5/16"	1-1/4"	6-13/16"	2"	79	3500
5/8" x 6"	08085 9	2-5/16"	1-1/4"	8-5/16"	3"	96	3500
5/8" x 8"	08088 0	2-5/16"	1-1/4"	10-5/16"	4"	128	3500
5/8" x 10"	08091 0	2-5/16"	1-1/4"	12-5/16"	4"	129.5	3500
5/8" x 12"	08094 1	2-5/16"	1-1/4"	14-5/16"	4"	146	3500
5/8" x 15"	08097 2	2-5/16"	1-1/4"	17-5/16"	6"	168	3500
5/8" x 18"	08100 9	2-5/16"	1-1/4"	20-5/16"	6"	195	3500
5/8" x 24"	08103 0	2-5/16"	1-1/4"	26-5/16"	6"	246	3500
3/4" x 4-1/2"	08108 5	2-3/4"	1-1/2"	7-1/4"	2-1/2"	126	5200
3/4" x 6"	08111 5	2-3/4"	1-1/2"	8-3/4"	3"	160	5200
3/4" x 8"	08114 6	2-3/4"	1-1/2"	10-3/4"	4"	180	5200
3/4" x 10"	08117 7	2-3/4"	1-1/2"	12-3/4"	4"	200	5200
3/4" x 12"	08120 7	2-3/4"	1-1/2"	14-3/4"	4"	233	5200
3/4" x 15"	08123 8	2-3/4"	1-1/2"	17-3/4"	6"	254	5200
3/4" x 18"	08126 9	2-3/4"	1-1/2"	20-3/4"	6"	290	5200
3/4" x 24"	08129 0	2-3/4"	1-1/2"	26-3/4"	6"	369	5200
7/8" x 5"	08134 4	3-1/2"	1-3/4"	8-1/2"	2-1/2"	245	7200
7/8" x 8"	08137 5	3-1/2"	1-3/4"	11-1/2"	4"	296	7200
7/8" x 12"	08140 5	3-1/2"	1-3/4"	15-1/2"	4"	386	7200
7/8" x 18"	08143 6	3-1/2"	1-3/4"	21-1/2"	6"	464	7200
7/8" x 24"	08146 7	3-1/2"	1-3/4"	27-1/2"	6"	556	7200
1" x 6"	08151 1	3-3/4"	2"	9-3/4"	3"	301	10000
1" x 9"	08154 2	3-3/4"	2"	12-3/4"	4"	383	10000
1" x 12"	08157 3	3-3/4"	2"	15-3/4"	4"	450	10000
1" x 18"	08160 3	3-3/4"	2"	21-3/4"	6"	584	10000
1" x 24"	08163 4	3-3/4"	2"	27-3/4"	6"	716	10000

WARNING:
Any deviations such as angular lifts, shock loads, modification of the basic forging, etc., will result in drastically reduced working load limits.

Special shank and thread lengths are also available.



Some sizes also available in Stainless Steel.



“AVAILABLE, NOT ALL ITEMS STOCKED”

SCREW THREAD EYE BOLTS SHOULDER



DIAMETER (A) AND SHANK LENGTH (B)	PART NO.	DIMENSIONS - INCHES						WEIGHT PER 100 PCS.
		OUTSIDE EYE (C)	INSIDE EYE (D)	OVERALL LENGTH (E)	OUTSIDE SHOULDER (F)	THICKNESS AT SHOULDER (G)	THREAD LENGTH (T)	
1/4" x 2"	08905 0	1"	1/2"	3-1/8"	7/16"	5/64"	1-1/2"	6.7
5/16" x 2-1/4"	08910 4	1-1/4"	5/8"	3-3/4"	9/16"	3/32"	1-5/8"	12
3/8" x 2-1/2"	08915 9	1-1/2"	3/4"	4-1/4"	11/16"	1/8"	1-3/4"	19
1/2" x 3-1/4"	08920 3	2"	1"	5-1/2"	7/8"	5/32"	2-1/8"	42
5/8" x 4-1/2"	08925 8	2-5/16"	1-1/4"	7-1/4"	1-1/8"	13/64"	2-1/2"	86
3/4" x 4-1/2"	08930 2	2-3/4"	1-1/2"	7-3/4"	1-3/8"	1/4"	3"	120
7/8" x 5"	08935 7	3-1/2"	1-3/4"	9"	1-1/2"	9/32"	3-1/4"	189
1" x 6"	08940 1	3-3/4"	2"	10-1/2"	1-3/4"	5/16"	3-1/2"	297

MACHINERY EYE BOLTS

Drop forged steel. Heat treated after forging. Self-colored, zinc plated, or hot galvanized. Plain or shoulder type, blank or threaded. Threaded will be supplied unless otherwise specified.



STANDARD SHANK LENGTHS - SHOULDER PATTERN

SHOULDER PATTERN NO.	BOLT DIAMETER SIZE	STANDARD SHANK LENGTH	THREADED		BLANK	
			PART NO.	WEIGHT PER 100	PART NO.	WEIGHT PER 100
21	1/4"	1"	12805 6	6	12205 4	6
22	5/16"	1-1/8"	12825 4	10	12225 2	10.5
23	3/8"	1-1/4"	12845 2	16	12245 0	17
24	7/16"	1-3/8"	12865 0	26.5	12265 8	28
25	1/2"	1-1/2"	12885 8	38	12285 6	39
26	9/16"	1-5/8"	12905 3	49	12305 1	52.5
27	5/8"	1-3/4"	12925 1	83/5	12325 9	76.5
28	3/4"	2"	12948 0	99.5	12348 8	104
29	7/8"	2-1/4"	12988 8	172.5	12368 8	178
30	1"	2-1/2"	12988 6	235	12388 4	242
31	1-1/8"	2-3/4"	13008 0	342.5	12408 9	347
32	1-1/4"	3"	13031 8	462.5	12431 7	485
34	1-1/2"	3-1/2"	13051 6	752.5	12451 5	780

PLATED MACHINERY EYE BOLTS - HOT GALVANIZED SHOULDER PATTERN



SHOULDER PATTERN NO.	BOLT DIAMETER SIZE	STANDARD SHANK LENGTH	PART NO.
21	1/4"	1"	26155 5
22	5/16"	1-1/8"	26158 6
23	3/8"	1-1/4"	26161 6
24	7/16"	1-3/8"	26164 7
25	1/2"	1-1/2"	26167 8
26	9/16"	1-5/8"	26170 8
27	5/8"	1-3/4"	26173 9
28	3/4"	2"	26176 0
29	7/8"	2-1/4"	26179 1
30	1"	2-1/2"	26182 1
31	1-1/8"	2-3/4"	26185 2
32	1-1/4"	3"	26188 3
34	1-1/2"	3-1/2"	26191 3

"AVAILABLE, NOT ALL ITEMS STOCKED"



MACHINERY EYE BOLTS

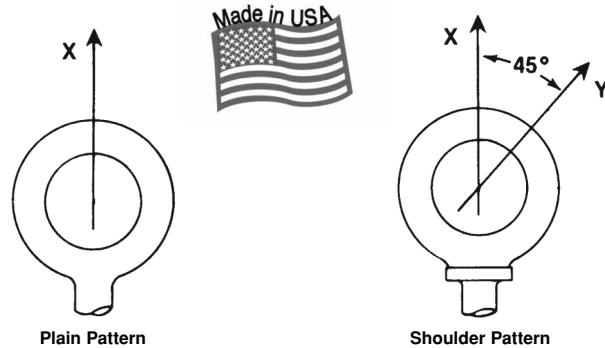
Maximum blank lengths, either pattern indicated in column (1). Vertical loads are based on a safety factor of 5 to 1. Variation in quantity: on special items we reserve the right to a maximum 10% variation for allowances in manufacture.

STANDARD SHANK LENGTH – PLAIN AND SHOULDER PATTERN

PART NOS.		DIMENSIONS – INCHES				OVERALL LENGTH PLAIN	OVERALL LENGTH SHOULDER	MAXIMUM LENGTHS (1)
PLAIN PATTERN	SHOULDER PATTERN	SHANK		EYE				
		DIA. & THREAD	LENGTH	I.D.	O.D.			
1	21	1/4"-20	1"	3/4"	1-1/4"	2-1/4"	2-3/8"	3"
2	22	5/16"-18	1-1/8"	7/8"	1-1/2"	2-5/8"	2-3/4"	"
3	23	3/8"-16	1-1/4"	1"	1-21/32"	2-29/32"	3-1/4"	4-1/2"
4	24	7/16"-14	1-3/8"	1-3/32"	1-27/32"	3-7/32"	3-5/8"	4-1/2"
5	25	1/2"-13	1-1/2"	1-3/16"	2-1/16"	3-9/16"	4"	4-1/2"
6	26	9/16"-12	1-5/8"	1-9/32"	2-9/32"	3-29/32"	4-1/2"	4-1/2"
7	27	5/8"-11	1-3/4"	1-3/8"	2-1/2"	4-1/4"	4-7/8"	4-1/2"
8	28	3/4"-10	2"	1-1/2"	2-13/16"	4-13/16"	5-1/4"	5"
9	29	7/8"-9	2-1/4"	1-11/16"	3-1/4"	5-1/2"	6"	5"
10	30	1"-8	2-1/2"	1-13/16"	3-9/16"	6-1/16"	7"	5"
11	31	1-1/8"-7	2-3/4"	2"	4"	6-3/4"	7-1/2"	2-3/4"
12	32	1-1/4"-7	3"	2-3/16"	4-7/16"	7-7/16"	8-1/2"	3"
14	34	1-1/2"-6	3-1/2"	2-1/2"	5-3/16"	8-11/16"	9-1/2"	3-1/2"

Working load limits for eye bolts are based on a straight vertical lift in a gradually increasing manner. Angular lifts will significantly lower working load limits (see Shoulder Pattern) and should be avoided whenever possible. If an angular lift is required, a properly seated Shoulder Pattern eye bolt must be used. Loads should always be applied to eye bolts in the plane of the eye, not at an angle to this plane. Angular lifts must never be more than at 45° pull.

DIAMETER AND THREAD	WORKING LOAD LIMIT	
	STRAIGHT PULL (X)	45° PULL (Y) SHOULDER ONLY
1/4"-20	500	125
5/16"-18	900	225
3/8"-16	1400	350
7/16"-14	2000	500
1/2"-13	2500	650
9/16"-12	3200	750
5/8"-11	4000	1000
3/4"-10	6000	1500
7/8"-9	7000	1750
1"-8	9000	2250
1-1/8"-7	12000	2500
1-1/4"-7	15000	3750
1-1/2"-6	21000	4900



ANGULAR LIFTS SHOULD BE AVOIDED WHENEVER POSSIBLE.

DROP FORGED ANCHOR SHACKLES

All types of shackles are available in a self-colored or hot galvanized finish. When ordering specify the size, finish, and type of shackle. Other rust preventative coatings are available on a special basis.

Safety shackles are of the same specifications as the regular types except for the bolt, nut and cotter.

WARNING:

Any deviations such as angular lifts, shock loads, modification of the basic forging, etc., will result in drastically reduced working load limits.



*CLASS 2

SCREW PIN

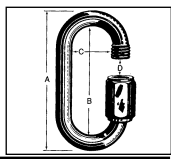
GALVANIZED PART NO.	SELF-COLORED PART NO.	SIZE	GALVANIZED PART NO.	SELF-COLORED PART NO.	SIZE
SHACK316 20105 6	SHACK316 20005 9	3/16"	SHACK316 20140 7	SHACK316 20040 0	3/4"
SHACK316 20110 0	SHACK316 20010 3	1/4"	SHACK316 20145 2	SHACK316 20045 5	7/8"
SHACK316 20115 5	SHACK316 20015 8	5/16"	SHACK316 20150 6	SHACK316 20050 9	1"
SHACK316 20120 9	SHACK316 20020 2	3/8"	SHACK316 20155 1	SHACK316 20056 4	1-1/8"
SHACK316 20125 4	SHACK316 20025 7	7/16"	SHACK316 20160 5	SHACK316 20060 8	1-1/4"
SHACK316 20130 8	SHACK316 20030 1	1/2"	SHACK316 20165 0	SHACK316 20065 3	1-3/8"
SHACK316 20135 3	SHACK316 20035 6	5/8"	SHACK316 20170 4	SHACK316 20070 7	1-1/2"

“AVAILABLE, NOT ALL ITEMS STOCKED”

QUICK LINK CONNECTORS

Electro Galvanized

- No tools required
- Instant connection
- Low cost
- High quality steel
- Tightens with fingers only
- Ultimate tensile proof coil chain



PART NO.	TRADE SIZE (IN.)	WORKING LOAD LIMIT				WORKING LOAD LIMIT	WEIGHT PER 100 PCS. (LBS.)
		A	B	C	D		
QL18	1/8	1-7/16	1-1/8	3/8	3/16	400	2
QL316	3/16	2-1/16	1-5/8	9/16	1/4	750	5
QL14	1/4	2-3/8	1-15/16	9/16	5/16	1250	8
QL516	5/16	2-15/16	2-5/16	11/16	3/8	1900	18
QL38	3/8	3-1/8	2-1/2	3/4	7/16	2650	25
QL12	1/2	4-1/8	3-1/8	15/16	9/16	4500	54
QL916	9/16	4-3/4	3-5/8	1-1/16	5/8	5600	85
QL58	5/8	5-1/2	4-1/4	1-3/16	3/4	6900	133

DO NOT EXCEED WORK LOAD LIMIT OR 20% OF THE PRODUCT'S BREAK STRENGTH.

CLEVISES



PART NO.	D	N	U-THD. MAX.	W	T	A
CL 20	1-7/16"	5/8"	5/8	1-1/16"	0.3125"	3-9/16"
CL 25	2-1/2"	1"	7/8	1-1/4"	0.3125"	4"
CL 30	3"	1-1/4"	1-3/8	1-1/2"	0.5"	5-1/16"
CL 35	3-1/2"	1-1/2"	1-1/2	1-3/4"	0.5"	6"
CL 40	4"	1-3/4"	1-3/4	2"	0.5"	5-15/16"
CL 50	5"	2-1/4"	2-1/8	2-1/2"	5/8"	7"
CL 60	6"	2-3/4"	2-1/2	3"	3/4"	8"
CL 70	7"	3"	3	3-1/2"	7/8"	9"
CL 80	8"	4"	4	4"	1-1/2"	10-1/8"

POWERS FASTENERS MECHANICAL ANCHORS

	Base Material								Anchor Diameter					Head Style					Coating/Material						Code Recognition														
	Concrete	Lightweight Concrete	Hollow Core Plank	Grout-filled Concrete	Masonry	Hollow Concrete Masonry	Solid Brick	Hollow Brick	Stone	Structural Clay/Tile	Wood	Steel	3/16"	1/4"	5/16"	8 mm	3/8"	1/2"	5/8"	3/4"	Mushroom Head	Round Head	Flat Head (Countersunk)	Tie-Wire		Removable	Tamperproof	Flush Mount	Coated/Plated	Carbon Steel	Galvanized Carbon Steel	Type 303/304 Stainless Steel	Type 316 Stainless Steel	Type 410 Stainless Steel	Zamac Alloy	Perm-Seal Coated	Nylon/Plastic	Lead	
Bolt and Shield Anchors	Snake+	●	●	○	○							●		●	●												●	●										Code Listed ICC-ES ESR-2272 LARR-25810	
	Smart DI+	●	○					○				●		●	●	●	●											●	●										
	Hollow-Set Dropin	●	○	●	●	●	●	○	○			●	●	●	●	●												●	●	●									
	Steel Dropin	●	●						○			●	●	●	●	●												●	●	●									
	Mini Dropin	●	●	●	○				○			●		●	●													●	●										
	Double	●	○	○	○	●	●	○				●	●	●	●	●	●											●	●										
	Single	●	○	○	○	○	○					●	●	●	●	●												●	●										
	Calk-In	●	○	○	○	○	○					●	●	●	●													●	●							●			
	Lag-Shield	●	○	○	○	○	○	○				●	●	●	●	●	●										●	●											
Pin Anchors	Heli-Pin	●	○	●	●	●	○	●	●		●	●		●	●													●											
	Spike	●	●	●	○	○					●	●	●	●	●						●	●	●	●	●	●	●	●	●										
Nail Anchors	Drive	●	○	○				○			●	●		●	●												●	●											
	Safe-T+ Pin	●	●	●	●	○					●																											Code Listed ICC-ES ESR-3057	
	Zamac Hammer-Screw	●	○	○	○	○	○	○	○			●										●				●									●	●			
	Zamac Nailin	●	○	○	○	○	○	○	○			●	●									●	●			●	●	●	●										
Nylon Nailin	●	○	○	○	○	○	○				●	●									●	●			●	●	●	●								●			

● Suitable
○ May be Suitable

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MECHANICAL ANCHORS (Cont.)

**PB+ (POWER-BOLT+)
HEAVY-DUTY SLEEVE ANCHOR**

The PB+ anchor is a torque controlled, heavy-duty sleeve style anchor which is designed for consistent performance in cracked and uncracked concrete. It is available with a finished hex head.



Carbon steel PB+ anchors are manufactured using a Grade 8 bolt. They are plated with a commercial bright zinc finish and have a supplementary chromate treatment in accordance with ASTM B 633.

Base Material: Concrete

Size Range: 1/2" x 2-3/4" to 5/8" x 8-1/2"

Anchor Material: Carbon Steel

CARBON STEEL HEX HEAD PB+

PART NO.	SIZE	DRILL DIA.	STD. BOX
6930SD*	1/2" x 2-3/4"	1/2"	50
6932SD	1/2" x 3-1/2"	1/2"	50
6934SD	1/2" x 4-3/4"	1/2"	25
6936SD	1/2" x 5-3/4"	1/2"	25
6940SD*	5/8" x 3"	5/8"	20
6942SD	5/8" x 4"	5/8"	15
6944SD	5/8" x 5"	5/8"	15
6945SD	5/8" x 6"	5/8"	15
6947SD	5/8" x 8-1/2"	5/8"	10

* Asterisked catalog numbers denote sizes which are less than the minimum standard anchor length for strength design. The published size includes diameter and overall length of the anchor.

**POWER-BOLT®
HEAVY-DUTY SLEEVE ANCHOR**

The Power-Bolt anchor is a heavy-duty sleeve style anchor which is vibration resistant and removable. It is available with a finished hex head or flat head with a hex key insert and can be used in concrete, block, brick, or stone.



Carbon steel Power-Bolt anchors are manufactured using a Grade 5 bolt. They are plated with a commercial bright zinc finish and have a supplementary chromate treatment in accordance with ASTM Specification B 633.

Base Material: Concrete, Block, Brick, Stone

Size Range: 1/4" x 1" to 3/4" x 8-1/4"

Anchor Material: Carbon Steel & Type 304 Stainless Steel

CARBON STEEL HEX HEAD POWER-BOLT

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
6900*	1/4" x 1"	1/4"	7/8"	100
6902*	1/4" x 1-3/4"	1/4"	1-1/4"	100
6906*	1/4" x 3"	1/4"	1-1/4"	100
6907*	5/16" x 1-3/4"	5/16"	1-1/2"	100
6908*	5/16" x 2-1/2"	5/16"	1-1/2"	50
6910	3/8" x 2-1/4"	3/8"	2"	50
6911**	3/8" x 1-7/8"	3/8"	1-1/4"	50
6913	3/8" x 3"	3/8"	2"	50
6914	3/8" x 3-1/2"	3/8"	2"	50
6916	3/8" x 4"	3/8"	2"	50
6930†	1/2" x 2-3/4"	1/2"	2-1/2"	50
6932†	1/2" x 3-3/4"	1/2"	2-1/2"	25
6934†	1/2" x 4-3/4"	1/2"	2-1/2"	25
6936†	1/2" x 5-3/4"	1/2"	2-1/2"	25

CONTINUED NEXT COLUMN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
6940†	5/8" x 3"	5/8"	2-3/4"	20
6942†	5/8" x 4"	5/8"	2-3/4"	15
6944†	5/8" x 5"	5/8"	2-3/4"	15
6945†	5/8" x 6"	5/8"	2-3/4"	15
6947†	5/8" x 8-1/2"	5/8"	2-3/4"	10
6950	3/4" x 3-1/4"	3/4"	3"	15
6952	3/4" x 4-1/4"	3/4"	3"	10
6954	3/4" x 5-1/4"	3/4"	3"	10
6956	3/4" x 7-1/4"	3/4"	3"	10
6957	3/4" x 8-1/4"	3/4"	3"	10

The published length is measured from below the washer to the end of the anchor. "1/4" and 5/16" Power-Bolt utilize a Grade 8 Bolt.

** The size does not have a compression ring.

† Discontinued item once current stock is depleted.

Stainless steel Power-Bolt anchors are manufactured from 300 series stainless steel (passivated).

304 STAINLESS STEEL HEX HEAD POWER-BOLT

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
5900**	1/4" x 1"	1/4"	7/8"	100
5902	1/4" x 1-3/4"	1/4"	5-1/4"	100
5906	1/4" x 3"	1/4"	1-1/4"	100
5910	3/8" x 2-1/4"	3/8"	2"	50
5914	3/8" x 3-1/2"	3/8"	2"	50
5916	3/8" x 4"	3/8"	2"	50
5930	1/2" x 2-3/4"	1/2"	2-1/2"	50
5934	1/2" x 4-3/4"	1/2"	2-1/2"	25

** The size does not have a compression ring. The published length is measured from below the washer to the end of the anchor.

CARBON STEEL FLAT HEAD POWER-BOLT®

The flat head Power-Bolt anchor has a hex key insert formed in the head of the bolt. Each box contains an Allen wrench which matches the insert size.



PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
6981	3/8" x 3-3/4"	3/8"	2"	50
6982	3/8" x 5"	3/8"	2"	50
6983	3/8" x 6"	3/8"	2"	50
6984	1/2" x 5"	1/2"	2-1/2"	25
6987	5/8" x 5-1/2"	5/8"	2-3/4"	15

The published length is the overall length of the anchor.

**POWER-STUD+™ SD1
WEDGE TYPE EXPANSION ANCHOR**

The Power-Stud+ SD1 anchor is a fully threaded, torque-controlled, wedge expansion anchor which is designed for consistent performance in cracked and uncracked concrete.



Suitable base materials include normal-weight concrete, structural sand-lightweight concrete and concrete over metal deck. The anchor is manufactured with a zinc plated carbon steel body and expansion clip.

Base Material: Normal-Weight Concrete, Structural Sand-Lightweight Concrete, Concrete Over Metal Deck, Grout-Filled Masonry

Size Range: 1/4" diameter (uncracked concrete), 3/8" diameter through 10-1/4" diameter (cracked and uncracked concrete)

CONTINUED NEXT PAGE

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MECHANICAL ANCHORS (Cont.)

**POWER-STUD+™ SD1
WEDGE TYPE EXPANSION ANCHOR (Cont.)**

Anchor Material: Zinc Plated Carbon Steel Body and Expansion Clip, with Nut and Washer.

The Power-Stud+ SD1 anchor is a fully threaded, torque-controlled, wedge expansion anchor which is designed for consistent performance in cracked and uncracked concrete. Suitable base materials include normal-weight concrete, structural sand-lightweight concrete and concrete over metal deck. The anchor is manufactured with a zinc plated carbon steel body and expansion clip.

Patented & Additional Patents Pending

**POWER-STUD+ SD1
CARBON STEEL BODY & EXPANSION CLIP**

PART NO.	SIZE	THREAD LENGTH	STD. BOX
7400SD1*	1/4" x 1-3/4"	3/4"	100
7402SD1	1/4" x 2-1/4"	1-1/4"	100
7404SD1	1/4" x 3-1/4"	2-1/4"	100
7410SD1*	3/8" x 2-1/4"	7/8"	50
7412SD1*	3/8" x 2-3/4"	1-3/8"	50
7413SD1	3/8" x 3"	1-5/8"	50
7414SD1	3/8" x 3-1/2"	2-1/8"	50
7415SD1	3/8" x 3-3/4"	2-3/8"	50
7416SD1	3/8" x 5"	3-5/8"	50
7417SD1	3/8" x 7"	5-5/8"	50
7420SD1	1/2" x 2-3/4"	1"	50
7422SD1	1/2" x 3-3/4"	2"	50
7423SD1	1/2" x 4-1/2"	2-3/4"	50
7424SD1	1/2" x 5-1/2"	3-3/4"	50
7426SD1	1/2" x 7"	5-1/4"	25
7427SD1	1/2" x 8-1/2"	6-3/4"	25
7428SD1	1/2" x 10"	8-1/4"	25
7430SD1*	5/8" x 3-1/2"	1-1/2"	25
7432SD1	5/8" x 4-1/2"	2-1/2"	25
7433SD1	5/8" x 5"	3"	25
7434SD1	5/8" x 6"	4"	25
7436SD1	5/8" x 7"	5"	25
7438SD1	5/8" x 8-1/2"	6-1/2"	25
7439SD1	5/8" x 10"	8"	25
7440SD1*	3/4" x 4-1/4"	1-3/4"	20
7441SD1*	3/4" x 4-3/4"	2-1/4"	20
7442SD1	3/4" x 5-1/2"	3"	20
7444SD1	3/4" x 6-1/4"	3-3/4"	20
7446SD1	3/4" x 7"	4-1/2"	20
6448SD1	3/4" x 8-1/2"	6"	10
7449SD1	3/4" x 10"	7-1/2"	10
7451SD1	3/4" x 12"	9-1/2"	10
7450SD1*	7/8" x 6"	2-3/4"	10
7452SD1	7/8" x 8"	4-3/4"	10
7454SD1	7/8" x 10"	6-3/4"	10
7461SD1*	1" x 6"	2-3/8"	10
7463DS1	1" x 98"	5-3/8"	10
7465SD1	1" x 12"	8-3/8"	5
7473SD1	1-1/4" x 9"	4-3/4"	5
7475SD1	1-1/4" x 12"	7-3/4"	5

* Sizes which are less than the minimum standard anchor length for strength design. The published length is the overall length of the anchor. Allow for fixture thickness plus one anchor diameter for the nut and washer thickness when selecting a length. All anchors are packaged with nuts and washers.

**POWER-STUD+™ SD2
WEDGE TYPE EXPANSION ANCHOR**

The Power-Stud+ SD2 anchor is a fully threaded, torque-controlled, wedge expansion anchor which is designed for consistent performance in cracked



CODE LISTED
ICC-ES ESR-2502

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LARR-25831 (Concrete)

and uncracked concrete. Suitable base materials include normal-weight concrete, structural sand-lightweight concrete and concrete over metal deck. The anchor is manufactured with a zinc plated carbon steel body and stainless steel expansion clip for premium performance.

Base Material: Normal-Weight Concrete, Structural Sand-Lightweight Concrete, Concrete Over Metal Deck, Grout-Filled Masonry

Size Range: 3/8" through 3/4" diameter (Cracked and uncracked concrete)

Anchor Material: Zinc Plated Carbon Steel Body with Stainless Steel Expansion Clip

Patented & Additional Patents Pending.

**POWER STUD+ SD2
CARBON STEEL BODY & SS EXPANSION CLIP**

PART NO.	SIZE	THREAD LENGTH	STD. BOX
7413SD2	3/8" x 3"	1-5/8"	50
7414SD2	3/8" x 3-1/2"	2-1/4"	50
7415SD2	3/8" x 3-3/4"	2-1/2"	50
7416SD2	3/8" x 5"	3-3/4"	50
7422SD2	1/2" x 3-3/4"	2-1/8"	50
423SD2	1/2" x 4-1/2"	2-7/8"	50
7424SD2	1/2" x 5-1/2"	3-7/8"	50
7426SD2	1/2" x 7"	5-3/8"	25
7427SD2	1/2" x 8-1/2"	6-7/8"	25
7435SD2	5/8" x 4-3/4"	2-7/8"	25
7433SD2	5/8" x 5"	3-1/8"	25
7434SD2	5/8" x 6"	4-1/8"	25
7436SD2	5/8" x 7"	5-1/8"	25
7438SD2	5/8" x 8-1/2"	6-5/8"	25
7442SD2	3/4" x 5-1/2"	3-1/4"	20
7444SD2	3/4" x 6-1/4"	4"	20
7446SD2	3/4" x 7"	4-3/4"	20
7448SD2	3/4" x 8-1/2"	6-1/4"	10

The published length is the overall length of the anchor. Allow for fixture thickness plus one anchor diameter to the nut and washer thickness when selecting a length. All anchors are packaged with nuts and washers.



**INSTALLATION ACCESSORIES
FOR ADDITIONAL LENGTH**

PART NO.	SIZE	STD. BOX
08465	Adjustable torque wrench with 1/2" square drive (10 to 150 ft.-lbs.)	1

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MECHANICAL ANCHORS (Cont.)

POWER-STUD®

WEDGE TYPE EXPANSION ANCHOR

The Power-Stud anchor is a one-piece fully threaded, wedge type anchor available in carbon steel and stainless steel. Threaded, Rod Hanger and Tie-Wire versions are designed for use in solid concrete. The drill bit diameter needed for proper installation is the same nominal size as the anchor diameter.



Mechanically Galvanized Power-Stud anchors are manufactured from carbon steel which have a mechanically galvanized coating (zinc) in accordance with ASTM Specification B 695, Class 65, Type I.

Base Material: Concrete, Grouted CMU

Size Range: 1/4" x 1-3/4" to 1-1/4" x 12"

Anchor Material: Carbon Steel, Type 304 or 316 Stainless Steel, & Mechanically Galvanized Carbon Steel.

MECHANICALLY GALVANIZED POWER-STUD

PART NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX
7720*	1/2" x 2-3/4"	2-1/4"	1-3/8"	50
7723*	1/2" x 4-1/2"	2-1/4"	3-1/8"	50
7724*	1/2" x 5-1/2"	2-1/4"	4-1/8"	50
7726*	1/2" x 7"	2-1/4"	5-5/8"	25
7730*	5/8" x 3-1/2"	2-3/4"	2"	25
7734*	5/8" x 6"	2-3/4"	4-1/2"	25
7741	3/4" x 4-3/4"	3-3/8"	2-7/8"	20
7742	3/4" x 5-1/2"	3-3/8"	3-5/8"	20
7748	3/4" x 8-1/2"	3-3/8"	6-5/8"	10
7750	7/8" x 6"	3-7/8"	2-3/4"	10
7752	7/8" x 8"	3-7/8"	4-3/4"	10
7763	1" x 9"	4-1/2"	5-3/8"	10

* Discontinued item once current stock depleted.

**TIE-WIRE
POWER-STUD**



PART NO.	SIZE	TIE-WIRE HOLE SIZE	MIN. EMBED.	STD. BOX
7409SD1	1/4" x 2"	9/32"	1-1/8"	100

**ROD HANGER
POWER-STUD**



PART NO.	ROD SIZE	ANCHOR SIZE	DRILL DIA.	MIN. EMBED.	THREAD DEPTH	STD. BOX
7806	3/8"	1/2" x 2-3/8"	1/2"	2-1/4"	9/16"	50

Stainless Steel Power-Stud anchors are manufactured from AISI Type 304 / 304 CU and Type 316 stainless steel which is passivated.



TYPE 304 STAINLESS STEEL POWER-STUD

PART NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX
7300	1/4" x 1-3/4"	1-1/8"	3/4"	100
7302	1/4" x 2-1/4"	1-1/8"	1-1/4"	100
7304	1/4" x 3-1/4"	1-1/8"	2-1/4"	100

CONTINUED NEXT COLUMN

PART NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX
7310	3/8" x 2-1/4"	1-5/8"	1-1/4"	50
7312	3/8" x 2-3/4"	1-5/8"	1-5/8"	50
7313	3/8" x 3"	1-5/8"	1-7/8"	50
7314	3/8" x 3-1/2"	1-5/8"	2-3/8"	50
7315	3/8" x 3-3/4"	1-5/8"	2-5/8"	50
7316	3/8" x 5"	1-5/8"	3-1/8"	50
7320	1/2" x 2-3/4"	2-1/4"	1-3/8"	50
7322	1/2" x 3-3/4"	2-1/4"	2-3/8"	50
7323	1/2" x 4-1/2"	2-1/4"	3-1/8"	50
7324	1/2" x 5-1/2"	2-1/4"	4-1/8"	50
7326	1/2" x 7"	2-1/4"	5-5/8"	25
7330	5/8" x 3-1/2"	2-3/4"	2"	25
7332	5/8" x 4-1/2"	2-3/4"	3"	25
7333	5/8" x 5"	2-3/4"	3-1/2"	25
7334	5/8" x 6"	2-3/4"	4-1/2"	25
7336	5/8" x 7"	2-3/4"	5-1/2"	25
7338	5/8" x 8-1/2"	2-3/4"	7"	25
7340	3/4" x 4-1/4"	3-3/8"	2-3/8"	20
7341	3/4" x 4-3/4"	3-3/8"	2-7/8"	20
7342	3/4" x 5-1/2"	3-3/8"	3-5/8"	20
7344	3/4" x 6-1/4"	3-3/8"	4-3/8"	20
7346	3/4" x 7"	3-3/8"	5-1/8"	20
7348	3/4" x 8-1/2"	3-3/8"	6-5/8"	10
7349	3/4" x 10"	3-3/8"	8-1/8"	10
7352	7/8" x 8"	3-7/8"	4-3/4"	10
7361	1" x 6"	4-1/2"	2-3/8"	10
7363	1" x 9"	4-1/2"	5-3/8"	10
7365	1" x 12"	4-1/2"	8-3/8"	5

The published length is the overall length of the anchor. Allow for fixture thickness plus one anchor diameter for the nut and washer thickness when selecting a length.

TYPE 316 STAINLESS STEEL POWER-STUD



PART NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX
7600	1/4" x 1-3/4"	1-1/8"	3/4"	100
7602	1/4" x 2-1/4"	1-1/8"	1-1/4"	100
7604	1/4" x 3-1/4"	1-1/8"	2-1/4"	100
7610	3/8" x 2-1/4"	1-5/8"	1-1/4"	50
7612	3/8" x 2-3/4"	1-5/8"	1-5/8"	50
7613	3/8" x 3"	1-5/8"	1-7/8"	50
7614	3/8" x 3-1/2"	1-5/8"	2-3/8"	50
7615	3/8" x 3-3/4"	1-5/8"	2-5/8"	50
7616	3/8" x 5"	1-5/8"	3-7/8"	50
7620	1/2" x 2-3/4"	2-1/4"	1-3/8"	50
7622	1/2" x 3-3/4"	2-1/4"	2-3/8"	50
7623	1/2" x 4-1/2"	2-1/4"	3-1/8"	50
7624	1/2" x 5-1/2"	2-1/4"	5-1/8"	50
7626	1/2" x 7"	2-1/4"	5-5/8"	25
7630	5/8" x 3-1/2"	2-3/4"	2"	25
7632	5/8" x 4-1/2"	2-3/4"	3"	25
7633	5/8" x 5"	2-3/4"	3-1/2"	25
7634	5/8" x 6"	2-3/4"	4-1/2"	25
7636	5/8" x 7"	2-3/4"	5-1/2"	25
7638	5/8" x 8-1/2"	2-3/4"	7"	25
7640	3/4" x 4-1/4"	3-3/8"	2-3/8"	20
7641	3/4" x 4-3/4"	3-3/8"	2-7/8"	20
7641	3/4" x 5-1/2"	3-3/8"	3-5/8"	20
7644	3/4" x 6-1/4"	3-3/8"	4-3/8"	20
7646	3/4" x 7"	3-3/8"	5-1/8"	20
7648	3/4" x 8-1/2"	3-3/8"	6-5/8"	10

The published length is the overall length of the anchor. Allow for fixture thickness plus one anchor diameter for the nut and washer thickness when selecting a length.

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MECHANICAL ANCHORS (Cont.)

LOK-BOLT AS™

SLEEVE TYPE EXPANSION ANCHOR

The Lok-Bolt AS anchor is a pre-assembled single unit sleeve anchor available in carbon steel and stainless steel which can be used in concrete, block, brick and stone. Extension sleeves are added to create longer lengths.

*AS refers to all-steel sleeve.

Base Material: Concrete, Block, Brick

Size Range: 1/4" x 5/8" to 3/4" x 7-1/2"

Anchor Material: Carbon Steel & Stainless Steel

MECHANICALLY GALVANIZED POWER-STUD

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5005S	5/16" x 1-1/2"	5/16"	1"	100
5010S	5/16" x 2-3/8"	5/16"	1"	100
5015S	3/8" x 1-7/8"	3/8"	1-1/4"	50
5020S	3/8" x 3"	3/8"	1-1/4"	50
5022S	3/8" x 4"	3/8"	1-1/4"	50
5025S	1/2" x 2-1/2"	1/2"	1-1/2"	25
5030S	1/2" x 3"	1/2"	1-1/2"	25
5034S	1/2" x 3-3/4"	1/2"	1-1/2"	25
5033S	1/2" x 5-1/4"	1/2"	1-1/2"	25
5032S	1/2" x 6"	1/2"	1-1/2"	10
5035S	5/8" x 2-1/2"	5/8"	2"	25
5038S	5/8" x 3"	5/8"	2"	25
5040S	5/8" x 4-1/4"	5/8"	2"	10
5045S	5/8" x 5-3/4"	5/8"	2"	10
5050S	3/4" x 2-3/4"	3/4"	2-1/4"	10
5055S	3/4" x 4-1/4"	3/4"	2-1/4"	10
5060S	3/4" x 6-1/4"	3/4"	2-1/4"	10
5065S	3/4" x 8-1/4"	3/4"	2-1/4"	10

The published length is measured from below the washer to the end of the anchor.

**HEX NUT
LOK-BOLT AS
304 STAINLESS STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
6152S	3/8" x 1-7/8"	3/8"	1-1/4"	50
6153S	3/8" x 3"	3/8"	1-1/4"	50
6156S	1/2" x 2-1/2"	1/2"	1-1/2"	25
6157S	1/2" x 3"	1/2"	1-1/2"	25
6160S	1/2" x 3-3/4"	1/2"	1-1/2"	25
6164S	5/8" x 4-1/4"	5/8"	2"	10

The published length is measured from below the washer to the end of the anchor.

**ACORN NUT
LOK-BOLT AS
CARBON STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5125S	1/4" x 5/8"	1/4"	1/2"	100
5150S	1/4" x 1-3/8"	1/4"	1/2"	100
5175S	1/4" x 2-1/4"	1/4"	1/2"	100

The published length is measured from below the washer to the end of the anchor.

ACORN NUT LOK-BOLT AS 304 STAINLESS STEEL

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
6150S	1/4" x 1-3/8"	1/4"	1/2"	100

The published length is measured from below the washer to the end of the anchor.

**ROUND HEAD LOK-BOLT AS
CARBON STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5205S	1/4" x 1-3/8"	1/4"	1/2"	100
5210S	1/4" x 2-1/4"	1/4"	1/2"	100
5215S	1/4" x 3"	1/4"	1/2"	100
5220S	1/4" x 3-3/4"	1/4"	1/2"	100
5225S	5/16" x 2-3/8"	5/16"	1"	100
5230S	5/16" x 3-3/8"	5/16"	1"	100
5235S	3/8" x 2-3/4"	3/8"	1-1/4"	50
5240S	3/8" x 3-3/4"	3/8"	1-1/4"	50

ROUND HEAD LOK-BOLT AS 304 STAINLESS STEEL

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
6180S	1/4" x 2-1/4"	1/4"	1/2"	100

**COMBO FLAT HEAD
LOK-BOLT AS
CARBON STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5305S	1/4" x 1-1/2"	1/4"	1/2"	100
5310S	1/4" x 2-1/4"	1/4"	1/2"	100
5315S	1/4" x 3"	1/4"	1/2"	100
5320S	1/4" x 4"	1/4"	1/2"	100
5325S	1/4" x 5-1/4"	1/4"	1/2"	100
5330S	5/16" x 2-1/4"	5/16"	1"	100
5340S	3/8" x 2-3/4"	3/8"	1-1/4"	50
5345S	3/8" x 4"	3/8"	1-1/4"	50
5350S	3/8" x 5"	3/8"	1-1/4"	50
5360S	3/8" x 6"	3/8"	1-1/4"	50

**COMBO FLAT HEAD LOK-BOLT AS
304 STAINLESS STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
6170S	1/4" x 2-1/4"	1/4"	1/2"	100
6172S	1/4" x 3"	1/4"	1/2"	100
6174S	3/8" x 4"	3/8"	1-1/4"	50
6175S	3/8" x 5"	3/8"	1-1/4"	50
6176S	3/8" x 6"	3/8"	1-1/4"	50

These parts do not have a compression ring.

**THRESHOLD FLAT HEAD
LOK-BOLT AS**

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5500S	1/4" x 2"	1/4"	1/2"	100

This part does not have a compression ring.

**ROD HANGER LOK-BOLT AS
CARBON STEEL**

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
5810S	1/4" x 1-1/2"	5/16"	1/2"	50
5815S	3/8" x 1-7/8"	3/8"	1-1/4"	50
5825S	1/2" x 2-1/4"	1/2"	1-1/2"	25

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MECHANICAL ANCHORS (Cont.)

**TIE-WIRE
LOK-BOLT AS**



PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
5700S	5/16" x 1-1/2"	5/16"	1"	100

**LOK-BOLT AS EXTENDERS
CARBON STEEL
(FOR ADDITIONAL LENGTH)**



PART NO.	SIZE	DRILL DIA.	STD. BOX
5684S	3/8" x 1-1/4"	3/8"	50

**SET-BOLT DISPLACEMENT CONTROLLED
EXPANSION ANCHOR**

The Set-Bolt is a one-piece, stud style anchor with an external bottom-bearing expansion plug. It is available in carbon steel for use in concrete, stone and solid masonry units.



Base Material: Concrete

Size Range: 1/4" x 1-3/4" to 1/2" x 4-1/4"

Anchor Material: Carbon Steel

PART NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX
7101	1/4" x 1-3/4"	1-3/8"	5/8"	100
7107*	1/4" x 3-1/4"	1-3/8"	1"	100
7123*	3/8" x 2-1/4"	1-5/8"	5/8"	50
7126	3/8" x 3"	1-5/8"	1-3/8"	50
7129*	3/8" x 3-3/4"	1-5/8"	1-3/8"	50
7134*	3/8" x 6"	1-5/8"	1-3/8"	50
7145*	1/2" x 2-3/4"	1-7/8"	1-3/8"	50
7151	1/2" x 4-1/4"	1-7/8"	1-7/8"	25
7153*	1/2" x 5-1/4"	1-7/8"	1-7/8"	25

* Discontinued item once current stock exhausted.

WEDGE-BOLT®+ SCREW ANCHOR

The Wedge-Bolt+ anchor is a one piece, heavy-duty screw anchor with a finished hex head. It is simple to install, easy to identify and fully removable. The Wedge-Bolt+ has many features and benefits that make it well suited for many applications in a variety of base materials. The anchor is designed for consistent and reliable performance in cracked and uncracked concrete.



CODE LISTED
ICC-ES ESR-2526

CODE LISTED
ICC-ES ESR-1678

CITY OF LOS ANGELES
LARR-25808 (Concrete)

Base Material: Normal-Weight Concrete, Structural Sand-Lightweight Concrete, Concrete Over Metal Deck, Grouted CMU
Size Range: 1/4" diameter (uncracked concrete), 3/8" diameter through 3/4" diameter (cracked and uncracked concrete), grouted CMU

Anchor Material: Zinc Plated Carbon Steel Body and Hex Head

WEDGE-BOLT+ SCREW ANCHOR (CARBON STEEL)

PART NO.	DIA. SIZE & LENGTH	MIN. EMBED.	STD. BOX
7204SD	1/4" x 1-1/4"	1"	100
7206SD	1/4" x 1-3/4"	1"	100
7207SD	1/4" x 2"	1-3/4"	100
7208SD	1/4" x 2-1/4"	1-3/4"	100
7210SD	1/4" x 3"	1-3/4"	100

CONTINUED NEXT COLUMN

PART NO.	DIA. SIZE & LENGTH	MIN. EMBED.	STD. BOX
7220SD	3/8" x 1-3/4"	1-1/2"	50
7222SD	3/8" x 2-1/2"	2-1/8"	50
7224SD	3/8" x 3"	2-1/8"	50
7226SD	3/8" x 4"	2-1/8"	50
7228SD	3/8" x 5"	2-1/8"	50
7230SD	3/8" x 6"	2-1/8"	50
7240SD	1/2" x 2"	1-3/4"	50
7242SD	1/2" x 2-1/2"	1-3/4"	50
7244SD	1/2" x 3"	2-1/2"	50
7246SD	1/2" x 4"	2-1/2"	50
7248SD	1/2" x 5"	2-1/2"	25
7250SD	1/2" x 6"	2-1/2"	25
7268SD	1/2" x 6-1/2"	2-1/2"	25
7252SD	1/2" x 8"	2-1/2"	25
7260SD	5/8" x 3"	2-1/2"	25
7262SD	5/8" x 4"	3-1/4"	25
7264SD	5/8" x 5"	3-1/4"	25
7266SD	5/8" x 6"	3-1/4"	25
7270SD	5/8" x 8"	3-1/4"	25
7280SD	3/4" x 3"	2-1/2"	20
7282SD	3/4" x 4"	3"	20
7284SD	3/4" x 5"	4-1/4"	20
7286SD	3/4" x 6"	4-1/4"	20
7288SD	3/4" x 8"	4-1/4"	10
7290SD	3/4" x 10"	4-1/4"	10

* Sizes which are less than the minimum standard anchor length for strength design. The published length is measured from below the hex washer head to the end of the anchor. Wedge-Bolt+ is marked with a blue tip and must be installed with a matched tolerance Wedge-Bit.

**WEDGE-BOLT+ MG
SCREW ANCHOR**



PART NO.	DIA. SIZE & LENGTH	STD. BOX
7726SD	3/8" x 4"	50
7728SD	3/8" x 5"	50
7730SD	3/8" x 6"	50
7746SD	1/2" x 4"	50
7748SD	1/2" x 5"	25
7750SD	1/2" x 6"	25
7751SD	1/2" x 6-1/2"	25
7752SD	1/2" x 8"	25
7764SD	5/8" x 5"	25
7766SD	5/8" x 6"	25
7768SD	5/8" x 6-1/2"	25
7770SD	5/8" x 8"	25
7786SD	3/4" x 6"	20
7789SD	3/4" x 8-1/2"	10
7790SD	3/4" x 10"	10

MG = Mechanically Galvanized

**WEDGE-BOLT®
(STAINLESS STEEL & ORANGE TIP)**

The 410 SS Wedge-Bolt anchor is specially engineered for applications where additional corrosion resistance is desired. This anchor can be easily installed with either an impact wrench or conventional hand socket. Install with Powers Wedge-Bit™



**410 STAINLESS STEEL
WEDGE-BOLT SCREW ANCHOR**

PART NO.	DIA. SIZE & LENGTH	CLEARANCE HOLE DIA.	MIN. EMBED.	THREAD LENGTH	STD. BOX
7701N	1/4" x 1-3/4"	5/16"	1"	1-5/8"	100
7702N	3/8" x 1-3/4"	5/16"	1"	1-1/2"	50
7705N	3/8" x 2-1/2"	7/16"	1-1/2"	2-1/4"	50
7706N	3/8" x 3"	7/16"	1-1/2"	2-3/4"	50
7707N	3/8" x 4"	7/16"	1-1/2"	3-3/4"	50
7708N	3/8" x 5"	7/16"	1-1/2"	3-3/4"	50
7710N	1/2" x 3"	9/16"	1-3/4"	2-3/4"	50
7711N	1/2" x 4"	9/16"	1-3/4"	3-3/4"	50

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MECHANICAL ANCHORS (Cont.)

WEDGE-BOLT®

(STAINLESS STEEL & ORANGE TIP (Cont.))

The Carbon Steel Wedge-Bolt OT screw anchor is a specially engineered part for the racking industry.



This anchor is available in a finished hex head design and can be easily installed with either an impact wrench or conventional hand socket. This anchor, unlike Blue Tip Wedge-Bolt, can be installed with regular ANSI standard carbide drill bits but requires larger clearance holes.

WEDGE-BOLT OT SCREW ANCHOR

PART NO.	DIA. SIZE & LENGTH	ANSI BIT DIA.	CLEARANCE HOLE DIA.	MIN. EMBED.	THREAD LENGTH	STD. BOX
7215	1/4" x 3"	1/4"	3/8"	1"	2-3/4"	100
7216	3/8" x 4"	3/8"	1/2"	1-1/2"	2-3/4"	50
7217	1/2" x 4"	1/2"	5/8"	1-3/4"	3-3/4"	50
7218	1/2" x 5"	1/2"	5/8"	1-3/4"	3-3/4"	25
7214	1/2" x 6"	1/2"	5/8"	1-3/4"	3-3/4"	25
7219	5/8" x 4"	5/8"	3/4"	2-1/2"	3-3/4"	25
7221	5/8" x 5"	5/8"	3/4"	2-1/2"	3-3/4"	25
7227	5/8" x 6"	5/8"	3/4"	2-1/2"	3-3/4"	25
7229	5/8" x 7"	5/8"	3/4"	2-1/2"	3-3/4"	25
7233	1/2" x 6-1/2"	1/2"	5/8"	1-3/4"	3-3/4"	25
7231	3/4" x 6"	3/4"	7/8"	2-1/2"	4-1/2"	20
7232	3/4" x 8"	3/4"	7/8"	2-1/2"	6"	10

WEDGE-BITS™

For proper performance, the

Carbon Steel Wedge-Bolt and 410 Stainless Steel Wedge-Bolt anchors must be installed with a Wedge-Bit. The Wedge-Bit has a special matched tolerance range designed to provide optimum performance for the anchor. The available shank styles and sizes are listed below.

SDS-PLUS WEDGE-BIT

PART NO.	DRILL SIZE	USABLE LENGTH	OVERALL LENGTH	STD. POUCH
1312	1/4"	2"	4"	1
1314	1/4"	4"	6"	1
1316	3/8"	4"	6"	1
1318	3/8"	6"	8"	1
1319	3/8"	16"	18"	1
1332	3/8"	10"	12"	1
1320	1/2"	4"	6"	1
1322	1/2"	8"	10"	1
1324	5/8"	6"	8"	1
1334	1/2"	10"	12"	1
1326	5/8"	10"	12"	1
1336	5/8"	16"	18"	1
1328	3/4"	6"	8"	1
1330	3/4"	10"	12"	1
1335	1/2"	16"	18"	1

HEAVY DUTY STRAIGHT SHANK WEDGE-BIT



PART NO.	DRILL SIZE	USABLE LENGTH	OVERALL LENGTH	STD. POUCH
1370	1/4"	2-3/4"	4"	1
1372	1/4"	4"	6"	1
1380	3/8"	4"	6"	1
1384	3/8"	11"	13"	1
1390	1/2"	4"	6"	12
1394	1/2"	11"	13"	1
1396	5/8"	11"	13"	1
1397	3/4"	11"	13"	1

SPLINE WEDGE-BIT



PART NO.	DRILL SIZE	USABLE LENGTH	OVERALL LENGTH	STD. POUCH
1340	1/2"	8"	12"	1
1342	1/2"	11"	16"	1
1344	5/8"	8"	13"	1
1348	3/4"	8"	13"	1

SDS-MAX WEDGE-BIT



PART NO.	DRILL SIZE	USABLE LENGTH	OVERALL LENGTH	STD. POUCH
1354	1/2"	8"	13"	1
1356	5/8"	8"	13"	1
1357	5/8"	16"	21"	1
1358	3/4"	8"	13"	1

DRILL BITS FOR PERMA-SEAL® TAPPER+™



BRONZE PERMA-SEAL TAPPER+ STANDARD PACK*

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
2781SD	5/32" x 3-1/2"	2"	10
2782SD	5/32" x 4-1/2"	3"	10
2783SD	5/32" x 5-1/2"	4"	10
2785SD	3/16" x 3-1/2"	2"	10
2786SD	3/16" x 4-1/2"	3"	10
2787SD	3/16" x 5-1/2"	4"	10
2788SD	3/16" x 6-1/2"	5"	10
2789SD	3/16" x 7-1/2"	6"	10

HEX SHANK SDS-PLUS



PART NO.	SIZE	USABLE LENGTH	STD. TUBE
2793SD	5/32" x 5"	3"	1
2794SD	5/32" x 7"	5"	1
2796SD	3/16" x 5"	3"	1
2797SD	3/16" x 7"	5"	1

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MECHANICAL ANCHORS (Cont.)
TAPPER™ DRILL BITS (Cont.)

CARBIDE DRILL BITS FOR TYPE 304 SS TAPPER™

This is the standard bit for use with type 304 Stainless Steel Tapper. It is for use in standard weight concrete and block, tolerance = 0.215" to 0.216". This bit is gold colored for identification. (Do not use with Perma-Seal or type 410 SS Tapper).

STRAIGHT SHANK

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
2894	3/16" x 3-1/2"	2"	10
2895	3/16" X 4-1/2"	3"	10

SDS HEX

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
2790	3/16" x 5-1/2"	3"	1

SPECIAL DRILL BITS FOR TYPE 304 SS TAPPER™

For use in hard aggregate concrete, tolerance - 0.220" to 0.222". This bit is silver colored for identification. (Do not use with Perma-Seal or Type 410 SS Tapper).

SDS HEX

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
2780	3/16" x 5"	3"	1

CARBIDE DRILL BITS FOR 3/8" ZINC PLATED TAPPER™ STRAIGHT SHANK

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
5861	1/4" x 5-1/2"	4"	5
5862*	1/4" x 6-1/2"	5"	5
5863*	1/4" x 7-1/2"	6"	5

* Discontinued item once current stock exhausted.

SDS HEX

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
5866	1/4" x 6"	4"	1
5868*	1/4" x 8"	6"	2

* Discontinued item once current stock exhausted.

TAPPER™ INSTALLATION TOOLS



INSTALLATION TOOLS FOR 3/16" AND 1/4" TAPPER™

PART NO.	DESCRIPTION	MAX. SCREW LENGTH	MAX. BIT LENGTH	STD. BOX
2791	Tapper™ 1000 Tool (as shown)	4"	5-1/2"	1
2792*	Condrive®† 2000	2-3/4"	4-1/2"	1
2795	1000 SDS Extension (8")	6"	7-1/2"	1

* This tool cannot be used with SDS Drill Bits or PFH screws.

TAPPER™ 1000 REPLACEMENT PARTS



PART NO.	DESCRIPTION	STD. BOX
2953	Drive Sleeve Assembly (5-3/4")	1
2955*	1/8" Hex Key	1
2964	Blue 3/16" Hex Wedge-Bolt® Socket	1

* Discontinued item once current stock exhausted.

CONDRIVE® 2000 INSTALLATION PARTS†



PART NO.	DESCRIPTION	STD. BOX
2956	1/4" Hex Key	1
2957	5/16" Hex Key	1

† Condrive® is a Registered Trademark of Illinois Tool Works.

INSTALLATION TOOLS FOR 3/8" TAPPER™



PART NO.	DESCRIPTION	MAX. SCREW LENGTH	MAX. BIT LENGTH	STD. BOX
5865*	Tapper 3000 Tool	4"	5-1/2"	1
5867	3000 Extension (8")	6"	7-1/2"	1

* Discontinued item once current stock exhausted.

TAPPER™ 3000 REPLACEMENT PARTS

PART NO.	DESCRIPTION	STD. BOX
5874	Drive Sleeve Assembly (5-3/4")	1
5867	Drive Sleeve Assembly (8")	1

SNAKE+™ INTERNALLY THREADED SELF-TAPPING ANCHOR

The Snake+™ anchor is an internally threaded, self-tapping screw anchor designed for performance in cracked and uncracked concrete. Suitable base materials include normal-weight concrete, structural sand-lightweight concrete and concrete over metal deck. The Snake+™ screw anchor is installed into a drilled hole with a power tool and a Snake+ setting tool. A hammer is not used for installation.



Base Material: Normal-Weight Concrete, Structural Sand-Lightweight Concrete, Concrete Over Metal Deck

Size Range: 3/8" diameter (Cracked and Uncracked Concrete), 1/2" diameter

Anchor Material: Zinc Plated Carbon Steel

SNAKE+™

PART NO.	SIZE	MIN. HOLE DEPTH	INTERNAL THREAD DEPTH	STD. BOX
6400SD	1/4"	2"	22/32"	100
6401SD	3/8"	1-5/8"	11/16"	50
6403SD	1/2"	2-1/2"	29/32"	50

EXTRA SNAKE & SNAKE+™ SETTING TOOLS



PART NO.	SIZE	STD. BOX
6402SD	1/4"	1
6407SD	3/8"	1
6404SD	1/2"	1

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MECHANICAL ANCHORS (Cont.)
SMART DI+™ ANCHOR
(DROP-IN) INTERNALLY THREADED
EXPANSION ANCHOR

With the Powers patented innovation, the Smart DI+™ Anchor (Drop-In), contractors can now reduce the amount of hammer blows when setting by approximately 25% compared to competitive brands. Once the setting tool is flush, your anchor is set! The patented plug design yields a higher percentage of the expansion at the bottom of the anchor, exactly where it is needed. Smart DI+™ Anchor (Drop-In), can also be set using our new Smart Tool. Drill your hole, slide the tool sleeve over your carbide drill and lock into place. Your hammer drill now does all the work for you in setting the anchor.

Base Material: Concrete
Size Range: 1/4" to 3/4"
Anchor Material: Carbon Steel



SMART DI+™

PART NO.	SIZE	STD. BOX
6304SD	1/4"	100
6306SD	3/8"	50
6308SD	1/2"	50
6320SD	5/8"	25
6312SD	3/4"	10

DI+™ TOOL



PART NO.	SIZE	STD. BOX
00425SD	1/4"	1
00427SD	3/8"	1
00429SD	1/2"	1

DI+™ DRILL



PART NO.	SIZE	STD. BOX
00391SD	3/8" (for 1/4" Smart DI+)	1
00397SD	1/2" (for 3/8" Smart DI+)	1
00410SD	5/8" (for 1/2" Smart DI+)	1

HOLLOW-SET DROPIN™
INTERNALLY THREADED
EXPANSION ANCHOR

The Hollow-Set Dropin™ anchor is designed for anchoring in hollow base materials such as hollow concrete block, brick with weep holes and hollow core pre-cast concrete plank. It can also be used in solid base materials. Hollow masonry materials often have a relatively thin outer wall thickness. During the drilling process, spalling on the back side of the wall can decrease the wall thickness available for anchoring to 1" or less. The design of the Hollow-Set Dropin™ overcomes this problem.



Base Material: Concrete, Block, Brick, Pre-cast Hollow Core Plank, Stone

Size Range: 1/4" to 5/8"

Anchor Material: Zamac Alloy with Carbon Steel or Stainless Steel Cones

ZAMAC BODY WITH CARBON STEEL CONE

PART NO.	SIZE	DRILL DIA.	OVERALL LENGTH	SLEEVE LENGTH	STD. BOX
9320	1/4"	3/8"	7/8"	5/8"	100
9330	5/16"	5/8"	1-5/16"	15/16"	50
9340	3/8"	5/8"	1-5/16"	15/16"	50
9350	1/2"	3/4"	1-3/4"	1-1/4"	50
9360	5/8"	1"	2"	1-1/2"	25

ZAMAC BODY WITH STAINLESS STEEL CONE

PART NO.	SIZE	DRILL DIA.	OVERALL LENGTH	SLEEVE LENGTH	STD. BOX
9420	1/4"	3/8"	7/8"	5/8"	100
9440	3/8"	5/8"	1-5/16"	15/16"	100

SETTING TOOLS - HOLLOW BASE MATERIALS



For hollow base materials

PART NO.	SIZE	STD. BOX
9323	1/4"	1
9333	5/16"	1
9343	3/8"	1
9353	1/2"	1
9363	5/8"	1

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MECHANICAL ANCHORS (Cont.)

**STEEL DROPIN™
INTERNALLY THREADED
EXPANSION ANCHOR**

The Steel Dropin™ is an all-steel, machine bolt anchor available in carbon steel and two types of stainless steel. It can be used in solid concrete, hard stone, and solid block. A coil-thread version for forming applications is also available. A setting tool is included in each standard carton.

Base Material: Solid Concrete, Solid Block, Hard Stone

Size Range: 1/4" to 3/4" Standard Thread, 1/2" & 3/4" in Coil Thread

Anchor Material: Carbon Steel and type 304 or 316 Stainless Steel



CARBON STEEL DROPIN (SMOOTH WALL)

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6304	1/4"	3/8"	1"	7/16"	100
6306	3/8"	1/2"	1-9/16"	5/8"	50
6308	1/2"	5/8"	2"	13/16"	50
6320	5/8"	7/8"	2-1/2"	1-3/16"	25
6312	3/4"	1"	3-3/16"	1-3/8"	10

CARBON STEEL FLANGED DROPIN (LIPPED)

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6324	1/4"	3/8"	1"	7/16"	100
6326	3/8"	1/2"	1-9/16"	5/8"	50
6238	1/2"	5/8"	2"	13/16"	50

CARBON STEEL KNURLED WALL DROPIN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6340	1/4"	3/8"	1"	7/16"	100
6342	3/8"	1/2"	1-9/16"	5/8"	50
6344	1/2"	5/8"	2"	13/16"	50

TYPE 303 STAINLESS STEEL DROPIN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6204	1/4"	3/8"	1"	7/16"	100
6206	3/8"	1/2"	1-9/16"	5/8"	50
6208	1/2"	5/8"	2"	13/16"	50
6210	5/8"	7/8"	2-1/2"	1-3/16"	25
6212	3/4"	1"	3-3/16"	1-3/8"	10

TYPE 316 STAINLESS STEEL DROPIN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6224	1/4"	3/8"	1"	7/16"	100
6226	3/8"	1/2"	1-9/16"	5/8"	50
6228	1/2"	5/8"	2"	13/16"	50
6230	5/8"	7/8"	2-1/2"	1-3/16"	25
6232	3/4"	1"	3-3/16"	1-3/8"	10

CARBON STEEL COIL THREAD DROPIN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6330	1/2"	5/8"	2"	13/16"	50
6332	3/4"	1"	3-3/16"	1-3/8"	10

SETTING TOOLS FOR STEEL DROPIN ANCHORS



Use Setting Tool Part No. 6309 for 1/2" size, Part No. 6313 for 3/4" size.

PART NO.	SIZE	STD. BOX
6305	1/4"	1
6307	3/8"	1
6309	1/2"	1
6311	5/8"	1
6313	3/4"	1

SDS-PLUS ACCU-BIT FOR DROPIN AND SMART DI+



PART NO.	SIZE	USABLE LENGTH	BITS PER PACK
00391	SDS-Plus 3/8" Concrete Accu-Bit	for 1/4" Dropin	1
00397	SDS-Plus 1/2" Concrete Accu-Bit	for 3/8" Dropin	1
00410	SDS-Plus 5/8" Concrete Accu-Bit	for 1/2" Dropin	1
00418	SDS-Plus 7/8" Concrete Accu-Bit	for 5/8" Dropin	1
00419	SDS-Plus 1" Concrete Accu-Bit	for 3/4" Dropin	1

**MINI DROPIN™
INTERNALLY THREADED
EXPANSION ANCHOR**

The Mini Dropin™ is a carbon steel, machine bolt anchor used in shallow embedment applications. It can be used in solid concrete and hollow core concrete plank, and it may be suitable in hard stone and solid block.



Base Material: Pre-cast Hollow Core Plank, Concrete

Size Range: 1/4", 3/8" and 1/2"

Anchor Material: Carbon Steel

MINI DROPIN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	THREAD DEPTH	STD. BOX
6335	1/4"	3/8"	5/8"	3/8"	100
6322	3/8"	1/2"	3/4"	13/32"	100
6337	1/2"	5/8"	1"	5/8"	50

SETTING TOOLS FOR MINI DROPIN ANCHORS



PART NO.	SIZE	STD. BOX
6336	1/4"	1
6323	3/8"	1
6338	1/2"	1

SDS-PLUS ACCU-BIT FOR MINI DROPIN



PART NO.	SIZE	USABLE LENGTH	BITS PER PACK
00392	SDS-Plus 3/8" Concrete Accu-Bit	for 1/4" Mini Dropin	1
00398	SDS-Plus 1/2" Concrete Accu-Bit	for 3/8" Mini Dropin	1
00411	SDS-Plus 5/8" Concrete Accu-Bit	for 1/2" Mini Dropin	1

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**MECHANICAL ANCHORS (Cont.)
DOUBLE EXPANSION/SHELL EXPANSION
ANCHOR**

The Double is a dual expansion machine bolt anchor particularly suited for base materials of questionable strength. It can be used in solid concrete and some block, brick and stone base materials.

Base Material: Concrete, Block, Brick

Size Range: 1/4" to 3/4"

Anchor Material: Zamac Alloy



PART NO.	SIZE	ANCHOR LENGTH	DRILL DIA.	MIN. HOLE DEPTH	STD. BOX
9510	1/4"	1-3/8"	1/2"	1-1/4"	50
9515	5/16"	1-5/8"	5/8"	1-1/2"	50
9520	3/8"	2"	3/4"	1-3/4"	50
9525	1/2"	2-1/2"	7/8"	2-1/4"	25
9530	5/8"	2-3/4"	1"	2-1/2"	25
9535	3/4"	3-15/16"	1-1/4"	3-1/2"	10

**SINGLE EXPANSION/SHELL EXPANSION
ANCHOR**

The Single is a machine bolt anchor designed for use in concrete, and may be suitable in block, brick and stone base materials. The anchor consists of a pre-assembled set of expansion shields and an expander cone formed from Zamac Alloy.

Base Material: Concrete

Size Range: 1/4" to 5/8"

Anchor Material: Zamac Alloy



PART NO.	SIZE	ANCHOR LENGTH	DRILL DIA.	MIN. HOLE DEPTH	STD. BOX
9650	1/4"	1-5/16"	1/2"	1-3/8"	50
9655	5/16"	1-1/2"	5/8"	1-5/8"	50
9665	3/8"	1-1/2"	5/8"	1-5/8"	50
9675	1/2"	2-1/16"	7/8"	2-1/2"	25
9685	5/8"	2-5/8"	1"	2-3/4"	25

CALK-IN MACHINE SCREW ANCHOR

The Calk-In is a pre-assembled precision cast calking type machine bolt anchor which can be used in concrete, block, brick or stone. The anchor consists of an antimonial lead alloy calking sleeve and a Zamac Alloy internally-threaded expander cone.

Base Material: Concrete, block, brick

Size Range: 8-32 to 3/4"-10

Anchor Material: Zamac Alloy and Lead



CALK-IN

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
9205	8-32	5/16"	1/2"	100
9210	10-24	3/8"	5/8"	100
9220	1/4"-20	1/2"	7/8"	100
9225	5/16"-18	5/8"	1"	50
9230	3/8"-16	3/4"	1-1/4"	50
9240	1/2"-13	7/8"	1-1/2"	50
9250	3/4"-10	1-1/4"	2-1/4"	50

MASTER PACK

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	MASTER CARTON
9222	1/4"-20	1/2"	7/8"	1000

CALK-IN SETTING TOOLS

Calk-In tools purchased separately (not included).

PART NO.	SIZE	STD. BOX
9201	8	1
9211	10	1
9221	1/4"	1
9226	5/16"	1
9231	3/8"	1
9241	1/2"	1

LAG SHIELD SHELL EXPANSION ANCHOR

The Lag Shield is a screw style anchor designed for use with lag bolts. It is suitable for use in concrete and other mortar joints of block or brick walls.



Lag Shield anchors are formed from Zamac Alloy. In harder masonry materials, short style Lag Shields are used to reduce drilling time. The long style version is used in soft or weak masonry to engage more base material.

Base Material: Concrete and Mortar Joints of Block and Brick

Size Range: 1/4" to 3/4"

Anchor Material: Zamac Alloy

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
1051	1/4" Short	1/2"	1"	50
1055	1/4" Long	1/2"	1-1/2"	50
1101	5/16" Short	1/2"	1-1/4"	50
1105	5/16" Long	1/2"	1-3/4"	50
1151	3/8" Short	5/8"	1-3/4"	50
1155	3/8" Long	5/8"	2-1/2"	50
1201	1/2" Short	3/4"	2"	50
1205	1/2" Long	3/4"	3"	50
1251	5/8" Short	7/8"	2"	25
1255	5/8" Long	7/8"	3-1/2"	25
1301	3/4" Short	1"	2"	25
1305	3/4" Long	1"	3-1/2"	25

HELI-PIN™ FACADE ANCHOR

The Heli-Pin™ anchor is a one-piece, stainless steel



helical wall tie system used for anchoring existing brick veneers to the back-up structural members without exposed hardware. Existing facades constructed of various masonry materials can be reattached and reinforced using the Heli-Pin™. They are ideal for stabilizing areas with missing or corroded wall ties as well as retrofits to multiple width masonry wall sections. The Heli-Pin™ is installed in predrilled holes with a Heli-Pin™ setting tool and a SDS-Plus shank roto-hammer drill.

Base Material: Concrete, Block, Brick, Stone, Clay Tile and Wood

Size Range: 8mm (5/16") x 6" to 8mm (5/16") to 12"

Anchor Material: Type 304 Stainless Steel

PART NO.	ITEM DESCRIPTION	STD. BOX
08341	Heli-Pin™ Anchor 8mm (5/16") x 6"	100
08342	Heli-Pin™ Anchor 8mm (5/16") x 8"	100
08343	Heli-Pin™ Anchor 8mm (5/16") x 10"	100
08344	Heli-Pin™ Anchor 8mm (5/16") x 12"	50
08345	Heli-Pin™ SDS Setting Tool	1

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MECHANICAL ANCHORS (Cont.)

**VERTIGO® / VERTIGO™+
ROD HANGER SYSTEM**

Vertigo® is an all steel threaded fastening system for suspending steel threaded rod and other assemblies.



CODE LISTED
ICC-ES ESR-2989

Vertigo® can be installed in a variety of base materials including steel bar joists and beams, wood frame columns and beams, as well as concrete beams and columns. In wood and steel base materials, Vertigo® is also offered in a side mount style for lateral installation of 1/4" and 3/8" diameter steel threaded rods onto joists, columns and trusses. For all steel and wood Vertigo® fasteners, a red Vertigo® Socket Driver is recommended to provide proper installation with a screw gun or hammer drill in "rotation only" mode. Concrete Vertigo® fasteners should be installed with the appropriate size standard drive sockets and hammer drill or powered impact wrench.

Base Material: Steel, Wood, Concrete

Size Range: 1/4" - 1/2"

Anchor Material: Carbon Steel

CONCRETE VERTIGO™+

PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	FINISH	STD. BOX
7180SD*	1/4"	3/8" x 2-1/8"	Yellow Dichromate Finish	100
7181SD*	3/8"	3/8" x 2-1/8"	Yellow Dichromate Finish	100
7182SD*	1/2"	3/8" x 2-1/8"	Yellow Dichromate Finish	50

* Packed with SDS Wedge-Bit

STEEL VERTICAL HANGER



PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	POINT STYLE	STD. BOX
#3 FOR PURLINS				
7155	1/4"	1/4-20 x 1"	#3	100
7157	3/8"	1/4-20 x 2"	#3	100
7158	3/8"	1/4"-20 x 1" (w/nuts)	#3	100
7159	3/8"	1/4-20 x 1-1/2"	#3	100
7160	3/8"	1/4-20 x 1-1/2" (w/nuts)	#3	100

#5 FOR BEAMS

7152	1/4"	12-20 x 1-1/2"	#5	100
7154	3/8"	12-20 x 1-1/2" (w/nuts)	#5	100
7161	1/2"	12-20 x 1-1/2" (w/nuts)	#5	100

STEEL SIDE HANGER



PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	POINT STYLE	STD. BOX
#3 FOR PURLINS				
7183	1/4"	1/4-20 x 1"	#3	100
7184	3/8"	1/4"-20 x 1" (w/nuts)	#3	100
7186	3/8"	1/4-20 x 1-1/2" (w/nuts)	#3	100
7188	3/8"	1/4-20 x 2" (w/nuts)	#3	100

#5 FOR BEAMS

7200	1/4"	12-20 x 1-1/2"	#5	50
7201	3/8"	12-20 x 1-1/2" (w/nuts)	#5	100

WOOD VERTICAL HANGER



PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	POINT STYLE	STD. BOX
7163	1/4"	1/4" x 2"	Type 17	100
7203	3/8"	1/4" x 1"	Type 17	100
7165	3/8"	1/4" x 2"	Type 17	100
7167	3/8"	1/4" x 3"	Type 17	100
7169	3/8"	1/4" x 4"	Type 17	100
7162	3/8"	5/16" x 2-1/2"	Type 17	100
7164	1/2"	5/16" x 2-1/2"	Type 17	100

WOOD SIDE HANGER



PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	POINT STYLE	STD. BOX
7185	1/4"	1/4" x 1"	Type 17	100
7205	3/8"	1/4" x 1"	Type 17	100
7170	3/8"	1/4" x 2"	Type 17	100
7156	3/8"	5/16" x 2-1/2"	Type 17	100

CONCRETE VERTICAL HANGER



PART NO.	ROD SIZE	SCREW SHANK SIZE & LENGTH	SHANK STYLE	STD. BOX
7171	1/4"	1/4" x 1-1/4"	ANSI Wedge-Bolt OT Thread	100
7173	3/8"	1/4" x 1-1/2"	ANSI Wedge-Bolt OT Thread	100
7175	1/2"	3/8" x 2-3/4"	ANSI Wedge-Bolt OT Thread	50

For side Mount Concrete Applications use Part No. 7185 and 7170 with a 3/16" ANSI Drill Bit.

VERTIGO® ACCESSORIES

POLE TOOL



PART NO.	DESCRIPTION	STD. BOX
7166	6'-12' Pole Tool (includes three Jaw Chuck)	1

DRIVER SOCKET



PART NO.	DESCRIPTION	COLOR	STD. BOX
7187	Universal Steel & Wood Socket	Red	5
7195	1/4" Concrete Socket	Blue	5
7197	3/8" Concrete Socket	Blue	5
7198	1/2" Concrete Socket	Blue	5

VERTIGO® TOOL KIT



PART NO.	DESCRIPTION	STD. BOX
5864	Sleeve Assembly (same as Part #5874) 1/4" and 3/8" blue concrete drive sockets and red universal drive socket	1
5874	Sleeve Assembly	1

PART NO.	DESCRIPTION	USABLE LENGTH	STD. TUBE
5866	1/4" x 6" Hex Shank SDS Drill Bit	4"	1

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MECHANICAL ANCHORS (Cont.)
BANG-IT™ CONCRETE INSERTS

Bang-It™ concrete inserts are designed for installation through pre-drilled metal composite deck (i.e. "pan deck") used to support a newly poured concrete floor or roof slab. Depending upon the size/color chosen, the protective sleeve protrudes below the surface of the deck allowing overhead attachment of steel threaded rod in sizes ranging from 1/4" to 7/8" in diameter. The protective sleeve prevents sprayed fireproofing material and acoustical dampening products from clogging the internal threads of the insert inside, as well as burying, masking or losing the insert location. The unique, six-sided impact plate offers resistance to rotation within the concrete as a steel threaded rod is being installed.



Base Material: Concrete, Lightweight Concrete
Size Range: 1/4" to 7/8"
Anchor Material: Carbon Steel and Engineered Plastic

PART NO.	DESCRIPTION	PRE-DRILLED HOLE	STD. BOX
7540	1/4" BROWN Bang-It™	13/16"	100
7542	3/8" GREEN Bang-It™	13/16"	100
7544	1/2" YELLOW Bang-It™	13/16"	100
7546	5/8" RED Bang-It™	1-3/16"	50
7548	3/4" PURPLE Bang-It™	1-3/16"	50
7549	7/8" BLACK Bang-It™	1-3/16"	50
7560	Bang-It™ Deck Driller	-	1
7562	13/16" Carbide Hole Saw for 1/4", 3/8" and 1/2"	-	1
7564	1-3/16" Carbide Hole Saw for 5/8", 3/4" and 7/8"	-	1
7566	Carbide Hole Saw Center Bit	-	1

WOOD-KNOCKER™ CONCRETE INSERTS

Wood-Knocker™ concrete inserts are installed onto wooden forms used to support a newly poured concrete floor slabs, roof slabs or walls. When the forms are stripped, the color-coded flange is easily seen embedded in the concrete surface allowing attachment of steel threaded rod or threaded bolts in sizes ranging from 1/4" to 3/4" in diameter. The unique six-sided impact plate offers resistance to rotation within the concrete as a steel threaded rod or threaded bolt is being installed.



Base Material: Concrete, Lightweight Concrete
Size Range: 1/4" to 3/4"
Anchor Material: Carbon Steel and Engineered Plastic

PART NO.	DESCRIPTION	STD. BOX
7550	1/4" BROWN Wood Knocker™	200
7552	3/8" GREEN Wood Knocker™	200
7554	1/2" YELLOW Wood Knocker™	200
7556	5/8" RED Wood Knocker™	150
7558	3/4" PURPLE Wood Knocker™	150
7567	1/2" Coil Thread Wood Knocker™	200
7568	3/4" Coil Thread Wood Knocker™	150

SPIKE® PRE-EXPANDED ANCHOR

The Spike® anchor is a patented, one-piece, tamper-proof anchor for use in concrete, block, brick or stone. Several head styles are available and offered in carbon and type 316 stainless steel. The Spike® anchor is formed with an "s" shaped configuration at the working end of the anchor to create an expansion mechanism. Since the anchor is pre-expanded, there is no secondary tightening operation.



Base Material: Concrete, Block
Size Range: 3/16" x 1" to 1/2" x 6-1/2"
Anchor Material: Carbon Steel and Type 316 Stainless Steel

MUSHROOM HEAD
GRADE 8.2 CARBON STEEL SPIKE®

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5502	3/16" x 1"	3/16"	7/8"	100
5503	3/16" x 1-1/4"	3/16"	7/8"	100
5504	3/16" x 1-1/2"	3/16"	1-1/4"	100
5506	3/16" x 2"	3/16"	1-1/4"	100
5508	3/16" x 2-1/2"	3/16"	1-1/4"	100
5510	3/16" x 3"	3/16"	1-1/4"	100
5511	3/16" x 3-1/2"	3/16"	1-1/4"	100
5512	3/16" x 4"	3/16"	1-1/4"	100
5522	1/4" x 1"	1/4"	7/8"	100
5523	1/4" x 1-1/4"	1/4"	1"	100
5524	1/4" x 1-1/2"	1/4"	1-1/4"	100
5526	1/4" x 2"	1/4"	1-1/4"	100
5528	1/4" x 2-1/2"	1/4"	1-1/4"	100
5530	1/4" x 3"	1/4"	1-1/4"	100
5531	1/4" x 3-1/2"	1/4"	1-1/4"	100
5532	1/4" x 4"	1/4"	1-1/4"	100
5546	3/8" x 2"	3/8"	1-3/4"	25
5548	3/8" x 2-1/2"	3/8"	1-3/4"	25
5550	3/8" x 3"	3/8"	1-3/4"	25
5551	3/8" x 3-1/2"	3/8"	1-3/4"	25
5552	3/8" x 4"	3/8"	1-3/4"	25
5554	3/8" x 5"	3/8"	1-3/4"	25
5556	3/8" x 6"	3/8"	1-3/4"	25
5569	1/2" x 2-3/4"	1/2"	2-1/2"	50
5571	1/2" x 3-1/2"	1/2"	2-1/2"	50
5572	1/2" x 4"	1/2"	2-1/2"	25
5574	1/2" x 5"	1/2"	2-1/2"	25
5577	1/2" x 6-1/2"	1/2"	2-1/2"	25

The published length is measured from below the head to the end of the anchor.

FLAT HEAD GRADE 8.2 CARBON STEEL SPIKE®



PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
5608	3/16" x 2-1/2"	3/16"	1-1/4"	100
5610	3/16" x 3"	3/16"	1-1/4"	100
5612	3/16" x 4"	3/16"	1-1/4"	100
5624	1/4" x 1-1/2"	1/4"	1-1/4"	100
5626	1/4" x 2"	1/4"	1-1/4"	100
5628	1/4" x 2-1/2"	1/4"	1-1/4"	100
5630	1/4" x 3"	1/4"	1-1/4"	100
5631	1/4" x 3-1/2"	1/4"	1-1/4"	100
5632	1/4" x 4"	1/4"	1-1/4"	100

The published length is the overall length of the anchor.

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MECHANICAL ANCHORS (Cont.)
SPIKE® PRE-EXPANDED ANCHOR (Cont.)

