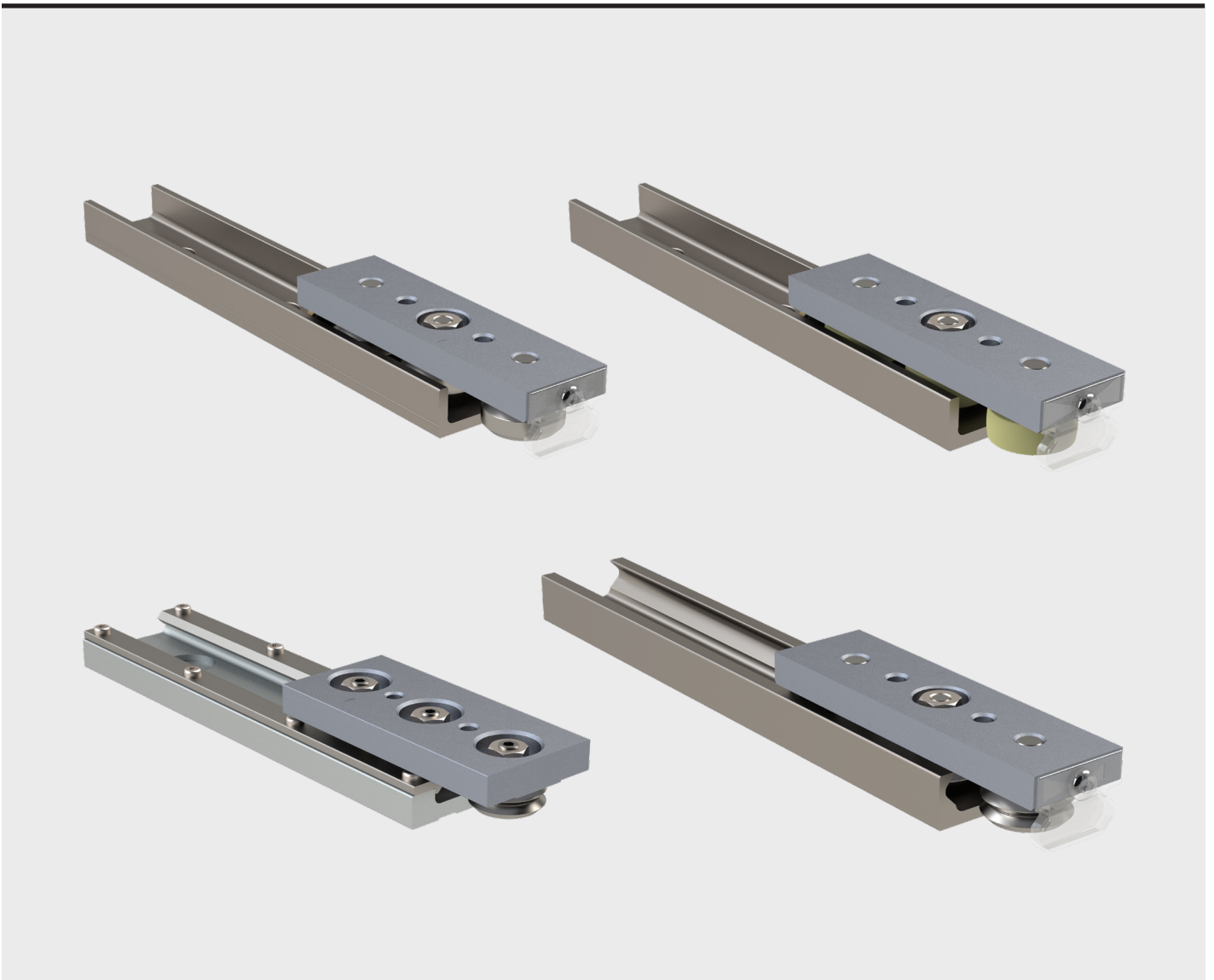


UtiliTrak[®] Series

A LINEAR
GUIDE SOLUTION



BISHOP WISECARVER

Why Choose Bishop-Wisecarver As Your Partner?

We invented the DualVee guide wheel over 40 years ago as a problem solver for harsh, debris-laden environments. Originally offered in only four sizes from carbon steel, DualVee wheels are now available in 6 sizes as well as polymer and stainless steel options. Specialized versions are available for high/low temp, vacuum, washdown, and food/pharma environments. We've expanded past DualVee components to include MadeWell radial wheels and crown rollers, linear guides, linear and rotary actuators, and complete custom solutions.

Leveraging nearly 70 years of machine building experience, we've earned the reputation of providing unmatched quality, reliability, service and engineering support for every stage of a customer's design cycle. No matter your application, volume shipment requirements or extreme environment conditions, Bishop-Wisecarver listens to your specific needs and delivers innovative solutions.

Customers regularly score us not just better, but much better than other companies in

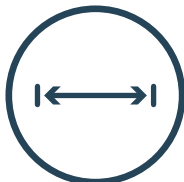
- ✓ Technical & Engineering Support
- ✓ Product & Solution Reliability
- ✓ Service & Parts Support
- ✓ Responsiveness of Customer Service
- ✓ Appreciates Customer Business

Average RMA's < 1%

Our Motion Products and Solutions are Perfect for



HARSH ENVIRONMENTS



LONG LENGTH



LOW NOISE



HIGH/LOW TEMPERATURE



SMOOTH



COMPACT



SPEED UP TO 5.5 G'S



EASE OF ASSEMBLY



LONG LIFE



LOW TOTAL COST OF OWNERSHIP

Application Data Sheet

Company Name _____

Contact Name _____

Address _____

City _____ State _____ Zip Code _____

Phone _____

Email _____

I would like to receive occasional communication (please check) Y N

System Orientation	<input type="checkbox"/> horizontal <input type="checkbox"/> vertical	Repeatability	<input type="checkbox"/> in <input type="checkbox"/> m
Load	<input type="checkbox"/> lbs <input type="checkbox"/> N	Duty Cycle	<input type="checkbox"/> in/day <input type="checkbox"/> m/day
Stroke Length	<input type="checkbox"/> in <input type="checkbox"/> m	Environment	
Velocity	<input type="checkbox"/> in/s <input type="checkbox"/> m/s	Temperature	<input type="checkbox"/> °F <input type="checkbox"/> °C
Accel/Decel	<input type="checkbox"/> in/s ² <input type="checkbox"/> m/s ²		<input type="checkbox"/> lbs <input type="checkbox"/> N
Linear Accuracy	<input type="checkbox"/> in/ft <input type="checkbox"/> mm/m		
Application Description	Design Challenge/Issues to Solve		
Current Design Strength to be Reinforced/ Maximized	Market/Competitive Advantage Opportunities to be Gained		
Expected Volume	Deadline		