MUSHROOM HEAD
TYPE 316 STAINLESS STEEL SPIKE®

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
6602	3/16" x 1"	3/16"	7/8"	100
6603	3/16" x 1-1/4"	3/16"	7/8"	100
6604	3/16" x 1-1/2"	3/16"	1-1/4"	100
6606	3/16" x 2"	3/16"	1-1/4"	100
6623	1/4" x 1-1/4"	1/4"	1"	100
6624	1/4" x 1-1/2"	1/4"	1-1/4"	100
6626	1/4" x 2"	1/4"	1-1/4"	100
6628	1/4" x 2-1/2"	1/4"	1-1/4"	100
6630	1/4" x 3"	1/4"	1-1/4"	100
6646	3/8" x 2"	3/8"	1-3/4"	25
6648	3/8" x 2-1/2"	3/8"	1-3/4"	25
6650	3/8" x 3"	3/8"	1-3/4"	25

The published length is measured from below the head to the end of the anchor.

SPECIAL APPLICATION SPIKE® ANCHOR



ROD HANGING PIPE SPIKE®
GRADE 8.2 CARBON STEEL

PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
3755	1/4"	3/16"	1-1/4"	100
3758	3/8"	1/4"	1-3/4"	50

SUSPENDED CEILING TIE-WIRE SPIKE®
GRADE 8.2 CARBON STEEL



PART NO.	SIZE	DRILL DIA.	MIN. EMBED.	TIE-WIRE HOLE SIZE	STD. BOX
3756	3/16"	3/16"	1-1/4"	3/16"	100
3759	1/4"	1/4"	1-1/4"	9/32"	100

CONCRETE FORMING SPIKE®
GRADE 8.2 CARBON STEEL



PART NO.	ANCHOR SIZE	DRILL DIA.	MIN. EMBED.	STD. BOX
3795	3/16" x 1-1/2"	3/16"	1-1/4"	100
3796	3/16" x 2"	3/16"	1-1/4"	100
3797	3/16" x 2-3/4"	3/16"	1-1/4"	100
3794	1/4" x 2-3/4"	1/4"	1-1/4"	100

While the Spike® anchor can easily be installed using a hammer, a specially designed series of drivers and manual tools provide a fast, easy to use method of installation into concrete and masonry materials. The tools allow Spike® anchors to be installed in confined areas and prevent damage to the fixture from stray hammer blows.

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SPIKE® INSTALLATION TOOLS



PART NO.	TOOL DESCRIPTION	TIP O.D.	STD. BOX
3790	Spike® Driver 1000	1/2"	1
3791	Spike® Driver 2000	1/2"	1

PIPE SPIKE® TOOL



PART NO.	TOOL DESCRIPTION	TIP O.D.	STD. BOX
3760	Pipe Spike® Setting Tool	1/2"	1

DRIVE® SPLIT TYPE
PRE-EXPANDER ANCHOR

The Drive® is a one-piece tamper-proof, pre-expanded anchor available in carbon steel for use in concrete and stone. Tie-Wire Drive® anchors are used for suspended ceiling applications. The flat head (counter-sunk) style is particularly suited for wood-to-concrete anchoring. The round head style is for all other applications requiring fast, permanent installations.

ROUND HEAD DRIVE®



PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
3211	1/4" x 1-1/4"	1/4"	1-1/8"	100
3241	1/4" x 1-1/2"	1/4"	1-1/8"	100
3271	1/4" x 2"	1/4"	1-1/8"	100
3301	1/4" x 2-1/2"	1/4"	1-1/8"	100
3601	3/8" x 2"	3/8"	1-7/8"	25
3631	3/8" x 2-1/2"	3/8"	1-7/8"	25
3691	3/8" x 3-1/2"	3/8"	1-7/8"	25
3781	1/2" x 3"	1/2"	2-5/8"	25

FLAT HEAD DRIVE®



PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
3092	3/16" x 1-1/2"	3/16"	7/8"	100
3122	3/16" x 2"	3/16"	7/8"	100
3152	3/16" x 2-1/2"	3/16"	7/8"	100
3162	3/16" x 3"	3/16"	7/8"	100
3242	1/4" x 1-1/2"	1/4"	1-1/8"	100
3272	1/4" x 2"	1/4"	1-1/8"	100
3302	1/4" x 2-1/2"	1/4"	1-1/8"	100
3332	1/4" x 3"	1/4"	1-1/8"	100
3362	1/4" x 3-1/2"	1/4"	1-1/8"	100
3392	1/4" x 4"	1/4"	1-1/8"	100

TIE-WIRE DRIVE® (13/64" TIE-WIRE HOLE)



PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
3244	1/4" x 1-3/4"	1/4"	1-1/8"	500
3245	1/4" x 1-3/4"	1/4"	1-1/8"	100
3250	Tie-Wire Setting Tool Drive	-	-	1

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MECHANICAL ANCHORS (Cont.)

ZAMAC HAMMER-SCREW® NAIL ANCHOR

The Zamac Hammer-Screw® is a unique, one-step drive anchor featuring a Phillips type head and an internal screw thread for use in



concrete, block, brick or stone. The anchor has a body formed from corrosion resistant Zamac Alloy with a carbon steel drive screw, and has been developed as an improvement over standard nailin anchors. The anchor is removable and is also offered with an optional Perma-Seal coated screw.

Base Material: Concrete, Block, Brick, Stone

Size Range: 1/4" x 3/4" to 1/4" x 3"

Anchor Material: Zamac Alloy with Carbon Steel and Perma-Seal Drive Screw

ZAMAC HAMMER-SCREW® – MUSHROOM HEAD / NO. 2 PHILLIPS TYPE SCREW CARBON STEEL

PART NO.	SIZE	DRILL DIA.	STD. BOX
2839	1/4" x 3/4"	1/4"	100
2840	1/4" x 1"	1/4"	100
2842	1/4" x 1-1/4"	1/4"	100
2844	1/4" x 1-1/2"	1/4"	100
2846	1/4" x 2"	1/4"	100
2848	1/4" x 2-1/4"	1/4"	100
2850	1/4" x 3"	1/4"	100

MASTER PACK WITH CARBON STEEL SCREW

PART NO.	SIZE	DRILL DIA.	STD. BOX
2939	1/4" x 3/4"	1/4"	1000
2940	1/4" x 1"	1/4"	1000
2942	1/4" x 1-1/4"	1/4"	1000
2944	1/4" x 1-1/2"	1/4"	1000
2946	1/4" x 2"	1/4"	1000
2948	1/4" x 2-1/4"	1/4"	1000
2949	1/4" x 3"	1/4"	1000

ZAMAC HAMMER-SCREW® – MUSHROOM HEAD WITH NO. 2 PHILLIPS TYPE PERMA-SEAL SCREW

PART NO.	SIZE	DRILL DIA.	STD. BOX
2817	1/4" x 1-1/4"	1/4"	100

MASTER PACK WITH PERMA-SEAL SCREW

PART NO.	SIZE	DRILL DIA.	STD. BOX
2818	1/4" x 1-1/4"	1/4"	1000

SAFE-T+ PIN NAIL ANCHOR

The Powers Safe-T+ Pin is a one-piece, all steel, nail drive anchor that can be used in



concrete, block, brick or stone. Each box of Safe-T+ pins comes with a 6MM SDS carbide drill bit for ease of installation. Typical applications include HVAC Duct Straps, light to medium duty signage, and termination bar, flooring ECT. Available in 1 diameter and two lengths. Just drill a hole and hammer it in.

Base Material: Concrete, Block, Brick, Stone

Size Range: 1/4" x 1-3/8" and 1/4" x 2-1/2"

Anchor Material: Carbon Steel

SAFE-T+ PIN

PART NO.	SIZE	DRILL DIA.	STD. BOX
2800SD	6mm (1/4") x 1-3/8"	6mm	100
2801SD	6mm (1/4") x 2-1/2"	6mm	100

SAFE-T+ PIN DRILL BIT



PART NO.	DESCRIPTION	DIA.	USABLE LENGTH	STD. BOX
28000	Drill Bit	6mm	3-1/4"	1

ZAMAC NAILIN® DRIVE PIN TYPE ANCHOR

The Zamac Nailin® is a tamper-proof nail drive anchor which has a body formed from Zamac Alloy.



Nails are available in carbon or stainless steel. The anchor can be used in concrete, block, brick or stone.

Base Material: Concrete, Block, Brick, Stone

Size Range: 3/16" x 7/8" to 1/4" x 3"

Anchor Material: Zamac Alloy with Carbon or Stainless Steel Drive Pin

MUSHROOM HEAD ZAMAC NAILIN® - CARBON STEEL NAIL

PART NO.	SIZE	DRILL DIA.	STD. BOX
2802	3/16" x 7/8"	3/16"	100
2806	1/4" x 3/4"	1/4"	100
2808	1/4" x 1"	1/4"	100
2814	1/4" x 1-1/4"	1/4"	100
2820	1/4" x 1-1/2"	1/4"	100
2826	1/4" x 2"	1/4"	100
2804	1/4" x 3"	1/4"	100

MASTER PACK

PART NO.	SIZE	DRILL DIA.	STD. BOX
2803	3/16" x 7/8"	3/16"	1000
2807	1/4" x 3/4"	1/4"	1000
2809	1/4" x 1"	1/4"	1000
2815	1/4" x 1-1/4"	1/4"	1000
2821	1/4" x 1-1/2"	1/4"	1000
2827	1/4" x 2"	1/4"	1000
2805	1/4" x 3"	1/4"	1000

FLAT HEAD ZAMAC NAILIN® - CARBON STEEL NAIL



PART NO.	SIZE	DRILL DIA.	STD. BOX
2836	1/4" x 1-1/2"	1/4"	100
2838	1/4" x 2"	1/4"	100

MUSHROOM HEAD ZAMAC NAILIN® - STAINLESS STEEL NAIL



PART NO.	SIZE	DRILL DIA.	STD. BOX
2858	1/4" x 1"	1/4"	100
2864	1/4" x 1-1/4"	1/4"	100
2870	1/4" x 1-1/2"	1/4"	100
2876	1/4" x 2"	1/4"	100

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MECHANICAL ANCHORS (Cont.)

**NYLON NAILIN®
PLASTIC DRIVE PIN TYPE ANCHOR**

The Nylon Nailin® is a pin drive anchor with a body formed from engineered nylon and nails available in carbon and stainless steel. The anchor can be used in concrete, block, brick or stone.

Base Material: Concrete, Block, Brick, Stone

Size Range: 3/16" x 1" to 1/4" x 6"

Anchor Material: Engineered Nylon with Carbon or Stainless Steel Drive Pin

**ROUND HEAD NYLON NAILIN® -
CARBON STEEL NAIL**



PART NO.	SIZE	DRILL DIA.	STD. BOX
2431	3/16" x 1"	3/16"	100
2451	3/16" x 1-1/2"	3/16"	100
2521	1/4" x 1"	1/4"	100
2541	1/4" x 1-1/2"	1/4"	100

**FLAT HEAD NYLON NAILIN® -
CARBON STEEL NAIL**



PART NO.	SIZE	DRILL DIA.	STD. BOX
2542	1/4" x 1-1/2"	1/4"	100
2562	1/4" x 2"	1/4"	100

**MUSHROOM HEAD NYLON NAILIN® -
CARBON STEEL NAIL**



PART NO.	SIZE	DRILL DIA.	STD. BOX
2433	3/16" x 1"	3/16"	100
2513	1/4" x 3/4"	1/4"	100
2523	1/4" x 1"	1/4"	100
2543	1/4" x 1-1/2"	1/4"	100
2563	1/4" x 2"	1/4"	100
2573	1/4" x 3"	1/4"	100
2583	1/4" x 4"	1/4"	100

**MUSHROOM HEAD NYLON NAILIN® -
STAINLESS STEEL NAIL**



PART NO.	SIZE	DRILL DIA.	STD. BOX
2528	1/4" x 1"	1/4"	100
2548	1/4" x 1-1/2"	1/4"	100

MUSHROOM HEAD BODIES ONLY



PART NO.	SIZE	DRILL DIA.	STD. BOX
2574	1/4" x 3"	1/4"	2500

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Powers FASTENERS® ADHESIVE ANCHORING

	Base Material	Anchor Diameter														Anchor Elements		Chemistry				Hole Condition		Code Recognition					
		Concrete	Lightweight Concrete	Grout-filled Concrete Masonry	Hollow Concrete Masonry	Solid Brick	Hollow Brick	Stone	Structural Clay/Tile	1/4"	3/8" (#3)	1/2" (#4)	5/8" (#5)	3/4" (#6)	7/8" (#7)	1" (#8)	1-1/4" (#10)	1-1/2"	1-3/4"	2"	Coated/Plated Carbon Steel	Type 304 Stainless Steel	Epoxy		Ester Based Resin	Polyurethane	MS Polymer	Dry	Wet
Injection Adhesives	AC100+Gold	●	○	●	●	●	●	○	○	○	●	●	●	●	●	●	○	○	○	○			●				●	●	Code Listed ICC-ES ESR-2582
	PE1000+	●	○	●	●	○	○	○	○	○	●	●	●	●	●	●	○	○	○	○			●				●	●	Code Listed ICC-ES ESR-2583 LARR-25849
	T308+	●	○	●	●	○	○	○	○	○	●	●	●	●	●	○	○	○	○	○			●				●	○	Code Listed ICC-ES ESR-3066 & 3149
	Pure50+	●	○	○	○						●	●	●	●	●	●							●				●	●	Tested To ICC-ES AC 58
	Pure110+	●	○	●	●	●	●	○	○		●	●	●	●	●	●							●				●	●	Tested To ICC-ES AC 308 & ICC-ES AC 58
	AC50 Silver	●									●	●	●	●	●	●							●				●	●	
Glass Capsule Adhesives	Chem-Stud	●	○	●	○	○				●	●	●	●	●	●								●				●	○	Tested To ICC-ES AC 58
	Hammer-Capsule	●	○	○	○	○				●	●	●	●	●	●	○					●	●	●				●	○	Tested To ICC-ES AC 58
Anchor Hardware	Straight Cut Rod	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					●	●							
	Chisel Point Rod	●	○	○	○	○				●	●	●	●	●	●	●					●								
Expansion Foam	PowerFoam	●	●	●	●	●	●	●															●						
	PowerFoam Pro	●	●	●	●	●	●	●																●					Code Listed ICC-ES ESR-3263
Bonding Sealant	PowerStick	●	●	●	●	●	●	●																●		●	●		
Adhesive Sealant	PowerPatch	●	●																				●			●			

- Suitable
- May be Suitable

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Powers FASTENERS

ADHESIVE ANCHORING (Cont.)

AC100+ GOLD® ADHESIVE ANCHORING SYSTEM

The AC100+Gold® is a two-component vinyl ester adhesive anchoring system. The system includes injection adhesive in plastic cartridges, mixing nozzles, dispensing tools and hole cleaning equipment. The AC100+Gold® is designed for bonding threaded rod and reinforcing bar hardware into drilled holes in concrete and masonry base materials.



CODE LISTED
ICC-ES ESR-2582

AC100+ GOLD® CARTRIDGES

PART NO.	DESCRIPTION	STD. BOX
8462SD	5 fl. oz. Push-Pak	12
8478SD	10 fl. oz. Quik-Shot	12
8480SD	8 fl. oz. Dual Cartridge	-
8486SD	12 fl. oz. Dual Cartridge	-
8490SD	28 fl. oz. Dual Cartridge	-

One AC100+Gold® mixing nozzle is packaged with each cartridge. AC100+Gold® mixing nozzles must be used to ensure complete and proper mixing of the adhesive.

CARTRIDGE SYSTEM MIXING NOZZLES



PART NO.	DESCRIPTION	STD. BOX
08293	Extra Mixing Nozzle for AC100+Gold® (5 oz. 8 oz., 10 oz. and 12 oz.)	2
08924	Extra Mixing Nozzle (with 8" Extension) for AC100+Gold® 28 oz.	2
08281	Mixing Nozzle Extension, 8"	2

DISPENSING TOOLS FOR INJECTION ADHESIVE



PART NO.	DESCRIPTION	STD. BOX
08437	Manual Caulking Gun for Push-Pak and Quik-Shot	1
08479	High Performance Caulking Gun for Push-Pak and Quik-Shot	1
08484	AC100+Gold® 8 oz. Standard All-Metal Manual Tool	1
08485	AC100+Gold® 8 oz., 10 oz., & 12 oz. High Performance Manual Tool	1
08494	AC100+Gold® 28 oz. Standard All-Metal Manual Tool	1
08495	AC100+Gold® 28 oz. High Performance Manual Tool	1

PNEUMATIC INJECTION TOOL DELIVERY SYSTEM



PART NO.	DESCRIPTION	STD. BOX
08496	28 oz. High Performance Pneumatic Tool	1

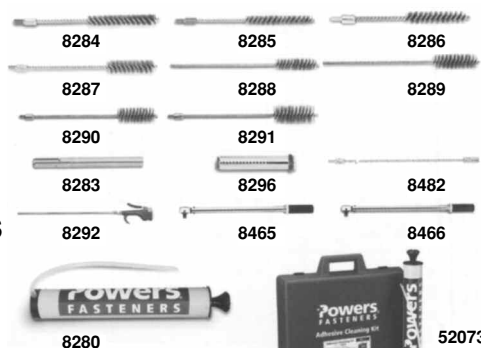
BATTERY INJECTION DISPENSING TOOL



PART NO.	DESCRIPTION	STD. BOX
08444*	28 oz. High Performance Battery Tool	1

* Dispenses 12 cartridges at 70°F. * Dispenses 6 cartridges at 30°F

HOLE CLEANING TOOLS & ACCESSORIES



PART NO.	DESCRIPTION	LENGTH (IN.)	STD. PKG.
08284	Wire Brush for 7/16" ANSI Hole (3/8" Rod or #3 Rebar)	6-3/4"	1
08285	Wire Brush for 9/16" ANSI Hole (1/2" Rod or #4 Rebar)	6-3/4"	1
08286	Wire Brush for 11/16" ANSI Hole (5/8" Rod or #5 Rebar)	7-7/8"	1
08278	Wire Brush for 3/4" ANSI Hole (5/8" Rod or #5 Rebar)	7-7/8"	1
08287	Wire Brush for 7/8" ANSI Hole (3/4" Rod or #6 Rebar)	7-7/8"	1
08288	Wire Brush for 1" ANSI Hole (7/8" Rod or #7 Rebar)	11-7/8"	1
08289	Wire Brush for 1-1/8" ANSI Hole (1" Rod or #8 Rebar)	11-7/8"	1
08290	Wire Brush for 1-3/8" ANSI Hole (1-1/4" Rod or #9 Rebar)	11-7/8"	1
08291	Wire Brush for 1-1/2" ANSI Hole (#10 Rebar)	11-7/8"	1
08283	SDS-Plus Adapter for Steel Brushes	-	1
08296	Standard Drill Adapter for Steel Brushes (e.g. Jacobs Chuck)	-	1
08282	Steel Brush Extension, 12"	-	1
08280	Hand Pump/Dust Blower (25 fl. oz. Cylinder Volume)	-	1
08292	Air Compressor Nozzle with Extension	-	1
08465	Adjustable Torque Wrench with 1/2" Square Drive (10 to 150 ft.-lbs.)	-	1
08466	Adjustable Torque Wrench with 1/2 Square Drive (25 to 250 ft.-lbs.)	-	1
52073	Adhesive Cleaning Kit, Includes 4 Wire Brushes (08284, 08285, 08286, 08287), Steel Brush Extension (08282), SDS-Plus Adapter (08283), Standard Drill Adapter (08296), Hand Pump/Dust Blower (08280), Gloves and Safety Glasses	-	1

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ADHESIVE ANCHORING (Cont.)

**PE1000+®
ADHESIVE ANCHORING SYSTEM**

The PE1000+® is a two-component, high strength epoxy adhesive anchoring system. The system includes injection adhesive in plastic cartridges, mixing nozzles, dispensing tools and hole cleaning equipment. The PE1000+® is designed for bonding threaded rod and reinforcing bar hardware into drilled holes in solid concrete base materials.



Mixing nozzle included with each cartridge.

CODE LISTED
ICC-ES ESR-2583

CITY OF LOS ANGELES
LARR-25849 (Concrete)

PE1000+® CARTRIDGES

PART NO.	DESCRIPTION	STD. BOX
0500SD	13 fl. oz. Dual Cartridge	12
0502SD	20 fl. oz. Dual Cartridge	12

One PE1000+® mixing nozzle is packaged with each cartridge. PE1000+® mixing nozzles must be used to ensure complete and proper mixing of the adhesive.

**CARTRIDGE SYSTEM
MIXING NOZZLES**



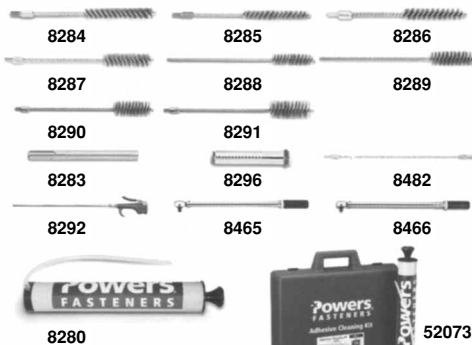
PART NO.	DESCRIPTION	STD. BOX
08294	Extra Mixing Nozzle (with an 8" extension) for PE1000+®	2
08281	Mixing Nozzle Extension, 8"	2

**PE1000+®
DISPENSING
TOOLS**



PART NO.	DESCRIPTION	STD. BOX
8279SD	13 oz. + 20 oz. PE1000+ Battery Tool	1
08298	13 oz. + 20 oz. PE1000+ Heavy Duty Dispensing Tool	1
8497SD	13 oz. + 20 oz. PE1000+ Pneumatic Dispensing Tool	1
08277	Battery for 8279SD	1

**HOLE
CLEANING
TOOLS
&
ACCESSORIES**



PART NO.	DESCRIPTION	LENGTH (IN.)	STD. PKG.
08284	Wire Brush for 7/16" ANSI Hole (3/8" Rod or #3 Rebar)	6-3/4"	1

CONTINUED NEXT COLUMN

PART NO.	DESCRIPTION	LENGTH (IN.)	STD. PKG.
08285	Wire Brush for 9/16" ANSI Hole (1/2" Rod or #4 Rebar)	6-3/4"	1
08286	Wire Brush for 11/16" ANSI Hole (5/8" Rod or #5 Rebar)	7-7/8"	1
08278	Wire Brush for 3/4" ANSI Hole (5/8" Rod or #5 Rebar)	7-7/8"	1
08287	Wire Brush for 7/8" ANSI Hole (5/8" Rod or #5 Rebar)	7-7/8"	1
08288	Wire Brush for 1" ANSI Hole (7/8" Rod or #7 Rebar)	11-7/8"	1
08289	Wire Brush for 1-1/8" ANSI Hole (1" Rod or #8 Rebar)	11-7/8"	1
08290	Wire Brush for 1-3/8" ANSI Hole (1-1/4" Rod or #9 Rebar)	11-7/8"	1
08291	Wire Brush for 1-1/2" ANSI Hole (#10 Rebar)	11-7/8"	1
08283	SDS-Plus Adapter for Steel Brushes	-	1
08296	Standard Drill Adapter for Steel Brushes (e.g. Jacobs Chuck)	-	1
08282	Steel Brush Extension, 12"	-	1
08280	Hand Pump/Dust Blower (25 fl. oz. Cylinder Volume)	-	1
08292	Air Compressor Nozzle with Extension	-	1
08465	Adjustable Torque Wrench with 1/2 Square Drive (10 to 150 ft.-lbs.)	-	1
08466	Adjustable Torque Wrench with 1/2 Square Drive (25 to 250 ft.-lbs.)	-	1
52073	Adhesive Cleaning Kit, Includes 4 Wire Brushes (08284, 08285, 08286, 08287), Steel Brush Extension (08282), SDS-Plus Adapter (08283), Standard Drill Adapter (08296), Hand Pump/Dust Blower (08280), Gloves and Safety Glasses	-	1

**T308+™
ADHESIVE ANCHORING SYSTEM**

T308+™ is a two component epoxy adhesive anchoring system. The system includes injection adhesive in plastic cartridges, mixing nozzles, dispensing tools and hole cleaning equipment. T308+™ is designed for bonding threaded rod and reinforcing bar into drilled holes in concrete and masonry base materials.



Mixing nozzle included with each cartridge.

CODE LISTED
ICC-ES ESR-3066
UNCRACKED CONCRETE

CODE LISTED
ICC-ES ESR-3149
UNREINFORCED MASONRY

T308+™ CARTRIDGES

PART NO.	DESCRIPTION	STD. BOX
8558SD	8.5 fl. oz. Quik-Shot Cartridge (15.3 in³)	12
8503SD	14 fl. oz. Side-By-Side Cartridge (25.0 in³)	12
8523SD	21.5 fl. oz. Side-By-Side Cartridge (38.5 in³)	12
8536SD	51 fl. oz. Side-By-Side Cartridge (92.0 in³)	8

One T308+™ mixing nozzle is packaged with each cartridge. T308+™ mixing nozzles must be used to ensure complete and proper mixing of the adhesive.

**CARTRIDGE
SYSTEM
MIXING NOZZLES**



PART NO.	DESCRIPTION	STD. BOX
07908	Extra Mixing Nozzle for T308+® (with 9" Extension Tube)	2
07919	Extra Mixing Nozzle for T308+® (Bulk Quantity)	-
07921	Extra Turbo Mixing Nozzle	2

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ADHESIVE ANCHORING (Cont.)

T308+™

**ADHESIVE ANCHORING SYSTEM (Cont.)
DISPENSING TOOLS FOR INJECTION ADHESIVE**



PART NO.	DESCRIPTION	STD. BOX
08437	10 oz. Heavy Duty Caulking Gun for Quik-Shot	1
08479	10 oz. High Performance Caulking Gun for Quik-Shot	1
08415	14 oz. High Performance Manual Caulking Gun	1
08409	21.5 oz. Standard All-Metal Manual Tool	1
08416	14 oz. Standard All-Metal Manual Tool	1
08421	21.5 oz. High Performance Manual Caulking Gun	1
08438	51 oz. High Performance Pneumatic Caulking Gun	1
08442	21.5 oz. Battery Tool	1

HOLE CLEANING TOOLS & ACCESSORIES



PART NO.	DESCRIPTION	BRUSH LENGTH	STD. PKG.
07931	Nylon Brush for 7/16" ANSI Hole (3/8" Rod or #3 Rebar)	8-1/2"	1
07932	Nylon Brush for 9/16" ANSI Hole (1/2" Rod or #4 Rebar)	8-1/2"	1
07933	Nylon Brush for 3/4" ANSI Hole (5/8" Rod or #5 Rebar)	12"	1
07934	Nylon Brush for 1" and 1-1/8" ANSI Hole (7/8" and 1" Rod or #7, #8 Rebar)	13"	1
07935	Nylon Brush for 1-1/4" ANSI Hole (1-1/4" Rod or #10 Rebar)	13-1/2"	1
08280	Hand Pump/Dust Blower (25 fl. ox. Cylinder Volume)	-	1
52073	Adhesive Cleaning Kit, Includes 4 Wire Brushes (08284, 08285, 08286, 08287), Steel Brush Extension (08282), SDS-Plus Adapter (08283), Standard Drill Adapter (08296), Hand Pump/Dust Blower (08280), Gloves and Safety Glasses	-	1

LIGHT DUTY ANCHORS

WALL-DOG®

UNIVERSAL LIGHT-DUTY ANCHOR



Powers Wall-Dog® is the industry's first all steel one-piece screw anchor, which features high-profile threads for easy fastening into wallboard and other masonry base materials. Its deep cutting, corkscrew-like threads provide for smooth entry and a strong hold, and when removed the Wall-Dog® leaves a much smaller hole than toggles or other systems. For fastening into wallboard or wood, no pre-drilling is required. Fastening into concrete, hollow or grout filled block, brick and plaster requires a pre-drilled 3/16" ANSI hole.

Base Material: Wallboard (1/2", 5/8" & double wallboard), Plywood, Concrete, Hollow or Grout Filled Block, Brick, Plaster, Wood and Masonry.

Size Range: 3/16" Diameter x 2-1/2" Length max.

Anchor Material: Case Hardened Carbon Steel.

Features and Benefits:

- Installs in wallboard, plywood, concrete, hollow or grout filled block, brick and plaster.
- Patented design provides for smooth entry, clean cutting and a strong hold.
- Thread design prevents spinning and stripping.
- Heat treated point can penetrate metal and wood studs.
- Various head styles and colors available.
- Self-drills in wallboard and in plywood.
- Installs quickly and easily with a Phillips® screwdriver.

WALL-DOG® LIGHT DUTY ANCHOR - COMBO HWH



PART NO.	DESCRIPTION	STD. BOX
2265	1-1/4" Combo HWH Zinc	-
2271	1-1/4" Combo HWH Zinc	100

WALL-DOG® LIGHT DUTY ANCHOR - WAFER HEAD



PART NO.	DESCRIPTION	STD. BOX
2277	1/4" x 1-1/2" White Wafer Head	100
2278	1/4" x 2" White Wafer Head	100
2279	1/4" x 2-1/4" White Wafer Head	100
2280	1/4" x 2-1/2" White Wafer Head	100

Phillips® is a registered trademark of Phillips Consumer Electronics Corporation.

WALL-DOG® LIGHT DUTY ANCHOR - ROBERTSON HEAD



PART NO.	DESCRIPTION	STD. BOX
2281	1-1/4" Zinc Robertson Head	-
2266	1-1/4" Zinc Robertson Head	100

WALL-DOG® LIGHT DUTY ANCHOR - OVAL HEAD



PART NO.	DESCRIPTION	STD. BOX
2314	1-1/4" Zinc Oval Head	100
2328	1-1/4" White Oval Head	100
2288	1-1/4" Black Oval Head	100
2292	1-1/4" Brass Oval Head	100

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LIGHT DUTY ANCHORS (Cont.)

WALL-DOG®

UNIVERSAL LIGHT-DUTY ANCHOR (Cont.)
WALL-DOG® LIGHT DUTY ANCHOR - PAN HEAD



PART NO.	DESCRIPTION	STD. BOX
2316	1-1/4" Zinc Pan Head	100
2330	1-1/4" White Pan Head	100
2273	1-1/2" White Pan Head	100
2274	1-1/2" Bronze Pan Head	100
2275	1-1/2" Zinc Pan Head	100
2276	1-1/2" Black Phosphate Pan Head	100
2286	1-1/4" Black Pan Head	100
2294	1-1/4" Brass Pan Head	100

WALL-DOG® KIT (SCREWDRIVER)

- Packaged with 50 Zinc Pan Head Anchors And 1 Phillips® Screwdriver



PART NO.	DESCRIPTION	STD. BOX
2289	Wall-Dog® Kit With Screwdriver	1

WALL-DOG® KIT (BIT)

- Packaged with 50 Zinc Pan Head Anchors And 3/16" Straight Shank Bit

PART NO.	DESCRIPTION	STD. BOX
2332	Wall-Dog® Kit With Drill Bit	1

SCRU-LEAD WALL ANCHOR

The Scru-Lead Anchor is designed for use with sheet metal or wood screws in concrete, block or brick. The anchor is made entirely of lead alloy which is soft enough for easy installation, yet hard enough to give holding strength. The performance of this product is dependent on the integrity of the base material.



Base Material: Concrete, Block, Brick
Size Range: No. 6-8 x 3/4" to No. 16-18 x 1-1/2"
Anchor Material: Lead Alloy

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
9409	6-8 x 3/4"	1/4"	3/4"	100
9414	6-8 x 1"	1/4"	1"	100
9419	6-8 x 1-1/2"	1/4"	1-1/2"	100
9429	10-14 x 1"	5/16"	1"	100
9439	10-14 x 1-1/2"	5/16"	1-1/2"	100
9460	16-18 x 1-1/2"	3/8"	1-1/2"	25

TOGGLE BOLT HOLLOW WALL ANCHOR

The Toggle Bolt is a spring wing type hollow wall anchor designed for use in block, wallboard and other hollow base materials. The Toggle Bolt is a two-part assembly consisting of a machine screw and a spring wing toggle. Sizes range from 1/8" x 2" to 1/2" x 4" with combo round, flat, mushroom, tie-wire or slotted hex head styles.



Base Material: Hollow Block, Wallboard, Plaster
Size Range: 1/8" x 2" to 1/2" x 4"
Anchor Material: Carbon Steel

COMBO MUSHROOM HEAD

PART NO.	SIZE	DRILL DIA.	STD. BOX
4023	1/8" x 2"	3/8"	50
4033	1/8" x 3"	3/8"	50
4043	1/8" x 4"	3/8"	50
4133	3/16" x 3"	1/2"	50
4143	3/16" x 4"	1/2"	50
4233	1/4" x 3"	5/8"	50
4243	1/4" x 4"	5/8"	50

SLOTTED HEX HEAD



PART NO.	SIZE	DRILL DIA.	STD. BOX
4038	1/8" x 3"	3/8"	50

COMBO ROUND HEAD



PART NO.	SIZE	DRILL DIA.	STD. BOX
4021	1/8" x 2"	3/8"	50
4031	1/8" x 3"	3/8"	50
4041	1/8" x 4"	3/8"	50
4121	3/16" x 2"	1/2"	50
4131	3/16" x 3"	1/2"	50
4141	3/16" x 4"	1/2"	50
4151	3/16" x 5"	1/2"	50
4161	3/16" x 6"	1/2"	50
4231	1/4" x 3"	5/8"	50
4241	1/4" x 4"	5/8"	50
4251	1/4" x 5"	5/8"	50
4261	1/4" x 6"	5/8"	50
4341	5/16" x 4"	7/8"	25
4431	3/8" x 3"	7/8"	25
4441	3/8" x 4"	7/8"	25
4451	3/8" x 5"	7/8"	25
4461	3/8" x 6"	7/8"	25
4541	1/2" x 4"	1-1/4"	25

FLAT HEAD



PART NO.	SIZE	DRILL DIA.	STD. BOX
4132	3/16" x 3"	1/2"	50
4142	3/16" x 4"	1/2"	50
4232	1/4" x 3"	5/8"	50

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Powers
FASTENERS[®]
LIGHT DUTY ANCHORS (Cont.)
TOGGLE BOLT
HOLLOW WALL ANCHOR (Cont.)
TOGGLE WINGS ONLY



PART NO.	SIZE	DRILL DIA.	STD. BOX
4000	1/8"	3/8"	100
4020	3/16"	1/2"	100
4220	1/4"	5/8"	100
4330	5/16"	7/8"	50
4430	3/8"	7/8"	50
4540	1/2"	1-1/4"	25

TIE-WIRE ACOUSTICAL TOGGLE



PART NO.	SIZE	TIE-WIRE HOLE SIZE	DRILL DIA.	STD. BOX
4247	1/4" x 4"	7/32"	5/8"	100
4257	1/4" x 5"	7/32"	5/8"	100

POLLY HOLLOW WALL ANCHOR

The Polly is a sleeve type hollow wall anchor designed for use in base materials such as plaster, wallboard, concrete block, hollow tile or plywood.



Base Material: Plaster, Wallboard, Block, Hollow Tile, Plywood
Size Range: 1/8" extra short to 1/4" long
Anchor Material: Carbon Steel

COMBINATION SLOTTED PHILLIPS HEAD POLLY

PART NO.	SIZE	SCREW LENGTH	DRILL DIA.	WALL THICKNESS	STD. BOX
2100	1/8" XS	1-1/16"	5/16"	1/8" - 1/4"	100
2101	1/8" S	1-3/4"	5/16"	3/8" - 1/2"	100
2102	1/8" L	2-1/4"	5/16"	5/8" - 1"	100
2111	3/16" S	2"	3/8"	3/8" - 5/8"	50
2112	3/16" L	2-1/2"	3/8"	3/4" - 1-1/8"	50
2113	3/16" XL	3"	3/8"	1-1/4" - 1-3/4"	25
2121	1/4" X	2-1/4"	7/16"	3/8" - 1/2"	50
2122	1/4" L	2-3/4"	7/16"	5/8" - 1-1/8"	50

XS=Extra Short S=Short L=Long XL=Extra Long

SLOTTED HEX HEAD POLLY



PART NO.	SIZE	SCREW LENGTH	DRILL DIA.	WALL THICKNESS	STD. BOX
2105	1/8" S	1-3/4"	5/16"	3/8" - 1/2"	100

DRIVE POLLY

PART NO.	SIZE	SCREW LENGTH	WALL THICKNESS	STD. BOX
2180*	1/8" XS	1-3/8"	1/8" - 1/4"	100
2182	1/8" S	2"	3/8" - 1/2"	100
2184	1/8" L	2-3/8"	1/2" - 3/4"	100

* Discontinued item once current stock exhausted.
XS=Extra Short S=Short L=Long

POLLY SETTING TOOL (FITS ALL SIZES)



PART NO.	DESCRIPTION	STD. BOX
2150	Polly Setting Tool	1

LEGS WALLBOARD ANCHOR

The Legs Anchor is a fast, easy to use expansion anchor designed for use in wall-board. the anchor has a pierce point, requiring no pre-drilling. Removal of the anchor, if required, is easy. Once removed, the anchor leaves a small slit in the wallboard.



Base Material: Wallboard
Size Range: Use with No 6 or No. 8 screw
Anchor Material: Carbon Steel

LEGS DRYWALL ANCHOR

PART NO.	DESCRIPTION	STD. BOX
2336	Legs Wallboard Anchor	100
2335	Legs Anchor w/No. 8 x 1" Screw	100

MASTER PACK

PART NO.	DESCRIPTION	MASTER CTN.
2338	Legs Wallboard Anchor	500

ZIP-ALL® WALLBOARD ANCHOR

The Zip-All® Anchor is a one piece self-drilling anchor designed for use in hollow gypsum wallboard, wood, block and concrete for light duty loads. It is available in Zamac alloy for use with either a No. 6 or No. 8 screws in 3/8" to 1" wallboard.



Base Material: Wallboard, Wood
Size Range: Use with No. 6 or No. 8 screw
Anchor Material: Zamac Alloy

ZIP-ALL®

PART NO.	WALL THICKNESS	DESCRIPTION	STD. BOX
2296	3/8" to 1"	Zinc - no screws	100
2297	3/8" to 1"	Zinc - with screws	100

SHARKIE PLASTIC WALL ANCHOR

The Sharkie is a one-piece plastic anchor designed for light duty applications in wallboard, concrete and masonry. the Sharkie works in hollow or solid base materials and is suitable for screws with various thread sizes and styles. Screws for the anchor may be installed with a screw gun. The Sharkie is available with and without a flange at the top of the anchor to match the application.



SHARKIE DRYWALL ANCHOR

PART NO.	DESCRIPTION	STD. BOX
7580	Sharkie Anchor Flange #4 - #10	100
7582	Sharkie Anchor Flange #6 - #12	100
7584	Sharkie Anchor Flange #8 - #14	100

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ANCHOR SYSTEM

PLASTIC STRAP TOGGLE HEAVY-DUTY HOLLOW-WALL ANCHOR

UNC THREAD	DRILL DIA.
3/16"-24	1/2"
1/4"-20	1/2"
5/16"-18	3/4"
3/8"-16	3/4"
1/2"-13	3/4"

ZIP-IT® AND ZIP-IT JR.® WALLBOARD ANCHORS

The Zip-It Anchor® is a one-piece self-drilling anchor designed for use in hollow gypsum wallboard for light duty loads. It is available in both engineered nylon and Zamac alloy for use with either a No. 6 or No. 8 screws in 3/8" to 1" wallboard. The Zip-It® Jr. is formed from engineered nylon for use with No. 6 Screws in 3/8" to 5/8" wallboard.

Base Material: Wallboard

Size Range: Use with No. 6 or No. 8 screw

Anchor Material: Engineered Nylon or Zamac Alloy

NYLON ZIP-IT®



PART NO.	WALL THICKNESS	DESCRIPTION	STD. BOX
2345	3/8" to 1"	Std. box, no screws	100
2348	3/8" to 1"	Std. box, No. 8 x 1" screws	100
2355	3/8" to 1"	Master ctn., no screws	-

ZINC ZIP-IT®



PART NO.	WALL THICKNESS	DESCRIPTION	STD. BOX
2346Z	3/8" to 1"	Std. box, no screws	100
2349Z	3/8" to 1"	Std. box, No 8 x 1" screws	100
2356Z	3/8" to 1"	Master ctn., no screws	-

ZIP-IT® KITS

PART NO.	MATERIAL	DESCRIPTION	STD. BOX
2368	Nylon	50 anchors & No. 8 x 1" screws	1
2369	Zinc	50 anchors & No. 8 x 1" screws	1

NYLON ZIP-IT® JR.



PART NO.	WALL THICKNESS	DESCRIPTION	STD. BOX
2350	3/8" - 5/8"	Std. box (no screws)	100
2351	3/8" - 5/8"	Std. box & No. 6 x 1" screws	100

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LIGHT DUTY ANCHORS (Cont.)
ZIP-IT® AND ZIP-IT JR.®
WALLBOARD ANCHORS (Cont.)
ZINC ZIP-IT® JR.



PART NO.	WALL THICKNESS	DESCRIPTION	STD. BOX
2362Z	3/8" – 5/8"	Std. box (no screws)	100
2364Z	3/8" – 5/8"	Std. box & No. 6 x 1" screws	100
2363Z	3/8" – 5/8"	Master ctn. (no screws)	–

ZIP-IT® JR. KITS

PART NO.	MATERIAL	DESCRIPTION	STD. BOX
2367	Nylon	50 Anchors, No. 6 x 1" screws and No. 2 Phillips Driver Bit	1

ZINC ZIP-TOGGLE®
HOLLOW WALL ANCHOR

The Zip-Toggle® is a hollow wall gypsum wallboard anchor designed to provide superior performance without the need to pre-drill larger diameter holes. The Zip-Toggle® is packaged with its own No. 6 x 2" lubricated screw for 3/8" to 5/8" wallboard.



Base Material: Wallboard
Size Range: Use with No. 6 x 2" screw
Anchor Material: Zamac Alloy

PART NO.	SIZE	SCREWS	STD. BOX
2295	Metal Zip-Toggle® with screws	No. 6 x 2"	50

POLY-TOGGLE®
PLASTIC HOLLOW WALL ANCHOR

The Poly-Toggle® is a screw actuated hollow wall anchor for use in paneling, wallboard and solid masonry available in 4 sizes to match the most common wall thicknesses. In solid base materials, the anchor can be used by removing the outer wings. The performance of this product depends on the integrity of the base material in which it is installed.



Base Material: Wallboard or Solid Masonry
Size Range: 1/8" to 5/8" wall thickness
Anchor Material: Plastic

PART NO.	SIZE	WALL THICKNESS	DRILL DIA.	STD. BOX
2302	Mini	1/8"	5/16"	100
2303	Short	3/8"	5/16"	100
2304	Medium	1/2"	5/16"	100
2305	Long	5/8"	5/16"	100

POP-TOGGLE
HOLLOW WALL ANCHOR

Pop-Toggle fasteners are hollow wall anchors ideal for static applications requiring light duty performance. Installation is easy, needing a pre-drilled 5/16" diameter hole. The fastener pre-installs without a screw, allowing for easy placement and removal of the fixture.



Base Material: Gypsum Wallboard, Plaster, Plywood & some Hollow Masonry
Size Range: Wall thickness from 1/8" to 5/8", No. 6 to No. 10 wood or sheet metal screws
Anchor Material: Plastic

PART NO.	DESCRIPTION	STD. BOX
4060	Pop-Toggle, Small	100
4062	Pop-Toggle, Medium	100
4064	Pop-Toggle, Large	100

BANTAM PLUG PLASTIC WALL ANCHOR

The Bantam Plug Anchor is a plastic anchor designed for use with lightweight fixtures with a sheet metal or wood screw.



Base Materials: Concrete, Block, Brick, Wallboard
Size Range: No. 6-8 x 3/4" to No. 14016 x 1-1/2"
Anchor Material: Plastic

PART NO.	SIZE	DRILL DIA.	MIN. DEPTH	STD. BOX
7559	6-8 x 3/4"	3/16"	3/4"	100
7569	8-10 x 7/8"	3/16"	7/8"	100
7579	10-12 x 1"	1/4"	1"	100
7589	14-16 x 1-1/2"	5/16"	1-1/2"	50

KITS - SLOTTED / PHILLIPS
PAN HEAD SHEET METAL SCREWS

100 Anchors and screws plus one drill bit per kit.

PART NO.	KIT NO.	ANCHOR SIZE	SCREW SIZE	MIN. DEPTH	ANCHOR & SCREWS	STD. CTN.
8934	B-8	8-10	No. 8 x 1"	7/8"	100	10
8936	8-10	10-12	No. 10 x 1"	1"	100	10
8938	8-12	10-12	No. 12 x 1"	1"	100	10

FLUTED PLASTIC WALL ANCHOR

The Fluted Plastic Anchor is designed for light duty fastening applications with sheet metal or wood screws. Longitudinal ribs on the anchor body prevent it from turning during tightening of the screw. This standard plastic screw anchor comes color-coded by diameter for easy application.



Base Material: Concrete, Block, Brick, Stone
Size Range: No. 4-6 x 1" to No. 14 x 1-1/2"
Anchor Material: Plastic

PART NO.	SIZE	COLOR	DRILL DIA.	MIN. DEPTH	STD. BOX
7500	4-6 x 1"	White	3/16"	1"	100
7510	10-12 x 1"	Green	1/4"	1"	100
7515	10-12 x 1-1/4"	Green	1/4"	1-1/4"	100
7520	10-12 x 1-1/2"	Green	1/4"	1-1/2"	100
7530	14 x 1-1/2"	Blue	5/16"	1-1/2"	100

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DRILLING
DRILL BITS

SDS-PLUS / S-4 PLUS SDS CARBIDE DRILL BITS

S-4 Plus SDS Carbide Drill Bits are designed for



use in a rotary hammer equipped with an SDS (slotted drive shaft) type chuck. The bits are manufactured to conform with ANSI Standard B212.15 and can be used to drill in concrete block, brick, and soft stone.

Use In: Rotary Hammer with SDS Chuck or SDS Adapter.

Size Range: 5/32" x 6" to 1" x 18"

PART NO.	SIZE	USABLE LENGTH	STD. POUCH
0302	5/32" x 6"	4"	1
0304	3/16" x 4"	2"	1
0306	3/16" x 6"	4"	1
0308	3/16" x 8"	6"	1
0310	3/16" x 10"	8"	1
0312	3/16" x 12"	10"	1
0314	3/16" x 14"	12"	1
0316	7/32" x 8"	6"	1
0317	7/32" x 10"	8"	1
0318	7/32" x 14"	12"	1
0319	7/32" x 16"	14"	1
0320	1/4" x 4"	2"	1
0321	1/4" x 6"	4"	1
0322	1/4" x 8"	6"	1
0323	1/4" x 11"	9"	1
0324	1/4" x 14"	12"	1
0325	1/4" x 16"	14"	1
0327	1/4" x 20"	18"	1
0329	5/16" x 6"	4"	1
0331	5/16" x 12"	10"	1
0333	3/8" x 6"	4"	1
0334	3/8" x 10"	8"	1
0336	3/8" x 12"	10"	1
0338	3/8" x 18"	16"	1
0339	3/8" x 24"	22"	1
0341	7/16" x 6"	4"	1
0343	7/16" x 12"	10"	1
0346	1/2" x 6"	4"	1
0348	1/2" x 10"	8"	1
0349	1/2" x 12"	10"	1
0351	1/2" x 18"	16"	1
0352	1/2" x 24"	22"	1
0354	9/16" x 6"	4"	1
0355	9/16" x 12"	8"	1
0359	5/8" x 8"	6"	1
0361	5/8" x 12"	10"	1
0362	5/8" x 18"	16"	1
0364	11/16" x 8"	6"	1
0365	11/16" x 12"	10"	1
0368	3/4" x 8"	6"	1
0370	3/4" x 12"	10"	1
0371	3/4" x 18"	16"	1
0373	27/32" x 8"	6"	1
0375	7/8" x 8"	6"	1
0376	7/8" x 12"	10"	1
0377	7/8" x 18"	16"	1
0379	1" x 8"	6"	1
0380	1" x 10"	8"	1
0381	1" x 12"	10"	1
0382	1" x 18"	16"	1
0394†	Spline to SDS Adapter	-	1
0396†	SDS Max Adapter	-	1

† Use of SDS-Plus drill bit in larger rotary hammers with an adapter will reduce bit life.

SPECIAL APPLICATION BIT FOR 3/8" PIPE SPIKE

For use in hard aggregate concrete. Job site tests required.

PART NO.	SIZE	USABLE LENGTH	STD. POUCH
0390*	7mm x 4" Pipe SPIKE Bit	2"	1

* Discontinued item once current stock exhausted.

SDS-PLUS / S-4 PLUS CARBIDE DRILL BIT BULK PACKS

PART NO.	SIZE	USABLE LENGTH	STD. POUCH
0662	5/32" x 6"	4"	25
0664	3/16" x 4"	2"	25
0666	3/16" x 6"	4"	25
0668	3/16" x 8"	6"	25
0670	3/16" x 10"	8"	25
0675	7/32" x 6"	4"	25
0676	7/32" x 8"	6"	25
0677	7/32" x 10"	8"	25
0680	1/4" x 4"	2"	25
0681	1/4" x 6"	4"	25
0682	1/4" x 8"	6"	25
0683	1/4" x 11"	9"	25
0689	5/16" x 6"	4"	25
0693	3/8" x 6"	4"	25
0696	1/2" x 6"	4"	15
0697	5/8" x 8"	6"	15

SDS-PLUS ACCU-FIT FOR DROPIN AND SMART DI+



PART NO.	SIZE	USABLE LENGTH	BITS PER PACK
00391	SDS-Plus 3/8" Concrete Accu-Bit	for 1/4" Dropin	1
00397	SDS-Plus 1/2" Concrete Accu-Bit	for 3/8" Dropin	1
00410	SDS-Plus 5/8" Concrete Accu-Bit	for 1/2" Dropin	1
00418	SDS-Plus 7/8" Concrete Accu-Bit	for 5/8" Dropin	1
00419	SDS-Plus 1" Concrete Accu-Bit	for 3/4" Dropin	1

SDS-PLUS ACCU-FIT FOR MINI DROPIN



PART NO.	SIZE	USABLE LENGTH	BITS PER PACK
00392	SDS-Plus 3/8" Concrete Accu-Bit	for 1/4" Mini Dropin	1
00398	SDS-Plus 1/2" Concrete Accu-Bit	for 3/8" Mini Dropin	1
00411	SDS-Plus 5/8" Concrete Accu-Bit	for 1/2" Mini Dropin	1

QUATRO HEAD SDS-PLUS CARBIDE DRILL BITS

Quatro Head SDS-Plus Carbide Drill Bits are designed to reduce vibration and noise.



These bits produce rounder and more accurately located anchor holes.

PART NO.	SIZE	USABLE LENGTH	STD. POUCH
7086*	3/4" x 18"	16"	1
7094	1-1/8" x 18"	16"	1
7095	1-1/4" x 18"	16"	1

* Discontinued item once current stock exhausted.

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DRILLING (Cont.)

DRILL BITS (Cont.)

SDS-MAX®

SDS-Max® Carbide

Drill bits are designed



for use in a rotary hammer equipped with a SDS-MAX® type chuck. The bits are manufactured to conform with ANSI Standard B212.15 and can be used to drill in concrete, block, brick, and soft stone.

Use In: Rotary hammer with SDS-Max® chuck.

Size Range: 1/2" x 13" to 1-1/2" x 23".

4-X CUTTER SDS-MAX® DRILL BITS

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
8801†	1/2" x 13"	8"	1
8802†	1/2" x 21"	16"	1
8805†	9/16" x 13"	8"	1
8809	5/8" x 13"	8"	1
8810	5/8" x 21"	16"	1
8812	5/8" x 36"	31"	1
8815	11/16" x 21"	16"	1
8817	3/4" x 13"	8"	1
8818	3/4" x 21"	16"	1
8820	3/4" x 36"	31"	1
8829	7/8" x 13"	8"	1
8830	7/8" x 21"	16"	1
8833	1" x 13"	8"	1
8834	1" x 21"	16"	1
8826	1" x 36"	31"	1
8843	1-1/8" x 15"	10"	1
8844	1-1/8" x 23"	18"	1
8846	1-1/4" x 15"	10"	1
8847	1-1/4" x 23"	18"	1
8848	1-1/4" x 36"	31"	1
8853	1-3/8" x 23"	18"	1
8859	1-1/2" x 23"	18"	1

SDS-Max® is a registered trademark of Robert Bosch Co.

SPLINE

Spline Carbide Drill

Bits are designed for



use in a rotary hammer equipped with a spline type chuck. The bits are manufactured to conform with ANSI Standard B212.15 and can be used to drill in concrete, block, brick, and soft stone. Both 4-X Cutter and single tip head styles are available.

Use In: Rotary Hammer with Spline Chuck.

Size Range: 3/8" x 8" to 2" x 23".

4-X CUTTER HEAD SPLINE CARBIDE DRILL BITS

PART NO.	SIZE	USABLE LENGTH	STD. TUBE
7017	5/8" x 10"	5"	1
7020	5/8" x 16"	11"	1
7021	5/8" x 23"	18"	1
7031	3/4" x 11"	6"	1
7033	3/4" x 16"	11"	1
7035	3/4" x 23"	18"	1
7036	3/4" x 27"	22"	1
7037	3/4" x 36"	31"	1
7043	7/8" x 16"	11"	1
7045	7/8" x 23"	18"	1
7049	1" x 16"	11"	1
7051	1" x 23"	18"	1
7053	1" x 36"	31"	1
7057	1-1/8" x 16"	11"	1
7059	1-1/8" x 23"	18"	1
7064	1-1/4" x 16"	11"	1
7066	1-1/4" x 23"	18"	1
7069	1-1/4" x 36"	31"	1
7072	1-3/8" x 23"	18"	1
7077	1-1/2" x 23"	18"	1

SINGLE TIP SPLINE CARBIDE DRILL BITS



PART NO.	SIZE	USABLE LENGTH	STD. TUBE
1401	3/8" x 8"	3"	1
1402	3/8" x 11"	5"	1
1403	3/8" x 16"	11"	1
1405	7/16" x 13"	8"	1
1407	1/2" x 10"	5"	1
1408	1/2" x 13"	8"	1
1409	1/2" x 16"	11"	1
1410	1/2" x 22"	18"	1
1412	1/2" x 27"	18"	1
1413	1/2" x 36"	31"	1
1415	9/16" x 13"	8"	1
1418	5/8" x 10"	5"	1
1419	5/8" x 13"	8"	1
1420	5/8" x 16"	11"	1
1421	5/8" x 22"	18"	1
1424	5/8" x 36"	31"	1
1427	11/16" x 13"	8"	1
1431	3/4" x 10"	11"	1
1434	3/4" x 22"	18"	1
1436	3/4" x 27"	22"	1
1437	3/4" x 36"	31"	1
1443	7/8" x 16"	11"	1
1444	7/8" x 22"	18"	1
1446	7/8" x 36"	31"	1
1449	1" x 16"	11"	1
1450	1" x 22"	18"	1
1453	1" x 36"	31"	1
1457	1-1/8" x 16"	11"	1
1458	1-1/8" x 22"	18"	1
1464	1-1/4" x 16"	11"	1
1465	1-1/4" x 22"	18"	1
1470	1-3/8" x 16"	11"	1
1471	1-3/8" x 22"	18"	1
1477	1-1/2" x 22"	18"	1
1486	1-3/4" x 22"	18"	1
1490	2" x 22"	18"	1

HD STRAIGHT SHANK BITS

Heavy Duty Straight Shank

Carbide Bits are designed

for use in a hammer drill

equipped with a 3 jaw Jacobs type chuck. The bits meet ANSI standards and can be used to drill in concrete, block, brick, and soft stone.

Use In: Hammer Drill

Size Range: 1/8" x 3" to 3/4" x 24"

PART NO.	DRILL SIZE	USABLE LENGTH	SHANK SIZE	STD. POUCH
0501	1/8" x 3"	2-1/4"	1/8"	1
0503	5/32" x 6"	4"	5/32"	1
0504	3/16" x 4"	2-3/4"	3/16"	1
0505	3/16" x 6"	4"	3/16"	1
0512	1/4" x 4"	2-3/4"	1/4"	1
0513	1/4" x 6"	4"	1/4"	1
0514	1/4" x 13"	11"	1/4"	1
0516	1/4" x 24"	22"	1/4"	1
0519	5/16" x 6"	4"	5/16"	1
0522	3/8" x 6"	4"	3/8"	1
0523	3/8" x 13"	11"	3/8"	1
0525	3/8" x 24"	22"	3/8"	1
0531	1/2" x 6"	4"	3/8"	1
0532	1/2" x 13"	11"	3/8"	1
0534	1/2" x 24"	22"	3/8"	1
0538	5/8" x 6"	4"	1/2"	1
0540	5/8" x 13"	11"	1/2"	1
0545	3/4" x 6"	4"	1/2"	1
0547	3/4" x 13"	11"	1/2"	1
0548*	3/4" x 24"	22"	1/2"	1

* Discontinued item once current stock exhausted. 5/8" and larger shank is hex shaped.

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DRILLING (Cont.)

DRILL BITS (Cont.)

HD STRAIGHT SHANK BITS (Cont.)

BULK PACK

PART NO.	DRILL SIZE	BITS PER PACK
0593	1/4" x 4"	25
0594	1/4" x 6"	25
0595	3/4" x 6"	10

IG STRAIGHT SHANK BITS

Industrial Grade Straight Shank Carbide Bits are designed for use in a hammer drill equipped with a 3 jaw Jacobs type chuck. The bits meet ANSI Standards and can be used to drill in concrete, block, brick, and soft stone.

Use In: Hammer Drill

Size Range: 1/8" x 3" to 1" x 12"

PART NO.	DRILL SIZE	USABLE LENGTH	SHANK SIZE	STD. POUCH
0601	1/8" x 3"	2-1/4"	1/8"	1
0604	3/16" x 4"	2-3/4"	3/16"	1
0605	3/16" x 6"	4"	3/16"	1
0612	1/4" x 4"	2-3/4"	1/4"	1
0613	1/4" x 6"	4"	1/4"	1
0614	1/4" x 12"	10"	1/4"	1
0618	5/16" x 4"	2-3/4"	1/4"	1
0619	5/16" x 6"	4"	1/4"	1
0621	3/8" x 4"	2"	1/4"	1
0622	3/8" x 6"	4"	1/4"	1
0623	3/8" x 12"	10"	5/16"	1
0625	3/8" x 24"	22"	5/16"	1
0626	7/16" x 6"	4"	3/8"	1
0631	1/2" x 6"	4"	3/8"	1
0632	1/2" x 12"	10"	3/8"	1
0635	9/16" x 6"	4"	3/8"	1
0638	5/8" x 6"	4"	3/8"	1
0640	5/8" x 12"	10"	3/8"	1
0645	3/4" x 6"	4"	1/2"	1
0647	3/4" x 12"	11"	1/2"	1
0650	7/8" x 12"	10"	1/2"	1
0654	1" x 12"	10"	1/2"	1

BULK PACK

PART NO.	DRILL SIZE	BITS PER PACK
0561	3/16" x 4"	50
0562	3/16" x 6"	50
0563	1/4" x 4"	25
0564	1/4" x 6"	25
0565	3/8" x 6"	10
0566	1/2" x 6"	10

"A" TAPER DRILL BITS

"A" Taper Drill Bits are designed for use in a rotary hammer equipped with an "A" Taper type chuck. The bits meet ANSI Standards and can be used to drill in concrete, block, brick, and soft stone.

Use In: Rotary Hammer with "A" Taper Chuck or Adapter

Size Range: 1/4" x 6" to 3/4" x 12"

"A" TAPER BITS

PART NO.	DRILL SIZE	USABLE LENGTH	STD. TUBE
9612	1/4" x 6"	4"	1

"A" TAPER SHANK ADAPTERS

PART NO.	SIZE	STD. POUCH
0790*	SDS-Max to "A" Taper	1
0798*	Ejector Pin "A" Taper	1

* Discontinued item once current stock exhausted.

ROTARY CARBIDE DRILLS

Rotary Carbide Bits are designed for use in a rotation only drill equipped with a 3 jaw Jacobs type chuck. The bits meet ANSI Standards with a positive rake tip and can be used to drill in soft or brittle masonry materials using rotation only. Fast spiral flutes are for fast drilling in soft to medium masonry materials such as block or brick. Deep fluted drills perform best in concrete where the wide fluting helps clean concrete chips and dust from the hole.

Use In: Rotary Only Drill

Size Range: 1/8" x 2-1/2" to 3/4" x 6"

FAST SPIRAL ROTARY CARBIDE BITS

PART NO.	DRILL SIZE	SHANK SIZE	USABLE LENGTH	OVERALL LENGTH	STD. TUBE
8500	1/8"	1/8"	1-3/4"	2-1/2"	1
8506	3/16"	3/16"	1-3/4"	3"	1
8508	1/4"	1/4"	1-1/4"	4"	1
8512	5/16"	1/4"	2-1/2"	4"	1
8514	3/8"	1/4"	2-1/2"	4"	1
8560	3/8"	1/4"	4-1/2"	6"	1
8562*	3/8"	1/4"	16-1/2"	18"	1
8520	1/2"	3/8"	4"	6"	1
8566*	1/2"	3/8"	10"	12"	1
8526	5/8"	1/2"	4"	6"	1
8570	5/8"	1/2"	10-1/2"	12"	1
8530	3/4"	1/2"	4"	6"	1

* Discontinued item once current stock exhausted.

DEEP FLUTE ROTARY CARBIDE BITS

PART NO.	DRILL SIZE	SHANK SIZE	USABLE LENGTH	OVERALL LENGTH	STD. TUBE
8606	3/16"	3/16"	1-3/4"	3"	1
8608	1/4"	1/4"	1-3/4"	4"	1

REBAR CUTTER CARBIDE DRILL BITS

Rebar cutter bits provide a quick, easy method for drilling through mesh or reinforcing bars embedded in concrete when the drilled hole cannot be relocated. The bits are used in the rotation only mode and are designed to fit in a standard rotary drill motor with a 1/2" Jacobs style chuck.

When drilling with a hammer drill or rotary hammer, it is important to stop drilling immediately when a standard carbide bit contacts steel reinforcing bar or wire mesh. If the drilled hole cannot be relocated, a rebar cutter bit is used to drill through the embedded steel. Insert the rebar cutter bit into the chuck of a standard 1/2" rotary drill. Place the bit into the partially drilled hole until it contacts the mesh or reinforcing bar. Drill through the embedded steel with the rebar cutter bit. Once the bit has drilled through the steel, remove the debris from the hole, then continue drilling with the standard carbide tipped bit using a hammer drill or rotary hammer.

Use With: Rotation only drill with standard 1/2" Jacobs style chuck

Size Range: 1/2" to 1-1/4" diameter

PART NO.	SIZE	USABLE LENGTH	STD. BOX
0845	1/2" x 12"	11"	12
0844	9/16" x 12"	11"	12
0846	5/8" x 12"	11"	12
0847	11/16" x 12"	11"	12
0849	3/4" x 12"	11"	12
0851	7/8" x 12"	11"	12
0853	1" x 12"	11"	12
0855	1-1/4" x 12"	11"	12

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE POWERS WEBSITE AT POWERS.COM"



EPOXY ADHESIVES

SET-XP® HIGH-STRENGTH ANCHORING ADHESIVE FOR CRACKED AND UNCRACKED CONCRETE

SET-XP® is a 1:1 two-component, high-solids, epoxy-based anchoring adhesive formulated for optimum performance in both cracked and uncracked concrete. SET-XP® adhesive has been rigorously tested in accordance with ICC-ES AC308 and 2009 IBC requirements and has proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. SET-XP® adhesive is teal in color in order to be identified as a high-performance adhesive for adverse conditions. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET-XP® adhesive exceeds the ASTM C881 specification for TYPE I and Type IV, Grade 3, Class C epoxy.

USES: When SET-XP® adhesive is used with all threaded rod or rebar, the system can be used in tension and seismic zones where there is a risk of cracks occurring that pass through the anchor location. It is also suitable for uncracked concrete conditions.

CODES: ICC-ES ESR-2508; City of L.A. pending; Florida FL 11506.5 NSF/ANSI Standard 61 (216 in²/1000 gal). The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

APPLICATION: Surfaces to receive epoxy must be clean. The base-material temperature must be 50°F or above at the time of installation. For best results, material should be 70-80°F at the time of application. Cartridges should not be immersed in water to facilitate warming. To warm cold material, the cartridges should be stored in a warm, uniformly-heated area or storage container for a sufficient time to allow epoxy to warm completely. Mixed material in nozzle can harden in 5-7 minutes at a temperature of 40°F or above.

DESIGN EXAMPLE: Consult Simpson Strong-Tie website.

INSTALLATION: Consult Simpson Strong-Tie website.

SHelf LIFE: 24 months from date of manufacture in unopened side-by-side cartridge.

STORAGE CONDITIONS: For best results, store between 55-90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

COLOR: Resin – white, hardener – black-green. When properly mixed, SET-XP® adhesive will be a uniform teal color.

CLEAN-UP: Uncured material – Wipe up with cotton cloths. If desired, scrub area with abrasive, waterbased cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc), lacquer thinner or adhesive remover can be used. **DO NOT USE SOLVENTS TO CLEAN ADHESIVE FROM SKIN.** Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied. Cured material – Chip or grind off surface.

TEST CRITERIA: Anchors installed with SET-XP® adhesive have been tested in accordance with ICC-ES's Acceptance Criteria for Post-Installed Adhesive Anchors in Masonry Elements (AC58) and Adhesive Anchors in Concrete Elements (AC308) for the following:

- Seismic and wind loading in cracked or uncracked concrete and uncracked masonry.
- Static tension and shear loading in cracked and uncracked concrete and uncracked masonry.
- Horizontal and overhead installations.
- Long-term creep at elevated-temperatures.
- Static loading at elevated-temperatures.
- Damp holes.
- Freeze-thaw conditions.
- Critical and minimum edge distance and spacing.

PROPERTY	TEST METHOD	RESULTS
Consistency	ASTM C881	Passed, non-sag
Glass transition temperature	ASTM E1356	155°F
Bond strength (moist cure)	ASTM C882	3,742 psi at 2 days

PROPERTY	TEST METHOD	RESULTS
Water absorption	ASTM D570	0.10%
Compressive yield strength	ASTM D695	14,830 psi
Compressive modulus	ASTM D695	644,000 psi
Gel time	ASTM C881	49 minutes

CHEMICAL RESISTANCE: Very good to excellent against distilled water, in-organic acids and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones. For more detailed information visit Simpson Strong-Tie website.



SET-XP® 10

SET-XP® 22

SET-XP® 56



EMN22i

EDT22S

SET-XP® CARTRIDGE SYSTEM

PART NO.	CAPACITY OUNCES (CU. IN.)	CARTRIDGE TYPE	CTN. QTY.	DISPENSING TOOL(S)	MIXING ³ NOZZLE
SET-XP 10	8.5 (16.2)	Single	12	CDT10S	EMN22i
SET-XP 22	22 (39.7)	Side-By-Side	10	EDT22S EDTA22P EDT22CKT	
SET-XP 56	56 (101.1)	Side-By-Side	6	EDTA56P	

1. Cartridge estimation guides are available.
2. Detailed information on dispensing tools, mixing nozzles and other adhesive accessories is available.
3. Use only appropriate Simpson Strong-Tie mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance.

CURE SCHEDULE

BASE MATERIAL TEMPERATURE		GEL TIME (MINS.)	CURE TIME (HRS.)
°F	°C		
50	10	75	72
60	16	60	48
70	21	45	24
90	32	35	24
110	43	20	24

For water-saturated concrete, the cure times are doubled.

SUGGESTED SPECIFICATION: Anchoring adhesive shall be a two-component high-solids, epoxy-based system supplied in manufacturer's standard cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. The adhesive anchor shall have been tested and qualified for performance in cracked and uncracked concrete per ICC-ES AC308. Adhesive shall be SET-XP® adhesive from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per Simpson Strong-Tie instructions for SET-XP® epoxy adhesive.

ACCESSORIES: Call for information on dispensing tools, mixing nozzles and other accessories.

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



EPOXY ADHESIVES (Cont.) SET® ANCHORING ADHESIVE

SET® is a two-component, 1:1 ratio, high-solids, epoxy-based adhesive for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET® meets or exceeds the requirements of ASTM C-881 specification for Type I, II, IV and V, Grade 3, Class B and C.

USES:

- Threaded-rod anchoring.
- Rebar doweling.
- Bonding hardened concrete to hardened concrete.
- Pick-proof sealant around doors, windows and fixtures.
- Paste-over for crack injection.

CODES: ICC-ES ESR-1772 (CMU & URM); City of L.A. RR25279; Florida FL 11506.4; Caltrans approved; multiple DOT listings; NSF/ANSI Standard 61 (216 in²/1000 gal), except SET1.7KTA. The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

APPLICATION: Surfaces to receive epoxy must be clean. For installations in or through standing water, consult Simpson Strong-Tie website. The base material temperature must be 40°F or above at the time of installation. For best results, material should be 70°-80°F at the time of application. Cartridges should not be immersed in water to facilitate warming. To warm cold material, the cartridges should be stored in a warm, uniformly heated area or storage container for a sufficient time to allow epoxy to warm completely. Mixed material in nozzle can harden in 5-7 minutes at a temperature of 40°F or above.

ASD DESIGN EXAMPLE: Consult Simpson Strong-Tie website.

INSTALLATION: Consult Simpson Strong-Tie website.

SHelf LIFE: 24 months from date of manufacture in unopened side-by-side cartridge.

STORAGE CONDITIONS: For best results store between 45°F - 90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

COLOR: Resin – white, hardener – black. When properly mixed SET® adhesive will be a uniform light gray color.

CLEAN UP: Uncured material – Wipe up with cotton cloths. If desired scrub area with abrasive, waterbased cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc.), lacquer thinner or adhesive remover can be used. **DO NOT USE SOLVENTS TO CLEAN ADHESIVE FROM SKIN.** Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied. Cured material – Chip or grind off surface.

TEST CRITERIA: Anchors installed with SET® adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Adhesive Anchors (AC58)*.

In addition, anchors installed with SET® adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Unreinforced Masonry Anchors (AC60)*.

PROPERTY	TEST METHOD	RESULTS
Consistency	ASTM C 881	Non-sag/thixotropic paste
Heat deflection	ASTM D 648	136°F (58°C)
Bond strength (moist cure)	ASTM C 882	3,218 psi (2 days)
		3,366 psi (14 days)
Water absorption	ASTM D 570	0.110% (24 hours)
		5.065 psi (24 hours)
Compressive yield strength	ASTM D 695	12,650 psi (7 days)
		439,000 psi (7 days)
Compressive modulus	ASTM D 695	439,000 psi (7 days)
Gel Time (75°F)	ASTM C 881	30 min. – 60 gram mass
		60 min. – Thin film

CHEMICAL RESISTANCE: Very good to excellent against distilled water, inorganic acids and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones. For more detailed information, visit www.strongtie.com.



SET1.7KTA

SET 22

SET 56



EMN221

EDT22S

SET® CARTRIDGE SYSTEM

PART NO.	CAPACITY OUNCES (CU. IN.)	CARTRIDGE TYPE	CTN. QTY.	DISPENSING TOOL(S)	MIXING ⁴ NOZZLE
SET 1.7KTA	1.7 (3.1)	Side-By-Side	12	Adaptor included for standard caulking tool	EMN 1.7 (2 included)
SET 22	22 (39.7)	Side-By-Side	10	EDT22S, EDTA22P or EDTA22CKT	EMN22i
SET 56	56 (101.1)	Side-By-Side	6	EDTA56P	EMN22i or EMN50

1. Bulk containers also available, call for details.
2. Cartridge and bulk estimation guides are available.
3. Detailed information on dispensing tools, mixing nozzles and other adhesive accessories is available.
4. Use only appropriate Simpson Strong-Tie mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance.

SUGGESTED SPECIFICATIONS: Anchoring adhesive shall be a two-component high-solids epoxy based system supplied in manufacturer's standard cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. Epoxy shall meet the minimum requirements of ASTM C-881 specification for Type I, II, IV, and V, Grade 3, Class B and C and must develop a minimum 12,650 psi compressive yield strength after 7 day cure. Epoxy must have a heat deflection temperature of a minimum 136°F (58°C). Adhesive shall be SET® adhesive from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per Simpson Strong-Tie instructions for SET® adhesive.

ACCESSORIES: Call for information on dispensing tools, mixing nozzles and other accessories.

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



EPOXY ADHESIVES (Cont.)

ET-HP™ (formerly ET) ANCHORING ADHESIVE

ET-HP™ is a two-component, high solids, epoxy-based system for use as a high-strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. ET-HP™ meets the ASTM C-881 specifications for Type I, II, IV and V, Grade 3, Classes B and C, except gel time.

USES:

- Threaded-rod anchoring.
- Rebar doweling.
- Bonding hardened concrete to hardened concrete.
- Pick-proof sealant around doors, windows and fixtures.
- Paste-over for crack injection.

CODES: ICC-ES ER-4945 (URM); City of L.A. RR25185, RR25120; Multiple DOT Listings.

⚠ The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

APPLICATION: Surfaces to receive epoxy must be clean. For installations in or through standing water, consult Simpson Strong-Tie website for details. The base material temperature must be 40°F or above at the time of installation. For best results, material should be 70°F – 80°F at the time of application. Cartridges should not be immersed into water to facilitate warming. To warm cold material, the cartridges should be stored in a warm, uniformly heated area or storage container for a sufficient time to allow epoxy to warm completely. Mixed material in nozzle can harden in 5-7 minutes at a temperature of 40°F or above.

INSTALLATION: Consult Simpson Strong-Tie website.

SHELF LIFE: 24 months from date of manufacture in unopened container.

STORAGE CONDITIONS: For best results store between 45°F - 90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

COLOR: Resin – white, hardener – black. When properly mixed ET-HP™ adhesive will be a uniform medium gray color.

CLEAN UP: Uncured material – Wipe up with cotton cloths. If desired scrub area with abrasive, waterbased cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc.), lacquer thinner or adhesive remover can be used. **DO NOT USE SOLVENTS TO CLEAN ADHESIVE FROM SKIN.** Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied. Cured material – Chip or grind off surface.

TEST CRITERIA: Anchors installed with ET-HP™ adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Adhesive Anchors in Masonry Elements (AC508)* and *Adhesive Anchors in Concrete Elements (AC308)*.

In addition, anchors installed with ET-HP™ adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Unreinforced Masonry Anchors (AC60)*.

PROPERTY	TEST METHOD	RESULTS
Consistency (77°F)	ASTM C 881	Non-sag/thixotropic paste
Heat deflection	ASTM D 648	168°F (76°C)
Bond strength (moist cure)	ASTM C 882	2,030 psi (2 days) 4,240 psi (14 days)
Water absorption	ASTM D 570	0.19% (24 hours)
Compressive yield strength	ASTM D 695	9,174 psi (24 hours) 13,390 psi (7 days)
Compressive modulus	ASTM D 695	658,200 psi (7 days)
Gel time (77°F)	ASTM C 881	10 min. – 60 gram mass 30 min. – Thin film

CHEMICAL RESISTANCE: Very good to excellent against distilled water, inorganic acids and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones. For more detailed information, visit www.strongtie.com.



ET-HP22



ET-HP56



EDT225



EMN22i

ET-HP™ CARTRIDGE SYSTEM

PART NO.	CAPACITY OUNCES (CU. IN.)	CARTRIDGE TYPE	CTN. QTY.	DISPENSING TOOL(S)	MIXING ⁴ NOZZLE
ET-HP22	22 (39.7)	Side-By-Side	10	EDT22S, EDTA22P or EDTA22CKT	EMN22i
ET-HP56	56 (101.1)	Side-By-Side	6	EDTA56P	ENM22i or ENM50

1. Cartridge and bulk estimation guides are available, call for details.
2. Detailed information on dispensing tools, mixing nozzles and other adhesive accessories is available.
3. Use only appropriate Simpson Strong-Tie mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance.

SUGGESTED SPECIFICATIONS: Anchoring adhesive shall be a two-component high solids, epoxy based system supplied in manufacturer's standard side-by-side cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. Epoxy shall meet the minimum requirements of ASTM C-881 specification for Type I, II, IV, and V, Grade 3, Class B and C, except gel time, and must develop a minimum 13,390 psi compressive yield strength after 7 day cure. Epoxy must have a heat deflection temperature of a minimum 168°F (76°C). Adhesive shall be ET-HP™ adhesive from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per Simpson Strong-Tie instruction for ET-HP™ adhesive.

ACCESSORIES: Call for information on dispensing tools, mixing nozzles and other accessories.

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



ADHESIVE ACCESSORIES

ADHESIVE DISPENSING TOOLS

Our heavy-duty tools are designed to work with our cartridges for trouble-free dispensing. Each manual tool provides a 26:1 drive mechanism for easier dispensing of high-viscosity adhesive.

EPOXY ADHESIVE DISPENSING TOOLS

CDT10S

Manual Dispensing Tool for SET-XP®10 Adhesive and other Single Cartridge Adhesives

The CDT10S features a steel carriage for ultimate durability and is engineered for continuous, high-volume use. The CDT10S also features double-gripping plates that help extend tool life.



CDT10S

EDT22S

Manual Dispensing Tool for 22 oz. Adhesive Cartridges

The EDT22S epoxy adhesive tool features a steel carriage and is engineered for high-volume, continuous use. The tool can be easily converted from dispensing a 22 oz. 1:1 ratio cartridge to a 16.5 oz. 2:1 ratio cartridge.



EDT22S

EDT22CKT

Battery-Powered Dispensing Tool for 22 oz. Cartridges

The EDT22CKT offers power dispensing without the need for a hose or compressor. The tool features dosage and rate control for maximum efficiency. Each battery charge dispenses approximately 25 cartridges and recharging takes 1 hour. Tool comes complete with two 14.4V batteries and a charger.

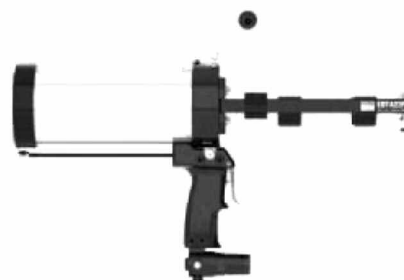


EDT22CKT TOOL
And Charger

EDTA22P

Pneumatic Dispensing Tool for 22 oz. Cartridges

The EDTA22P tool features an optional suitcase handle adapter for the ultimate in tool configuration and dispensing convenience. The suitcase option enables easier and time-saving ground-level doweling. The heavy-duty tool comes with a custom, blow-molded plastic carrying case.



EDTA22P

EDTA56P

Pneumatic Dispensing Tool for 56 oz. Cartridges

The EDTA56P tool features an optional suitcase handle adapter for the ultimate in tool configuration and dispensing convenience. The suitcase option enables easier and time-saving ground-level doweling. The heavy-duty tool comes with a custom, blow-molded plastic carrying case.



EDTA56P

PART NO.	DESCRIPTION
CDT10S	Pneumatic tool for single-tube cartridges
EDT22S	Manual tool for 22 oz. cartridges
EDT22CKT	Battery-powered tool for 22 oz. cartridges
EDTA22P	Pneumatic tool for 22 oz. cartridges ^{1 2}

1. Air supply attachment is 1/4-18 NPT (male) thread.
2. Recommended operating air pressure is between 80-100 psi.

Maintenance tips, troubleshooting
and repair parts schematics
available at www.strongtie.com

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"

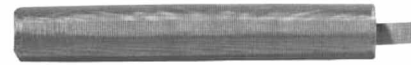


ADHESIVE ACCESSORIES (Cont.) STEEL ADHESIVE ANCHORING SCREEN TUBES

Screen tubes are used in hollow base material applications to contain adhesive around the anchor and prevent it from running into voids. Simpson Strong-Tie® screen tubes are specifically designed to work with AT, SET® and ET-HP™ adhesives in order to precisely control the amount of adhesive that passes through the mesh. This results in thorough coating and bonding of the rod diameter and adhesive type. The actual outside diameter of the screen tube is larger than the rod diameter.

MATERIAL: Acrylic screen tubes: 50 mesh stainless steel; Epoxy screen tubes: 60 mesh carbon steel.

CAUTION: Screen tubes are designed for a specific adhesive type. Epoxy screen tubes must be used with SET® or ET-HP™ formulations and acrylic screen tubes must be used with AT adhesives. Do not use SET1.7KTA with screen tubes.



Epoxy Adhesive Screen Tube
(Acrylic Screen Tubes Similar)

Screen tubes are for use in hollow CMU, hollow brick and unreinforced masonry applications.

Contact Simpson Strong-Tie for information on special order sizes.

ACRYLIC (AT) SCREEN TUBES - STAINLESS STEEL

PART NO.	FOR ROD DIA. (IN.)	HOLE SIZE (IN.)	ACTUAL SCREEN SIZE O.D./LENGTH (IN.)	CTN. QTY.
ATS373	3/8	9/16	15/32 x 3-1/2	150
ATS376			15/32 x 6	150
ATS503	1/2	11/16	19/32 x 3-1/2	100
ATS506			19/32 x 6	100
ATS5010			19/32 x 10	50
ATS623	5/8	7/8	25/32 x 3	50
ATS626			25/32 x 6	50
ATS6210			25/32 x 10	25
ATS6213			25/32 x 13	25
ATS758	3/4	1	29/32 x 8	25
ATS7513			29/32 x 13	25
ATS7517			29/32 x 17	25

EPOXY (SET® & ET-HP™) SCREEN TUBES - CARBON STEEL

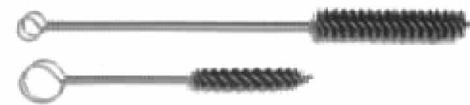
PART NO.	FOR ROD DIA. (IN.)	HOLE SIZE (IN.)	ACTUAL SCREEN SIZE O.D./LENGTH (IN.)	CTN. QTY.
ETS376	3/8	9/16	15/32 x 6	150
ETS3710			15/32 x 10	100
ETS506	1/2	11/16	19/32 x 6	100
ETS5010			19/32 x 10	50
ETS626			25/32 x 6	50
ETS6210	5/8	7/8	25/32 x 10	25
ETS6213			25/32 x 13	25
ETS758			29/32 x 8	25
ETS7513	3/4	1	29/32 x 13	25
ETS7517			29/32 x 17	25
ETS7521			29/32 x 21	25

Note: Not for use with SET1.7KTA.

HOLE CLEANING BRUSHES

Brushes are used for cleaning drilled holes prior to adhesive anchor installation. Brushes have a twisted wire handle with nylon bristles.

PART NO.	DESCRIPTION	FOR ANCHOR/REBAR DIAMETER (IN.)	FOR HOLE DIAMETER (IN.)	CTN. QTY.
ETB4	1/2" dia. x 3" brush (8" total length)	1/4" - 5/16"	3/8" - 7/16"	24
ETB6	3/4" x 4" brush (16" total length)	3/8" - 5/8"	1/2" - 3/4"	24
ETB8	1" x 4" brush (16" total length)	3/4"	15/16" - 7/8"	24
ETB8L	1" x 4" brush (24" total length)	3/4"	15/16" - 7/8"	24
ETB10	1-1/4" x 4" brush (29" total length)	7/8" - 1"	1" - 1-1/8"	24
ETB12	1-5/8" x 6" brush (34" total length)	1-1/4"	1-3/16" - 1-3/8"	24



ETB

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



ADHESIVE ACCESSORIES (Cont.)

OPTI-MESH®

ADHESIVE ANCHORING SCREEN TUBES

Screen tubes are vital to the performance of adhesive anchors in base materials that are hollow or contain voids, such as hollow block and brick. The Simpson Strong-Tie® Opti-Mesh® screen tube provides the economical advantage of a plastic screen tube while providing performance comparable to steel screen tubes and better than competitive plastic screen tubes.

MATERIAL: Plastic

CAUTION: Screen tubes are designed for a specific adhesive type. Epoxy screen tubes must be used with SET® or ET-HP™ formulations and acrylic screen tubes must be used with AT adhesives. Do not use SET1.7KTA with screen tubes.

EPOXY (SET® AND ET-HP™) SCREEN TUBES - PLASTIC

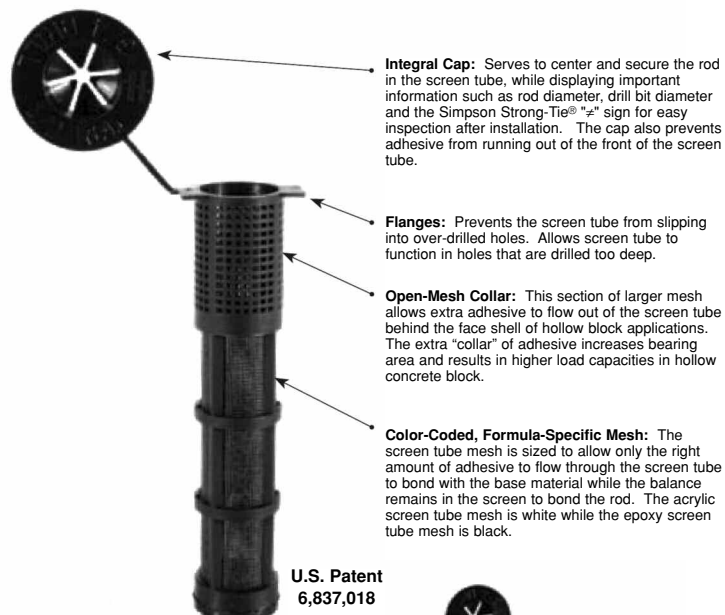
PART NO.	FOR ROD DIA. (IN.)	HOLE SIZE (IN.)	LENGTH (IN.)	CTN. QTY.
ETS373P	3/8	9/16	3-1/2	150
ETS376P			6	150
ETS3710P			10	100
ETS503P	1/2	3/4	3-1/2	100
ETS506P			6	100
ETS5010P			10	50
ETS623P	5/8	7/8	3-1/2	50
ETS626P			6	50
ETS6210P			10	25
ETS6213P			13	25
ETS758P	3/4	1	8	25
ETS7513P			13	25
ETS7517P			17	25
ETS7521P			21	25

Visit www.strongtie.com for Load Values for installations with SET®. Visit www.strongtie.com for Load Values for installations with ET-HP™ in unreinforced masonry. Not for use with SET1.7KTA.

ACRYLIC SCREEN TUBES - PLASTIC

PART NO.	FOR ROD DIA. (IN.)	HOLE SIZE (IN.)	LENGTH (IN.)	CTN. QTY.
ATS373P	3/8	9/16	3-1/2	150
ATS376P			6	150
ATS3710P			10	100
ATS503P	1/2	3/4	3-1/2	100
ATS506P			6	100
ATS5010P			10	50
ATS623P	5/8	7/8	3-1/2	50
ATS626P			6	50
ATS6210P			10	25
ATS6213P			13	25
ATS758P	3/4	1	8	25
ATS7513P			13	25
ATS7517P			17	25
ATS7521P			21	25

Visit www.strongtie.com for Load Values for installations with AT adhesive.



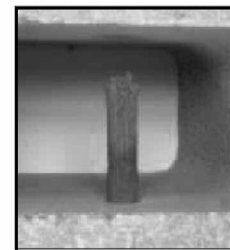
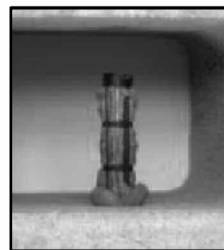
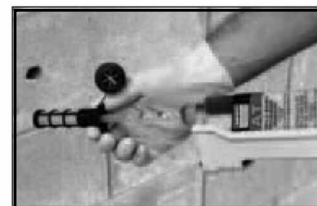
Epoxy Screen Tube (mesh is black)



The integral cap centers the rod and displays drill bit and rod diameter



Screen tubes are for use in hollow CMU, hollow brick and unreinforced masonry applications.



The photo on the left shows the Opti-Mesh® screen tube installed in a hollow CMU block. The extra collar of adhesive created by the open-mesh collar results in increased bearing area and higher load values. The typical screen tube shown on the right relies on the bond between the relatively small amount of adhesive in contact with the face shell of the block for its holding power.

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MECHANICAL ANCHORS

STRONG-BOLT® 2 WEDGE ANCHOR FOR CRACKED AND UNCRACKED CONCRETE

The Strong-Bolt® wedge anchor is the next-generation solution for cracked and uncracked concrete. Following rigorous testing according to ICC-ES acceptance criteria, the Strong-Bolt® 2 anchor received classification as a Category 1 anchor, the highest attainable anchor category for performance in cracked concrete under static and seismic loading. Available in stainless steel, it is code-listed by IC-ES under the 2009 IBC requirements for post-installed anchors in cracked and uncracked concrete.



FEATURES:

- **Category 1 anchor classification:** The Strong-Bolt® 2 anchor received classification as a Category 1 anchor, which is established by performance in reliability tests in accordance with AC193 and ACI355.2 test criteria. Category 1 is the highest attainable anchor category for reliability.
- **Tri-segmented clip:** Each segment adjusts independently, increasing follow-up expansion should the hole increase in size as a result of a crack.
- **Dual embossments on each clip segment:** Enables clip to undercut into the concrete thereby increasing follow-up expansion should a crack occur.
- **The 3/8" anchor solution approved for 3-1/4" concrete thickness:** The Strong-Bolt® 2 anchor can be installed in cracked concrete with a minimum thickness of 3-1/4"; including concrete-over-metal decking.
- **High-strength alloy clip on carbon-steel anchors:** This special alloy clip offers improved performance.
- **Standard (ANSI) fractional anchor:** Fits most fixtures and installs with common drill bit sizes and tools.
- **Type 316 stainless-steel clip on stainless steel anchors:** In addition to superior corrosion resistance, a stainless-steel clip offers "memory" that contributes to the anchor's performance if the hole increases in size because of a crack.

MATERIAL: Carbon-steel stud with special alloy clip; stainless-steel stud with stainless-steel clip.

FINISH: Zinc-plated (carbon steel).

CODES: ICC-ES ESR-3037 (carbon and stainless steel in concrete); IAPMO ES ER-240 (carbon steel in CMU); City of Los Angeles RR25891; Underwriters Laboratories File Ex3605; Factory Mutual 3043442; Florida – Pending.

TEST CRITERIA: The Strong-Bolt® 2 wedge anchor has been tested in accordance with the ICC-ES *Acceptance Criteria for Mechanical Anchors in Concrete Elements (AC 193)* and ACI 3555.2 for the following:

- Static tension and shear loading in cracked and uncracked concrete.
- Seismic and wind loading in cracked and uncracked concrete.
- Performance in cracked concrete.
- Performance in lightweight concrete over metal deck.

LENGTH IDENTIFICATION HEAD MARKS ON STRONG-BOLT® 2 WEDGE ANCHORS (corresponds to length of anchor-inches)

MARK	UNITS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
FROM	IN.	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18
UP TO BUT NOT INCLUDING	IN.	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18	19

INSTALLATION:

- Do not use an impact wrench to set or tighten the Strong-Bolt® 2 anchor.
- **CAUTION:** Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.
- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate minimum hole depth and dust from drilling.
- Assemble the anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Place the anchor in the fixture and drive into the hole until washer and nut are tight against the fixture.
- Tighten to the required installation torque.

DESIGN EXAMPLE: Visit www.strong-tie.com

STRONG-BOLT® 2 ANCHOR PRODUCT DATA

CARBON STEEL PART NO.	316 STAINLESS STEEL PART NO.	DRILL BIT SIZE (IN.)	THREAD DIA. (IN.)	LENGTH (IN.)	QTY. BOX	CTN.
STB2-37234	STB2-372346SS	3/8 x 2-3/4	3/8	1-5/16	50	250
STB2-37300	STB2-373006SS	3/8 x 3	3/8	1-9/16	50	250
STB2-37312	STB2-373126SS	3/8 x 3-1/2	3/8	2-1/16	50	250
STB2-37334	STB2-373346SS	3/8 x 3-3/4	3/8	2-5/16	50	250
STB2-37500	STB2-375006SS	3/8 x 5	3/8	3-9/16	50	200
STB2-37700	STB2-377006SS	3/8 x 7	3/8	5-9/16	50	200
STB2-50334	STB2-503346SS	1/2 x 3-3/4	1/2	2-1/16	25	125
STB2-50414	STB2-504146SS	1/2 x 4-1/4	1/2	2-9/16	25	100
STB2-50434	STB2-504346SS	1/2 x 4-3/4	1/2	3-1/16	25	100
STB2-50512	STB2-505126SS	1/2 x 5-1/2	1/2	3-13/16	25	100
STB2-50700	STB2-507006SS	1/2 x 7	1/2	5-5/16	25	100
STB2-50812	STB2-508126SS	1/2 x 8-1/2	1/2	6	25	50
STB2-50100	STB2-501006SS	1/2 x 10	1/2	6	25	50
STB2-62412	STB2-624126SS	5/8 x 4-1/2	5/8	2-7/16	20	80
STB2-62500	STB2-625006SS	5/8 x 5	5/8	2-15/16	20	80
STB2-62600	STB2-626006SS	5/8 x 6	5/8	3-15/16	20	80
STB2-62700	STB2-627006SS	5/8 x 7	5/8	4-15/16	20	80
STB2-62812	STB2-628126SS	5/8 x 8-1/2	5/8	6	20	40
STB2-62100	STB2-621006SS	5/8 x 10	5/8	6	10	20
STB2-75512	STB2-755126SS	3/4 x 5-1/2	3/4	3-3/16	10	40
STB2-75614	STB2-756146SS	3/4 x 6-1/4	3/4	3-15/16	10	40
STB2-75700	STB2-757006SS	3/4 x 7	3/4	4-11/16	10	40
STB2-75812	STB2-758126SS	3/4 x 8-1/2	3/4	6	10	20
STB2-75100	STB2-751006SS	3/4 x 10	3/4	6	10	20

MATERIAL SPECIFICATIONS

CARBON STEEL - ZINC PLATED¹

COMPONENT MATERIALS

ANCHOR BODY	NUT	WASHER	CLIP
Carbon Steel	Carbon Steel ASTM A 563, Grade A	Carbon Steel ASTM F844	Carbon Steel ASTM A 568

1. Zinc meets ASTM B 633, Class SC 1 (Fe / Zn 5), Type III.

STAINLESS STEEL

COMPONENT MATERIALS

ANCHOR BODY	NUT	WASHER	CLIP
Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel

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MECHANICAL ANCHORS (Cont.) STRONG-BOLT® WEDGE ANCHOR FOR CRACKED AND UNCRACKED CONCRETE

The Strong-Bolt® is a wedge anchor specifically designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2009 IBC places on post-installed anchors. Rigorously tested according to the latest industry-wide criteria, the Strong-Bolt® anchor is proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. The proprietary tri-segmented clip has dual undercutting embossments on each segment which enable secondary or "follow-up" expansion if a crack forms and intersects the anchor location. This significantly increases the ability of the Strong-Bolt® wedge anchor to carry load if the hole opened slightly due to a crack. The Strong-Bolt® anchor sets like a standard wedge anchor and is available in Imperial fractional sizes.



FEATURES:

- Tri-segmented clip: Each segment is able to adjust independently increasing follow-up expansion should the hole increase in size as a result of a crack.
- Dual embossments on each clip segment: Allows the clip to undercut into the concrete increasing follow-up expansion should a crack occur.
- 316 stainless steel clip: In addition to the superior corrosion resistance, a stainless steel clip offers better "memory". This memory contributes to the anchor's performance should the hole size increase due to a crack.
- Imperial fractional sizes anchor: Fits most fixtures and installs with common drill bits sizes and tools. No need to buy additional tools to install a metric anchor and no special couplers needed.
- Installs like a standard wedge anchor: No complicated installation procedure. No need for special bits or installation tools.
- The head is stamped with the Simpson Strong-Tie® "≠" sign and size ID for easy post-installation identification.

MATERIAL: Carbon-steel stud with 316 stainless-steel clip.
FINISH: Zinc plated.
CODES: ICC-ES ESR-1771; City of L.A. RR25705; Florida 11506.6.

The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

TEST CRITERIA: The Strong-Bolt® wedge anchor has been tested in accordance with the ICC-ES *Acceptance Criteria for Mechanical Anchors in Concrete Elements (AC193)* and ACI 355.2 for the following:

- Static tension and shear loading in cracked and uncracked concrete.
- Seismic and wind loading in cracked and uncracked concrete.
- Performance in cracked concrete.

Vibratory Load Testing: A 150 lb. concrete block was suspended from a 1/2" diameter anchor embedded at 2-1/4" and vibrated for 12.6 million cycles at a frequency of 30 Hz and an amplitude of 0.025 inches. Subsequent load test showed no reduction in ultimate tension capacity.

INSTALLATION: • Do not use an impact wrench to set or tighten the Strong-Bolt® anchor.

CAUTION: Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.

- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate minimum hole depth and dust from drilling.
- Assemble the anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Place the anchor in the fixture and drive into the hole until washer and nut are tight against the fixture.
- Tighten to the required installation torque.

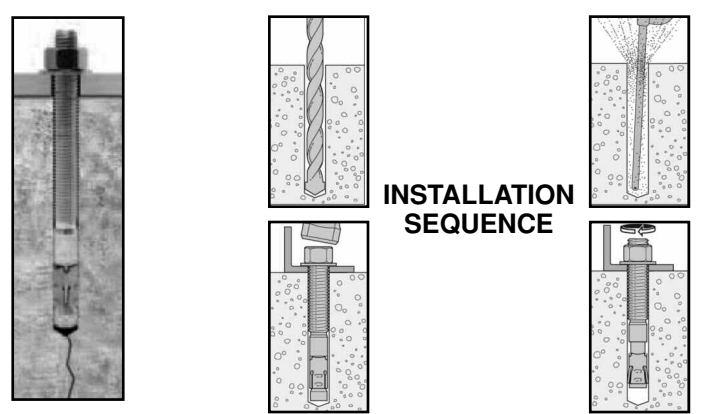
APPLICATION:

- Interior environment where low levels of moisture and corrosive chemicals are present.

SUGGESTED SPECIFICATIONS: Wedge anchors shall be an imperial-sized steel threaded stud with an integral cone expander and a three-segment expansion clip. The stud shall be manufactured from carbon steel and the expansion clip shall have two undercutting embossments per segment and be manufactured from 316 stainless steel. The anchor shall have been tested and qualified for performance in cracked concrete per ACI 355.2 and ICC-ES AC193. Anchors shall be Strong-Bolt® wedge anchors from Simpson Strong-tie, Pleasanton, CA, and be installed following Simpson Strong-tie instructions.

STRONG-BOLT® INSTALLATION DATA

STRONG-BOLT® DIA. (IN.)	1/2	5/8	3/4	1
Bit Size (in.)	1/2	5/8	3/4	1
Min. Fixture Hole (in.)	9/16	11/16	7/8	1-1/8
Wrench Size (in.)	3/4	15/16	1-1/8	1-1/2



INSTALLATION SEQUENCE

LENGTH IDENTIFICATION HEAD MARKS ON STRONG-BOLT® ANCHORS (corresponds to length of anchor-inches)

MARK	UNITS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
FROM	IN.	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18
UP TO BUT NOT INCLUDING	IN.	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18	19

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MECHANICAL ANCHORS (Cont.)

STRONG-BOLT® WEDGE ANCHOR FOR CRACKED AND UNCRACKED CONCRETE

(Cont.)

STRONG-BOLT® ANCHOR PRODUCT DATA

PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	THREAD LENGTH (IN.)	QUANTITY	
				BOX	CTN
STB50334	1/2 x 3-3/4	1/2	1-3/4	25	125
STB50414	1/2 x 4-1/4		2-1/4	25	100
STB50512	1/2 x 5-1/2		3-1/2	25	100
STB50700	1/2 x 7		5	25	100
STB50812	1/2 x 8-1/2	5/8	6	25	50
STB50100	1/2 x 10		6	25	50
STB62412	5/8 x 4-1/2		2-1/16	20	80
STB62500	5/8 x 5		2-9/16	20	80
STB62600	5/8 x 6	3-9/16	20	80	
STB62700	5/8 x 7	4-9/16	20	80	
STB62812	5/8 x 8-1/2	6	20	40	
STB62100	5/8 x 10	6	10	20	
STB75512	3/4 x 5-1/2	3/4	2-11/16	10	40
STB75614	3/4 x 6-1/4		3-7/16	10	40
STB75700	3/4 x 7		4-3/16	10	40
STB75812	3/4 x 8-1/2		5-11/16	10	20
STB75100	3/4 x 10	6	10	20	
STB100700	1 x 7	1	3-1/2	5	20
STB1001000	1 x 10		3-1/2	5	10
STB1001300	1 x 13		3-1/2	5	10

1. The published length is the overall length of the anchor.
2. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting a length.

MATERIAL SPECIFICATIONS

CARBON STEEL - ZINC PLATED ¹			
COMPONENT MATERIALS			
ANCHOR BODY	NUT	WASHER	CLIP
Carbon Steel SAE J403, Grade 1030-1035 SAE J403, Grade 12L14	Carbon Steel ASTM A 563, Grade A	Carbon Steel ASTM F844	316 Stainless Steel

1. Zinc meets ASTM B 633, Class SC 1 (Fe / Zn 5), Type III.

TITEN HD® HEAVY DUTY SCREW ANCHOR FOR CRACKED AND UNCRACKED CONCRETE

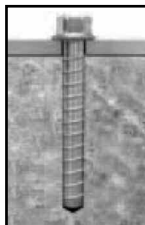
The Titen HD® anchor is a patented, high-strength screw anchor for concrete and masonry. It is designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2009 IBC places on post-installed anchors. The high strength, easy to install Titen HD® anchor has been tested and shown to provide outstanding performance in cracked and uncracked concrete under both static and seismic loading conditions. The self-undercutting, non-expansion characteristics of the Titen HD® anchor



Serrated teeth on the tip of the Titen HD® screw anchor facilitate cutting and reduce installation torque



Titen HD®
Screw Anchor
U.S. Patent
5,674,035 &
6,623,228



make it ideal for structural applications, even at reduced edge distances and spacings. Recommended for permanent dry, interior non-corrosive environments or temporary outdoor applications.

PERFORMANCE FEATURES:

- Tested per AC193 to ensure outstanding performance in both cracked and uncracked concrete.
- Higher load capacity and vibration resistance: Threads along the length of the anchor undercut the concrete and efficiently transfer the load to the base material.
- Vibration and shock resistance: The mechanical interlock of the threads and the ratchet teeth on the underside of the head help prevent the anchor from loosening in vibratory conditions. The Titen HD® anchor has been tested to 12.6 million vibratory cycles with no performance reductions.
- Specialized heat treating process: Creates superior surface hardness at the tip to facilitate cutting, while the same time not compromising ductility within the anchor body.
- Less spacing and edge distance required: The anchor does not exert expansion forces on the base material.
- Easy post-installation inspection: The head is stamped with the Simpson Strong-Tie® "≠" sign and the anchor length in inches.

INSTALLATION FEATURES:

- No special drill bit needed: Designed to install using standard sized ANSI tolerance drill bits.
- Installs with 50% less torque: Testing shows that when compared to competitors, the Titen HD® required 50% less torque to be installed in concrete.
- Hex-washer head: Requires no separate washer and provides a clean installed appearance.*
- Removable: Ideal for temporary anchoring (e.g. formwork, bracing) or applications where fixtures may need to be moved. Re-use of the anchor to achieve listed load values is not recommended. See reinstallation note.

MATERIAL: Carbon steel, heat-treated.

FINISH: Zinc plated or mechanically galvanized.

CODES: ICC-ES ESR-2713 (concrete); ICC-ES ESR-1056 (CMU); City of L.A. RR25741 (concrete) City of L.A. RR25560(CMU); Florida, FL 11506.7; Factory Mutual 3017082, 3035761 and 3043442.

¹ The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. where code jurisdictions apply, consult the current reports for applicable load values.

TEST CRITERIA: The Titen HD® anchor has been tested in accordance with ICC-ES AC193, ACI 355.2 and ICC-ES AC106 for the following:

- Static tension and shear loading in cracked and uncracked concrete.
- Seismic and wind loading in cracked and uncracked concrete.
- Performance in uncracked masonry.

Anchor Fatigue Testing: Tested in accordance with ASTM E 488 for the effects of fatigue. 25% of the average ultimate load was applied to the anchor for 2 million cycles at a frequency of 15 Hz. Subsequent load tests showed no reduction in ultimate tension capacity.

Vibratory Load Testing: A 150 lb. concrete block was suspended from a 3/8" diameter anchor embedded at 1-1/2" and vibrated for 12.6 million cycles at a frequency of 30 Hz and an amplitude of 0.0325 inches. Subsequent load test showed no reduction in ultimate tension capacity.

Field Testing: For guidance on field testing see technical bulletin T-SAS-THDINSF.

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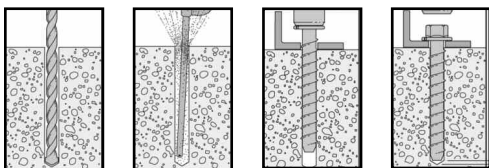
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MECHANICAL ANCHORS (Cont.)

TITEN HD® HEAVY DUTY SCREW ANCHOR FOR CRACKED AND UNCRACKED CONCRETE (Cont.)

INSTALLATION SEQUENCE



INSTALLATION: Holes in metal fixtures to be mounted should match the diameter specified in the table on the next page.

⚠ Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity. Use a Titen HD® screw anchor one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

- Drill a hole in the base material using a carbide drill bit the same diameter as the normal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus 1/2" minimum to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Insert the anchor through the fixture and into the hole.
- Tighten the anchor into the base material until the hex washer head contacts the fixture.
- Do not use impact wrenches to install into hollow CMU.

SUGGESTED SPECIFICATIONS: Screw anchors shall have 360-degree contact with the base material and shall not require oversized holes for installation. Fasteners shall be manufactured from carbon steel, and are heat-treated. Anchors shall be zinc plated in accordance with ASTM B633 or mechanically galvanized in accordance with ASTM B695. Anchors are not to be reused after initial installation. Screw anchors shall be Titen HD® anchors from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per the Simpson Strong-Tie instructions for the Titen HD® anchor.

* Some jurisdictions require an additional square plate washer for sill plate applications.

TITEN HD® ANCHOR PRODUCT DATA - ZINC PLATED

PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	WRENCH SIZE (IN.)	QUANTITY	
				BOX	CTN
THD37300H	3/8 x 3	3/8	9/16	50	200
THD37400H	3/8 x 4			50	200
THD37500H	3/8 x 5			50	100
THD37600H	3/8 x 6			50	100

CONTINUED NEXT COLUMN



Suitable for use in place of code anchor bolts.



Longer 1/2" diameter Titen HD® anchors achieve sufficient embedment depth to develop tension loads equal to many Simpson Strong-Tie holdowns that specify a 5/8" diameter anchor. Testing has been conducted to assure compatibility of these holdowns' anchor holes with the 1/2" Titen HD screw anchor.

PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	WRENCH SIZE (IN.)	QUANTITY	
				BOX	CTN
THD50300H	1/2 x 3	1/2	3/4	25	100
THD50400H	1/2 x 4			20	80
THD50500H	1/2 x 5			20	80
THD50600H	1/2 x 6			20	80
THD50612H	1/2 x 6-1/2			20	40
THD50800H	1/2 x 8			20	40
THD501200H	1/2 x 12			20	40
THD501300H	1/2 x 13			20	40
THD501400H	1/2 x 14			20	40
THD501500H	1/2 x 15			20	40
THD62400H	5/8 x 4	5/8	15/16	10	40
THD62500H	5/8 x 5			10	40
THD62600H	5/8 x 6			10	40
THD62612H	5/8 x 6-1/2			10	40
THD62800H	5/8 x 8			10	20
THDB62400H	5/8 x 4			10	40
THDB62500H	5/8 x 5			10	40
THDB62600H	5/8 x 6			10	40
THDB62612H	5/8 x 6-1/2			10	40
THDB62800H	5/8 x 8			10	20
THD75400H	3/4 x 4	3/4	1-1/8	10	40
THD75500H	3/4 x 5			5	20
THDT75600H	3/4 x 6			5	20
THD75700H	3/4 x 7			5	10
THD75812H	3/4 x 8-1/2			5	10
THD75100H	3/4 x 10			5	10

1. Zinc plating meets ASTM B633.SC1.

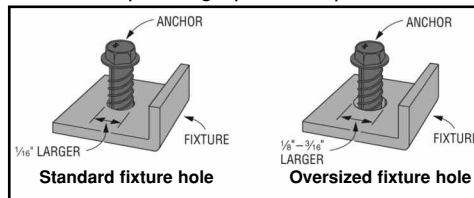
2. Length is measured from the underside of the head to the tip of the anchor.



FIXTURE HOLE DIAMETER:

Due to the full shank diameter and larger threads of the Titen HD® screw anchor, consideration needs to be given to specifying the appropriate diameter Titen HD® anchor based on the fixture hole type to be used. The American Institute of Steel Construction (AISC) has established the following guidelines with regards to fixture hole sizing depending on the hole type:

- "Standard" fixture holes are 1/16" larger than the nominal anchor diameter.
- "Oversized" fixture holes are 1/8 - 3/16" larger than the nominal anchor diameter, depending upon the specific anchor diameter.



Use the following table to identify which diameter Titen HD® screw anchor to use based on the fixture hole type and diameter. In most cases where a smaller diameter Titen HD® anchor is called out in comparison to the competitor's larger diameter anchor, the Titen HD® anchor still generally provides allowable tension and shear load values comparable to or greater than those of the competitor's anchor.

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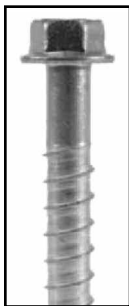


MECHANICAL ANCHORS (Cont.)
TITEN HD® HEAVY DUTY SCREW ANCHOR
FOR CRACKED AND UNCRACKED
CONCRETE (Cont.)

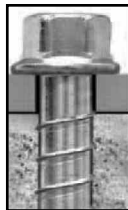
TITEN HD® ANCHOR PRODUCT DATA -
MECHANICALLY GALVANIZED

PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	WRENCH SIZE (IN.)	QUANTITY	
				BOX	CTN
THD37500HMG	3/8 x 5	3/8	9/16	50	100
THD37600HMG	3/8 x 6			50	100
THD50500HMG	1/2 x 5			20	80
THD50600HMG	1/2 x 6	1/2	3/4	20	80
THD50612HMG	1/2 x 6-1/2			20	40
THD50800HMG	1/2 x 8			20	40
THD62500HMG	5/8 x 5			10	40
THD62600HMG	5/8 x 6	5/8	15/16	10	40
THD62612HMG	5/8 x 6-1/2			10	40
THD62800HMG	5/8 x 8			10	20
THDB62500HMG	5/8 x 5			10	40
THDB62600HMG	5/8 x 6	5/8	15/16	10	40
THDB62612HMG	5/8 x 6-1/2			10	40
THDB62800HMG	5/8 x 8			10	20
THD75812HMG	3/4 x 8-1/2	3/4	1-1/8	5	10
THD75100HMG	3/4 x 10			5	10

1. Mechanically galvanized meets ASTM B695, Class 65, Type 1. Intended for some pressure-treated wood sill plate applications. Not for use in other corrosive or outdoor environments. Visit www.strongtie.com/info for more corrosion information.



The Titen HD® screw anchor 3/4 x 6" and 3/4 x 7" (models THDT75600H and THDT75700H) have a 1" section under the head that is unthreaded to allow installation into tilt-up wall braces.



HOLE DIMENSIONS

TITEN HD® DIAMETER (IN.)	WRENCH SIZE (IN.)	RECOMMENDED FIXTURE HOLE SIZE (IN.)
3/8	9/16	1/2 to 9/16
1/2	3/4	5/8 to 11/16
5/8	15/16	3/4 to 13/16
3/4	1-1/8	7/8 to 15/16

WEDGE-ALL® WEDGE ANCHORS

The Wedge-All® wedge anchors are a non-bottom bearing, wedge-style expansion anchor for use in solid concrete or grout-filled concrete masonry. A one-piece clip ensures uniform holding capacity that increases as tension is applied. The threaded stud version is available in eight diameters and multiple lengths. A single size tie-wire version is available for wire supported fixtures. Threaded studs are set by tightening the nut. Tie-wire anchors are set with the claw end of a hammer.



Wedge-All® Anchor



Tie-Wire Anchor (Zinc Plate Only)

WEDGE-ALL SPECIAL FEATURES:

- One-piece wrap around clip.
- Threaded end is chamfered for ease of starting nut.
- Most sizes feature full thread for added versatility.

MATERIAL: Carbon and stainless steel.

FINISH: Carbon steel anchors are available zinc-plated or mechanically galvanized.

CODES: ICC-ES ESR-1396 (CMU); City of L.A. RR24682; Factory Mutual 3017082, 3831136, and 3043442; Florida FL 11506.8; Underwriters Laboratories File Ex3605; Meets requirements of Federal Specifications A-A-1923A, Type 4. The Tie-Wire anchor is not code listed.

The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

TEST CRITERIA: The Wedge-All® anchor has been tested in accordance with ICC-ES's Acceptance Criteria for Expansion Anchors (AC01) for the following:

- Static tension and shear loading.
- Seismic and wind loading.
- Combination tension and shear loading.
- Critical and minimum edge distance.

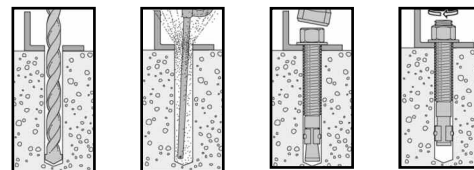
INSTALLATION:

- Holes in metal fixtures to be mounted should exceed nominal anchor diameter by 1/16" for 1/4" through 5/8" diameter anchors, and by 1/8" for all other diameters.

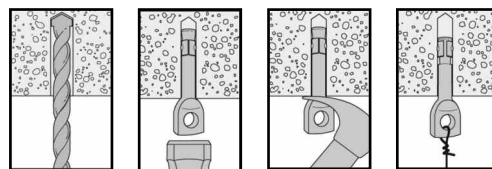
• Do not use an impact wrench to set or tighten the Wedge-All®.

⚠ Caution: Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.

WEDGE-ALL® ANCHOR INSTALLATION SEQUENCE



TIE-WIRE ANCHOR INSTALLATION SEQUENCE



CONTINUED NEXT PAGE

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



MECHANICAL ANCHORS (Cont.) WEDGE-ALL® WEDGE ANCHORS (Cont.)

THREADED STUDS:

- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment dept and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling.
- Assemble the anchor with nut and washer so the top of the nut is flush with the top of the anchor. Place the anchor in the fixture and drive into the hole until washer and nut are tight against fixture.
- Tighten to the required installation torque.

TIE-WIRE:

- Drill a hole at least 1-1/2" deep using a 1/4" diameter carbide tipped bit.
- Drive the anchor into the hole until the head is seated against the base material.
- Set the anchor by prying/pulling the head with the claw end of the hammer.

SUGGESTED SPECIFICATIONS:

Wedge anchors shall be a threaded stud with an integral cone expander and a single piece expansion clip. The stud shall be carbon steel with a minimum 70,000 psi tensile strength, or type 303, 304 or 316 stainless steel, as called for on the drawings. Anchors shall meet Federal Specification A-A-1923A, Type 4. Anchors shall be Wedge-All® anchors from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed following the Simpson Strong-Tie instructions for Wedge-All® anchors.

WEDGE-ALL® ANCHOR INSTALLATION DATA

WEDGE-ALL® DIA. (IN.)	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4
Bit Size (in.)	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4
Min. Fixture Hole (in.)	5/16	7/16	9/16	11/16	7/8	1	1-1/8	1-3/8
Wrench Size (in.)	7/16	9/16	3/4	15/16	1-1/8	1-5/16	1-1/2	1-7/8

LENGTH IDENTIFICATION HEAD MARKS ON WEDGE-ALL® ANCHORS (corresponds to length of anchor-inches)

MARK	UNITS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
FROM	IN.	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18
UP TO BUT NOT INCLUDING	IN.	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10	11	12	13	14	15	16	17	18	19

WEDGE-ALL® CARBON STEEL ANCHORS WEDGE-ALL® ANCHOR PRODUCT DATA

Carbon Steel: Zinc Plated and Mechanically Galvanized

CARBON STEEL PART NO.	MECHANICALLY GALVANIZED PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	THREAD LENGTH (IN.)	QTY. BOX	QTY. CTN.
TWD25112 ⁴	-	1/4 x 1-1/2		Hole Dia. is 9/32	100	500
WA25134	WA25134MG	1/4 x 1-3/4	1/4	15/16	100	500
WA25214	WA25214MG	1/4 x 2-1/4		1-7/16	100	500
WA25314	WA25314MG	1/4 x 3-1/4		2-7/16	100	500
WA37214	WA37214MG	3/8 x 2-1/4		1-1/8	50	250
WA37234	WA37234MG	3/8 x 2-3/4		1-5/8	50	250
WA37300	WA37300MG	3/8 x 3	3/8	1-7/8	50	250
WA37312	WA37312MG	3/8 x 3-1/2		2-1/2	50	250
WA37334	WA37334MG	3/8 x 3-3/4		2-5/8	50	250
WA37500	WA37500MG	3/8 x 5		3-7/8	50	200
WA37700	WA37700MG	3/8 x 7		5-7/8	50	200
WA50234	WA50234MG	1/2 x 2-3/4		1-5/16	25	125
WA50334	WA50334MG	1/2 x 3-3/4		2-5/16	25	125
WA50414	WA50414MG	1/2 x 4-1/4		2-13/16	25	100
WA50512	WA50512MG	1/2 x 5-1/2	1/2	4-1/16	25	100
WA50700	WA50700MG	1/2 x 7		4-9/16	25	100
WA50812	WA50812MG	1/2 x 8-1/2		6	25	50
WA50100	WA50100MG	1/2 x 10		6	25	50
WA50120	WA50120MG	1/2 x 12		6	25	50
WA62312	WA62312MG	5/8 x 3-1/2		1-7/8	20	80
WA62412	WA62412MG	5/8 x 4-1/2		2-7/8	20	80
WA62500	WA62500MG	5/8 x 5		3-3/8	20	80
WA62600	WA62600MG	5/8 x 6	5/8	4-3/8	20	80
WA62700	WA62700MG	5/8 x 7		5-3/8	20	80
WA62812	WA62812MG	5/8 x 8-1/2		6	20	40
WA62100	WA62100MG	5/8 x 10		6	10	20
WA62120	WA62120MG	5/8 x 12		6	10	20
WA75414	WA75414MG	3/4 x 4-1/4		2-3/8	10	40
WA75434	WA75434MG	3/4 x 4-3/4	3/4	2-7/8	10	40
WA75512	WA75512MG	3/4 x 5-1/2		3-5/8	10	40

CONTINUED NEXT COLUMN

CARBON STEEL PART NO.	MECHANICALLY GALVANIZED PART NO.	SIZE (IN.)	DRILL BIT DIA. (IN.)	THREAD LENGTH (IN.)	QTY. BOX	QTY. CTN.
WA75614	WA75614MG	3/4 x 6-1/4		4-3/8	10	40
WA75700	WA75700MG	3/4 x 7		5-1/8	10	40
WA75614	WA75614MG	3/4 x 6-1/4		4-3/8	10	40
WA75700	WA75700MG	3/4 x 7	3/4	5-1/8	10	40
WA75812	WA75812MG	3/4 x 8-1/2		6	10	20
WA75100	WA75100MG	3/4 x 10		6	10	20
WA75120	WA75120MG	3/4 x 12		6	5	10
WA87600	WA87600MG	7/8 x 6		2-1/8	5	20
WA87800	WA87800MG	7/8 x 8	7/8	2-1/8	5	10
WA87100	WA87100MG	7/8 x 10		2-1/8	5	10
WA87120	WA87120MG	7/8 x 12		2-1/8	5	10
WA16000	WA16000MG	1 x 6		2-1/4	5	20
WA19000	WA19000MG	1 x 9	1	2-1/4	5	10
WA11200	WA11200MG	1 x 12		2-1/4	5	10
WA12590	WA12590MG	1-1/4 x 9	1-1/4	2-3/4	5	10
WA12512	WA12512MG	1-1/4 x 12		2-3/4	5	10

1. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting the minimum length.
2. Special lengths are available on request. Load values are valid as long as minimum embedment depths are satisfied.
3. Tie-Wire Wedge-All® overall length is 2".
4. Tie-Wire Wedge-All® anchor also available in bulk quantity of 2,000, Part No. TWD25112B.
5. Bulk packaged Wedge-All® anchors available, call for details.

MATERIAL SPECIFICATIONS

CARBON STEEL - ZINC PLATED COMPONENT MATERIALS			
ANCHOR BODY	NUT	WASHER	CLIP
Material Meets Minimum 70,000 psi Tensile Strength	Carbon Steel ASTM A 563, Grade A	Carbon Steel	Carbon Steel

"FOR THE LATEST UP-TO-DATE INFORMATION AND SPECIFICATIONS, PLEASE CONSULT THE SIMPSON WEBSITE AT STRONGTIE.COM"



MECHANICAL ANCHORS (Cont.) WEDGE-ALL® CARBON STEEL ANCHORS

(Cont.)

WEDGE-ALL® ANCHOR PRODUCT DATA (Cont.)

MATERIAL SPECIFICATIONS

CARBON STEEL - MECHANICALLY GALVANIZED¹

COMPONENT MATERIALS

ANCHOR BODY	NUT	WASHER	CLIP
Material Meets Minimum 70,000 psi Tensile Strength	Carbon Steel ASTM A 563, Grade A	Carbon Steel	Carbon Steel

1. Mechanically Galvanized meets ASTM B695, Class 55, Type 1.



Application: Interior environment, low level of corrosion resistance.



Application: Exterior unpolluted environment, medium level of corrosion resistance. Well suited to humid environments.

WEDGE-ALL® STAINLESS STEEL WEDGE ANCHORS

WEDGE-ALL® ANCHOR PRODUCT DATA

TYPE 304/303 STAINLESS PART NO. ¹	TYPE 316 STAINLESS PART NO. ²	SIZE (IN.)	DRILL BIT DIA. (IN.)	THREAD LENGTH (IN.)	STD. QTY. BOX	STD. QTY. CTN.
WA251344SS	WA251346SS	1/4 x 1-3/4		15/16	100	500
WA252144SS	WA252146SS	1/4 x 2-1/4	1/4	1-7/16	100	500
WA253144SS	WA253146SS	1/4 x 3-1/4		2-7/16	100	500
WA372144SS	WA372146SS	3/8 x 2-1/4		1-1/8	50	250
WA372344SS	WA372346SS	3/8 x 2-3/4		1-5/8	50	250
WA373004SS	WA373006SS	3/8 x 3	3/8	1-7/8	50	250
WA373124SS	WA373126SS	3/8 x 3-1/2		2-1/2	50	250
WA373344SS	WA373346SS	3/8 x 3-3/4		2-5/8	50	250
WA375004SS	WA375006SS	3/8 x 5		3-7/8	50	200
WA377004SS	WA377006SS	3/8 x 7		5-7/8	50	200
WA502344SS	WA502346SS	1/2 x 2-3/4		1-5/16	25	125
WA503344SS	WA503346SS	1/2 x 3-1/4		2-5/16	25	125
WA504144SS	WA504146SS	1/2 x 4-1/4		2-13/16	25	100
WA505124SS	WA505126SS	1/2 x 5-1/2	1/2	4-1/16	25	100
WA507004SS	WA507006SS	1/2 x 7		5-9/16	25	100
WA50812SS	WA508123SS	1/2 x 8-1/2		2	25	50
WA50100SS	WA501003SS	1/2 x 10		2	25	50
WA50120SS	WA501203SS	1/2 x 12		2	25	50
WA623124SS	WA623126SS	5/8 x 3-1/2		1-7/8	20	80
WA624124SS	WA624126SS	5/8 x 4-1/2		2-7/8	20	80
WA625004SS	WA625006SS	5/8 x 5	5/8	3-3/8	20	80
WA626004SS	WA626006SS	5/8 x 6		5-3/8	20	80
WA62812SS	WA628123SS	5/8 x 8-1/2		2	20	40
WA62100SS	WA621003SS	5/8 x 10		2	10	20
WA62120SS	WA621203SS	5/8 x 12		2	10	20
WA754144SS	WA754146SS	3/4 x 4-1/4		2-3/8	10	40
WA754344SS	WA754346SS	3/4 x 4-3/4		2-7/8	10	40
WA755124SS	WA755126SS	3/4 x 5-1/2	3/4	3-5/8	10	40
WA756144SS	WA756146SS	3/4 x 6-1/4		4-3/8	10	40
WA757004SS	WA757006SS	3/4 x 7		5-1/8	10	40

CONTINUED NEXT COLUMN

TYPE 304/303 STAINLESS PART NO. ¹	TYPE 316 STAINLESS PART NO. ²	SIZE (IN.)	DRILL BIT DIA. (IN.)	THREAD LENGTH (IN.)	STD. QTY. BOX	STD. QTY. CTN.
WA75812SS	WA758123SS	3/4 x 8-1/2		2-1/4	10	20
WA75100SS	WA751003SS	3/4 x 10	3/4	2-1/4	10	20
WA75120SS	WA751203SS	3/4 x 12		2-1/4	5	10
WA87600SS	WA876003SS	7/8 x 6		2-1/8	5	20
WA87800SS	WA878003SS	7/8 x 8	7/8	2-1/8	5	10
WA87100SS	WA871003SS	7/8 x 10		2-1/8	5	10
WA87120SS	WA871203SS	7/8 x 12		2-1/8	5	10
WA16000SS	WA160003SS	1 x 6		2-1/4	5	20
WA19000SS	WA190003SS	1 x 9	1	2-1/4	5	10
WA11200SS	WA112003SS	1 x 12		2-1/4	5	10
WA12590SS	WA125903SS	1-1/4 x 9	1-1/4	2-3/4	5	10
WA12512SS	WA125123SS	1-1/4 x 12		2-3/4	5	10

1. Anchors with the "SS" suffix in the part number are manufactured from type 303 stainless steel, the remaining anchors (with the "4SS" suffix) are manufactured from type 304 stainless steel. Type 303 stainless anchors may require extra lead time, call factory for details. Type 303 and 304 stainless steel perform equally well in certain corrosive environments.
2. Anchors with the "3SS" suffix in the part number may require extra lead time. Call for details.
3. These package quantities available in type 303 stainless steel only.
4. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting a length.
5. Special lengths are available on request. Load values are valid as long as minimum embedment depths are satisfied.

Mini Pack: These package quantities must be ordered with a "-R" suffix on the end of the standard model number. (example: WA505124SS-R). Call for Box/Carton quantities.



MATERIAL SPECIFICATIONS

TYPE 304/303 STAINLESS STEEL¹

COMPONENT MATERIALS

ANCHOR BODY	NUT	WASHER	CLIP
Type 303 and 304 Stainless Steel	Type 18-8 Stainless Steel	Type 18-8 Stainless Steel	Type 304 or 316 Stainless Steel

1. Type 303 and 304 stainless steels perform equally well in certain corrosive environments. Larger sizes are manufactured from type 303.

Application: Exterior environment, high level of corrosion resistance. Resistant to organic chemicals, many inorganic chemicals, mite atmospheric pollution and mild marine environments (not in direct contact with salt water).

MATERIAL SPECIFICATIONS

TYPE 316 STAINLESS STEEL¹

COMPONENT MATERIALS

ANCHOR BODY	NUT	WASHER	CLIP
Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel

1. Type 316 stainless steel provides the greatest degree of corrosion resistance offered by Simpson Strong-Tie®.

Application: Exterior environment, high level of corrosion resistance. Resistant to chlorides, sulfuric acid, compounds and direct contact with salt water.

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HOLE SAWS

624 HOLE SAWS

BI-METAL VARI-PITCH 4/6 TPI, 1-3/4" DEPTH

- Bi-Metal
- 1-3/4" Depth cuts through 2" x 4" in one easy pass.
- 4/6 Variable Pitch Tooth combination, reduces vibration...increases productivity.
- Deep Gullet design, for improved chip removal.
- Tough 3/16" Thick Back Plate.
- Tough cutting...more holes per saw.



PART NO.	UPC NO. 722170-	DIAMETER (IN.)	DIAMETER (MM)	PIPE ENTRY SIZE	PIPE TAP SIZE
624.0916	62401	9/16"	14	-	-
624.1016	62402	5/8"	16	-	-
624.1116	62403	11/16"	17	-	-
624.1216	62404	3/4"	19	3/8"	-
624.1316	62405	13/16"	21	-	-
624.1416	62406	7/8"	22	1/2"	3/4"
624.1516	62407	15/16"	24	-	-
624.1616	62408	1"	25	-	-
624.1716	62409	1-1/16"	27	-	-
624.1816	62410	1-1/8"	29	3/4"	1"
624.1916	62411	1-3/16"	30	-	-
624.2016	62412	1-1/4"	32	-	-
624.2216	62414	1-3/8"	35	1"	-
624.2316	62415	1-7/16"	37	-	-
624.2416	62416	1-1/2"	38	-	1-1/4"
624.2516	62417	1-9/16"	40	-	-
624.2616	62418	1-5/8"	41	-	-
624.2716	62419	1-11/16"	43	-	-
624.2816	62420	1-3/4"	44	1-1/4"	1-1/2"
624.2916	62421	1-13/16"	46	-	-
624.3016	62422	1-7/8"	46	-	-
624.3216	62423	2"	51	1-1/2"	-
624.3316	62424	2-1/16"	52	-	-
624.3416	62425	2-1/8"	54	-	-
624.3616	62426	2-1/4"	57	-	2"
624.3716	62427	2-5/16"	59	-	-
624.3816	62428	2-3/8"	60	-	-
624.4016	62429	2-1/2"	64	2"	-
624.4116	62430	2-9/16"	65	-	-
624.4216	62431	2-5/8"	67	-	2-1/2"
624.4416	62432	2-3/4"	70	-	-
624.4616	62433	2-7/8"	73	-	-
624.4816	62434	3"	76	2-1/2"	-
624.5016	62435	3-1/8"	79	-	3"
624.5216	62436	3-1/4"	83	-	-
624.5416	62437	3-3/8"	86	-	-
624.5616	62438	3-1/2"	89	-	-
624.5816	62439	3-5/8"	92	3"	-
624.6016	62440	3-3/4"	94	-	3-1/2"
624.6216	62441	3-7/8"	98	-	-
624.6416	62442	4"	102	-	-
624.6616	62443	4-1/8"	105	3-1/2"	-
624.6816	62444	4-1/4"	108	-	-
624.7016	62445	4-3/8"	111	-	-
624.7216	62446	4-1/2"	114	4"	-
624.7616	62447	4-3/4"	121	-	4-1/2"
624.8016	62448	5"	127	-	-
624.8416	62452	5-1/4"	133	-	-
624.8816	62449	5-1/2"	140	-	-
624.9216	62450	5-3/4"	146	-	-
624.9616	62451	6"	152	-	-

Unit Pack: 1 Per Box

ARBORS AND PILOT BITS

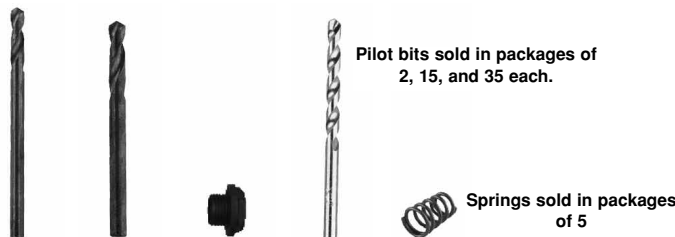
624 & 625 SDS ARBORS / PILOT BITS

ARBORS



624.9002 624.9004 624.9009 624.9007 624.9005 625.9002 625.9005

PILOT BITS



Pilot bits sold in packages of 2, 15, and 35 each.

Springs sold in packages of 5

624.9014B 624.9015B 624.9080AD 625.9014B 625.9010

⚠ When drilling metals, use a cutting compound such as MAG-LUBE concentrated cutting fluid

625 SDS ARBORS/PILOT BITS

PART NO.	UPC NO. 722170-	FITS SAWS
625.9002	62573	1816-6616
625.9005	62572	1216-1816
625.9014B	62561	4" Carbide Tipped Pilot Drill

624 ARBORS / PILOT BITS

PART NO.	UPC NO. 722170-	ARBOR SHANK	APPLICATIONS
624.9002	62458	7/16" Hex Positive Grip	5/8"-18 thread - fits saws 1-1/4" & up
624.9004	62459	3/8" Hex Q.C.	5/8"-18 thread - fits saws 1-1/4" & up
624.9007	62460	3/8" Hex	1/2"-20 thread - fits saws up to 1-3/16"
624.9005	62470	1/4" Hex	1/2"-20 thread - fits saws up to 1-3/16"
624.9009	62471	7/16" Hex	1/2"-20 thread - fits saws up to 12-3/16"
624.9014B	62461	4" Pilot Bit HSS	All arbors
624.9015B	62462	3" Pilot Bit HSS	All arbors
624.9080AD	62463	Adapter	9005-9007
624.9010	62472	Ejector Springs	-

Products are shown at reduced size and are not proportional to each other.

AUGER BITS

THE NAILBOMBER

NAILBOMBER bust nails not bits!

- Molybdenum coated for cooler running.
- Cuts nails.
- Manufactured from higher grade steel.
- Glides through wood with less binding, bores faster.
- Stays sharper longer.
- No run out, machined on a true center.

Molybdenum Coated: Molybdenum cools and lubricates the bit. The bit stays sharper longer because the heat treatment lasts longer. The bit ejects chips and bores faster than ordinary bits and binds less, even in wet or resinous woods.

CONTINUED NEXT PAGE



AUGER BITS (Cont.)
THE NAILBOMBER (Cont.)

Deeper Lands: For a stronger less flexible bit.

Countershark: Bits 5/8" and larger in diameter will accept the Mag-Bit counter bore tools, available in 1-1/2", 2-1/4" and 3-1/4" diameters.

Extensions: Quick Change Shank.



357DLX HEAVY DUTY SHIP AUGERS
8" OAL x 5" TWIST LENGTH

PART NO.	UPC NO. 722170-	SIZE	SHANK SIZE
357DLX.0816QC	35701	1/2"	5/16"
356DLX.0916QC	35702	9/16"	5/16"
357DLX.1016QC	35703	5/8"	7/16"
357DLX.1116QC	35704	11/16"	7/16"
357DLX.1216QC	35705	3/4"	7/16"
357DLX.1316QC	35706	13/16"	7/16"
357DLX.1416QC	35707	7/8"	7/16"
356DLX.1516QC	35708	15/16"	7/16"
357DLX.1616QC	35709	1"	7/16"
357DLX.1816QC	35710	1-1/8"	7/16"
357DLX.2016QC	35711	1-1/4"	7/16"
357DLX.2216QC	35712	1-3/8"	7/16"
357DLX.2416QC	35713	1-1/2"	7/16"

Unit Pack: 1

THE NAILBOMBER

NAILBOMBER bust nails not bits!

- Molybdenum coated for cooler running.
- Cuts nails.
- Manufactured from higher grade steel.
- Glides through wood with less binding, bores faster.
- Ejects chips faster.
- Stays sharper longer.
- No run out, machined on a true center.



Molybdenum Coated: Molybdenum cools and lubricates the bit. The bit stays sharper longer because the heat treatment lasts longer. The bit ejects chips and bores faster than ordinary bits and binds less, even in wet or resinous woods.

Deeper Lands: For a stronger less flexible bit.

Countershark: Bits 5/8" and larger in diameter will accept the Mag-Bit counter bore tools, available in 1-1/2", 2-1/4" and 3-1/4" diameters.

Extensions: Quick Change Shank.

303DLX HEAVY DUTY SHIP AUGERS
18" OAL x 15" Twist Length

PART NO.	UPC NO. 722170-	SIZE	SHANK SIZE
303DLX.0616QC	30301	3/8"	5/16"
303DLX.0716QC	30302	7/16"	5/16"
303DLX.0816QC	30303	1/2"	5/16"
303DLX.0916QC	30304	9/16"	5/16"
303DLX.1016QC	30305	5/8"	7/16"
303DLX.1116QC	30306	11/16"	7/16"
303DLX.1216QC	30307	3/4"	7/16"
303DLX.1316QC	30308	13/16"	7/16"

CONTINUED NEXT COLUMN

PART NO.	UPC NO. 722170-	SIZE	SHANK SIZE
303DLX.1416QC	30309	7/8"	7/16"
303DLX.1516QC	30310	15/16"	7/16"
303DLX.1616QC	30311	1"	7/16"
303DLX.1816QC	30312	1-1/8"	7/16"
303DLX.2016QC	30313	1-1/4"	7/16"
303DLX.2216QC	30314	1-3/8"	7/16"
303DLX.2416QC	30315	1-1/2"	7/16"

Unit Pack: 1

MAG-BIT SPECIALTY BITS
792 SPADE BITS
6" OAL

- Forged steel for high cutting quality and strength.
- 1/4" Quick Change shank.
- Fish eye hole.
- Two spurs make these economically priced hole makers extremely aggressive.



PART NO.	UPC NO. 722170-	SIZE	SHANK SIZE
792.0416	79201	1/4"	1/4"
792.0516	79202	5/16"	1/4"
792.0616	79203	3/8"	1/4"
792.0716	79204	7/16"	1/4"
792.0816	79205	1/2"	1/4"
792.0916	79206	9/16"	1/4"
792.1016	79207	5/8"	1/4"
792.1116	79208	11/16"	1/4"
792.1216	79209	3/4"	1/4"
792.1316	79210	13/16"	1/4"
792.1416	79211	7/8"	1/4"
792.1516	79212	15/16"	1/4"
792.1616	79213	1"	1/4"
792.1816	79214	1-1/8"	1/4"
792.2016	79215	1-1/4"	1/4"
792.2216	79216	1-3/8"	1/4"
792.2416	79217	1-1/2"	1/4"

Unit Pack: 1

MAG 792 SPADE BIT KITS



- 6-piece set includes: 3/8", 1/2", 5/8", 3/4", 7/8" and 1".
- 13-piece set includes: one each from 1/4" to 1".

PART NO.	UPC NO. 722170-	DESCRIPTION
792.6000P	79220	6 Pc. Set / Pouched*
792.1300P	79221	13 Pc. Set / Pouched*

* Reusable vinyl pouch.

BRUBAKER TOOL™

USA HSS GROUND THREAD TAPER PIPE TAPS



The nominal size of a Taper Pipe Tap is that of the pipe fitting to be tapped, not the actual size of the tap. The thread tapers 3/4 of an inch per foot. The Interrupted Thread Pipe Taps have every other thread removed except for the first few at the point. They are used for tapping tough metals or those which have a tendency to load to the tap teeth. Straight Pipe Taps are used for hand and machine tapping of straight pipe threads.

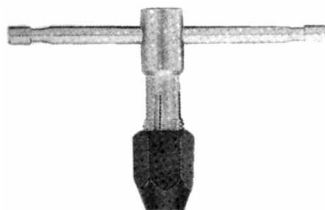
Packaging: 1/16" thru 3/8", 12 per box. 1/2" thru 3/4", 6 per box. 1" & up individually packaged.

Taper Pipe (NPT) USA Series 2900

PART NO.	SIZE	THREADS PER INCH	NUMBER OF FLUTES	LENGTH OF THREAD	OVERALL LENGTH
290A104	1/16	27	4	11/16	2-1/8
290A108	1/8	27	4	3/4	2-1/8
290A116	1/4	18	4	1-1/16	2-7/16
290A124	3/8	18	4	1-1/16	2-9/16
290A132	1/2	14	4	1-3/8	3-1/8
290A148	3/4	14	5	1-3/8	3-1/4
290A164	1"	11-1/2	5	1-3/4	3-3/4
290A216	1-1/4	11-1/2	5	1-3/4	4"
290A232	1-1/2	11-1/2	7	1-3/4	4-1/4
290A264	2"	11-1/2	7	1-3/4	4-1/2
290A332	2-1/2	8	8	2-9/16	5-1/2
290A364	3"	8	8	2-5/8	6"
290A432	3-1/2	8	8	2-11/16	6-1/2
290A464	4"	8	8	2-3/4	6-3/4

Also Available in NPTF & ANPT

T-HANDLE TAP WRENCHES



PART NO.	TAP CAPACITY
2000TW2	#0 to 1/4"
2000TW4	#12 to 1/2"

CARBIDE BURRS

TiN COATED FOR LONGER LIFE CYLINDRICAL



SOLID CARBIDE 1/4" SHANK MADE IN USA

DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7A116ADC	SA-1	1/4	5/8
7A124ADC	SA-3	3/8	3/4
7A132ADC	SA-5	1/2	1"

CUTTING TOOL PROBLEMS?
Call us for Solutions!

TiN COATED FOR LONGER LIFE CYLINDRICAL BALL NOSE



DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7C116ADC	SC-1	1/4	5/8
7C124ADC	SC-3	3/8	3/4
7C132BDC	SC-5	1/2	1"

TiN COATED FOR LONGER LIFE BALL SHAPE



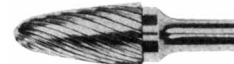
DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7D116ADC	SD-1	1/4	1/4
7D124ADC	SD-3	3/8	3/8
7D132ADC	SD-5	1/2	1/2

TiN COATED FOR LONGER LIFE OVAL SHAPE



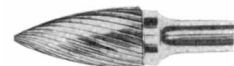
DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7E116ADC	SE-1	1/4	3/8
7E124ADC	SE-3	3/8	5/8
7E132ADC	SE-5	1/2	7/8

TiN COATED FOR LONGER LIFE ROUND TREE SHAPE



DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7F116ADC	SF-1	1/4	5/8
7F124ADC	SF-3	3/8	3/4
7F132ADC	SF-5	1/2	1"

TiN COATED FOR LONGER LIFE POINTED TREE SHAPE



DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7G116ADC	SG-1	1/4	5/8
7G124ADC	SG-3	3/8	3/4
7G132ADC	SG-5	1/2	1"

TiN COATED FOR LONGER LIFE 14° INCLUDED ANGLE



DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7L116ADC	SL-1	1/4	5/8
7L120ADC	SL-2	5/16	7/8
7L124ADC	SL-3	3/8	1-1/16
7L132ADC	SL-4	1/2	1-1/8

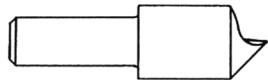
TiN COATED FOR LONGER LIFE CONE SHAPE



DOUBLE CUT PART NO.	TOOL NO.	CUTTER DIA.	LENGTH OF CUT
7M116CDC	SM-3	1/4	1"
7M124CDC	SM-4	3/8	5/8
7M132CDC	SM-5	1/2	7/8

BRUBAKER TOOL™

**COUNTERSINKS
TiN COATED
FOR LONGER LIFE
LIST 555 STRAIGHT SHANK**



• Single Flute, Right Hand Cut, High Speed Steel.

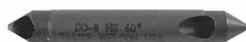
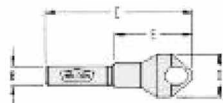
82° PART NO.	BODY DIA.	SHANK DIA.	OVERALL LENGTH
55513	1/4	1/4	1-1/2
55519	3/8	1/4	1-3/4
55525	1/2	1/4	2
55531	5/8	3/8	2-1/4
55537	3/4	1/2	2-5/8
55549	1	1/2	2-3/4
55561	1-1/2	3/4	2-7/8



82° PILOTLESS COUNTERSINK



STYLE 1



STYLE 3



PART NO.	UPC NO.	DIA. OF CUT		SCREW SIZE	SHANK DIA. B	OVER-ALL LENGTH			STYLE
		MIN.	MAX.			C	D	E	
CS-3S	98810	.073	15/64	—	1/4	1-3/4	—	—	3
CS-18	98820	3/16	17/32	—	1/4	1-7/8	9/16	1	1
CS-26	98824	.307	25/32	—	1/2	2-5/8	13/16	1-3/8	1
CS-26A	98822	.307	25/32	—	1/4	2-1/16	13/16	1-1/4	1
CS-36	98826	.431	7/8	—	1/2	2-13/16	1-1/8	1-9/16	1
CS-48	98828	1/2	1-15/32	—	1/2	3-1/2	1-1/2	2-1/8	1
CS-5S	98812	—	—	Nos. 4, 5	1/4	1-1/2	176/64	5/8	1
CS-6S	98814	—	—	No. 6	1/4	1-1/2	19/64	5/8	1
CS-8S	98816	—	—	No. 8	1/4	1-5/8	11/32	3/4	1
CS-10S	98818	—	—	No. 10	1/4	1-5/8	25/64	3/4	1

GENERAL®

**MACHINIST TOOLS
TAP WRENCHES**

General's Tap Wrenches provide good leverage in tight spaces. These top quality tools are designed to give the user the reach and leverage needed for accurate tapping. The T-handle Tap Wrenches are for holding taps, drills, reamers and other small tools to be turned by hand.

REVERSIBLE RATCHET TAP WRENCHES

- Ratchet can be set for right- or left-hand operation or locked for non-ratchet use.
- Self-centering hardened steel jaws and knurled chuck sleeve provide positive grip on taps, reamers and small tools.
- Sliding T-handle for fitting into tight spaces with operator leverage.
- No 161R conforms to government specifications GGG-W-680a.



PART NO.	UPC NO.	TAP CAPACITY	LENGTH
GEN 160R	31200 6	No. 0 to No. 8 (1.6 to 4mm)	2-3/4" (70mm)
GEN 161R	31203 7	No. 0 to 1/4" (1.6 to 6.3mm)	3-1/2" (88mm)
GEN 162R	31209 9	No. 12 to 1/2" (6 to 12mm)	4-1/4" (105mm)

PLAIN TAP WRENCHES

- Self-centering hardened steel jaws and knurled chuck sleeve.
- No. 163 has rigid T-handle.
- Nos. 164 and 165 have Sliding T-handle for fitting into tight spaces with greater leverage.



PART NO.	UPC NO.	TAP CAPACITY (NOS. & INCHES)	LENGTH
GEN 163	31212 9	No. 0 to No. 8 (1.6 to 4mm)	2-1/4" (57mm)
GEN 164	31215 0	No. 0 to 1/4" (1.6 to 6.3mm)	2-3/4" (70mm)
GEN 166	31218 1	No. 12 to 1/2" (6 to 12mm)	3-3/4" (95mm)

COUNTERSINKS

5-FLUTE ROSE PATTERN COUNTERSINKS



PART NO.	UPC NO.	A	B	C
GEN 195-1/2	195-1/2	1/2"	3/8"	1/4"
GEN 195-5/8	195-5/8	5/8"	3/8"	1/4"
GEN 195-3/4	195-3/4	3/4"	3/8"	1/4"

- The rose pattern cutting flutes assure chatter free countersinking on steel, brass, aluminum, plastic, wood and other materials.
- Made of high-speed steel with five flutes.
- 82° point angle.
- Stepped shank for use with 1/4" and 3/8" chucks.



ROTO Brute **MAGNETIC DRILL PRESSES**
AC35 MAGNETIC DRILL PRESS

23LB Weight
2500LB Magnetic Strength
1200W Motor
600 Max Speed RPM
1-3/8" Cutter Capacity
2" Drill Capacity
6-1/2" Depth of Cut
12" Height
6-1/2" Depth
3" Width

- Features:**
- Weighs only 23 lbs.
 - Cutter Capacity: 1-3/8" diameter x 2" depth
 - Standard external fluid reservoir
 - Quick change cutter arbor
 - No load speed 600 RPM
- Benefits:**
- Easy to maneuver
 - Same capacity as machines weighing much more
 - Convenient cooling and less fill ups than arbor reservoir
 - Annular cutters changed quickly with no tools
 - Great for use with carbide tipped annular cutters
- Included with every AC35:**
- Carrying case, hex keys, safety chain, external coolant bottle, cutting fluid, safety guard
 - Quick release arbor enables cutter change in seconds

PART NO.	DESCRIPTION
AC35	RotoBrute AC35 Magnetic Drill Press

ROTO Brute **CARBIDE TIPPED ANNULAR CUTTERS**

CT150 / CT200 / CT300+ / CT400

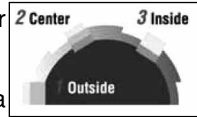
Maximize cutting performance of any portable magnetic drill press. Their superior "Triple Edge" cutting action outperforms ordinary high speed steel annular cutters and twist drills 6:1.



Application: Cut holes in cast iron, steel and ultra hard or exotic alloys with the added ability to produce overlapping and interrupted holes easily.

Time Saving Features:

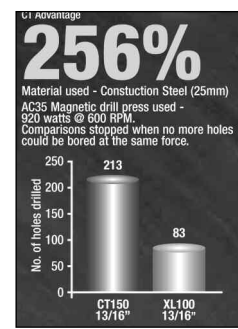
- Ultra hard carbide teeth permit faster cutting even in tough materials and shapes.
- Cut clean, burr free holes.
- Precision pilot pins eject the center as a plug of steel.
- Features Weldon style flats for fast loading and better rigidity.



CONTINUED NEXT COLUMN

Triple Edge Cutting Features:

- The CT series features two sets of three cutting tips each with different geometries, balancing and cutting forces. This enables higher feed rates and smoother drilling, with better control in structural steel and steel plate.



CT150 vs. Standard HS Annular Cutter Comparison

DIAMETER	PART NO. CT150* 1-3/8" DEPTH OF CUT	PART NO. CT200† 2" DEPTH OF CUT	PART NO. CT300† 3" DEPTH OF CUT	PART NO. CT400† 4" DEPTH OF CUT
9/16	CT150-9/16	CT200-9/16	-	-
5/8	CT150-5/8	CT200-5/8	-	-
11/16	CT150-11/16	CT200-11/16	-	-
3/4	CT150-3/4	CT200-3/4	CT300-3/4	CT400-3/4
13/16	CT150-13/16	CT200-13/16	CT300-13/16	CT400-13/16
7/8	CT150-7/8	CT200-7/8	CT300-7/8	CT400-7/8
15/16	CT150-15/16	CT200-15/16	CT300-15/16	CT400-15/16
1	CT150-1	CT200-1	CT300-1	CT400-1
1-1/16	CT150-1-1/16	CT200-1-1/16	CT300-1-1/16	CT400-1-1/16
1-1/8	CT150-1-1/8	CT200-1-1/8	CT300-1-1/8	CT400-1-1/8
1-3/16	CT150-1-3/16	CT200-1-3/16	CT300-1-3/16	CT400-1-3/16
1-1/4	CT150-1-1/4	CT200-1-1/4	CT300-1-1/4	CT400-1-1/4
1-5/16	CT150-1-5/16	CT200-1-5/16	CT300-1-5/16	CT400-1-5/16
1-3/8	CT150-1-3/8	CT200-1-3/8	CT300-1-3/8	CT400-1-3/8
1-7/16	CT150-1-7/16	CT200-1-7/16	-	-
1-1/2	CT150-1-1/2	CT200-1-1/2	CT300-1-1/2	CT400-1-1/2
1-9/16	CT150-1-9/16	CT200-1-9/16	-	-
1-5/8	-	CT200-1-5/8	CT300-1-5/8	CT400-1-5/8
1-11/16	-	CT200-1-11/16	-	-
1-3/4	-	CT200-1-3/4	CT300-1-3/4	CT400-1-3/4
1-13/16	-	CT200-1-13/16	-	-
1-7/8	-	CT200-1-7/8	-	-
1-15/16	-	CT200-1-15/16	-	-
2	-	CT200-2	CT300-2	CT400-2
2-1/8	-	CT200-2-1/8	CT300-2-1/8	-
2-1/4	-	CT200-2-1/4	CT300-2-1/4	-
2-3/8	-	CT200-2-3/8	CT300-2-3/8	-
2-1/2	-	CT200-2-1/2	CT300-2-1/2	-
2-5/8	-	CT200-2-5/8	CT300-2-5/8	-
2-3/4	-	CT200-2-3/4	CT300-2-3/4	-
2-7/8	-	-	CT300-2-7/8	-
3	-	CT200-3	CT300-3	-
3-1/8	-	-	CT300-3-1/8	-
3-1/4	-	CT200-3-1/4	CT300-3-1/4	-
3-3/8	-	-	CT300-3-3/8	-
3-1/2	-	CT200-3-1/2	CT300-3-1/2	-
3-5/8	-	-	CT300-3-5/8	-
3-3/4	-	-	CT300-3-3/4	-
3-7/8	-	-	CT300-3-7/8	-
4	-	CT200-4	CT300-4	-

* Stocked
† Available





MAGNETIC DRILL PRESS ACCESSORIES
INDUSTRIAL ARBORS



PART NO.	DESCRIPTION	SET SCREWS PART NO.
RB334	1/2-20 thread mounted 3/4 for RB32	RB3074
RB335	1/2-20 thread mount 3/4 arbor for 2" depth cutters	RB3074
RB433	Converts #2 Morse taper to 3/4 arbor for RB45	RB45-204
RB632	Converts #3MT to 1-1/4 arbor to run 2-5/16+ dia. / 3" depth cutters in RB65	RB6106
RB633	Converts #3MT to 3/4 arbor to run up to 2-1/4 dia. / 3" depth cutters in RB65	RB6105
RB634	Converts #3MT to 3/4 up to 2-1/4 arbor for RB65	RB6105
RB635	Converts #3MT to 1-1/4 arbor to run 2-5/16+ diameter cutters for RB65	RB6106
AC3502LQ	Quick change arbor for AC35	-

DRILL CHUCKS AND KEYS



PART NO.	DESCRIPTION
RB3212	1/2-20 thread mounted drill chuck for RB32
RB3212-KEY	Chuck key
RB4512	#2 Morse taper shank 1/2" drill chuck for RB45
RB4512-KEY	Chuck key
RB1234	Chuck adaptor RB32 3/4" shank
RB6512	#3 Morse taper mounted 1/2" drill chuck for RB65
RB6512-KEY	Chuck key
RB6534	#3 Morse taper mounted 3/4" drill chuck for RB65
RB6534-KEY	Chuck key
RB-HEX-SET	RB hex key set
RB32-0515	Chuck key for AC35-1220
AC35-1220	1/2" drill chuck for AC35-451220 / AC35-461220
AC35-451220	Drill chuck adaptor use with chuck AC35-1220
AC35-461220	Quick change adaptor use with chuck AC35-1220



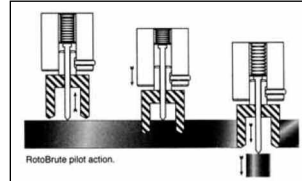
PILOT PINS

For High Speed Steel and Carbide Tipped Annular Cutters



Rotobrute pins slide through the center of the annular cutter to:

- Help the operator set the precise location to drill.
- Guide a steady flow of cutting fluid to the cutting edges.
- Eject the slug when the cutter has completed the hole.



CARBIDE TIPPED ANNULAR CUTTER PILOT PINS

PART NO.	DESCRIPTION
CT150P	5/16 diameter pilot pins for CT150 cutters
CT150-PIN	Pilot pins for CT150 9/16 and 5/8 cutters
CT200P	5/16 diameter pilot pins for CT200 cutters
CT200-PIN	Pilot pins for CT200 9/16 and 5/8 cutters
CT300P	5/16 diameter pilot pins for CT300 cutters
CT400P	5/16 diameter pilot pins for CT400 cutters

HSS ANNULAR CUTTER PILOT PINS

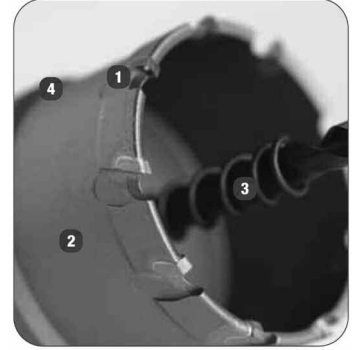
PART NO.	DESCRIPTION
XL100P	1/4 diameter pilot pins for XL100 cutters
LX100P-7/16	Pilot pins for XL100-7/16 cutters
XL200P	1/4 diameter pilot pins for XL200 cutters
XL200P-7/16	Pilot pins for XL200-7/16 cutters
XL300P	1/4 diameter pilot pins for XL300 cutters

CT7 CARBIDE TIPPED HOLE CUTTERS

The perfect, portable tool for the professional electrician, plumber, mechanic and general contractor.



Application: An extremely productive tool that is a cost effective alternative to bi-metal holesaws for drilling holes in steel and other materials up to 1" thick.



- Perfect portable tool for the professional electrician, plumber, mechanic and contractor.
- Productive tool that is a cost effective alternative to bi-metal holesaws.
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP (i.e. fiberglass) and plastics up to 1" thick.

1. Special tungsten carbide teeth

- Excellent wear and heat resistance
- Cuts stainless steel and tough alloys

2. One piece construction

- No assembly required
- Stable accurate drilling

3. Ejector spring (Standard)

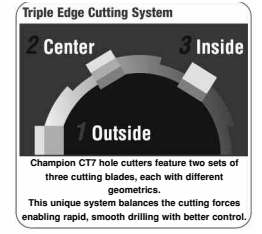
- Ejects the slug saving time

4. Safety collar stop

- Prevents over penetration for safer, faster operation

Applications:

- Junction / Switch Boxes
- Metal Studs
- Appliances
- Auto Body Repair
- Truck / Trailer Frames
- Ductile Pipe



PART NO. / SIZE	PART NO. / SIZE	PART NO. / SIZE	PART NO. / SIZE
CT7-9/16	CT7-1-3/16	CT7-1-13/16	CT7-2-3/4
CT7-5/8	CT7-1-1/4	CT7-1-7/8	CT7-2-7/8
CT7-11/16	CT7-1-5/16	CT7-1-15/16	CT7-3
CT7-3/4	CT7-1-3/8	CT7-2	CT7-3-1/4
CT7-13/16	CT7-1-7/16	CT7-2-1/8	CT7-3-1/2
CT7-7/8	CT7-1-1/2	CT7-2-1/4	CT7-3-5/8
CT7-15/16	CT7-1-9/16	CT7-2-3/8	CT7-4
CT7-1	CT7-1-5/8	CT7-2-1/2	CT7-4-1/8
CT7-1-1/16	CT7-1-11/16	CT7-2-9/16	CT7-4-1/4
CT7-1-1/8	CT7-1-3/4	CT7-2-5/8	CT7-4-1/2

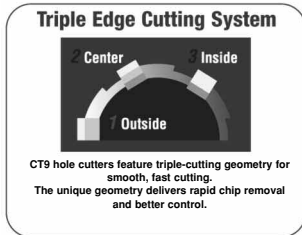
PART NO. / SIZE	DESCRIPTION
CT7-PILOT	Pilot Drill (2-7/8" OAL)
CT7-SCREW	Screw for CT7 Hole Cutter
CT7-SPRING	Spring for CT7 Hole Cutter
CT7-PILOT-TCT	Carbide Tipped Pilot Drill for abrasive materials



CT9 CARBIDE TIPPED HOLE CUTTERS

2" Depth of cut hole cutter. Features carbide tips and heavy duty one piece design.

Application: Recommended for drilling steel door lockset holes, where extra cutting depth is required.



THE CHOICE FOR DRILLING LOCKSET AND DEADBOLT HOLES IN STEEL DOORS

- 2" depth for drilling thick materials
- 3/8" shanks
- 2-1/8" designed for door knob, 1-1/2" designed for dead bolt.

1. Special tungsten carbide teeth

- Excellent wear and heat resistance
- Cuts stainless steel and tough alloys

3. Extra length tool body

- For extra length of cutting

2. One piece construction

- No assembly required
- Stable accurate drilling

PART NO. / SIZE	SHANK DIAMETER	PART NO. / SIZE	DESCRIPTION
CT9-1-1/2†	3/8	CT9-PILOT†	Pilot Drill (4" OAL)
CT-2-1/8	3/8	CT9-SCREW†	Screw for CT9 Hole Cutter

† AVAILABLE

CARBIDE TIPPED HOLE CUTTER ACCESSORIES

CT-EXT HOLE CUTTER EXTENSIONS

- Extends CT5 and CT7 hole cutters by 4"
- Precision machined tool steel
- Will extend the reach of all 3/8" and 1/2" shank tools



PART NO. / SIZE	DESCRIPTION
CT-EXT-3/8†	5" x 3/8" shank extension for 3/8" shank CT5/CT7 cutters
CT-EXT-1/2†	5" x 1/2" shank extension for 1/2" shank CT5/CT7 cutters

† Available

QCD QUICK-CHANGE DRIVER

- Dual 1/4" and 3/8" drill and drive chuck
- 3/8" tools lock into position 1
- 1/4" tools lock into position 2
- Industrial quality with minimal runout (wobble)
- Fits all accessory types, all brands.
- Fits old and new hex shanks with or without power groove



PART NO. / SIZE	DESCRIPTION
QCD†	Quick Change Driver for 1/4" and 3/8" hex shank tools

† Available

HOLE CUTTER SETS

CT5 HOLE CUTTER SETS



PART NO.	DESCRIPTION
CT5-SET-1†	7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in metal case
CT5P-SET-1†	5 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in plastic case
CT5P-CONDUIT-1†	7 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-7/32, 1-3/8, 1-3/4, 2, 2-1/2 in plastic case

† Available

CT5 MASTER ELECTRICIAN'S SET



PART NO.	DESCRIPTION
CT5P-ELECTRICAL-1†	10 Piece Master Electrical Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8 and 4-1/2 in plastic case

† Available

CT7 HOLE CUTTER SETS



PART NO.	DESCRIPTION
CT7-SET-1†	5/8, 3/4, 7/8 and 1 in metal case
CT7-SET-2†	11/16, 13/16, 15/16 and 1-1/16 in metal case
CT7-SET-3†	7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in metal case
CT7P-SET-4†	5-Piece General Maintenance Set: 5/8, 3/4, 7/8, 1 and 1-1/8 in plastic case
CT7P-SET-5†	5 Piece Bolt Clearance Set: 9/16, 11/16, 13/16, 15/16 and 1-1/16 in plastic case
CT7P-SET-6†	5 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in plastic case
CT7P-SPRINKLERSET†	5 Piece Sprinkler Valve Set: 1-3/16, 1-1/4, 1-1/2, 1-3/4, 2 and 2-1/8 in plastic case

† Available



HOLE CUTTER SETS (Cont.)