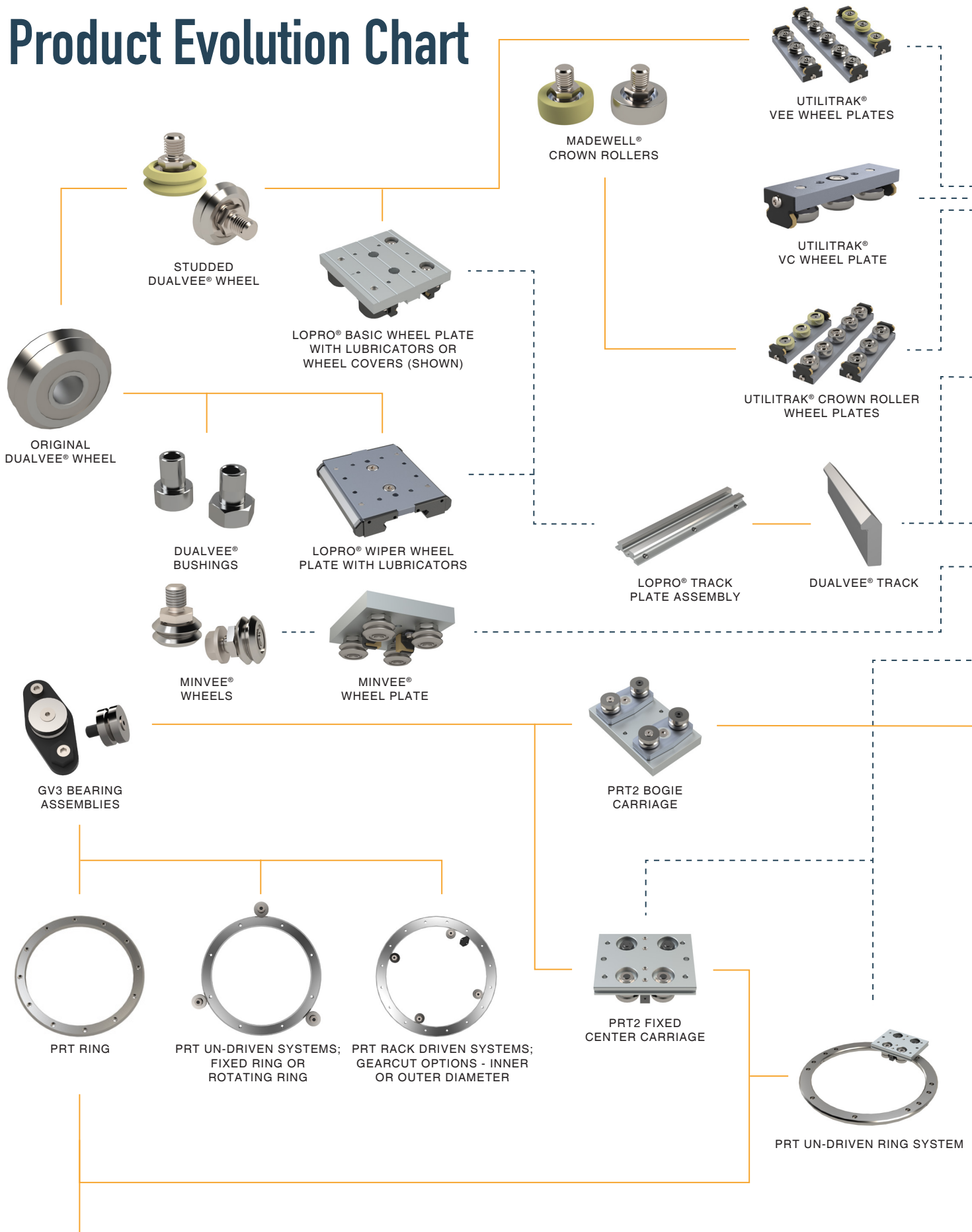
Table of Contents

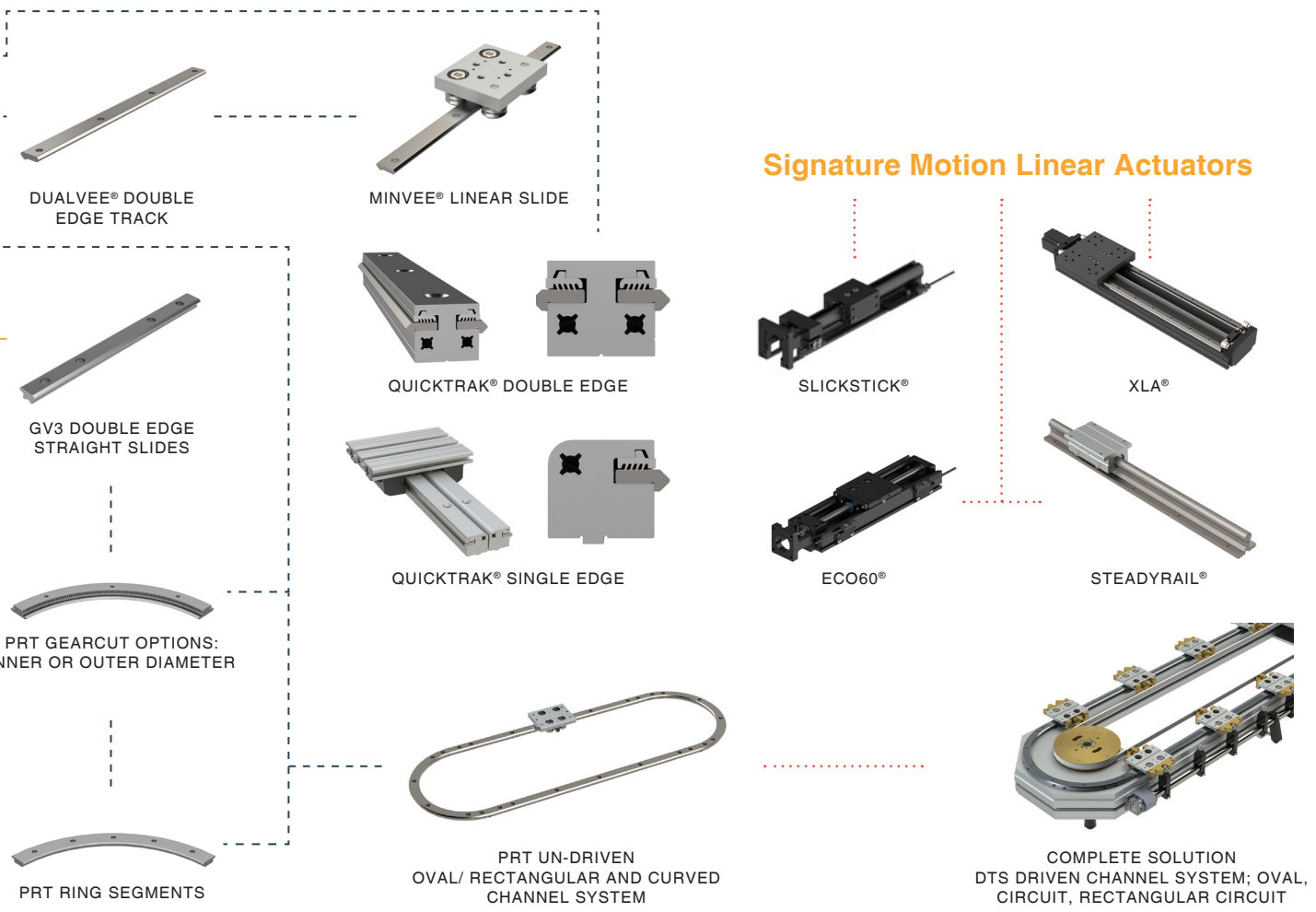
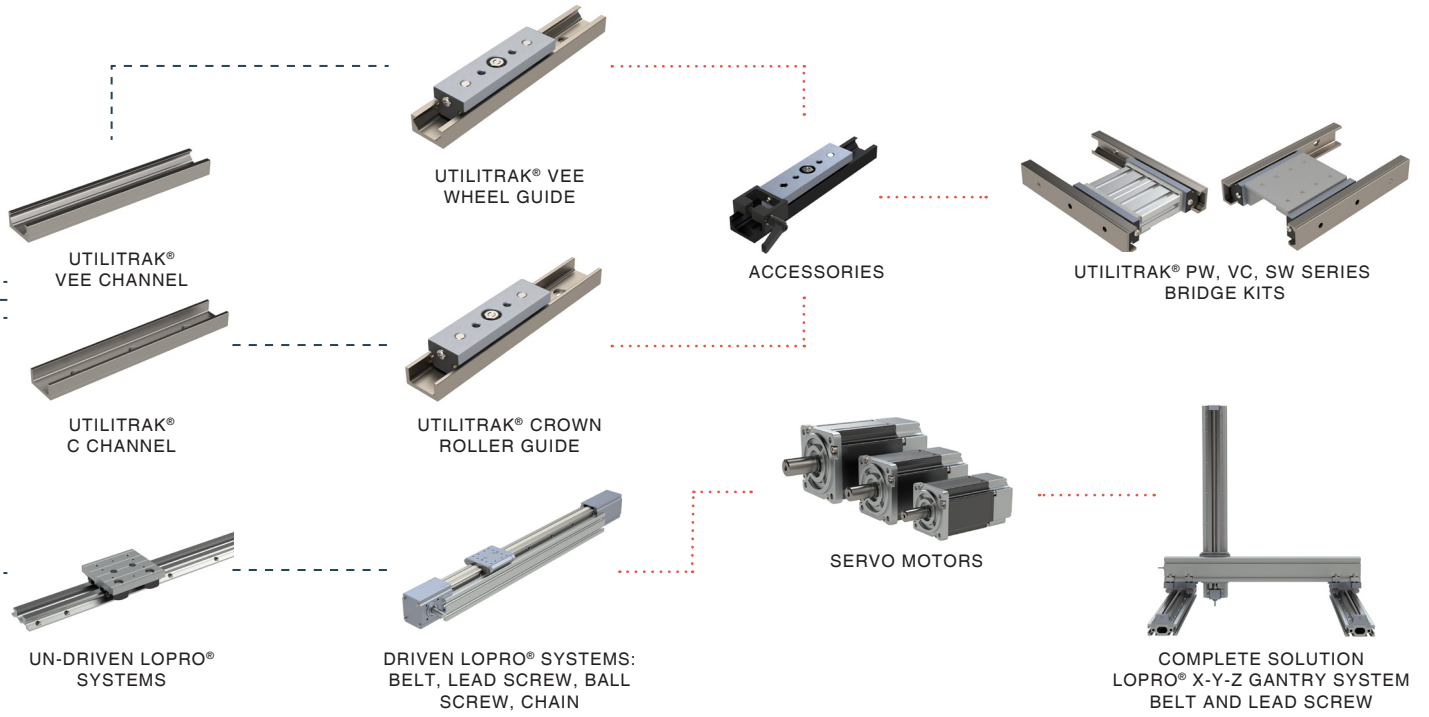
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Fill it out and email to sales@bwc.com

Or fill out online
bwc.com/request-quote.html

Product Evolution Chart





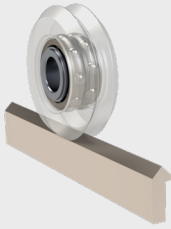
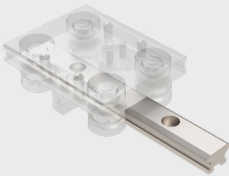
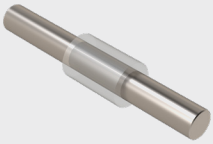
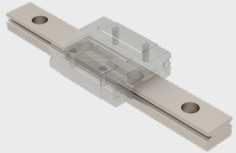




Signature Motion Linear Actuators



Linear Technology Comparison

				
				
Characteristic	90° Vee Wheel	70° Vee Wheel	Round Rail	Square Rail
Ease of Assembly	Excellent	Excellent	Good	Good
Ease of Installation	Excellent	Excellent	Excellent	Poor
Misalignment	Excellent	Excellent	Good	Poor
Compliance	Excellent	Excellent	Good	Poor
Low Profile	Good	Good	Poor	Excellent
Noise	Excellent	Excellent	Good	Good
Long Lengths	Excellent	Excellent	Good	Good
Accuracy	Good	Good	Good	Excellent
Rigidity	Good	Good	Good	Excellent
High Speed	Excellent	Excellent	Good	Good
High Loads	Good	Good	Good	Excellent
Rotary Capability	Yes	Yes	No	Limited
Curvilinear	No	No	No	Limited
Dirty Environment	Excellent	Excellent	Poor	Good
Clean Environment	Good	Good	Good	Excellent
Low/High Temperature	Excellent	Excellent	Good	Good
Customizable	Excellent	Excellent	No	Limited

Introduction

UtiliTrak® linear guides are designed for commercial applications where easy installation and minimal maintenance requirements are the primary design objectives. It is constructed with DualVee Motion Technology® in the vee and vee/crown wheel, or the MadeWell® crown roller designs. These, along with a variety of material and seal options, provides high reliability, easy installation and low maintenance solutions in a sleek, compact design.

Fit up is pre-set for PW, SW, and CR wheel plates, but is easily adjusted by rotating the eccentrically mounted center guide wheels. This allows modification of running characteristics such as drag, breakaway force and preload. The VC series wheel plate is not pre-set.

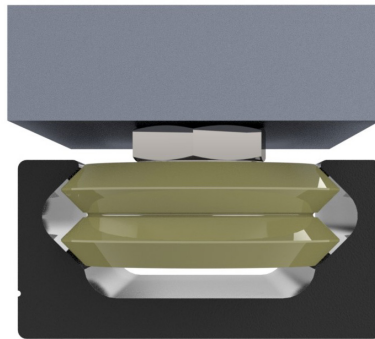
Each wheel plate assembly includes a standard channel lubricator, which distributes a light coat of oil along the length of the channel during normal operation. Channels can be butt-joined for unlimited travel lengths.

Design Benefits

- Very low rolling friction
- Ground channel butt-joint
- Low noise
- Butt-joining precision ground channel for unlimited travel lengths
- High load capacity
- Contamination tolerant
- Low maintenance
- Simple installation

Key Industries

- Architecture
- Automotive
- Medical
- Packaging
- Printing
- Pharmaceutical



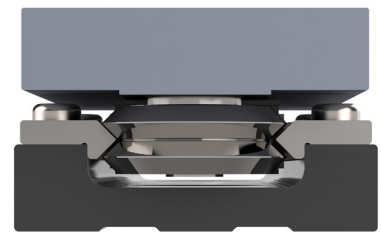
PW Series



VC Series

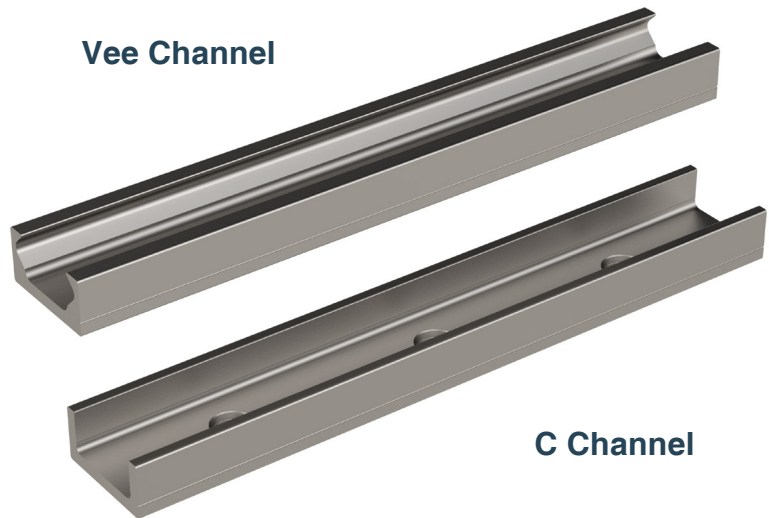


SW Series



CR Series

Vee Channel



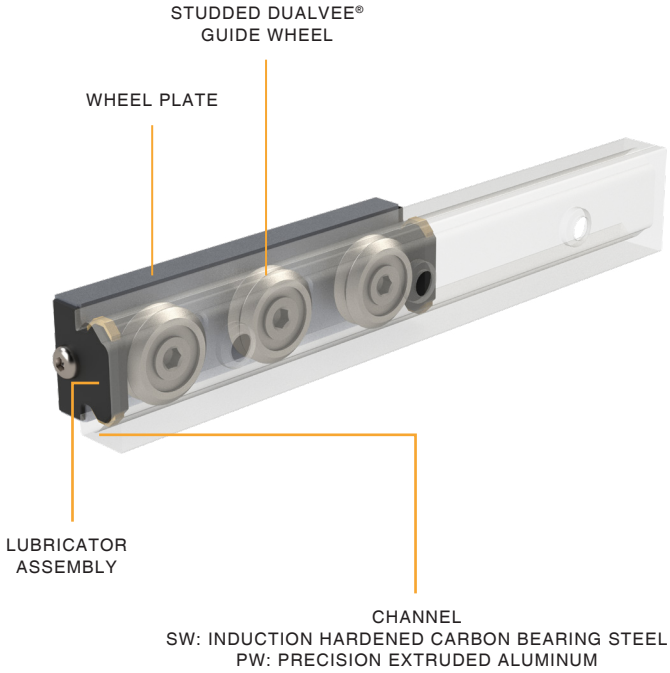
C Channel

UtiliTrak® Series Comparison

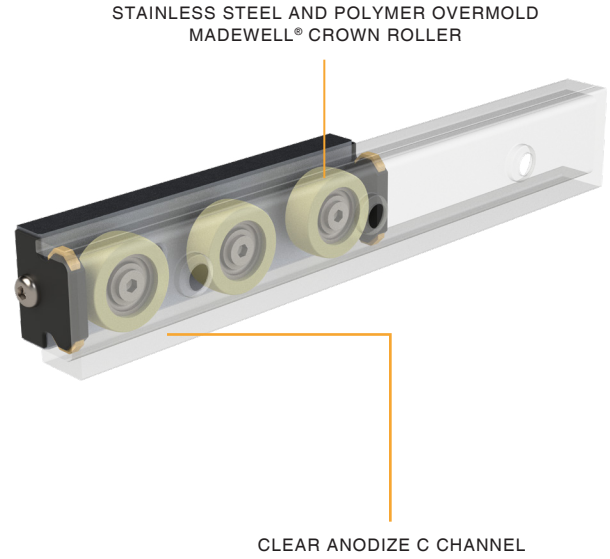
New

		PW Series		VC Series	SW Series		CR Series
		Crown	90° Vee	Vee/Crown	Crown	90° Vee	90° Vee
Overview	Compatible Channel	C Channel	90° Vee	90° Vee	C Channel	90° Vee	90° Vee
	Compatible Wheel Plate	Crown Roller	90° Vee	90° Vee/Crown	Crown Roller	90° Vee	90° Vee
	Loading Direction	Radial Only	Axial & Radial	Vee = Axial Radial Crown = Radial Only	Radial Only	Axial & Radial	Axial & Radial
	Optional Brake	Yes	Yes	Yes	Yes	Yes	Not Available
	Available Sizes	0, 1, 2	0, 1, 2	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Channel	Material(s)	Aluminum	Aluminum	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel & Aluminum
	Standard Coating	Clear Anodize	Clear Anodize	Polyurethane Paint Black Oxide (2019)	Polyurethane Paint Black Oxide (2019)	Polyurethane Paint Black Oxide (2019)	Clear Anodize
	Hardened	No	No	Yes	Yes	Yes	Yes
	Finish	Extruded	Extruded	Precision Ground	Precision Ground	Precision Ground	Polished
Wheel Plate	# of Wheels	3, 4, 5	3, 4, 5	3, 4, 5	3, 4, 5	3, 4, 5	3
	Bearings	Single Row Deep Groove	Single Row Deep Groove	Double Row Angular Contact	Double Row Angular Contact	Double Row Angular Contact	Double Row Angular Contact
	Wheel Material	Polymer Overmold Stainless Steel	Polymer Overmold Stainless Steel	Carbon Steel	Carbon Steel	Carbon Steel Stainless Steel	Stainless Steel
	Wheel Material Grade	Polyacetal & 440C	Polyacetal & 440C	52100	52100	52100 440C	440C
	Max Angular Misalignment	+/- 7°	0°	+/- 2°	+/- 7°	0°	0°
	Wheel Bottom Hex Feature (Size 2 and 3)	Standard	Standard	Not Available	Standard	Optional	Not Available
	Preloaded Adjustment Hex	Metric	Metric	Metric	Metric	Inch	Metric
	Lubrications	Molded Nylon End Caps	Molded Nylon End Caps	Molded Nylon End Caps	Molded Nylon End Caps	Molded Nylon End Caps	Stamped Stainless Steel Center Mounted
	Wheel Protection	Sealed	Sealed	Sealed	Sealed Shielded	Sealed Shielded Seal/Shield Washroom	Sealed Seal/Shield
Wheel Versions	Corrosion Resistant	Corrosion Resistant	Carbon Steel	Carbon Steel	Carbon Steel Corrosion Resistant Food/Pharma High/Low Temp. Vacuum Washdown	Corrosion Resistant	