CT7 MASTER ELECTRICAL AND MECHANICAL SET



PART NO.	DESCRIPTION
CT7P-MECHANICAL-1†	12 Piece Master Mechanical Set: 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/2 and 3 in plastic case
CT7P-ELECTRICAL-1†	12 Piece Master Electrical Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8, 4-1/2 in plastic case

† Available

CT7 PLUMBER'S SETS



PART NO.	DESCRIPTION
CT7P-PLUMBER-1†	6 Piece Plumber Set: 3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4 in plastic case
CT7P-PLUMBER-2†	12 Piece Plumber Set: 3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4, 2-9/16, 3, 3-1/2, 4, 4-1/4, 4-1/2 in plastic case

† Available

CT7 / CT9 LOCK KIT



PART NO.	DESCRIPTION
CT9P-DOOR-SET†	CT7-7/8, CT7-1, CT9-1-1/2, CT9-2-1/8 in plastic case

† Available

DRILL BITS XL5 JOBBER DRILLS

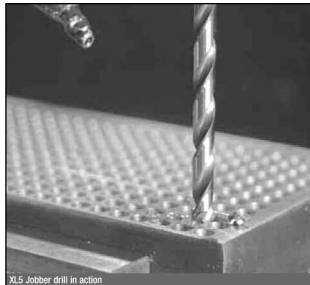
Straight Shank / Heavy Duty / Black & Bright Finish / 135° Split Point / NOMO® Surface Treatment / HSS

Unique web geometry, especially useful in portable drilling of stainless steel, titanium alloys, and other hard to drill materials.



Application: Steel erection, mining, heavy construction. Used in a wide range of manufacturing plants, vehicle, railway and dockyard maintenance.

CONTINUED NEXT COLUMN



XL5 Jobber drill in action



Brute Platinum
XL5 Jobber Drill
Sets



Field tests have proven Brute Platinum XL5 drills penetrate faster than cobalt. Users state lower fatigue levels, since less force is required to drill. Less breakage is also reported due to its unique "toughness: hardness" ratio, enabling them to flex when cobalt drills chip or snap. Precision ground to 135° split point eliminates the need for pilot hole drilling. Prevents "walking" and bites right into #300 and #400 series stainless steel.

PART NO./ DIAMETER	DECIMAL EQUIVALENT	FLUTE LENGTH	OVERALL LENGTH
XL5-1/16**	.0625	7/8	1-7/8
XL5-52	.0635	7/8	1-7/8
XL5-51	.0670	1	2
XL5-50	.0700	1	2
XL5-49	.0730	1	2
XL5-48	.0760	1	2
XL5-5/64**	.0781	1	2
XL5-47	.0785	1	2
XL5-46	.0810	1-1/8	2-1/8
XL5-45	.0820	1-1/8	2-1/8
XL5-44	.0860	1-1/8	2-1/8
XL5-43	.0890	1-1/4	2-1/4
XL5-42	.0935	1-1/4	2-1/4
XL5-3/32**	.0938	1-1/4	2-1/4
XL5-41	.0960	1-3/8	2-3/8
XL5-40	.0980	1-3/8	2-3/8
XL5-39	.0995	1-3/8	2-3/8
XL5-38	.1015	1-7/16	2-1/2
XL5-37	.1040	1-7/16	2-1/2
XL5-36†	.1065	1-7/16	2-1/2
XL5-7/64**	.1094	1-1/2	2-5/8
XL5-35	.1100	1-1/2	2-5/8
XL5-34	.1110	1-1/2	2-5/8
XL5-33	.1130	1-1/2	2-5/8
XL5-32	.1160	1-5/8	2-3/4
XL5-31	.1200	1-5/8	2-3/4
XL5-1/8**	.1250	1-5/8	2-3/4
XL5-30	.1285	1-5/8	2-3/4
XL5-29†	.1360	1-3/4	2-7/8
XL5-28	.1405	1-3/4	2-7/8
XL5-9/64**	.1406	1-3/4	2-7/8
XL5-27	.1440	1-7/8	3
XL5-26	.1470	1-7/8	3
XL5-25†	.1495	1-7/8	3
XL5-24	.1520	2	3-1/8
XL5-23	.1540	2	3-1/8
XL5-5/32**	.1562	2	3-1/8
XL5-22	.1570	2	3-1/8
XL5-21†	.1590	2-1/8	3-1/4
XL5-20	.1610	2-1/8	3-1/4
XL5-19	.1660	2-1/8	3-1/4
XL5-18	.1695	2-1/8	3-1/4
XL5-11/64*	.1719	2-1/8	3-1/4
XL5-17	.1730	2-3/16	3-3/8
XL5-16†	.1770	2-3/16	3-3/8
XL5-15	.1800	2-3/16	3-3/8
XL5-14	.1820	2-3/16	3-3/8
XL5-13	.1850	2-5/16	3-1/2
XL5-3/16*	.1875	2-5/16	3-1/2
XL5-12	.1890	2-5/16	3-1/2
XL5-11	.1910	2-5/16	3-1/2
XL5-10	.1935	2-7/16	3-5/8
XL5-9	.1960	2-7/16	3-5/8
XL5-8	.1990	2-7/16	3-5/8
XL5-7†	.2010	2-7/16	3-5/8
XL5-13/64*	.2031	2-7/16	3-5/8

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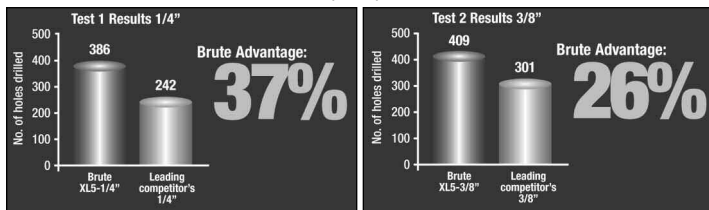


DRILL BITS (Cont.)

XL5 JOBBER DRILLS (Cont.)

Straight Shank / Heavy Duty / Black & Bright Finish / 135° Split Point / NOMO® Surface Treatment / HSS

(Cont.)



PART NO./ DIAMETER	DECIMAL EQUIVALENT	FLUTE LENGTH	OVERALL LENGTH
XL5-6	.2040	2-1/2	3-3/4
XL5-5	.2055	2-1/2	3-3/4
XL5-4	.2090	2-1/2	3-3/4
XL5-3	.2130	2-1/2	3-3/4
XL5-7/32*	.2188	2-1/2	3-3/4
XL5-2	.2210	2-5/8	3-7/8
XL5-1	.2280	2-5/8	3-7/8
XL5-A	.2340	2-5/8	3-7/8
XL5-15/64*	.2344	2-5/8	3-7/8
XL5-B	.2380	2-3/4	4
XL5-C	.2420	2-3/4	4
XL5-D	.2460	2-3/4	4
XL5-1/4/E*	.2500	2-3/4	4
XL5-F†	.2570	2-7/8	4-1/8
XL5-G	.2610	2-7/8	4-1/8
XL5-17/64*	.2556	2-7/8	4-1/8
XL5-H	.2660	2-7/8	4-1/8
XL5-I	.2720	2-7/8	4-1/8
XL5-J	.2770	2-7/8	4-1/8
XL5-K	.2810	2-15/16	4-1/4
XL5-9/32*	.2812	2-15/16	4-1/4
XL5-L	.2900	2-15/16	4-1/4
XL5-M	.2950	3-1/16	4-3/8
XL5-19/64*	.2969	3-1/16	4-3/8
XL5-N	.3020	3-1/16	4-3/8
XL5-5/16**†	.3125	3-3/16	4-1/2
XL5-O	.3160	3-3/16	4-1/2
XL5-P	.3230	3-5/16	4-5/8
XL5-21/64*	.3281	3-5/16	4-5/8
XL5-Q	.3320	3-7/16	4-3/4
XL5-R	.3390	3-7/16	4-3/4
XL5-11/32*	.3438	3-7/16	4-3/4
XL5-S	.3480	3-1/2	4-7/8
XL5-T	.3580	3-1/2	4-7/8
XL5-23/64*	.3594	3-1/2	4-7/8
XL5-U*	.3680	3-5/8	5
XL5-3/8	.3750	3-5/8	5
XL5-V	.3770	3-5/8	5
XL5-W	.3860	3-3/4	5-1/8
XL5-25/64*	.3906	3-3/4	5-1/8
XL5-X	.3970	3-3/4	5-1/8
XL5-Y	.4040	3-7/8	5-1/4
XL5-13/32*	.4062	3-7/8	5-1/4
XL5-Z	.4130	3-7/8	5-1/4
XL5-27/64**	.4219	3-15/16	5-3/8
XL5-7/16*	.3750	4-1/16	5-1/2
XL5-29/64*	.4531	4-3/16	5-5/8
XL5-15/32*	.4688	4-5/16	5-3/4
XL5-31/64*	.4844	4-3/8	5-7/8
XL5-1/8*	.5000	4-1/2	6

** Available in iPac twin pack

* Available in iPac

† Available in iPac combination drill and tap pack (308 Taps)

**"AVAILABLE,
NOT ALL SIZES STOCKED"**



THE ORIGINAL MULTI-PURPOSE DRILL BIT

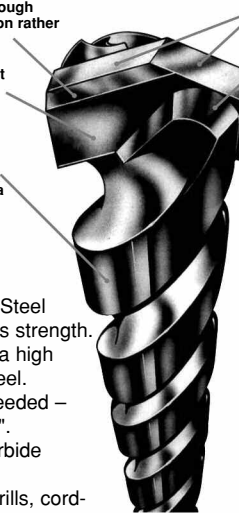
Special negative back grinding enables the tip to bore through materials with a filing action rather than a cutting action.

The tip is a blend of Cobalt and Tungsten Carbide designed for maximum hardness and resistance to heat and wear.

The Chrome Vanadium Steel Shank provides extra hardness and enormous strength.

Rotary or Percussion

- Chrome Vanadium Steel Shank for enormous strength.
- Resharpenable on a high quality grinding wheel.
- No center punch needed – eliminates "walking".
- Outlasts regular carbide tipped bits.
- Ideal for cordless drills, corded drills and drill presses.
- Available in an assortment of popular sizes and sets.



Resharpen by dressing only these two flat angles. To achieve the best results use the special ARTU® Silicon Carbide Grinding Wheel, Part No. 01551.

High-tech bonding allows bit to withstand drilling temperatures up to 1900° Fahrenheit.

APPLICATIONS:

- Masonry
- Ceramic Tile
- Concrete
- Brick
- Fiberglass
- Plexiglass
- Glass
- Cast Metals
- Hardened Steel
- Granite
- Marble
- Woods
- Plastics

Please be advised that the ARTU® Multi-Purpose Drill Bit is not recommended to be used on mild steel. For example: Angle Iron, Galvanized Pipe, Copper, Aluminum, Brass, Stainless Steel, etc.

The Same Bit For Every Job



**PUT SUPERIOR QUALITY TO WORK
WITH A SINGLE MULTI-PURPOSE DRILL BIT**

Black Oxide Finish

Chrome Vanadium Steel Shank For Enormous Strength



- Conforms to ANSI Standards.
- Cobalt and Tungsten Carbide Tip for maximum hardness and resistance to heat and wear.

CARDED PART NO.	DIAMETER	OVERALL LENGTH	SHANK	FLUTE LENGTH
01010	1/8"	3"	Straight	1-1/2"
01012	5/32"	3"	Straight	1-1/2"
01020	3/16"	3-1/2"	Straight	1-7/8"
01022	7/32"	3-3/4"	Straight	1-15/16"
01030	1/4"	4-1/4"	Straight	2-3/8"
01032	9/32"	4-3/8"	Straight	2-3/8"
01040	5/16"	4-1/2"	Straight	2-3/8"
01042	11/32"	5"	Straight	2-3/4"
01050	3/8"	5-3/16"	Straight	3-1/8"
01052	13/32"	6"	Straight	3-15/16"
01060	7/16"	6"	Straight	3-7/8"
01062	15/32"	6"	3/8"	3-1/2"
01070	1/2"	6"	3/8"	3-5/8"





DRILL BITS (Cont.)
ADX BITS

For Drilling Rebar And Metal Deck
For Use With SDS-Plus Rotary Hammers
**UNINTERRUPTED DRILLING THROUGH
CONCRETE AND STEEL...**



- Solid-Cross-Configuration for ADX carbide head.
- Firm and secured carbide embedment with flank side reinforcements.



- Generous spiral flute entrance geometry for fast drill dust evacuation.
 - Blow-back prevention through sub-trac spiral flute design.
 - Noise dampening effect due to ADX drill-head design.
 - Significantly reduce "arm-hand-vibration" due to ADX multi-cutter head design.
 - Unsurpassed drilling performance in concrete and stone and yes, embedded rebar and metal concrete deck.
 - Made in Germany.
- DRILLING TIPS...**
- Consult power tool manual before using Rotary Hammer.
 - Assure safe footing and all other safety measures before attempting to use power tool.
 - Use Rotary Hammer in hammer drill mode!
 - When encountering rebar/steel apply firm steady pressure.



PART NO.	DIAMETER	USE LENGTH	TOTAL LENGTH	PACK
ADX 001024	3/16"	x 4"	x 6-1/4"	12 pc.
ADX 001068	1/4"	x 4"	x 6-1/4"	12 pc.
ADX 001121	3/8"	x 4"	x 6-1/4"	6 pc.
ADX 001157	1/2"	x 4"	x 6-1/4"	6 pc.

PLEASE NOTE: For drilling diameters 1/2" and larger use RL-Series Rebar CUTTER for superior performance.

PART NO.	DIAMETER	USE LENGTH	TOTAL LENGTH
ADX 006014	3/16"	x 2"	x 4-1/4"
ADX 006018	3/16"	x 4"	x 6-1/4"
ADX 006022	3/16"	x 6"	x 8-1/4"
ADX 006026	3/16"	x 8"	x 10-1/4"
ADX 006030	3/16"	x 10"	x 12-1/4"
ADX 007025	1/4"	x 2"	x 4-1/4"
ADX 007029	1/4"	x 4"	x 6-1/4"
ADX 007041	1/4"	x 6"	x 8-1/4"
ADX 007048	1/4"	x 8"	x 10-1/4"
ADX 007052	1/4"	x 10"	x 12-1/4"
ADX 011031	5/16"	x 4"	x 6-1/4"
ADX 011049	5/16"	x 10"	x 12-1/4"
ADX 011053	5/16"	x 16"	x 18"
ADX 017059	3/8"	x 4"	x 6-1/4"
ADX 017067	3/8"	x 10"	x 12-1/4"
ADX 017075	3/8"	x 16"	x 18"
ADX 018012	7/16"	x 4"	x 6-1/4"
ADX 018019	7/16"	x 10"	x 12-1/4"
ADX 018028	7/16"	x 16"	x 18"

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PART NO.	DIAMETER	USE LENGTH	TOTAL LENGTH
ADX 019073	1/2"	x 4"	x 6-1/4"
ADX 019081	1/2"	x 10"	x 12"
ADX 019090	1/2"	x 16"	x 18"
ADX 021071	9/16"	x 4"	x 6"
ADX 021087	9/16"	x 10"	x 12"
ADX021096	9/16"	x 16"	x 18"
ADX024015	5/8"	x 6"	x 8"
ADX 024023	5/8"	x 8"	x 10"
ADX 024036	5/8"	x 10"	x 12"
ADX 024047	5/8"	x 16"	x 18"
ADX 027024	3/4"	x 6"	x 8"
ADX 027035	3/4"	x 8"	x 10"
ADX 027043	3/4"	x 10"	x 12"
ADX 027056	3/4"	x 16"	x 18"
ADX 030038	7/8"	x 6"	x 8"
ADX 030044	7/8"	x 8"	x 10"
ADX 030051	7/8"	x 10"	x 12"
ADX 030062	7/8"	x 16"	x 18"
ADX 034045	1"	x 8"	x 10"
ADX 034055	1"	x 10"	x 12"
ADX 034063	1"	x 16"	x 18"
ADX 038057	1-1/8"	x 8"	x 10"
ADX 038064	1-1/8"	x 16"	x 18"
ADX 043070	1-1/8"	x 16"	x 18"



**JOBBER LENGTH HSS HEAVY-DUTY
NAS 907B
TYPE 190-AG MAGNUM SUPER PREMIUM
135° SPLIT POINT**



Type 190-AG
Low temperature stress relief improves
lubricity and toughness

- Manufactured to NAS 907B specification from Premium Hi-Molybdenum Steel.
- Magnum will substantially outperform cobalt drills in work hardening stainless steel and other tough drilling applications.
- Nitro-Carburized.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
05580	1/16	1-7/8	7/8	12
05590	5/64	2	1	12
05600	3/32	2-1/4	1-1/4	12
05610	7/64	2-5/8	1-1/2	12
05620	1/8	2-3/4	1-5/8	12
05630	9/64	2-7/8	1-3/4	12
05640	5/32	3-1/8	2	12
05650	11/64	3-1/4	2-1/8	12
05660	3/16	3-1/2	2-5/16	12
05670	13/64	3-5/8	2-7/16	12
05680	7/32	3-3/4	2-1/2	12
05690	15/64	3-7/8	2-5/8	12
05700	1/4	4	2-3/4	12
05710	17/64	4-1/8	2-7/8	12
05710	17/64	4-1/8	2-7/8	12
05720	9/32	4-1/4	2-15/16	12
05730	19/64	4-3/8	3-1/16	6
05740	5/16	4-1/2	3-3/16	6
05750	21/64	4-5/8	3-5/16	6
05760	11/32	4-3/4	3-7/16	6
05770	23/64	4-7/8	3-1/2	6
05780	3/8	5	3-5/8	6
05790	25/64	5-1/8	3-3/4	6
05800	13/32	5-1/4	3-7/8	6

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DRILL BITS (Cont.)
JOBBER LENGTH HSS HEAVY-DUTY
NAS 907B (Cont.)
TYPE 190-AG MAGNUM SUPER PREMIUM
135° SPLIT POINT (Cont.)

FRACTIONAL (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
05810	27/64	5-3/8	3-15/16	6
05820	7/16	5-1/2	4-1/16	6
05830	29/64	5-5/8	4-3/16	6
05840	15/32	5-3/4	4-5/16	6
05850	31/64	5-7/8	4-3/8	6
05860	1/2	6	4-1/2	6

Larger sizes available in 130-AG section

LETTER

PART NO.	LETTER SIZE	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
39460	A	3-7/8	2-5/8	12
39470	B	4	2-3/4	12
39480	C	4	2-3/4	12
39490	D	4	2-3/4	12
39500	E	4	2-3/4	12
39510	F	4-1/8	2-7/8	12
39520	G	4-1/8	2-7/8	12
39530	H	4-1/8	2-7/8	12
39540	I	4-1/8	2-7/8	12
39550	J	4-1/8	2-7/8	12
39560	K	4-1/4	2-15/16	12
39570	L	4-1/4	2-15/16	12
39580	M	4-3/4	3-1/16	6
39590	N	4-3/4	3-1/16	6
39600	O	4-1/2	3-3/16	6
39610	P	4-5/8	3-5/16	6
39620	Q	4-3/4	3-7/16	6
39630	R	4-3/4	3-7/16	6
39640	S	4-7/8	3-1/2	6
39650	T	4-7/8	3-1/2	6
39660	U	5	3-5/8	6
39670	V	5	3-5/8	6
39680	W	5-1/8	3-3/4	6
39690	X	5-1/8	3-3/4	6
39700	Y	5-1/4	3-7/8	6
39710	Z	5-1/4	3-7/8	6

WIRE

PART NO.	WIRE SIZE	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
38940	1	3-7/8	2-5/8	12
38950	2	3-7/8	2-5/8	12
38960	3	3-3/4	2-1/2	12
38970	4	3-3/4	2-1/2	12
38980	5	3-3/4	2-1/2	12
38990	6	3-3/4	2-1/2	12
39000	7	3-5/8	2-7/16	12
39010	8	3-5/8	2-7/16	12
39020	9	3-5/8	2-7/16	12
39030	10	3-5/8	2-7/16	12
39040	11	3-1/2	2-5/16	12
39050	12	3-1/2	2-5/16	12
39060	13	3-1/2	2-5/16	12
39070	14	3-3/8	2-3/16	12
39080	15	3-3/8	2-3/16	12
39090	16	3-3/8	2-3/16	12
39100	17	3-3/8	2-3/16	12
39110	18	3-1/4	2-1/8	12
39120	19	3-1/4	2-1/8	12

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WIRE (Cont.)

PART NO.	WIRE SIZE	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
39130	20	3-1/4	2-1/8	12
39140	21	3-1/4	2-1/8	12
39150	22	3-1/8	2	12
39160	23	3-1/8	2	12
39170	24	3-1/8	2	12
39180	25	3	1-7/8	12
39190	26	3	1-7/8	12
39200	27	3	1-7/8	12
39210	28	2-7/8	1-3/4	12
39220	29	2-7/8	1-3/4	12
39230	30	2-3/4	1-5/8	12
92310	31	2-3/4	1-5/8	12
92300	32	2-3/4	1-5/8	12
92290	33	2-5/8	1-1/2	12
92280	34	2-5/8	1-1/2	12
92270	35	2-5/8	1-1/2	12
92260	36	2-1/2	1-7/16	12
92250	37	2-1/2	1-7/16	12
92240	38	2-1/2	1-7/16	12
92230	39	2-3/8	1-3/8	12
92220	40	2-3/8	1-3/8	12
88420	41	2-3/8	1-3/8	12
88410	42	2-1/4	1-1/4	12
88400	43	2-1/4	1-1/4	12
88390	44	2-1/8	1-1/8	12
88380	45	2-1/8	1-1/8	12
88370	46	2-1/8	1-1/8	12
88360	47	2	1	12
88350	48	2	1	12
88340	49	2	1	12
88330	50	2	1	12
88320	51	2	1	12
88310	52	1-7/8	7/8	12
88300	53	1-7/8	7/8	12
88290	54	1-7/8	7/8	12
88280	55	1-7/8	7/8	12
88270	56	1-3/4	3/4	12
88260	57	1-3/4	3/4	12
88250	58	1-5/8	11/16	12
88240	59	1-5/8	11/16	12
88230	60	1-5/8	11/16	12

These items are also available carded. Call for details.

JOBBER LENGTH 3/8" REDUCED SHANK
TYPE 128-AG MAGNUM SUPER PREMIUM
135° SPLIT POINT



Type 128-AG

Recommended for use in work hardening grades of
Stainless steel and other hard metal drilling applications

- 135° Split point for fast penetration and accurate starting without center punch.
- Precision ground point, flutes, body, clearance and drill diameter for the ultimate in accuracy and performance.

TYPE 128-AG 3/8" REDUCED SHANK

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
59200	25/64	5-1/8	3-3/4	6
59210	13/32	5-1/4	3-7/8	6
59220	27/64	5-3/8	3-15/16	6
59230	7/16	5-1/2	4-1/16	6
59240	29/64	5-5/8	4-3/16	6
59250	15/32	5-3/4	4-5/16	6
59260	31/64	5-7/8	4-3/8	6
59270	1/2	6	4-1/2	6
59280	17/32	6	4-1/4	1
59290	9/16	6	4-1/4	1
59300	19/32	6	4-1/4	1
59310	5/8	6	4-1/4	1

These items are also available carded. Call for details.



DRILL BITS (Cont.)

JOBBER LENGTH NAS 907B - METRIC (Cont.)

**TYPE 170-AG MAGNUM SUPER PREMIUM
135° SPLIT POINT, NAS 907B (Cont.)**

METRIC (Cont.)

PART NO.	DIAMETER MM	OVERALL LENGTH		FLUTE LENGTH		QTY. PER/PACK
		MM	INCHES	MM	INCHES	
50260	12.30	149	5-7/8	111	4-3/8	5
12540	12.40	149	5-7/8	111	4-3/8	5
49970	12.50	152	6	114	4-1/2	5
12550	12.60	152	6	114	4-1/2	5
12570	12.70	152	6	114	4-1/2	5
50270	12.80	152	6	114	4-1/2	5
12560	12.90	152	6	114	4-1/2	5
49980	13.00	152	6	114	4-1/2	5

Larger sizes in 130-AGM available.

**JOBBER LENGTH - GENERAL PURPOSE
TYPE 115 - 118° SPLIT POINT**



Type 115

Black Oxide surface finish increases wear resistance and adds lubricity to improve chip flow

- Widely used in general purpose applications.
- Designed for a wide range of operating conditions and materials.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES
01000	1/64	3/4	3/16
01010	1/32	1-3/8	1/2
01020	3/64	1-3/4	3/4
01030	1/16	1-7/8	7/8
01040	5/64	2	1
01050	3/32	2-1/4	1-1/4
01060	7/64	2-5/8	1-1/2
01070	1/8	2-3/4	1-5/8
01080	9/64	2-7/8	1-3/4
01090	5/32	3-1/8	2
01100	11/64	3-1/4	2-1/8
01110	3/16	3-1/2	2-5/16
01120	13/64	3-5/8	2-7/16
01130	7/32	3-3/4	2-1/2
01140	15/64	3-7/8	2-5/8
01150	1/4	4	2-3/4
01160	17/64	4-1/8	2-7/8
01170	9/32	4-1/4	2-15/16
01180	19/64	4-3/8	3-1/16
01190	5/16	4-1/2	3-3/16
01200	21/64	4-5/8	3-5/16
01210	11/32	4-3/4	3-7/16
01220	23/64	4-7/8	3-1/2
01230	3/8	5	3-5/8
01240	25/64	5-1/8	3-3/4
01250	13/32	5-1/4	3-7/8
01260	27/64	5-3/8	3-15/16
01270	7/16	5-1/2	4-1/16
01280	29/64	5-5/8	4-3/16
01290	15/32	5-3/4	4-5/16
01300	31/64	5-7/8	4-3/8
01310	1/2	6	4-1/2

LETTER

PART NO.	LETTER SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES
02410	A	3-7/8	2-5/8
02420	B	4	2-3/4
02430	C	4	2-3/4
02440	D	4	2-3/4
02450	E	4	2-3/4
02560	F	4-1/8	2-7/8
02470	G	4-1/8	2-7/8
02480	H	4-1/8	2-7/8
02490	I	4-1/8	2-7/8
02500	J	4-1/8	2-7/8
02510	K	4-1/4	2-15/16
02520	L	4-1/4	2-15/16
02530	M	4-3/8	3-1/16
02540	N	4-3/8	3-1/16
02550	O	4-1/2	3-3/16
02560	P	4-5/8	3-5/16
02570	Q	4-3/4	3-7/16
02580	R	4-3/4	3-7/16
02590	S	4-7/8	3-1/2
02600	T	4-7/8	3-1/2
02610	U	5	3-5/8
02620	V	5	3-5/8
02630	W	5-1/8	3-3/4
02640	X	5-1/8	3-3/4
02650	Y	5-1/4	3-7/8
02660	Z	5-1/4	3-7/8

WIRE

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES
01440	1	3-7/8	2-5/8
01450	2	3-7/8	2-5/8
01460	3	3-3/4	2-1/2
01470	4	3-3/4	2-1/2
01480	5	3-3/4	2-1/2
01490	6	3-3/4	2-1/2
01500	7	3-5/8	2-7/16
01510	8	3-5/8	2-7/16
01520	9	3-5/8	2-7/16
01530	10	3-5/8	2-7/16
01540	11	3-1/2	2-5/16
01550	12	3-1/2	2-5/16
01560	13	3-1/2	2-5/16
01570	14	3-3/8	2-3/16
01580	15	3-3/8	2-3/16
01590	16	3-3/8	2-3/16
01600	17	3-3/8	2-3/16
01610	18	3-1/4	2-1/8
01620	19	3-1/4	2-1/8
01630	20	3-1/4	2-1/8
01640	21	3-1/4	2-1/8
01650	22	3-1/8	2
01660	23	3-1/8	2
01670	24	3-1/8	2
01680	25	3	1-7/8
01690	26	3	1-7/8
01700	27	3	1-7/8
01710	28	2-7/8	1-3/4
01720	29	2-7/8	1-3/4
01730	30	2-3/4	1-5/8
01740	31	2-3/4	1-5/8
01750	32	2-3/4	1-5/8
01760	33	2-5/8	1-1/2
01770	34	2-5/8	1-1/2
01780	35	2-5/8	1-1/2
01790	36	2-1/2	1-7/16
01800	37	2-1/2	1-7/16
01810	38	2-1/2	1-7/16
01820	39	2-3/8	1-3/8
01830	40	2-3/8	1-3/8
01840	41	2-3/8	1-3/8
01850	42	2-1/4	1-1/4
01860	43	-21/4	1-1/4
01870	44	2-1/8	1-1/8

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DRILL BITS (Cont.)

JOBBER LENGTH - GENERAL PURPOSE (Cont.)
TYPE 115 - 118° SPLIT POINT (Cont.)

WIRE (Cont.)

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES
01880	45	2-1/8	1-1/8
01890	46	2-1/8	1-1/8
01900	47	2	1
01910	48	2	1
01920	49	2	1
01930	50	2	1
01940	51	2	1
01950	52	1-7/8	7/8
01960	53	1-7/8	7/8
01970	54	1-7/8	7/0
01980	55	1-7/8	7/8
01990	56	1-3/4	3/4
02000	57	1-3/4	3/4
02010	58	1-5/8	11/16
02020	59	1-5/8	11/16
02030	60	1-5/8	11/16
02040	61	1-5/8	11/16
02050	62	1-1/2	5/8
02060	63	1-1/2	5/8
02070	64	1-1/2	5/8
02080	65	1-1/2	5/8
02090	66	1-3/8	1/2
02100	67	1-3/8	1/2
02110	68	1-3/8	1/2
02120	69	1-3/8	1/2
02130	70	1-1/4	3/8
02140	71	1-1/4	3/8
02150	72	1-1/8	5/16
02160	73	1-1/8	5/16
02170	74	1	1/4
02180	75	1	1/4
02190	76	7/8	3/16
02200	77	7/8	3/16
02210	78	6.7	3/16
02220	79	3/4	1/8
02230	80	3/4	1/8

JOBBER LENGTH - 1/4" REDUCED SHANK
TYPE 120 - GENERAL PURPOSE, 118° POINT - BRIGHT FINISH 1/4" REDUCED SHANK - SHORTER THAN JOBBER LENGTH



- Shorter than Jobber length increases rigidity and improves drilling performance.
- Designed for use in portable air and electric drilling equipment with 1/4" chucks.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
28800	17/64	3-1/2	1-7/8	12
28810	9/32	3-19/32	1-31/32	12
28820	19/64	3-23/32	2-1/16	6
28830	5/16	3-27/32	2-3/16	6
28840	21/64	4	2-9/32	6
28850	11/32	4-1/32	2-11/32	6
28860	23/64	4-5/32	2-15/32	6
28870	3/8	4-1/4	2-9/16	6

CONTINUED NEXT COLUMN

FRACTIONAL (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
28880	25/64	4-11/32	2-5/8	6
28890	13/32	4-15/32	2-3/4	6
28900	27/64	4-9/16	2-27/32	6
28910	7/16	4-11/16	2-15/16	6
28920	29/64	4-25/32	3-1/32	6
28930	15/32	4-7/8	3-1/8	6
28940	31/64	5	3-7/32	6
28950	1/2	5	3-7/32	6

These items are also available carded.

TYPE 128 - GENERAL PURPOSE, 118° POINT - BRIGHT FINISH 3/8" REDUCED SHANK - JOBBER LENGTH



- General purpose 118° point HSS drill is designed for use in portable air or electric drilling equipment with 3/8" chucks.
- **NOTE:** Surface treated flutes on sizes larger than 1/2".

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
59570	25/64	5-1/8	3-3/4	6
59580	13/32	5-1/4	3-7/8	6
59590	27/64	5-3/8	3-15/16	6
95500	7/16	5-1/2	4-1/16	6
59600	29/64	5-5/8	4-3/16	6
59510	15/32	5-3/4	4-5/16	6
59610	31/64	5-7/8	4-3/8	6
59520	1/2	6	4-1/2	6
59530	17/32	6	4-1/4	1
59540	9/16	6	4-1/4	1
59550	19/32	6	4-1/4	1
59560	5/8	6	4-1/4	1

These items are also available carded.

JOBBER LENGTH - HSS MAGNUM
TYPE 175-AG - MAGNUM SUPER PREMIUM - 3-FLATS ON SHANK - 135° SPLIT POINT



- Special Hi-Molybdenum tool steel.
- 135° split point for fast penetration and accurate starting without center punch.
- Precision ground point, flutes, body, clearance and drill diameter for the ultimate in accuracy and performance.
- Body and clearance are gold surface treated for maximum lubricity.

3-FLATS ON SHANK

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
22860	1/16	1-7/8	7/8	12
22870	5/64	2	1	12
22880	3/32	2-1/4	1-1/4	12
86950	7/64	2-3/8	1-5/16	12
86960	1/8	2-1/2	1-7/16	12
86970	9/64	2-5/8	1-9/16	12
86980	5/32	2-3/4	1-11/16	12
86990	11/64	2-7/8	1-13/16	12
87000	3/16	3	1-7/8	12
87010	13/64	3-1/8	1-15/16	12
87020	7/32	3-1/4	2	12
87030	15/64	3-3/8	2-1/16	12
87040	1/4	3-1/2	2	12

CONTINUED NEXT COLUMN



DRILL BITS (Cont.)

JOBBER LENGTH - HSS MAGNUM

TYPE 175-AG - MAGNUM SUPER PREMIUM - 3-FLATS ON SHANK - 135° SPLIT POINT (Cont.)

3-FLATS ON SHANK (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
87050	17/64	3-5/8	2-1/8	12
87060	9/32	3-3/4	2-1/4	12
87070	19/64	3-7/8	2-3/8	6
87080	5/16	4	2-1/2	6
87090	21/64	4-1/16	2-9/16	6
87100	11/32	4-1/8	2-5/8	6
87110	23/64	4-3/16	2-11/16	6
87120	3/8	4-1/4	2-11/16	6
87130	25/64	4-5/16	2-3/4	6
87140	13/32	4-3/8	2-13/16	6
87150	27/64	4-7/16	2-7/8	6
87160	7/16	4-1/2	2-15/16	6
87170	29/64	4-5/8	3	6
87180	15/32	4-3/4	3-1/8	6
87190	31/64	4-7/8	3-1/4	6
87200	1/2	5	3-3/8	6

These items are also available carded.

TYPE 178-AG - MAGNUM SUPER PREMIUM - 135° SPLIT POINT - 3-FLATS ON SHANK - 3/8" REDUCED SHANK



- Reduced shank with flats for positive chuck grip.

3-FLATS ON SHANK - 3/8" SHANK

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
81560	13/32	4-3/8	2-13/16	6
81570	27/64	4-7/16	2-7/8	6
81580	7/16	4-1/2	2-15/16	6
81590	29/64	4-5/8	3	6
81600	15/32	4-3/4	3-1/8	6
81610	31/64	4-7/8	3-1/4	6
81620	1/2	5	3-3/8	6

25/64 175-AG drills with flats will fit a 3/8" chuck without reducing the shank diameter.

These items are also available carded.

MECHANIC LENGTH - HEX SHANK - 1/4" QUICK RELEASE

TYPE QR-AG MAGNUM SUPER PREMIUM QUICK RELEASE DRILLS - 135° SPLIT POINT



- A mechanic length with a quick release shank.
- Special Hi-Molybdenum tool steel.
- 135° split point for fast penetration and accurate starting without center punch.
- Body and clearance are gold treated for maximum lubricity.
- Recommended use in work hardening grades of stainless steel and other hard metal drill applications.

CONTINUED NEXT COLUMN

QR-AG 1/4" HEX SHANK

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
QRAG 116	1/16	2-5/8	7/8	6
QRAG 332	3/32	3-1/4	1-1/4	6
QRAG 18	1/8	3-1/2	1-7/16	6
QRAG 532	5/32	3-1/2	1-11/16	6
QRAG 316	3/16	3-3/4	1-7/8	6
QRAG 732	7/32	4	2	6
QRAG 14	1/4	4-1/4	2	6
QRAG 932	9/32	3-13/16	2-1/4	6
QRAG 516	5/16	4	2-1/2	3
QRAG 1132	11/32	4-7/32	2-5/8	3
QRAG 38	3/8	4-1/4	2-11/16	3
QRAG 1332	13/32	4-1/2	2-13/16	3
QRAG 716	7/16	4-1/2	2-15/16	3
QRAG 1532	15/32	4-7/8	3-1/8	3
QRAG 12	1/2	5	3-3/8	3
QRAG ADAPTER		Quick Release Adaptor		

QR-AG 1/4" HEX SHANK CARDED

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
QRAGC 116	1/16	2-5/8	7/8	2
QRAGC 332	3/32	3-1/4	1-1/4	2
QRAGC 18	1/8	3-1/2	1-7/16	2
QRAGC 532	5/32	3-1/2	1-11/16	2
QRAGC 316	3/16	3-3/4	1-7/8	2
QRAGC 732	7/32	4	2	1
QRAGC 14	1/4	4-1/4	2	1
QRAGC 932	9/32	3-13/16	2-1/4	1
QRAGC 516	5/16	4	2-1/2	1
QRAGC 1132	11/32	4-7/32	2-5/8	1
QRAGC 38	3/8	4-1/4	2-11/16	1
QRAGC 1332	13/32	4-1/2	2-13/16	1
QRAGC 716	7/16	4-1/2	2-15/16	1
QRAGC 1532	15/32	4-7/8	3-1/8	1
QRAGC 12	1/2	5	3-3/8	1
QRAGC ADAPTER		Quick Release Adaptor (CARDED)		

SETS HEX SHANK - 1/4" QUICK RELEASE



QR 12-AG SET HARD CASE - INDEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
QRAG SET12	1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 7/16, 1/2, & Quick Release Adaptor	1

QR 7-AG SET HARD CASE - INDEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
QRAG SET7A	1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4	1



DRILL BITS (Cont.)
SETS HEX SHANK – 1/4" QUICK RELEASE
(Cont.)



QR 16-AG SET SOFT POUCH - INDEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
QRAG SET16	1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 15/32, 1/2 & Quick Release Adaptor	1

QR 7B-AG SET SOFT POUCH - INDEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
QRAG SET7B	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2	1

JOBBER LENGTH M42 COBALT NAS 907J
TYPE 150 - M42 COBALT, TYPE 150N – 135° SPLIT POINT - M42 COBALT - NAS 907J



Type 150
Use to drill hard, tough metals, free machining stainless steel, titanium alloys and certain abrasive plastics.

- Manufactured from M42 HSS containing 8% cobalt which increases high red hardness.
- Cobalt drills require rigidly held positive feed drilling equipment.
- Manufactured to NAS 907J specifications.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
08000	3/64	1-3/4	3/4	12
08010	1/16	1-7/8	7/8	12
08020	5/64	2	1	12
08030	3/32	2-1/4	1-1/4	12
08040	7/64	2-5/8	1-1/2	12
08050	1/8	2-3/4	1-5/8	12
08060	9/64	2-7/8	1-3/4	12
08070	5/32	3-1/8	2	12
08080	11/64	3-1/4	2-1/8	12
08090	3/16	3-1/2	2-5/16	12
08100	13/64	3-5/8	2-7/16	12
08110	7/32	3-3/4	2-1/2	12
08120	15/64	3-7/8	2-5/8	12
08130	1/4	4	2-3/4	12
08140	17/64	4-1/8	2-7/8	12
08150	9/32	4-1/4	2-15/16	12
08160	19/64	4-3/8	3-1/16	6
08170	5/16	4-1/2	3-3/16	6
08180	21/64	4-5/8	3-5/16	6
08190	11/32	4-3/4	3-7/16	6
08200	23/64	4-7/8	3-1/2	6

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FRACTIONAL (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
08210	3/8	5	3-5/8	6
08220	25/64	5-1/8	3-3/4	6
08230	13/32	5-1/4	3-7/8	6
08240	27/64	5-3/8	3-15/16	6
08250	7/16	5-1/2	4-1/16	6
08260	92/64	5-5/8	4-3/16	6
08270	15/32	5-3/4	4-5/16	6
08280	31/64	5-7/8	4-3/8	6
08290	1/2	6	4-1/2	6

LETTER

PART NO.	LETTER SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
08940	A	3-7/8	2-5/8	12
08950	B	4	2-3/4	12
08960	C	4	2-3/4	12
08970	D	4	2-3/4	12
08980	E	4	2-3/4	12
08990	F	4-1/8	2-7/8	12
09000	G	4-1/8	2-7/8	12
09010	H	4-1/8	2-7/8	12
09020	I	4-1/8	2-7/8	12
09030	J	4-1/8	2-7/8	12
09040	K	4-1/4	2-15/16	12
09050	L	4-1/4	2-15/16	12
09060	M	4-3/8	3-3/16	6
09070	N	4-3/8	3-1/16	6
09080	O	4-1/2	3-3/16	6
09090	P	4-5/8	3-5/16	6
09100	Q	4-3/4	3-7/16	6
09110	R	4-3/4	3-7/16	6
09120	S	4-7/8	3-1/2	6
09130	T	4-7/8	3-1/2	6
09140	U	5	3-5/8	6
09150	V	5	3-5/8	6
09160	W	5-1/8	3-3/4	6
09170	X	5-1/8	3-3/4	6
09180	Y	5-1/4	3-7/8	6
09190	Z	5-1/4	3-7/8	6

WIRE

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
08300	1	3-7/8	2-5/8	12
08310	2	3-7/8	2-5/8	12
08320	3	3-3/4	2-1/2	12
08330	4	3-3/4	2-1/2	12
08340	5	3-3/4	2-1/2	12
08350	6	3-3/4	2-1/2	12
08360	7	3-5/8	2-7/16	12
08370	8	3-5/8	2-7/16	12
08380	9	3-5/8	2-7/16	12
08390	10	3-5/8	2-7/16	12
08400	11	3-1/2	2-5/16	12
08410	12	3-1/2	2-5/16	12
08420	13	3-1/2	2-5/16	12
08430	14	3-3/8	2-3/16	12
08440	15	3-3/8	2-3/16	12
08450	16	3-3/8	2-3/16	12
08460	17	3-3/8	2-3/16	12
08470	18	3-1/4	2-1/8	12
08480	19	3-1/4	2-1/8	12
08490	20	3-1/4	2-1/8	12
08500	21	3-1/4	2-1/8	12
08510	22	3-1/8	2	12
08520	23	3-1/8	2	12
08530	24	3-1/8	2	12
08540	25	3	1-7/8	12
08550	26	3	1-7/8	12
08560	27	3	1-7/8	12
08570	28	2-7/8	1-3/4	12
08580	29	2-7/8	1-3/4	12
08590	30	2-3/4	1-5/8	12

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DRILL BITS (Cont.)
JOBBER LENGTH M42 COBALT
NAS 907J (Cont.)
TYPE 150 - M42 COBALT, TYPE 150N -
135° SPLIT POINT - M42 COBALT - NAS 907J (Cont.)

WIRE (Cont.)

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
08600	31	2-3/4	1-5/8	12
08610	32	2-3/4	1-5/8	12
08620	33	2-5/8	1-1/2	12
08630	34	2-5/8	1-1/2	12
08640	35	2-5/8	1-1/2	12
08650	36	2-1/2	1-7/16	12
08660	37	2-1/2	1-7/16	12
08670	38	2-1/2	1-7/16	12
08680	39	2-3/8	1-3/8	12
08690	40	2-3/8	1-3/8	12
08700	41	2-3/8	1-3/8	12
08710	42	2-1/4	1-1/4	12
08720	43	2-1/4	1-1/4	12
08730	44	2-1/8	1-1/8	12
08740	45	2-1/8	1-1/8	12
08750	46	2-1/8	1-1/8	12
08760	47	2	1	12
08770	48	2	1	12
08780	49	2	1	12
08790	50	2	1	12
08800	51	2	1	12
08810	52	1-7/8	7/8	12
08820	53	1-7/8	7/8	12
08830	54	1-7/8	7/8	12
08840	55	1-7/8	7/8	12
08850	56	1-3/4	3/4	12
08860	57	1-3/4	3/4	12
08870	58	1-5/8	11/16	12
08880	59	1-5/8	11/16	12
08890	60	1-5/8	11/16	12

SCREW MACHINE LENGTH - NAS 907C
TYPE 135-AG - NAS 907C
MAGNUM SUPER PREMIUM - 135° SPLIT POINT



- Special Hi-Molybdenum tool steel.
- Gold surfaces treated body and clearance for maximum lubricity.
- Heavy-duty construction, 135° split point, no center punch needed – will not walk.
- Recommended for work hardening grades of stainless steel and other hard metal drilling applications.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
87710	1/16	1-5/8	5/8	12
87720	5/64	1-11/16	11/16	12
87730	3/32	1-3/4	3/4	12
87740	7/64	1-13/16	13/16	12
87750	1/8	1-7/8	7/8	12
87760	9/64	1-15/16	15/16	12
87770	5/32	2-1/16	1	12
87780	11/64	2-1/8	1-1/16	12
87790	3/16	2-3/16	1-1/8	12
87800	13/64	2-1/4	1-3/16	12

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FRACTIONAL (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
87810	7/32	2-3/8	1-1/4	12
87820	15/64	2-7/16	1-5/16	12
87830	1/4	2-1/2	1-3/4	12
87840	17/64	2-5/8	1-7/16	12
87850	9/32	2-11/16	1-1/2	12
87860	19/64	2-3/4	1-9/16	6
87870	5/16	2-13/16	1-5/8	6
87880	21/64	2-15/16	1-11/16	6
87890	11/32	3	1-11/16	6
87900	23/64	3-1/16	1-3/4	6
87910	3/8	3-1/8	1-13/16	6
87920	25/64	3-1/4	1-7/8	6
87930	13/32	3-5/16	1-15/16	6
87940	27/64	3-3/8	2	6
87950	7/16	3-7/16	2-1/16	6
87960	29/64	3-9/16	2-1/8	6
87970	15/32	3-5/8	2-1/8	6
87980	31/64	3-11/16	2-3/16	6
87990	1/2	3-3/4	2-1/4	6
88000	33/64	3-7/8	2-3/8	1
88010	17/32	3-7/8	2-3/4	1
88020	15/64	4	2-1/2	1
88030	9/16	4	2-1/2	1
88040	37/64	4-1/8	2-5/8	1
88050	19/32	4-1/8	2-5/8	1
88060	39/64	4-1/4	2-3/4	1
88070	5/8	4-1/4	2-3/4	1
88080	41/64	4-1/2	2-7/8	1
88090	21/32	4-1/2	2-7/8	1
89210	43/64	4-1/2	2-7/8	1
89220	11/16	4-1/2	2-7/8	1
89230	45/64	4-3/4	3	1
89240	23/32	4-3/4	3	1
89250	47/64	5	3-1/8	1
89260	3/4	5	3-1/8	1

WIRE

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
87600	1	2-7/16	1-5/16	12
87590	2	2-7/16	1-5/16	12
87580	3	2-3/8	1-1/4	12
87570	4	2-3/8	1-1/4	12
87560	5	2-3/8	1-1/4	12
87550	6	2-3/8	1-1/4	12
87540	7	2-1/4	1-3/16	12
87530	8	2-1/4	1-3/16	12
87520	9	2-1/4	1-3/16	12
87510	10	2-1/4	1-3/16	12
87500	11	2-1/4	1-3/16	12
87490	12	2-1/4	1-3/16	12
87480	13	2-3/16	1-1/8	12
87470	14	2-3/16	1-1/8	12
87460	15	2-3/16	1-1/8	12
87450	16	2-3/16	1-1/8	12
87440	17	2-3/16	1-1/8	12
87430	18	2-1/8	1-1/16	12
87420	19	2-1/8	1-1/16	12
87410	20	2-1/8	1-1/16	12
87400	21	2-1/8	1-1/16	12
87390	22	2-1/8	1-1/16	12
87380	23	2-1/16	1	12
87370	24	2-1/16	1	12
87360	25	2-1/16	1	12
87350	26	2-1/16	1	12
87340	27	2-1/16	1	12
87330	28	1-15/16	15/16	12
87320	29	1-15/16	15/16	12
87310	30	1-15/16	15/16	12
87300	31	1-7/8	7/8	12
87290	32	1-7/8	7/8	12
87280	33	1-7/8	7/8	12
87270	34	1-7/8	7/8	12
87260	35	1-7/8	7/8	12
87250	36	1-13/16	13/16	12

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DRILL BITS (Cont.)
SCREW MACHINE LENGTH - NAS 907C

(Cont.)
TYPE 135-AG - NAS 907C
MAGNUM SUPER PREMIUM - 135° SPLIT POINT (Cont.)

WIRE (Cont.)

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
87240	37	1-13/16	13/16	12
87230	38	1-13/16	13/16	12
87220	39	1-13/16	13/16	12
87210	40	1-13/16	13/16	12
23360	41	1-13/16	13/16	12
23370	42	1-3/4	3/4	12
23380	43	1-3/4	3/4	12
23390	44	1-3/4	3/4	12
23400	45	1-3/4	3/4	12
23410	46	1-3/4	3/4	12
23420	47	1-3/4	3/4	12
23430	48	1-11/16	11/16	12
23440	49	1-11/16	11/16	12
23450	50	1-11/16	11/16	12
23460	51	1-11/16	11/16	12
23470	52	1-11/16	11/16	12
23480	53	1-5/8	5/8	12
23490	54	1-5/8	5/8	12
23500	55	1-5/8	5/8	12
23510	56	1-3/8	1/2	12
23520	57	1-3/8	1/2	12
23530	58	1-3/8	1/2	12
23540	59	1-3/8	1/2	12
23550	60	1-3/8	1/2	12

EXTRA LENGTH - 6" AIRCRAFT TYPE B AND 12" WELDED CONSTRUCTION EXTENSION

TYPE 166 - NAS 907B - AIRCRAFT 6" - 135° SPLIT POINT - SOLID CONSTRUCTION BLACK OXIDE



• This heavy-duty surface treated 135° split point high-speed steel drill is used extensively in aircraft and transportation applications for drilling holes in hard to reach places.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
68170	1/16	6	7/8	6
68180	5/64	6	1	6
68190	9/32	6	2-15/16	6
68200	11/32	6	3-7/16	6
68450	21/64	6	3-5/16	6
68470	3/32	6	1-1/4	6
68490	7/64	6	1-1/2	6
68500	1/8	6	1-5/8	6
68510	9/64	6	1-3/4	6
68520	5/32	6	2	6
68530	11/64	6	2-1/8	6
68540	3/16	6	2-5/16	6
68550	13/64	6	2-7/16	6
68560	7/32	6	2-1/2	6
68570	15/64	6	2-5/8	6
68580	1/4	6	2-3/4	6
68760	5/16	6	3-3/16	6
68770	3/8	6	3-5/8	6
68780	7/16	6	4-1/16	6
68790	1/2	6	4-1/2	6

WIRE

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
68590	#1	6	2-5/8	6
37400	2	6	2-5/8	6
68330	5	6	2-1/2	6
68600	10	6	2-7/16	6
68610	11	6	2-5/16	6
68350	19	6	2-1/8	6
68620	20	6	2-1/8	6
68630	21	6	2-1/8	6
68370	25	6	1-7/8	6
68640	29	6	1-3/4	6
68650	30	6	1-5/8	6
37490	40	6	1-3/8	6

TYPE 168
WELDED CONSTRUCTION - 12" EXTENSION DRILL - BLACK OXIDE



- Heavy-duty 135° split point high-speed steel drill is used for drilling holes in hard to reach places.
- Black oxide finish for increased lubricity and enhanced chip removal.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
02710	1/16	12	-	1
02740	7/64	12	-	1
68800	1/8	12	1-5/8	1
68810	9/64	12	1-3/4	1
68820	5/32	12	2	1
68830	11/64	12	2-1/8	1
68840	3/16	12	2-5/16	1
68850	13/64	12	2-7/16	1
68860	7/32	12	2-1/2	1
68870	15/64	12	2-5/8	1
68880	1/4	12	2-3/4	1
68890	17/64	12	2-7/8	1
68900	9/32	12	2-15/16	1
69810	19/64	12	3-1/16	1
68920	5/16	12	3-3/16	1
68930	21/64	12	3-5/16	1
68940	11/32	12	3-7/16	1
68950	23/64	12	3-1/2	1
68960	3/8	12	3-5/8	1
68970	25/64	12	3-3/4	1
68980	13/32	12	3-7/8	1
68990	27/64	12	3-15/16	1
69000	7/16	12	4-1/16	1
69010	29/64	12	4-3/16	1
69020	15/32	12	4-5/16	1
69030	31/64	12	4-3/8	1
69040	1/2	12	4-1/2	1

WIRE

PART NO.	WIRE SIZES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
69050	#1	12	2-5/8	1
02400	5	12	-	1
69060	10	12	2-7/16	1
69070	11	12	2-5/16	1
69080	20	12	2-1/8	1
69090	21	12	2-1/8	1
69100	29	12	1-3/4	1
69110	30	12	1-5/8	1
02370	40	12	1-3/8	1



DRILL BITS (Cont.)

**REDUCED SHANK – SILVER & DEMING –
1/2" REDUCED SHANK**

TYPE 130-AG

1/2" REDUCED SHANK MAGNUM SUPER PREMIUM
3-FLATS ON SHANK HEAVY-DUTY - 135° SPLIT POINT



- Special Hi-Molybdenum tool steel.
- One piece solid construction.
- Recommended for use in work hardening grades of stainless steel and other hard metal drilling applications.
- Body and clearance are gold surface treated for maximum lubricity.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	QTY. PER/PACK
29550	33/64	6	1
29560	17/32	6	1
29570	35/64	6	1
29580	9/16	6	1
29590	37/64	6	1
29600	19/32	6	1
29610	39/64	6	1
29620	5/8	6	1
29630	41/64	6	1
29640	21/32	6	1
29650	43/64	6	1
29660	11/16	6	1
29670	45/64	6	1
29680	23/32	6	1
29690	47/64	6	1
29700	3/4	6	1
29710	49/64	6	1
29720	25/32	6	1
29730	51/64	6	1
29740	13/16	6	1
29750	53/64	6	1
29760	27/32	6	1
29770	55/64	6	1
29780	7/8	6	1
29790	57/64	6	1
29800	29/32	6	1
29810	59/64	6	1
29820	15/16	6	1
29830	61/64	6	1
29840	31/32	6	1
29850	63/64	6	1
29860	1	6	1
29870	1-1/32	6	1
29880	1-1/16	6	1
29890	1-3/32	6	1
29900	1-1/8	6	1
29910	1-5/32	6	1
29920	1-3/16	6	1
29930	1-7/32	6	1
29940	1-1/4	6	1
29950	1-5/16	6	1
29960	1-3/8	6	1
29970	1-7/16	6	1
29980	1-1/2	6	1

**SETS REDUCED SHANK –
SILVER & DEMING - 1/2"**

4 PIECE SET – TYPE 130-AGX

- 9/16, 5/8, 3/4, 1"

PART NO.	DESCRIPTION	QTY. OF EACH
74771 S&D-04AGX	1/2" Shank – Silver & Deming	1

8 PIECE SET – TYPE 130-AGX

- 9/16 - 1" by 16ths

PART NO.	DESCRIPTION	QTY. OF EACH
74781 S&D-8AGX	1/2" Shank – Silver & Deming	1

TYPE 130-AGM - METRIC

1/2" REDUCED SHANK SILVER & DEMING -
135° SPLIT POINT MAGNUM SUPER PREMIUM -
3-FLATS ON SHANK



- Special Hi-Molybdenum tool steel.
- One piece solid construction.
- Body and clearance are gold surface treated for maximum lubricity.
- Recommended for use in work hardening grades of stainless steel and other hard metal drilling applications.

METRIC

PART NO.	DIAMETER MM	OVERALL LENGTH INCHES	PART NO.	DIAMETER MM	OVERALL LENGTH INCHES
25500	14.0	6	25520	20.0	6
25502	15.0	6	25522	21.0	6
25504	16.0	6	25524	22.0	6
25510	17.0	6	25530	23.0	6
25512	18.0	6	25532	24.0	6
25514	19.0	6	25534	25.0	6

Qty. Per Pack: 1

Qty. Per Pack: 1

TYPE 130

1/2" REDUCED SHANK SILVER & DEMING -
118° POINT - GENERAL PURPOSE



- This general purpose 118° point high-speed steel drill is recommended for use in drilling equipment with 1/2" chucks.
- Type 130 drills may be used in power applications such as drill presses where a short rigid drill is required.

FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	QTY. PER/PACK
29130	33/64	6	1
29140	17/32	6	1
29150	35/64	6	1
29160	9/16	6	1
29170	37/64	6	1
29180	19/32	6	1
29190	39/64	6	1
29200	5/8	6	1
29210	41/64	6	1
29220	21/32	6	1
29230	43/64	6	1
29240	11/16	6	1
29250	45/64	6	1

CONTINUED NEXT PAGE



DRILL BITS (Cont.)

**REDUCED SHANK – SILVER & DEMING –
1/2" REDUCED SHANK (Cont.)**

TYPE 130

1/2" REDUCED SHANK SILVER & DEMING -
118° POINT - GENERAL PURPOSE (Cont.)

FRACTIONAL (Cont.)

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	QTY. PER/PACK
29260	23/32	6	1
29270	47/64	6	1
29280	3/4	6	1
29290	49/64	6	1
29300	25/32	6	1
29310	51/64	6	1
29320	13/16	6	1
29330	53/64	6	1
29340	27/32	6	1
29350	55/64	6	1
29360	7/8	6	1
29370	57/64	6	1
29380	29/32	6	1
29390	59/64	6	1
29400	15/16	6	1
29410	61/64	6	1
29420	31/32	6	1
29430	63/64	6	1
29440	1	6	1
29450	1-1/16	6	1
29460	1-1/8	6	1
29470	1-5/32	6	1
29480	1-3/16	6	1
29490	1-1/4	6	1

CUTTING TOOL SETS

GENERAL PURPOSE 118° POINT – JOBBER LENGTH



TYPE 115 - BLACK OXIDE

- Widely used in general purpose applications.
- Designed for a wide range of operating conditions and materials.

TYPE 128 - BRIGHT FINISH - 3/8" REDUCED SHANK

- General purpose 118° point HSS drill is designed for use in portable air or electric drilling equipment with 3/8" chucks.

CONTINUED NEXT COLUMN

TYPE 118 - V-LINE - BLACK OXIDE

- American made value line drill.
- These general purpose 118° point HSS drills are ideal for a wide variety of light tensile strength metal drilling applications.
- This series is designed for the user whose applications are well served without the need for the tighter tolerances of our standard Type 115.

20 PIECE SET

- #61 - 80.

PART NO.	DESCRIPTION	QTY. OF EACH
42040 B-20	Black Oxide – 118° Point	1

21 PIECE SET

- 1/16 - 3/8 by 64ths.

PART NO.	DESCRIPTION	QTY. OF EACH
42050 B-22	Black Oxide – 118° Point	1

26 PIECE SET

- A - Z.

PART NO.	DESCRIPTION	QTY. OF EACH
42060 B-26	Black Oxide – 118° Point	1

29 PIECE SET

- 1/16 - 1/2 by 64ths.

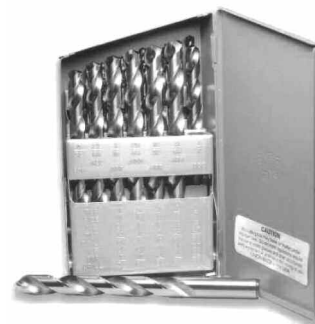
PART NO.	DESCRIPTION	QTY. OF EACH
42070 B-29	Black Oxide – 118° Point	1

60 PIECE SET

- #1 - 60.

PART NO.	DESCRIPTION	QTY. OF EACH
42080 B-60	Black Oxide – 118° Point	1

**COBALT HEAVY DUTY
135° SPLIT POINT –
JOBBER LENGTH**



21 PIECE SET

- 1/16 - 3/8 by 64ths

PART NO.	DESCRIPTION	QTY. OF EACH
68360 D-21	M42 Cobalt NAS 907J	1

26 PIECE SET

- A - Z.

PART NO.	DESCRIPTION	QTY. OF EACH
68380 D-26	M42 Cobalt NAS 907J	1

29 PIECE SET

- 1.15 0 1.2 by 64ths.

PART NO.	DESCRIPTION	QTY. OF EACH
68400 D-29	M42 Cobalt NAS 907J	1

29 PIECE SET - ULTRA DEX

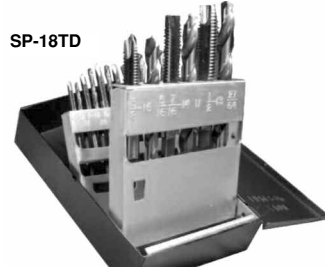
- 1/16 - 1/2 by 64ths.

PART NO.	DESCRIPTION	QTY. OF EACH
68410 D-29P	M42 Cobalt NAS 907J	1



HSS TAPS

DRILL AND TAP COMBO & SETS MAGNUM SUPER PREMIUM



- Includes corresponding drill with tap in a durable metal case.

TAP & DRILL SETS

SP-18TD (SPIRAL POINT, NC)

PART NO.	DESCRIPTION OF SIZES
57580	
190-AG Drill Sizes	#36, 29, 25, 21, 7, F, 5/16, U and 27/64
20-AG Tap Sizes	6-32, 8-32, 10-24, 10-32, 1/4-20 7 5/16-18, 3/8-16, 7/16-14 and 1/2-13

SP-18TDM (SPIRAL POINT, METRIC)

PART NO.	DESCRIPTION OF SIZES
57990	
170-AG Drill Sizes (mm)	2.05, 2.50, 2.90, 3.30, 4.20, 5.00, 6.70, 8.50 and 10.20
21-AG Tap Sizes (mm)	2.5-.45, 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80, 6.0-1.00, 8.0-1.25, 10.0-1.50 and 12.0-1.75

SP-18TDF (SPIRAL POINT, NF)

PART NO.	DESCRIPTION OF SIZES
58010	
190-AG Drill Sizes	#33, 29, 25, 21, 3, 1, Q, 25/64 and 29/64
20-AG Tap Sizes	6-40, 8-36, 10-24, 10-32, 1/4-28, 5/16-24, 3/8-24, 7/16-20 and 1/2-20

SP-12TD (SPIRAL POINT, NC)

PART NO.	DESCRIPTION OF SIZES
58501	
190-AG Drill Sizes	#36, 29, 25, 21, 7 and F
20-AG Tap Sizes	6-32, 8-32, 10-24, 10-32, 1/4-20 and 5/16-18

SP-10TD (STRAIGHT FLUTE, NC)

PART NO.	DESCRIPTION OF SIZES
8500	
190-AG Drill Sizes	31/64
130-AG Drill Sizes	17/23, 21/32, 49/64 and 7/8
24-AG Tap Sizes	9/16-12, 5/8-11, 3/4-10, 7/8-9 and 1-8

COMBINATION DRILL AND TAP TYPE 40-AG - METRIC

- Hi-Molybdenum tool steel ensures longer tool life.
- Combination drill and taps are ideally suited for on-site tapping in construction, maintenance and repair, assembly, production environments.
- The self-centering helical point provides excellent drilling precision and accuracy.



TYPE 40-AG COMBO DRILL & TAP

PART NO.	SIZE	PART NO.	SIZE	PART NO.	SIZE
73770	4-40	73850	10-24	73930	3/8-16
73780	4-48	73860	10-32	73940	3/8-24
73790	5-40	73870	12-24	73950	7/16-14
73800	5-44	73880	12-28	73960	7/16-20
73810	6-32	73890	1/4-20	73970	1/2-13
73820	6-40	73900	1/4-28	73980	1/2-20
73830	8-32	73910	5/16-18		
73840	8-36	73920	5/16-24		

CONTINUED NEXT COLUMN

SETS

PART NO.	DESCRIPTION OF SIZES
73991	7 Pc. Set
40-AG - DT-7F	8-36, 10-32 and 1/4-28
FINE	5/16-24, 3/8-24, 7/16-20 and 1/2-20

PART NO.	DESCRIPTION OF SIZES
73990	7 Pc. Set
40-AG - DT-7C	8-32, 20-24 and 1/4-20
COARSE	5/16-18, 3/8-16, 7/16-14 and 1/2-13

HSS TAPS AND DIES

25 PC / 23 PC / 15 PC. / 14 PC. HSS TAP AND DIE ASSORTMENTS

25 PIECE MAGNUM SUPER PREMIUM SET - SPIRAL POINT PLUG TAPS & HEX DIES

PART NO. 35173

Set contains:

- HSS Spiral point taps & HSS hex dies sizes: 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13 and 1/2-20.
- HSS pipe tap and hex die size: 1/8-27 NPT.
- T-Handle tap wrench: 3/16"-1/2".
- Die stock & screw pitch gauge.



• SP-25TDI

PART NO.	DESCRIPTION
35173	25 Piece Magnum Super Premium Set

23 PIECE MAGNUM SUPER PREMIUM SET - METRIC SPIRAL POINT TAPS & HEX DIES

Set contains:

- HSS Spiral point taps & HSS hex dies sizes: 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80, 6.0-1.00, 8.0-1.25, 10.0-1.50 and 12.0-1.75.
- HSS pipe tap and hex die size: 1/8-27 NPT.
- T-Handle tap wrench: 0-1/4" and 3/16"-1/2".
- Straight handle tap wrench: #4-1/2".
- Die stock & screw pitch gauge.
- SP-20TDI

PART NO.	DESCRIPTION
35170	23 Piece Magnum Super Premium Set (Metric)

15 PIECE MAGNUM SUPER PREMIUM SET - SPIRAL POINT PLUG TAPS & HEX DIES

Set contains:

- HSS Spiral point taps & HSS hex dies sizes: 6-32, 8-32, 10-24, 10-32, 12-24 and 1/4-20.
- T-Handle tap wrench: 0-1/4".
- Economy die stock & screw pitch gauge.
- SP-15TDI

PART NO.	DESCRIPTION
35174	15 Piece Magnum Super Premium Set

14 PIECE MAGNUM SUPER PREMIUM SET - METRIC SPIRAL POINT TAPS & HEX DIES

Set contains:

- HSS Spiral point taps sizes: 2.5-.45, 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80 and 6.0-1.00.
- HSS hex die sizes: 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80 and 6.0-1.00.
- T-Handle tap wrench: 0-1/4".

• SP-14TDI

CONTINUED NEXT PAGE



HSS TAPS AND DIES (Cont.)

25 PC / 23 PC / 15 PC. / 14 PC. HSS TAP AND DIE ASSORTMENTS (Cont.)

15 PIECE MAGNUM SUPER PREMIUM SET - SPIRAL POINT PLUG TAPS & HEX DIES (Cont.)

Supplied in sturdy plastic case.

PART NO.	DESCRIPTION
35174	15 Piece Magnum Super Premium Set

14 PIECE MAGNUM SUPER PREMIUM SET - METRIC SPIRAL POINT TAPS & HEX DIES

Set contains:

- HSS Spiral point taps sizes: 2.5-.45, 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80 and 6.0-1.00.
 - HSS hex die sizes: 3.0-.50, 3.5-.60, 4.0-.70, 5.0-.80 and 6.0-1.00.
 - T-Handle tap wrench: 0-1/4".
 - SP-14TDI Economy die stock and screw metric pitch gauge.
- Supplied in sturdy plastic case.

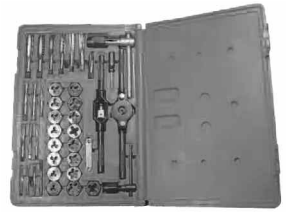
PART NO.	DESCRIPTION
35172	14 Piece Magnum Super Premium Set (Metric)

40 PC. HSS TAP AND DIE ASSORTMENTS

40 PIECE MAGNUM SUPER PREMIUM SET - STRAIGHT FLUTE PLUG TAPS & HEX DIES

Set contains:

- HSS straight flute taps and HSS hex dies sizes: 4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13 and 1/2-20.
 - HSS pipe tap and hex die size: 1/8-27 NPT.
 - T-Handle tap wrenches: 0-1/4" and 3/16-1/2"
 - Straight handle tap wrench: #4 - 1/2"
 - Die stock, screw pitch gauge & screwdriver.
- Supplied in sturdy red plastic case.



PART NO. 35171

PART NO.	DESCRIPTION
35171	40 Piece Magnum Super Premium Set (Straight Flute)

40 PIECE MAGNUM SUPER PREMIUM SET - SPIRAL POINT PLUG TAPS & HEX DIES

Set contains:

- HSS spiral point taps and HSS hex dies sizes: 4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13 and 1/2-20.
 - HSS pipe tap and hex die size: 1/8-27 NPT.
 - T-Handle tap wrenches: 0-1/4" and 3/16-1/2"
 - Straight handle tap wrench: #4-1/2".
 - Die stock, screw pitch gauge & screwdriver.
- Supplied in sturdy red plastic case.



PART NO. 35181

PART NO.	DESCRIPTION
35181	40 Piece Magnum Super Premium Set (Spiral Point Plug Taps & Hex Dies)

CUTTING TOOL SETS

MECHANIC LENGTH - BLACK & GOLD - QUICK-RELEASE 1/4" HEX SHANK

TYPE QR-AG 1/4" QUICK-RELEASE DRILLS - 135° SPLIT POINT MECHANIC LENGTH - MAGNUM SUPER PREMIUM

- 135° Split Point - Magnum Super Premium with 1/4" Hex Shanks.
- Perfect for use with impactor tools.



NOTE: Sets QR-7A and QR-7B do not include Quick Release Adaptors.

TYPE QR7A-AG SOFT POUCH SET

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
34804	1/8, 3/16, 1/4, 5/16, 3/8, 7/16 and 1/2	1

TYPE QR7B-AG SOFT POUCH SET

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
34803	1/16, 3/32, 1/8, 5/32, 3/16, 7/32 and 1/4	1

SPECIALTY TOOLS

LEFT-HAND HEAVY DUTY JOBBER LENGTH DRILLS

TYPE 109-AL MAGNUM SUPER PREMIUM - LEFT HAND SPIRAL



- Special Hi-Molybdenum tool steel.
- 135° split point for fast penetration and accurate starting without center punch.
- Precision ground point, flutes, body, clearance and drill diameter for the ultimate in accuracy and performance.
- Body and clearance are gold surface treated for maximum lubricity.
- Ideal for removing broken studs.

TYPE 190-AL - LEFT HAND SPIRAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
92430	1/16	1-7/8	7/8	6
23150	5/64	2	1	6
89290	3/32	2-1/4	1-1/4	6
23160	7/64	2-5/8	1-1/2	6
92440	1/8	2-3/4	1-5/8	6
92441	9/64	2-7/8	1-3/4	6
23170	5/32	3-1/8	2	6
29442	11/64	3-1/4	2-1/8	6
92450	3/16	3-1/2	2-5/16	6
92443	13/64	3-5/8	2-7/16	6
92444	7/32	3-3/4	2-1/2	6
92451	15/64	3-7/8	2-5/8	6
92460	1/4	4	2-3/4	6
92452	17/64	4-1/8	2-7/8	6
92453	9/32	4-1/4	2-15/16	6
23180	19/64	4-3/8	3-1/16	6
92470	5/16	4-1/2	3-3/16	6
92471	21/64	4-5/8	3-5/16	6
92472	11/32	4-3/4	3-7/16	6
92473	23/64	4-7/8	3-1/2	6
92480	3/8	5	3-5/8	6
92481	25/64	5-1/8	3-3/4	6
92482	13/32	5-1/4	3-7/8	6
92483	27/64	5-3/8	3-15/16	6
92490	7/16	5-1/2	4-1/16	6
92491	29/64	5-5/8	4-3/16	6
92492	15/32	5-3/4	4-5/16	6
92493	31/64	5-7/8	4-3/8	6
92500	1/2	6	4-1/2	6



SPECIALTY TOOLS (Cont.)

BOLT EXTRACTOR SETS

TYPE 420 BOLT EXTRACTOR SET - TYPE 421-AG BOLT EXTRACTOR SET

- Fast and easy stud removal.
- Left-hand spiral drills often eliminates the need for use of extractor.
- Drill loosens bolt stud with counter clockwise rotation.
- 135° split point left hand drill cuts harder metals than a 118° point drill.
- Most broken studs are work hardened during the breaking process.



BR-10 - TYPE 420 AND 190-AL - SPIRAL TYPE

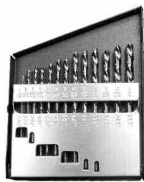
PART NO.	DESCRIPTION	QTY. OF EACH
58510	EX1, 2, 3, 4 and 5 plus 3/32, 1/8, 3/16, 1/4 and 5/16	1

TYPE 421-AG BOLT EXTRACTOR SETS

BR-8SQ - TYPE 421-AG - SQUARE TYPE

PART NO.	DESCRIPTION	QTY. OF EACH
70850	E 1, 2, 3 and 4 plus 1/8, 3/16, 1/4 and 5/16	1

LEFT-HAND HEAVY DUTY JOBBER LENGTH DRILLS TYPE 109-AL MAGNUM SUPER PREMIUM - LEFT HAND SPIRAL



TYPE 190-AL - LEFT HAND SPIRAL SETS 12 PIECE SET

PART NO.	DESCRIPTION	QTY. OF EACH
87651	LF-12 1/16-5/16 by 32nds, 3/8, 7/16 and 1/2	1

13 PIECE SET

PART NO.	DESCRIPTION	QTY. OF EACH
87652	LF-13 1/16-1/4 by 64ths	1

HOLE EXPANSION TOOLS

CAR REAMERS

TYPE 50-AG - CAR REAMERS - STANDARD FLUTE - 3-FLATS ON SHANK

- These reamers are especially designed for the reaming of structural steel plates commonly found in truck frames, rail cars, bridges, and pressure vessels.
- For use in enlarging previously formed or drilled holes.
- All tools are constructed with left-hand spiral and right-hand cut.



PART NO.	DIAMETER INCHES	POINT DIAMETER	MIN. STARTING HOLE SIZE	OVERALL LENGTH INCHES	SHANK DIAMETER
06390	3/8	0.250	5/16	4-5/8	3/8
06400	1/2	0.281	3/8	5-7/8	1/2
06410	9/16	0.343	7/16	5-7/8	1/2
06420	5/8	0.343	7/16	6-3/8	1/2
06430	11/16	.0375	15/32	6-3/8	1/2
06440	3/4	0.406	1/2	6-7/8	1/2
06450	13/16	0.468	35/64	6-7/8	1/2
06460	7/8	0.500	19/32	6-7/8	1/2
06470	15/16	.0585	5/8	6-7/8	1/2
06480	1"	0.594	7/8	6-7/8	1/2
06484	1-1/4	0.719	1"	6-7/8	1/2

HOLE HOG™ REAMERS TYPE 134-AG HOLE HOG™ - 4 FLUTE CORE DRILL SUPER PREMIUM - 3-FLATS ON SHANK



- This tool is designed exclusively for enlarging existing holes.
- The 4-flute design eliminates the catching and hogging-in experienced with standard S & D drills when breaking through thinner materials such as truck frames.
- These core drills may replace tapered reamers in many applications.

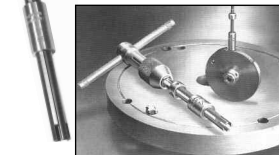
TYPE 626 - CARBIDE TIPPED

PART NO.	DIAMETER INCHES	MIN. STARTING HOLE SIZE	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
22030	3/8	1/4	4-5/16	1-7/8	1
22040	1/2	5/16	4-5/16	1-7/8	1
22060	9/16	3/8	4-5/16	1-7/8	1
22080	5/8	25/64	4-5/16	1-7/8	1
22100	11/16	7/16	4-5/16	1-7/8	1
22120	3/4	15/32	4-5/16	1-7/8	1



TAP EXTRACTORS AND KITS STANDARD AND CUSTOM FOR MACHINE SCREW, HAND, PIPE AND STI TAPS

Remove broken taps and save the threads without drilling, lasers, damaged threads, scrapped parts or repair inserts. The hardened steel fingers fit in the flutes of a broken tap to back it out simply and safely.



This effective method has been used since 1908. Available in every tap size, both inch and metric, as hand sets or individual pieces. Will fit both NC and NF taps.

Designed specifically for:

- #4 to 1-1/2" machine screw and hand taps.
- 3mm to 38mm taps, in all standard flute sizes.
- 1/8" to 1" Pipe Taps.
- #4 to 5/8" Helical Coil "STI" Taps.

Tap Extractor Sets are available in standard or custom sets of 6 to 15 tools per set. All sets are packed in a sturdy molded plastic case.

Standard Sets:

- Nos. 1, 2, 3 Packed in 6-compartment plastic case.

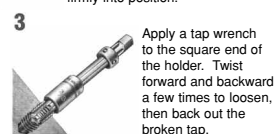
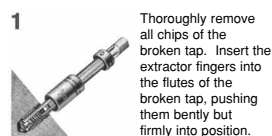
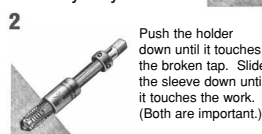


Standard Sets:

- Nos. 11, 12, 15 Packed in 15-compartment plastic case.



Here's all there is to it...
3 SIMPLE STEPS for removing broken taps the easy way





HI-CARBON SPECIALTY TOOLS HI-CARBON SCREW, STUD AND PIPE EXTRACTORS

TYPE 420 SCREW & PIPE EXTRACTORS – HI-CARBON STEEL – SPIRAL STYLE

- Remove broken screws, bolts, threaded parts, and pipes.
- Broken piece is extracted without damage to threads.



To remove the broken threaded part:

Drill a hole in the end of the broken part (left hand spiral heavy duty drills are recommended for this drilling operation), insert extractor, then turn counterclockwise using a wrench on the exposed end of the extractor.

TYPE 420 SCREW AND PIPE EXTRACTORS

PART NO.	SCREW EXTRACTOR NO.	TO REMOVE DIAMETER OF SCREW	DIAMETER OF SCREW EXTRACTOR SHANK POINT		DRILL SIZE	NO. PER/PACK
57100	EX-1	3/32 to 5/32	1/8	.060	5/64	5
57110	EX-2	5/32 to 7/32	3/16	.080	7/64	5
57120	EX-3	7/32 to 9/32	1/4	1/8	5/32	5
57130	EX-4	9/32 to 3/8 and 1/8 pipe	5/16	3/16	1/4	5
57140	EX-5	3/8 to 5/8 and 1/4 pipe	7/16	1/4	17/64	5
57150	EX-6	5/8 to 7/8 and 3/8 pipe	5/8	3/8	13/32	1
57160	EX-7	7/8 to 1-01/8 and 1/2 pipe	7/8	15/32	17/32	1
57170	EX-8	1-1/8 to 1-3/8 and 3/4 pipe	11/32	3/4	13/16	1
57180	EX-9	1-3/8 up to 1" pipe	1-9/32	1	1-1/8	1

TYPE 420 SCREW AND PIPE EXTRACTORS - CARDED

PART NO.	SCREW EXTRACTOR NO.	TO REMOVE DIAMETER OF SCREW	DIAMETER OF SCREW EXTRACTOR SHANK POINT		DRILL SIZE	NO. PER/PACK
57107	EX-1	3/32 to 5/32	1/8	.060	5/64	1
57117	EX-2	5/32 to 7/32	3/16	.080	7/64	1
57127	EX-3	7/32 to 9/32	1/4	1/8	5/32	1
57137	EX-4	9/32 to 3/8 and 1/8 pipe	5/16	3/16	1/4	1
57147	EX-5	3/8 to 5/8 and 1/4 pipe	7/16	1/4	17/64	1

TYPE 421-AG STUDOUT™ SCREW, STUD AND PIPE EXTRACTORS - SUPER PREMIUM - SQUARE STYLE FORGED HI-CARBON STEEL

- The square shape of these extractors gives the tools the ability to remove broken bolts, screws and pipes with minimum deformation of the broken part.
- These extractors will not chew up or expand the object being removed.



To remove the broken threaded part:

Drill a hole in the end of the broken part (left hand spiral heavy duty drills are recommended for this drilling operation), insert extractor, then turn counterclockwise using a wrench on the exposed end of the extractor.

TYPE 421-AG STUDOUT™ SCREW, STUD AND PIPE EXTRACTORS

PART NO.	SCREW EXTRACTOR NO.	TO REMOVE DIAMETER OF SCREW	DIAMETER OF SCREW EXTRACTOR SHANK POINT		DRILL SIZE	NO. PER/PACK
70760	E-1	3/16 - 9/32	3/16	1/8	1/8	5
70770	E-2	9/32 - 11/32	1/4	11/64	3/16	5
70780	E-3	11/32 - 1/2	5/16	7/32	1/4	5
70800	E-4	1/2 - 3/4	3/8	9/32	5/16	5
70810	E-5	5/8 - 7/8	7/16	21/64	3/8	5
70820	E-6	7/8 - 1"	1/2	7/16	1/2	1
70830	E-7	1" - 1-1/4	5/8	1/2	9/16	1
70860	E-8	1-1/8 - 1-1/2	3/4	9/16	5/8	1
70870	E-9	1-1/4 - 1-3/4	7/8	5/8	11/16	1



HI-CARBON STEEL DIES

HI-CARBON STEEL DIES - HEX DIES

TYPE 405 - MACHINE SCREW AND FRACTIONAL SIZES, TYPE 790 - METRIC

- These dies are made from high quality carbon tool steel and meet the highest industry standards.
- A complete selection of solid round, adjustable round, and solid hex dies for right hand threads is available.
- Select sizes of dies may be imported.



TYPE 405 MACHINES SCREW AND FRACTIONAL SIZES

PART NO.	SIZE	ACROSS FLATS	QTY. PER/PACK
86000	4x40	1"	3
86010	4 x 36	1"	3
86020	5 x 40	1"	3
86030	6x32	1"	3
86040	8x32	1"	3
86050	10x24	1"	3
86060	10x32	1"	3
86070	12x24	1"	3
86080	14x20	1"	3
86100	3/16x24	1"	3
86110	3/16x32	1"	3
86120	1/4x20	1"	3
86130	1/4x28	1"	3
86140	5/16x18	1"	3
86150	5/16x24	1"	3
86160	3/8x16	1"	3
86170	3/8x24	1"	3
86180	7/16x14	1"	3
86190	7/16x20	1"	3
86200	1/2x13	1"	3
86210	1/2x20	1"	3
86220	9/16x12	1-7/16	1
86230	9/16x18	1-7/16	1
86240	5/8x11	1-7/16	1
86250	5/8x18	1-7/16	1
86260	11/16x11	1-7/16	1
86270	11/16x16	1-7/16	1
86280	3/4x10	1-7/16	1
86290	3/4x16	1-7/16	1
86300	7/8x9	1-5/8	1
86310	7/8x14	1-5/8	1
86320	1x8	1-13/16	1
86330	1x12	1-13/16	1
86340	1x14	1-13/16	1
86350	1/8x27	1"	1
86360	1/4x18	1"	1

- These Items are also available carded.



TYPE 790 - METRIC SIZES

PART NO.	SIZE	ACROSS FLATS	QTY. PER/PACK
84000	3x.50	1"	3
84010	3x.60	1"	3
84020	4x.70	1"	3
84030	4x.75	1"	3
84040	5x.80	1"	3
84050	5x.90	1"	3
84060	6x1.00	1"	3
84070	7x1.00	1"	3
84270	8x1.00	1"	3

CONTINUED NEXT COLUMN

TYPE 790 - METRIC SIZES (Cont.)

PART NO.	SIZE	ACROSS FLATS	QTY. PER/PACK
84080	8x1.25	1"	3
84090	9x1.00	1"	3
84100	9x1.25	1"	3
84110	10x1.00	1"	3
84120	10x1.25	1"	3
84130	10x1.50	1"	3
84140	11x1.50	1"	3
84280	12x1.25	1"	3
84150	12x1.50	1"	3
84160	12x1.75	1"	3
84170	14x1.25	1-7/16	1
84290	14x1.50	1-7/16	1
84180	14x2.00	1-7/16	1
84190	16x1.50	1-7/16	1
84200	16x2.00	1-7/16	1
84210	18x1.50	1-7/16	1
84300	18x2.00	1-7/16	1
84220	18x2.50	1-7/16	1

HEXAGONAL DIES: TIPS

Carbon steel dies are primarily used for restoring damaged threads. Hex shape allows them to be driven in cramped quarters with a wrench.

HI-CARBON STEEL DIES - ADJUSTABLE TYPE 415 ADJUSTABLE ROUND DIES

- These dies are made of high quality carbon tool steel and meet the highest industry specifications. We offer a complete selection of solid round, adjustable round and solid hex dies for right hand threads. Select sizes of dies may be imported.
- These items are also available carded.



TYPE 415 - ADJUSTABLE - MACHINE SCREW AND FRACTIONAL SIZES

PART NO.	SIZE	O.D.	QTY. PER/PACK
85000	0x80	1"	3
85010	1x64	1"	3
85020	1x72	1"	3
85030	2x56	1"	3
85040	2.64	1"	3
85060	3x48	1"	3
85070	3x56	1"	3
85080	4x40	1"	3
85090	4x36	1"	3
85100	5x40	1"	3
85110	6x32	1"	3
85120	8x32	1"	3
85130	10x24	1"	3
85140	10x32	1"	3
85150	12x24	1"	3
85170	14x20	1"	3
85180	3/16x24	1"	3
85190	3/16x32	1"	3
85200	1/4x20	1"	3
85210	1/4x28	1"	3
85220	5/16x18	1"	3
85230	5/16x24	1"	3
85240	3/8x16	1"	3
85250	3/8x24	1"	3
85260	7/16x20	1"	3
85270	1/2x13	1"	3
85280	1/2x20	1"	3
85290	9/16x12	1-1/2	1
85300	9/16x18	1-1/2	1
85310	5/8x11	1-1/2	1
85320	5/8x18	1-1/2	1
85330	11/16x11	2"	1

CONTINUED NEXT PAGE



HI-CARBON STEEL DIES (Cont.)
HI-CARBON STEEL DIES – ADJUSTABLE
(Cont.)
TYPE 415 ADJUSTABLE ROUND DIES (Cont.)

TYPE 415 - ADJUSTABLE - MACHINE SCREW AND FRACTIONAL SIZES (Cont.)

PART NO.	SIZE	O.D.	QTY. PER/PACK
85340	11/16x16	2"	1
85350	3/4x10	2"	1
85360	3/4x16	2"	1
85370	7/8x9	2"	1
85380	7/8x14	2"	1
85390	1x8	2"	1
85400	1x12	2"	1
85410	1x14	2"	1
85420	1/8x27	2"	3
85430	1/4x18	2"	3
85440	3/8x18	1-1/2	1
85450	1/2x14	1-1/2	1

ADJUSTABLE DIES: TIPS
These dies have a recessed adjusting bolt so threads can be cut slightly undersize or oversize.

SPECIALTY TOOLS
STEP DRILLS – BLACK & GOLD
ULTRA BIT™ MULTI-DIAMETER – 3-FLATS ON SHANK

- TYPE 78-AG – 3-FLATTED SHANK – BLISTER PAK
- TYPE 78-QR – QUICK RELEASE
- TYPE 78-AGN – TiN COATED – BLISTER PAK

- Special Axial and Radial flute design speed work piece penetration.
- Dual flute construction drills clean accurate holes in thin materials, quickly and easily.
- Use for all thin metals, rigid plastics, wood or composite materials with a thickness equal to or less than the step thickness.
- 135° split point self centers and easily starts with no pilot hole required.
- Made in the U.S.A.



TYPE B78-AG - 3-FLATTED SHANK

PART NO.	SIZE	HOLE SIZES	NO. RANGE	SHANK SIZE	STEP INCREMENTS	STEP THICKNESS
45401	1/8 - 1/2	13	1/8 - 1/2	1/4	1/32	1/8
45411	3/16 A	6	3/16 - 1/2	1/4	1/16	3/8
45421	3/16 B	12	3/16 - 7/8	3/8	1/16	1/8
45431	1/4 - 3/4	9	1/4 - 3/4	3/8	1/16	5/32
45441	9/16 - 1	8	9/16 - 1"	3/8	1/16	5/32
45451	13/16	10	13/16 - 1-3/8	1/2	1/32	5/32
45461	1/4 KO	10	1/4 - 1-3/8	3/8	1/8	*SEE NOTE
45471	7/8A	2	7/8 - 1-1/8	3/8	27/64	9/64
45481	1/4 - 7/8	11	1/4 - 7/8	3/8	1/16	1/16
45491	1/4 A	16	1/4 - 1-1/8	3/8	1/16	1/16

NOTE: Part No. 00711 3/16 steps at 7/8, 1-1/8 & -3/8 for conduit knock-outs.

TYPE B78-AG - STEP DRILLS - SETS

PART NO.	DESCRIPTION
01911	1/8 - 1/2, 3/16 - 1/2, and 1/4 - 3/4
01921	1/8 - 1/2, 3/16 - 1/2, and 3/16 - 7/8
01931	1/8 - 1/2, 3/16 - 1/2, 7/8 and 1-1/8 ELECTRICIANS – SET
01941	1/8 - 1/2, 3/16 - 1/2 and 9/16 - 1

All tools individually packed in clear tubes.
NOTE: Part No. 00711, 69220 Extra length steps at 7/8, 1-1/8 and 1-3/8 for conduit knock-outs.

Quick Release 1/4" Hex Shank



TYPE 78-QR - HEX SHANK STEP DRILLS

PART NO.	SIZE	HOLE SIZES	NO. RANGE	SHANK SIZE	STEP INCREMENTS	STEP THICKNESS
01401	1/8 - 1/2	13	1/8 - 1/2"	1/4"	1/32"	1/8"
01402	3/16 A	6	3/16 - 1/2"	1/4"	1/16"	3/8"
01403	3/16 B	12	3/16 - 7/8"	1/4"	1/16"	1/8"
01404	1/4 - 3/4	9	1/4 - 3/4	1/4"	1/16"	5/32"
01409	7/8 A	2	7/8 - 1-1/8"	1/4"	27/64"	9/64"
01412	1/4 - 7/8	11	1/4 - 7/8"	1/4"	1/16"	1/16"
01413	1/4 A	16	1/4 - 1-1/8"	1/4"	1/16"	1/16"

TYPE 78-QR - STEP DRILLS - SETS

PART NO.	DESCRIPTION
01441	1/8 - 1/2, 3/16 - 1/2, and 3/16 - 7/8
01451	1/8 - 1/2, 3/16 - 1/2, and 1/4 - 3/4
01961	1/8 - 1/2, 3/16 - 1/2, 7/8 and 1-1/8 ELECTRICIANS - SET



TYPE B78-AGN - TiN COATED

PART NO.	SIZE	HOLE SIZES	NO. RANGE	SHANK SIZE	STEP INCREMENTS	STEP THICKNESS
45701	1/8 - 1/2	13	1/8 - 1/2	1/4	1/32	1/8
45711	3/16 A	6	3/16 - 1/2	1/4	1/16	3/8
45721	3/16 B	12	3/16 - 7/8	3/8	1/16	1/8
45731	1/4 - 3/4	9	1/4 - 3/4	3/8	1/16	5/32
45741	9/16 - 1	8	9/16 - 1"	3/8	1/16	5/32
45751	13/16	10	13/16 - 1-3/8	3/8	1/8	*SEE NOTE
45771	7/8 A	2	7/8 - 1-1/8	3/8	27/64	9/64
45781	1/4 - 7/8	11	1/4 - 7/8	3/8	1/16	1/16
45791	1/4 A	16	1/4 - 1-1/8	3/8	1/16	1/16

NOTE: Part No. 69220 3/16 steps at 7/8, 1-1/8 & -3/8 for conduit knock-outs.

TYPE 78-QR - TiN COATED - SETS

PART NO.	DESCRIPTION
01811	1/8 - 1/2, 3/16 - 1/2 and 1/4 - 3/4
01821	1/8 - 1/2, 3/16 - 1/2 and 3/16 - 7/8
01831	1/8 - 1/2, 3/16 - 1/2, 7/8 and 1-1/8 ELECTRICIANS – SET
01841	1/8 - 1/2, 3/16 - 1/2 and 9/16 - 1"



SPECIALTY TOOLS (Cont.)

BRAD POINT DRILLS – BLACK & GOLD

TYPE 16-AG - JOBBER LENGTH - BURROUT™ BRAD POINT SUPER PREMIUM

- These high performance drills made from Hi-Moly tool steel will cut holes in wood or plastics and leave not burr.
- The special **BURROUT™** point cuts at the circumference of the hole to avoid the break through burr problems common with standard point drills.



TYPE 16-AG - FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
01041	5/64	2	1	12
01051	3/32	2-1/4	1-1/4	12
01061	7/64	2-5/8	1-1/2	12
01071	1/8	2-3/4	1-5/8	12
01081	9/64	2-7/8	1-3/4	12
01091	5/32	3-1/8	2	12
01101	11/64	3-1/4	2-1/8	12
01111	3/16	3-1/2	2-5/16	12
01131	7/32	3-3/4	2-1/2	12
01151	1/4	4	2-3/4	12
01191	5/16	4-1/2	3-3/16	6
01231	3/8	5	3-5/8	6
01271	7/16	5-1/2	4-1/16	6
01311	1/2	6	4-1/2	6

ACRYLIC DRILLS

TYPE 183-AG - ACRYLIC DRILLS WITH CHIPFREE™ POINT MAGNUM SUPER PREMIUM

- Super **CHIPFREE™** point is precision ground at a 60° angle for gradual penetration to avoid cracking and chipping of the acrylic material.
- Special 0° rake angle on cutting edge eliminates “grabbing” when drill breaks through plastic, acrylic, or laminate surfaces.
- All sizes over 1/4" have 1/4" shanks.



TYPE 183-AG - FRACTIONAL

PART NO.	DIAMETER INCHES	OVERALL LENGTH INCHES	FLUTE LENGTH INCHES	QTY. PER/PACK
32260	3/32	2-1/4	1-5/16	12
31500	1/8	2-1/2	1-3/8	12
31510	5/32	2-7/8	2-3/16	12
31520	3/16	3-3/16	2	12
32220	7/32	3-3/4	2-9/16	12
31530	1/4	3-9/16	2-5/16	12
32240	9/32	3-9/16	2	12
31540	5/16	3-5/16	2-3/16	6
32290	11/32	4-1/32	2-3/8	6
31550	3/8	3-5/8	2-9/16	6
32460	13/32	4-1/32	2-3/4	6
31560	7/16	4	2-15/16	6
32470	15/32	4-7/8	3-1/8	6
31570	1/2	4-1/4	3-1/4	6

CUTTING TOOL LUBRICANTS

TYPE 11-AG - ULTRA LUBE™ HIGH PERFORMANCE - HIGH VISCOSITY

- Super concentrated no run formula.
- Clings to vertical surfaces for continual lubrication.
- Virtually smoke free in even the most heat prone applications.
- Contains no ozone depleting substances.

This fluid will extend tool life and yield a super machined finish.



TYPE 11-AG - ULTRA LUBE™

PART NO.	SIZE MM	BOTTLES PER CASE	WEIGHT. PER CASE
96050	12 – 4 Oz.	12	4.4 Lbs. / 2 Kgs.

Tap Magic®

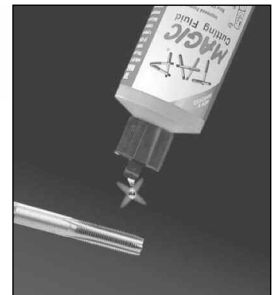
TAP MAGIC®.

THE WORLD'S FINEST CUTTING FLUIDS.

TAP MAGIC Cutting Fluid was first developed in 1953 for machinists who



needed far greater precision than they could achieve with conventional cutting oils. Since then, a whole family of TAP MAGIC Cutting Fluids has been formulated – each carefully engineered to meet a specific set of metalworking demands.

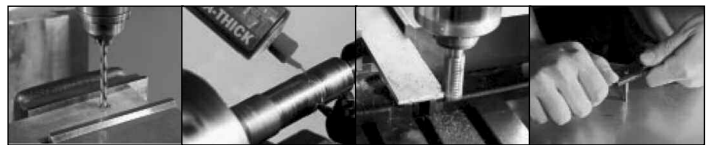


Whatever the metal, whatever the cutting operation, TAP MAGIC Cutting Fluids penetrate right to the cutting edge of the tool to provide superior lubrication, greater precision and longer tool life. Just one drop and the performance is MAGIC!

TAP MAGIC Cutting Fluids are offered in a wide variety of sizes and even in aerosol cans. They're easy to find too, thanks to an outstanding network of industrial distributors.

Use TAP MAGIC Cutting Fluids and you'll join millions of satisfied metalworking professionals who "Believe In Magic."

"AVAILABLE IN 4oz AND 16oz. SIZES"





SPECIALTY TOOLS (Cont.)
CUTTING TOOL LUBRICANTS (Cont.)
METAL CUTTING FLUIDS

ALL-METAL CUTTING FLUID AND PASTE

- Greatly extended tool life.
- Super-fine machined finish in operation after operation.
- Anti-mist protection for a healthier work environment.
- No special labeling or reporting.
- Excels in tough materials.
- Contains no 1,1,1- trichloroethane or other ozone-depleting chemicals.



RAPID TAP

PART NO.	DESCRIPTION	CASE QTY.	CASE/DRUM WEIGHT (LBS.)
04Z-NRT	4 Ounce Bottles	24	9
PNT-NRT	Pint Cans	12	17
01G-NRT	1 Gallon Bottles	4	38
05G-NRT	5 Gallon Pail	1	47
55G-NRT	55 Gallon Drum	—	514

RAPID TAP PASTE

PART NO.	DESCRIPTION	CASE QTY.	CASE/DRUM WEIGHT (LBS.)
08Z-NRTP	8 Ounce Jar	12	9

ALUMINUM-CUTTING FLUID

- Eases all operations on aluminum: milling, broaching, drilling, threading, tapping, reaming, sawing, etc.
- Contains anti-mist component for a healthier work environment.
- Contains a scientific blend of chemicals that attach themselves to aluminum surfaces, forming an extreme-pressure boundary lubricant between tool and work surface.



PART NO.	DESCRIPTION	CASE QTY.	CASE/DRUM WEIGHT (LBS.)
04Z-A9	4 Ounce Bottles	24	9
PNT-A9	Pint Bottles	12	15
01G-A9	1 Gallon Bottles	4	34
05G-A9	5 Gallon Pail	1	42
55G-A9	55 Gallon Drum	—	460



CUTTING TOOL SETS
JOBBER LENGTH - METRIC -
3/8" REDUCED SHANK

TYPE 190-AG - NAS 907B - 135° SPLIT POINT
BLACK & GOLD MAGNUM SUPER PREMIUM

- Manufactured to NAS 907B aerospace specification.
- Body and clearance are hold surface treated for maximum lubricity.
- Recommended for use in work hardening grades of stainless steel and other hard metal drilling applications.

44150 SP-29



13 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
44110 SP-13	1/16 - 1/4 by 64ths	1

15 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
44120 SP-15	1/16 - 1/2 by 32nds	1

21 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
44130 SP-21	1/16 - 3/8 by 64ths	1

26 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
88660 SP-26	A - Z	1

29 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
44150 SP-29	1/16 - 1/2 by 64ths	1

29 PCS. - ULTRA DEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
44170 SP-29P	1/16 - 1/2 by 64ths	1

60 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
88640 SP-60	#1 - 60	1

115 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
93840 SP-115	1/16 - 1/2 x 64ths - 1 - Z and 1-60	1

13 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
06510 TRI-1SP	1/16 - 1/4 by 64ths	1



CUTTING TOOL SETS (Cont.)

**JOBBER LENGTH - METRIC -
3/8" REDUCED SHANK (Cont.)**

**TYPE 128-AG - 135° SPLIT POINT 3/8" REDUCED
SHANK BLACK & GOLD - MAGNUM SUPER PREMIUM**

- Recommended for use in work hardening grades of stainless steel and other hard metal drilling applications.



GF-29P

21 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
92170 RSP-21R	1/16 - 1/4 by 64ths, 9/32 - 1/2 x 32nds	1

15 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
92110 RSP-15	1/16 - 1/4 by 32nds	1

29 PCS.

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
92100 RSP-29	1/16 - 1/2 by 64ths	1

29 PCS. - ULTRA DEX

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
92150 RSP-29P	1/16 - 1/2 by 64ths	1

**TYPE 170-AG - METRIC - NAS 907B BLACK & GOLD -
MAGNUM SUPER PREMIUM - 135° SPLIT POINT**

- Manufactured to **NAS 907B** aerospace specification.
- Recommended for use in work hardening grades of stainless steel and other hard metal drilling applications.

11 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
58650 SP-11M	Black & Gold Super Premium 1.0mm - 6.0mm x .5mm	1

13 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
49042 SP-13M	Black & Gold Super Premium 1.0mm - 7.0mm x .5mm	1

CONTINUED NEXT COLUMN

**TYPE 170-AG - METRIC - NAS 907B BLACK & GOLD -
MAGNUM SUPER PREMIUM - 135° SPLIT POINT (Cont.)**

19 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
58920 SP-19M	Black & Gold Super Premium 1.0mm - 10.0mm x .5mm	1

25 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
58660 SP-25M	Black & Gold Super Premium 1.0mm - 13.0mm x .5mm	1

41 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
49043 SP-41M	Black & Gold Super Premium 6.0mm - 10.0mm x .1mm	1

118 PCS. - METRIC

PART NO.	DESCRIPTION OF SIZES	QTY. OF EACH
60090 SP-118M	Black & Gold Super Premium 1 - 2.45mm by 0.05mm, 2 - 5 10mm by 0.1mm and 10.2, 10.5, 10.8, 11, 11.2, 11.5, 11.8, 12, 12.2, 12.5, 12.8 and 13	1



**MACHINIST TOOLS -
MEASURING AND REPAIR TOOLS**

Thread Repair Files restore damaged external threads on studs, bolts, screws, plumbing pipes and pipe fittings.

NUT SPLITTER



175

PART NO.	UPC NO.
175	31325 6

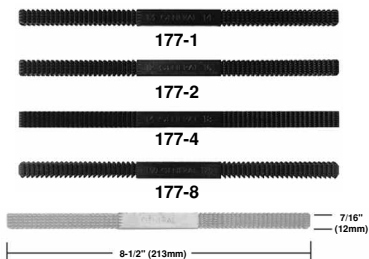
- Here is a real timesaver for the removal of frozen, hard to remove rusted nuts.
- Only 4-3/4" long, this compact tool will split nuts up to 1/2" automotive series (3/4" or 19mm across flats)
- Standard 3/4" driving hex head for use with wrenches or sockets.
- Angled body for getting into hard-to-reach work areas.
- Replaceable hardened steel chisel point can be reversed to achieve best cutting angle.
- Made of high-grade heat treated forged steel for durability. Plated and black oxide finishes to prevent rust.

GENERAL®

**MACHINIST TOOLS -
MEASURING AND REPAIR TOOLS**

(Cont.)

THREAD REPAIR FILES



- These indispensable files restore damaged external threads on studs, bolts, screws, plumbing pipe and pipe fittings.
- Four different high carbon steel files are available. Each file provides 4 to 8 different thread pitches.
- Restores rusted or corroded fasteners.
- Doubles as a screw pitch gage.
- Black oxide to prevent rust.

PART NO.	UPC NO.	THREAD PITCHES
177-1	31236 5	11, 12, 13, 14, 16, 18, 20, 24, T.P.I.
177-2	31240 2	9, 10, 12, 16, 20, 27, 28, 32, T.P.I.
177-4	31244 0	8, 12-1/2, 14, 18 iron pipe
177-8	31242 6	0.75, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5, 3.0mm

CENTER PUNCHES

General's Automatic Center Punches offer a precise way to punch center holes for drilling in layout work. Single-handed operation with stored energy design eliminates the need for striking the punch with a hammer. Spring tension cap can be adjusted for light to heavy strokes. Punch depth can be set for repetitive work.

MACHINIST'S AUTOMATIC CENTER PUNCH



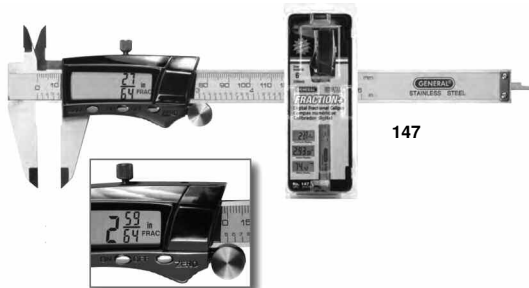
- Punches, marks, scribes and starts drill, nail or screw holes.
- One-hand spring impact operation, no hammer needed.
- Spring tension adjusts for light or heavy markings.
- Ball bearing action.
- Lightweight aluminum body with long wearing alloy steel parts.
- Hardened steel point.

PART NO.	UPC NO.	A	B	C	D	E
77	31062 0	1/4" (6mm)	5" (127mm)	3-29/32" (99mm)	5/8" (16mm)	.014" (2.6mm)

SPECIALTY TOOLS

FRACTION+

The Digital Fractional Caliper Family



General's newest "Fraction+" Calipers measure in fractional inches as well as decimal inches and millimeters. It's perfect for everyone from the DIYer to the professional.

**FRACTION+ 6", 8" AND 12" STAINLESS STEEL
DIGITAL FRACTIONAL CALIPERS**

- Heavy-duty stainless steel construction.
- Convenient auto-off feature.
- Three mode digital display: Decimal inches, fractional inches and millimeters.
- Inside, outside, depth and step measurements.
- Accuracy: +/- 0.001", +/- 0.02mm.
- Resolution: 0.0005", 0.01mm, 1/64"
- Power Source: 1 "SR44" battery included.

PART NO.	UPC NO.	RANGE
147	01470 2	0-6" (0-153mm)
1478	01478 3	0-8" (0-203mm)
14712	14712 7	0-12" (0-305mm)

CUTTING AND CARVING TOOLS

General's Classic Utility Knife is used for cutting and scoring fiber-board, matboard, roofing, linoleum, carpeting, plasterboard and veneers.

SLIDE LOCKING UTILITY KNIFE

- For cutting and scoring fiberboard, wallboard, matboard, cardboard, corkingboard, roofing, linoleum, carpet, plasterboard, veneers and other materials.
- Open instantly to any one of three cutting positions.
- Blade retracts into handle for safety.
- Comes with three replaceable heavy-duty alloy steel blades, No. 852, in storage handle.



PART NO.	UPC NO.	DESCRIPTION
855	43046 5	Heavy-Duty Slide Locking Utility Knife

HEAVY-DUTY UTILITY KNIFE BLADES



PART NO.	UPC NO.	THICKNESS	PKG. QTY.
652-5	43027 4	0.025	5
852-1000	43030 4	0.025	100

LENOX

LENOX BI-METAL JIG SAW BLADES BI-METAL T-SHANK FOR WOOD CUTTING

PART NO.	TPI	IN.	MM	SHAPE	PROCESS	APPLICATION
BT456S	6	4	102		Ground	Very Fast, Clean Cut
BT410S	10	4	102		Milled	Fast, Nail-embedded Wood
BT450S	10	4	102		Ground	Clean, Smooth Cut
BT320SC	20	3-1/4	82.5		Ground	Scroll Cut, Laminates (High Carbon Steel)

BI-METAL T-SHANK FOR METAL CUTTING

PART NO.	TPI	IN.	MM	SHAPE	PROCESS	APPLICATION
BT314S	14	3-5/8	92.1		Milled	Thick Metal
BT318S	18	3-5/8	92.1		Milled	Medium Metal
BT324S	24	305.7	82.1		Milled	Thin Metal

BI-METAL U-SHANK FOR WOOD CUTTING

PART NO.	TPI	IN.	MM	SHAPE	PROCESS	APPLICATION
BT456J	6	4	102		Ground	Very Fast, Clean Cut
BT480J	10	4	102		Milled	Fast, Nail-embedded Wood
BT450J	10	4	102		Ground	Clean, Smooth Cut

BI-METAL U-SHANK FOR METAL CUTTING

PART NO.	TPI	IN.	MM	SHAPE	PROCESS	APPLICATION
BT314J	14	3-5/8	92.1		Milled	Thick Metal
BT318J	18	3-5/8	92.1		Milled	Medium Metal
BT324J	24	3-5/8	92.1		Milled	Thin Metal

LENOX BI-METAL RECIP SAW BLADES DEMOLITION RECIPROCATING SAW BLADES



2-PACK PART NO.	TPI	LENGTH x WIDTH x THICKNESS IN.	MM
6066R	6	6 x 1 x .062	152 x 22 x 1.6
966R	6	9 x 1 x .062	229 x 22 x 1.6
106R	6	12 x 1 x .062	305 x 22 x 1.6
960R	10	9 x 1 x .062	229 x 22 x 1.6

LENOX BI-METAL RECIP SAW BLADES

LASER RECIPROCATING SAW BLADES



5-PACK PART NO.	25-PACK PART NO.	TPI	LENGTH x WIDTH x THICKNESS IN.	MM
9110R	-	10	9 x 1 x .042	229 x 25 x 1.07
12110R	B12110R	10	12 x 1 x .042	305 x 25 x 1.07
6114R	-	14	6 x 1 x 0.42	152 x 25 x 1.07
9114R	-	14	9 x 1 x .042	229 x 25 x 1.07
-	B12114R	14	12 x 1 x .042	305 x 25 x 1.07
6118R	-	18	6 x 1 x .042	152 x 25 x 1.07
9118R	-	18	9 x 1 x .042	229 x 25 x 1.07

BI-METAL RECIPROCATING SAW BLADES

Best For Cutting Wood



5-PACK PART NO.	TPI	LENGTH x WIDTH x THICKNESS IN.	MM
634R	4	6 x 3/4 x .050	152 x 19 x 1.3
656R	6	6 x 3/4 x .050	152 x 19 x 1.3
956R	6	9 x 3/4 x .050	229 x 19 x 1.3
156R	6	12 x 3/4 x .050	305 x 19 x 1.3

BI-METAL RECIPROCATING SAW BLADES

Best For Cutting Metal



5-PACK PART NO.	TPI	LENGTH x WIDTH x THICKNESS IN.	MM	
614R	B614R	14	6 x 3/4 x .035	152 x 19 x .9
814R	-	14	8 x 3/4 x .035	203 x 19 x .9
618R	B618R	18	6 x 3/4 x .035	152 x 19 x .9
818R	-	18	8 x 3/4 x .035	203 x 19 x .9
624R	-	24	6 x 3/4 x .035	152 x 19 x .9
824R	-	24	8 x 3/4 x .035	203 x 19 x .9

LENOX WOLF-BAND® PORTABLE BAND SAW BLADES



1-PACK PART NO.	TPI	LENGTH x WIDTH x THICKNESS IN.	MM
38428	10/14	44-7/8 x 1/2 x .020	1140 x 12.7 x .5
38430	14/18	44-7/8 x 1/2 x .020	1140 x 12.7 x .5
38431	18	44-7/8 x 1/2 x .020	1140 x 12.7 x .5

Harrison & Bonini can provide
Special Orders on all LENOX products.

We also stock additional items and new items not indicated here.

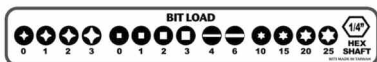
Please call for additional information on pricing and availability.

MEGAPRO⁺

Every bit better.

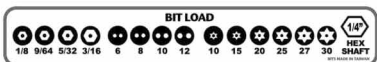
MULTI-DRIVERS PART NO. 151NAS

Drivers Made in 



Our Original bit load driver is our most popular. Loaded with 7 double end professional quality bits, this assortment provides the 14 most popular tips for driving screws. The shaft opening serves as a 1/4" hex driver! Hence "15in1".

PART NO. 151TP



The "15in1" is a must for all commercial/industrial tradesmen. i.e. electricians, locksmiths, telephone technicians, maintenance personnel, etc. The Tamperproof assortment includes the most popular security bits, including Spanners, Hex Pins and Torx Pins. The small opening serves as a 1/4" hex driver!

INTRODUCING...

- Compact Size
- Fits Anywhere
- Great For Tight Spaces
- Multi-Patented Features
- Standard And Ratcheting



PART NO. 171BK/RD



3-Position Ratchet

IRWIN[®]

Industrial Tools

HAND TOOLS

LOCKING PLIERS

WISE-GRIP[®] CURVED JAW LOCKING PLIERS WITH WIRE CUTTER



0502L3

ORIGINAL HANDLE

PART NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
10WR [®]	10" (250mm)	0" - 1-7/8" (0mm - 48mm)	0502L3
7WR [®]	7" (175mm)	0" - 1-1/2" (0mm - 38mm)	0702L3
5WR [®]	5" (125mm)	0" - 1-1/8" (0mm - 29mm)	0902L3
4WR [®]	4" (100mm)	0" - 1" (0mm - 25mm)	1002L3



05T

- Curved jaw puts tremendous pressure on four points of any style nut or bolt head

FAST RELEASE[™] HANDLE

PART NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
10WR [®]	10" (250mm)	0" - 1-7/8" (0mm - 48mm)	05T
7WR [®]	7" (175mm)	0" - 1-1/2" (0mm - 38mm)	07T
5WR [®]	5" (125mm)	0" - 1-1/8" (0mm - 29mm)	09T

WISE-GRIP[®] LONG NOSE LOCKING PLIERS



1402L3

ORIGINAL HANDLE

PART NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
9LN [®]	9" (225mm)	0" - 2-3/4" (0mm - 70mm)	1502L3
6LN [®]	6" (50mm)	0" - 2" (0mm - 51mm)	1402L3
4LN [®]	4" (100mm)	0" - 1-5/8" (0mm - 41mm)	1602L3



14T

- Long, straight nose provides easy access in narrow, hard-to-reach places.

FAST RELEASE[™] HANDLE

PART NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
6LN [®]	6" (150mm)	0" - 2" (0mm - 5mm)	14T

LOCKING WRENCHES

WISE-GRIP[®] LOCKING WRENCHES WITH WIRE CUTTER



04

- Jaw locks onto three sides of a hex fastener and won't slip or mar.

ORIGINAL HANDLE

PART NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
10LW [®]	10" (250mm)	5/8" - 1-1/8" (16mm - 28mm)	02
7LW [®]	7" (175mm)	7/16" - 3/4" (11mm - 19mm)	04
4LW [®]	4" (100mm)	1/4" - 9/16" (7mm - 14mm)	08



HAND TOOLS (Cont.)

LOCKING C-CLAMPS

WISE-GRIP® LOCKING C-CLAMPS WITH REGULAR TIPS



19

- Wide-opening jaw provides greater versatility in clamping a variety of shapes

ORIGINAL HANDLE

PART. NO.	SIZE	JAW ADJUSTMENT	THROAT DEPTH	STOCK NO.
24R™	24" (605mm)	0" - 10" (0mm - 254mm)	15-1/2" (394mm)	275
18DR™	18" (455mm)	0" - 7-1/2" (0mm - 190mm)	9-1/2" (241mm)	211
18R®	18" (455mm)	0" - 8" (0mm - 200mm)	9-1/2" (241mm)	21
11R®	11" (275mm)	0" - 3-3/8" (0mm - 85mm)	2-5/8" (67mm)	19
9DR™	9" (225mm)	0" - 4-1/2" (0mm - 112mm)	4-3/4" (121mm)	30
6R®	6" (150mm)	0" - 2" (0mm - 50mm)	1-1/2" (38mm)	17



19T

FAST RELEASE™ HANDLE

PART. NO.	SIZE	JAW ADJUSTMENT	CARDED STOCK NO.
11R®	11" (275mm)	0" - 3-3/8" (0mm - 85mm)	19T
6R®	6" (150mm)	0" - 2" (0mm - 50mm)	17T

WISE-GRIP® LOCKING C-CLAMPS WITH SWIVEL PADS



20

- Swivel pads hold tapered work, awkward fabricating jobs and delicate projects without damaging the work surface

ORIGINAL HANDLE

PART. NO.	SIZE	JAW ADJUSTMENT	THROAT DEPTH	STOCK NO.
24SP™	24" (605mm)	0" - 10" (0mm - 254mm)	15-1/2" (394mm)	28
18SP™	18" (455mm)	0" - 8" (0mm - 200mm)	9-1/2" (241mm)	22
11SP®	11" (275mm)	0" - 3-3/8" (0mm - 85mm)	2-5/8" (67mm)	20
9SP™	9" (225mm)	0" - 4-1/2" (0mm - 112mm)	4-3/4" (121mm)	31
6SP™	6" (150mm)	0" - 2" (0mm - 50mm)	1-1/2" (38mm)	18
4SP™	4" (100mm)	0" - 1-5/8" (0mm - 41mm)	1-1/4" (32mm)	165

LOCKING SPECIALTY TOOLS

WISE-GRIP® LOCKING SHEET METAL TOOL



23

- Makes bending, forming and crimping sheet metal jobs easier

PART. NO.	SIZE	JAW ADJUSTMENT	JAW DEPTH	JAW WIDTH	STOCK NO.
8R®	8" (200mm)	0 - 1/2" (13mm)	1-3/4" (44mm)	3-1/8" (78mm)	23

WISE-GRIP® LOCKING PANEL CLAMP



251

- Provides quick clamping and alignment of auto body panels

PART. NO.	SIZE	JAW ADJUSTMENT	JAW DEPTH	JAW WIDTH	STOCK NO.
9AC	9" (225mm)	3/8" (10mm)	1/2" (12mm)	2-3/4" (70mm)	251

WISE-GRIP® LOCKING PINCH OFF TOOL



29

- Pinches off and locks onto tubing, leaving both hands free to do other work

ORIGINAL HANDLE

PART. NO.	SIZE	JAW ADJUSTMENT	JAW DEPTH	JAW WIDTH	STOCK NO.
RR™	7" (175mm)	1-1/4" (32mm)	1" (25mm)	-	29

WISE-GRIP® Locking Welding Clamp



25

- U-shaped jaw provides enhanced visibility and more working space

ORIGINAL HANDLE

PART. NO.	SIZE	JAW ADJUSTMENT	JAW DEPTH	JAW WIDTH	STOCK NO.
9R®	9" (225mm)	2-3/4" (70mm)	2-1/2" (64mm)	2-3/4" (70mm)	25

WISE-GRIP® LOCKING CHAIN CLAMP



27

- Chain holds and locks around any shape or size

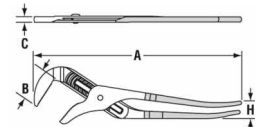
PART. NO.	SIZE	JAW ADJUSTMENT	JAW DEPTH	JAW WIDTH	STOCK NO.
20R®	9" (225mm)	18 (455mm) chain	-	-	27

CHAN NEL LOCK

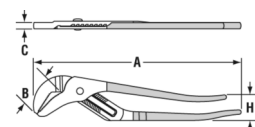
**HAND TOOLS (Cont.)
TONGUE AND GROOVE PLIERS
STRAIGHT JAW**

BigAZZ

PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NUMBER OF ADJUSTMENTS	JAW CAPACITY	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		IN.	MM
CH 480	20.25	514.35	3.00	76.20	0.59	14.99	3.31	84.07	3.81	1728.19	12	5.50	139.70

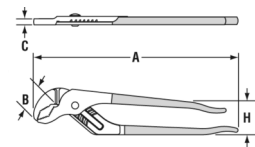


PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NUMBER OF ADJUSTMENTS	JAW CAPACITY	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		IN.	MM
CH 460	16.50	419.10	2.56	65.02	0.59	14.99	1.93	49.02	3.14	1424.28	8	4.25	107.95
CH 440®	12.00	304.80	1.50	38.10	0.50	12.70	1.81	45.97	1.64	743.89	7	2.25	57.15
CH 430®	10.00	254.00	1.38	35.05	0.44	11.18	2.13	54.10	1.18	535.24	7	2.00	50.80
CH 420®	9.50	241.30	1.12	28.45	0.47	11.94	1.57	39.88	0.87	394.63	5	1.50	38.10
CH 426	6.50	165.10	0.81	20.57	0.47	11.94	1.69	42.93	0.37	167.83	5	0.87	22.10



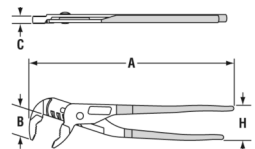
V-JAW

PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NUMBER OF ADJUSTMENTS	JAW CAPACITY	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		IN.	MM
CH 442	12.00	304.80	1.50	38.10	0.50	12.70	1.69	42.93	1.78	807.39	7	2.25	57.15
CH 432	10.00	254.00	1.37	34.80	0.43	10.92	2.20	55.88	0.95	430.91	7	2.00	50.80
CH 422	9.50	241.30	1.12	28.45	0.47	11.94	1.57	39.88	0.84	381.02	5	1.50	38.10
CH 412	6.50	165.10	0.81	20.57	0.47	11.94	1.69	42.93	0.34	154.00	5	0.94	23.88



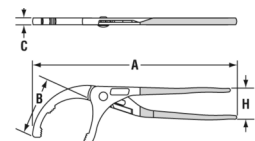
GRIPLOCK®

PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NUMBER OF ADJUSTMENTS	JAW CAPACITY	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		IN.	MM
CH GL10	9.50	241.30	1.34	34.04	0.36	9.14	2.17	55.12	0.78	353.80	5	1.25	31.75
CH GL12	12.50	317.50	1.77	44.96	0.48	12.19	2.51	64.01	1.60	725.75	6	2.25	57.15



OIL FILTER / PVC PLIER

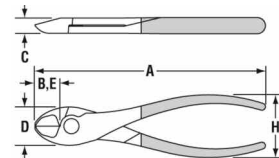
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NO. OF ADJ.	JAW CAPACITY			
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		MIN. IN.	MIN. MM	MAX. IN.	MAX. MM
CH 209	9.00	228.60	1.75	44.45	0.43	10.92	1.16	40.89	0.51	231.33	4	1.75	44.45	3.50	88.90
CH 212	12.00	304.80	2.52	64.01	0.39	9.91	1.77	45.96	1.11	503.49	5	2.75	69.85	4.25	107.95
CH 215	15.50	393.70	3.50	88.90	0.51	12.95	1.77	45.96	2.08	943.47	6	2.50	63.50	5.50	139.70



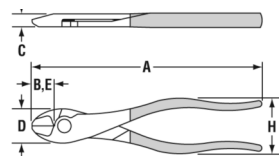
CHAN NEL LOCK

**HAND TOOLS (Cont.)
CUTTING PLIERS**

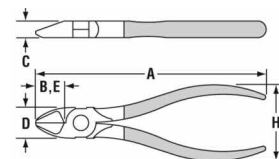
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 337	7.00	177.80	0.79	20.07	0.43	10.92	1.18	29.97	0.79	20.07	1.89	48.01	0.57	258.55



PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 338	8.00	203.20	0.79	20.07	0.43	10.92	1.18	29.97	0.79	20.07	1.89	48.01	0.66	299.37

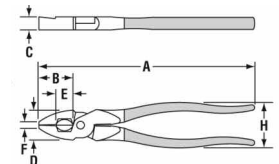


PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 435	5.00	127.00	0.87	22.10	0.43	10.92	0.69	17.53	0.87	22.10	1.89	48.01	0.28	127.01
CH 436	6.00	152.40	0.85	21.59	0.43	10.92	0.81	20.57	0.85	21.59	1.89	48.01	0.42	190.51

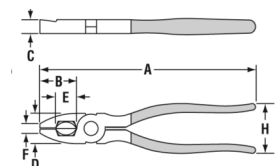


LINEMEN'S PLIERS

PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		F NOSE WIDTH		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 367	7.49	190.25	1.28	32.51	0.53	13.46	1.20	30.48	0.63	16.00	0.31	7.87	2.01	51.05	0.72	326.59
CH 369	9.50	251.30	1.54	39.12	0.55	13.97	1.32	33.53	0.73	18.54	0.28	7.11	1.89	48.01	1.08	489.88

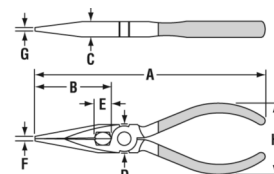


PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		F NOSE WIDTH		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 348	8.50	215.90	1.28	32.51	0.49	12.45	1.00	25.40	0.65	16.51	0.36	9.14	1.89	48.01	0.89	403.70



CHANNEL LOCK

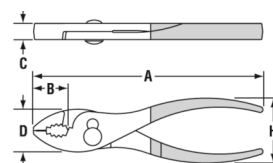
**HAND TOOLS (Cont.)
LONG NOSE PLIERS**



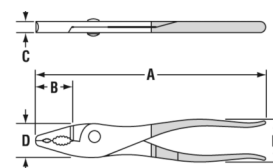
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		F NOSE WIDTH		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 326	6.10	154.94	2.08	52.83	0.41	10.41	0.75	19.05	0.41	10.41	0.10	2.54	1.89	48.01	0.36	163.29



SPLIT JOINT PLIERS



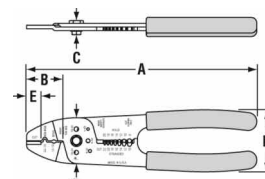
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 526	6.50	165.10	0.96	24.38	0.43	10.92	1.28	32.51	N/A	N/A	1.89	48.01	0.51	231.33



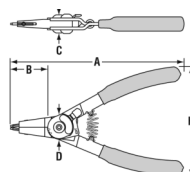
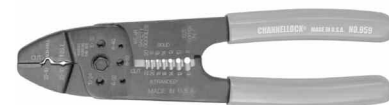
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 5410	10.00	254.00	1.56	39.62	0.47	11.94	1.58	40.13	N/A	N/A	1.89	48.01	0.87	394.63



SPECIAL PURPOSE PLIERS



PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 959	8.25	209.55	1.26	32.00	0.47	11.94	1.61	40.89	0.24	6.10	2.17	55.12	0.34	154.22



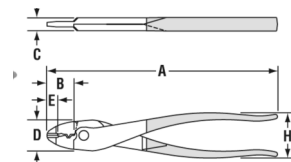
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 927	8.00	203.20	1.60	40.64	0.97	24.64	1.71	43.43	N/A	N/A	4.85	123.19	0.50	226.80



CHAN NEL LOCK

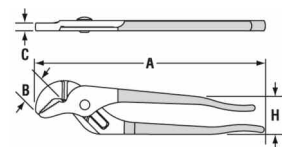
**HAND TOOLS (Cont.)
SPECIAL PURPOSE PLIERS (Cont.)**

PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 909	9.50	241.30	1.16	29.46	0.48	12.19	1.32	33.53	0.43	10.92	1.89	48.01	0.94	426.38

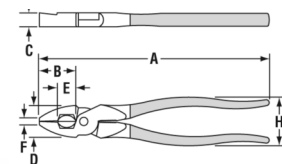


CODE BLUE® PLIERS

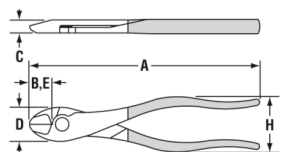
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		H HANDLE SPAN		WEIGHT		NUMBER OF ADJUSTMENTS	JAW CAPACITY	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS		IN.	MM
CH 430CB	10.50	266.70	1.38	35.05	0.44	11.18	2.25	57.15	1.18	535.24	7	2.00	50.80
CH 420CB	9.38	238.25	1.12	28.45	0.47	11.94	1.75	44.45	0.87	394.63	5	1.50	38.10



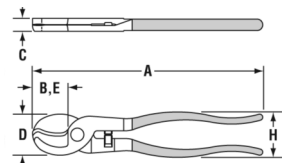
PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		F NOSE WIDTH		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 369-CRFTCB	10.00	254.00	1.54	39.12	0.55	13.97	1.32	33.53	0.73	18.54	0.29	7.37	2.13	54.10	1.08	489.88



PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 338CB	8.25	209.55	0.79	20.07	0.43	10.92	1.18	29.97	0.79	20.07	2.25	57.15	0.66	299.37

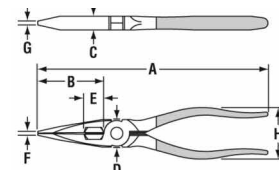


PART NO.	A OVERALL LENGTH		B JAW LENGTH		C JOINT THICKNESS		D JOINT WIDTH		E CUTTING EDGE		H HANDLE SPAN		WEIGHT	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 911CB	9.38	238.25	1.40	35.56	0.51	12.95	1.61	40.89	1.40	35.56	2.00	50.80	0.90	408.23



CHAN NEL LOCK

HAND TOOLS (Cont.)
CODE BLUE® PLIERS (Cont.)



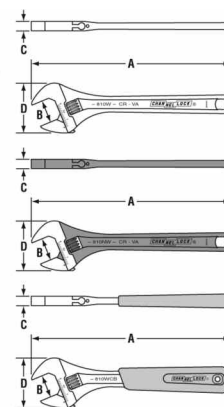
PART NO.	A		B		C		D		E		F		G		H		WEIGHT	
	OVERALL LENGTH	JAW LENGTH	JOINT THICKNESS	JOINT WIDTH	CUTTING EDGE	NOSE WIDTH	NOSE THICKNESS	HANDLE SPAN	POUNDS	GRAMS								
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 318CB	8.38	212.85	2.30	58.42	0.50	12.70	1.00	25.40	0.63	16.00	0.16	4.06	0.11	2.79	2.13	54.10	0.59	267.62



ADJUSTABLE WRENCHES

WideAZZ

PART NO.	A		B		C		D		WEIGHT	
	OVERALL LENGTH	JAW LENGTH	JOINT THICKNESS	JOINT WIDTH	POUNDS	GRAMS				
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	POUNDS	GRAMS
CH 804G	4.50	114.30	0.51	12.95	0.33	8.38	1.30	33.02	0.11	49.90
CH 806WCB	6.25	158.75	0.938	23.80	0.41	10.41	1.97	50.04	0.29	131.54
CH 808WCB	8.00	203.20	1.18	30.00	0.53	13.46	2.50	63.50	0.59	267.62
CH 810WCB	10.00	254.00	1.375	34.90	0.60	15.24	2.83	71.88	1.44	653.17
CH 812WCB	12.00	304.80	1.50	38.10	0.74	18.80	3.42	86.87	1.56	707.60
CH 815G	15.00	381.00	1.69	42.93	0.98	24.89	4.06	103.12	2.93	1329.03



RATCHET WRENCHES

PART NO.	SIZES
CH 841M	Metric – 8mm x 10mm, 16mm x 17mm, 12mm x 13mm, 18mm x 19mm
CH 841S	SAE – 5/16" x 3/8", 7/16" x 1/2", 9/16" x 5/8", 11/16" x 3/4"

Not an ISO Certified Product.



VEGA

DRIVER BITS

PHILLIPS BIT CHART

This brief chart will help you match the screw size to the proper PHILLIPS point.

- POINT #0 - For Screws #0 & #1
- POINT #1 - For Screws #2 Thru #4
- POINT #2 - For Screws #5 Thru #10
- POINT #3 - For Screws #2 Thru #16 and 1/4
- POINT #4 - For Screws 5/16 or 18 and larger

PHILLIPS BITS

1/4" PHILLIPS INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125P1F	1	1"
125P1FX	1	1"
125P2F	2	1"
125P2FX	2	1"
125P3F	3	1"
125P3FX	3	1"



PART NO.	POINT SIZE	OVERALL LENGTH
125P00A	00	1"
125P0A	0	1"
125P1A	1	1"
125P2A	2	1"
138P2A	2	1-1/2"
150P2D	2	2"
125P3A	3	1"
125P4A*	4	1"
132P3A*	3	1-1/4"
123P4A*	4	1-1/4"

* Denotes Bullnose Type

For Drywall Screws



PART NO.	POINT SIZE	OVERALL LENGTH
125P1R	1	1"
125P2R	2	1"

1/4" ACR® PHILLIPS INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
ASTP0CR	0	1"
125P1CR	1	1"
125P2CR	2	1"
125P2RCR	2R	1"
125P3CR	3	1"

1/4" DRYWALL INDENTERS



PART NO.	POINT SIZE	OVERALL LENGTH
125P2C	2	1"
150P2C	2	2"

1/4" INSERT BITS TAMPER RESISTANT INDENTERS



PART NO.	POINT SIZE	OVERALL LENGTH
125TP1A	1	1"
125TP2A	2	1"
125TP3A	3	1"

1/4" POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150P00A	00	2"
150P0A	0	2"
150P1A	1	2"
150P2A	2	2"
150P3A	3	2"
150P3A-2*	3	2"
170P1A	1	2-3/4"
170P2A	2	2-3/4"
170P3A	3	2-3/4"
170P3A-2*	3	2-3/4"
170P4A*	4	2-3/4"
190P0A-SP	0	3-1/2"
190P1A	1	3-1/2"
190P2A	2	3-1/2"
190P3A	3	3-1/2"
190P3A-2*	3	3-1/2"
1150P1A	1	6"
1150P2A	2	6"
1150P3A	3	6"
1150P3A-2*	3	6"
1200P2A	2	8"
1150P2A	2	10"
1300P2A	2	12"

* Denotes Bullnose Type.

POZIDRIV® BITS

1/4" INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125Z1A	1	1"
125Z2A	2	1"
125Z3A	3	1"

1/4" POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150Z1A	1	2"
150Z2A	2	2"
150Z3A	3	2"
170Z1A	1	2-3/4"
170Z2A	2	2-3/4"
170Z3A	3	2-3/4"
190Z1A	1	3-1/2"
190Z2A	2	3-1/2"
190Z3A	3	3-1/2"
1150Z1A	1	6"
1150Z2A	2	6"
1150Z3A	3	6"

1/4" ACR® INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125Z2CR	2	1"

1/4" ACR® POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150Z2ACR	2	2"
170Z2ACR	2	2-3/4"
190Z2ACR	2	3-1/2"
1150Z2ACR	2	6"

5/16" INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
230Z2F	2	1-1/4"
230Z3F	3	1-1/4"
230Z4F	4	1-1/4"



ACR® AND POZIDRIV®
Are Registered
Trademarks Of Phillips
Screw Co.

SLOTTED

1/4" INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125F01A	.024 x .109	1"
125F02A	.026 x .125	1"
125F03A	.028 x .140	1"
125F04A	.032 x .156	1"
125F05A	.034 x .187	1"
125F06A	.036 x .218	1"
125F08A	.040 x .250	1"
125F10A	.046 x .281	1"
125F11A	.050 x .281	1"
125F12A	.052 x .355	1"
125F14A	.056 x .355	1"
138F12A	.052 x .355	1-1/2"
138F16A	.055 x .360	1-1/2"

1/4" SLOTTED BIT FINDER



PART NO.	SCREW SIZE	SIZE t x A	OVERALL LENGTH
BF5	4F-6R	.036 x .190	3-3/4"
BF6	6F-8R	.038 x .204	3-3/4"
BF8	8F-10R	.042 x .290	3-3/4"
BF10	10F-12R	.046 x .350	3-3/4"
BF12	12F-14R	.050 x .395	3-3/4"
BF14	14F-16R	.055 x .457	3-3/4"

VEGA

DRIVER BITS (Cont.) SOCKET HEAD SIZING CHART ○

SAE



NOMINAL HEX SIZE, INCHES	SOCKET HEAD 1960 SERIES	SOCKET HEAD 1960 SERIES	FLAT HEAD CAP SCREWS	BUTTON HEAD CAP SCREWS	SET SCREWS	SHOULDER SCREWS	PRESSURE PLUGS	ALLEN- NUTS	LOW HEAD CAP SCREWS
0.050	0	0, 1	1, 2	3, 4	-	-	-	4	.050
1/16	1	2	3, 4	3, 4	5, 6	-	-	-	5, 6
5/64	2, 3	3, 4	5, 6	5, 6	8	-	-	-	8
3/32	4, 5	5, 6	8	8	10	-	-	-	10
7/64	6	-	-	-	-	-	-	-	-
1/8	-	8	10	10	1/4	1/4	-	4, 5	1/4
9/64	8	10	-	-	-	-	-	-	-
5/32	10	1/4	1/4	1/4	5/16	5/16	1/16	6	5/16
3/16	1/4	-	5/16	5/16	3/8	3/8	1/8	8, 10	3/8
7/32	-	5/16	3/8	3/8	7/16	-	-	-	7/16
1/4	5/16	-	7/16	-	1/2	1/2	1/4	1/4	1/2
5/16	3/8	3/8, 7/16	1/2	-	5/8	5/8	3/8	5/16	5/8
3/8	7/16, 1/2	1/2	5/8	-	3/4	3/4	1/2	3/8	-
7/16	-	-	-	-	-	-	-	7/16	-
1/2	5/8	5/8	3/4	-	7/8	1	-	1/2	-
9/16	-	3/4, 7/8	7/8	-	1, 1-1/8	-	3/4	-	-
5/8	3/4	1	1	-	1-1/4, 1-3/8	1-1/4	1	5/8	-
3/4	7/8, 1	1-1/8, 1-1/4, 1-3/8	1-1/8	-	1-1/2	-	1-1/4	3/4	-
7/8	1-1/8, 1-1/4	-	1-1/4, 1-3/8	-	-	1-1/2	-	7/8	-
1	1-3/8, 1-1/2	1-1/2	1-1/2	-	1-3/4, 2	1-3/4	1-1/2, 2	1	-
1-1/4	1-3/4	-	-	-	-	2	-	1-1/4	-
1-1/2	2	-	-	-	-	-	-	1-1/2	-
1-3/4	2-1/4, 2-1/2	-	-	-	-	-	-	-	1-3/4
2	2-3/4	-	-	-	-	-	-	-	-

METRIC



NOMINAL HEX SIZE, (MM)	SOCKET HEAD CAP SCREWS	FLAT HEAD CAP SCREWS	BUTTON HEAD CAP SCREWS	SET SCREWS	SHOULDER SCREWS	ALLEN- NUTS	LOW HEAD CAP SCREWS
1.5	M1.6, M1.7, M2	-	-	M3	-	-	-
2	M2.3, M2.5, M2.6	M3	Me	M4	-	-	-
2.5	M3	M4	M4	M5	-	-	-
3	M4	M5	M5	M6	6mm	M3	M4
4	M5	M6	M6	M8	8mm	M4	M5
5	M6	M8	M8	M10	10mm	M5	M6
6	M8	M10	M10	M12, M14	12mm	M6	M8
8	M10	M12	M12	M16	16mm	M8	M10
10	M12	M14, M16	-	M18	20mm	M10	M12
12	M14	M20	-	M20	-	M12	M14
14	M16	-	-	-	-	-	M16
17	M20	-	-	-	-	M16	M20, M22
19	M24	-	-	-	-	-	M24

VEGA

DRIVER BITS (Cont.)

SOCKET HEAD BITS 1/4" INSERT BITS - INCH



PART NO.	POINT SIZE	OVERALL LENGTH
125H0464A	1/16"	1"
125H0564A	5/64"	1"
125H0664A	3/32"	1"
125H0764A	7/64"	1"
125H0864A	1/8"	1"
125H0964A	9/64"	1"
125H1064A	5/32"	1"
125H1264A	3/16"	1"
125H1464A	7/32"	1"
125H1664A	1/4"	1"
125H2064A	5/16"	1"

1/4" TAMPER RESISTANT INSERT BITS - INCH



PART NO.	POINT SIZE	OVERALL LENGTH
125HT0564A	5/64"	1"
125HT0664A	3/32"	1"
125HT0764A	7/64"	1"
125HT0864A	1/8"	1"
125HT0964A	9/64"	1"
125HT1064A	5/32"	1"
125HT1264A	3/16"	1"
125HT1464A	7/32"	1"
125HT1664A	1/4"	1"
125HT2064A	5/16"	1"

5/16" INSERT BITS - INCH



PART NO.	POINT SIZE	OVERALL LENGTH
230H1064A	5/32"	1-1/4"
230H1264A	3/16"	1-1/4"
230H1464A	7/32"	1-1/4"
230H1664A	1/4"	1-1/4"
230H2064A	5/16"	1-1/4"
230H2464A	3/8"	1-1/4"

1/4" INSERT BITS - METRIC



PART NO.	POINT SIZE	OVERALL LENGTH
125H015A	1.5	1"
125H020A	2	1"
125H025A	2.5	1"
125H030A	3	1"
125H040A	4	1"
125H050A	5	1"
125H060A	6	1"
125H070A	7	1"
125H080A	8	1"

1/4" TAMPER RESISTANT INSERT BITS - METRIC



PART NO.	POINT SIZE	OVERALL LENGTH
125HT015A	1.5	1"
125HT020A	2	1"
125HT025A	2.5	1"
125HT030A	3	1"
125HT040A	4	1"
125HT050A	5	1"
125HT060A	6	1"
125HT070A	7	1"
125HT080A	8	1"

TORX® BITS

1/4" INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125T05A	5	1"
125T06A	6	1"
125T07A	7	1"
125T08A	8	1"
125T09A	9	1"
125T10A	10	1"
125T15A	15	1"
125T20A	20	1"
125T25A	25	1"
125T27A	27	1"
125T30A	30	1"
125T40A	40	1"
125T45A*	45	1"
125T50A*	50	1"

* Denotes Bullnose Type.

1/4" POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150T06A	6	2"
150T07A	7	2"
150T08A	8	2"
150T09A	9	2"
150T10A	10	2"
150T15A	15	2"
150T20A	20	2"
150T25A	25	2"
150T27A	27	2"
150T30A	30	2"
150T40A	40	2"
150T45A*	45	2"

* Denotes Bullnose Type.

TORX® TAMPER

1/4" TAMPER RESISTANT INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125TT05A	5	1"
125TT06A	6	1"
125TT07A	7	1"
125TT08A	8	1"
125TT09A	9	1"
125TT10A	10	1"
125TT15A	15	1"
125TT20A	20	1"
125TT25A	25	1"
125TT27A	27	1"
125TT30A	30	1"
125TT40A	40	1"
125TT45A*	45	1"

* Denotes Bullnose Type.

1/4" TAMPER RESISTANT POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150TT10A	10	2"
150TT15A	15	2"
150TT20A	20	2"
150TT25A	25	2"
150TT27A	27	2"
150TT30A	30	2"
150TT40A	40	2"
150TT45A	45	2"

SQUARE BITS

1/4" SQUARE INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125R0A	0	1"
125R1A	1	1"
125R2A	2	1"
125R3A	3	1"
125R4A	4	1"

1/4" SQUARE 2-PIECE CONSTRUCTION INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125R1C	1	1"
125R2C	2	1"
125R3C	3	1"

1/4" SQUARE POWER BITS



PART NO.	POINT SIZE	OVERALL LENGTH
150R01	0	2"
150R1A	1	2"
150R2A	2	2"
150R3A	3	2"

SPANNER BITS

1/4" SPANNER INSERT BITS



PART NO.	POINT SIZE	OVERALL LENGTH
125SP04A	4	1"
125SP06A	6	1"
125SP08A	8	1"
125SP10A	10	1"
125SP12A	12	1"
125SP14A*	14	1"

* Denotes Bullnose Type.

VEGA

ADAPTERS/EXTENSIONS

1/4" BALL TYPE



PART NO.	HEX DRIVE	OVERALL LENGTH	MALE SQUARE
150ADB14	1/4"	2"	1/4"
175ADB14	1/4"	3"	1/4"
1100ADB14	1/4"	4"	1/4"
1150ADB14	1/4"	6"	1/4"

3/8" BALL TYPE



PART NO.	HEX DRIVE	OVERALL LENGTH	MALE SQUARE
150ADB38	1/4"	2"	3/8"
175ADB38	1/4"	3"	3/8"
1100ADB38	1/4"	4"	3/8"
1150ADB38	1/4"	6"	3/8"
1200ADB38	1/4"	8"	3/8"

1/2" BALL TYPE



PART NO.	HEX DRIVE	OVERALL LENGTH	MALE SQUARE
150ADB12	1/4"	2"	1/2"

NUTSETTERS

NUTSETTERS

1/4" STANDARD MAGNETIC NUTSETTERS - INCH



PART NO.	POINT SIZE	OVERALL LENGTH
145MN416	1/4"	1-3/4"
145MN516	5/16"	1-3/4"
145MN616	3/8"	1-3/4"
145MN716	7/16"	1-3/4"
145MN816	1/2"	1-3/4"
145MN916	9/16"	1-3/4"
165MN416	1/4"	2-9/16"
165MN516	5/16"	2-9/16"
165MN616	3/8"	2-9/16"
165MN716	7/16"	2-9/16"
165MN816	1/2"	2-9/16"
165MN916	9/16"	2-9/16"
1100MN416S	1/4"	4"
1100MN516S	5/16"	4"
1100MN616S	3/8"	4"
1100MN716S	7/16"	4"
1150MN416S	1/4"	6"
1150MN516S	5/16"	6"
1150MN616S	3/8"	6"
1150MN716S	7/16"	6"
1200MN416*	1/4"	8"
1200MN516*	5/16"	8"
1200MN616*	3/8"	8"
1250MN416*	1/4"	10"
1250MN516*	5/16"	10"
1250MN616*	3/8"	10"
1300MN416*	1/4"	12"
1300MN516*	5/16"	12"
1300MN616*	3/8"	12"

* "NOT STOCKED", but AVAILABLE.

1/4" STANDARD MAGNETIC NUTSETTERS - METRIC



PART NO.	POINT SIZE	OVERALL LENGTH
145MN055M	5.5mm	1-3/4"
145MN06M	6mm	1-3/4"
145MN07M	7mm	1-3/4"
145MN08M	8mm	1-3/4"
145MN10M	10mm	1-3/4"
145MN11M	11mm	1-3/4"
145MN12M	12mm	1-3/4"
145MN13M	13mm	1-3/4"
165MN055M	5.5mm	2-9/16"
165MN06M	6mm	2-9/16"
165MN07M	7mm	2-9/16"
165MN08M	8mm	2-9/16"
165MN10M	10mm	2-9/16"
165MN11M	11mm	2-9/16"
165MN12M	12mm	2-9/16"
165MN13M	13mm	2-9/16"

SDS DRIVE MAGNETIC NUTSETTERS



PART NO.	POINT SIZE	OVERALL LENGTH
165MN416SDS	1/4"	2-9/16"
165MN516SDS	5/16"	2-9/16"
165MN616SDS	3/8"	2-9/16"
165MN716SDS	7/16"	2-9/16"
165MN816SDS	1/2"	2-9/16"
165MN916SDS	9/16"	2-9/16"



LOBULAR FEATURES

- **LOBULAR DESIGN**
Grabs onto the walls for more driving force and less wear on the corners of the fastener.

- **MATERIAL STRENGTH**
Made from S2 Modified steel.
- **STANDARD 1/4" SHANK**
Fits most power tools and chuck adapters.

SPECIAL DRIVERS 1/4" HANGER BOLT DRIVERS

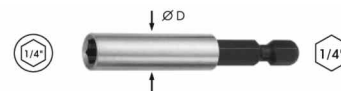


PART NO.	POINT SIZE	OVERALL LENGTH
145HB416	1/4"-20	1-3/4"
145HB516	5/16"-18	1-3/4"
145HB616	3/8"-16	1-3/4"
165HB416	1/4"-20	2-9/16"
165HB516	5/16"-18	2-9/16"
165HB616	3/8"-16	2-9/16"
165HB1024	10-24	2-9/16"
165HBM6	M6	2-9/16"
165HBM8	M8	2-9/16"

BIT HOLDERS

BIT HOLDERS

1/4" MAGNETIC BIT HOLDER 2-PIECE CONSTRUCTION



PART NO.	OVERALL LENGTH	Ø D
160MH1AD	2-3/8"	0.393"
175MH1AD	3"	0.393"
1100MH1AD	4"	0.393"
1150MH1AD	6"	0.393"
1200MH1AD	8"	0.393"
1250MH1AD	10"	0.393"
1300MH1AD	12"	0.393"

1/4" MAGNETIC 1-PIECE QUICK RELEASE BIT HOLDER



PART NO.	OVERALL LENGTH	Ø D
150MH1QD	2"	0.41"
160MH1QD	2-3/8"	0.41"
175MH1QD	3"	0.41"
1100MH1QD	4"	0.41"
1150MH1QD	6"	0.41"



SCREWS AND NUTS

TAMPER-RESISTANT TORX DRIVE

BUTTON HEAD PIN TORX T/S METAL SCREWS, TYPE AB, STEEL BLACK



PART NO.	SIZE	DRIVE
81302	6 x 1/2	T-10
81310	6 x 3/4	T-10
81320	6 x 1	T-10
81330	6 x 1-1/2	T-10
81335	6 x 2	T-10
81337	8 x 3/8	T-15
81340	8 x 1/2	T-15
81350	8 x 3/4	T-15
81360	8 x 1	T-15
81370	8 x 1-1/4	T-15
81380	8 x 1-1/2	T-15
81390	10 x 1/2	T-25
81395	10 x 5/8	T-25
81400	10 x 3/4	T-25
81410	10 x 1	T-25
81420	10 x 1-1/4	T-25
81430	10 x 1-1/2	T-25
81435	10 x 2	T-25
81440	14 x 1/2	T-27
81450	14 x 3/4	T-27
81460	14 x 1	T-27
81470	14 x 1-1/4	T-27
81480	14 x 1-1/2	T-27

BUTTON HEAD PIN TORX T/S METAL SCREWS, TYPE AB, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
91300	6 x 1/2	T-10
91310	6 x 3/4	T-10
91320	6 x 1	T-10
91330	6 x 1-1/2	T-10
91335	6 x 2	T-10
91337	8 x 3/8	T-15
91340	8 x 1/2	T-15
91350	8 x 3/4	T-15
91360	8 x 1	T-15
91370	8 x 1-1/4	T-15
91380	8 x 1-1/2	T-15
91390	10 x 1/2	T-25
91395	10 x 5/8	T-25
91400	10 x 3/4	T-25
91410	10 x 1	T-25
91420	10 x 1-1/4	T-25
91430	10 x 1-1/2	T-25
91437	12 x 1	T-25
91439	12 x 1-1/2	T-25
91440	14 x 1/2	T-27
91450	14 x 3/4	T-27
91460	14 x 1	T-27
91470	14 x 1-1/4	T-27
91480	14 x 1-1/2	T-27
91482	14 x 2	T-27

FLAT HEAD PIN TORX T/S METAL SCREWS, TYPE AB, STEEL BLACK



PART NO.	SIZE	DRIVE
81830	6 x 1/2	T-15
81840	6 x 3/4	T-15
81850	6 x 1	T-15
81860	6 x 1-1/2	T-15
81870	8 x 1/2	T-20
81875	8 x 5/8	T-20
81880	8 x 3/4	T-20
81890	8 x 1	T-20
81900	8 x 1-1/4	T-20
81910	8 x 1-1/2	T-20
81915	8 x 1-3/4	T-20
81917	8 x 2	T-20
81920	10 x 1/2	T-25
81930	10 x 3/4	T-25
81940	10 x 1	T-25
81950	10 x 1-1/4	T-25
81960	10 x 1-1/2	T-25
81970	14 x 5/8	T-30
81980	14 x 3/4	T-30
81990	14 x 1	T-30
82000	14 x 1-1/4	T-30
82010	14 x 1-1/2	T-30

FLAT HEAD PIN TORX T/S METAL SCREWS, TYPE AB, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
91773	6 x 1/2	T-15
91774	6 x 5/8	T-15
91776	6 x 3/4	T-15
91780	6 x 1	T-15
91790	6 x 1-1/2	T-15
91800	8 x 1/2	T-20
91805	8 x 5/8	T-20
91810	8 x 3/4	T-20
91820	8 x 1	T-20
91830	8 x 1-1/4	T-20
91840	8 x 1-1/2	T-20
91845	8 x 2	T-20
91850	10 x 1/2	T-25
91860	10 x 3/4	T-25
91870	10 x 1	T-25
91880	10 x 1-1/4	T-25
91890	10 x 1-1/2	T-25
91900	14 x 5/8	T-30
91910	14 x 3/4	T-30
91920	14 x 1	T-30
91930	14 x 1-1/4	T-30
91940	14 x 1-1/2	T-30

BUTTON HEAD PIN TORX M/S SCREWS, ALLOY STEEL



PART NO.	SIZE	DRIVE
81000	6-32 x 3/8	T-10
81010	6-32 x 1/2	T-10
81020	6-32 x 3/4	T-10
81030	6-32 x 1	T-10
81040	6-32 x 1-1/2	T-10
81048	8-32 x 1/4	T-15
81050	8-32 x 3/8	T-15
81060	8-32 x 1/2	T-15
81065	8-32 x 5/8	T-15
81070	8-32 x 3/4	T-15
81080	8-32 x 1	T-15

PART NO.	SIZE	DRIVE
81090	8-32 x 1-1/4	T-15
81100	8-32 x 1-1/2	T-15
81110	10-24 x 3/8	T-25
81120	10-24 x 1/2	T-25
81130	10-24 x 3/4	T-25
81140	10-24 x 1	T-25
81150	10-24 x 1-1/4	T-25
81160	10-24 x 1-1/2	T-25
81170	10-32 x 3/8	T-25
81180	10-32 x 1/2	T-25
81190	10-32 x 3/4	T-25
81200	10-32 x 1	T-25
81210	10-32 x 1-1/4	T-25
81220	10-32 x 1-1/2	T-25
81222	10-32 x 3/4	T-25
81224	12-24 x 1/2	T-25
81225	12-24 x 3/4	T-25
81227	12-24 x 1	T-25
81229	1/4-20 x 1/4	T-27
81230	1/4-20 x 3/8	T-27
81240	1/4-20 x 1/2	T-27
81250	1/4-20 x 5/8	T-27
81260	1/4-20 x 3/4	T-27
81270	1/4-20 x 1	T-27
81280	1/4-20 x 1-1/4	T-27
81282	1/4-20 x 1-1/2	T-27
81285	1/4-20 x 2	T-27

BUTTON HEAD PIN TORX M/S SCREWS, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
91000	6-32 x 3/8	T-10
91010	6-32 x 1/2	T-10
91020	6-32 x 3/4	T-10
91030	6-32 x 1	T-10
91040	6-32 x 1-1/2	T-10
91050	8-32 x 3/8	T-15
91060	8-32 x 1/2	T-15
91070	8-32 x 3/4	T-15
91080	8-32 x 1	T-15
91090	8-32 x 1-1/4	T-15
91100	8-32 x 1-1/2	T-15
91102	8-32 x 1-3/4	T-15
91105	8-32 x 2	T-15
91110	10-24 x 3/8	T-25
91120	10-24 x 1/2	T-25
91125	10-24 x 5/8	T-25
91130	10-24 x 3/4	T-25
91140	10-24 x 1	T-25
91150	10-24 x 1-1/4	T-25
91160	10-24 x 1-1/2	T-25
91169	10-32 x 3/16	T-25
91170	10-32 x 3/8	T-25
91180	10-32 x 1/2	T-25
91185	10-32 x 5/8	T-25
91190	10-32 x 3/4	T-25
91200	10-32 x 1	T-25
91210	10-32 x 1-1/4	T-25
91220	10-32 x 1-1/2	T-25
91227	1/4-20 x 1/4	T-27
91230	1/4-20 x 3/8	T-27
91240	1/4-20 x 1/2	T-27
91250	1/4-20 x 5/8	T-27
91260	1/4-20 x 3/4	T-27
91270	1/4-20 x 1	T-27
91273	1/4-20 x 1-1/4	T-27
91275	1/4-20 x 1-1/2	T-27
91277	1/4-20 x 1-3/4	T-27
91278	1/4-20 x 2	T-27

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CONTINUED NEXT COLUMN

"ASK ABOUT AVAILABLE METRIC SIZES"



SCREWS AND NUTS

(Cont.)

TAMPER-RESISTANT TORX DRIVE (Cont.)

FLAT HEAD PIN TORX M/S, ALLOY STEEL



PART NO.	SIZE	DRIVE
81486*	6-32 x 1/4	T-10
81490	6-32 x 3/8	T-15
81500	6-32 x 1/2	T-15
81510	6-32 x 3/4	T-15
81520	6-32 x 1	T-15
81530	6-32 x 1-1/2	T-15
81535*	8-32 x 1/4	T-15
81540	8-32 x 3/8	T-20
81550	8-32 x 1/2	T-20
81552	8-32 x 5/8	T-20
81560	8-32 x 3/4	T-20
81570	8-32 x 1	T-20
81580	8-32 x 1-1/4	T-20
81590	8-32 x 1-1/2	T-20
81600	10-24 x 3/8	T-25
81610	10-24 x 1/2	T-25
81620	10-24 x 3/4	T-25
81630	10-24 x 1	T-25
81640	10-24 x 1-1/4	T-25
81650	10-24 x 1-1/2	T-25
81660	10-32 x 3/8	T-25
81670	10-32 x 1/2	T-25
81680	10-32 x 3/4	T-25
81690	10-32 x 1	T-25
81700	10-32 x 1-1/4	T-25
81710	10-32 x 1-1/2	T-25
81720*	12-24 x 1/2	T-20
81730	12-24 x 3/4	T-25
81740	12-24 x 1	T-25
81750*	1/4-20 x 3/8	T-27
81760*	1/4-20 x 1/2	T-27
81770	1/4-20 x 5/8	T-30
81780	1/4-20 x 3/4	T-30
81790	1/4-20 x 1	T-30
81800	1/4-20 x 1-1/4	T-30

* Undercut.

FLAT HEAD PIN TORX M/S, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
91485*	6-32 x 1/4	T-10
91490	6-32 x 3/8	T-15
91500	6-32 x 1/2	T-15
91510	6-32 x 3/4	T-15
91520	6-32 x 1	T-15
91530	6-32 x 1-1/2	T-15
91538*	8-32 x 1/4	T-15
91540	8-32 x 3/8	T-20
91550	8-32 x 1/2	T-20
91555	8-32 x 5/8	T-20
91560	8-32 x 3/4	T-20
91570	8-32 x 1	T-20
91580	8-32 x 1-1/4	T-20
91590	8-32 x 1-1/2	T-20
91595	8-32 x 2	T-20

CONTINUED NEXT COLUMN

PART NO.	SIZE	DRIVE
91600	10-24 x 3/8	T-25
91605	10-24 x 1/2	T-25
91608	10-24 x 5/8	T-25
91610	10-24 x 3/4	T-25
91615	10-24 x 1	T-25
91620	10-24 x 1-1/4	T-25
91625	10-24 x 1-1/2	T-25
91630	10-32 x 3/8	T-25
91635	10-32 x 1/2	T-25
91640	10-32 x 3/4	T-25
91645	10-32 x 1	T-25
91650	10-32 x 1-1/4	T-25
91655	10-32 x 1-1/2	T-25
91660*	12-24 x 1/2	T-20
91670	12-24 x 3/4	T-25
91680	12-24 x 1	T-25
91690*	1/4-20 x 3/8	T-27
91700*	1/4-20 x 1/2	T-27
91710	1/4-20 x 5/8	T-30
91720	1/4-20 x 3/4	T-30
91730	1/4-20 x 1	T-30
91740	1/4-20 x 1-1/4	T-30
91742	1/4-20 x 1-1/2	T-30
91744	1/4-20 x 1-3/4	T-30
91745	1/4-20 x 2	T-30
91750	1/4-20 x 2-1/2	T-30

* Undercut.