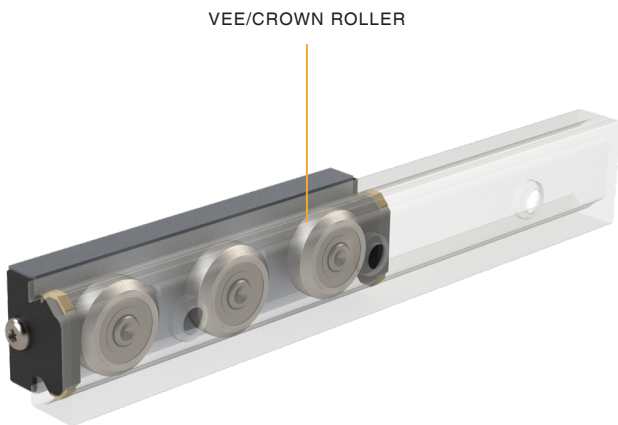
SW Wheel Plate with Vee Wheels in Vee Channel



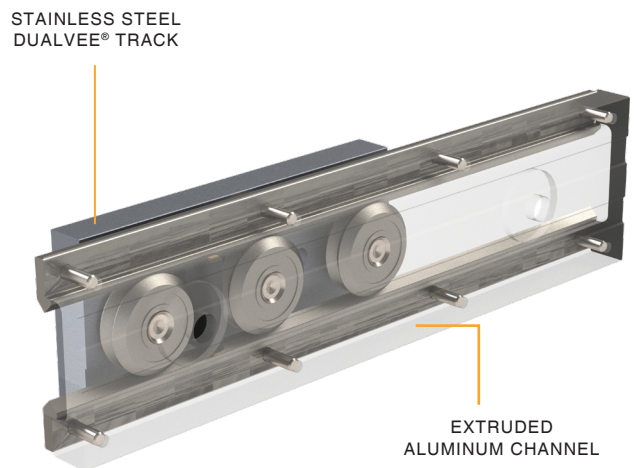
PW Crown Wheel Plate in C Channel



VC Wheel Plate in Vee Channel

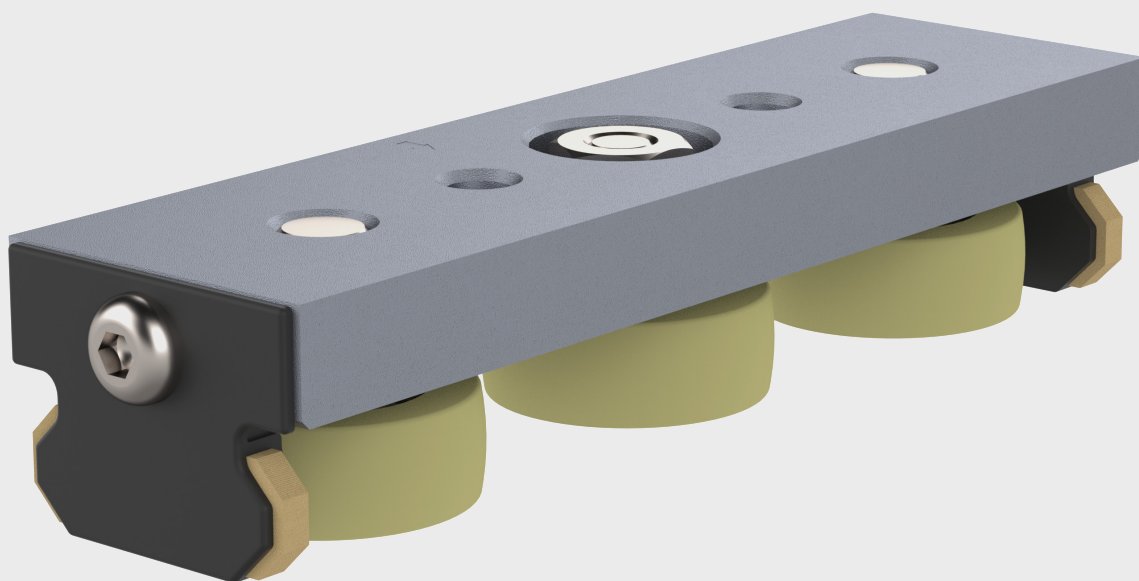


CR Wheel Plate in Composite Channel



UtiliTrak[®] PW Series

A LINEAR
GUIDE SOLUTION



Introduction

The UtiliTrak® PW Series are linear bearings made with Madewell® polymer guide wheels and matching extruded aluminum linear guide. The pairing of wheel plate with channel are designed and built of materials for lighter load capacities, but highly corrosive environments.

Design Benefits

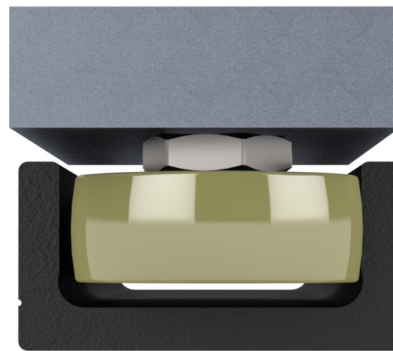
- Light to medium duty applications
- Ease of installation
- Eccentric bearing for easy wheel plate adjustment
- Low noise
- High speed capacity
- Smooth anti-friction operation
- Butt-joining precision ground channel for unlimited travel lengths

Key Industries

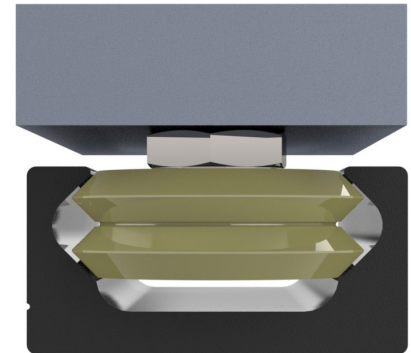
- Food Product Processing
- Agriculture
- Medical
- Testing Laboratories
- Diagnostic Substance Mfg.
- Paper/Pulping

Application Examples

- Agrochemical (liquid fertilizer) filling
- Liquid medicine & cleaning wash
- High impact cleaning spray nozzles in paper production



Crown Roller



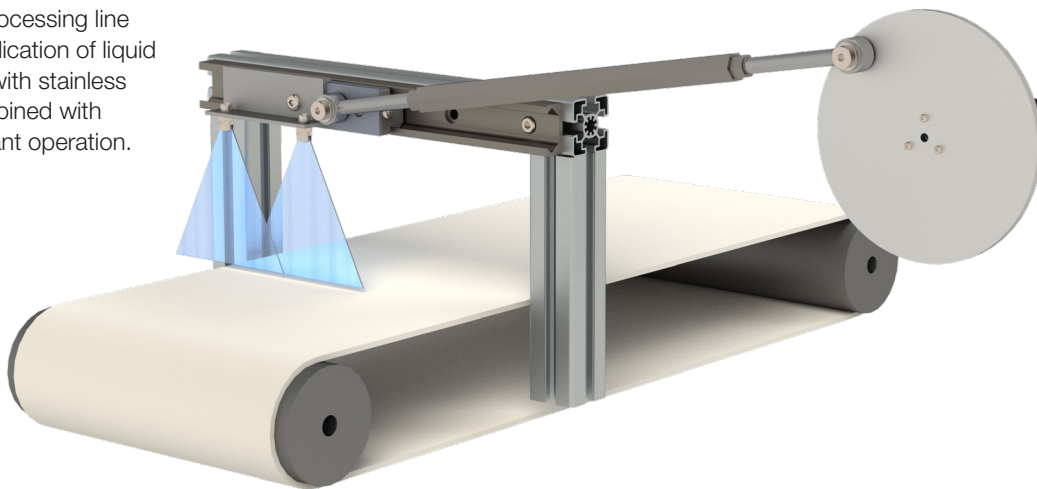
Vee Wheel

		Crown	90° Vee
Overview	Compatible Channel	Channel	90° Vee
	Compatible Wheel Plate	Crown Roller	90° Vee
	Loading Direction	Radial Only	Axial & Radial
	Optional Brake	Yes	Yes
	Available Sizes	0, 1, 2	0, 1, 2
Channel	Material	Aluminum	Aluminum
	Standard Coating(s)	Clear Anodize	Clear Anodize
	Hardened	No	No
	Finish	Extruded	Extruded
Wheel Plate	# of Wheels	3, 4, 5	3, 4, 5
	Bearing	Single Row Deep Groove	Single Row Deep Groove
	Wheel Material	Polymer Overmold Stainless Steel	Polymer Overmold Stainless Steel
	Material Grade	Polyacetal & 440C	Polyacetal & 440C
	Max Angular Misalignment	+/- 7°	0°
	Wheel Bottom Hex Feature (Size 2 and 3)	Standard	Standard
	Preload Adjustment Hex	Metric	Metric
	Lubrications	Molded Nylon End Caps	Molded Nylon End Caps
	Wheel Protection	Shielded	Shielded
	Wheel Versions	Corrosion Resistant	Corrosion Resistant

Application Examples

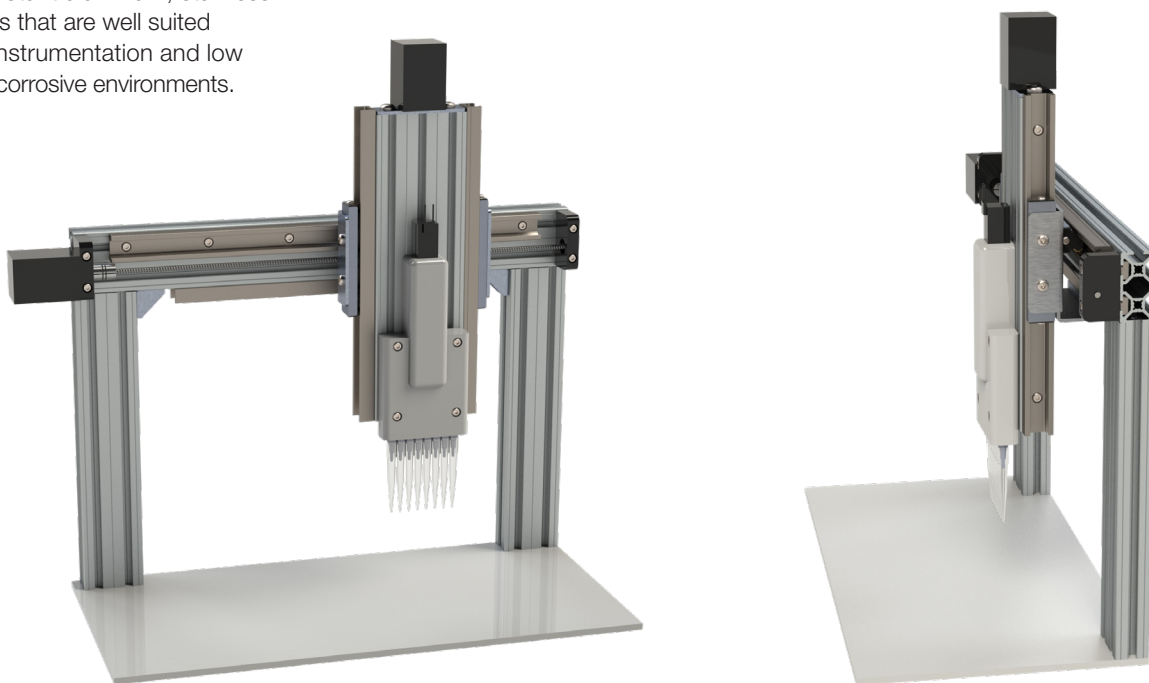
Water Sprayer

The PW Series is used on a food processing line as a motion guide for the spray application of liquid preservatives. Anodized aluminum with stainless steel guide wheel bearings are combined with polymer wheels for corrosion resistant operation.



Laboratory Liquid Dispensing

Multi-axis laboratory automation for high throughput fluid pipetting. The small footprint linear guides are made from corrosion resistant aluminum, stainless steel, and polymer wheels that are well suited for lightweight tabletop instrumentation and low contamination but highly corrosive environments.



Wheel Plate Max Load Capacity

	Size	# Wheels	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _P		Yaw M _Y		Roll M _R	
					(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)
90° Vee	0	3	UT0WPAP	46	88	20	55	12	0.9	0.7	0.7	0.5	0.1	0.1
		4	UT0WPAP-4A	60	105	24	55	12	1.7	1.3	1	0.7	0.1	0.1
		5	UT0WPAP-5A	90	123	28	69	15	1.7	1.3	1	0.7	0.1	0.1
	1	3	UT1WPAP	92	155	35	110	25	1.9	1.4	2	1.5	0.2	0.1
		4	UT1WPAP-4A	120	186	42	110	25	3.3	2.4	3.1	2.3	0.2	0.1
		5	UT1WPAP-5A	160	217	49	132	30	3.3	2.4	3.1	2.3	0.2	0.1
	2	3	UT2WPAP	243	311	70	165	37	4.5	3.3	3.7	2.7	0.6	0.4
		4	UT2WPAP-4A	315	373	84	165	37	8.4	6.2	5.6	4.1	0.8	0.6
		5	UT2WPAP-5A	340	435	98	198	45	8.4	6.2	5.6	4.1	0.8	0.6

	Size	# Wheels	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _P		Yaw M _Y		Roll M _R	
					(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)
Crown	0	3	UT0WPAPR	47	0	0	55	12	0	0	0.7	0.5	0	0
		4	UT0WPAPR-4A	60	0	0	55	12	0	0	1	0.7	0	0
		5	UT0WPAPR-5A	90	0	0	66	15	0	0	1	0.7	0	0
	1	3	UT1WPAPR	94	0	0	110	25	0	0	2	1.5	0	0
		4	UT1WPAPR-4A	120	0	0	110	25	0	0	3.1	2.3	0	0
		5	UT1WPAPR-5A	160	0	0	132	30	0	0	3.1	2.3	0	0
	2	3	UT2WPAPR	246	0	0	165	37	0	0	3.7	2.7	0	0
		4	UT2WPAPR-4A	315	0	0	165	37	0	0	5.6	4.1	0	0
		5	UT2WPAPR-5A	340	0	0	198	45	0	0	5.6	4.1	0	0

Clear Anodized Channel Length (mm)

C Channel

UTTRA0 - (Channel length in mm)

UTTRA1 - (Channel length in mm)

UTTRA2 - (Channel length in mm)

90° Vee

UTTA0 - (Channel length in mm)

UTTA1 - (Channel length in mm)

UTTA2 - (Channel length in mm)

PW/VC/SW Standard Channel Length (mm)												
160	240	320	400	480	560	640	720	800	880	960	1040	
1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000	
2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960	
3040	3120	3200	3280	3360	3440	3520	-	-	-	-	-	

Channel lengths come in stock lengths and are customizable by application.
Butt-joining channel for unlimited travel lengths.

To Calculate M

Step 1: Calculate number of hole spaces

$$\frac{\text{Length (mm)}}{80} - X = \# \text{ of hole spaces (round down to nearest whole number)}$$

X = 14
(size 0)

X = 16
(size 1)

X = 18
(size 1)

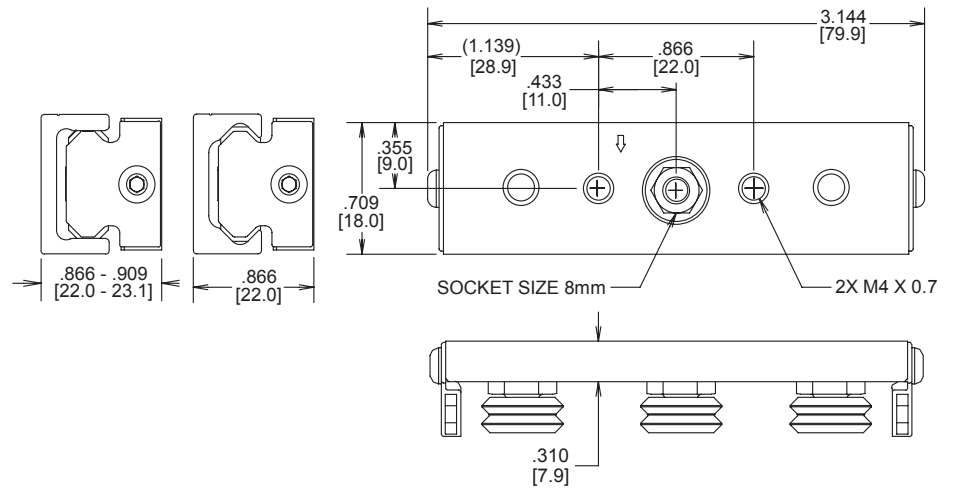
Step 2: Calculate M

$$\frac{\text{Length} - (\# \text{ of spaces} \times 80)}{2} = M$$

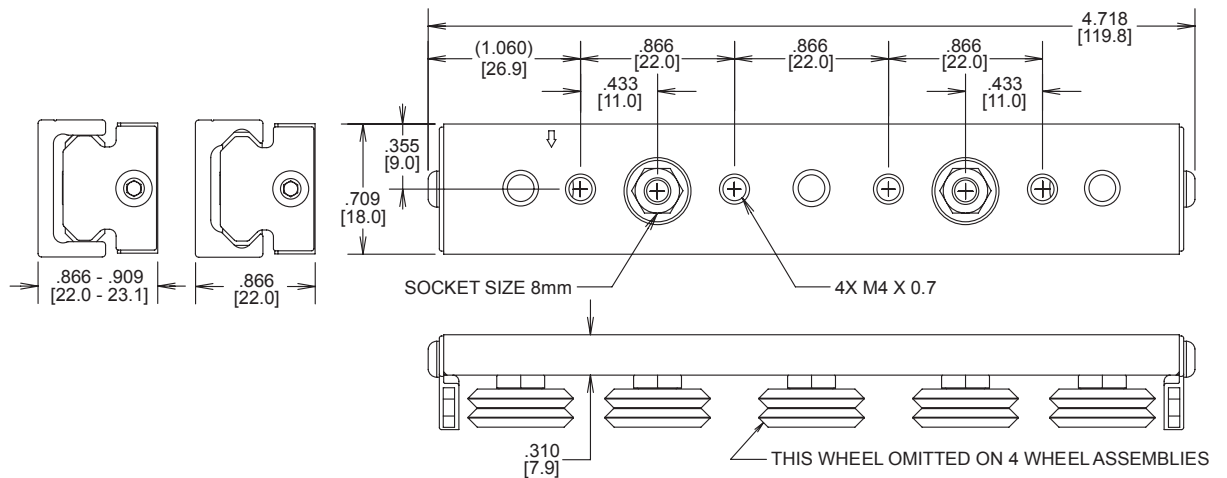
2

PW Series, Size 0

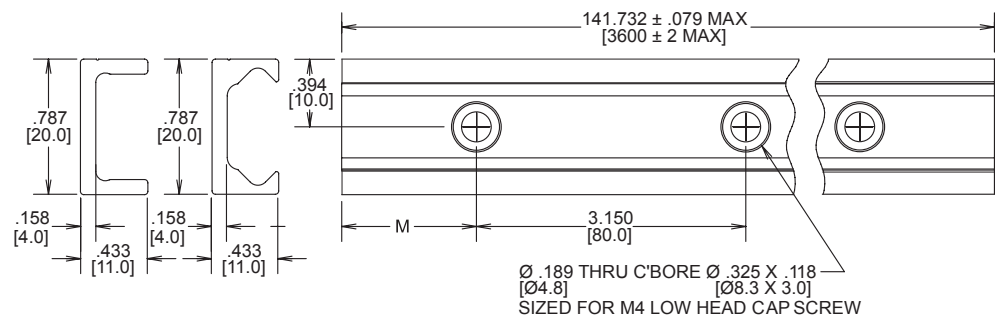
3 Wheel Plate



4 and 5 Wheel Plate



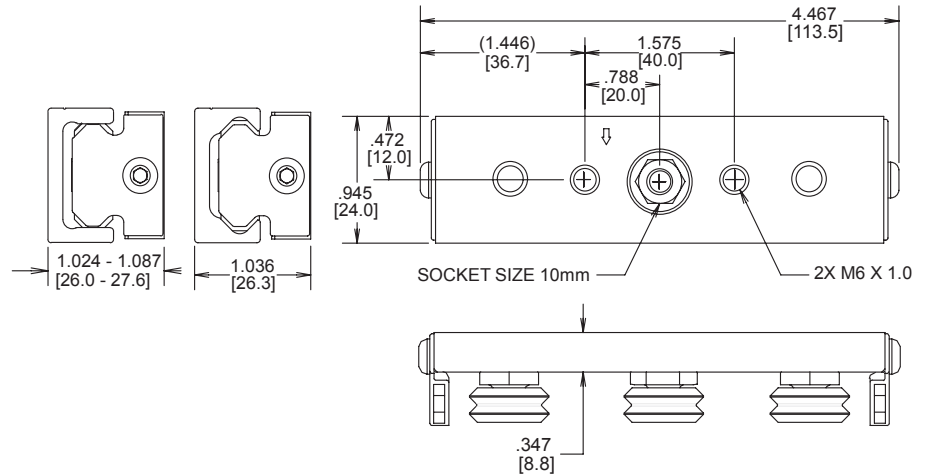
Channel



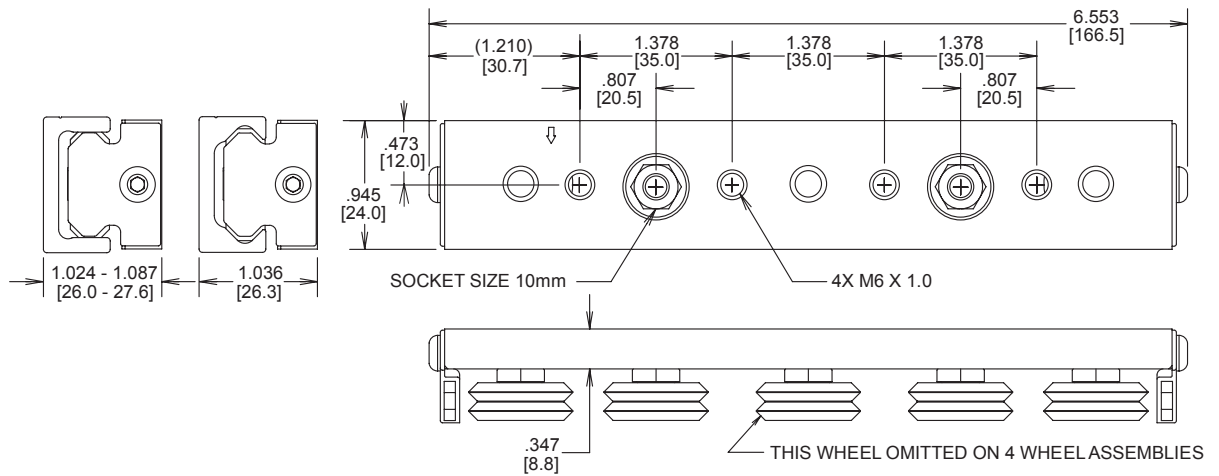
* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale

PW Series, Size 1

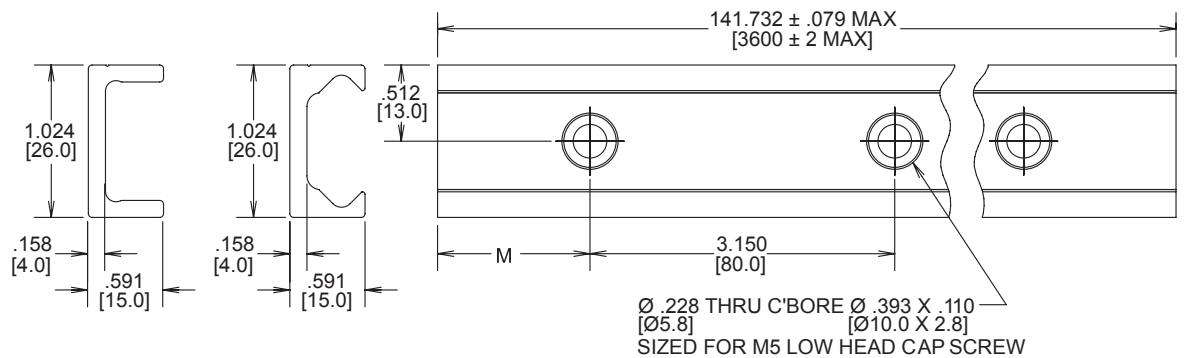
3 Wheel Plate



4 and 5 Wheel Plate



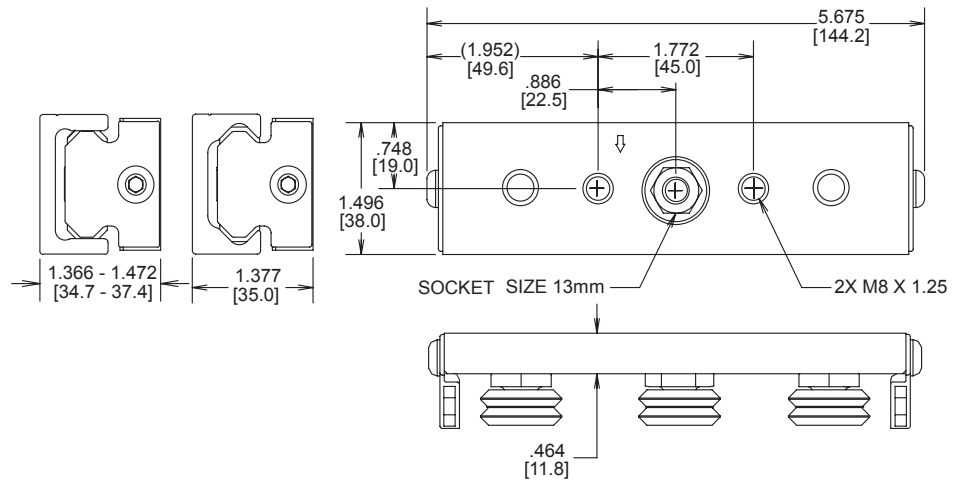
Channel



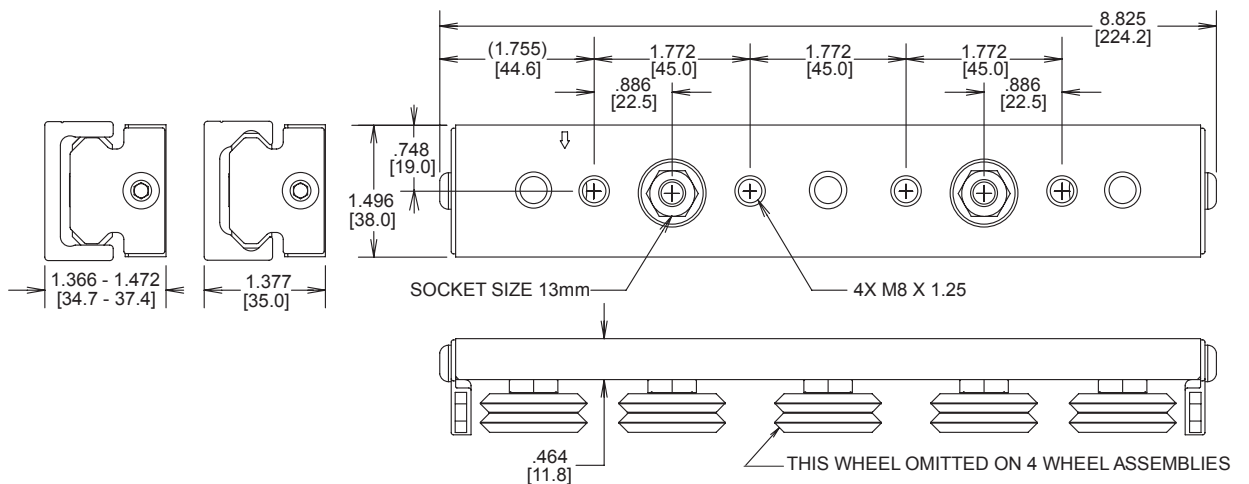
* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale

PW Series, Size 2

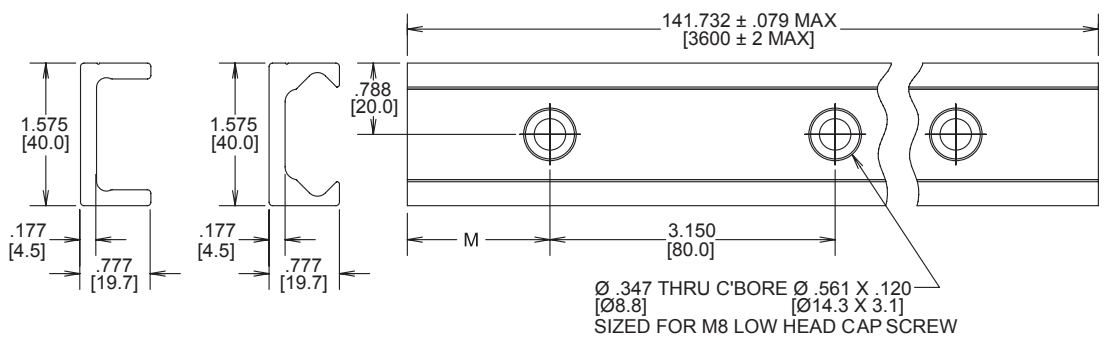
3 Wheel Plate



4 and 5 Wheel Plate



Channel



* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale



UtiliTrak[®] VC Series

A LINEAR
GUIDE SOLUTION



Introduction

The UtiliTrak® VC is a compact hybrid design of the DualVee® wheels and MadeWell® crown rollers perfect for commercial applications. It highlights the ease of selection by seamlessly pairing with both vee and C channel profiles to fit your application.

Design Benefits

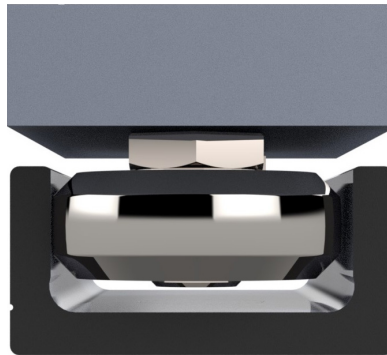
- Ease of installation
- Versatility between vee and C channel profiles
- Up to 2° misalignment
- Eccentric bearing for easy wheel plate adjustment
- Very low rolling friction operation
- Low noise
- High speed capacity
- Butt-joining precision ground channel for unlimited travel lengths

Key Industries

- Aerospace
- Architecture
- Automotive
- Medical
- Packaging
- Printing

Application Examples

- Sliding doors, windows, & partitions
- Adjustable and movable walls & furniture for reduced square footage
- Adjustable seats
- Equipment trays and slide-outs
- Material handling equipment
- Product indexing, cartoning, & packaging



C Channel



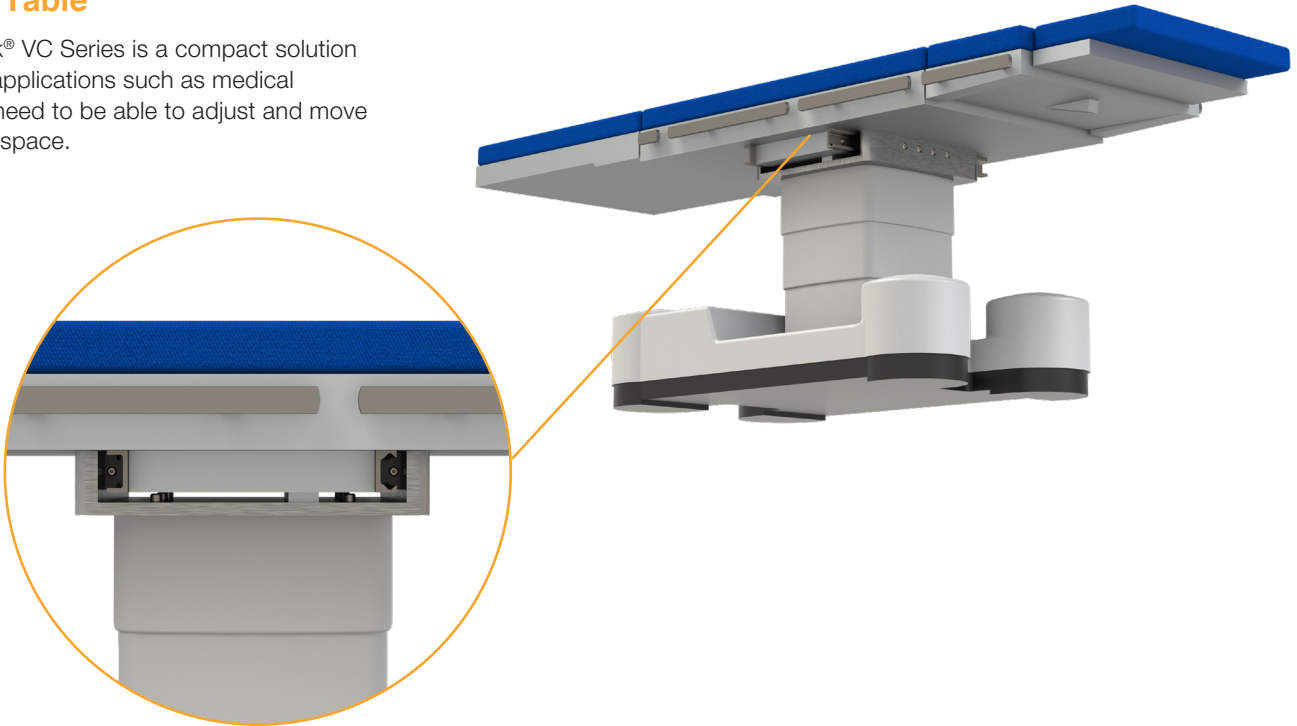
Vee Channel

		VC series
Overview	Compatible Channel	90° Vee & C Channel
	Compatible Wheel Plate	90° Vee/C Channel
	Loading Direction	Vee = Axial & Radial Crown = Radial Only
	Optional Brake	Yes
	Available Sizes	1, 2, 3
Channel	Material	Carbon Steel
	Standard Coating(s)	Polyurethane Paint Black Oxide (2019)
	Hardened	Yes
	Finish	Precision Ground
Wheel Plate	# of Wheels	3, 4, 5
	Bearing	Double Row Angular Contact
	Wheel Material	Carbon Steel
	Wheel Material Grade	52100
	Max Angular Misalignment	+/- 2°
	Wheel Bottom Hex Feature (Size 2 and 3)	Not Available
	Preload Adjustment Hex	Metric
	Lubrications	Molded Nylon End Caps
	Wheel Protection	Sealed
	Wheel Versions	Carbon Steel

Application Examples

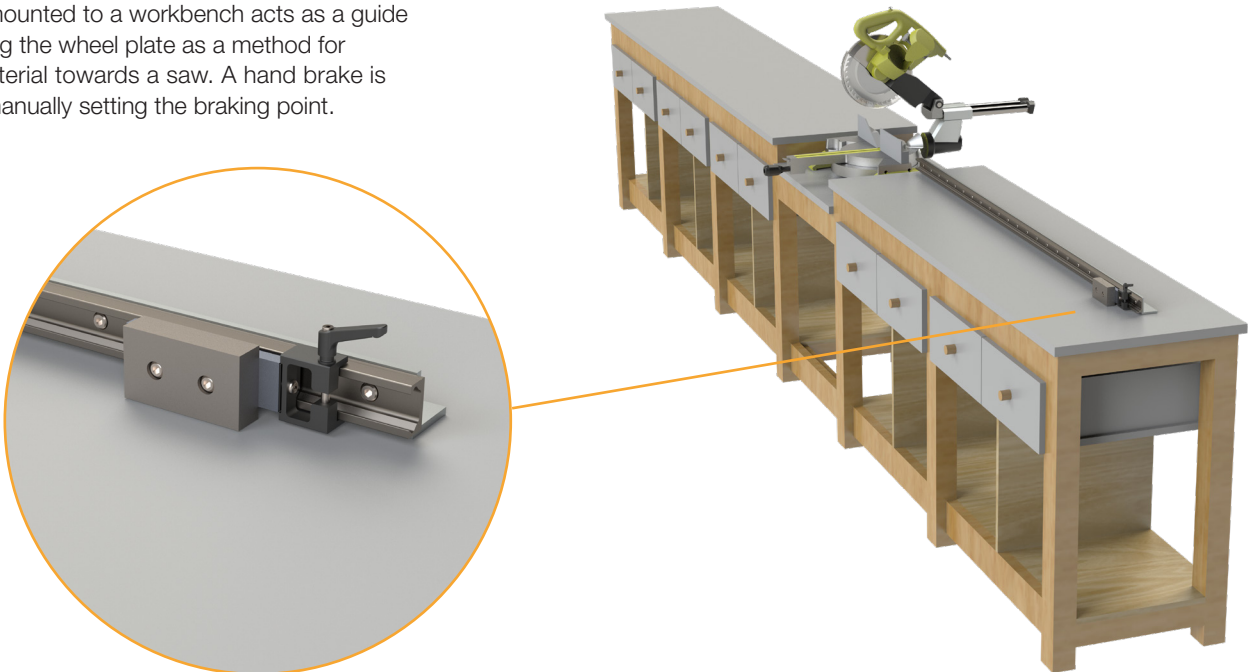
Medical Table

The UtiliTrak® VC Series is a compact solution perfect for applications such as medical tables that need to be able to adjust and move with limited space.



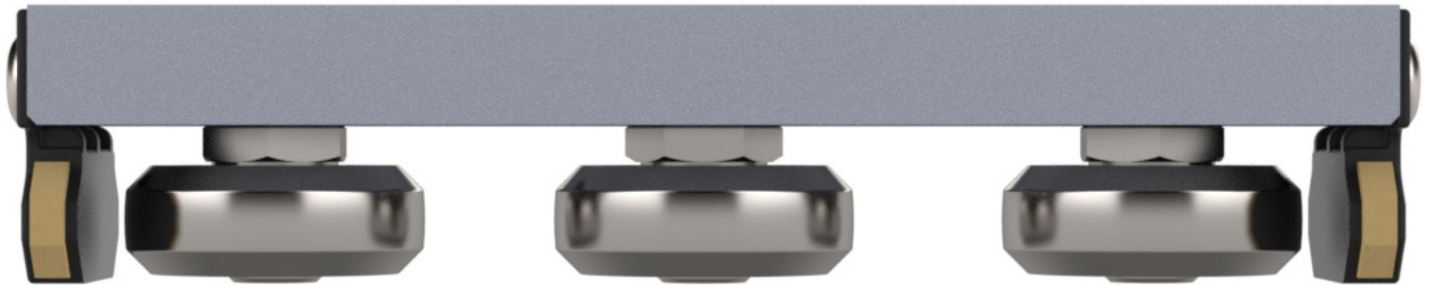
Workbench

A channel mounted to a workbench acts as a guide when utilizing the wheel plate as a method for pushing material towards a saw. A hand brake is added for manually setting the braking point.



Wheel Plate Max Load Capacity

Size	# Wheels	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _p		Yaw M _y		Roll M _R	
				(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)
1	3	UTVC1XWPA	121	719	162	2440	549	18	13.3	30.5	22.5	7	5.2
	4	UTVC1XWPA4	173	862	194	2440	549	32.3	23.8	45.8	33.8	9.8	7.2
	5	UTVC1XWPA5	193	1014	228	2900	652	32.3	23.8	45.8	33.8	12.6	9.3
2	3	UTVC2XWPA	348	1475	332	5300	1191	58	42.8	100	73.8	22.7	16.7
	4	UTVC2XWPA4	503	1770	398	5300	1191	107	78.9	150	110.6	31.8	23.5
	5	UTVC2XWPA5	573	2080	468	6300	1416	107	78.9	150	110.6	40.9	30.2
3	3	UTVC3XWPA	999	5100	1147	11800	2653	229	168.9	346	255	118	87
	4	UTVC3XWPA4	1446	6122	1376	11800	2653	408	300.9	519	382.8	165.2	121.8
	5	UTVC3XWPA5	1632	7140	1605	14040	3156	408	300.9	519	382.8	212.4	156.7



Painted Finish Channel Stock Codes

C Channel

UTTRS1 - (Channel length in mm)

UTTRS2 - (Channel length in mm)

UTTRS3 - (Channel length in mm)

90° Vee

UTTS1 - (Channel length in mm)

UTTS2 - (Channel length in mm)

UTTS3 - (Channel length in mm)

* Standard channel finish through 2018

PW/VC/SW Standard Channel Length (mm)											
160	240	320	400	480	560	640	720	800	880	960	1040
1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960
3040	3120	3200	3280	3360	3440	3520	-	-	-	-	-

Channel lengths come in stock lengths and are customizable by application.