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TAMPER-RESISTANT HEX SOCKETS

BUTTON HEAD HEX PIN SOCKET T/S METAL SCREWS, TYPE AB, STEEL BLACK



PART NO.	SIZE	DRIVE
30090	6 x 1/4	1/8
31000	6 x 3/8	1/8
31010	6 x 1/2	1/8
31020	6 x 5/8	1/8
31030	6 x 3/4	1/8
31040	6 x 1	1/8
31050	6 x 1-1/2	1/8
31055	6 x 2	1/8
31060	8 x 3/8	5/32
31070	8 x 1/2	5/32
31080	8 x 5/8	5/32
31090	8 x 3/4	5/32
31100	8 x 1	5/32
31110	8 x 1-1/4	5/32
31130	8 x 2	5/32
31139	10 x 3/8	5/32
31140	10 x 1/2	5/32
31150	10 x 5/8	5/32
31160	10 x 3/4	5/32
31170	10 x 1	5/32
31180	10 x 1-1/4	5/32
31190	10 x 1-1/2	5/32
31200	10 x 2	5/32
31210	12 x 1/2	5/32
31220	12 x 3/4	5/32
31230	12 x 1	5/32
31235	12 x 1-1/2	5/32
31240	14 x 1/2	5/32
31250	14 x 5/8	5/32
31260	14 x 3/4	5/32
31270	14 x 1	5/32
31280	14 x 1-1/4	5/32
31290	14 x 1-1/2	5/32
31300	14 x 2	5/32

BUTTON HEAD HEX PIN SOCKET T/S METAL SCREWS, TYPE AB, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
31310	6 x 3/8	1/8
31320	6 x 1/2	1/8
31330	6 x 5/8	1/8
31340	6 x 3/4	1/8
31350	6 x 1	1/8
31360	6 x 1-1/2	1/8
31370	8 x 3/8	5/32
31380	8 x 1/2	5/32
31390	8 x 5/8	5/32
31400	8 x 3/4	5/32
31410	8 x 1	5/32
31420	8 x 1-1/4	5/32
31430	8 x 1-1/2	5/32
31440	8 x 2	5/32
31448	10 x 3/8	5/32
31450	10 x 1/2	5/32
31460	10 x 5/8	5/32
31470	10 x 3/4	5/32
31480	10 x 1	5/32
31490	10 x 1-1/4	5/32
31495	10 x 1-3/8	5/32
31500	10 x 1-1/2	5/32
31510	10 x 2	5/32
31512	10 x 2-1/2	5/32
31513	12 x 1/2	5/32
31515	12 x 3/4	5/32
31516	12 x 1	5/32
31517	12 x 1-1/4	5/32
31518	12 x 1-1/2	5/32
31520	14 x 1/2	5/32
31530	14 x 5/8	5/32
31540	14 x 3/4	5/32
31542	14 x 7/8	5/32
31550	14 x 1	5/32
31560	14 x 1-1/4	5/32
31570	14 x 1-1/2	5/32
31580	14 x 2	5/32

FLAT HEAD HEX PIN SOCKET T/S METAL SCREWS, TYPE AB, STEEL BLACK



PART NO.	SIZE	DRIVE
51000	6 x 3/8	1/8
51010	6 x 1/2	1/8
51020	6 x 5/8	1/8
51030	6 x 3/4	1/8
51040	6 x 1	1/8
51045	6 x 1-1/4	1/8
51050	6 x 1-1/2	1/8
51052	6 x 2	1/8
51060	8 x 1/2	5/32
51070	8 x 5/8	5/32
51080	8 x 3/4	5/32
51090	8 x 1	5/32
51100	8 x 1-1/4	5/32
51110	8 x 1-1/2	5/32
51120	8 x 2	5/32
51130	10 x 1/2	5/32
51140	10 x 5/8	5/32
51150	10 x 3/4	5/32
51160	10 x 1	5/32
51170	10 x 1-1/4	5/32
51180	10 x 1-1/2	5/32
51190	10 x 2	5/32

"ASK ABOUT AVAILABLE METRIC SIZES"



SCREWS AND NUTS

(Cont.)

DRILLED SPANNER MACHINE SCREWS (Cont.)

PAN HEAD DRILLED SPANNER TYPE AB,



18-8 STAINLESS STEEL

PART NO.	SIZE	DRIVE
121363	4 x 3/8	#4
121364	4 x 1/2	#4
121365	4 x 5/8	#4
121366	4 x 3/4	#4
121367	4 x 1	#4
121369	4 x 1-1/2	#4
121370	6 x 3/8	#6
121380	6 x 1/2	#6
121390	6 x 5/8	#6
121400	6 x 3/4	#6
121410	6 x 1	#6
121420	6 x 1-1/4	#6
121430	6 x 1-1/2	#6
121440	6 x 2	#6
121450	8 x 3/8	#8
121460	8 x 1/2	#8
121470	8 x 5/8	#8
121480	8 x 3/4	#8
121490	8 x 1	#8
121500	8 x 1-1/4	#8
121510	8 x 1-1/2	#8
121515	8 x 1-3/4	#8
121520	8 x 2	#8
121530	10 x 3/8	#10
121540	10 x 1/2	#10
121550	10 x 5/8	#10
121560	10 x 3/4	#10
121570	10 x 1	#10
121580	10 x 1-1/4	#10
121590	10 x 1-1/2	#10
121600	10 x 2	#10
121602	10 x 2-1/2	#10
121603	12 x 1/2	#12
121605	12 x 3/4	#12
121607	12 x 1	#12
121609	12 x 1-1/4	#12
121611	12 x 1-1/2	#12
121614	12 x 2	#12
121620	14 x 1/2	#14
121630	14 x 5/8	#14
121640	14 x 3/4	#14
121650	14 x 1	#14
121660	14 x 1-1/4	#14
121670	14 x 1-1/2	#14
121680	14 x 2	#14

FLAT HEAD DRILLED SPANNER TYPE AB, 18-8 STAINLESS STEEL



PART NO.	SIZE	DRIVE
122052*	4 x 1/4	#4
122053	4 x 3/8	#4
122054	4 x 1/2	#4
122056	4 x 3/4	#4
122057	4 x 1	#4
122058	4 x 1-1/4	#4
122059	4 x 1-1/2	#4
122060	6 x 3/8	#6
122070	6 x 1/2	#6
122080	6 x 5/8	#6
122090	6 x 3/4	#6
122100	6 x 1	#6
122110	6 x 1-1/4	#6
122120	6 x 1-1/2	#6
122130	6 x 2	#6
122140	8 x 3/8	#8
122150	8 x 1/2	#8
122160	8 x 5/8	#8
122170	8 x 3/4	#8
122180	8 x 1	#8
122190	8 x 1-1/4	#8
122200	8 x 1-1/2	#8
122210	8 x 2	#8
122225	10 x 3/8	#10
122230	10 x 1/2	#10
122240	10 x 5/8	#10
122250	10 x 3/4	#10
122260	10 x 1	#10
122270	10 x 1-1/4	#10
122280	10 x 1-1/2	#10
122290	10 x 2	#10
122292	10 x 2-1/2	#10
122295	12 x 1/2	#12
122297	12 x 3/4	#12
122299	12 x 1	#12
122301	12 x 1-1/4	#12
122302	12 x 1-1/2	#12
122304	12 x 2	#12
122310	14 x 5/8	#14
122320	14 x 3/4	#14
122330	14 x 1	#14
122340	14 x 1-1/4	#14
122350	14 x 1-1/2	#14
122360	14 x 2	#14

* Undercut

TAMPER-RESISTANT TORX PAN HEAD TORX SELF-DRILLING SCREWS 410 STAINLESS STEEL, DRILL PT. #2



PART NO.	SIZE	DRIVE
490000	8-18 x 1/2	T-20
490030	8-18 x 3/4	T-20
490040	8-18 x 1	T-20
490050	8-18 x 1-1/4	T-20
490300	10-16 x 1/2	T-25
490320	10-16 x 3/4	T-25
490340	10-16 x 1	T-25
490350	10-16 x 1-1/4	T-25
490360	10-16 x 1-1/2	T-25

FLAT HEAD TORX SELF-DRILLING SCREWS 410 STAINLESS STEEL, DRILL PT. #2



PART NO.	SIZE	DRIVE
490500	8-18 x 1/2	T-15
490510	8-18 x 3/4	T-15
490520	8-18 x 1	T-15
490530	8-18 x 1-1/4	T-15
490600	10-16 x 1/2	T-20
490610	10-16 x 3/4	T-20
490620	10-16 x 1-1/2	T-20
490630	10-16 x 2	T-20

ALUMINUM BREAK AWAY NUTS



PART NO.	SIZE
171070	10 - 24
171080	1/4 - 20
171090	5/16 - 18
171100	3/8 - 16
171110	1/2 - 13*

* Zinc Die Cast

Harrison & Bonini fastening hardware

Tired of never having the right fastener for your job?

Ask our sales people about FAS-KITS fastener assortments.

- Screws
- Nuts & Washers
- Electrical Terminals
- Fittings
- Steel & Stainless
- Retaining Rings
- Metric

And More!

"ASK ABOUT AVAILABLE METRIC SIZES"

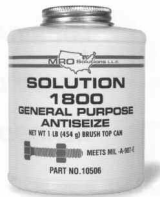


ANTISEIZE AND LUBRICANTS

SOLUTION 1800

GENERAL PURPOSE ANTISEIZE

SOLUTION 1800 is a silver color general purpose antiseize formulated with copper, aluminum and graphite in a high-quality grease. **SOLUTION 1800** is an antiseize that protects parts from corrosion, rusting, galling and seizing. Eases assembly and disassembly of metals parts. Lubricates bolt threads while reducing friction and wear. Meets MIL-A-970E.



We recommend SOLUTION 1800 for use on:

- Nuts, Bolts, & Studs.
- Manifolds & Heat Exchangers.
- Flange Bolts, Pumps, & Valves.
- Fittings & Shafts.
- Pressfits & Packings.

PART NO.	DESCRIPTION
10501	4 Oz. Brush Top Can
10502	8 Oz. Brush Top Can
10506	1 Lb. Brush Top Can
10510	8 Lb. Flat Top Can
10514	42 lb. Pail

SOLUTION 2400

MARINE GRADE ANTISEIZE

SOLUTION 2400 MARINE GRADE ANTISEIZE is formulated for all heavy duty marine applications. **Solution 2400** protects fasteners and assemblies from corrosion and rust caused by fresh and salt water, humidity and extreme marine conditions. It has excellent resistance to water and water wash-out. Temperature-resistant to 2400°F. Prevents metal-to-metal contact. Eases assembly and disassembly of metal parts while reducing friction and wear.



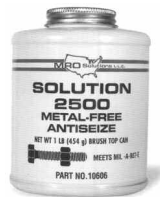
We recommend SOLUTION 2400 for use on:

- Threaded Connections.
- Winches, Engines, & Steam Traps.
- Waste and Water Treatment Plants.
- Metal Fittings, Pumps, Seals, Valves.
- Ship Yard Maintenance, Marinas.

PART NO.	DESCRIPTION
10802	8 Oz. Brush Top Can
10806	1 Lb. Brush Top Can

SOLUTION 2500 METAL-FREE ANTISEIZE

SOLUTION 2500 is a premium grease, calcium, and graphite blend which has been formulated for heavy-duty applications. It is lead free and contains no copper or nickel, making it the preferred choice of refineries and chemical plants. **SOLUTION 2500** protects parts from corrosion, rust, galling and seizing. Lubricates bolt threads while easing assembly and disassembly of metal parts, including stainless steel and soft metals. **SOLUTION 2500** is non-corrosive and prevents metal to metal contact. Temperature resistant to 2500°F. Meets MIL-A-907E.



We recommend SOLUTION 2500 for use on:

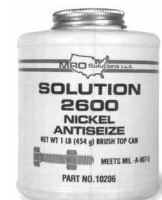
- Applications Prohibiting the Use of Copper & Other Metals.
- Special Alloy Metals, Including Stainless Steel.
- High-Temperature Nuts, Bolts, & Studs.
- Seals, Packings, & Sleeves.

CONTINUED NEXT COLUMN

PART NO.	DESCRIPTION
10602	8 Oz. Brush Top Can
10606	1 Lb. Brush Top Can
10608	2 Lb. Flat Top Can
10610	8 lb. Flat Top Can
10612	25 Lb. Pail
10654	45 lb. Pail

SOLUTION 2600 PREMIUM NICKEL ANTISEIZE

SOLUTION 2600 is a premium nickel/graphite blend antiseize specifically formulated for extreme temperatures. This antiseize also provides excellent chemical resistance. **SOLUTION 2600** protects parts from corrosion, rust, galling and seizing. Lubricates bolt threads while easing assembly and disassembly of metal parts, including stainless steel and soft metals. **SOLUTION 2600** is copper and lead-free, non-corrosive and acid resistant. Meets MIL-A-907-E. Temperature resistant to 2600°F.



We recommend SOLUTION 2600 for use on:

- Special Alloy Metals, Including Stainless Steel.
- Applications Involving Strong Acids.
- High-Temperature Nuts, Bolts, & Studs.
- Chemical Resistant Fittings.
- Copper/Lead-Free Application.

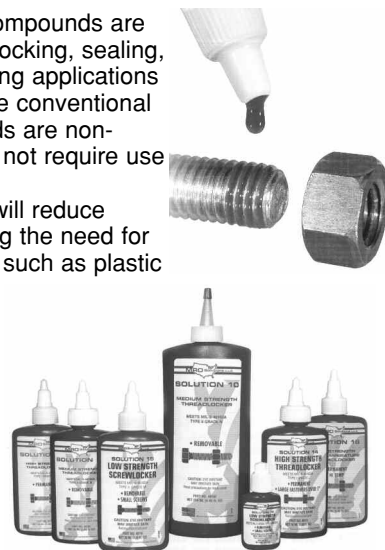
PART NO.	DESCRIPTION
10202	8 Oz. Brush Top Can
10204	1 Lb. Flat Top Can
10206	1 Lb. Brush Top Can
10210	8 lb. Flat Top Can
10214	42 Lb. Pail
10275	12 Oz. Aerosol

ANAEROBIC THREADLOCKERS

MRO Solutions anaerobic compounds are formulated for use in threadlocking, sealing, joining, fastening and retaining applications of metal components. Unlike conventional anaerobics, MRO compounds are non-surface sensitive so they do not require use of primers for curing.

MRO Solutions anaerobics will reduce inventory costs by eliminating the need for mechanical locking devices, such as plastic inserts, lock washers, set screws, lock nuts and cotter pins. Machining and assembly costs will also be reduced. The gap filling capability of the MRO anaerobics allows for greater tolerances between parts.

Once parts are mated with MRO anaerobics, they form a unitized assembly that resists vibration. In addition, the mated parts are sealed against attack from corrosion, internal rust, seizure, solvents, gases, and other chemicals.



SOLUTION 10 MEDIUM STRENGTH BLUE THREADLOCKER

MIL-S-46163A TYPE II, GRADE N

PART NO.	CONTENTS
40100	10ml
40101	50ml

CONTINUED NEXT PAGE



ANAEROBIC THREADLOCKERS (Cont.)
SOLUTION 11 HIGH STRENGTH RED THREADLOCKER
 (For fasteners up to 1" diameter)
 MIL-S-46163A TYPE I, GRADE K

PART NO.	CONTENTS
40103	10ml
40104	50ml
40105	250ml

SOLUTION 12 HIGH STRENGTH GREEN THREADLOCKER
 MIL-S-46163A TYPE III, GRADE R

PART NO.	CONTENTS
40106	10ml
40107	50ml
40108	250ml

SOLUTION 14 HIGH STRENGTH RED THREADLOCKER
 (For fasteners greater than 1" diameter)
 MIL-S-46163A TYPE I, GRADE L

PART NO.	CONTENTS
40112	10ml
40113	50ml
40114	250ml

SOLUTION 15 LOW STRENGTH PURPLE THREADLOCKER
 (For fasteners under 1/4" diameter)
 MIL-S-46163A TYPE II, GRADE M

PART NO.	CONTENTS
40115	10ml
40116	50ml
40117	250ml

SOLUTION 16 HIGH STRENGTH THREADLOCKER
 (For High Temperatures up to 450°F)

PART NO.	CONTENTS
40118	50ml
40119	250ml

CONTINUED NEXT COLUMN

SOLUTION 20 BEARING RETAINING COMPOUND - LOW VISCOSITY
 MIL-R-46082B TYPE I

PART NO.	CONTENTS
40200	10ml
40201	50ml
40202	250ml

SOLUTION 22 BEARING RETAINING COMPOUND - HIGH VISCOSITY
 MIL-R-46082B TYPE II

PART NO.	CONTENTS
40204	10ml
40205	50ml
40206	250ml

SOLUTION 30 PIPE SEALANT WITH TEFLON

PART NO.	CONTENTS
40301	50ml
40302	250ml

SOLUTION 34 HYDRAULIC/PNEUMATIC SEALANT

PART NO.	CONTENTS
40400	10ml
40401	50ml
40404	250ml

SOLUTION 40 FLEXIBLE FLANGE SEALANT

PART NO.	CONTENTS
40501	50ml
40502	300ml

SOLUTION 425 PIPE SEALING PASTE

PART NO.	CONTENTS
10701	4 Oz.
10702	8 Oz.
10706	1 Lb. B.T.

HAVE SPECIAL MRO PROBLEMS?
 Call Us For Help With Solving Them!

UNISTRUT

METAL FRAMING SYSTEMS 1-5/8" CHANNELS

CHANNEL SELECTION CHART

CHANNEL	CHANNEL DIMENSIONS		MATERIAL & THICKNESS			HOLE PATTERN STYLES					
	WIDTH IN. (MM)	HEIGHT IN. (MM)	STEEL GAUGE	STAINLESS STEEL GAUGE	ALUM. IN. (MM)	HS	T	STEEL ONLY			
P1000	1-5/8 (41.3)	1-5/8 (41.3)	12 ga.	12 ga.	0.109 (2.8)	■	■	■	■	■	■
P1100	1-5/8 (41.3)	1-5/8 (41.3)	14 ga.	14 ga.	-	■	■	■	■	-	-
P2000	1-5/8 (41.3)	1-5/8 (41.3)	16 ga.	-	-	■	■	■	■	-	-
P3000	1-5/8 (41.3)	1-3/8 (34.9)	12 ga.	-	-	■	■	■	■	-	-
P3300	1-5/8 (41.3)	7/8 (22.2)	12 ga.	12 ga.	-	■	■	-	■	-	-
P4000	1-5/8 (41.3)	13/16 (20.6)	16 ga.	16 ga.	0.078 (2.0)	■	■	-	■	-	-
P4100	1-5/8 (41.3)	13/16 (20.6)	14 ga.	-	-	■	■	-	■	-	-
P4400	1-5/8 (41.3)	1 (25.4)	12 ga.	-	-	■	■	-	■	-	-
P4520	1-5/8 (41.3)	13/16 (20.6)	12 ga.	-	-	■	■	-	■	-	-
P5000	1-5/8 (41.3)	3-1/4 (82.6)	12 ga.	12 ga.	-	■	■	■	■	-	-
P5500	1-5/8 (41.3)	2-7/16 (61.9)	12 ga.	-	0.109 (2.8)	■	■	■	■	-	-

CHANNELS & COMBINATIONS IN DESCENDING ORDER OF STRENGTH

CHANNEL	AREA IN ² (CM ²)	WEIGHT LBS/FT (KG/M)	L IN ⁴ (CM ⁴)	S IN ³ (CM ³)	ALLOW. MOMENT IN-LBS (N·M)
P5001	1.793	6.10	6.227	1.916	48,180
	11.57	9.1	259.2	31.4	5,440
	1.965	6.68	4.068	1.669	41,980
P1004A	12.68	9.9	169.3	27.4	4,740
	1.452	4.94	2.805	1.151	28,940
P5501	9.37	7.3	116.8	18.9	3,270
	2.221	7.55	1.856	1.142	28,720
P1001C41	14.33	11.2	77.2	18.7	3,250
	0.897	3.05	1.098	0.267	15,770
P5000	5.78	4.5	45.7	10.3	1,780
	1.111	3.78	0.928	0.571	14,360
P1001	7.16	5.6	38.6	9.4	1,620
	0.835	2.84	0.733	0.451	11,340
P1101	5.39	4.2	30.5	7.4	1,280
	1.000	3.40	0.591	0.430	10,810
P3001	6.45	5.1	24.6	7.0	1,220
	0.726	2.47	0.522	0.390	9,820
P5500	4.68	3.7	21.7	6.4	1,110
	0.684	2.32	0.618	0.381	9,570
P2001	4.41	3.5	25.7	6.2	1,080
	0.489	2.23	0.279	0.297	7,480
P9200	3.16	3.3	11.6	4.9	850
	0.492	1.67	0.358	0.265	6,670
A5000	3.17	2.5	14.9	4.3	750
	0.849	5.77	0.26	0.26	6,410
P4401	5.48	8.5	10.6	4.2	725
	0.609	2.07	0.302	0.242	6,070
A1000	3.93	3.1	12.6	4.0	690
	0.387	1.88	0.166	0.205	5,150
P9000	2.50	2.8	6.9	3.4	580
	0.555	1.89	0.185	0.202	5,070
P1000	3.58	2.8	7.7	3.3	570
	0.790	2.69	0.176	0.201	5,060
P3301	5.10	4.0	7.3	3.3	570
	0.77	2.62	0.15	0.18	4,538
P4521	4.97	3.9	6.1	2.9	513

CHANNEL	AREA IN ² (CM ²)	WEIGHT LBS/FT (KG/M)	L IN ⁴ (CM ⁴)	S IN ³ (CM ³)	ALLOW. MOMENT IN-LBS (N·M)
P1100	2.69	2.1	6.0	2.6	460
	0.500	1.70	0.120	0.1553	3,850
P3000	3.23	2.5	5.0	2.5	430
	0.579	1.97	0.117	0.143	3,610
P4101	3.74	2.9	4.9	2.4	410
	0.342	1.16	0.125	0.140	3,520
P2000	2.21	1.7	5.2	2.3	400
	0.478	1.66	0.104	0.128	3,210
P4001	3.14	2.5	4.3	2.1	360
	0.459	1.56	0.077	0.103	2,590
A3301	2.96	2.3	3.2	1.7	290
	0.424	2.89	0.053	0.092	2,300
P4400	2.74	4.3	2.2	1.5	260
	0.305	1.04	0.061	0.086	2,170
A1000	1.96	1.5	2.5	1.4	250
	0.395	1.34	0.037	0.072	1,800
P3300	2.55	2.0	1.5	1.2	200
	0.384	1.31	0.031	0.064	1,615
P4520	2.48	1.9	1.3	1.0	183
	0.264	0.90	0.037	0.058	1,470
A4001	1.70	1.3	1.5	1.0	170
	0.213	0.73	0.045	0.055	1,400
P6001	1.38	1.1	1.9	0.9	160
	0.290	0.98	0.026	0.054	1,360
P4100	1.87	1.5	1.1	0.9	150
	0.244	0.83	0.023	0.049	1,230
P4000	1.57	1.2	0.9	0.8	140
	0.230	0.78	0.017	0.038	950
A3300	1.48	1.2	0.7	0.6	110
	0.132	0.45	0.008	0.022	560
A4000	0.85	0.7	0.3	0.4	60
	0.107	0.36	0.009	0.020	510
P6000	0.69	0.5	0.4	0.3	60
	0.148	0.50	0.007	0.018	460
P7001	0.96	0.8	0.3	0.3	50
	0.074	0.25	0.002	0.007	170
P7000	0.48	0.4	0.1	0.1	20

Combinations not shown in catalog are available on special order.

Consult factory for more details.

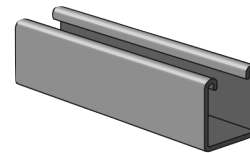
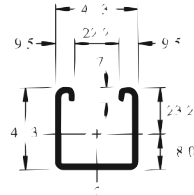
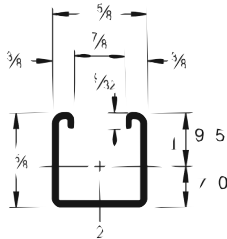
UNISTRUT®

METAL FRAMING SYSTEMS (Cont.)

1-5/8" CHANNELS (Cont.)

P1000® AND P1001 CHANNELS

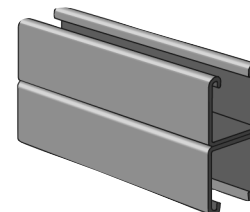
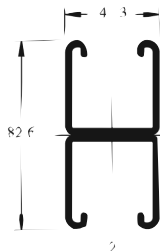
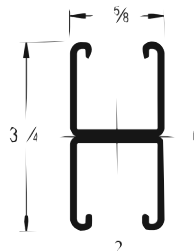
GR HG PG PL



Wt/100 Ft: 189 Lbs. (281 kg/100 m)
Allowable Moment 5,070 In.-Lbs. (570 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)

P1001

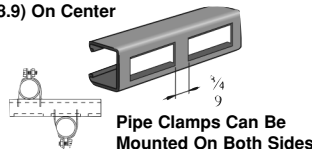
GR HG PG PL



Wt/100 Ft: 278 Lbs. (562 kg/100 m)
Allowable Moment 14,360 In.-Lbs. (1,620 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)

P1000 DS

Slots are 2-3/4" (69.9) x 7/8" (22.2)
3-1/2" (88.9) On Center

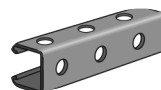


Wt/100 Ft: 173 Lbs. (257 kg/100 m)

P1000 H3

GR HG PG PL

Slots are 2-3/4" (69.9) x 7/8" (22.2)
3-1/2" (88.9) On Center

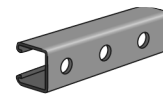


Wt/100 Ft: 175 Lbs. (260 kg/100 m)

P1000 HS

GR HG PG PL

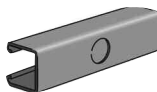
Slots are 2-3/4" (69.9) x 7/8" (22.2)
3-1/2" (88.9) On Center



Wt/100 Ft: 185 Lbs. (275 kg/100 m)

P1000 KO

GR PG



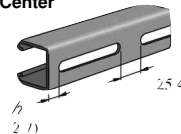
7/8" (22.2) Knockouts
6" (152.4) On Center

Wt/100 Ft: 190 Lbs. (283 kg/100m)

P1000 SL

GR HG PG PL

Slots are 3" (76.2) x 13/32" (10.3)
4" (101.6) On Center

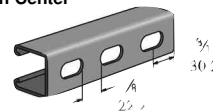


Wt/100 Ft: 185 Lbs. (275 kg/100 m)

P1000 T

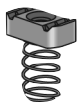
GR HG PG PL

Slots are 1-1/8" (28.6) x 9/16" (14.3)
2" (50.8) On Center



Wt/100 Ft: 185 Lbs. (275 kg/100 m)

CHANNEL NUTS



P1006-0832
P1006-1024
P1006-1420
P1007
P1008
P1009
P1010



P1008T
P1006T1420
P1010T



P1024
P1012S
P1023S



P1012
P1023
P1024S



P3006-0832
P3006-1024
P3006-1420
P3007
P3008
P3009
P3010



P3016-0632
P3016-0832
P3016-1024
P3016-1420

Channel Finishes: PL, GR, HG, PG, ZD: Standard Lengths: 10' and 20'

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METAL FRAMING SYSTEMS (Cont.)

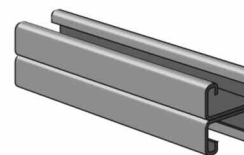
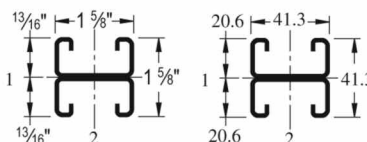
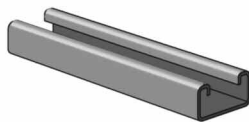
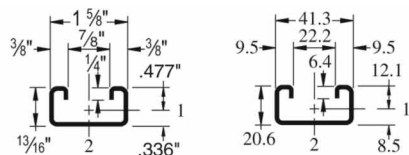
1-5/8" CHANNELS (Cont.)

P4100 AND P4101 CHANNELS

P4100



P4101



Wt/100 Ft: 98 Lbs. (147 kg/100 m)
Allowable Moment 1,360 In-Lbs. (150 N·m)
14 Gauge Nominal Thickness .075" (1.9mm)

Wt/100 Ft: 197 Lbs. (293 kg/100 m)
Allowable Moment 3,610 In-Lbs. (410 N·m)
14 Gauge Nominal Thickness .075" (1.9mm)

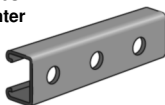
P4100 HS



P4100 T

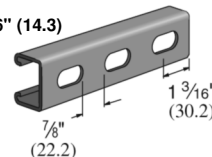


9/16" (14.3) Dia. Holes
1-7/8" (47.6) On Center



Wt/100 Ft: 87 Lbs. (129 kg/100 m)

Slots are 1-1/8" (28.6) x 9/16" (14.3)
2" (50.8) On Center

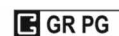


Wt/100 Ft: 87 Lbs. (129 kg/100 m)

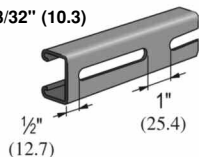
P4100 SL



P4101 T

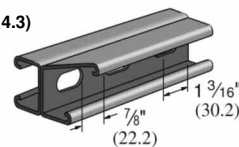


Slots are 3" (76.2) x 13/32" (10.3)
4" (101.6) On Center



Wt/100 Ft: 87 Lbs. (129 kg/100 m)

Slots are 1-1/8" (28.6) x 9/16" (14.3)
2" (50.8) On Center



Wt/100 Ft: 174 Lbs. (259 kg /100 m)

CHANNEL NUTS



P4006-0832
P4006-1024
P4006-1420
P4007
P4008
P4009
P4010



P4006T1420
P5008T
P4010T



P4012
P4023



P3006-0832
P3006-1024
P3006-1420
P3007
P3008
P3009
P3013



P3015-0632
P3016-0832
P3016-1024
P3016-1420

Channel Finishes: PL, GR, HG, PG, ZD: Standard Lengths: 10' and 20'

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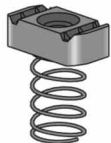
PLEASE NOTE: What is displayed in this Catalog represents a sampling of items stocked and/or available. Please see www.unistrut.com for a full selection and specifications.

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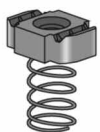
METAL FRAMING SYSTEMS (Cont.) NUTS AND HARDWARE FOR 1-5/8" FRAMING SYSTEM CHANNEL NUTS WITH AND WITHOUT SPRING

CHANNEL NUTS WITH SPRING

EG, HG



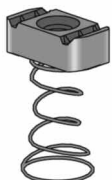
PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P1006-0832	#8	-32	7	(3.2)	P1000, P1100, P2000, P3000
P1006-1024	#10	-24	7	(3.2)	
P1006-1420	1/4"	-20	7	(3.2)	
P1007	5/16"	-18	6	(2.7)	
P1008	3/8"	-16	10	(4.5)	
P1009	7/16"	-14	9	(4.1)	
P1010	1/2"	-13	12	(5.4)	



PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P1012S	5/8"	-11	21	(9.5)	P1000, P1100, P2000, P3000
P1023S	3/4"	-10	21	(9.5)	
P1024S	7/8"	-9	21	(9.5)	



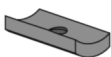
PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P4006-0832	#8	-32	7	(3.2)	P3300, P4000, P4400, P4520, P4100
P4006-1024	#10	-24	7	(3.2)	
P4006-1420	1/4"	-20	7	(3.2)	
P4007	5/8"	-18	6	(2.7)	
P4008	3/8"	-16	9	(4.1)	
P4009	7/16"	-14	9	(4.1)	
P4010	1/2"	-13	8	(3.6)	



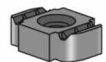
PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P5506-0832	#8	-32	7	(3.2)	P5000, P5500
P5506-1024	#10	-24	7	(3.2)	
P5506-1420	1/4"	-20	7	(3.2)	
P5507	5/16"	-18	6	(2.7)	
P5508	3/8"	-16	10	(4.5)	
P5509	7/16"	-14	10	(4.5)	
P5510	1/2"	-13	12	(5.4)	

CHANNEL NUTS WITHOUT SPRING

EG, HG

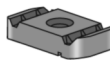


PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P3016-0632	#6	-32	2	(0.9)	ANY CHANNEL
P3016-0832	#8	-32	2	(0.9)	
P3016-1024	#10	-24	4	(1.8)	
P3016-1420	1/4"	-20	4	(1.8)	

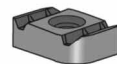


PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P1012	5/8"	-11	20	(9.1)	ANY CHANNEL EXCEPT P3300, P4000, P4400, P4520, P4100
P1023	3/4"	-10	20	(9.1)	
P1024	7/8"	-9	20	(9.1)	

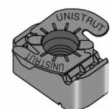
PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P3006-0832	#8	-32	6	(2.7)	ANY CHANNEL
P3006-1024	#10	-24	6	(2.7)	
P3006-1420	1/4"	-20	6	(2.7)	
P3007	5/16"	-18	6	(2.7)	
P3008	3/8"	-16	9	(4.1)	
P3009	7/16"	-14	9	(4.1)	



P3010	1/2"	-13	11	(5.0)	ANY CHANNEL EXCEPT P3300, P4000, P4400, P4520, P4100
P3013	1/2"	-13	8	(3.6)	

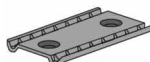


PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P4012	5/8"	-11	11	(5.0)	P3300, P4000, P4400, P4520, P4100
P4023	3/4"	-10	11	(5.0)	



PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P1006T1420	1/4"	-20	7	(3.2)	ANY CHANNEL
P1008T	3/8"	-16	10	(4.5)	

P1010T	1/2"	-13	12	(5.4)	ANY CHANNEL EXCEPT P3300, P4000, P4400, P4520, P4100
P4010T	1/2"	-13	8	(3.6)	



PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P4908	3/8"	-16	17.5	(7.9)	ANY CHANNEL

Double Conveyor Adjusting Nut



PART NO.	NUT SIZE	THREAD	WT/100 PCS	LBS. (kg)	USE WITH
P1016	3/8"	-16	17.5	(7.9)	ANY SLOTTED CHANNEL

Missing Link Multi-Purpose Stud Fastener

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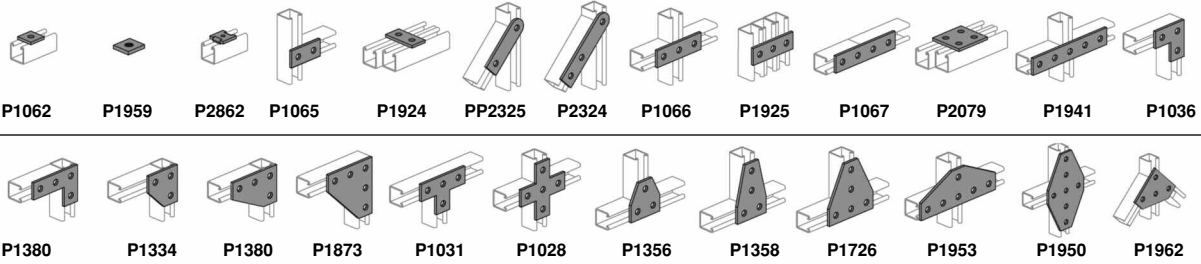
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CONTINUED NEXT COLUMN

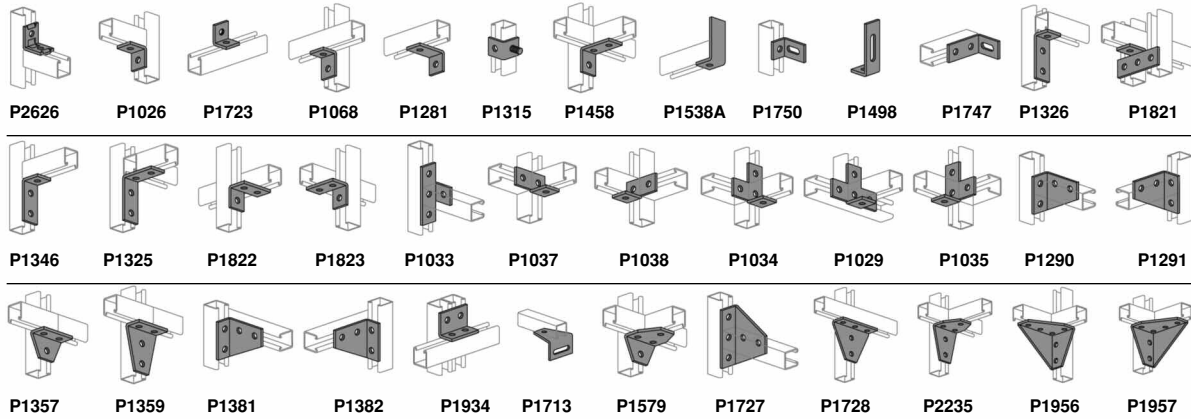
UNISTRUT®

METAL FRAMING SYSTEMS (Cont.) GENERAL FITTINGS FOR 1-5/8" FRAMING SYSTEM GENERAL FITTINGS PICTORIAL INDEX

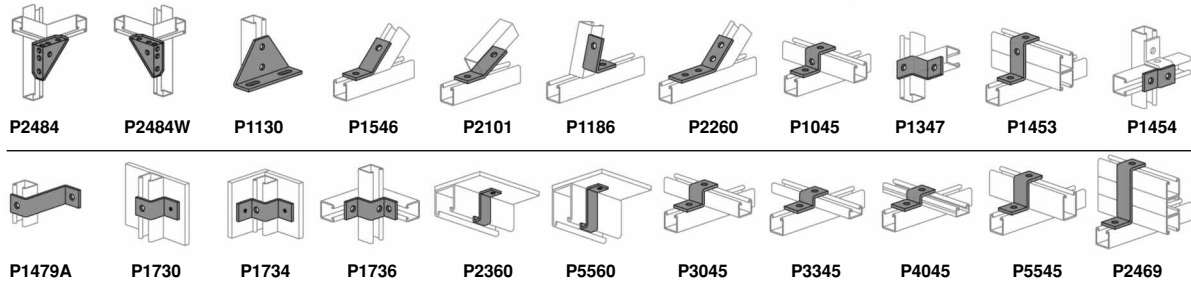
FLAT PLATE FITTINGS



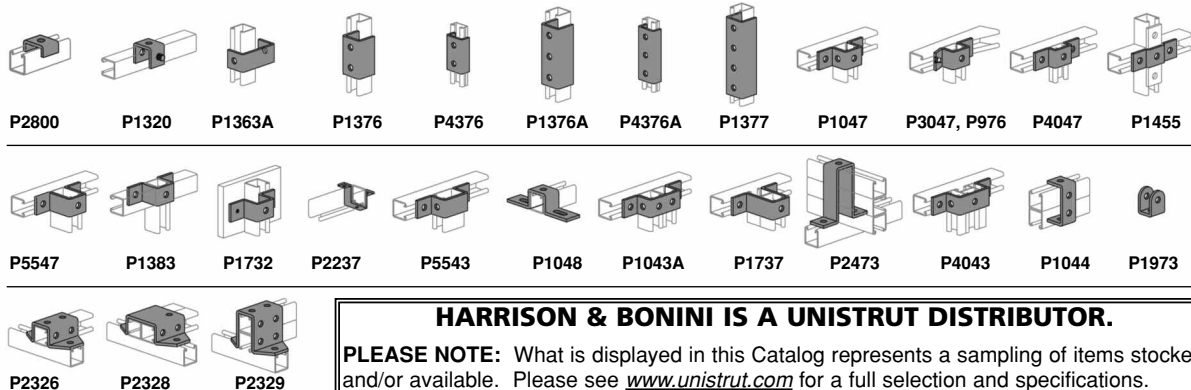
ANGLE FITTINGS



"Z" SHAPE FITTINGS



"U" SHAPE FITTINGS

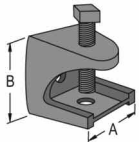


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UNISTRUT®

METAL FRAMING SYSTEMS (Cont.) GENERAL FITTINGS FOR 1-5/8" FRAMING SYSTEM (Cont.) BEAM CLAMPS

P2894

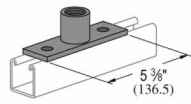


Material: Malleable Iron
7/8" Maximum Flange Thickness
NOTE: Tapped Hole on Top and Bottom

PART NO.	ROD SIZE IN.	"A" IN. (mm)	"B" IN. (mm)	LOAD RATINGS LBS. (kN)	WT/100 PCS. LBS. (kg)
P2894-25	1/4	1-1/8 28.6	1-1/4 31.8	150 .67	23 10.4
P2894-37	3/8	2 50.8	2 50.8	350 1.56	95 43.1
P2894-50	1/2	2-5/8 66.7	2-1/2 63.5	400 1.78	195 88.5

PIPE COUPLING FITTINGS

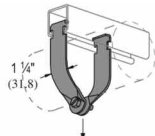
P2470-50, -75, -100



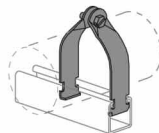
PART NO.	SIZE IN.	WT/100 PCS. LBS. (kg)
P2470-50	1/2	77 (34.9)
P2470-75	3/4	93 (42.2)
P2470-100	1	103 (46.7)

PIPE AND CONDUIT CLAMPS

P1211 THRU P1217
UNIVERSAL CLAMPS FOR
RIGID OR THINWALL CONDUIT



Design Load



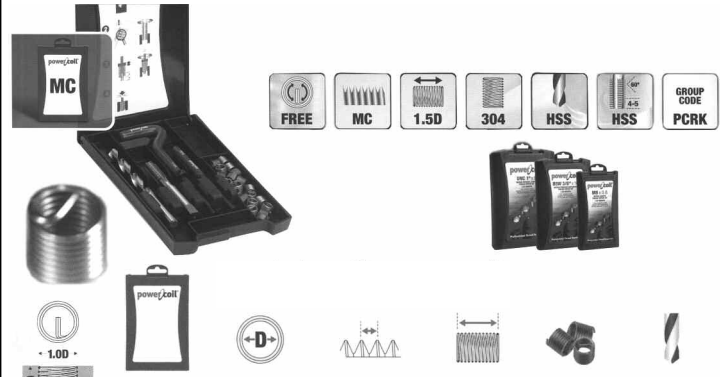
Slotted hex head screw and nut included with EG or HG Finish.

PART NO.	CONDUIT SIZE IN. (mm)	THICKNESS GAUGE (mm)	WT/100 PCS. LBS. (kg)	DESIGN LOAD LBS. (kN)
P1211	1/2 (12.7)	16 (1.5)	10 (4.5)	400 (1.78)
P1212	3/4 (19.1)	16 (1.5)	11 (5.0)	400 (1.78)
P1213	1 (25.4)	16 (1.5)	12 (5.4)	400 (1.78)
P1214	1-1/4 (31.8)	14 (1.9)	18 (8.2)	600 (2.67)
P1215	1-1/2 (38.1)	14 (1.9)	20 (9.1)	600 (2.67)
P1217	2 (50.8)	14 (1.9)	22 (10.0)	600 (2.67)

NOTE: Larger Sizes Available

powercoil® wire thread insert system

WIRE THREAD INSERTS STAINLESS STEEL - METRIC COARSE



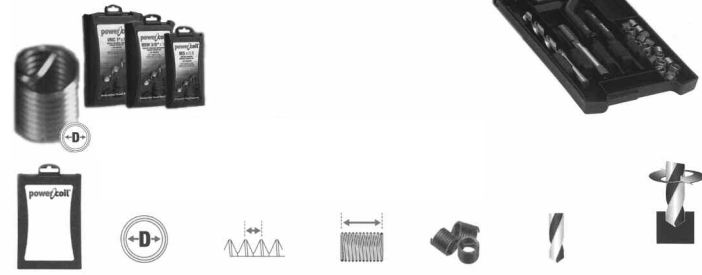
PART NO.	MM	MM	D	MM	#	MM
METRIC COARSE						
3520-2.00K	2.00	0.40	1.5	3.00	20	2.1
3520-2.20K	2.20	0.45	1.5	3.30	20	2.3
3520-2.50K	2.50	0.45	1.5	3.75	20	2.6
3520-3.00K	3.00	0.50	1.5	4.50	20	3.2
3520-3.50K	3.50	0.60	1.5	5.25	20	3.7
3520-4.00K	4.00	0.70	1.50	6.00	20	4.2
3520-5.00K	5.00	0.80	1.50	7.50	20	5.2
3520-6.00K	6.00	1.00	1.5	9.00	20	6.3
3520-7.00K	7.00	1.00	1.5	10.50	20	7.3
3520-8.00K	8.00	1.25	1.5	12.00	20	8.3
3520-9.00K	9.00	1.25	1.5	13.50	15	9.4
3520-10.00K	10.00	1.50	1.5	15.00	15	10.4
3520-11.00K	11.00	1.50	1.50	16.5	10	11.4
3520-12.00K	12.00	1.75	1.5	18.00	10	12.4
3520-13.00K	13.00	1.75	1.5	19.50	10	-
3520-14.00K	14.00	2.00	1.5	21.00	10	-
3520-15.00K	15.00	2.00	1.5	22.50	10	-
3520-16.00K	16.00	2.00	1.5	24.00	10	-
3520-18.00K	18.00	2.50	1.5	27.00	5	-
3520-20.00K	20.00	2.50	1.50	30	5	-
3520-22.00K	22.00	2.50	1.50	33.00	5	-
3520-24.00K	24.00	3.00	1.50	36.00	5	-



PART NO.	MM	MM	D	MM	#	MM
METRIC COARSE						
3520-27.00K	27.00	3.00	1.5	40.50	10	-
3520-30.00K	30.00	3.50	1.5	45.00	10	-
3520-33.00K	33.00	3.50	1.5	49.5	10	-
3520-36.00K	36.00	4.00	1.5	54.00	10	-



**WIRE THREAD INSERTS (Cont.)
STAINLESS STEEL - METRIC FINE**

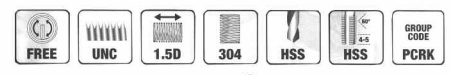
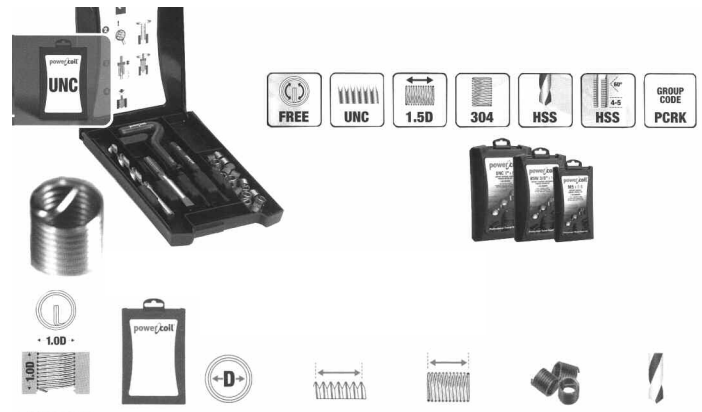


PART NO.	MM	MM	D	MM	#	MM
METRIC FINE						
3521-8.00K	8.00	1.00	1.5	12.00	20	
3521-10.00K	10.00	1.25	1.5	15.00	15	
3523-10.00K	10.00	1.00	1.5	15.00	15	
3521-11.00K	11.00	1.25	1.5	16.50	10	
3523-11.00K	11.00	1.00	1.5	16.50	10	
3521-12.00K	12.00	1.50	1.5	18.00	10	
3523-12.00K	12.00	1.25	1.5	18.00	10	
3521-13.00K	13.00	1.50	1.5	19.50	10	
3523-13.00K	13.00	1.25	1.5	19.50	10	
3521-14.00K	14.00	1.50	1.5	21.00	10	
3523-14.00K	14.00	1.25	1.5	21.00	10	
3524-14.00K	14.00	1.00	1.5	21.00	10	
3521-15.00K	15.00	1.50	1.5	22.50	10	
3521-16.00K	16.00	1.50	1.5	24.00	10	
3521-18.00K	18.00	2.00	1.5	27.00	5	
3523-18.00K	18.00	1.50	1.5	27.00	5	
3521-20.00K	20.00	2.00	1.5	30.00	5	
3523-20.00K	20.00	1.50	1.5	30.00	5	
3521-22.00K	22.00	2.00	1.5	33.00	5	
3523-22.00K	22.00	1.50	1.5	33.00	5	
3521-24.00K	24.00	2.00	1.5	36.00	5	
3523-24.00K	24.00	1.50	1.5	36.00	5	

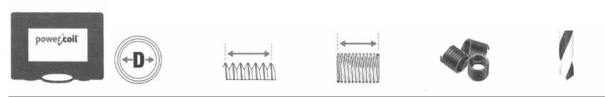


PART NO.	MM	MM	D	MM	#	MM
METRIC FINE						
3523-26.00K	26.00	1.50	1.5	39.00	10	-
3521-27.00K	27.00	2.00	1.5	40.50	10	-
3523-27.00K	27.00	1.50	1.5	40.50	10	-
3523-28.00K	28.00	1.50	1.5	42.00	10	-
3521-30.00K	30.00	2.00	1.50	45.00	10	-
3523-30.00K	30.00	1.50	1.5	45.00	10	-
3521-33.00K	33.00	2.00	1.5	49.5	10	-
3521-36.00K	36.00	3.00	1.5	54.00	10	-
3523-36.00K	36.00	2.00	1.5	54.00	10	-
3524-36.00K	36.00	1.50	1.5	54.00	10	-

STAINLESS STEEL - UNC



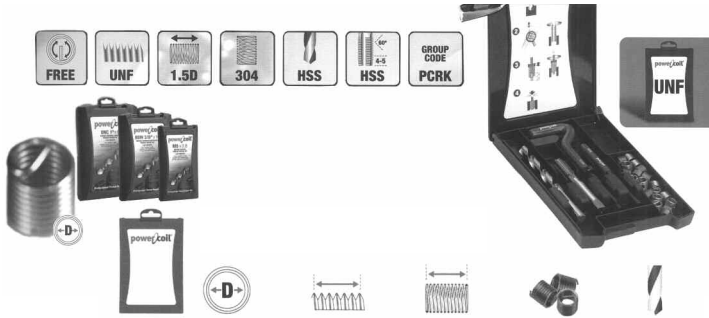
PART NO.	MM	MM	D	MM	#	MM
UNC						
3532-2GK	No. 2	56.00	1.5	0.13	20	2.4
3532-3GK	No. 3	48.00	1.5	0.15	20	2.7
3532-4GK	No. 4	40.00	1.5	0.17	20	3.1
3532-5GK	No. 5	40.00	1.5	0.19	20	3.4
3532-6GK	No. 6	32.00	1.5	0.21	20	3.8
3532-8GK	No. 8	32.00	1.5	0.25	20	4.4
3532-10GK	No. 10	24.00	1.5	0.28	20	5.2
3532-12GK	No. 12	24.00	1.5	0.33	20	5.8
3532-1/4K	1/4	20.00	1.5	0.38	20	6.7
3532-5/16K	5/16	18.00	1.5	0.47	20	8.3
3532-3/8K	3/8	16.00	1.5	0.56	15	9.9
3532-7/16K	7/16	14.00	1.5	0.66	10	11.6
3532-1/2K	1/2	13.00	1.5	0.75	10	13.00
3532-9/16K	9/16	12.00	1.5	0.84	10	-
3532-5/8K	5/8	11.00	1.5	0.94	10	-
35532-3/4K	3/4	10.00	1.5	1.13	5	-
3532-7/8K	7/8	9.00	1.5	1.31	5	-
3532-1K	1	8.00	1.5	1.50	5	-



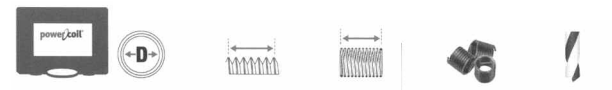
PART NO.	MM	MM	D	MM	#	MM
UNC						
3532-1.1/8K	1-1/8	7.00	1.5	1.69	10	-
3532-1.1/4K	1-1/4	7.00	1.5	1.88	10	-
3532-1.3/8K	1-3/8	6.00	1.5	2.06	10	-
3532-1.1/2K	1-1/2	6.00	1.5	2.25	10	-



WIRE THREAD INSERTS (Cont.)
STAINLESS STEEL - UNF

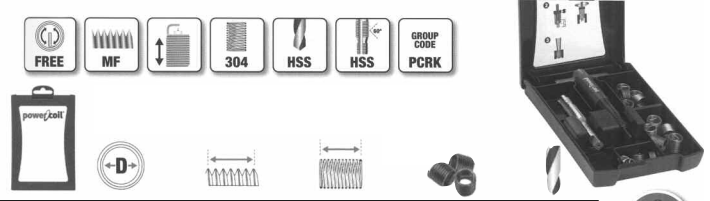


PART NO.	MM	MM	D	MM	#	MM
UNF						
3534-3GK	No. 3	56.00	1.5	0.15	20	2.7
3534-4GK	No. 4	48.00	1.5	0.17	20	3.0
3534-6GK	No. 6	40.00	1.5	0.21	20	3.8
3534-8GK	No. 8	36.00	1.5	0.25	20	4.4
3534-10GK	No. 10	32.00	1.5	0.28	20	5.1
3534-12GK	No. 12	28.00	1.5	0.33	20	5.6
3534-1/4K	1/4	28.00	1.5	0.38	20	6.7
3534-5/16K	5/16	24.00	1.5	0.47	20	8.3
3534-3/8K	3/8	24.00	1.5	0.56	15	9.8
3534-7/16-16K	7/16	16.00	1.5	0.66	10	11.5
3534-7/16K	7/16	20.00	1.5	0.66	10	11.5
3534-1/2K	1/2	20.00	1.5	0.75	10	13.0
3534-9/16K	9/16	18.00	1.5	0.84	10	-
3534-5/8K	5/8	18.00	1.5	0.94	10	-
3534-3/4K	3/4	16.00	1.5	1.13	5	-
3534-7/8K	7/8	14.00	1.5	1.31	5	-
3534-1K	1	12.00	1.5	1.50	5	-
3535-1K	1	14.00	1.5	1.50	5	-



PART NO.	MM	MM	D	MM	#	MM
UNF						
3534-1.1/8K	1-1/8	12.00	1.5	1.69	10	-
3534-1.1/4k	1-1/4	12.00	1.5	1.88	10	-
3534-1.3/8k	1-3/8	12.00	1.5	2.06	10	-
3534-1.1/2k	1-1/2	12.00	1.5	2.25	10	-

STAINLESS STEEL - SPARK PLUG



PART NO.	MM	MM	D	MM	#	MM
3522-10.00K	10	1.00	-	12	5	-
	10	1.00	-	0.339	5	-
3522-12.00K	12	1.25	-	1/2	5	-
	12	1.25	-	3/4	5	-
3522-14.00K	14	1.25	-	3/8	5	-
	14	1.25	-	1/2	5	-
	14	1.25	-	3/4	5	-
3522-18.00K	18	1.50	-	1/2	5	-
3522-14.00K1	14	1.25	8.4	-	5	-
	14	1.25	12.4	-	5	-
	14	1.25	16.4	-	5	-

WE CARRY SAFETY EYEWEAR



**CALL A HARRISON & BONINI REPRESENTATIVE TODAY
FOR PRICING AND AVAILABILITY**



PRECISION MEASURING TOOLS
WHIA® LONG LIFE PRECISION SERIES
260 SLOTTED SCREWDRIVER,
WITH PRECISION HANDLE



• Blade high alloy chrome-vanadium-molybdenum steel.

PART NO.	Slotted		Phillips		Torx		Hex		Spline		LBS.	PKG.
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.		
260 08	.80	1/32	40	1.6	0.16	.01	120	4.7	.02	10		
260 10	1.0	.039	40	1.6	0.18	.01	120	4.7	.02	10		
260 12	1.2	3/64	40	1.6	0.20	.01	120	4.7	.02	10		
260 15	1.5	1/16	40	1.6	0.25	.01	120	4.7	.02	10		
260 18	1.8	.070	40	1.6	0.30	.01	120	4.7	.02	10		
260 20	2.0	5/64	40	1.6	0.40	.02	120	4.7	.02	10		
260 22	2.0	5/64	50	2.0	0.40	.02	145	5.7	.02	10		
260 23	2.0	5/64	100	3.9	0.40	.02	180	7.1	.03	10		
260 25	2.5	3/32	50	2.0	0.40	.02	145	5.7	.03	10		
260 27	2.5	3/32	100	3.9	.040	.02	195	7.7	.03	10		
260 28	2.5	3/32	150	6.0	0.40	.02	245	9.6	.04	10		
260 30	3.0	1/8	50	2.0	0.50	.02	145	5.7	.03	10		
260 32	3.0	1/8	60	2.4	0.50	.02	170	6.7	.04	10		
260 33	3.0	1/8	100	3.9	0.50	.02	210	8.3	.04	10		
260 34	3.0	1/8	150	5.9	0.50	.02	260	10.2	.05	10		
260 35	3.5	9/64	60	2.4	0.60	.02	170	6.7	.05	10		
260 40	4.0	5/32	60	2.4	0.80	.03	170	6.7	.05	10		
260 41	4.0	5/32	100	3.9	0.80	.03	210	8.3	.06	10		
260 42	4.0	5/32	150	5.9	0.80	.03	260	10.2	.07	10		

* Metric dimensions actual – Inch dimensions approximate.

260 90 SLOTTED SCREWDRIVER SET – 6 PIECES



• Blade high alloy chrome-vanadium-molybdenum steel.
• Hard chrome finished.

PART NO.	Blade Length	Blade Width	LBS.	
260 90	260 15	1.5	40	.27
	260 20	2.0	40	
	260 25	2.5	50	
	260 30	3.0	50	
	260 35	3.5	60	
	260 40	4.0	60	

WHIA® PRECISION
SLOTTED/PHILLIPS DRIVERS
260 92 SLOTTED AND PHILLIPS
SCREWDRIVER SET - 7 PIECES

• Blade high alloy chrome-vanadium-molybdenum steel.

PART NO.	Blade Length	Blade Width	LBS.	
260 92	260 25	2.5	50	.30
	260 27	2.5	100	
	260 33	3.0	100	
	260 34	3.0	150	
	260 41	4.0	100	
	260 42	4.0	150	
261 08	0	75		



261 PHILLIPS SCREWDRIVER,
WITH PRECISION HANDLE



• Blade high alloy chrome-vanadium-molybdenum steel.

PART NO.	Blade Length	Blade Width	Blade Height	Blade Tip	LBS.	PKG.			
261 02	000	40	1.6	2.0	.08	120	4.7	.02	10
261 00	00	40	1.6	2.0	.08	120	4.7	.02	10
261 01	00	75	3.0	2.0	.08	155	6.1	.02	10
261 05	0	59	2.0	3.0	.12	145	5.7	.02	10
261 08	0	75	3.0	3.0	.12	170	6.7	.03	10
261 07	0	100	3.9	3.0	.12	195	7.6	.05	10
261 09	0	150	5.9	3.0	.12	245	9.6	.06	10
261 10	1	60	2.4	4.0	.16	170	6.7	.05	10
261 13	1	80	3.1	4.0	.16	190	7.5	.05	10
261 14	1	100	3.9	4.0	.16	210	8.2	.06	10
261 15	1	150	5.9	4.0	.16	260	10.2	.07	10

* Metric dimensions actual – Inch dimensions approximate.

261 90 SLOTTED AND PHILLIPS
SCREWDRIVER SET – 7 PIECES

• Blade high alloy chrome-vanadium-molybdenum steel.

PART NO.	Blade Length	Blade Width	LBS.	
261 90	260 15	1.5	40	.32
	260 22	2.0	50	
	260 25	2.5	50	
	260 32	3.0	60	
261 00	00	40		
261 05	0	50		
261 10	1	60		





PRECISION MEASURING TOOLS (Cont.)

WHIA® PRECISION SLOTTED/PHILLIPS DRIVERS (Cont.)

261 92 SLOTTED AND PHILLIPS SCREWDRIVER SET – 5 PIECES

- Blade high alloy chrome-vanadium-molybdenum steel.

PART NO.	Slotted		LBS.	
	MM	MM		
261 92	260 28	2.5	150	.44
	260 34	3.0	150	
	260 42	4.0	150	
		Phillips		LBS.
		SIZE	MM	
	261 09	0	150	
	261 15	1	150	



261 94 PHILLIPS SCREWDRIVER SET – 4 PIECES

- Blade high alloy chrome-vanadium-molybdenum steel.
- Hard chrome finished.

PART NO.	Phillips		LBS.	
	SIZE	MM		
261 94	261 02	000	40	.18
	261 00	00	40	
	261 05	0	50	
	261 10	1	60	



WHIA® HEX PRECISION SERIES 263 99 HEX INCH DRIVER SET - 8 PIECES

- Blade high alloy chrome-vanadium-molybdenum steel.
- Hard chrome finished.
- In Canvas Storage Pouch.



PART NO.	Hex		Hex		LBS.		
	IN.	IN.	IN.	IN.			
263 99	263 07	.028	1.6	263 20	5/64	2.0	.55
	263 09	.035	1.6	263 23	3/32	2.4	
	263 13	.050	1.6	263 27	7/64	2.4	
	263 16	1/16	2.0	263 31	1/8	2.4	

WHIA® TECHNICIANS MICRO BIT SETS

75094 SYSTEM 4 SLOTTED, PHILLIPS, HEX INCH COMPACT ESD PRECISION INTERCHANGEABLE BIT SET – 16 PIECES



- Wiha® precision handle, bit extension and 14 interchangeable bits.

PART NO.	COMBINATION BIT SET
75094	Set With ESD Safe Precision Handle
	Slotted: 1.5, 2.0, 2.5, 3.0 mm
	Phillips: 00, 0, 1
	Hex Inch: .035, .050, 1/16, 5/64, 3/32, 7/64, 1/8"
	10mm Bit Extension
	Lbs: .17

75095 SYSTEM 4 SLOTTED, PHILLIPS, HEX METRIC COMPACT ESD PRECISION INTERCHANGEABLE BIT SET – 16 PIECES



- Wiha® precision handle, bit extension and 14 interchangeable bits.

PART NO.	COMBINATION BIT SET
75095	Set With ESD Safe Precision Handle
	Slotted: 1.5, 2.0, 2.5, 3.0 mm
	Phillips: 00, 0, 1
	Hex Metric: .89, 1.27, 1.5, 2.0, 2.5, 3.0, 4.0 mm
	10mm Bit Extension
	Lbs: .17

WHIA® SECURITY BITS COLLECTOR

71991 BITS COLLECTOR WITH SECURITY TORX®, TRI-WING, TORQ SET, SPANNER, SECURITY HEX, SLOTTED, PHILLIPS, POZIDRIV® AND SQUARE BITS – 39 PIECES

- Set Includes:
Handle, Clicfix quick release bit holder, 1/4" Bit holding socket adapter, storage box and the following 1/4" bits.



PART NO.	COMBINATION BIT SET
71991	Bit Collector Set
	Security Torx®: T8s, T10s, T15s, T20s, T25s, T27s, T30s, T40s
	Security Hex: 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"
	Tri-Wing: 1, 2, 3, 4
	Torq Set: 6, 8, 10
	Spanner: 4, 6, 8, 10
	Slotted: 6.5, 8.0 mm
	Phillips: 1, 2
	Pozidriv®: 0, 1, 2, 3
	Square: 1, 2, 3
	Lbs.: 1.04

TENRYU

Making Quality Saw Blades Since 1910

CIRCULAR SAW BLADES POWER TOOL SERIES FOR THE CONTRACTOR

Exceptional features and superior quality, Thin Kerf

TENRYU'S comprehensive line of blades for portable and stationary power tools. More variety, better quality and greater value. Sizes range from 4" to 14" for most types of applications. The TENRYU PT SERIES goes on to include thin kerf wood cutting blades designed especially for smooth cuts on miter and slide-compound. See below.

BLADE FEATURES:

- Fully hardened, expertly tensioned tool steel bodies absorb impact, remain flat and true, and resist excess heat build-up.
- High-grade, C-3, fine-grain tungsten carbide tips resist erosion for extended blade life.
- Aggressive rake angles for maximum cutting speed and efficiency.
- Each tip is precision honed on all four exposed surfaces. This minimizes micro-chipping along the sharp edge of the tip and results in a sharper, longer-lasting edge.
- Thin kerf for less waste and lighter cutting performance (reduced feed pressure).
- Inserted tooth design on some models greatly increases the body-to-tip braze area for greater support and tip strength.
- Expansion slots and/or variable pitch gullets keep blade true under stressful work loads.
- Can be resharpened for extended blade life.



POWER TOOL SERIES - Primarily for Portable Saws and Table Saws

PART NO.	DIA.	TEETH	ARBOR	GRIND	KERF	RAKE	APPLICATION
PT-10024	4"	24	10mm	ATAF	.055"	18	For woodworking on Makita 4" trim saw
PT-1006-1	4"	6	22mm	FTG	.157"	20	For very clean and accurate biscuit slots in all woods
PT-1006-2	4"	6	22mm	ATAFR	.157"	25/-15	For exceptionally clean and smooth biscuit slots in all woods
PT-11036	4-3/8"	36	20mm	ATAF	.063"	15	For fine trim work on corded Makita trim saws
PT-11536	4-1/2"	36	3/8"	ATAF	.063"	15	For clean and easy trim work on the Porter Cable trim saw
PT-14036	5-1/2"	36	5/8" / 1/2"	ATAF	.063"	15	For fine and easy trim work on Makita or Skil circular saws
PT-15236	6"	36	1/2"	ATAF	.063"	15	For excellent results on 6" Porter Cable corded or cordless saws
PT-16524	6-1/2"	24	5/8"KO	ATB	.079"	20	For woodworking on 76-1/2" corded saws. FAST!
PT-16524-T	6-1/2"	24	5/8"KO	ATAF	.059"	20	Ultra-thin for very fast and easy rok on 6-1/2" corded or cordless saws
PT-16540	6-1/2"	40	5/8"KO	ATB	.079"	20	For finer cuts on corded 6-1/2" saws
PT-16540-CR	6-1/2"	40	BEVEL	ATB	.063"	18	For use on the CRAIN JAMB SAW for carpet/flooring installers
PT-16540-T	6-1/2"	40	5/8"KO	ATB	.063"	18	ULTRA-THIN kerf for fine work on corded or cordless saws
PT-16552-T	6-1/2"	52	5/8"KO	ATAF	.063"	18	ULTRA-THIN kerf for SUPER clean work on 6-1/2" saws
PT-18516B	7-1/4"	16	5/8"KO	ATB	.073:"	27	Our super fast framing and ripping blade with INSERTED teeth
PT-18520B	7-1/4"	20	5/8"KO	ATB	.073"	27	Fast and Furious 20 tooth INSERTED TOOTH blade for framers
PT-18524AM	7-1/4"	24	5/8"KO	ATB	.070"	20	The AMIGO 24 tooth contractor blade. Fast with long cutting life
PT-18524-P	7-1/4"	24	5/8"KO	ATB	.070"	20	BULLFROG. The choice when cutting pressure treated or wet lumber. URETHANE COATED
PT-18524V	7-1/4"	24	5/8"KO	ATB	.070"	20	CITATION. the unique VARIABLE PITCH framing blade for AST, smooth cutting
PT-18540	7-1/4"	40	5/8"KO	ATB	.073"	27	Spectacular INSERTED TOOTH finish blade. Great performance
PT-18540B	7-1/4"	40	5/8"KO	ATAF	.063"	18	ULTRA-THIN kerf for finish cross-cutting. Bulk packaged
PT-18540-T	7-1/4"	40	5/8"KO	ATB	.063"	18	ULTRA-THIN blade for finish work on circular or trim saws
PT-18552-T	7-1/4"	52	5/8"KO	ATAF	.063"	18	ULTRA-THIN, ultra-fine blade for trim work. For finest cuts
PT-20360	8"	60	5/8"KO	ATAF	.087"	5	A no-nonsense clean cutting 8" woodcutting blade. Also for Panel saws
PT21018	8-1/4"	18	5/8"KO	ATB	.075"	25	Fast cutting for woodworking and ripping on table or circular saws. INSERTED TOOTH DESIGN
PT-21040	8-1/4"	40	5/8"KO	ATB	.079"	15	The tremendously popular 8-1/4" Power Tool Series blade. for table or portable saws
PT-21060	8-1/4"	60	5/8"KO	ATAF	.079"	12	For fine cuts in wood with a table saw or circular saw
PT-26036	10-1/4"	36	5/8"KO	ATAF	.079"	20	For woodworking on modified circular saws

TENRYU

Making Quality Saw Blades Since 1910

CIRCULAR SAW BLADES (Cont.) POWER TOOL SERIES FOR MITER AND SLIDE-MITER SAWS

The "PT" Series blades for miter, slide-miter, and radial arm saws range in sizes from 8-1/2" for the popular Hitachi through 12" diameters.

EACH BLADE FEATURES:

- Thin kerf design is easier on miter saw motors and brakes.
- Fully hardened, expertly tensioned tool steel bodies.
- Fine grain tungsten carbide tips with fine grit honing for keen edges.
- Excellent price/value.



POWER TOOL SERIES - For Miter or Slide Miter Saws

PART NO.	DIA.	TEETH	ARBOR	GRIND	KERF	RAKE	APPLICATION
PT-21624	8-1/2"	24	5/8"	ATB	.087"	15	A fast cutting blade for use on 8-1/2" saws in thick wood
PT-21640	8-1/2"	40	5/8"	ATB	.087"	15	A super blade for use on 8-1/2" saws in wood
PT-21660-1	8-1/2"	60	5/8"	ATAF	.079"	5	A super performer on 8-1/2" miter saws
PT-21680	8-1/2"	80	5/8"	ATAF	.087"	10	For extra-clean cuts in wood and thin products
PT-23040	9"	40	5/8"	ATAF	.087"	5	Our Power Tool Series blade for 9" miter or table saws
PT-25540	10"	40	5/8"	ATB	.083"	0	Used for miter, radial arm or table saws
PT-25550	10"	50	5/8"	ATAF	.092"	15	INSERTED TEETH. For use on miter saws. Great value
PT-25560	10"	60	5/8"	ATB	.083"	0	Used for miter, radial arm or slide miter saws
PT-25560D	10"	60	5/8"	TCG	.087"	10	Triple chip woodworking blade for man-made wood material
PT-25572	10"	72	5/8"	ATB	.083"	0	Clean performance on miter saws
PT-25590	10"	90	5/8"	ATAF	.091"	10	For super clean cuts in thin wood or miter saws
PT-26036	10-1/4"	36	5/8"KO	ATAF	.079"	20	For woodworking on modified circular saws
PT-30560	12"	60	1"	ATAF	.094"	3	Thin kerf. Outstanding value. Excellent woodworking miter or radial arm saw blade for thick stock
PT-30580	12"	80	1"	ATAF	.094"	5	Thin kerf. Fine cut-off blades for woodworking on miter or radial arm saws for medium stock
PT-305100	12"	100	1"	ATAF	.094"	5	Thin kerf. Extra clean cuts in wood on your miter or radial arm saw for thin stock

SILENCER SERIES FOR SLIDE-MITER SAWS, AND CROSSCUTTING WITH PORTABLE SAWS

EACH BLADE FEATURES:

- New vibration dampening system featuring patented TENRYU resin bond filled laser cut body slots.
- Meticulous, hand hammer plate tensioning for a flatter blade and truer cuts.



Smoother Cuts Cleaner Edges Quieter Cutting Longer Sharp-Life

PART NO.	DIA.	TEETH	ARBOR	GRIND	KERF	RAKE	APPLICATION
L-16552	6-1/2"	52	5/8"KO	ATAF	.063"	18	Extra smooth crosscuts using cordless and portable saws
SL-18552	7-1/4"	52	5/8"KO	ATAF	.063"	18	Extra smooth crosscuts using portable and circular saws
SL-21660	8-1/2"	60	5/8"	ATAF	.079"	5	Extra smooth cuts on 8-1/2" slide-miter saws
SL-25572	10"	72	5/8"	ATAF	.110"	10	Extra smooth cuts in various thickness wood on all types of miter saws
SL-305100	12"	100	1"	ATAF	.110"	5	Extra smooth cuts in various thickness wood on all types of miter saws

"Choose a saw blade with built-in noise and vibration dampening."
OSHA's "Selection Rule No. 2 – Selecting a saw blade"

TENRYU

Making Quality Saw Blades Since 1910

CIRCULAR SAW BLADES (Cont.) PRO SERIES FOR NON-FERROUS METALS

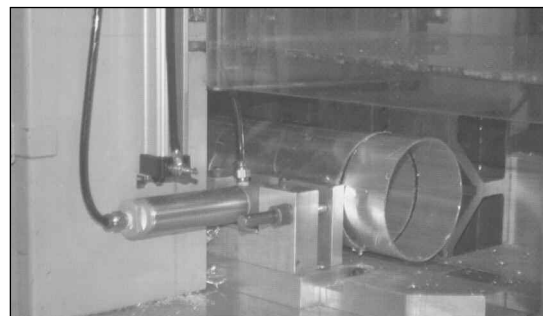
TENRYU'S superior quality line for extra heavy duty applications in non-ferrous metals, such as, aluminum, brass, bronze, copper, etc. Another of our "Cadillac/Mercedes" grade blades.

Pro Series for Non-Ferrous Metals M

EACH BLADE FEATURES:

- Heavier, laser cut, fully-hardened blade bodies stay flatter and truer longer.
- Top-quality, fine-grain, premium grade carbide tips for smoother cuts and longer life.
- Tips are fine-finish honed on all surfaces down to 600 grit.

Helpful Cutting Tip: Apply stick wax, bee's wax, or other lubricant to carbide tip area frequently to prevent chip build-up in blade gullets or galling of the non-ferrous metal to the surfaces of the carbide tips.



PRO SERIES - For Non-Ferrous Metals

PART NO.	DIA.	TEETH	ARBOR	GRIND	KERF	RAKE	APPLICATION
PRA-18560D	7-1/4"	60	5/8"	TCG	.110"	0	Out top of the line 7-1/4" blade for non-ferrous. Also cuts plastics.
PRA-21660DN	8-1/2"	60	5/8"	TCG	.110"	-5	For industrial non-ferrous applications. Pro Series.
PRA-25580DN	10"	80	5/8"	TCG	.126"	-5	Pro Series for aluminum. Industrial quality non-ferrous saw blade.
PRA-255100DN	10"	100	5/8"	TCG	.102"	-5	Especially for thin-wall extrusions and use on slide-miter saws.
PRA-305100DN	12"	100	1"	TCG	.134"	-5	Outstanding performance in non-ferrous metals. Best quality.
PRA-305100DN2	12"	100	5/8"	TCG	.134"	-5	For double miter saws and radial arm saws for non-ferrous
PRA-355100DN	14"	100	1"	TCG	.134"	-5	For cutting non-ferrous metals on your 14" saw. Pro Series

STEEL-PRO® SERIES

TENRYU'S steel cutting carbide tipped saw blades give INDUSTRIAL PERFORMANCE.

Cut ferrous metals (mild steel) faster, cleaner and easier. Save time, money, the environment, and your respiratory health.

TENRYU'S complete series of steel cutting saw blades called "Steel-Pro®" makes light work out of all kinds of mild steel: steel studs, steel sheets, steel pipe channel, threaded rod and much, much more.

Specially formulated C-6 carbide grade, combined with our unique tip design, resists breakage on impact and lasts longer, much longer than standard carbides or abrasive discs. Special tooth geometry with "inserted" tooth design greatly improves security of the tip, efficiency and durability.

Abrasive discs throw sparks and lots of dust including unhealthful fiberglass. You shouldn't be breathing it in! Steel-Pro® blades reduce spark production and eliminate abrasive wheel dust.

Abrasive discs wear quickly, requiring frequent blade changes. Steel-Pro® blades allow you to keep working; eliminating down time for frequent blade changes. In addition, Steel-Pro® cuts 5 to 10 times faster than abrasives. Typically, one Steel-Pro blade will outlast somewhere between 15 to 30 abrasive blades. Think of all that non-productive "down time".

EACH BLADE FEATURES:

- Rugged plates and specially formulated carbide tips with a special tooth grind for fast, clean cuts.
- High quality cuts without the clouds of dust and scorch marks associated with friction blades.
- Cool cuts that leave the work piece edge free of burrs.
- Reduced cost-per-cut and maximized performance for the operator as a result of fewer blade changes.

Steel-Pro® Series □ □



Please note all safety instructions before use and adhere to instructions for maximum RPM speeds.

STEEL-PRO® SERIES - For Cordless Saws

PART NO.	DIA.	TEETH	ARBOR	GRIND	KERF	RAKE	APPLICATION
PRF-15238	6"	38	1/2"	MTCG	.079"	0	For cordless or corded saws
PRF-16048	6-1/4"	48	5/8"	MTCG	.079"	0	For cordless or corded saws
PRF-18538BW	7-1/4"	38	5/8"KO	ATB	.079"	0	Our Steel-Pro for cutting ferrous metal up to 1/4" thick
PRF-18538BW2	7-1/4"	38	20mm	MTCG	.079"	0	Mild steel up to 1/4" thick. Fits Jancy, Evolution® Saw
PRF-18548BW	7-1/4"	48	5/8"KO	ATB	.079"	0	Our most popular Steel-Pro. Cuts thick (up to 1/8") and thin
PRF-18548BW2	7-1/4"	48	20mm	ATB	.079"	0	Mild steel up to 1/8" thick. Fits Jancy, Evolution® Saw
PRF-18556CB	7-1/4"	56	5/8"KO	ATAF	.071"	-10	Additional carbide tips for smoother cutting of thin materials
PRF-18570CBN	7-1/4"	70	5/8"KO	ATB	.069"	-10	For very thin steel. (Steel sheet, corrugated steel sheet, etc.)
PRF-18570BW2	7-1/4"	70	20mm	ATB	.069"	-10	For very thin steel. (Steel sheet, corrugated steel sheet, etc.)
PRF-20348CBN	8"	48	5/8"	MTCG	.087"	0	For ferrous metal cutting. General application
PRF-21048BW	8-1/4"	48	5/8"KO	MTCG	.087"	0	For 8-1/4" Steel-Pro for ferrous metal cutting with circular saws
PRF-23048CBN	9"	48	1"	ATB	.087"	0	For up to 1/8" thick steel on the Evolution® Saw
PRF-25550D	10"	50	1", 5/8"	TCG	.098"	0	For 10" circular saws and low RPM saws for ferrous metal
PRF-30560D*	12"	60	1"	TCG	.098"	0	For cutting mild steel on low RPM dry cut saws
PRF-35572D*	14"	72	1"	TCG	.094"	0	For use on dry-cut low RPM saws for cutting mild steel
PRF-40580D*	16"	80	1"	TCG	.102"	0	For use on low RPM saws for cutting mild steel

* These blades are for use on low RPM "dry-cut" chop saws only.

Always Wear Eye Protection that meets ANSI Z87.1 requirements and Properly Functioning Upper and Lower Blade Guards



SAIT GRINDING AND CUTTING WHEELS 1/4" GENERAL PURPOSE GRINDING WHEELS

- Virgin aluminum oxide grain assures consistent high stock removal by tough applications.
- All sizes are made with uniform grain throughout, no filler grain used in the backing.
- All wheels internally reinforced with the highest quality fiberglass for maximum safety.
- **Unique Super-Lock™ Hub combines both a mechanical locking system and chemical bond providing one of the safest, vibration-free designs in the industry.**

TYPE 27 DEPRESSED CENTER WHEELS

A24N – FAST GRINDING

- Aluminum oxide grain.
- Soft bond for **fast stock removal.**

METAL Ferrous Metals (iron, steel, welds, etc.)

STAINLESS Low grade stainless steel



A24R – LONG LIFE

- Aluminum oxide grain.
- For general purpose grinding.
- Longer life for fewer wheel changes.

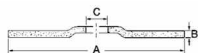
METAL Ferrous Metals (iron, steel, welds, etc.)



A24T – EDGE GRINDING

- Aluminum oxide grain.
- Hard bond designed for **edge and bevel grinding** and other applications where a harder wheel is preferred.
- **Longer life** for fewer wheel changes.

METAL Ferrous Metals (iron, steel, welds, etc.)



GRADES AVAILABLE			SIZE			MAX. RPM	QTY. PER BOX	QTY. PER CTN.	LBS. PER BOX
GRADE	A	B	A	B	C				
A24N	A24R	A24T	DIA.	WIDTH	BORE				
20001	-	-	3	3/16	3/8	18,000	25	100	3
20002	20005	-	3	1/4	3/8	18,000	25	100	4
20010	-	-	4	3/16	3/8	13,500	25	100	6
20012	20019	-	4	1/4	3/8	13,500	25	100	7
20015	20013	-	4	1/4	5/8	13,500	25	100	7
20050	-	-	4-1/2	3/16	7/8	13,300	25	100	8
20150	-	-	4-1/2	3/16	5/8-11	13,300	10	40	5
20060	20063	20065	4-1/2	1/4	7/8	13,300	25	100	9
20160	20163	20165	4-1/2	1/4	5/8-11	13,300	10	40	6
20070	20073	20075	5	1/4	7/8	12,200	25	100	11
20170	20173	20175	5	1/4	5/8-11	12,200	10	40	6
20078	20079	20280	6	1/4	7/8	10,200	25	50	18
20178	20176	20180	6	1/4	5/8-11	10,200	10	40	10
20081	20080	20285	7	1/4	7/8	8,500	25	50	24
20085	20086	20185	7	1/4	5/8-11	8,500	10	40	14
20091	20090	20295	9	1/4	7/8	6,600	25	50	42
20095	20096	20195	9	1/4	5/8-11	6,600	10	40	20



Quick Tip
The "softer" a grinding wheel is (A24N) the faster it will remove metal.

.045" GENERAL PURPOSE CUTTING WHEELS

- Unique, thin Type 27 shape can be used on all angle grinders in accordance with ANSI B7.1.
- Special aluminum oxide formulation offers the fastest cutting, longest lasting thin wheels.
- Externally reinforced with fiberglass layers to provide ultimate safety in a thin wheel.

TYPE 27 DEPRESSED CENTER WHEELS

A60S – GENERAL PURPOSE PATENTED!

- So unique it has a patent.
- Thin .045" width.
- Special aluminum oxide grain.
- Hard bond for extremely long life.
- **Fast, burr-free cutting.**

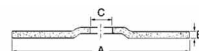
METAL Ferrous and/or non-ferrous metals (iron, steel, welds, etc.)



A46N – ALUMINUM (NON-FERROUS METALS)

- Aluminum oxide grain.
- Thin .045" width.
- **Soft bond for aggressive cutting without loading.**

ALUMINUM Non-ferrous Metals (aluminum, copper, brass, etc.)