Butt-joining channel for unlimited travel lengths.

Black oxide finish to become standard 2019.

Length Formula (M)

Step 1: Calculate number of hole spaces

$$\frac{\text{Length (mm)}}{80} - X = \# \text{ of hole spaces (round down to nearest whole number)}$$

X = 16
(size 1)

X = 18
(size 2)

X = 20
(size 3)

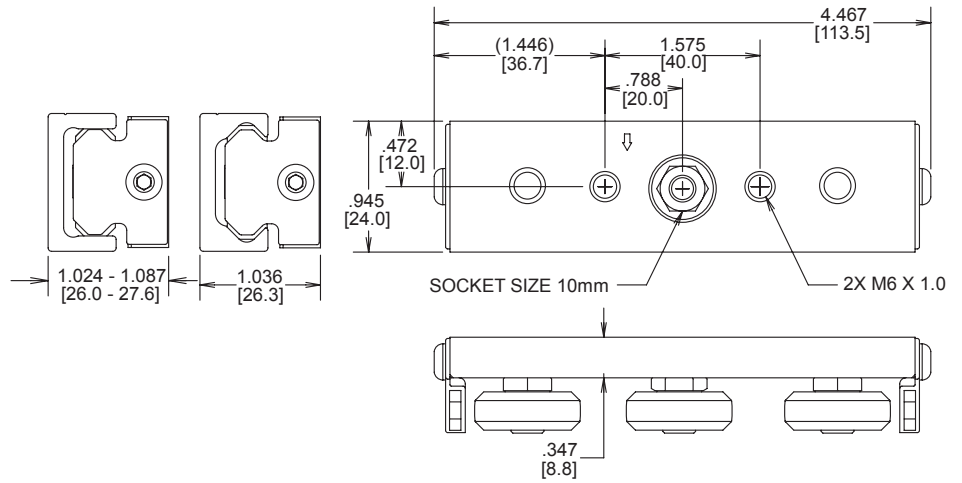
Step 2: Calculate M

$$\text{Length} - (\# \text{ of spaces} \times 80) = M$$

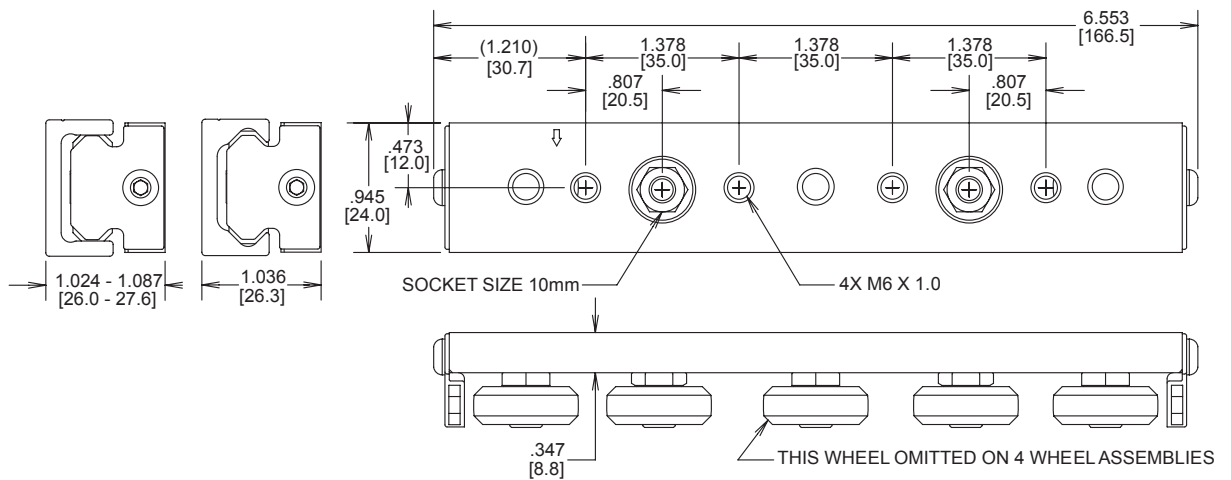
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VC Series, Size 1

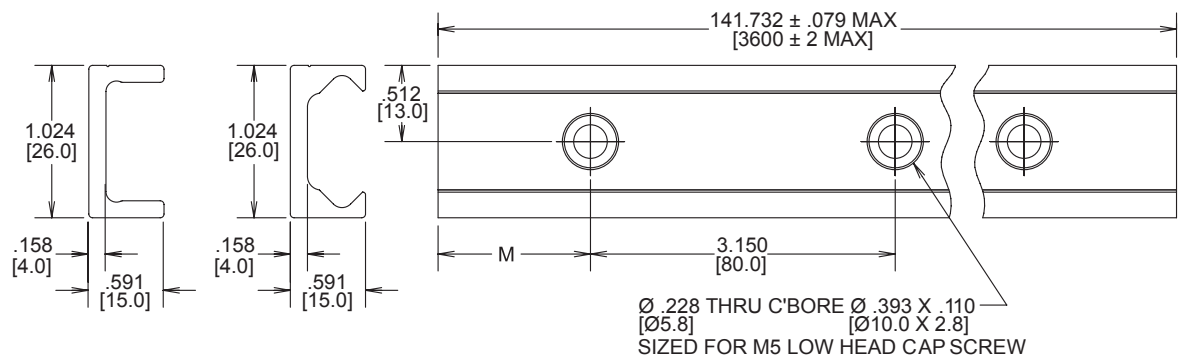
3 Wheel Plate



4 and 5 Wheel Plate



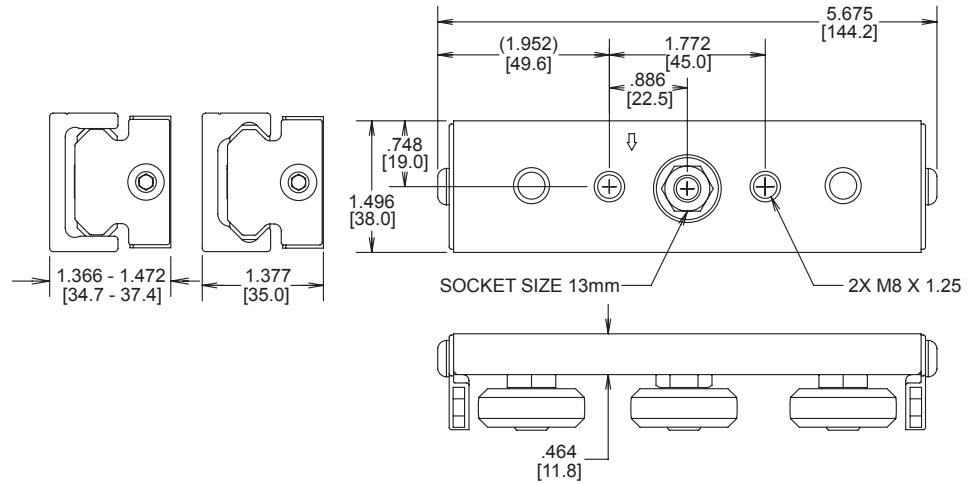
Channel



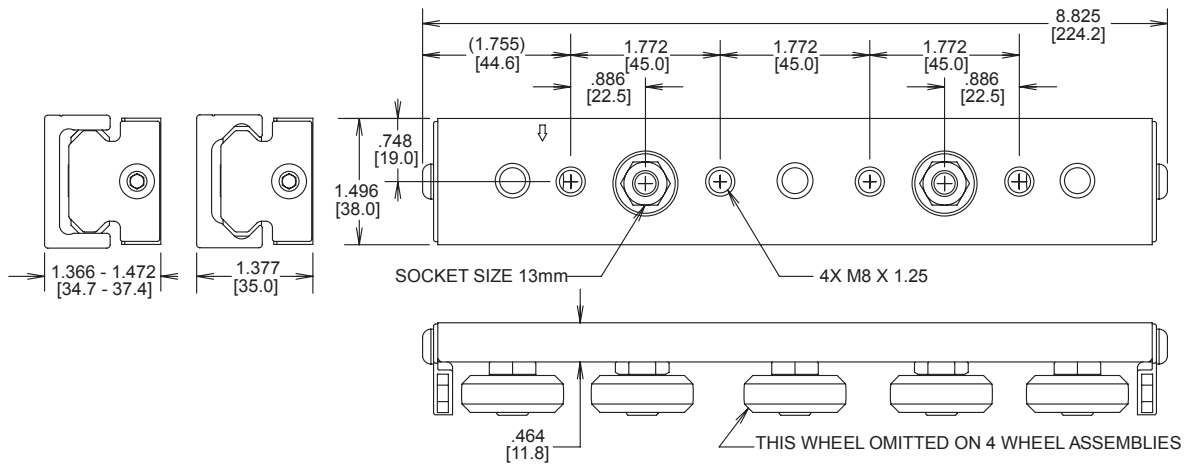
* Dimensions are shown in inch and [metric] values
 ** Drawings are not to scale

VC Series, Size 2

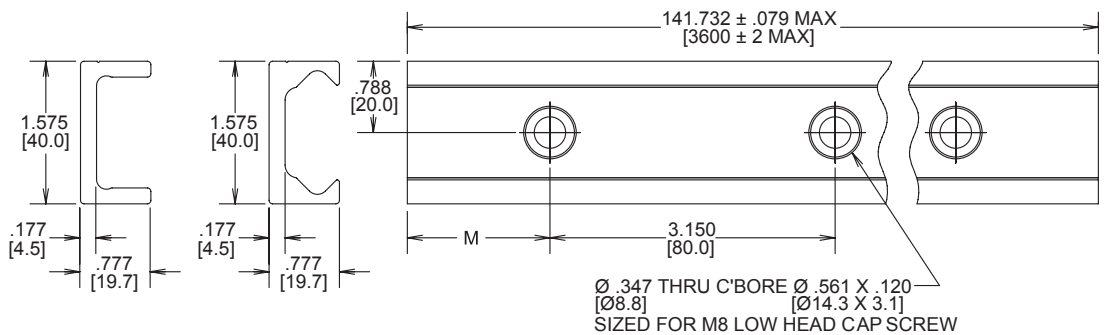
3 Wheel Plate



4 and 5 Wheel Plate



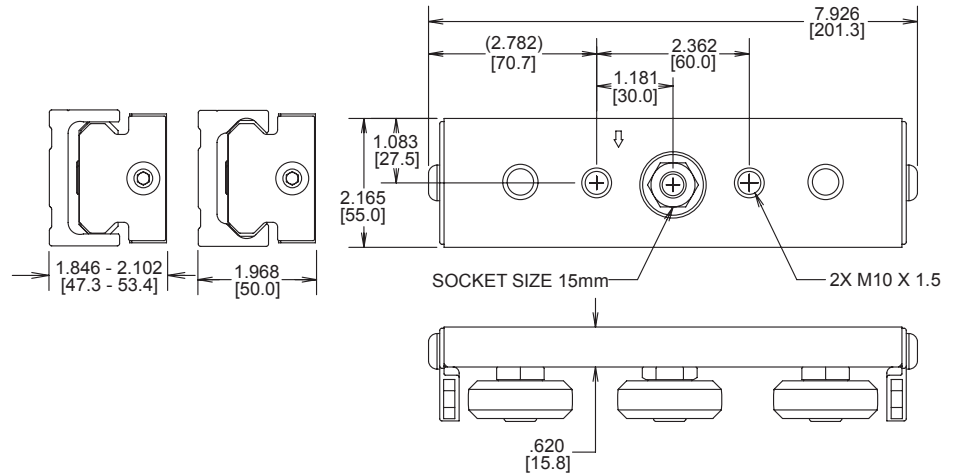
Channel



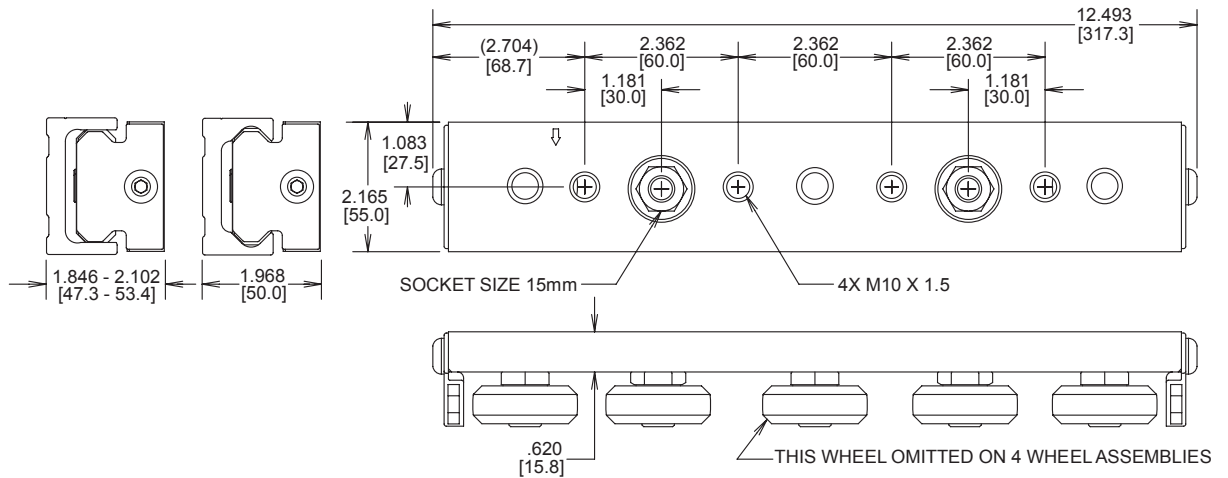
* Dimensions are shown in inch and [metric] values
 ** Drawings are not to scale

VC Series, Size 3

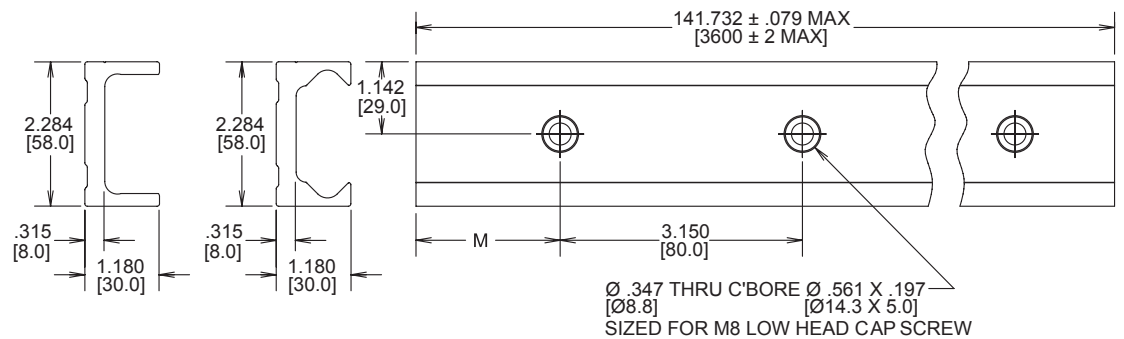
3 Wheel Plate



4 and 5 Wheel Plate



Channel



* Dimensions are shown in inch and [metric] values
 ** Drawings are not to scale

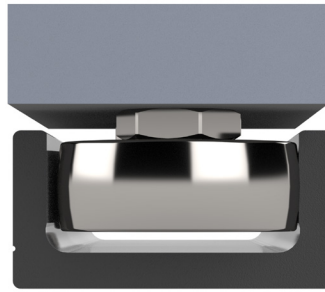
UtiliTrak[®] SW Series

A LINEAR
GUIDE SOLUTION

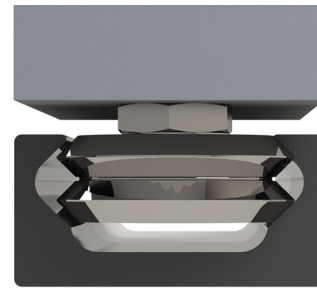


Introduction

The UtiliTrak® SW Series are linear bearings with a wide variety of steel and stainless steel DualVee® guide wheels and MadeWell® crown rollers, and matching precision ground channels designed to withstand heavy load capacity requirements in compact spaces and where challenging environmental conditions such as washdown, or high contamination or debris exist.



Crown



90° Vee

Design Benefits

- Medium to heavy duty applications
- Eccentric bearing for easy wheel plate adjustment
- Ease of installation
- Low noise
- High speed capacity
- Smooth antifriction operation
- Butt-joining precision ground channel for unlimited travel lengths
- 7° of misalignment
- Special bearing options to suit the environment

Key Industries

- Aeronautical
- Cutting, Slicing, & Slitting
- Food Processing
- Medical
- Packaging
- Welding
- Pharmaceutical
- Search, Detection, & Scanning
- Transportation

Application Examples

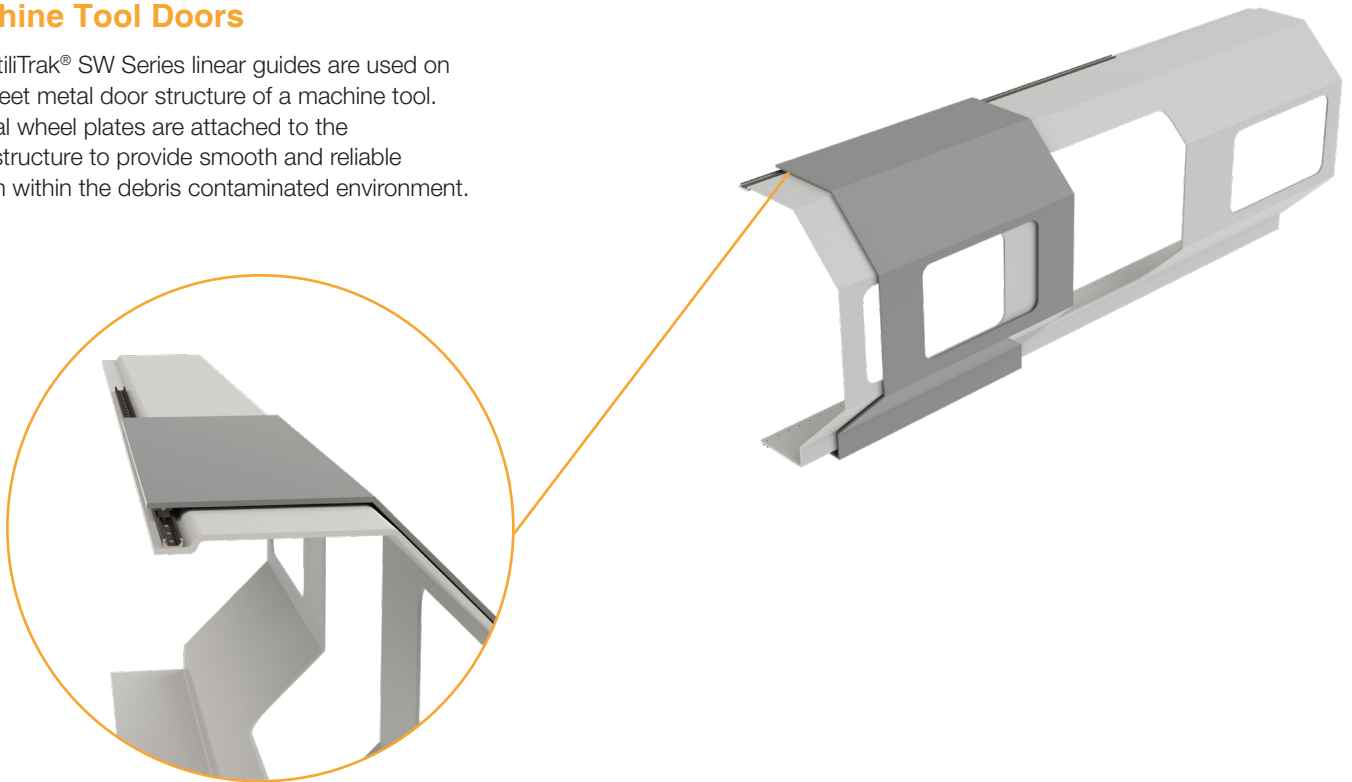
- Adjustable seats
- Equipment trays and slide-outs
- Adjustable position & lock mechanisms
- Material processing and handling equipment

		Crown	90° Vee
Overview	Compatible Channel	C Channel	90° Vee
	Compatible Wheel Plate	Crown Roller	90° Vee
	Loading Direction	Radial Only	Axial & Radial
	Optional Brake	Yes	Yes
	Available Sizes	1, 2, 3	1, 2, 3
Channel	Material	Carbon Steel	Carbon Steel
	Standard Coating(s)	Polyurethane Paint Black Oxide (2019)	Polyurethane Paint Black Oxide (2019)
	Hardened	53 HR _C	53 HR _C
	Finish	Precision Ground	Precision Ground
Wheel Plate	# of Wheels	3, 4, 5	3, 4, 5
	Bearing	Double Row Angular Contact	Double Row Angular Contact
	Wheel Material	Carbon Steel	Carbon Steel Stainless Steel
	Material Grade	52100	52100 & 440C
	Max Angular Misalignment	+/- 7°	0°
	Wheel Bottom Hex Feature (Size 2 and 3)	Optional	Optional
	Preload Adjustment Hex	Inch	Inch
	Lubrications	Molded Nylon End Caps	Molded Nylon End Caps
	Wheel Protection	Shielded Molded Nylon End Caps	Shielded Molded Nylon End Caps
	Wheel Versions	Carbon Steel	Carbon Steel Corrosion Resistant Food/Pharma High/Low Temp. Vacuum Washdown

Application Examples

Machine Tool Doors

The UtiliTrak® SW Series linear guides are used on the sheet metal door structure of a machine tool. Several wheel plates are attached to the large structure to provide smooth and reliable motion within the debris contaminated environment.



Spindle Assembly

The UtiliTrak® SW Series can be used on the vertical z-axis of a CNC routing machine to guide the routing spindle. The machine utilizes a combination of channel profiles to prevent binding in the spindle assembly with a vee channel with vee guide wheels on one side, and a C channel with crown rollers on the opposite side.



Wheel Plate Max Load Capacity

	Size	# Wheels	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _P		Yaw M _Y		Roll M _R	
					(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)
90° Vee	1	3	UT1WPA	114	719	162	2440	549	18	13.3	30.5	22.5	7	5.2
		4	UT1WPA-4A	163	862	194	2440	549	32.3	23.8	45.8	33.8	9.8	7.2
		5	UT1WPA-5A	181	1014	228	2900	652	32.3	23.8	45.8	33.8	12.6	9.3
	1	3	UT1WPAX	114	719	162	2440	549	18	13.3	30.5	22.5	7	5.2
		4	UT1WPAX-4A	163	862	194	2440	549	32.3	23.8	45.8	33.8	9.8	7.2
		5	UT1WPAX-5A	181	1014	228	2900	652	32.3	23.8	45.8	33.8	12.6	9.3
	1	3	UT1SSXWPA	114	719	162	2440	549	18	13.3	30.5	22.5	7	5.2
		4	UT1SSXWPA-4A	163	862	194	2440	549	32.3	23.8	45.8	33.8	9.8	7.2
		5	UT1SSXWPA-5A	181	1014	228	2900	652	32.3	23.8	45.8	33.8	12.6	9.3
	1	3	UT1SS227WPA	114	575	129	1952	439	14.4	10.6	24.4	18.0	5.6	4.1
		4	UT1SS227WPA-4A	163	690	155	1952	439	25.8	19.1	36.6	27.0	7.8	5.8
		5	UT1SS227WPA-5A	181	611	182	2320	522	25.8	19.1	36.6	27.0	10.1	7.5
	1	3	UT1SS300WPA	114	575	129	1952	439	14.4	10.6	24.4	18.0	5.6	4.1
		4	UT1SS300WPA-4A	163	690	155	1952	439	25.8	19.1	36.6	27.0	7.8	5.8
		5	UT1SS300WPA-5A	181	811	182	2320	522	25.8	19.1	36.6	27.0	10.1	7.5
	2	3	UT2WPAXS	330	1475	332	5300	1191	58	42.8	100	73.8	22.7	16.7
		4	UT2WPAXS-4A	479	1770	398	5300	1191	107	78.9	150	110.6	31.8	23.5
		5	UT2WPAXS-5A	543	2080	468	6300	1416	107	78.9	150	110.6	40.9	30.2
	2	3	UT2SSXWPA	330	1475	332	5300	1191	58	42.8	100	73.8	22.7	16.7
		4	UT2SSXWPA-4A	479	1770	398	5300	1191	107	78.9	150	110.6	31.8	23.5
		5	UT2SSXWPA-5A	543	2080	468	6300	1416	107	78.9	150	110.6	40.9	30.2
	2	3	UT2SS227WPA	330	1180	265	4240	953	46.4	34.2	80	59.0	18.2	13.4
		4	UT2SS227WPA-4A	479	1416	318	4240	953	85.6	63.2	120	88.6	25.4	18.8
		5	UT2SS227WPA-5A	543	1664	374	5040	1133	85.6	63.2	120	88.6	32.7	24.1
	2	3	UT2SS300WPA	330	1180	265	4240	953	46.4	34.2	80	59.0	18.2	13.4
		4	UT2SS300WPA-4A	479	1416	318	4240	953	85.6	63.2	120	88.6	25.4	18.8
		5	UT2SS300WPA-5A	543	1664	374	5040	1133	85.6	63.2	120	88.6	32.7	24.1
	3	3	UT3WPAXS	943	5100	1147	11800	2653	229	168.9	346	255.2	118	87
		4	UT3WPAXS-4A	1370	6122	1376	11800	2653	408	300.9	519	382.8	165.2	121.8
		5	UT3WPAXS-5A	1533	7140	1605	14040	3156	408	300.9	519	382.8	212.4	156.7
3	3	UT3SS227WPA	943	4080	917	9440	2122	183.2	135.2	276.8	204.3	94.4	69.7	
	4	UT3SS227WPA-4A	1370	4898	1101	9440	2122	326.4	240.9	415.2	306.4	132.2	97.5	
	5	UT3SS227WPA-5A	1533	5712	1284	11230	2525	326.4	240.9	415.2	306.4	169.9	125.4	
3	3	UT3SS300WPA	943	4080	917	9440	2122	183.2	135.2	276.8	204.3	94.4	69.7	
	4	UT3SS300WPA-4A	1370	4898	1101	9440	2122	326.4	240.9	415.2	306.4	132.2	97.5	
	5	UT3SS300WPA-5A	1533	5712	1284	11232	2525	326.4	240.9	415.2	306.4	169.9	125.4	

Stock Code Key UTnWPAX: Carbon, Shielded UTnSS227: Stainless, High Temp UTnSSXWPA: Stainless, Sealed
 UTnWPA: Carbon, Shielded UTnWPAXS: Carbon, Seal/Shield UTnSS300: Stainless, Low Temp