GRADES AVAILABLE		SIZE			MAX. RPM	QTY. PER BOX	QTY. PER CTN.	LBS. PER BOX
PART NUMBER	PART NUMBER	A	B	C				
A60S	A46N	DIA.	WIDTH	BORE				
22011	22340	4	.045	5/8	19,000	50	200	4
22021	22345	4-1/2	.045	7/8	13,300	50	200	4
23318	23320	4-1/2	.045	5/8-11	13,300	10	40	2
22071	22350	5	.045	7/8	12,200	50	200	6
23305	23307	5	.045	5/8-11	12,200	10	-	2
22047	22360	6	.045	7/8	10,200	50	200	8
22053	22370	7	.045	7/8	8,500	50	200	14

**FOR OTHER
TYPES, STYLES,
AND SIZES,
PLEASE CONSULT
OUR
SALES STAFF**



SAIT SPECIALTY CUTTING WHEELS .090" SPECIALTY CUTTING WHEELS

- Unique, thin Type 27 shape can be used on all angle grinders in accordance with ANSI B7.1.
- Special bond formulation offers the fastest cutting, longest lasting thin wheels.
- Externally reinforced with fiberglass layers to provide ultimate safety in a thin wheel.
- Saitech™ is manufactured with patented 3M® ceramic abrasive grain to outlast standard aluminum oxide wheels.

TYPE 27 DEPRESSED CENTER WHEELS

A60S – GENERAL PURPOSE

- Thin .090 width.
 - Special aluminum oxide grain.
 - Hard bond for extremely long life.
 - Excellent for notching and cutting.
- METAL** Ferrous and/or non-ferrous metals (iron, steel, welds, etc.)



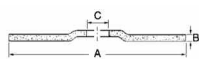
Z-TECH HIGH PERFORMANCE PATENTED!

- Tough zirconium grain.
 - High performance cutting and notching for the toughest applications.
- METAL** Ferrous metals (iron, steel, welds, etc.)
STAINLESS Stainless steel, high tensile alloys



SAITECH™ ULTIMATE PERFORMANCE™

- High performance, ceramic aluminum oxide grain.
 - Very uniform, high density grain structure is extremely durable and self sharpening for long life and cooler cut.
 - Combines fast cutting with extremely long life for tough cutting applications.
 - Ideal for foundry applications (gates, risers).
- STAINLESS** Stainless steel, high tensile alloys
METAL Ferrous metals (iron, steel, welds, etc.)



GRADES AVAILABLE			SIZE			QTY. PER BOX	QTY. PER CTN.	LBS. PER BOX	
A60S	Z-tech™	Saitech™	A DIA.	B WIDTH	C BORE				
20902	20942	20922	4	.090	5/8	19,000	25	100	4
20903	20943	20923	4-1/2	.090	7/8	13,300	25	100	4
20913	20953	20933	4-1/2	.090	5/8-11	13,300	10	40	5
20904	20944	20924	5	.090	7/8	12,200	25	100	6
20914	20954	-	5	.090	5/8-11	12,200	10	40	5
20905	20945	20925	6	.090	7/8	10,200	25	100	8
20915	20955	20935	6	.090	5/8-11	10,200	10	40	7
20906	20946	20926	7	.090	7/8	8,500	25	100	14
20916	20956	20936	7	.090	5/8-11	8,500	10	40	11
20909	-	-	9	.090	7/8	6,600	25	50	21
20919	-	-	9	.090	5/8-11	6,600	10	40	11

Note: Reusable 5/8-11 adaptor for use on Type 1 and Type 27 reinforced wheels with a 7/8" arbor, a max. diameter of 5" and a wheel thickness of .045 to 1/8" available (Part No. 95055).

HIGH PERFORMANCE/STAINLESS STEEL GRINDING WHEELS

1/4" TYPE 27 SAITECH™

HIGH PERFORMANCE GRINDING WHEELS

- Manufactured with patented 3M® ceramic abrasive grain to outlast standard aluminum oxide wheels.
- Special bonding formula allows for very fast stock removal on many types of metals.
- Designed to provide very long life for fewer wheel changes and less downtime.
- All sizes reinforced with the highest quality fiberglass for maximum safety and performance.
- Our unique Super-Lock™ Hub combines both a mechanical locking system and chemical bond providing one of the safest, vibration-free designs in the industry.

TYPE 27 SAITECH HIGH PERFORMANCE WHEELS

SAITECH ATTACHED®

- High performance, ceramic aluminum oxide grain.
- Very uniform, high density grain structure is extremely durable and self sharpening for long life and cooler cut.
- Extremely fast stock removal on hard metals with minimal pressure.

STAINLESS Stainless steel and other high tensile alloys

METAL Ferrous metals (iron, steel, welds, etc.)

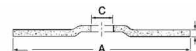


SAITECH ULTIMATE PERFORMANCE™

- High performance, ceramic aluminum oxide grain.
- Very uniform, high density grain structure is extremely durable and self sharpening for long life and cooler cut.
- Combines fast stock

STAINLESS Stainless steel and other high tensile alloys

METAL Ferrous metals (iron, steel, welds, etc.)



GRADES AVAILABLE		SIZE			QTY. PER BOX	QTY. PER CTN.	LBS. PER PER BOX	
ATTACKER®	SAITECH™ UP	A DIA.	B WIDTH	C BORE				
-	20101	3	3/16	3/8	18,000	25	100	3
-	20112	4	1/4	3/8	13,500	25	100	7
-	20014	4	1/4	5/8	13,500	25	100	8
20046	20064	4-1/2	1/4	7/8	13,300	25	100	11
20146	20164	4-1/2	1/4	5/8-11	13,300	10	40	6
20047	20074	5	1/4	7/8	12,200	25	100	13
20147	20174	5	1/4	5/8-11	12,200	10	40	8
20048	20084	7	1/4	7/8	8,500	25	50	28
20148	20089	7	1/4	5/8-11	8,500	10	40	14
20049	20094	9	1/4	7/8	6,600	25	50	43
20149	20099	9	1/4	5/8-11	6,600	10	40	21

**FOR OTHER TYPES, STYLES, AND
SIZES, PLEASE CONSULT
OUR SALES STAFF**

TAPE BLACK ELECTRICAL TAPE

- Flame retardant, cold weather resistant.
- U.L. approved.
- 7 mil vinyl.



PART NO.	SIZE	CASE QTY.	CASE WEIGHT
ETB	3/4" x 60 ft.	10 / 200	36.00

GENERAL PURPOSE DUCTape™ (PRINT-WRAPPED)

- Utility grade, poly coated cloth backing with a very aggressive adhesive that bonds to almost any surface.
- Good conformability, is water resistant and tear resistant.



PART NO.	ROLL DIMENSIONS	CASE QTY.	CASE SIZE	CASE CUBE	CASE WEIGHT
DT 260	1.87 in. x 60 yds (48mm x 54.8m)	24	12 x 12 x 11.62	1.1	32

SAFETY TAPE CAUTION TAPE

- Non-pressure sensitive vinyl barricade ribbon.
- High visibility, 3 in. wide.
- A variety of legends available such as: "Danger Do Not Enter" (Red) and "Caution Do Not Enter" (Yellow).



PART NO.	ROLL DIMENSIONS	LEGEND	CASE QTY.	CASE WEIGHT
CT	3 in. x 1,000 ft.	Caution	8	23.04
DANGER TAPE	3 in. x 1,000 ft.	Danger	8	20.00



SYNTHETIC LEATHER MECHANIC'S GLOVES

Tool Handz® 99PLUS-BLK

- Titan 2® synthetic leather palm.
- Reinforced palm and fingers.
- Snug spandex fit.

PART NO.	SIZES
99PLUS-BLK	5 - 2XL



Tool Handz® 99PLUS-BLUE

- Blue version of 99PLUS-BLK.

PART NO.	SIZES
99PLUS-BLUE	5 - 2XL



Tool Handz® 99PRO-BLK

- Titan 2® synthetic leather palm.
- Single palm dexterity.
- Sweat wipe.
- Snug spandex fit.

PART NO.	SIZES
99PRO-BLK	5 - 2XL



FlexHAND 19FX-BLK

- Synthetic leather palm.
- Reinforced palm.
- Snug spandex fit.

PART NO.	SIZES
19FX-BLK	5 - 2XL



FlexHAND 19FX-ORA

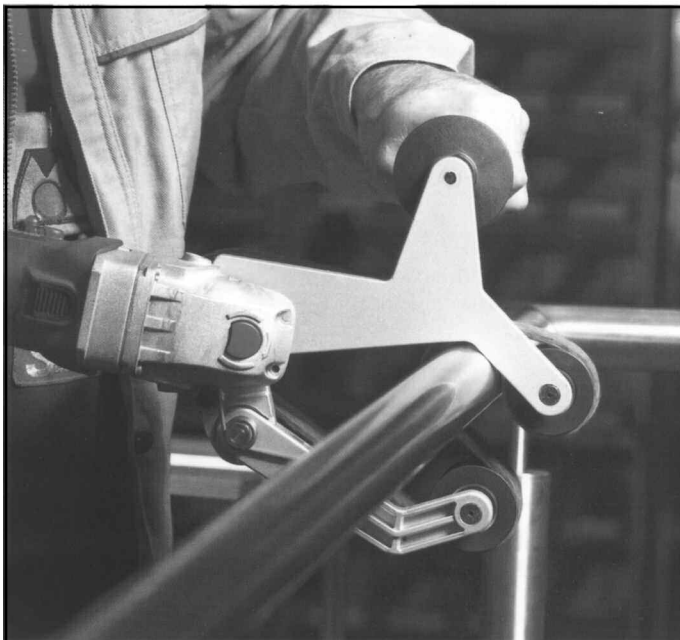
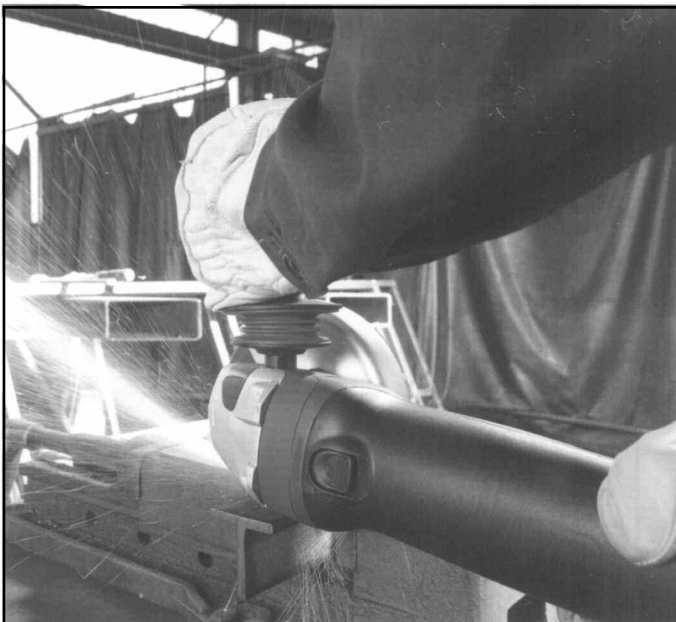
- Orange version of 19FX-BLK.

PART NO.	SIZES
10FX-ORA	5 - 2XL



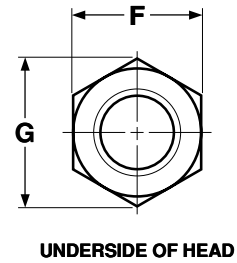
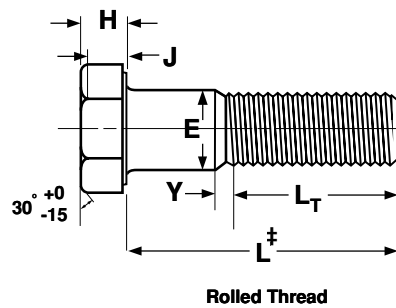
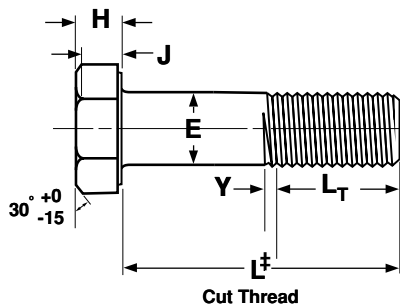
metabo®

POWER TOOLS, ACCESSORIES AND ABRASIVES



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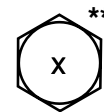
metabo®
work. don't play.



‡Length of a cap screw is measured from the underhead bearing surface to the extreme end of the screw.

HEX CAP SCREWS															ASME B18.2.1-1996	
Nominal or Basic Product Diameter		E		F			G		H			J	L _T		Y	
		Body Diameter		Width Across Flats			Width Across Corners		Head Height			Wrenching Height	Thread Length		Transition Thread Length	
		Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min		Min	For Screw Lengths ≤ 6 in. Ref		For Screw Lengths > 6 in. Ref	Max
1/4	0.2500	0.2500	0.2450	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150	0.106	0.750	1.000	0.250	
5/16	0.3125	0.3125	0.3065	1/2	0.500	0.489	0.577	0.557	13/64	0.211	0.195	0.140	0.875	1.125	0.278	
3/8	0.3750	0.3750	0.3690	9/16	0.562	0.551	0.650	0.628	15/64	0.243	0.226	0.160	1.000	1.250	0.312	
7/16	0.4375	0.4375	0.4305	5/8	0.625	0.612	0.722	0.698	9/32	0.291	0.272	0.195	1.125	1.375	0.357	
1/2	0.5000	0.5000	0.4930	3/4	0.750	0.736	0.866	0.840	5/16	0.323	0.302	0.215	1.250	1.500	0.385	
9/16	0.5625	0.5625	0.5545	13/16	0.812	0.798	0.938	0.910	23/64	0.371	0.348	0.250	1.375	1.625	0.417	
5/8	0.6250	0.6250	0.6170	15/16	0.938	0.922	1.083	1.051	25/64	0.403	0.378	0.269	1.500	1.750	0.455	
3/4	0.7500	0.7500	0.7410	1-1/8	1.125	1.100	1.299	1.254	15/32	0.483	0.455	0.324	1.750	2.000	0.500	
7/8	0.8750	0.8750	0.8660	1-5/16	1.312	1.285	1.516	1.465	35/64	0.563	0.531	0.378	2.000	2.250	0.556	
1	1.0000	1.0000	0.9900	1-1/2	1.500	1.469	1.732	1.675	39/64	0.627	0.591	0.416	2.250	2.500	0.625	
1-1/8	1.1250	1.1250	1.1140	1-11/16	1.688	1.631	1.949	1.859	11/16	0.718	0.658	0.461	2.500	2.750	0.714	
1-1/4	1.2500	1.2500	1.2390	1-7/8	1.875	1.812	2.165	2.066	25/32	0.813	0.749	0.530	2.750	3.000	0.714	
1-1/2	1.5000	1.5000	1.4880	2-1/4	2.250	2.175	2.598	2.480	1-5/16	0.974	0.902	0.640	3.250	3.500	0.833	

Tolerance on Length	Nominal Screw Size	Nominal Screw Length				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Longer than 6 in.
	1/4 to 3/8	-0.03	-0.04	-0.06	-0.10	-0.18
	7/16 and 1/2	-0.03	-0.06	-0.08	-0.10	-0.18
	9/16 to 3/4	-0.03	-0.08	-0.10	-0.10	-0.18
	7/8 and 1	....	-0.10	-0.14	-0.16	-0.20
	1-1/8 to 1-1/2	....	-0.12	-0.16	-0.18	-0.22



GRADE-2 HEX CAP SCREW

Description	A low or medium carbon steel, externally threaded mechanical device 1/4" diameter or larger, with a trimmed hex head and a washer face on the bearing surface.
Applications/ Advantages	Economical for use in non-critical applications where the fastener is not subject to extreme temperatures or stress beyond the limits listed herein.
Material	AISI 1006 - 1050 or equivalent steel.
Hardness	1/4 through 3/4 in. diameter, 6 in. and shorter in length: Rockwell B80 - B100. 1/4 through 3/4 in. diameter, over 6 in. in length: Rockwell B70 - B100. 7/8 through 1-1/2 in. diameter, all lengths: Rockwell B70 - B100.
Proof Load	1/4 through 3/4 in. diameter, 6 in. and shorter in length: 55,000 psi. 1/4 through 3/4 in. diameter, over 6 in. in length: 33,000 psi. 7/8 through 1-1/2 in. diameter, all lengths: 33,000 psi.
Yield Strength*	1/4 through 3/4 in. diameter, 6 in. and shorter in length: 57,000 psi. minimum. 1/4 through 3/4 in. diameter, over 6 in. in length: 36,000 psi. minimum. 7/8 through 1-1/2 in. diameter, all lengths: 36,000 psi. minimum.
Tensile Strength	1/4 through 3/4 in. diameter, 6 in. and shorter in length: 74,000 psi. minimum. 1/4 through 3/4 in. diameter, over 6 in. in length: 60,000 psi. minimum. 7/8 through 1-1/2 in. diameter, all lengths: 60,000 psi. minimum.
Elongation*	18% minimum (all diameters)
Reduction of Area*	35% minimum (all sizes)
Plating	See Appendix-A for plating information



HEX CAP SCREW--STAINLESS STEEL, 18-8 & 316



Description	18-8 and 316 stainless steel cap screws are both made from austenitic alloys as described below.
Applications/ Advantages	18-8: Used in products that require general atmospheric corrosion resistance, such as chemical and food-processing equipment. Some chemical environments may require special corrosion resistant materials and precautions. 316: The molybdenum content gives this type of stainless even greater corrosion resistance than 18-8 as well as superior strength at high temperatures.
Material	18-8: A cap screw made from one of the following austenitic alloys: 303, 303Se, 304, XM7, all of which are characterized as having a chromium content of 17-19% and nickel content of 8-10%. 316: A cap screw made from 316 stainless steel, an austenitic alloy which differs from 18-8 by its molybdenum content (2-3%) and a higher nickel content (10-14%).
Heat Treatment	The austenitic alloys develop their strength through work hardening during the fastener manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys is annealing, which is done at approximately 1900°F to a dead soft condition and is not normally thermally reversible.
Hardness	1/4 through 5/8 in. diameter: Rockwell B95 - C32 3/4 through 1 in. diameter: Rockwell B80 - C32
Yield Strength*	1/4 through 5/8 in. diameter, 2.25D and longer: 65,000 psi. minimum 3/4" (2.25D & longer) & 7/8 through 1 in. diameter (3D & longer): 45,000 psi. minimum
Tensile Strength	1/4 through 5/8 in. diameter, 2.25D and longer: 100,000 - 150,000 psi. 3/4" (2.25D & longer) & 7/8 through 1 in. diameter (3D & longer): 85,000 - 140,000 psi.
Elongation in 4D*	1/4 through 5/8 in. diameter: 20% minimum; 3/4 through 1 in. diameter: 25% minimum.

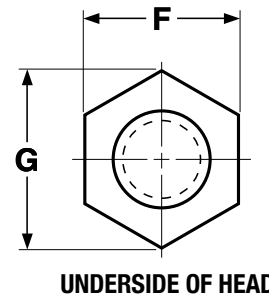
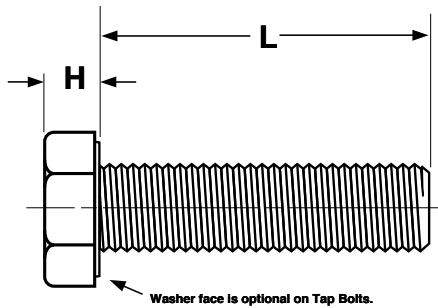
D = Nominal diameter of the screw in inches

*These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.

**Product standards require the manufacturer's head marking to appear on the top of all cap screws 1/4" diameter and larger. "X" represents one location such a marking may appear.

HEX TAP BOLTS

A307, Grades 5 & 8



±Length of a tap bolt is measured from the underhead bearing surface to the extreme end of the bolt.

FULLY THREADED HEX TAP BOLTS									IFI-199 (2014)
Nominal or Basic Product Diameter	F			G		H			
	Width Across Flats			Width Across Corners		Head Height			
	Basic	Max.	Min.	Max.	Min.	Basic	Max.	Min.	
1/4	7/16	0.438	0.425	0.505	0.484	11/64	0.188	0.150	
5/16	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	
3/8	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	
7/16	5/8	0.625	0.603	0.722	0.667	19/64	0.316	0.272	
1/2	3/4	0.750	0.725	0.866	0.826	11/32	0.364	0.302	
* 9/16	13/16	0.812	0.798	0.938	0.910	23/64	0.371	0.348	
5/8	15/16	0.938	0.906	1.083	1.033	27/64	0.444	0.378	
3/4	1 1/8	1.125	1.088	1.299	1.240	1/2	0.524	0.455	
7/8	1 5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	
1	1 1/2	1.500	1.450	1.732	1.653	43/64	0.700	0.591	
1 1/4	1 7/8	1.875	1.812	2.165	2.066	27/32	0.876	0.749	

Tolerance on Length	Nominal Screw Size	Nominal Size				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Over 6 in.
	1/4 to 3/8	+0.02 -0.03	+0.02 -0.04	+0.04 -0.06	+0.06 -0.10	+0.10 -0.18
7/16 and 1/2	+0.02 -0.03	+0.04 -0.06	+0.06 -0.08	+0.08 -0.10	+0.12 -0.18	
9/16 to 3/4	+0.02 -0.03	+0.06 -0.08	+0.08 -0.10	+0.10 -0.10	+0.14 -0.18	
7/8 and 1	...	+0.08 -0.10	+0.10 -0.14	+0.12 -0.16	+0.16 -0.20	
1 1/4	...	+0.12 -0.12	+0.16 -0.16	+0.18 -0.18	+0.22 -0.22	

* Dimensions for 9/16" nominal diameter are independent of the IFI-199 standard.

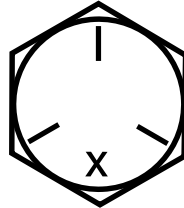
A307, Grades 5, 8 & 18-8 SS

HEX TAP BOLTS

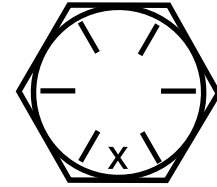
A307
Headmark



Grade-5
Headmark



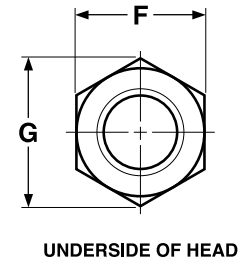
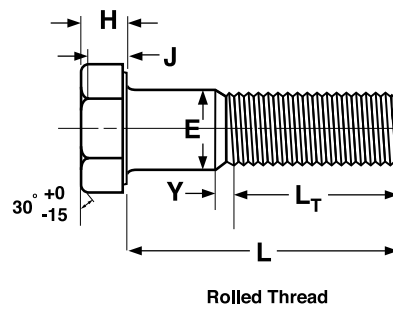
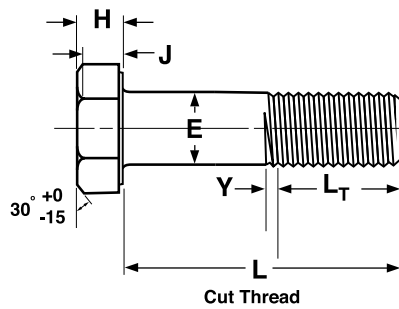
Grade-8
Headmark



Description	<p>ASTM A307 Tap Bolt: A low carbon, hex head bolt with a machined point which is threaded to the head.</p> <p>Grade-5 Tap Bolt: A tap bolt made from medium carbon steel.</p> <p>Grade-8 Tap Bolt: A tap bolt made from medium carbon alloy steel and heat-treated.</p> <p>Stainless Tap Bolt: A tap bolt made from 18-8 stainless steel.</p>
Applications/ Advantages	<p>ASTM A307 Tap Bolt: To be used in drilled and tapped holes which are threaded full length. Used instead of a stud and a nut.</p> <p>Grade-5 Tap Bolt: Used to mount motors to machinery; also popular in automotive and truck repair.</p> <p>Grade-8 Tap Bolt: Used in automotive and fleet industries where greater tensile strength is required than can be met by a grade-5.</p> <p>Stainless Tap Bolt: Used in environments corrosive to carbon steel, in tapped holes that are threaded full length.</p>
Material	<p>ASTM A307 Tap Bolt: Bolts shall be made from a carbon steel which conforms to the following chemical composition requirements--Carbon: 0.33 maximum; Manganese: 0.93; Phosphorous: 0.041</p> <p>Grade-5 Tap Bolt: AISI 1030 - 1541 or equivalent medium carbon steel. Use of an alloy such as 4037 modified steel is also acceptable.</p> <p>Grade-8 Tap Bolt: Medium carbon alloy steel. Note: For diameters 1/4 thru 7/16 inch, it is permissible to use AISI 1541 steel.</p> <p>Stainless Tap Bolt: 18-8 Stainless steel</p>
Heat Treatment	<p>Grade-5 Tap Bolt: Bolts shall be heat treated, oil or water quenched, at the option of the manufacturer, and tempered at a minimum tempering temperature of 800°F.</p> <p>Grade-8 Tap Bolt: Bolts shall be heat treated, oil quenched and tempered at a minimum tempering temperature of 800°F.</p>
Core Hardness	<p>ASTM A307 Tap Bolt: Rockwell B69 - B100</p> <p>Grade-5 Tap Bolt: Rockwell C25 - C34</p> <p>Grade-8 Tap Bolt: Rockwell C33 - C39</p> <p>Stainless Tap Bolt: 1/4 thru 5/8" diam: Rockwell B95 - C32</p>
Surface Hardness	<p>Grade-5 Tap Bolt: Rockwell 30N54 maximum</p> <p>Grade-8 Tap Bolt: Rockwell 30N58.6 maximum</p>
Proof Load	<p>Grade-5 Tap Bolt: 85,000 psi.</p> <p>Grade-8 Tap Bolt: 120,000 psi.</p>
Yield Strength*	<p>Grade-5 Tap Bolt: 92,000 psi. minimum</p> <p>Grade-8 Tap Bolt: 130,000 psi. minimum</p> <p>Stainless Tap Bolt: 1/4 thru 5/8" diam: 60,000 psi. minimum</p>
Tensile Strength	<p>ASTM A307 Tap Bolt: 60,000 psi. minimum</p> <p>Grade-5 Tap Bolt: 120,000 psi. minimum</p> <p>Grade-8 Tap Bolt: 150,000 psi. minimum</p> <p>Stainless Tap Bolt: 1/4 thru 5/8" diam: 95,000 psi. minimum</p>
Elongation*	<p>ASTM A307 Tap Bolt: 18% minimum</p> <p>Grade-5 Tap Bolt: 14% minimum</p> <p>Grade-8 Tap Bolt: 12% minimum</p>
Reduction of Area*	<p>Grades 5 & 8 Tap Bolts: 35% minimum (all sizes)</p>
Plating	<p>See Appendix-A for plating information.</p>

* These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.

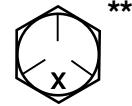
**Product standards require the manufacturer's head marking to appear on the top of all bolts 1/4" diameter and larger. "X" represents one location such a marking may appear.



±Length of a cap screw is measured from the underhead bearing surface to the extreme end of the screw.

HEX CAP SCREWS															ASME B18.2.1-1996
Nominal or Basic Product Diameter		E		F			G		H			J	L _T		Y
		Body Diameter		Width Across Flats			Width Across Corners		Head Height			Wrenching Height	Thread Length		Transition Thread Length
		Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min		Min	For Screw Lengths ≤ 6 in.		For Screw Lengths > 6 in.	Max
1/4	0.2500	0.2500	0.2450	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150	0.106	0.750	1.000	0.250
5/16	0.3125	0.3125	0.3065	1/2	0.500	0.489	0.577	0.557	13/64	0.211	0.195	0.140	0.875	1.125	0.278
3/8	0.3750	0.3750	0.3690	9/16	0.562	0.551	0.650	0.628	15/64	0.243	0.226	0.160	1.000	1.250	0.312
7/16	0.4375	0.4375	0.4305	5/8	0.625	0.612	0.722	0.698	9/32	0.291	0.272	0.195	1.125	1.375	0.357
1/2	0.5000	0.5000	0.4930	3/4	0.750	0.736	0.866	0.840	5/16	0.323	0.302	0.215	1.250	1.500	0.385
9/16	0.5625	0.5625	0.5545	13/16	0.812	0.798	0.938	0.910	23/64	0.371	0.348	0.250	1.375	1.625	0.417
5/8	0.6250	0.6250	0.6170	15/16	0.938	0.922	1.083	1.051	25/64	0.403	0.378	0.269	1.500	1.750	0.455
3/4	0.7500	0.7500	0.7410	1-1/8	1.125	1.100	1.299	1.254	15/32	0.483	0.455	0.324	1.750	2.000	0.500
7/8	0.8750	0.8750	0.8660	1-5/16	1.312	1.285	1.516	1.465	35/64	0.563	0.531	0.378	2.000	2.250	0.556
1	1.0000	1.0000	0.9900	1-1/2	1.500	1.469	1.732	1.675	39/64	0.627	0.591	0.416	2.250	2.500	0.625
1-1/8	1.1250	1.1250	1.1140	1-11/16	1.688	1.631	1.949	1.859	11/16	0.718	0.658	0.461	2.500	2.750	0.714
1-1/4	1.2500	1.2500	1.2390	1-7/8	1.875	1.812	2.165	2.066	25/32	0.813	0.749	0.530	2.750	3.000	0.714
1-1/2	1.5000	1.5000	1.4880	2-1/4	2.250	2.175	2.598	2.480	1-5/16	0.974	0.902	0.640	3.250	3.500	0.833

Tolerance on Length	Nominal Screw Size	Nominal Screw Length				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Longer than 6 in.
	1/4 to 3/8	-0.03	-0.04	-0.06	-0.10	-0.18
	7/16 and 1/2	-0.03	-0.06	-0.08	-0.10	-0.18
	9/16 to 3/4	-0.03	-0.08	-0.10	-0.10	-0.18
	7/8 and 1	....	-0.10	-0.14	-0.16	-0.20
1-1/8 to 1-1/2	....	-0.12	-0.16	-0.18	-0.22	



GRADE-5 HEX CAP SCREW

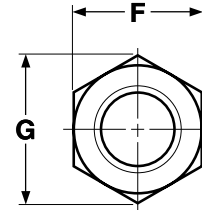
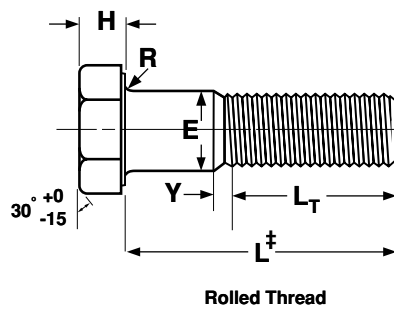
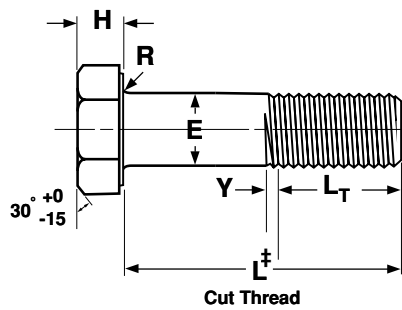
Description	A cap screw made from medium carbon steel and heat-treated.
Applications/ Advantages	Has greater tensile strength than a Grade-2. Yield-to-tensile ratio is the lowest of all heat treated steels.
Heat Treatment	Grade-5 cap screws shall be heat treated, oil or water quenched, at the option of the manufacturer, and tempered at a minimum tempering temperature of 800°F.
Material	Medium carbon steel. Use of an alloy steel is also acceptable.
Core Hardness	<i>1/4 through 1 in. diameter, all lengths:</i> Rockwell C25 - C34. <i>1-1/8 through 1-1/2 in. diameter, all lengths:</i> Rockwell C19 - C30.
Surface Hardness	<i>1/4 through 1 in. diameter, all lengths:</i> Rockwell 30N54 maximum. <i>1-1/8 through 1-1/2 in. diameter, all lengths:</i> Rockwell 30N50 maximum.
Proof Load	<i>1/4 through 1 in. diameter, all lengths:</i> 85,000 psi. <i>1-1/8 through 1-1/2 in. diameter, all lengths:</i> 74,000 psi.
Yield Strength*	<i>1/4 through 1 in. diameter, all lengths:</i> 92,000 psi. minimum <i>1-1/8 through 1-1/2 in. diameter, all lengths:</i> 81,000 psi. minimum
Tensile Strength	<i>1/4 through 1 in. diameter, all lengths:</i> 120,000 psi. minimum <i>1-1/8 through 1-1/2 in. diameter, all lengths:</i> 105,000 psi. minimum
Elongation*	14% minimum (all diameters)
Reduction of Area*	35% minimum (all sizes)
Plating	See Appendix-A for plating information.



GRADE-8 HEX CAP SCREW

Description	A cap screw made from medium carbon alloy steel and heat-treated.
Applications/ Advantages	Has greater tensile strength than a Grade-5. Designed for use in high stress applications. See specifications below for more information on how the Grade-8 exceeds the strength of a Grade-5.
Heat Treatment	Grade-8 cap screws shall be heat-treated, oil-quenched and tempered at a minimum temperature of 800°F.
Material	Medium carbon alloy steel. Note: For diameters 1/4 through 7/16 inch, it is permissible to use AISI 1541 steel.
Core Hardness	<i>1/4 through 1-1/2 in. diameter, all lengths:</i> Rockwell C33 - C39.
Surface Hardness	<i>1/4 through 1-1/2 in. diameter, all lengths:</i> Rockwell 30N58.6 maximum.
Proof Load	<i>1/4 through 1-1/2 in. diameter, all lengths:</i> 120,000 psi.
Yield Strength*	<i>1/4 through 1-1/2 in. diameter, all lengths:</i> 130,000 psi. minimum
Tensile Strength	<i>1/4 through 1-1/2 in. diameter, all lengths:</i> 150,000 psi. minimum
Elongation*	12% minimum (all diameters)
Reduction of Area*	35% minimum (all sizes)
Plating	See Appendix-A for plating information.

*These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.
 **Product standards require the manufacturer's head marking to appear on the top of all cap screws 1/4" diameter and larger. "X" represents on location such a marking may appear.



‡Length of a structural bolt is measured from the underhead bearing surface to the extreme end of the bolt.

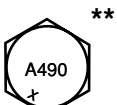
STRUCTURAL BOLTS, A325 & A490															ASME 18.2.6-1996	
Nominal Size or Basic Product Diameter		E		F			G		H			R		L _T	Y	
		Body Diameter		Width Across Flats			Width Across Corners		Head Height			Radius of Fillet		Thread Length	Transition Thread Length	
		Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Ref	Max, Ref	
1/2	0.5000	0.515	0.482	7/8	0.875	0.850	1.010	0.969	5/16	0.323	0.302	0.031	0.009	1.00	0.19	
5/8	0.6250	0.642	0.605	1-1/16	1.062	1.031	1.227	1.175	25/64	0.403	0.378	0.062	0.021	1.25	0.22	
3/4	0.7500	0.768	0.729	1-1/4	1.250	1.212	1.443	1.383	15/32	0.483	0.455	0.062	0.021	1.38	0.25	
7/8	0.8750	0.895	0.852	1-7/16	1.438	1.394	1.660	1.589	35/64	0.563	0.531	0.062	0.031	1.50	0.28	
1	1.0000	1.022	0.976	1-5/8	1.625	1.575	1.876	1.796	39/64	0.627	0.591	0.093	0.062	1.75	0.31	
1 1/8	1.1250	1.149	1.098	1-13/16	1.812	1.756	2.093	2.002	11/16	0.718	0.658	0.093	0.062	2.00	0.34	
1 1/4	1.2500	1.277	1.223	2	2.000	1.938	2.309	2.209	25/32	0.813	0.749	0.093	0.062	2.00	0.38	
1 3/8	1.3750	1.404	1.345	2-3/16	2.188	2.119	2.526	2.416	27/32	0.878	0.810	0.093	0.062	2.25	0.44	
1 1/2	1.5000	1.531	1.470	2-3/8	2.375	2.300	2.742	2.622	15/16	0.974	0.902	0.093	0.062	2.25	0.44	

Tolerance on Length	Nominal Screw Size	Nominal Screw Length	
		Through 6 in.	Over 6 in.
	1/2	-0.12	-0.19
	5/8	-0.12	-0.25
	3/4 through 1	-0.19	-0.25
1 1/8 through 1 1/2	-0.25	-0.25	



ASTM A325 BOLTS, Type 1

Description	A heavy hex bolt made of medium carbon steel. The bearing surface shall be flat and washer faced, and the point is chamfered.
Applications/ Advantages	Commonly used in structural steel joints in heavy construction.
Material	Type 1 bolts shall be made from a carbon steel which conforms to the following chemical composition requirements-- <i>Carbon: 0.25-0.58%; Manganese: 0.57% minimum; Phosphorus: 0.048% maximum; Sulfur: 0.058% maximum</i>
Heat Treatment	Type 1 bolts shall be heat treated by quenching in a liquid medium from above the austenitizing temperature and then tempering by reheating to a temperature of at least 800°F.
Hardness	1/2" through 1" diameter, inclusive: Rockwell C24 - 35 1-1/8" through 1-1/2" diameter, inclusive: Rockwell C19 - 31
Proof Load	1/2" through 1" diameter, inclusive: 85,000 psi. 1-1/8" through 1-1/2" diameter, inclusive: 74,000 psi.
Yield Strength	1/2" through 1" diameter, inclusive: 92,000 psi. minimum 1-1/8" through 1-1/2" diameter, inclusive: 81,000 psi. minimum
Tensile Strength	1/2" through 1" diameter, inclusive: 120,000 psi. minimum 1-1/8" through 1-1/2" diameter, inclusive: 105,000 psi. minimum
Plating	See Appendix-A for plating information.



Type 1

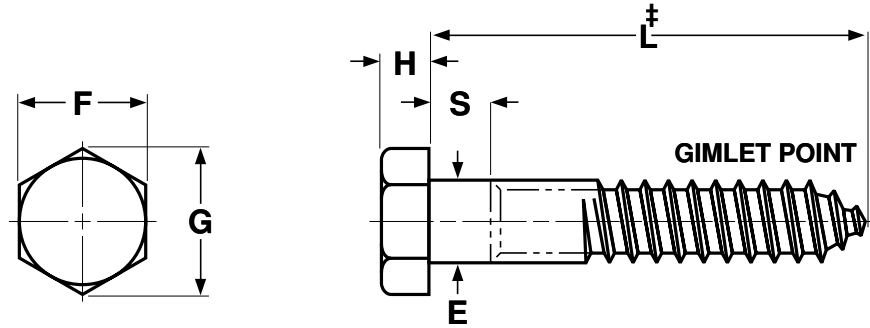


Type 3

ASTM A490 BOLTS, Types 1 & 3

Description	A heavy hex bolt made of alloy steel. The bearing surface shall be flat and washer-faced, and the point is chamfered.
Applications/ Advantages	Used in structural steel joints in heavy construction when greater yield and tensile strengths than those of an A325 bolt are required. A Type 3 bolt is approximately twice as resistant to corrosion as a Type 1 bolt.
Material	Type 1 bolts shall be made from an alloy steel which conforms to the following chemical composition requirements-- <i>Carbon: 0.28-0.50% (for 1-1/2" diameter: 0.33-0.55%); Phosphorus: 0.045% maximum; Sulfur: 0.045% maximum.</i> Type 3 bolts shall be made from a corrosion resistant steel which conforms to the following chemical composition requirements-- <i>Carbon: 0.19-0.55%; Manganese: 0.37% minimum; Phosphorus: 0.045% maximum; Sulfur: 0.055% maximum; Copper: 0.63% maximum; Chromium: 0.42% minimum; Nickel: 0.17% minimum; Molybdenum: 0.14% minimum.</i>
Heat Treatment	Type 1 bolts shall be heat treated by quenching in oil from above the transformation temperature. Type 3 bolts shall be quenched in a suitable liquid from above the transformation temperature. Type 1 and Type 3 bolts shall be tempered by reheating to a temperature of at least 800°F.
Hardness	Rockwell C33 - 38
Proof Load	120,000 psi.
Yield Strength	130,000 psi. minimum
Tensile Strength	150,000 - 170,000 psi.
Plating	See Appendix-A for plating information.

**Product standards require the manufacturer's head marking to appear on the top of all cap screws 1/4" diameter and larger. "X" represents one location such a marking may appear.



HEX LAG SCREWS													ASME B18.2.1-1996	
Basic Product Diameter		Threads Per Inch	E		F			G		H			S	
			Body or Shoulder Diameter		Width Across Flats			Width Across Corners		Head Height			Shoulder Length	
			Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Min	
No. 10	0.1900	11	0.199	0.178	9/32	0.281	0.271	0.323	0.309	1/8	0.140	0.110	0.094	
1/4	0.2500	10	0.260	0.237	7/16	0.438	0.425	0.505	0.484	11/64	0.188	0.150	0.094	
5/16	0.3125	9	0.324	0.298	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	0.125	
3/8	0.3750	7	0.388	0.360	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	0.125	
7/16	0.4375	7	0.452	0.421	5/8	0.625	0.603	0.722	0.687	19/64	0.316	0.272	0.156	
1/2	0.5000	6	0.515	0.482	3/4	0.750	0.725	0.866	0.826	11/32	0.364	0.302	0.156	
5/8	0.6250	5	0.642	0.605	15/16	0.938	0.906	1.083	1.033	27/64	0.444	0.378	0.312	
3/4	0.7500	4-1/2	0.768	0.729	1-1/8	1.125	1.088	1.299	1.240	1/2	0.524	0.455	0.375	
7/8	0.8750	4	0.895	0.852	1-5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	0.375	

Tolerance on Length	Nominal Screw Size	Nominal Screw Length	
		Thru 6 in.	Over 6 in.
	1/2 and smaller	±0.12	±0.25
Over 1/2	±0.25	±0.25	

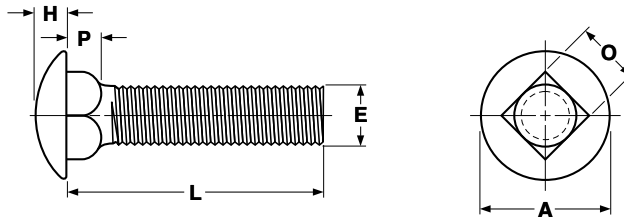
‡Length of a lag screw is measured from the underhead bearing surface to the extreme end of the screw.

Description	A full-bodied bolt with hex head, spaced threads and a gimlet point.
Applications/Advantages	Steel, Electro-plated Zinc: For use in wood in non-corrosive environments. Steel, Hot-Dip Galvanized: For use in corrosive environments. Stainless: Has superior corrosion resistance to galvanized steel bolts.
Material	Steel: AISI 1006 - 1022 or equivalent steel. Stainless: 18-8 stainless.
Heat Treatment	Stainless: The austenitic alloys develop their strength through work hardening during the fastener manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys is annealing, which is done at approximately 1900°F to a dead soft condition and is not normally thermally reversible.
Hardness	Steel: Rockwell B70 - B100. Stainless: 1/4 through 1/2 in. diameter-- Rockwell B95 - C32.
Tensile Strength	Steel: 60,000 psi. minimum Stainless: 100,000 - 125,000 psi. (approximate)
Minimum Thread Length	The minimum length of thread shall be equal to 1/2 the nominal screw length plus 0.50 in., or 5.00 in., whichever is shorter. Screws too short for this formula shall be threaded as close to the head as practicable.
Plating	See Appendix-A for information on the plating of steel lag bolts.

Cap Screws & Bolts

Carriage Bolts Round head, Square Neck

Low Carbon &
Hot-Dip Galvanized

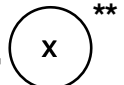


CARRIAGE BOLTS - ROUND HEAD, SQUARE NECK												ASME B18.5-1990
Basic Bolt Diameter		E		A		H		O		P		
		Body Diameter		Head Diameter		Head Height		Square Width		Square Depth		
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
•6	0.1380	0.122	0.108	0.313	0.278	0.086	0.071	0.160	0.135	0.094	0.062	
•8	0.1640	0.173	0.157	0.328	0.298	0.102	0.083	0.169	0.155	0.108	0.078	
10	0.1900	0.199	0.182	0.469	0.436	0.114	0.094	0.199	0.185	0.125	0.094	
•12	0.2160	0.225	0.206	0.500	0.468	0.149	0.125	0.215	0.197	0.135	0.105	
1/4	0.2500	0.260	0.237	0.594	0.563	0.145	0.125	0.260	0.245	0.156	0.125	
5/16	0.3125	0.324	0.298	0.719	0.688	0.176	0.156	0.324	0.307	0.187	0.156	
3/8	0.3750	0.388	0.360	0.844	0.782	0.208	0.188	0.388	0.368	0.219	0.188	
7/16	0.4375	0.452	0.421	0.969	0.907	0.239	0.219	0.452	0.431	0.250	0.219	
1/2	0.5000	0.515	0.483	1.094	1.032	0.270	0.250	0.515	0.492	0.281	0.250	
5/8	0.6250	0.642	0.605	1.344	1.219	0.344	0.313	0.642	0.616	0.344	0.313	
3/4	0.7500	0.768	0.729	1.594	1.469	0.406	0.375	0.768	0.741	0.406	0.375	

Tolerance on Length	Nominal Bolt Size	Nominal Bolt Length				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Over 6 in.
	No. 6 thru 3/8	+0.02 - 0.03	+0.02 - 0.04	+0.04 - 0.06	+0.06 - 0.10	+0.10 - 0.18
	7/16 and 1/2	+0.02 - 0.03	+0.04 - 0.05	+0.06 - 0.08	+0.08 - 0.10	+0.12 - 0.18
	9/16 thru 3/4	+0.02 - 0.03	+0.06 - 0.08	+0.08 - 0.10	+0.10 - 0.10	+0.14 - 0.18
		+0.02 - 0.03	+0.06 - 0.08	+0.08 - 0.10	+0.10 - 0.10	+0.14 - 0.18

±Length of a cap screw is measured from the underhead bearing surface to the extreme end of the screw.
ASME B18.5-1990 does not specify dimensions for the #6, #8 or #12 diameters. Data listed for these sizes is independent of the ASME specification.

LOW CARBON & HOT-DIP GALVANIZED CARRAIGE BOLT



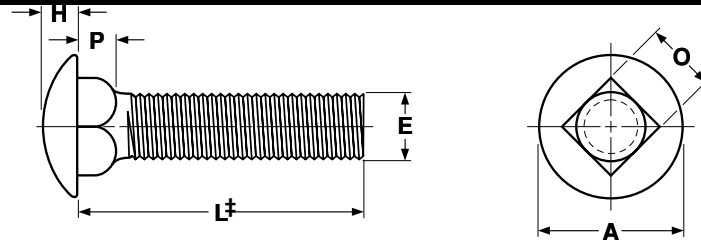
Description	<i>Low Carbon Steel Carriage:</i> Round head bolt with a square neck under the head, and a unified thread pitch. Made from low or medium carbon steel. <i>Hot-Dip Galvanized Steel Carriage:</i> Carriage bolt made from low or medium carbon steel with a galvanic zinc finish applied.
Applications/ Advantages	<i>Low Carbon Steel Carriage:</i> The square neck is designed to keep the bolt from turning as a nut is tightened. <i>Hot-Dip Galvanized Steel Carriage:</i> Same design advantages as a low carbon carriage bolt but with a thicker protective coating for outdoor use. Often used in outdoor furniture.
Material	<i>Low Carbon Steel & Hot-Dip Galvanized Steel Carriage:</i> AISI 1006 - 1050 or equivalent steel.
Core Hardness	<i>Low Carbon Steel & Hot-Dip Galvanized Steel Carriage:</i> Rockwell B70 - B100
Proof Load	<i>Low Carbon Steel Carriage:</i> 33,000 psi.
Yield Strength*	<i>Low Carbon Steel Carriage:</i> 36,000 psi. minimum
Tensile Strength	<i>Low Carbon Steel Carriage:</i> 60,000 psi. minimum
Elongation*	<i>Low Carbon Steel Carriage:</i> 18% minimum
Reduction of Area*	<i>Low Carbon Steel Carriage:</i> 35% minimum (all sizes)
Minimum Thread Length	The minimum length of thread shall be equal to twice the basic bolt diameter plus 0.25 in. for bolts 6 in. or shorter, and twice the diameter plus 0.50 in. for bolts longer than 6 in..
Plating	See Appendix-A for information on the plating of steel carriage bolts.

* These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.
**Product standards require the manufacturer's head marking to appear on the top of all bolts 1/4" diameter and larger. "X" represents one location such a marking may appear.

Cap Screws & Bolts

Carriage Bolts, Square Neck

Low Carbon &
Hot-Dip Galvanized



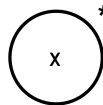
CARRIAGE BOLTS - SQUARE NECK											ASME B18.5-1990	
Basic Bolt Diameter		E		A		H		O		P		
		Body Diameter		Head Diameter		Head Height		Square Width		Square Depth		
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
•8	0.1640	0.173	0.157	0.328	0.298	0.102	0.083	0.169	0.155	0.108	0.078	
10	0.1900	0.199	0.182	0.469	0.436	0.114	0.094	0.199	0.185	0.125	0.094	
•12	0.2160	0.225	0.206	0.500	0.468	0.149	0.125	0.215	0.197	0.135	0.105	
1/4	0.2500	0.260	0.237	0.594	0.563	0.145	0.125	0.260	0.245	0.156	0.125	
5/16	0.3125	0.324	0.298	0.719	0.688	0.176	0.156	0.324	0.307	0.187	0.156	
3/8	0.3750	0.388	0.360	0.844	0.782	0.208	0.188	0.388	0.368	0.219	0.188	
7/16	0.4375	0.452	0.421	0.969	0.907	0.239	0.219	0.452	0.431	0.250	0.219	
1/2	0.5000	0.515	0.483	1.094	1.032	0.270	0.250	0.515	0.492	0.281	0.250	
5/8	0.6250	0.642	0.605	1.344	1.219	0.344	0.313	0.642	0.616	0.344	0.313	
3/4	0.7500	0.768	0.729	1.594	1.469	0.406	0.375	0.768	0.741	0.406	0.375	

Tolerance on Length	Nominal Bolt Size	Nominal Bolt Length				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Over 6 in.
	No. 8 thru 3/8	+0.02 -0.03	+0.02 -0.04	+0.04 -0.06	+0.06 -0.10	+0.10 -0.18
7/16 and 1/2	+0.02 -0.03	+0.04 -0.05	+0.06 -0.08	+0.08 -0.10	+0.12 -0.18	
9/16 thru 3/4	+0.02 -0.03	+0.06 -0.08	+0.08 -0.10	+0.10 -0.10	+0.14 -0.18	

‡Length of a carriage bolt is measured from the underhead bearing surface to the extreme end of the bolt.

• ASME B18.5-1990 does not specify dimensions for the #8 or #12 diameters. Data listed for these sizes is independent of the ASME specification.

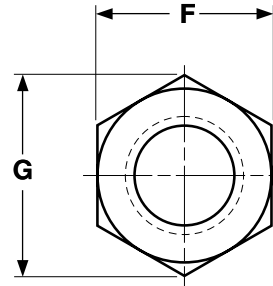
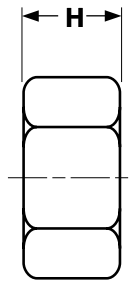
LOW CARBON & HOT-DIP GALVANIZED CARRIAGE BOLT



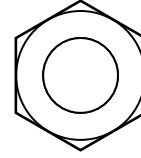
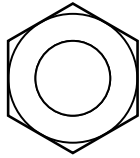
Description	<p>Low Carbon Steel Carriage: Round head bolt with a square neck under the head, and a unified thread pitch. Made from low or medium carbon steel.</p> <p>Hot-Dip Galvanized Steel Carriage: Carriage bolt made from low or medium carbon steel with a galvanic zinc finish applied.</p>
Applications/Advantages	<p>Low Carbon Steel Carriage: The square neck is designed to keep the bolt from turning as a nut is tightened.</p> <p>Hot-Dip Galvanized Steel Carriage: Same design advantages as a low carbon carriage bolt but with a thicker protective coating for outdoor use. Often used in outdoor furniture.</p>
Material	Low Carbon Steel & Hot-Dip Galvanized Steel Carriage: AISI 1006 - 1050 or equivalent steel.
Core Hardness	Low Carbon Steel & Hot-Dip Galvanized Steel Carriage: Rockwell B70 - B100
Proof Load	Low Carbon Steel Carriage: 33,000 psi.
Yield Strength*	Low Carbon Steel Carriage: 36,000 psi. minimum
Tensile Strength	Low Carbon Steel Carriage: 60,000 psi. minimum
Elongation*	Low Carbon Steel Carriage: 18% minimum
Reduction of Area*	Low Carbon Steel Carriage: 35% minimum (all sizes)
Minimum Thread Length	The minimum length of thread shall be equal to twice the basic bolt diameter plus 0.25 in. for bolts 6 in. or shorter, and twice the diameter plus 0.50 in. for bolts longer than 6 in..
Plating	See Appendix-A for information on the plating of steel carriage bolts.

*These properties are tested only on machined specimens when the testing machine cannot provide full testing of the parts.

**Product standards require the manufacturer's head marking to appear on the top of all bolts 1/4" diameter and larger. "X" represents one location such a marking may appear.



FINISHED HEX NUTS										ANSI/ASME B18.2.2
Nominal or Basic Major Diameter of Thread		F			G		H			
		Width Across Flats			Width Across Corners		Thickness of Hex Nuts			
		Basic	Max	Min	Max	Min	Basic	Max	Min	
1/4	0.2500	7/16	0.438	0.428	0.505	0.488	7/32	0.226	0.212	
5/16	0.3125	1/2	0.500	0.489	0.577	0.557	17/64	0.273	0.258	
3/8	0.3750	9/16	0.562	0.551	0.650	0.628	21/64	0.337	0.320	
7/16	0.4375	11/16	0.688	0.675	0.794	0.768	3/8	0.385	0.365	
1/2	0.5000	3/4	0.750	0.736	0.866	0.840	7/16	0.448	0.427	
9/16	0.5625	7/8	0.875	0.861	1.010	0.982	31/64	0.496	0.473	
5/8	0.6250	15/16	0.938	0.922	1.083	1.051	35/64	0.559	0.535	
3/4	0.7500	1-1/8	1.125	1.088	1.299	1.240	41/64	0.665	0.617	
7/8	0.8750	1-5/16	1.312	1.269	1.516	1.447	3/4	0.776	0.724	
1	1.0000	1-1/2	1.500	1.450	1.732	1.653	55/64	0.887	0.831	
1-1/8	1.1250	1-11/16	1.688	1.631	1.949	1.859	31/32	0.999	0.939	
1-1/4	1.2500	1-7/8	1.875	1.812	2.165	2.066	1-1/16	1.094	1.030	
1-3/8	1.3750	2-1/16	2.062	1.994	2.382	2.273	1-11/64	1.206	1.138	
1-1/2	1.5000	2-1/4	2.250	2.175	2.598	2.480	1-9/32	1.317	1.245	
1-5/8	1.6250	2-7/16	2.438	2.356	2.815	2.686	1-25/64	1.429	1.353	
1-3/4	1.7500	2-5/8	2.625	2.538	3.031	2.893	1-1/2	1.540	1.460	
2	2.0000	3	3.000	2.900	3.464	3.306	1-23/32	1.763	1.675	
2-1/4	2.2500	3-3/8	3.375	3.263	3.897	3.719	1-15/16	1.986	1.890	
2-1/2	2.5000	3-3/4	3.750	3.625	4.330	4.133	2-5/32	2.209	2.105	
2-3/4	2.7500	4-1/8	4.125	3.988	4.763	4.546	2-3/8	2.431	2.319	
3	3.0000	4-1/2	4.500	4.350	5.196	4.959	2-19/32	2.654	2.534	



GRADE-2

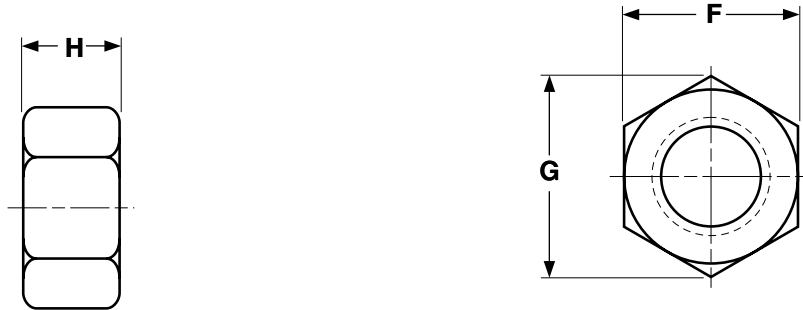
Description	A six-sided internally threaded fastener whose thickness is .875 D where D is the nominal nut size and 1.5D is their width across the flats, made from low carbon steel.
Applications/ Advantages	The most versatile and widely used nut design. Grade-2 nuts are for use with any low carbon bolt or screw that is not heat-treated, with a specified minimum tensile strength of 74,000 psi or less.
Material	Grade-2 nuts shall be made from a low carbon steel which conforms to the following chemical composition requirements-- <i>Carbon</i> : 0.47% maximum; <i>Phosphorus</i> : 0.12% maximum; <i>Sulfur</i> : 0.23% maximum.
Hardness	Rockwell B68 - C32
Proof Load	<u>Coarse thread</u> : 90,000 psi.; <u>Fine thread</u> : 80,000 psi.
Plating	See Appendix-A for information on the plating of steel finished hex nuts.

STEEL HOT-DIP GALVANIZED

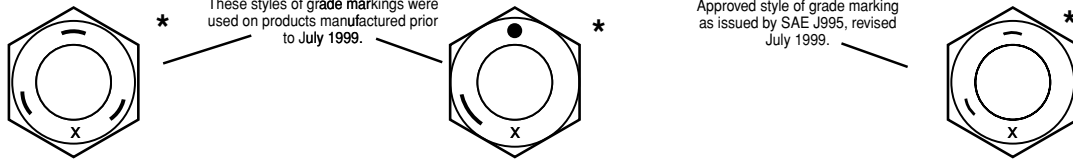
Description	A six-sided internally threaded fastener whose thickness is .875 D where D is the nominal nut size and 1.5D is their width across the flats, made from low carbon steel with a galvanic zinc coating.
Applications/ Advantages	Designed for use with low carbon bolts and screws with a specified minimum tensile strength of 74,000 psi or less, which are subjected to moisture, salt and other such corrosive conditions.
Material	Nuts shall be made from a low carbon steel which conforms to the following chemical composition requirements-- <i>Carbon</i> : 0.47% maximum; <i>Phosphorus</i> : 0.12% maximum; <i>Sulfur</i> : 0.23% maximum.
Hardness	Rockwell B68 - C32
Proof Load	<u>Coarse thread</u> : 68,000 psi.; <u>Fine thread</u> : 60,000 psi.
Plating	See Appendix-A for information on the plating of steel finished hex nuts.

STAINLESS STEEL, 18-8 & 316

Description	Six-sided internally threaded fasteners whose thickness is .875 D where D is the nominal nut size and 1.5D is their width across the flats, made from austenitic alloys as described below.
Applications/ Advantages	Designed for use with stainless steel bolts and screws with a specified minimum tensile strength equal to or less than the specified proof stress of the mating nut. Both types of stainless are corrosion resistant with 316 stainless having greater such resistance as well as superior strength at raised temperatures.
Material	18-8 : Nuts shall be made from one of the following austenitic alloys: 303, 303Se, 304, XM7, all of which are characterized as having a chromium content of 18% and nickel content of 8-10%. 316 : Nuts shall be made from 316 stainless steel, an austenitic alloy which differs from 18-8 by its molybdenum content (2-3%) and a higher nickel content (10-14%).
Heat Treatment	The austenitic alloys develop their strength through work hardening during the fastener manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys is annealing, which is done at approximately 1900°F to a dead soft condition and is not normally thermally reversible.
Hardness	<u>1/4 through 5/8"</u> : Rockwell B95 - C32; <u>3/4 through 1"</u> : Rockwell B80 - C32
Proof Load	<u>1/4 through 5/8"</u> : 100,000 psi.; <u>Fine thread</u> : 85,000 psi.

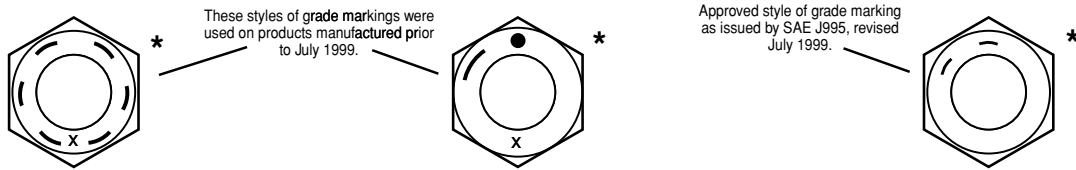


GRADE-5 & GRADE-8 FINISHED HEX NUTS										ANSI/ASME B18.2.2
Nominal or Basic Major Diameter of Thread		F			G		H			
		Width Across Flats			Width Across Corners		Thickness of Hex Nuts			
		Basic	Max	Min	Max	Min	Basic	Max	Min	
1/4	0.2500	7/16	0.438	0.428	0.505	0.488	7/32	0.226	0.212	
5/16	0.3125	1/2	0.500	0.489	0.577	0.557	17/64	0.273	0.258	
3/8	0.3750	9/16	0.562	0.551	0.650	0.628	21/64	0.337	0.320	
7/16	0.4375	11/16	0.688	0.675	0.794	0.768	3/8	0.385	0.365	
1/2	0.5000	3/4	0.750	0.736	0.866	0.840	7/16	0.448	0.427	
9/16	0.5625	7/8	0.875	0.861	1.010	0.982	31/64	0.496	0.473	
5/8	0.6250	15/16	0.938	0.922	1.083	1.051	35/64	0.559	0.535	
3/4	0.7500	1-1/8	1.125	1.088	1.299	1.240	41/64	0.665	0.617	
7/8	0.8750	1-5/16	1.312	1.269	1.516	1.447	3/4	0.776	0.724	
1	1.0000	1-1/2	1.500	1.450	1.732	1.653	55/64	0.887	0.831	
1 1/8	1.1250	1-11/16	1.688	1.631	1.949	1.859	31/32	0.999	0.939	
1 1/4	1.2500	1-7/8	1.875	1.812	2.165	2.066	1 1/16	1.094	1.030	
1 3/8	1.375	2-1/16	2.062	1.994	2.382	2.273	1 11/64	1.206	1.138	
1 1/2	1.5000	2-1/4	2.250	2.175	2.598	2.480	1 9/32	1.317	1.245	



GRADE-5

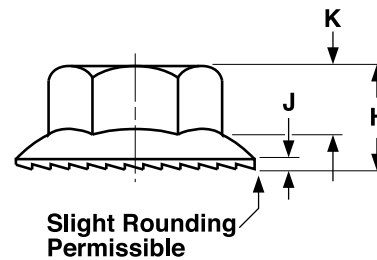
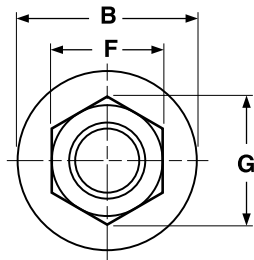
Description	A finished hex nut made from steel with a maximum carbon content of 0.55%, a minimum manganese content of 0.30%, and a maximum sulfur content of 0.15%.
Applications/ Advantages	For use with bolts with a minimum tensile strength equal to or less than the specified proof stress of the nut.
Material	AISI 1008 - 1026 or equivalent steel
Core Hardness	Rockwell C32 maximum
Proof Load	<i>1/4 through 1 in. Coarse thread: 120,000 psi.; Fine thread: 109,000 psi. 1-1/8 through 1-1/2 in. Coarse thread: 105,000 psi.; Fine thread: 94,000 psi.</i>
Plating	See Appendix-A for plating information.



GRADE-8

Description	A finished hex nut made from steel with a maximum carbon content of 0.55%, a minimum manganese content of 0.30% and a maximum sulfur content of 0.05%. The purchaser and producer of the nuts may agree to allow a sulfur content of 0.33% maximum provided that the manganese content is at least 1.35%.
Applications/ Advantages	For use with bolts with a minimum tensile strength equal to or less than 150,000 psi..
Material	AISI 1021 - 1045 or equivalent steel
Core Hardness	<i>1/4 through 5/8 in.: Rockwell C24 - C32 3/4 through 1 in.: Rockwell C26 - C34 Over 1 in. through 1-1/2 in.: Rockwell C26 - C36</i>
Proof Load	<i>1/4 through 1-1/2 in.: 150,000 psi.</i>
Plating	See Appendix-A for plating information.

*Product standards require all grade-marked nuts 1/4" diameter and larger to have a raised or depressed insignia identifying its manufacturer. "X" represents one location such an insignia may appear.



SERRATED HEX FLANGE LOCK NUTS

ASME B18.16.4-2008

Nominal Size or Basic Major Diameter of Thread		F		G		B		H		K	J
		Width Across Flats		Width Across Corners		Flange Diameter		Nut Thickness		Wrenching Height	Flange Thickness
		Max	Min	Max	Min	Max	Min	Max	Min	Min	Min
4	0.1120	0.250	0.241	0.289	0.275	0.386	0.370	0.160	0.147	-	0.02
6	0.1380	0.312	0.302	0.361	0.342	0.422	0.406	0.171	0.156	0.10	0.02
8	0.1640	0.344	0.334	0.397	0.381	0.469	0.452	0.203	0.187	0.13	0.02
10	0.1900	0.375	0.365	0.433	0.416	0.500	0.480	0.219	0.203	0.13	0.03
12	0.2160	0.438	0.428	0.505	0.488	0.594	0.574	0.236	0.222	0.14	0.04
1/4	0.2500	0.438	0.428	0.505	0.488	0.594	0.574	0.236	0.222	0.14	0.04
5/16	0.3125	0.500	0.489	0.577	0.557	0.680	0.660	0.283	0.268	0.17	0.04
3/8	0.3750	0.562	0.551	0.650	0.628	0.750	0.728	0.347	0.330	0.23	0.04
7/16	0.4375	0.688	0.675	0.794	0.768	0.937	0.910	0.395	0.375	0.26	0.04
1/2	0.5000	0.750	0.736	0.866	0.840	1.031	1.000	0.458	0.437	0.31	0.05
9/16	0.5625	0.875	0.861	1.010	0.982	1.188	1.155	0.506	0.483	0.35	0.05
5/8	0.6250	0.938	0.922	1.083	1.051	1.281	1.248	0.569	0.545	0.40	0.05
3/4	0.7500	1.125	1.088	1.299	1.240	1.500	1.460	0.675	0.627	0.46	0.06
7/8	0.8750	1.179	1.166	1.361	1.295	1.682	-	0.786	0.742	-	0.11

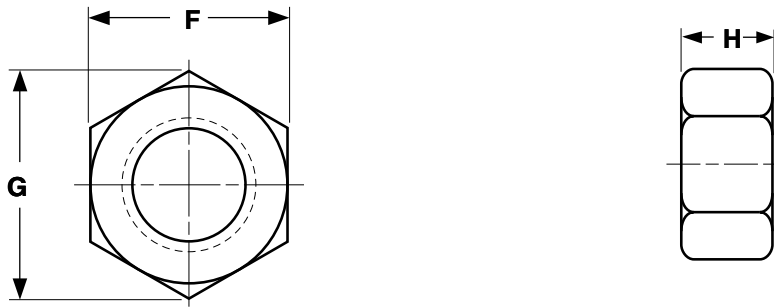
*ASME specification applies to #6 through 3/4" diameters.

Description	Hex nut with an enlarged circular base flaring out from the bottom of the nut. The bearing surface of the flange has serrations which displace material on the mating surface when the nut is wrenched into place, forming a connection which resists loosening.	
Applications/ Advantages	Requires a greater amount of torque to loosen than to tighten the nut. Will span oversized or poorly aligned holes. Flange provides a more uniform bearing-stress to clamp-force ratio than other low carbon lock nuts. Does not gall screw threads.	
Material	<i>Steel</i>	<i>Stainless</i>
	Nuts shall be made from a carbon steel which conforms to the following chemical composition requirements-- Carbon: 0.47% max.; Phosphorus: 0.12% max.; Sulfur: 0.23% max.	18-8 stainless steel
Heat Treatment	Nuts are case hardened to the proper hardness to ensure the serrations will have sufficient gripping strength.	
Case Hardness	Rockwell HR15N 78 - 90	
Plating	Steel flange nuts are supplied in various finishes, including clear zinc, black zinc and black oxide.	Stainless flange nuts are usually provided without any additional plating.

NUTS

HEAVY HEX

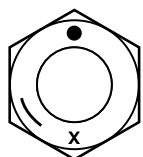
Dimensional Information



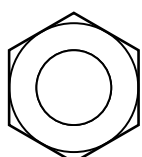
HEAVY HEX NUTS										ASME B18.2.2
Nominal Size or Basic Major Diameter of Thread		F			G		H			
		Width Across Flats			Width Across Corners		Thickness			
		Basic	Max	Min	Max	Min	Basic	Max	Min	
1/4	0.2500	1/2	0.500	0.488	0.577	0.556	15/64	0.250	0.218	
5/16	0.3125	9/16	0.562	0.546	0.650	0.622	19/64	0.314	0.280	
3/8	0.3750	11/16	0.688	0.669	0.794	0.763	23/64	0.377	0.341	
7/16	0.4375	3/4	0.750	0.728	0.866	0.830	27/64	0.441	0.403	
1/2	0.5000	7/8	0.875	0.850	1.010	0.969	31/64	0.504	0.464	
9/16	0.5625	15/16	0.938	0.909	1.083	1.037	35/64	0.568	0.526	
5/8	0.6250	1-1/16	1.062	1.031	1.227	1.175	39/64	0.631	0.587	
3/4	0.7500	1-1/4	1.250	1.212	1.443	1.382	47/64	0.758	0.710	
7/8	0.8750	1-7/16	1.438	1.394	1.660	1.589	55/64	0.885	0.833	
1	1.0000	1-5/8	1.625	1.575	1.876	1.796	63/64	1.012	0.956	
1-1/8	1.1250	1-13/16	1.812	1.756	2.093	2.002	1-7/64	1.139	1.079	
1-1/4	1.2500	2	2.000	1.938	2.309	2.209	1-7/32	1.251	1.187	
1-3/8	1.3750	2-3/16	2.188	2.119	2.526	2.416	1-11/32	1.378	1.310	
1-1/2	1.5000	2-3/8	2.375	2.300	2.742	2.622	1-15/32	1.505	1.433	
1-5/8	1.6250	2-9/16	2.562	2.481	2.959	2.828	1-19/32	1.632	1.556	
1-3/4	1.7500	2-3/4	2.750	2.662	3.175	3.035	1-23/32	1.759	1.679	
2	2.0000	3-1/8	3.125	3.025	3.608	3.449	1-31/32	2.013	1.925	
2-1/4	2.2500	3-1/2	3.500	3.388	4.041	3.862	2-13/64	2.251	2.155	
2-1/2	2.5000	3-7/8	3.875	3.750	4.474	4.275	2-29/64	2.505	2.401	
2-3/4	2.7500	4-1/4	4.250	4.112	4.907	4.688	2-45/64	2.759	2.647	
3	3.0000	4-5/8	4.625	4.475	5.340	5.102	2-61/64	3.013	2.893	
3-1/4	3.2500	5	5.000	4.838	5.774	5.515	3-3/16	3.252	3.124	
3-1/2	3.5000	5-3/8	5.375	5.200	6.207	5.928	3-7/16	3.506	3.370	
3-3/4	3.7500	5-3/4	5.750	5.562	6.640	6.341	3-11/16	3.760	3.616	
4	4.0000	6-1/8	6.125	5.925	7.073	6.755	3-15/16	4.014	3.862	

Steel & Stainless

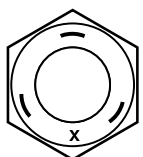
HEAVY HEX



Grade-5

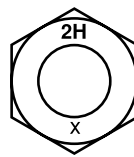


Grade-A

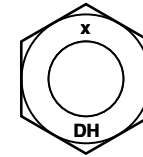


Grade-C

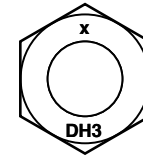
STEEL



A 194 Grade-2H

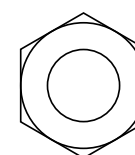


A 563 Grade-DH



A 563 Grade-DH3

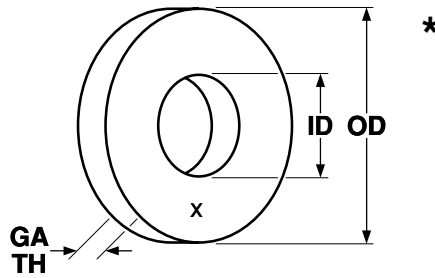
Description	A six-sided internally threaded fastener which is both thicker and wider across the flats than a same-sized finished hex nut. Nuts in sizes 7/16 & smaller shall be double chamfered. Larger sizes are either double chamfered or chamfered on top with a washer faced bearing surface.
Applications/Advantages	This is the strongest of all comparably-graded nuts because of its greater length of thread engagement and greater resistance to dilation (widening or stretching). <i>Grade-5</i> nuts are used with medium-carbon cap screws/bolts. <i>Grade-A</i> nuts are used with low-carbon heavy hex bolts. <i>Grade-C</i> nuts are recommended for use with A-325 structural bolts. <i>Grade-2H</i> nuts are recommended for use with bolts in high-pressure and high-temperature service. <i>Grade-DH</i> nuts are recommended for use with A-490, Type-1 structural bolts and <i>Grade-DH3</i> nuts for use with A-490, Type-3 structural bolts.
Material	Nuts shall be made from a steel which conforms to the following chemical composition requirements (heat analysis)-- <i>Grade-5</i> -- Carbon: 0.55% maximum; Manganese: 0.30% max; Phosphorus: 0.05% maximum; Sulfur: 0.15% maximum. <i>Grades-A & C</i> -- Carbon: 0.55% maximum; Phosphorus: 0.12% maximum; Sulfur: 0.023% maximum. <i>A 194 Grade-2H</i> -- Carbon: 0.40% min; Manganese: 1.00% max; Phosphorus: 0.04% max; Sulfur: 0.05% max; Silicon: 0.40% max. <i>A 563 Grade-DH</i> -- Carbon: 0.20-0.55%; Manganese: 0.60% minimum; Phosphorus: 0.04% maximum; Sulfur: 0.05% maximum. <i>Grade-DH3</i> -- Carbon: 0.20-0.53%; Manganese: 0.40% minimum; Phosphorus: 0.046% maximum; Sulfur: 0.050% maximum; Copper: 0.20% minimum; Chromium: 0.45% minimum; (Either Nickel: 0.20% minimum or Molybdenum: 0.15% minimum, may be used).
Heat Treatment	<i>Grade-2H:</i> Nuts are heat treated by quenching in a liquid medium from a temp above the transformation temp and tempering at a temp of at least 850°F. <i>Grades-C, DH & DH3:</i> Nuts are heat treated by quenching in a liquid medium from a temp above the transformation temp and tempering at a temp of at least 800°F.
Core Hardness	<i>Grade-5:</i> Rockwell C32 max. <i>Grade-A:</i> Rockwell B68 - C32 <i>Grade-C:</i> Rockwell B78 - C38 <i>A 194 Grade-2H, A 563 Grades DH & DH3:</i> Rockwell C24 - C38
Proof Load	<i>Grade-5:</i> 1/4 thru 1" Diam, Coarse- 133,000 psi.; Fine- 120,000 psi. <i>Grade-A:</i> Coarse- 100,000 psi.; Fine- 90,000 psi. <i>Grade-C:</i> 144,000 psi. <i>Grade-2H:</i> 150,000 psi. <i>Grades-DH & DH3:</i> 175,000 psi.
Plating	See Appendix-A for plating information.



18-8 STAINLESS STEEL

Description	A six-sided internally threaded fastener which is both thicker and wider across the flats than a same-sized finished hex nut, made of 18-8 stainless. Nuts in sizes 7/16 & smaller shall be double chamfered. Larger sizes are either double chamfered or chamfered on top with a washer faced bearing surface.
Applications/Advantages	This is the strongest of all 18-8 stainless hex nuts because of its greater length of thread engagement and greater resistance to widening or stretching.
Material	<i>Nuts shall be made from one of the following austenitic stainless alloys:</i> 303, 303Se, 304, XM7, all of which are characterized as having a chromium content of 18% and a nickel content of 8%.
Heat Treatment	The austenitic alloys develop their strength through work hardening during the fastener manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys is annealing, which is done at approximately 1900°F to a dead soft condition and is not normally thermally reversible.
Hardness	1/4 through 5/8": Rockwell B95 - C32 3/4 through 1": Rockwell B80 - C32
Proof Load	1/4 through 5/8": 100,000 psi 3/4 through 1": 85,000 psi.

*Product standards require all grade-marked nuts 1/4" diameter and larger to have a raised or depressed insignia identifying its manufacturer. "X" represents one location such a marking may appear.

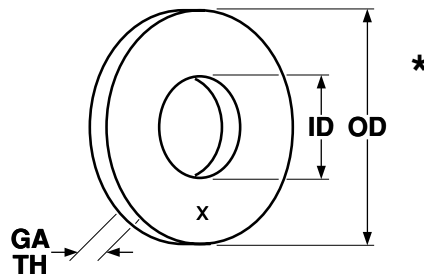


USS THROUGH-HARDENED FLAT WASHERS

Bolt Size	Outside Diameter			Inside Diameter			Thickness		Approximate Number per 50 Pounds
	Nominal	Max	Min	Nominal	Max	Min	Max	Min	
1/4	3/4	0.749	0.727	5/16	0.327	0.307	.080	.051	7500 - 8000
5/16	7/8	0.905	0.868	3/8	0.390	0.370	.104	.064	5000
3/8	1	1.030	0.993	7/16	0.453	0.433	.104	.064	3500 - 4500
7/16	1-1/4	1.280	1.243	1/2	0.515	0.495	.104	.064	2500
1/2	1-3/8	1.405	1.368	9/16	0.577	0.557	.132	.086	1500 - 1800
9/16	1-1/2	1.499	1.462	5/8	0.640	0.620	.132	.086	1100 - 1500
5/8	1-3/4	1.780	1.743	21/32	0.687	0.649	.160	.108	700 - 800
3/4	2	2.030	1.993	13/16	0.842	0.805	.177	.122	500 - 600
7/8	2-1/4	2.280	2.243	15/16	0.968	0.931	.192	.136	350
1	2-1/2	2.530	2.493	1-1/16	1.092	1.055	.192	.136	300
1-1/8	2-3/4	2.780	2.743	1-1/4	1.280	1.243	.192	.136	250
1-1/4	3	3.030	2.993	1-3/8	1.405	1.368	.192	.136	200 - 225
1-1/2	3-1/2	3.545	3.490	1-5/8	1.670	1.615	.213	.136	150

Description	Dimensionally similar to the USS plain washer counterparts, but with tighter tolerances on thickness, manufactured from a higher grade of steel and heat-treated.
Applications/Advantages	Designed to perform the same functions as USS plain washers, but for use specifically with high-strength hardened steel bolts.
Material	SAE 1035 - 1050 steel
Hardness	Rockwell C38 - 45
Plating	See Appendix-A for information about the plating of through-hardened flat washers.

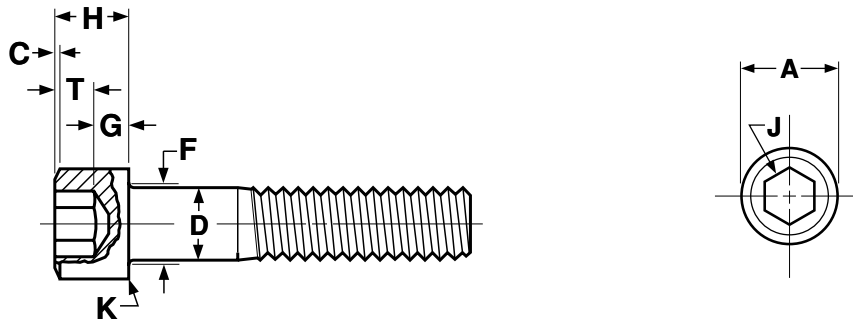
*Product standards require all through-hardened washers 1/4" diameter and larger to bear the insignia identifying its manufacturer. "X" represents one location such an insignia may appear.



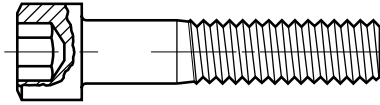
SAE THROUGH-HARDENED FLAT WASHERS									
Bolt Size	Outside Diameter			Inside Diameter			Thickness		Approximate Number per 50 Pounds
	Nominal	Max	Min	Nominal	Max	Min	Max	Min	
6	3/8	0.390	0.370	5/32	0.164	0.151	.065	.036	39500
8	7/16	0.453	0.433	3/16	0.196	0.183	.065	.036	29500
10	1/2	0.515	0.495	7/32	0.227	0.214	.065	.036	22750
12	9/16	0.577	0.557	1/4	0.265	0.245	.080	.051	14700
1/4	5/8	0.640	0.620	9/32	0.296	0.276	.080	.051	13000
5/16	11/16	0.703	0.681	11/32	0.359	0.339	.080	.051	10000
3/8	13/16	0.827	0.805	13/32	0.419	0.401	.080	.051	7000 - 8000
7/16	59/64	0.937	0.915	15/32	0.484	0.464	.080	.051	5000 - 6000
1/2	1-1/16	1.092	1.055	17/32	0.546	0.526	.121	.074	2425 - 3000
9/16	1-3/16	1.186	1.149	19/32	0.609	0.589	.121	.074	2000 - 2250
5/8	1-5/16	1.342	1.305	21/32	0.686	0.649	.146	.108	1340 - 1800
3/4	1-15/32	1.499	1.462	13/16	0.842	0.805	.177	.122	1120 - 1300
7/8	1-3/4	1.780	1.743	15/16	0.968	0.931	.177	.136	695 - 700
1	2	2.030	1.993	1-1/16	1.092	1.055	.177	.136	555 - 600
1-1/8	2-1/4	2.280	2.243	1-1/4	1.280	1.243	.177	.146	435 - 450
1-1/4	2-1/2	2.530	2.493	1-3/8	1.405	1.368	.177	.136	350 - 400
1-1/2	3	3.030	2.993	1-5/8	1.655	1.618	.177	.136	240 - 250
1-3/4	3-3/8	3.405	3.368	1-7/8	1.905	1.868	.201	.178	150
2	3-3/4	3.780	3.748	2-1/8	2.155	2.118	.201	.178	125

Description	Dimensionally equivalent to the low carbon SAE flat washer counterparts, but with tighter tolerances on thickness, manufactured from a higher grade of steel and heat-treated.
Applications/Advantages	Designed to perform the same functions as low carbon SAE flat washers, but for use specifically with high-strength hardened steel bolts.
Material	SAE 1035 - 1050 steel
Hardness	Rockwell C38 - 45
Plating	See Appendix-A for information about the plating of through-hardened flat washers.

*Product standards require all through-hardened washers 1/4" diameter and larger to bear the insignia identifying its manufacturer. "X" represents one location such an insignia may appear.



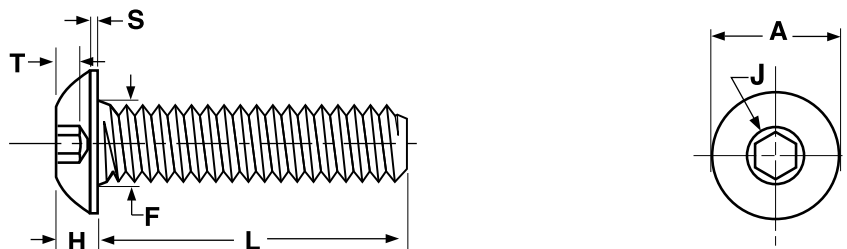
SOCKET HEAD CAP SCREWS													ASME B18.3-1998	
Screw Diam.	D		A		H		C	J	F		T	G	K	
	Body Diameter		Head Diameter		Head Height		Top Chamfer or Radius	Hex Socket Size	Fillet Transition Diameter		Key Engagement	Wall Thickness	Bottom Chamfer or Radius	
	Max	Min	Max	Min	Max	Min	Max	Nom	Max	Min	Min	Min	Max	
0	0.0600	0.0568	0.096	0.091	0.060	0.057	0.004	0.050	0.074	0.063	0.025	0.020	0.007	
1	0.0730	0.0695	0.118	0.112	0.073	0.070	0.005	1/16	0.087	0.076	0.031	0.025	0.007	
2	0.0860	0.0822	0.140	0.134	0.086	0.083	0.008	5/64	0.102	0.090	0.038	0.029	0.007	
3	0.0990	0.0949	0.161	0.154	0.099	0.095	0.008	5/64	0.115	0.103	0.044	0.034	0.007	
4	0.1120	0.1075	0.183	0.176	0.112	0.108	0.009	3/32	0.130	0.118	0.051	0.038	0.008	
5	0.1250	0.1202	0.205	0.198	0.125	0.121	0.012	3/32	0.145	0.132	0.057	0.043	0.008	
6	0.1380	0.1329	0.226	0.218	0.138	0.134	0.013	7/64	0.158	0.145	0.064	0.047	0.008	
8	0.1640	0.1585	0.270	0.262	0.164	0.159	0.014	9/64	0.188	0.173	0.077	0.056	0.008	
10	0.1900	0.1840	0.312	0.303	0.190	0.185	0.018	5/32	0.218	0.202	0.090	0.065	0.008	
1/4	0.2500	0.2435	0.375	0.365	0.250	0.244	0.025	3/16	0.278	0.262	0.120	0.095	0.010	
5/16	0.3125	0.3053	0.469	0.457	0.312	0.306	0.033	1/4	0.347	0.329	0.151	0.119	0.010	
3/8	0.3750	0.3678	0.562	0.550	0.375	0.368	0.040	5/16	0.415	0.398	0.182	0.143	0.010	
7/16	0.4375	0.4294	0.656	0.642	0.438	0.430	0.047	3/8	0.484	0.465	0.213	0.166	0.015	
1/2	0.5000	0.4919	0.750	0.735	0.500	0.492	0.055	3/8	0.552	0.532	0.245	0.190	0.015	
5/8	0.6250	0.6163	0.938	0.921	0.625	0.616	0.070	1/2	0.689	0.664	0.307	0.238	0.015	
3/4	0.7500	0.7406	1.125	1.107	0.750	0.740	0.085	5/8	0.828	0.801	0.370	0.285	0.015	
7/8	0.8750	0.8647	1.312	1.293	0.875	0.864	0.100	3/4	0.963	0.933	0.432	0.333	0.020	
1	1.0000	0.9886	1.500	1.479	1.000	0.988	0.114	3/4	1.100	1.069	0.495	0.380	0.020	
1 1/4	1.2500	1.2336	1.875	1.852	1.250	1.236	0.144	7/8	1.370	1.334	0.620	0.475	0.020	
1 1/2	1.5000	1.4818	2.250	2.224	1.500	1.485	0.176	1	1.640	1.602	0.745	0.570	0.020	
Tolerance on Length	Nominal Screw Size		Nominal Screw Length											
			Up to 1 in., Incl.	Over 1 in. to 2-1/2 in., Incl.	Over 2-1/2 to 6 in., Incl.	Over 6 in.								
	0 thru 3/8, Incl.		-0.03	-0.04	-0.06	-0.12								
	7/16 thru 3/4, Incl.		-0.03	-0.06	-0.08	-0.12								
7/8 thru 1-1/2, Incl.		-0.05	-0.10	-0.14	-0.20									



MECHANICAL PROPERTIES OF ALLOY STEEL SOCKET CAP SCREWS							Blue Devil®
Nominal Size	Tensile Strength (lbs., min.)		Yield Strength (lbs., min.)		Body Section	Tightening Torque (In.-Lbs.)	
	UNRC	UNRF	UNRC	UNRF	Single Shear Strength (lbs., min.)	UNRC	UNRF
0	-	320	-	290	305	-	2.6
1	475	500	425	450	450	4.5	4.8
2	665	710	600	635	625	7.5	8.0
3	875	940	790	845	830	11.0	12.0
4	1,090	1,190	975	1,070	1,060	16.0	18.0
5	1,430	1,490	1,290	1,345	1,325	24.0	24.0
6	1,640	1,825	1,470	1,645	1,615	30.0	34.0
8	2,520	2,650	2,270	2,385	2,280	55.0	58.0
10	3,150	3,600	2,835	3,240	3,060	79.0	90.0
1/4	5,725	6,550	5,150	5,900	5,295	200.0	230.0
5/16	9,430	10,440	8,490	9,395	8,285	415.0	460.0
3/8	13,950	15,805	12,555	14,225	11,910	740.0	845.0
7/16	19,135	21,365	17,220	19,230	16,200	1190.0	1305.0
1/2	25,540	28,780	22,990	25,905	21,175	1800.0	2065.0
5/8	38,400	43,500	34,550	39,150	31,300	3,400.0	3,800.0
3/4	56,750	63,400	51,100	57,050	45,050	6,000.0	6,750.0
7/8	78,500	86,500	70,700	77,850	61,350	8250.0	9,200.0
1	103,000	112,700	92,700	101,450	80,100	12,500.0	13,000.0
1 1/4	164,700	182,400	148,250	164,150	125,100	25,000.0	27,750.0
1 1/2	238,800	268,800	215,950	241,900	180,200	43,500.0	49,000.0

Description	An externally threaded fastener with unified threads, a cylindrical head with a flat chamfered top surface, knurled cylindrical sides and hexagonal recess, made from alloy steel.
Applications/ Advantages	Ideal for precision assembly work with close tolerances and applications needing a well tooled appearance. Supplies greater tensile strength than equivalent sizes of Grade-5 or Grade-8 hex head cap screws while requiring less surface area or counterbore since the fastener is internally wrenched.
Material	Cap screws shall be made from an alloy steel which conforms to the following chemical composition requirements (per product analysis)-- <i>Carbon</i> : 0.31% minimum; <i>Phosphorus</i> : 0.040% maximum; <i>Sulfur</i> : 0.045% maximum. Also, one or more of the following elements shall be present in sufficient quantity to meet the strength requirements listed below: chromium, nickel, molybdenum or vanadium.
Heat Treatment	Cap screws shall be heat treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.
Hardness	0 through 1/2" diameters: Rockwell C39 minimum; 5/8" diameter & larger: Rockwell C37 minimum
<i>Cap screws of a length 3D or greater, where D equals the nominal diameter of the screw, are subject to tensile strength, yield strength, elongation and reduction of area testing.</i>	
Tensile Strength	0 through 1/2" diameters: 180,000 psi. minimum; 5/8" diameter & larger: 170,000 psi. minimum
Yield Strength	0 through 1/2" diameters: 162,000 psi. minimum; 5/8" diameter & larger: 153,000 psi. minimum
Elongation	10% minimum (applies to machined specimens of length at least 4D where D equals the nominal diameter of the screw)
Reduction of Area	33% minimum (applies to machined specimens)
Plating	See Appendix-A for information on the plating of alloy steel socket cap screws.

Button Head Socket Cap Screws



SOCKET BUTTON HEAD CAP SCREWS - ALLOY STEEL

ASME
B18.3-2003,
Blue Devil®

Nominal Size	A		H		S	J	T	F		L	Tensile Test Load Lb.	Single Shear Strength of Body Lbs., Min.	Seating Torques in./lbs.	
	Head Diameter		Head Height		Head Side Height	Hex Socket Size	Key Engagement	Fillet Transition Diameter		Max Standard Length			Coarse Thread	Fine Thread
	Max	Min	Max	Min	Ref	Nom	Min	Max	Min	Nom				
4	0.213	0.201	0.059	0.051	0.015	1/16	0.035	0.132	0.122	0.50	840	950	7.0	8.
6	0.262	0.250	0.073	0.063	0.015	5/64	0.044	0.158	0.148	0.63	1,260	1,400	13.	15.
8	0.312	0.298	0.087	0.077	0.015	3/32	0.052	0.194	0.184	0.75	1,940	2,000	25.	26.
10	0.361	0.347	0.101	0.091	0.020	1/8	0.070	0.220	0.210	1.00	2,440	2,700	45.	48.
1/4	0.437	0.419	0.132	0.122	0.031	5/32	0.087	0.290	0.280	1.00	4,430	4,700	95.	110.
5/16	0.547	0.527	0.166	0.152	0.031	3/16	0.105	0.353	0.343	1.00	7,300	7,300	190.	210.
3/8	0.656	0.636	0.199	0.185	0.031	7/32	0.122	0.415	0.405	1.25	10,800	10,600	300.	300.
1/2	0.875	0.851	0.265	0.245	0.046	5/16	0.175	0.560	0.540	2.00	19,800	18,800	900.	960.
5/8	1.000	0.970	0.331	0.311	0.062	3/8	0.210	0.685	0.665	2.00	31,500	29,400	1,700.	1,900.

Tolerance on Length	Nominal Screw Size	Nominal Screw Length	
		Up to 1 in., Inclusive	Over 1 in. to 2-1/2 in., Inclusive
	0 thru 3/8, Inclusive	-0.03	-0.04
	1/2 and 5/8, Inclusive	-0.03	-0.06

Description	Has a similar thread design as a socket cap screw. The dome-shaped head is wider and has a lower profile than a socket cap screw.
Applications/Advantages	Used when a wider bearing surface or a smoother, more finished appearance is desired. Button head cap screws do not afford the strength of socket head cap screws and are designed for light fastening applications. They are not recommended for critical, high-strength applications.
Material	Screws shall be made from an alloy steel which conforms to the following chemical composition requirements (per product analysis)- <i>Carbon:</i> 0.28 to 0.50%; <i>Phosphorus:</i> 0.045% maximum; <i>Sulfur:</i> 0.035% maximum. Also, one or more of the following elements shall be present in sufficient quantity to meet the performance requirements listed below: chromium, nickel, molybdenum or vanadium.
Heat Treatment	Screws shall be heat treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.
Hardness	<i>Thru 1/2" diam.:</i> Rockwell C39 - 44; <i>Over 1/2" diam.:</i> Rockwell C37 - 44
Tensile Strength*	<i>Thru 1/2" diam.:</i> 145,000 psi. minimum; <i>Over 1/2" diam.:</i> 135,000 psi. minimum
Elongation	8% minimum (applies to machined specimens of length at least 4D where D equals the nominal diameter of the screw)
Reduction of Area	35% minimum (applies to machined specimens)
Finish	Screws are supplied with a thermal black finish.

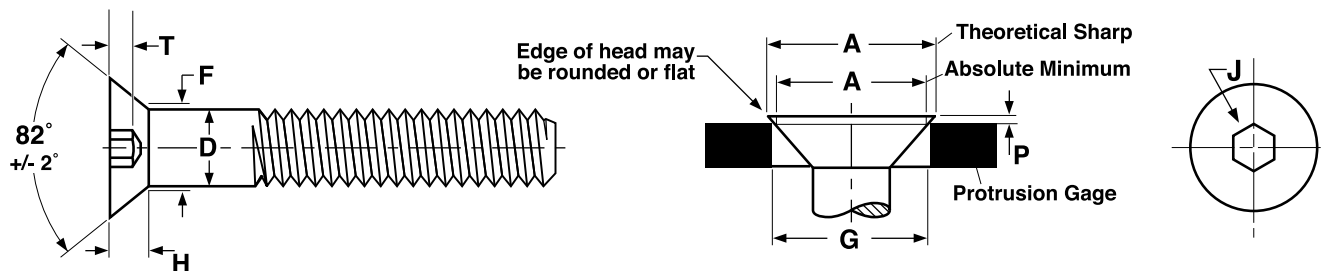
* Screws must be of a length equal to or greater than 3 diameters to be subject to tensile testing.

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Sockets

Flat Head Socket Cap Screws

Alloy Steel

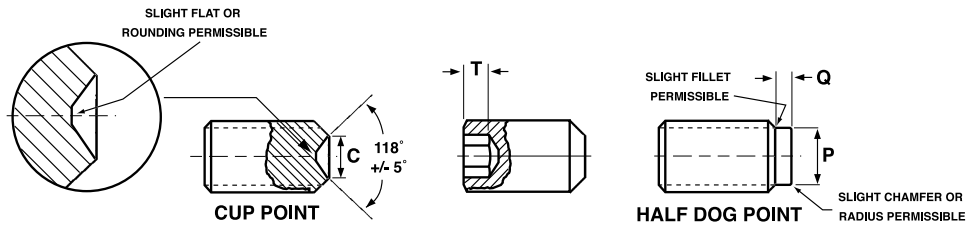


SOCKET FLAT HEAD CAP SCREWS - ALLOY STEEL														ASME B18.3-2003, Blue Devil®			
Nominal Size	D		A		H	G		P		J	T	F	Tensile Strength, Lbs. Min		Single Shear Strength of Body	Recommended Seating Torques, in./lbs.	
	Max	Min	Theoretical Sharp Max	Abs. Min	Ref	Max	Min	Max	Min	Nom	Min	Max	UNRC	UNRF	lbs., Min	Coarse Thread	Fine Thread
	4	0.1120	0.1075	0.255	0.218	0.083	0.172	0.171	0.049	0.036	1/16	0.055	0.136	900	-	940	8.
5	0.1250	0.1202	0.281	0.240	0.090	0.196	0.195	0.051	0.037	5/64	0.061	0.153	1,185	-	1,180	12.	-
6	0.1380	0.1329	0.307	0.263	0.097	0.220	0.219	0.052	0.037	5/64	0.066	0.168	1,350	-	1,440	15.	-
8	0.1640	0.1585	0.359	0.311	0.112	0.267	0.266	0.055	0.039	3/32	0.076	0.194	2,085	-	2,030	30.	-
10	0.1900	0.1840	0.411	0.359	0.127	0.313	0.312	0.058	0.041	1/8	0.087	0.220	2,610	2,610	2,720	40.	45.
1/4	0.2500	0.2435	0.531	0.480	0.161	0.424	0.423	0.064	0.043	5/32	0.111	0.280	4,750	4,750	4,710	100.	110.
5/16	0.3125	0.3053	0.656	0.600	0.198	0.539	0.538	0.070	0.047	3/16	0.135	0.343	7,800	7,800	7,360	200.	220.
3/8	0.3750	0.3678	0.781	0.720	0.234	0.653	0.652	0.076	0.050	7/32	0.159	0.405	11,600	11,600	10,600	350.	400.
7/16	0.4375	0.4294	0.844	0.781	0.234	0.690	0.689	0.092	0.063	1/4	0.159	0.468	15,900	15,900	14,400	560.	-
1/2	0.5000	0.4919	0.938	0.872	0.251	0.739	0.738	0.119	0.087	5/16	0.172	0.530	21,200	21,200	18,850	850.	1,000.
5/8	0.6250	0.6163	1.188	1.112	0.324	0.962	0.961	0.135	0.096	3/8	0.220	0.655	33,800	33,800	29,450	1,700.	-
3/4	0.7500	0.7406	1.438	1.355	0.396	1.186	1.185	0.150	0.105	1/2	0.220	0.780	50,000	50,000	42,400	3,000	-

Tolerance on Length	Nominal Screw Size	Nominal Screw Length		
		Up to 1 in., Incl.	Over 1 in. to 2-1/2 in., Incl.	Over 2-1/2 in. to 6 in., Incl.
	0 thru 3/8, Inclusive	-0.03	-0.04	-0.06
	7/16 thru 3/4, Inclusive	-0.03	-0.06	-0.08

Description	Similar in design to a socket button head cap screw but with an 82° countersunk flat head.
Applications/Advantages	Used when a flush mounting, high strength screw is required. Commonly used in tools and dies where moving parts pass over the fastened area.
Material	Screws shall be made from an alloy steel which conforms to the following chemical composition requirements (per product analysis)-- Carbon: 0.28 to 0.50%; Phosphorus: 0.040% maximum; Sulfur: 0.045% maximum. Also, one or more of the following elements shall be present in sufficient quantity to meet the performance requirements listed below: chromium, nickel, molybdenum or vanadium.
Heat Treatment	Screws shall be heat treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.
Hardness	Thru 1/2" diam.: Rockwell C 39 - 44; Over 1/2" diam.: Rockwell C 37 - 44
Tensile Strength	Thru 1/2" diam.: 145,000 psi. minimum; Over 1/2" diam.: 135,000 psi. minimum
Yield Strength	153,000 psi. minimum (over 1/2" diam.)
Elongation	8% minimum (applies to machined specimens over 1/2" diam., of length at least 4D where D equals the nominal diameter of the screw)"
Reduction of Area	35% minimum (applies to machined specimens over 1/2" diam.)
Finish	Screws are supplied with a thermal black finish.

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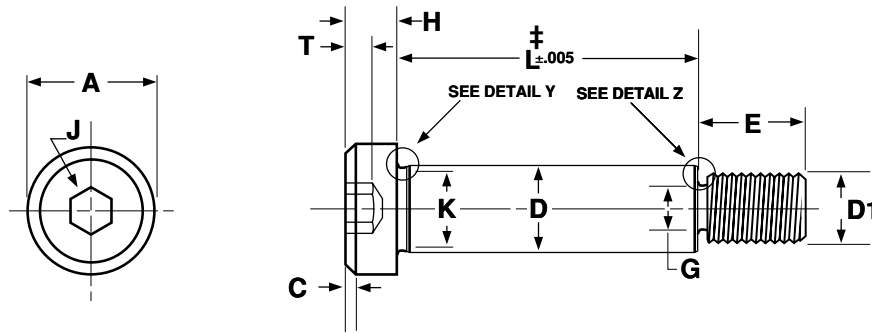


SOCKET SET SCREWS - ALLOY STEEL

ASME B18.3-2003,
Blue Devil®

Nominal Size	Shortest Nominal Length To Which Column T Applies			J	Tightening Torque (Inch-Lbs.)
	Cup & Flat Point	Cone & Oval Point	Half Dog Point	Hex Key Size	
0	0.13	0.13	0.13	.028	.86
1	0.13	0.19	0.13	.035	1.8
2	0.13	0.19	0.19	.035	1.8
3	0.19	0.19	0.19	.050	5.
4	0.19	0.19	0.19	.050	5.
5	0.19	0.19	0.19	1/16	9.5
6	0.19	0.25	0.19	1/16	9.5
8	0.19	0.25	0.25	5/64	19.4
10	0.19	0.25	0.25	3/32	33.5
1/4	0.25	0.31	0.31	1/8	77.9
5/16	0.31	0.44	0.38	5/32	156
3/8	0.38	0.44	0.44	3/16	273
7/16	0.44	0.63	0.50	7/32	428
1/2	0.50	0.63	0.63	1/4	615
5/8	0.63	0.88	0.88	5/16	1315
3/4	0.75	1.00	1.00	3/8	2150
7/8	0.88	1.00	1.00	1/2	5130
1	1.00	1.25	1.25	9/16	7010

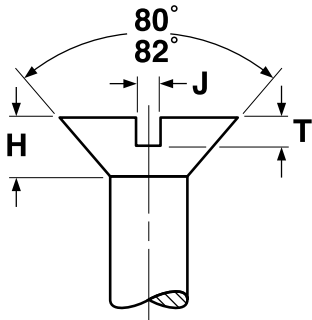
Description	<p>Cup point: A headless screw threaded the entire length. It has a hexagonal drive at one end and a cup-shaped indentation at the other end.</p> <p>Half-Dog point: A set screw with a protruding tip with a flat surface at the end opposite that of the hexagonal drive.</p> <p>Half-Dog point: A set screw with a protruding tip with a flat surface at the end opposite that of the hexagonal drive.</p> <p>Oval point: A set screw with an oval-shaped point at the end opposite that of the hexagonal drive.</p> <p>Flat point: A set screw with a flat surface at the end opposite that of the hexagonal drive.</p> <p>Cone point: A set screw with a sharp conical-shaped point at the opposite end from the hexagonal drive.</p>
Applications/ Advantages	<p>Cup point: The cup point is the most used style set screw. Designed for fast, permanent and semi-permanent location of parts on shafts with hardness differential of 10-15 Rockwell C points and where cutting in of cup edge on the shaft is acceptable.</p> <p>Half-Dog point: Intended for permanent setting. The point should fit closely to the diameter of the drilled hole or against the flat. Often used instead of a dowel pin.</p> <p>Oval point: Preferred style for frequent reset on soft or hard shafts with minimum deforming. Also chosen for permanent setting on shafts spotted, splined or grooved, and for applications where point meets shaft on an angle. Sometimes substituted for the cup point style.</p> <p>Flat point: Designed for frequent resetting or relocating on hard steel shafts and where minimal damage to shafts is necessary. Ground flats on the shaft improves the contacts.</p> <p>Cone point: For permanent setting on soft or hardened shafts. The deep penetration it offers gives this style set screw the highest torsional & axial holding power. For shafts of Rockwell hardness C15 or over, spot point half its depth. Can also be used as a pivot or hanger. When two set screws are used in a set screw collar, their holding power is determined by their location with respect to each other.</p>
Material	<p>Screws shall be made from an alloy steel which conforms to the following chemical composition requirements (per product analysis)-- Carbon: 0.28 to 0.50%; Phosphorus: 0.040% maximum; Sulfur: 0.045% maximum. Also, one or more of the following elements shall be present in sufficient quantity to meet the strength requirements listed below: chromium, nickel, molybdenum or vanadium.</p>
Heat Treatment	<p>Screws shall be heat treated by oil quenching from above the transformation temperature and then tempered at a temperature sufficient to meet the hardness requirements listed below.</p>
Hardness	<p>Rockwell C45 - 53</p>
Torsional Strength	<p>Socket set screws of a sufficient length to be tested (as listed in the above table) shall withstand application of the test torque specified in said table without evidence of the socket reaming or the screw bursting.</p>
Finish	<p>Screws are supplied with a thermal black finish.</p>



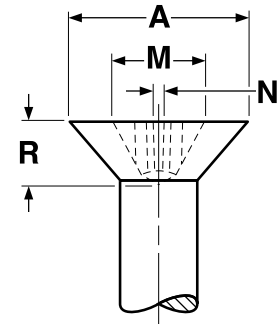
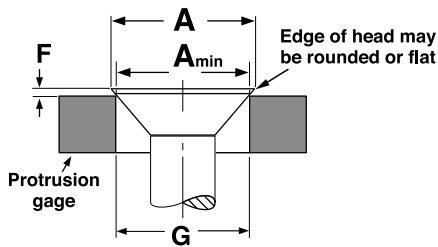
‡Length of a socket shoulder screw is measured from the underhead bearing surface to the plane of the shoulder at the threaded end.

SOCKET HEAD SHOULDER SCREWS - ALLOY STEEL											ASME B18.3-1988		
Nominal Size	D		A		H		C	J	T	M	R	K	F
	Shoulder Diameter		Head Diameter		Head Height		Chamfer or Radius	Hex Socket Size	Key Engagement	Fillet Transition Diameter	Head Fillet Radius	Shoulder Neck Diameter	Shoulder Neck Width
	Max	Min	Max	Min	Max	Min	Min	Nom	Min	Max	Min	Min	Max
1/4	0.2480	0.2460	0.375	0.357	0.188	0.177	0.020	1/8	0.094	0.276	0.009	0.227	0.093
5/16	0.3105	0.3085	0.438	0.419	0.219	0.209	0.026	5/32	0.117	0.345	0.012	0.289	0.093
3/8	0.3730	0.3710	0.562	0.543	0.250	0.240	0.031	3/16	0.141	0.413	0.015	0.352	0.093
1/2	0.4980	0.4960	0.750	0.729	0.312	0.302	0.040	1/4	0.188	0.550	0.020	0.477	0.093
5/8	0.6230	0.6210	0.875	0.853	0.375	0.365	0.050	5/16	0.234	0.687	0.024	0.602	0.093
3/4	0.7480	0.7460	1.000	0.977	0.500	0.490	0.069	3/8	0.281	0.826	0.030	0.727	0.093

Description	A hex socket head screw with an enlarged, unthreaded, cylindrical shoulder under the head, the diameter of which serves as the basis for the derivation of the nominal size.
Applications/Advantages	For rotation or sliding applications, such as pulley shafts, in punch and die work, or for use as a bearing pin. Shoulder screws are also referred to as "stripper bolts".
Material	Shoulder screws shall be made fabricated from an alloy steel having one or more of the following elements: chromium, nickel, molybdenum or vanadium, in sufficient quantity to assure the hardness specified below.
Heat Treatment	Shoulder screws shall be heat-treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.
Hardness	Rockwell C32 - 43
Tensile Strength	140,000 psi. minimum (material only)
Yield Strength	120,000 psi. minimum (material only)
Elongation	15% minimum (applies to all machined specimens of length at least 4D where D equals the nominal diameter of the screw)
Reduction of Area	45% minimum (applies to all machined specimens)
Plating	Shoulder screws are usually supplied with a plain finish.

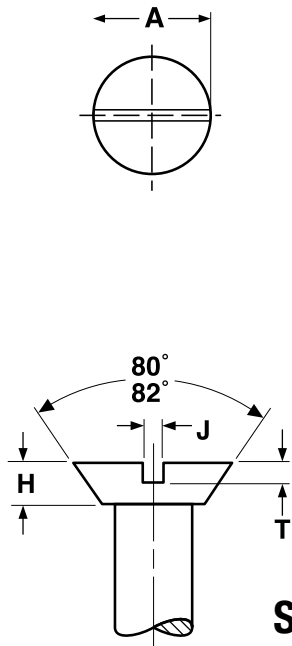


Slotted

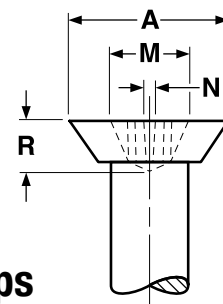
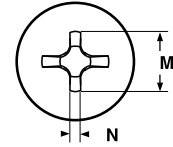
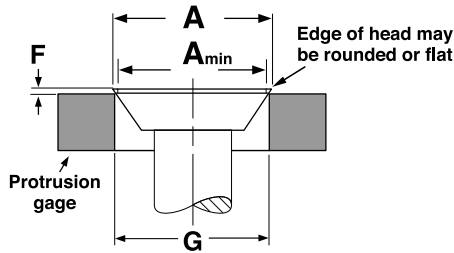


Phillips

FLAT HEADS FOR MACHINE SCREWS															ASME B18.6.3-2002
Nominal Size	A		H		J		T		M	R	N	F		G	Phillips Driver Size
	Head Dimensions				Slot Dimensions				Recess Dimensions			Protrusion Above Gaging Diameter		Gaging Diameter	
	Diameter		Height		Width		Depth		Diam.	Depth	Width				
	Max	Min	Max	Min	Max	Min	Max	Min	Ref	Ref	Ref	Max	Min		
0	.112	.096	.035	.026	.023	.016	.015	.010	.062	.035	.014	.026	.016	.078	0
1	.137	.120	.043	.033	.026	.019	.019	.012	.070	.043	.015	.028	.016	.101	0
2	.162	.144	.051	.040	.031	.023	.023	.015	.096	.055	.017	.029	.017	.124	1
3	.187	.167	.059	.047	.035	.027	.027	.017	.100	.060	.018	.031	.018	.148	1
4	.212	.191	.067	.055	.039	.031	.030	.020	.122	.081	.018	.032	.019	.172	1
5	.237	.215	.075	.062	.043	.035	.034	.022	.148	.074	.027	.034	.020	.196	2
6	.262	.238	.083	.069	.048	.039	.038	.024	.168	.094	.029	.036	.021	.220	2
8	.312	.285	.100	.084	.054	.045	.045	.029	.182	.110	.030	.039	.023	.267	2
10	.362	.333	.116	.098	.060	.050	.053	.034	.198	.124	.032	.042	.025	.313	2
12	.412	.380	.132	.112	.067	.056	.060	.039	.262	.144	.035	.045	.027	.362	3
1/4	.477	.442	.153	.131	.075	.064	.070	.046	.276	.160	.036	.050	.029	.424	3
5/16	.597	.556	.191	.165	.084	.072	.088	.058	.358	.205	.061	.057	.034	.539	4
3/8	.717	.670	.230	.200	.094	.081	.106	.070	.386	.234	.065	.065	.039	.653	4
1/2	.815	.765	.223	.186	.106	.091	.103	.065	.418	.265	.069	.081	.049	.739	4



Slotted



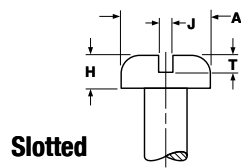
Phillips

UNDERCUT FLAT HEADS FOR MACHINE SCREWS

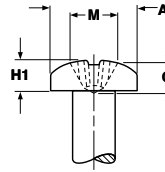
ASME B18.6.3-2010

Nominal Size	L	A				H				J				T				M			R			N			F		G		Phillips Driver Size
	These Lengths or Shorter are Undercut	Head Dimensions								Slot Dimensions								Recess Dimensions						Protrusion Above Gaging Diameter		Gaging Diameter					
		Diameter		Height		Width		Depth		Diam.	Depth	Width	Protrusion Above Gaging Diameter																		
		Max	Min	Max	Min	Max	Min	Max	Min	Ref	Ref	Ref	Max	Min																	
0	1/8	.112	.096	.025	.018	.023	.016	.011	.007	.062	.035	.014	-	-	-	-	-	0													
1	1/8	.137	.120	.031	.023	.026	.019	.014	.009	.070	.043	.015	-	-	-	-	0														
2	1/8	.162	.144	.036	.028	.031	.023	.016	.011	.088	.048	.017	.029	.017	.124	1															
4	3/16	.212	.191	.047	.038	.039	.031	.022	.014	.110	.070	.018	.032	.019	.172	1															
5	3/16	.237	.215	.053	.043	.043	.035	.024	.016	.122	.081	.018	.034	.020	.196	1															
6	3/16	.262	.238	.059	.048	.048	.039	.027	.017	.140	.066	.025	.036	.021	.220	2															
8	1/4	.312	.285	.070	.058	.054	.045	.032	.021	.168	.094	.029	.039	.023	.267	2															
10	5/16	.362	.333	.081	.068	.060	.050	.037	.024	.182	.110	.030	.042	.025	.313	2															
12	3/8	.412	.380	.092	.078	.067	.056	.043	.028	.226	.110	.030	.045	.027	.362	3															
1/4	7/16	.477	.442	.107	.092	.075	.064	.050	.032	.244	.124	.032	.050	.029	.424	3															
5/16	1/2	.597	.556	.134	.116	.084	.072	.062	.041	.310	.157	.053	.057	.034	.539	4															
3/8	9/16	.717	.670	.161	.140	.094	.081	.075	.049	.358	.205	.061	.065	.039	.653	4															
1/2	3/4	.815	.765	.156	.130	.106	.091	.072	.046	.402	.252	.068	.081	.049	.739	4															

HEAD DIMENSIONS



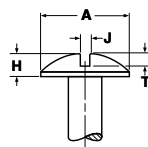
Slotted



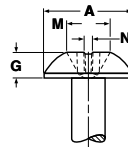
Phillips

PAN HEADS FOR MACHINE SCREWS AND SEMS														ASME B18.6.3-2010
Nominal Size	A		H		H1		J		T		M	G		Phillips Driver Size
	Head Diameter		Height of Head				Width of Slot		Depth of Slot		Diameter	Dimensions of Recess		
	Max	Min	Slotted		Recessed		Max	Min	Max	Min		Recess Penetration Gaging Depth		
			Max	Min	Max	Min					Ref	Max	Min	
0	.116	.104	.039	.031	.044	.036	.023	.016	.022	.014	.060	.032	.014	0
2	.167	.155	.053	.045	.062	.053	.031	.023	.031	.022	.097	.052	.034	1
3	.193	.180	.060	.051	.071	.062	.035	.027	.036	.026	.105	.061	.043	1
4	.219	.205	.068	.058	.080	.070	.039	.031	.040	.030	.115	.071	.053	1
5	.245	.231	.075	.065	.089	.079	.043	.035	.045	.034	.152	.072	.046	2
6	.270	.256	.082	.072	.097	.087	.048	.039	.050	.037	.159	.080	.055	2
8	.322	.306	.096	.085	.115	.105	.054	.045	.058	.045	.175	.097	.071	2
10	.373	.357	.110	.099	.133	.122	.060	.050	.068	.053	.192	.113	.089	2
12	.425	.407	.125	.112	.151	.139	.067	.056	.077	.061	.252	.124	.098	3
1/4	.492	.473	.144	.130	.175	.162	.075	.064	.087	.070	.274	.144	.118	3
5/16	.615	.594	.178	.162	.218	.203	.084	.072	.106	.085	.343	.173	.149	4
3/8	.740	.716	.212	.195	.261	.244	.094	.081	.124	.100	.382	.213	.190	4
1/2	.987	.958	.281	.260	.348	.325	.106	.091	.161	.131	.428	.260	.235	4

Truss

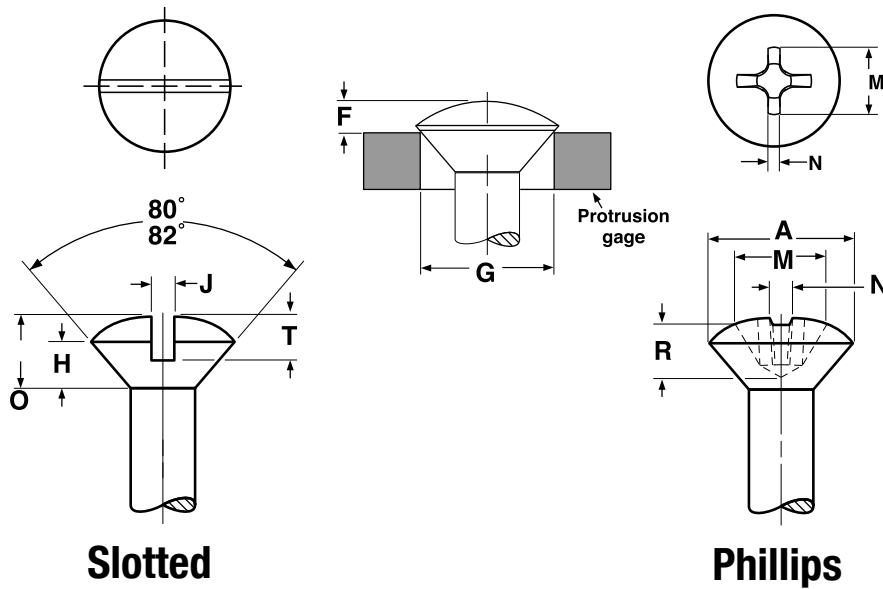


Slotted



Phillips

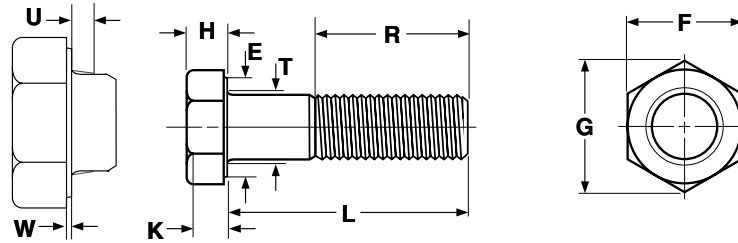
TRUSS HEADS FOR MACHINE SCREWS													ASME B18.6.3-2010
Nominal Size	A		H		J		T		M	G		Phillips Driver Size	
	Head Diameter		Height of Head		Width of Slot		Depth of Slot		Recess Diameter	Recess Penetration Gaging Depth			
	Max	Min	Max	Min	Max	Min	Max	Min	Ref	Max	Min		
2	.194	.180	.053	.044	.031	.023	.031	.022	.097	.052	.034	1	
3	.226	.211	.061	.051	.035	.027	.036	.026	.103	.059	.042	1	
4	.257	.241	.069	.059	.039	.031	.040	.030	.105	.062	.044	1	
5	.289	.272	.078	.066	.043	.035	.045	.034	.121	.078	.060	1	
6	.321	.303	.086	.074	.048	.039	.050	.037	.151	.073	.048	2	
8	.384	.364	.102	.088	.054	.045	.058	.045	.166	.088	.063	2	
10	.448	.425	.118	.103	.060	.050	.068	.053	.181	.104	.079	2	
12	.511	.487	.134	.118	.067	.056	.077	.061	.241	.111	.086	3	
1/4	.573	.546	.150	.133	.075	.064	.087	.070	.256	.126	.101	3	
5/16	.698	.666	.183	.162	.084	.072	.106	.085	.345	.173	.148	4	
3/8	.823	.787	.215	.191	.094	.081	.124	.100	.376	.206	.182	4	
1/2	1.073	1.028	.280	.250	.106	.091	.161	.131	.437	.268	.243	4	



Slotted

Phillips

OVAL HEADS FOR MACHINE SCREWS														ASME B18.6.3-2002	
Nominal Size	A		H	O	J		T		M	R	N	F		G	Phillips Driver Size
	Head Diameter		Height of Head		Slot Dimensions				Recess Dimensions			Protrusion Above Gaging Diameter		Gaging Diameter	
	Max	Min	Side	Total	Width		Depth		Diam.	Depth	Width	Max	Min		
			Ref	Ref	Ref	Max	Max	Ref	Ref	Ref	Max	Min			
0	.112	.096	.035	.056	.023	.016	.030	.025	.068	.036	.014	.047	.031	.078	0
1	.137	.120	.043	.068	.026	.019	.038	.031	.070	.039	.015	.053	.035	.101	0
2	.162	.144	.051	.080	.031	.023	.045	.037	.106	.060	.018	.058	.039	.124	1
3	.187	.167	.059	.092	.035	.027	.052	.043	.118	.072	.019	.064	.044	.148	1
4	.212	.191	.067	.104	.039	.031	.059	.049	.130	.086	.019	.069	.048	.172	1
5	.237	.215	.075	.116	.043	.035	.067	.055	.152	.073	.028	.075	.053	.196	2
6	.262	.238	.083	.128	.048	.039	.074	.060	.172	.092	.030	.080	.057	.220	2
8	.312	.285	.100	.152	.054	.045	.088	.072	.186	.107	.031	.091	.066	.267	2
10	.362	.333	.116	.176	.060	.050	.103	.084	.202	.125	.033	.102	.075	.313	2
12	.412	.380	.132	.200	.067	.056	.117	.096	.264	.140	.038	.113	.084	.362	3
1/4	.477	.442	.153	.232	.075	.064	.136	.112	.284	.160	.040	.129	.095	.424	3
5/16	.597	.556	.191	.290	.084	.072	.171	.141	.384	.226	.065	.155	.117	.539	4
3/8	.717	.670	.230	.347	.094	.081	.206	.170	.404	.245	.068	.182	.139	.653	4
7/16	.760	.715	.223	.345	.094	.081	.210	.174	.416	.257	.070	.195	.150	.690	4
1/2	.815	.765	.223	.354	.106	.091	.216	.176	.430	.271	.071	.212	.163	.739	4

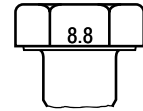


METRIC - HEX HEAD BOLTS, PRODUCT GRADE A														ISO 4014
Nominal Size	Thread Pitch	R		W		T	U	E	H		F		G	K
		Threaded Length		Washer Face Thickness		Fillet Transition Diameter	Under-head Fillet	Washer Face Diameter	Head Height		Width Across Flats		Width Across Corners	Wrenching Height
		L ≤ 125 mm	L > 125 mm ≤ 200 mm	Max	Min	Max	Max	Min	Max	Min	Max	Min	Min	Min
M1.6	0.35	9	-	0.25	0.1	2	0.6	2.27	1.225	0.975	3.2	3.02	3.41	0.68
M2	0.4	10	-	0.25	0.1	2.6	0.8	3.07	1.525	1.275	4	3.82	4.32	0.89
M2.5	0.45	11	-	0.25	0.1	3.1	1	4.07	1.825	1.575	5	4.82	5.45	1.1
M3	0.5	12	-	0.4	0.15	3.6	1	4.57	2.125	1.875	5.5	5.32	6.01	1.31
M4	0.7	14	-	0.4	0.15	4.7	1.2	5.88	2.925	2.675	7	6.78	7.66	1.87
M5	0.8	16	-	0.5	0.15	5.7	1.2	6.88	3.65	3.35	8	7.78	8.79	2.35
M6	1	18	-	0.5	0.15	6.8	1.4	8.88	4.15	3.85	10	9.78	11.05	2.7
M8	1.25	22	-	0.6	0.15	9.2	2	11.63	5.45	5.15	13	12.73	14.38	3.61
M10	1.5	26	-	0.6	0.15	11.2	2	14.63	6.58	6.22	16**	15.73	17.77	4.35
M12	1.75	30	-	0.6	0.15	13.7	3	16.63	7.68	7.32	18**	17.73	20.03	5.12
M14	2	34	40	0.6	0.15	15.7	3	19.37	8.98	8.62	21**	20.67	23.36	6.03
M16	2	38	44	0.8	0.2	17.7	3	22.49	10.18	9.82	24	23.67	26.75	6.87
M20	2.5	46	52	0.8	0.2	22.4	4	28.19	12.715	12.285	30	29.67	33.53	8.6
M24	3	54	60 73*	0.8	0.2	26.4	4	33.61	15.215	14.785	36	35.38	39.98	10.35
Tolerance on Length		12-16mm: ±0.35		20-30mm: ±0.42		35-50mm: ±0.5		55-80mm: ±0.6		90-120: ±0.7		130-150mm: ±0.8		

*For nominal lengths over 200mm.

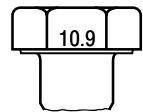
**DIN 931 spec for maximum width across flats on these three diameters are 17, 19 & 22 mm, respectively.

METRIC - HEX HEAD BOLTS, PRODUCT GRADE B														ISO 4014
Nominal Size	Thread Pitch	R		W		T	U	E	H		F		G	K
		Threaded Length		Washer Face Thickness		Fillet Transition Diameter	Under-head Fillet	Washer Face Diameter	Head Height		Width Across Flats		Width Across Corners	Wrenching Height
		L > 125 mm ≤ 200 mm	L > 200 mm	Max	Min	Max	Max	Min	Max	Min	Max	Min	Min	Min
M16	2	44	-	0.8	0.2	17.7	3	22	10.29	9.71	24	23.16	26.17	6.8
M20	2.5	52	-	0.8	0.2	22.4	4	27.7	12.85	12.15	30	29.16	32.95	8.51
M24	3	60	73	0.8	0.2	26.4	4	33.25	15.35	14.65	36	35	39.55	10.26
M30	3.5	72	85	0.8	0.2	33.4	6	42.75	19.12	18.28	46	45	50.85	12.8
M36	4	84	97	0.8	0.2	39.4	6	51.11	22.92	22.08	55	53.8	60.79	15.46
M42	4.5	96	109	1	0.3	45.6	8	59.95	26.42	25.58	65	63.1	71.3	17.91
M48	5	108	121	1	0.3	52.6	10	69.45	30.42	29.58	75	73.1	82.6	20.71
M56	5.5	-	137	1	0.3	63	12	78.66	35.5	34.5	85	82.8	93.56	24.15
M64	6	-	153	1	0.3	71	13	88.16	40.5	39.5	95	92.8	104.86	27.65
Tolerance on Length		110-120mm: ±1.75		130-180mm: ±2.0		200-240mm: ±2.3		260-300mm: ±2.6		320-400mm: ±2.85		420-500mm: ±3.15		



CLASS 8.8 BOLTS

Description	A hex bolt with metric thread pitch made from medium carbon steel and heat-treated. Grade-A bolts are the preferred style for most applications. Grade-B bolts have looser tolerances and can be manufactured in a cold or hot-forging process.
Applications/Advantages	Has greater tensile strength than Class 4.6, 4.8 and 5.8 bolts.
Material	Class 8.8 bolts can be made from a carbon steel with additives (such as Boron, Manganese or Chromium) which conforms to the following chemical composition-- <i>Carbon: 0.15-0.40%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i> In case of plain carbon boron alloyed steel with a carbon content of less than 0.25% (ladle analysis), the minimum <i>Manganese</i> content shall be 0.6%
	Class 8.8 bolts can be made from a carbon steel which conforms to the following chemical composition-- <i>Carbon: 0.25-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i>
Heat Treatment	Class 8.8 bolts shall be heat treated by quenching in a liquid medium from above the transformation temperature and reheating to a tempering temperature of 425°C.
Core Hardness	For diameters less than or equal to 16mm: Rockwell C22 - 32 (Vickers HV 250 - 320) For diameters greater than 16mm: Rockwell C23 - 34 (Vickers HV 255 - 335)
Surface Hardness	Shall not be more than 30 Vickers points above the measured core hardness on the product
Proof Load	For diameters less than or equal to 16mm: 640 N/mm² minimum For diameters greater than 16mm: 660 N/mm² minimum
Tensile Strength	For diameters less than or equal to 16mm: 800 N/mm² minimum For diameters greater than 16mm: 830 N/mm² minimum
Elongation	12% minimum
Plating	See Appendix-A for plating information



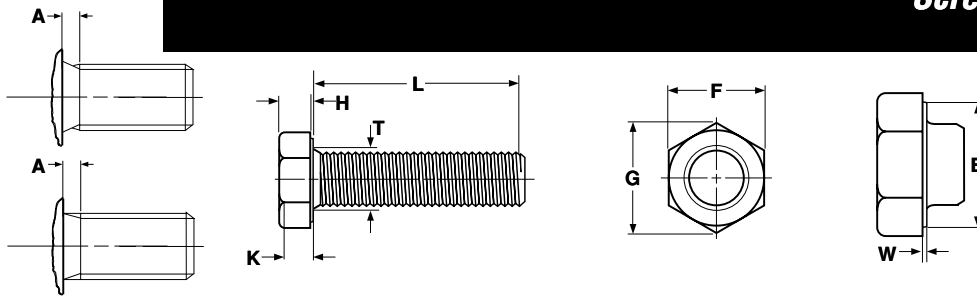
CLASS 10.9 BOLTS

Description	A bolt with metric thread pitch made from medium carbon alloy steel and heat-treated. Grade-A bolts are the preferred style for most applications. Grade-B bolts have looser tolerances and can be manufactured in a cold or hot-forging process.
Applications/Advantages	Has greater tensile strength than Class 8.8 bolts; is most comparable but not exactly equivalent to U.S. Grade 8 cap screws.
Material	Class 10.9 bolts can be made from a carbon steel which conforms to the following chemical composition-- <i>Carbon: 0.25-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i>
	Class 10.9 bolts can be made from a low carbon martensite steel with additives (such as Boron, Manganese or Chromium) which conforms to the following chemical composition-- <i>Carbon: 0.20-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i> In case of plain carbon boron alloyed steel with a carbon content of less than 0.25% (ladle analysis), the minimum <i>Manganese</i> content shall be 0.7%
	Class 10.9 bolts can be made from an alloy steel which conforms to the following chemical composition-- <i>Carbon: 0.20-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum;</i> and shall contain one or more of the following elements: <i>Chromium, Nickel, Molybdenum or Vanadium</i>
Heat Treatment	Class 10.9 bolts shall be heat treated by quenching in oil from above the transformation temperature and reheating to a tempering temperature of 425°C.
Core Hardness	Rockwell C32 - 39 (Vickers HV 320 - 380)
Surface Hardness	Shall not be more than 30 Vickers points above the measured core hardness on the product
Proof Load	940 N/mm ² minimum
Tensile Strength	1040 N/mm ² minimum
Elongation	9% minimum
Plating	See Appendix-A for plating information

Cap Screws & Bolts

METRIC

Full Thread Hex Cap Screws Grade-A & B



METRIC - HEX HEAD CAP SCREWS, FULL THREAD, PRODUCT GRADE A

ISO 4017

Nominal Size	Thread Pitch	A		W		T	E	H		F		G	K
		Thread Run-Out		Washer Face Thickness		Fillet Transition Diameter	Washer Face Diameter	Head Height		Width Across Flats		Width Across Corners	Wrenching Height
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Min	Min
M1.6	0.35	1.05	0.35	0.25	0.1	2	2.27	1.225	0.975	3.2	3.02	3.41	0.68
M2	0.4	1.2	0.4	0.25	0.1	2.6	3.07	1.525	1.275	4	3.82	4.32	0.89
M2.5	0.45	1.35	0.45	0.25	0.1	3.1	4.07	1.825	1.575	5	4.82	5.45	1.1
M3	0.5	1.5	0.5	0.4	0.15	3.6	4.57	2.125	1.875	5.5	5.32	6.01	1.31
M4	0.7	2.1	0.7	0.4	0.15	4.7	6.03	2.925	2.675	7	6.78	7.66	1.87
M5	0.8	2.4	0.8	0.5	0.15	5.7	6.88	3.65	3.35	8	7.78	8.79	2.35
M6	1	3	1	0.5	0.15	6.8	8.88	4.15	3.85	10	9.78	11.05	2.7
M8	1.25	4	1.25	0.6	0.15	9.2	11.63	5.45	5.15	13	12.73	14.38	3.61
M10	1.5	4.5	1.5	0.6	0.15	11.2	14.63	6.58	6.22	16*	15.73	17.77	4.35
M12	1.75	5.3	1.75	0.6	0.15	13.7	16.63	7.68	7.32	18*	17.73	20.03	5.12
M14	2	6	2	0.6	0.15	15.7	19.37	8.98	8.62	21*	20.67	23.36	6.03
M16	2	6	2	0.8	0.2	17.7	22.49	10.18	9.82	24	23.67	26.75	6.87
M20	2.5	7.5	2.5	0.8	0.2	22.4	28.19	12.715	12.285	30	29.67	33.53	8.6
M24	3	9	3	0.8	0.2	26.4	33.61	15.215	14.785	36	35.38	39.98	10.35

Tolerance on Length	2-3mm: ±0.2		4-6mm: ±0.24		8-10mm: ±0.29	
	12-16mm: ±0.35		20-30mm: ±0.42		35-50mm: ±0.5	
	55-80mm: ±0.6		90-120: ±0.7		130-150mm: ±0.8	

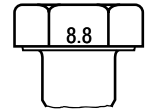
*DIN 933 spec for maximum width across flats on these three diameters are 17, 19 & 22 mm, respectively.

METRIC - HEX HEAD CAP SCREWS, PRODUCT GRADE B

ISO 4017

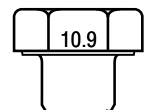
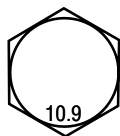
Nominal Size	Thread Pitch	A		W		T	E	H		F		G	K
		Thread Run-Out		Washer Face Thickness		Fillet Transition Diameter	Washer Face Diameter	Head Height		Width Across Flats		Width Across Corners	Wrenching Height
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Min	Min
M16	2	6	2	0.8	0.2	17.7	22	10.29	9.71	24	23.16	26.17	6.8
M20	2.5	7.5	2.5	0.8	0.2	22.4	27.7	12.85	12.15	30	29.16	32.95	8.51
M24	3	9	3	0.8	0.2	26.4	33.25	15.35	14.65	36	35	39.55	10.26
M30	3.5	10.5	3.5	0.8	0.2	33.4	42.75	19.12	18.28	46	45	50.85	12.8
M36	4	12	4	0.8	0.2	39.4	51.11	22.92	22.08	55	53.8	60.79	15.46
M42	4.5	13.5	4.5	1	0.3	45.6	59.95	26.42	25.58	65	63.1	71.3	17.91
M48	5	15	5	1	0.3	52.6	69.45	30.42	29.58	75	73.1	82.6	20.71
M56	5.5	16.5	5.5	1	0.3	63	78.66	35.5	34.5	85	82.8	93.56	24.15
M64	6	18	6	1	0.3	71	88.16	40.5	39.5	95	92.8	104.86	27.65

Tolerance on Length	60-80mm: ±1.5	90-120mm: ±1.75	130-180mm: ±2.0	200mm: ±2.3
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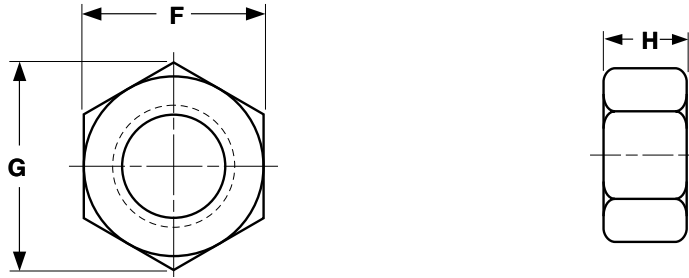
CLASS 8.8 FULL-THREAD CAP SCREWS

Description	A cap screw with metric thread pitch, threaded to the head, made from medium carbon steel and heat-treated. Grade-A bolts are the preferred style for most applications. Grade-B bolts have looser tolerances and can be manufactured in a cold or hot-forging process.
Applications/ Advantages	Has greater tensile strength than Class 4.6, 4.8 and 5.8 cap screws. Being threaded to the head makes the part useful for mounting motors to machinery. They are also used in automotive and truck repair.
Material	Class 8.8 cap screws can be made from a carbon steel with additives (such as Boron, Manganese or Chromium) which conforms to the following chemical composition-- <i>Carbon: 0.15-0.40%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i> In case of plain carbon boron alloyed steel with a carbon content of less than 0.25% (ladle analysis), the minimum <i>Manganese</i> content shall be 0.6%
	Class 8.8 cap screws can be made from a carbon steel which conforms to the following chemical composition-- <i>Carbon: 0.25-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i>
Heat Treatment	Class 8.8 cap screws shall be heat treated by quenching in a liquid medium from above the transformation temperature and reheating to a tempering temperature of 425°C.
Core Hardness	For diameters less than or equal to 16mm: Rockwell C22 - 32 (Vickers HV 250 - 320) For diameters greater than 16mm: Rockwell C23 - 34 (Vickers HV 255 - 335)
Surface Hardness	Shall not be more than 30 Vickers points above the measured core hardness on the product
Proof Load	For diameters less than or equal to 16mm: 640 N/mm² minimum For diameters greater than 16mm: 660 N/mm² minimum
Tensile Strength	For diameters less than or equal to 16mm: 800 N/mm² minimum For diameters greater than 16mm: 830 N/mm² minimum
Elongation	12% minimum
Plating	See Appendix-A for plating information



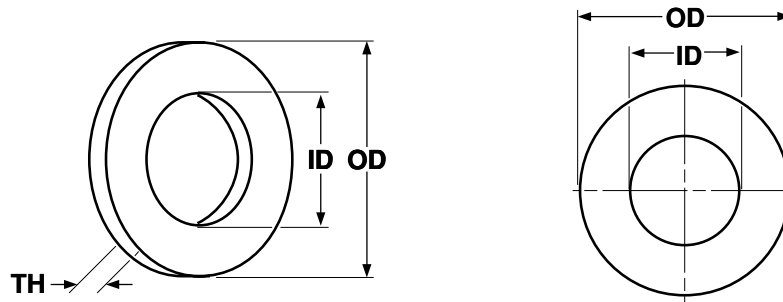
CLASS 10.9 FULL-THREAD CAP SCREWS

Description	A cap screw with metric thread pitch, threaded to the head, made from medium carbon alloy steel and heat-treated. Grade-A bolts are the preferred style for most applications. Grade-B bolts have looser tolerances and can be manufactured in a cold or hot-forging process.
Applications/ Advantages	Has greater tensile strength than Class 8.8 full-thread cap screws. Is most comparable but not exactly equivalent to U.S. Grade 8 cap screws.
Material	Class 10.9 cap screws can be made from a carbon steel which conforms to the following chemical composition-- <i>Carbon: 0.25-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i>
	Class 10.9 cap screws can be made from a low carbon martensite steel with additives (such as Boron, Manganese or Chromium) which conforms to the following chemical composition-- <i>Carbon: 0.20-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum.</i> In case of plain carbon boron alloyed steel with a carbon content of less than 0.25% (ladle analysis), the minimum <i>Manganese</i> content shall be 0.7%
	Class 10.9 cap screws can be made from an alloy steel which conforms to the following chemical composition-- <i>Carbon: 0.20-0.55%; Phosphorus: 0.035% maximum; Sulfur: 0.035% maximum;</i> and shall contain one or more of the following elements: <i>Chromium, Nickel, Molybdenum or Vanadium</i>
Heat Treatment	Class 10.9 cap screws shall be heat treated by quenching in oil from above the transformation temperature and reheating to a tempering temperature of 425°C.
Core Hardness	Rockwell C32 - 39 (Vickers HV 320 - 380)
Surface Hardness	Shall not be more than 30 Vickers points above the measured core hardness on the product
Proof Load	940 N/mm ² minimum
Tensile Strength	1040 N/mm ² minimum
Elongation	9% minimum
Plating	See Appendix-A for plating information



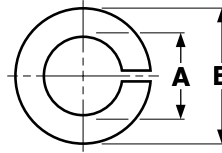
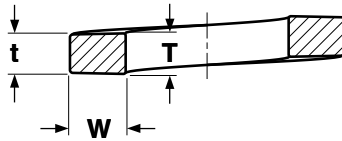
METRIC - HEX NUTS, DIN 934						DIN 934
Nominal Size	Thread Pitch	F		H		
		Width Across Flats		Thickness		
		Max	Min	Max	Min	
M2	0.4	4	3.82	1.6	1.35	
M2.5	0.45	5	4.82	2	1.75	
M3	0.5	5.5	5.32	2.4	2.15	
M4	0.7	7	6.78	3.2	2.9	
M5	0.8	8	7.78	4	3.7	
M6	1	10	9.78	5	4.7	
M8	1.25	13	12.73	6.5	6.14	
M10	1.5	17	16.73	8	7.64	
M12	1.75	19	18.67	10	9.64	
M16	2	24	23.67	13	12.3	
M20	2.5	30	29.16	16	14.9	

Description	A Style 1, heat treated fastener with a metric thread pitch. Nuts M16 and smaller are chamfered on the top and the bearing surface. Nuts M20 and larger may be either double chamfered, or have a washer face on one side and a chamfered surface on the opposite side.			
Applications/ Advantages	Class 6 nuts are to be used with screws and bolts of property class 6.8 or lower. They are commonly used with metric machine screws.	Class 8 nuts are for use with screws and bolts of property class 8.8 and lower. They are often used in automotive and electronic applications.	Class 10 nuts are intended for use with screws and bolts of property classes 10.9 and lower. They are widely used in farm equipment.	18-8 stainless steel nuts are intended for use with 18-8 screws and bolts. They are used where corrosion resistance is desired.
Material	Class 6 nuts shall be made of a steel which conforms to the following chemical composition-- Carbon: 0.50% maximum; Phosphorus: 0.060% maximum; Sulfur: 0.150% maximum.	Class 8 nuts shall be made of a steel which conforms to the following chemical composition-- Carbon: 0.58% maximum; Manganese: 0.25% minimum; Phosphorus: 0.060% maximum; Sulfur: 0.150% maximum.	Class 10 nuts shall be made of a steel which conforms to the following chemical composition-- Carbon: 0.58% maximum; Manganese: 0.30% minimum; Phosphorus: 0.048% maximum; Sulfur: 0.058% maximum.	Diameters M3 & M4: A2-50 Diameters M5 & M6: A2-70
Heat Treatment		Class 8 nuts of diameter 18mm or greater shall be heat treated by quenching in a liquid medium from a temperature above the transformation temperature and tempering at a temperature of at least 425°C.	Class 10 nuts shall be heat treated by quenching in a liquid medium from a temperature above the transformation temperature and tempering at a temperature of at least 425°C.	
Hardness	Class 6: Thru M16 Diam: Rockwell B78.7 - C30; Diam M18 thru M39: Rockwell B85 - C30	Class 8: Diam M1.6 thru M4: Rockwell B87.1 - C30; Diam M5 thru M16: Rockwell B91.5 - C30; Diam M18 thru M39: Rockwell C18 - 36.	Class 10: Rockwell C26 - 36	Diameters M3 & M4: Rockwell B81 - B95 Diameters M5 & M6: Rockwell B96 - C33
Proof Load	Diameters M1.6 thru M10: 600 N/mm ² Diameters M5 thru M7: 670 N/mm ² Diameters M8 thru M10: 680 N/mm ² Diameters M12 thru M16: 700 N/mm ² Diameters M18 thru M36: 720 N/mm ²	Diameters M1.6 thru M4: 900 N/mm ² Diameters M5 thru M7: 855 N/mm ² Diameters M8 thru M10: 870 N/mm ² Diameters M12 thru M16: 880 N/mm ² Diameters M18 thru M36: 920 N/mm ²	Diameters through M10: 1040 N/mm ² Diameters M12 through M16: 1050 N/mm ² Diameters M18 through M39: 1060 N/mm ²	Diameters M3 & M4: 500 MPa Diameters M5 & M6: 700 MPa
Plating	DIN 934 Hex Nuts are commonly supplied in both plain and zinc finishes; see Appendix-A for more details.			Usually supplied plain



METRIC - STANDARD FLAT WASHERS, PER DIN 125A						DIN 125A
Nominal Size	ID		OD		T	
	Internal Diameter		Outside Diameter		Thickness	
	Max	Min	Max	Min	Max	Min
3	3.38	3.2	7	6.64	0.55	0.45
3.5	3.88	3.7	8	7.64	0.55	0.45
4	4.48	4.3	9	8.64	0.9	0.7
5	5.48	5.3	10	9.64	1.1	0.9
6	6.62	6.4	12	11.57	1.8	1.4
8	8.62	8.4	16	15.57	1.8	1.4
10	10.77	10.5	20	19.48	2.2	1.8
12	13.27	13	24	23.48	2.7	2.3
16	17.27	17	30	29.48	3.3	2.7
20	21.33	21	37	36.38	3.3	2.7

Description	A thin, flat circular part with a centrally located hole with outside diameter approximately twice the nominal thread diameter of the bolt or screw to be used with it. The "A" in 125A denotes that this washer is not chamfered.
Applications/Advantages	This is the most commonly used flat washer with low carbon bolts, screws and nuts.
Material	Steel HV-140
Hardness	HV 140 - 250
Plating	See Appendix-A for information about the plating of flat washers.



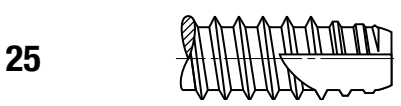
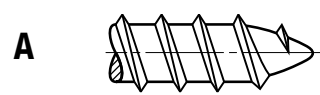
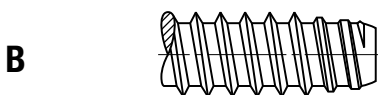
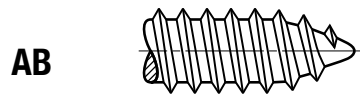
METRIC - SPLIT LOCKWASHERS

DIN 127B

Nominal Washer Size	A		B	T	W
	Inside Diameter		Outside Diameter	Section Thickness	Section Width
	Max	Min	Ref	Ref	Ref
M2	2.4	2.1	4.4	0.50	0.9
M2.5	2.9	2.6	5.1	0.60	1
M3	3.4	3.1	6.2	0.80	1.3
M4	4.4	4.1	7.6	0.90	1.5
M5	5.4	5.1	9.2	1.20	1.8
M6	6.5	6.1	11.8	1.60	2.5
M8	8.5	8.1	14.8	2	3
M10	10.7	10.2	18.1	2.2	3.5
M12	12.7	12.2	21.1	2.5	4
M16	17.0	16.2	27.4	3.5	5
M20	21.2	20.2	33.6	4	6
M24	25.5	24.5	40	5	7
M30	31.7	30.5	48.2	6	8
M36	37.7	36.5	58.2	6	10
M42	43.7	42.5	68.2	7	12
M48	50.5	49	75	7	12

Description	A coiled, hardened, split circular washer with a slightly trapezoidal wire section, for use with metric screws.	
Applications/ Advantages	(A) Applies greater bolt tension per unit of applied torque; (B) Provides a hardened bearing surface, creating more uniform torque control; (C) Provides more uniform load distribution; (D) Resists loosening caused by vibration and corrosion; (E) Is preferred lockwasher for use with hardened bearing surfaces.	For use with stainless nuts and screws of a similar stainless alloy in corrosive environments.
Material	Spring steel	A2 Stainless (Class 304)
Hardness	Rockwell C 44 - 51	M2 thru M16: Rockwell C 35 - 43 Over M16: Rockwell C 32 - 43
Plating	See Appendix-A for information about the plating of carbon steel lock washers.	

HOLE SIZE DATA Types A, AB, B, 25



SUGGESTED TEST PLATE THICKNESSES & HOLE SIZES FOR TYPES AB - B - 25					
Nominal Screw Size & No. of Threads per Inch	Thickness			Hole Size	
	Gage	Max	Min	Drill Size	Hole Diam.
2-32	18	.0500	.0460	48	.0760
3-28	18	.0500	.0460	46	.0810
4-24	18	.0500	.0460	44	.0860
5-20	18	.0500	.0460	36	.1065
6-20	14	.0770	.0730	32	.1160
7-19	14	.0770	.0730	30	.1285
8-18	14	.1270	.1230	29	.1360
10-16	1/8	.1270	.1230	21	.1590
12-14	1/8	.1270	.1230	3/16	.1875
1/4-14	3/16	.1905	.1845	5.5 mm	.2165
5/16-12	3/16	.1905	.1845	1	.2720
3/8-12	3/16	.1905	.1845	21/64	.3281

SUGGESTED HOLE SIZES FOR TYPE A		
Nominal Screw Size	Hole Size	
	Drill Size	Hole Diam.
6-18	#32	0.1160
7-16	#30	0.1285
8-15	#29	0.1360
10-12	#21	0.1590
12-11	3/16	0.1875
14-10	5.5mm	0.2165
20-9	L	0.2900
24-9	11/32	0.3438

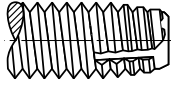
Notes Regarding Hole Preparation:

- Preformed holes can be drilled, cored, punched, pierced or extruded. If edge burrs can cause assembly difficulty, they should be removed. Wall ovality and/or taper can affect load carrying ability.
- “Minimum torsional strength” is the torque that free standing screws must accept without evidence of damage or failure.

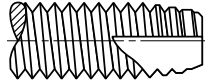
Types 1, 23, F, U & High-Low

HOLE SIZE DATA

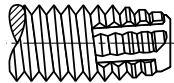
Type 1



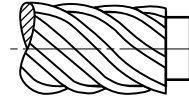
Type 23



Type F



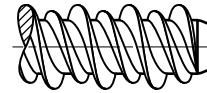
Type U
Drive Screw



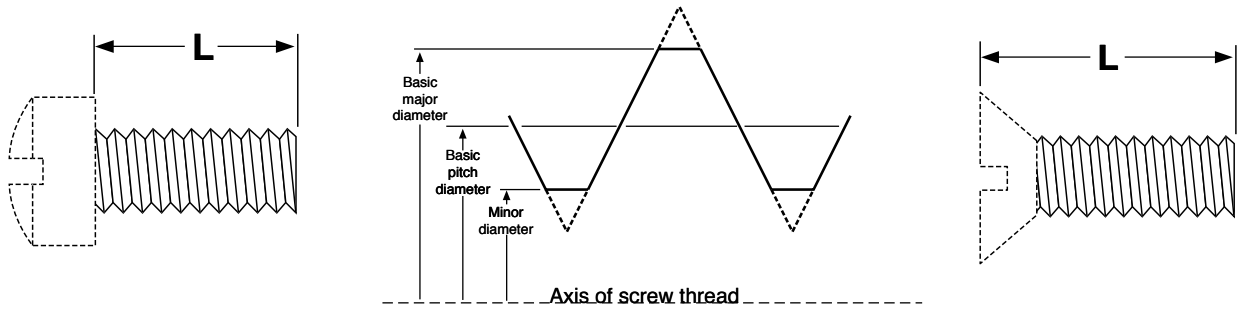
RECOMMENDED HOLE SIZES -- TYPE-U DRIVE SCREWS		
Screw Size	Drill Size No.	Hole Diameter
00	55	.052
0	51	.067
2	44	.086
4	37	.104
6	31	.120
7	29	.136
8	27	.144
10	20	.161
12	11	.191
14	2	.221

SUGGESTED TEST PLATE THICKNESSES & HOLE SIZES FOR TYPES 1, 23 & F THREAD CUTTING SCREWS					
Nominal Screw Size & Thread Pitch	Thickness			Hole Size	
	Gage	Max	Min	Drill Size	Hole Diam.
2-56	18	.0800	.0760	49	0.0730
3-48	18	.0960	.0920	46	0.0810
4-40	18	.1110	.1070	41	0.0960
5-40	18	.1110	.1070	37	0.1010
6-32	14	.1425	.1385	31	0.1200
8-32	14	.1905	.1845	26	0.1470
10-24	1/8	.1905	.1845	17	0.1730
10-32	1/8	.1905	.1845	16	0.1770
12-24	1/8	.1905	.1845	8	0.1990
1/4-20	3/16	.2530	.2470	1	0.2280
5/16-18	3/16	.3155	.3095	L	0.2900
3/8-16	3/16	.3780	.3720	T	0.3580
1/2-13	3/16	.471	.443	29/64	0.4531

High-
Low



SUGGESTED HOLE SIZES -- HIGH-LOW SCREWS		
Nominal Screw Size & Number of Threads per Inch	Pilot Hole Diameter Flexural Modulus of Plastic	
	Up to 200,000 P.S.I.	200,000-400,000 P.S.I.
2-32	.0670	.0700
3-28	.0730	.0781
4-24	.0810	.0860
5-20	.0935	.0995
6-19	.1015	.1100
7-19	.1200	.1250
8-18	.1200	.1285
10-16	.1360	.1440
12-16	.1570	.1660
1/4-15	.1890	.2010
5/16-14	.2380	.2500



2A EXTERNAL THREADS FOR MACHINE SCREWS AND SEMS

ASME B 1.1 (2002)

Nominal Size & Threads per Inch	Series Designation	Allowance	Major Diameter		Pitch Diameter			Stress Area, in ²	Tensile Strength, ^a lb., min. (STEEL screws only)
			Max	Min	Max	Min	Tolerance		
0-80 0.060	UNF	.0005	.0595	.0563	.0514	.0496	.001762	0.00180	-
1-64 0.073	UNC	.0006	.0724	.0686	.0623	.0603	.001970	0.00263	-
1-72 0.073	UNF	.0006	.0724	.0689	.0634	.0615	.001899	0.00278	-
2-56 0.086	UNC	.0006	.0854	.0813	.0738	.0717	.002127	0.00370	-
2-64 0.086	UNF	.0006	.0854	.0816	.0753	.0733	.002040	0.00394	-
3-48 0.099	UNC	.0007	.0983	.0938	.0848	.0825	.002302	0.00487	-
3-56 0.099	UNF	.0007	.0983	.0942	.0867	.0845	.002191	0.00523	-
4-40 0.112	UNC	.0008	.1112	.1061	.0950	.0925	.002507	0.00604	360
4-48 0.112	UNF	.0007	.1113	.1068	.0978	.0954	.002361	0.00661	396
5-40 0.125	UNC	.0008	.1242	.1191	.1080	.1054	.002562	0.00796	470
5-44 0.125	UNF	.0007	.1243	.1195	.1095	.1070	.002484	0.00830	498
6-32 0.138	UNC	.0008	.1372	.1312	.1169	.1141	.002820	0.00909	550
6-40 0.138	UNF	.0008	.1372	.1321	.1210	.1184	.002614	0.01015	609
8-32 0.164	UNC	.0009	.1631	.1571	.1428	.1399	.002916	0.0140	850
8-36 0.164	UNF	.0008	.1632	.1577	.1452	.1424	.002804	0.01474	884
10-24 0.190	UNC	.0010	.1890	.1818	.1619	.1586	.003319	0.0175	1050
10-32 0.190	UNF	.0009	.1891	.1831	.1688	.1658	.003004	0.0200	1200
12-24 0.216	UNC	.0010	.2150	.2078	.1879	.1845	.003400	0.0242	1450
12-28 0.216	UNF	.0010	.2150	.2085	.1918	.1886	.003224	0.0258	1548
1/4-20 0.250	UNC	.0011	.2489	.2408	.2164	.2127	.003731	0.0318	1900
1/4-28 0.250	UNF	.0010	.2490	.2425	.2258	.2225	.003322	0.0364	2200
5/16-18 0.3125	UNC	.0012	.3113	.3026	.2752	.2712	.004041	0.0524	3150
5/16-24 0.3125	UNF	.0011	.3114	.3042	.2843	.2806	.003660	0.0580	3480
3/8-16 0.375	UNC	.0013	.3737	.3643	.3331	.3287	.004363	0.0775	4650
3/8-24 0.375	UNF	.0011	.3739	.3667	.3468	.3430	.003804	0.0878	5268
1/2-13 0.500	UNC	.0015	.4985	.4876	.4485	.4435	.004965	0.1419	8500
1/2-20 0.500	UNF	.0013	.4987	.4906	.4662	.4619	.004288	0.1599	9594

Tolerance on Length L	Nominal Screw Size	Nominal Screw Length			
		Up to 1/2 in., incl.	Over 1/2 to 1 in., incl.	Over 1 to 2 in., incl.	Over 2 in.
	0 thru 12		-0.02	-0.03	-0.06	-0.09
1/4 thru 3/4		-0.03	-0.03	-0.06	-0.09

^aTensile strength values are based on 60,000 psi. and apply to carbon steel screws and SEMS only. Hex and Hex Washer head machine screws of sufficient length may be wedge tensile tested. Other head styles may be axial tensile tested.

TAP DRILL SIZES

THREAD	DRILL	THREAD	DRILL
0-80	3/64	M8.0-1	7.0M
M1.6-.35	1.25M	3/8-16	5/16
1-64	54	3/8-24	Q
M1.8-.35	1.45M	M10-1.5	8.5M
1-72	53	M10-1.25	11/32
M2.0-.4	1.60M	7/16-14	U
2-56	51	7/16-20	25/64
M2.2-.45	1.75M	M12-1.75	Y
2-64	50	1/2-13	27/64
3-48	47	M12-1.25	10.8M
M2.5-.45	2.05M	1/2-20	29/64
3-56	45	M14-2	12.0M
4-40	43	9/16-12	31/64
4-48	42	M14-1.5	12.5M
M3.0-.5	2.50M	9/16-18	33/64
5-40	38	M16-2	14.0M
5-44	37	5/8-11	17/32
6-32	36	M16-1.5	14.5M
6-40	33	5/8-18	37/64
M3.5-.6	2.90M	M18-2.5	15.5M
M4.0-.7	3.30M	M18-1.5	16.5M
8-32	29	3/4-10	21/32
8-36	29	3/4-16	11/16
M4.5-.75	26	M20-2.5	17.5M
10-24	25	M20-1.5	18.5M
10-32	21	7/8-9	49/64
M5.0-.8	4.20M	M22-2.5	19.5M
12-24	16	M22-1.5	20.5M
12-28	14	7/8-14	13/16
M6.0-1	5.0M	M24-3	21.0M
1/4-20	7	M24-2	22.0M
1/4-28	3	1-8	7/8
M7.0-1	6.0M	1-12	59/64
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Harrison & Bonini

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SAN FRANCISCO, CA 94103
Phone (415) 861-8300

TAP DRILL SIZES

TAP SIZE	DRILL SIZE	PROBABLE % THREAD	TAP SIZE	DRILL SIZE	PROBABLE % THREAD	TAP SIZE	DRILL SIZE	PROBABLE % THREAD
0-80	3/64	71-81	10-32	21	68-76	5/8-18	37/64	58-65
M1.6 x .35	1.25 mm	69-77	M5 x .8	4.2 mm	69-77	M16 x 2	35/64	76-81
1-64	53	59-67	12-24	16	66-72	3/4-10	21/32	68-72
M2 x .4	1/16	72-79	12-28	15	70-78	3/4-16	11/16	71-77
1-72	53	67-75	M6 x 1	10	76-84	M20 x 2.5	11/16	74-78
2-56	50	62-69	1/4-20	7	70-75	7/8-9	49/64	72-76
2-64	50	70-79	1/4-28	3	72-80	7/8-14	13/16	62-67
M2.5 x .45	2.05 mm	69-77	5/16-18	F	72-77	M24 x 3	53/64	72-76
3-48	5/64	70-77	5/16-24	I	67-75	1-8	7/8	73-77
3-56	46	69-78	M8 x 1.25	6.7 mm	74-80	1-12	59/64	67-72
4-40	43	65-71	3/8-16	5/16	72-77	1-14	15/16	61-67
4-48	42	61-68	3/8-24	Q	71-79	1-1/8 - 7	63/64	72-76
M3 x .5	40	70-79	M10 x 1.5	8.4 mm	76-82	1-1/8 - 12	1-3/64	66-72
5-40	38	65-72	7/16-14	U	70-75	M30 x 3.5	1-3/64*	75
5-44	37	63-71	7/16-20	25/64	65-72	1-1/4 - 7	1-7/64*	76
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* REAMING RECOMMENDED

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1/8 - 27	R	.3390	11/32	.3438
1/4 - 18	7/16	.4375	7/16	.4375
3/8 - 18	37/64	.5781	37/64	.5781
1/2 - 14	45/64	.7031	23/32	.7188
3/4 - 14	59/64	.9219	59/64	.9219
1 - 11-1/2	1-5/32	1.1562	1-5/32	1.1562
1-1/4 - 11-1/2	1-1/2	1.5000	1-1/2	1.5000
1-1/2 - 11-1/2	1-47/64	1.7344	1-3/4	1.7500
2 - 11-1/2	2-7/32	2.2188	2-7/32	2.2188
2-1/2 - 8	2-41/64	2.6406	2-21/32	2.6562
3 - 8	3-17/64	3.2656	—	—