Wheel Plate Max Load Capacity Continued

	Size	# Wheels	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _P		Yaw M _Y		Roll M _R	
					(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)
Crown	1	3	UT1WPAR	121	0	0	2440	549	0	0	30.5	22.5	0	0
		4	UT1WPAR-4A	195	0	0	2440	549	0	0	45.8	33.8	0	0
		5	UT1WPAR-5A	220	0	0	2900	652	0	0	45.8	33.8	0	0
	1	3	UT1WPAXR	121	0	0	2440	549	0	0	30.5	22.5	0	0
		4	UT1WPAXR-4A	195	0	0	2440	549	0	0	45.8	33.8	0	0
		5	UT1WPAXR-5A	220	0	0	2900	652	0	0	45.8	33.8	0	0
	2	3	UT2WPAR	320	0	0	5300	1191	0	0	100	73.8	0	0
		4	UT2WPAR-4A	522	0	0	5300	1191	0	0	150	110.6	0	0
		5	UT2WPAR-5A	598	0	0	6300	1416	0	0	150	110.6	0	0
	2	3	UT2WPAXR	320	0	0	5300	1191	0	0	100	73.8	0	0
		4	UT2WPAXR-4A	522	0	0	5300	1191	0	0	150	110.6	0	0
		5	UT2WPAXR-5A	598	0	0	6300	1416	0	0	150	110.6	0	0
	2	3	UT3WPAR	910	0	0	11800	2653	0	0	346	255.2	0	0
		4	UT3WPAR-4A	1478	0	0	11800	2653	0	0	519	382.8	0	0
		5	UT3WPAR-5A	1665	0	0	14040	3156	0	0	519	382.8	0	0
	2	3	UT3WPAXR	910	0	0	11800	2653	0	0	346	255.2	0	0
		4	UT3WPAXR-4A	1478	0	0	11800	2653	0	0	519	382.8	0	0
		5	UT3WPAXR-5A	1665	0	0	14040	3156	0	0	519	382.8	0	0

Painted Finish Channel Stock Code

C Channel

UTTRS1 - (Channel length in mm)

UTTRS2 - (Channel length in mm)

UTTRS3 - (Channel length in mm)

90° Vee

UTTS1 - (Channel length in mm)

UTTS2 - (Channel length in mm)

UTTS3 - (Channel length in mm)

PW/VC/SW Standard Channel Length (mm)											
160	240	320	400	480	560	640	720	800	880	960	1040
1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960
3040	3120	3200	3280	3360	3440	3520	-	-	-	-	-

Channel lengths come in stock lengths and are customizable by application.

Butt-joining channel for unlimited travel lengths.

Black oxide finish to become standard 2019.

To Calculate M

Step 1: Calculate number of hole spaces

$$\frac{\text{Length (mm)}}{80} - X = \# \text{ of hole spaces (round down to nearest whole number)}$$

X = 16
(size 1)

X = 18
(size 2)

X = 20
(size 3)

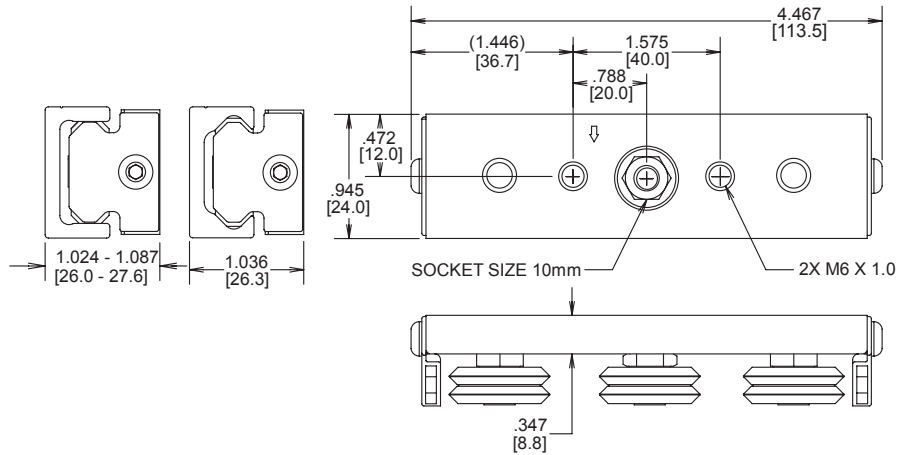
Step 2: Calculate M

$$\text{Length} - (\# \text{ of spaces} \times 80) = M$$

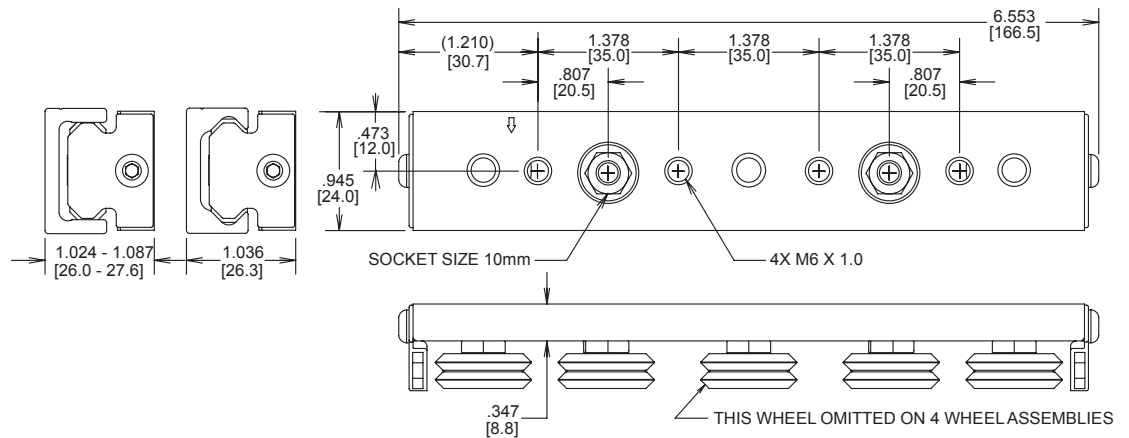
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SW Series, Size 1

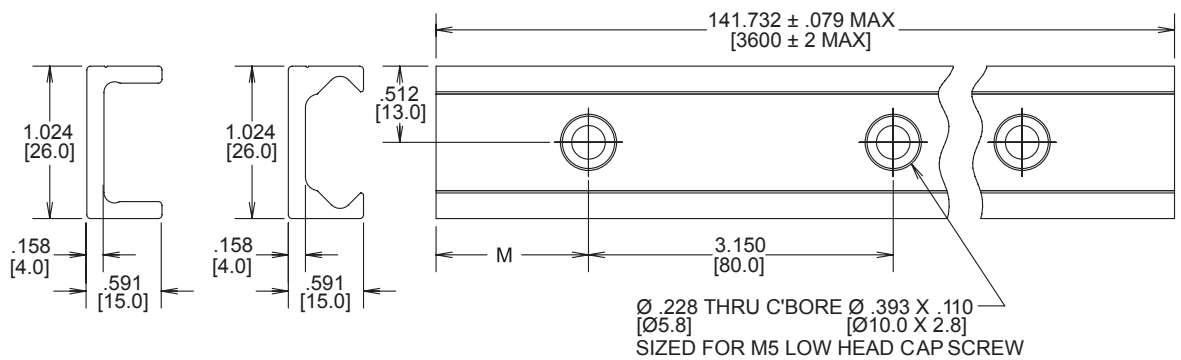
3 Wheel Plate



4 and 5 Wheel Plate



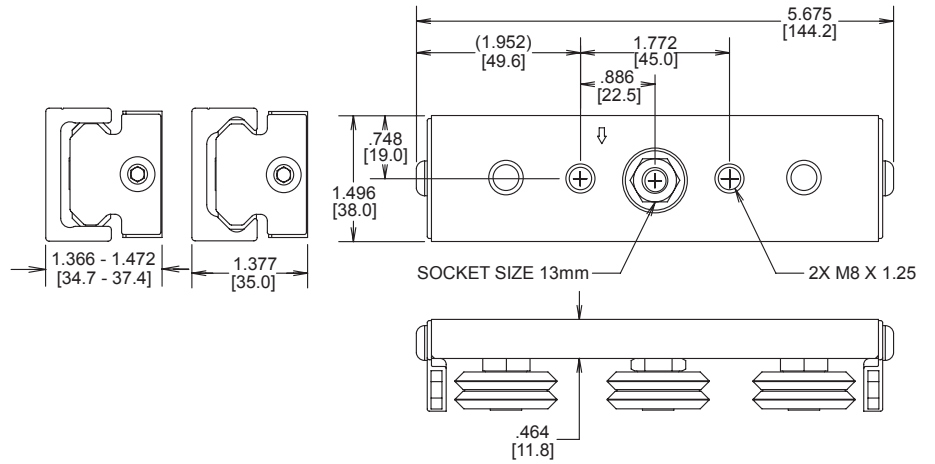
Channel



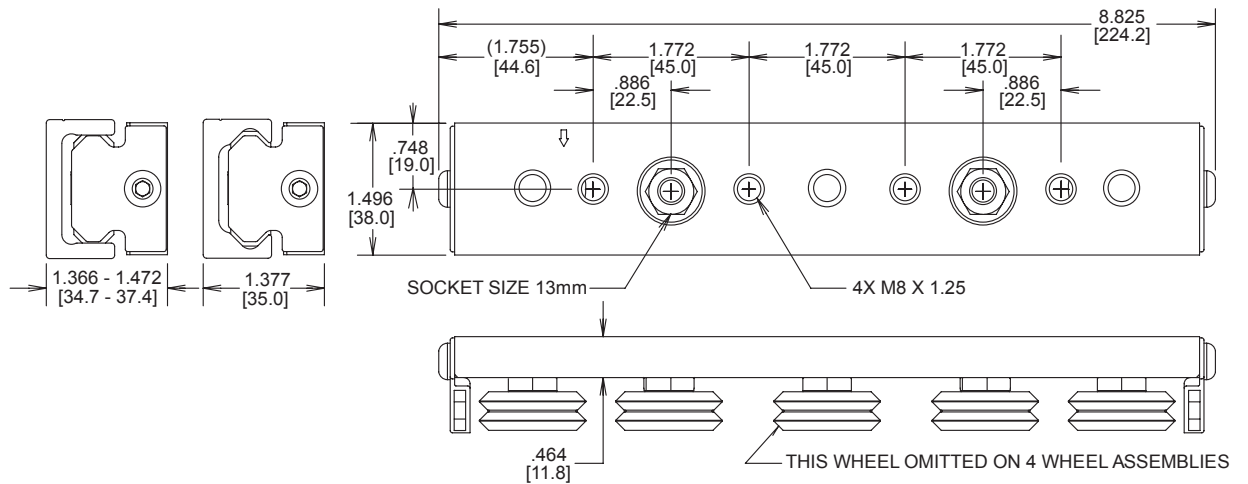
* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale

SW Series, Size 2

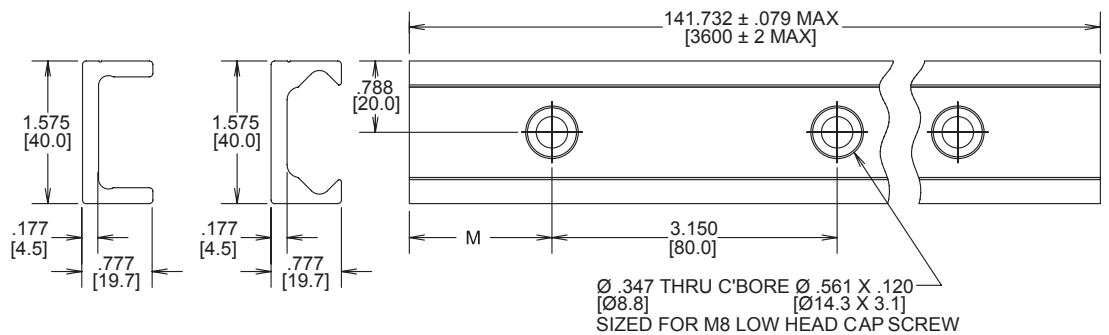
3 Wheel Plate



4 and 5 Wheel Plate



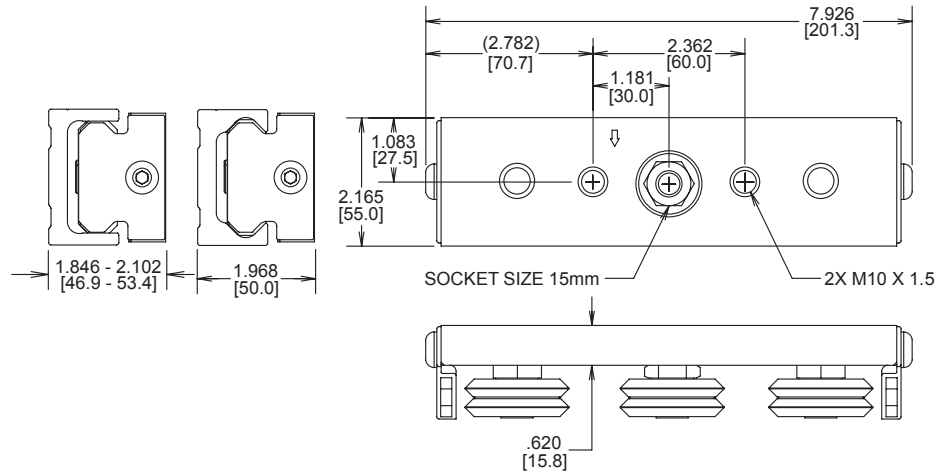
Channel



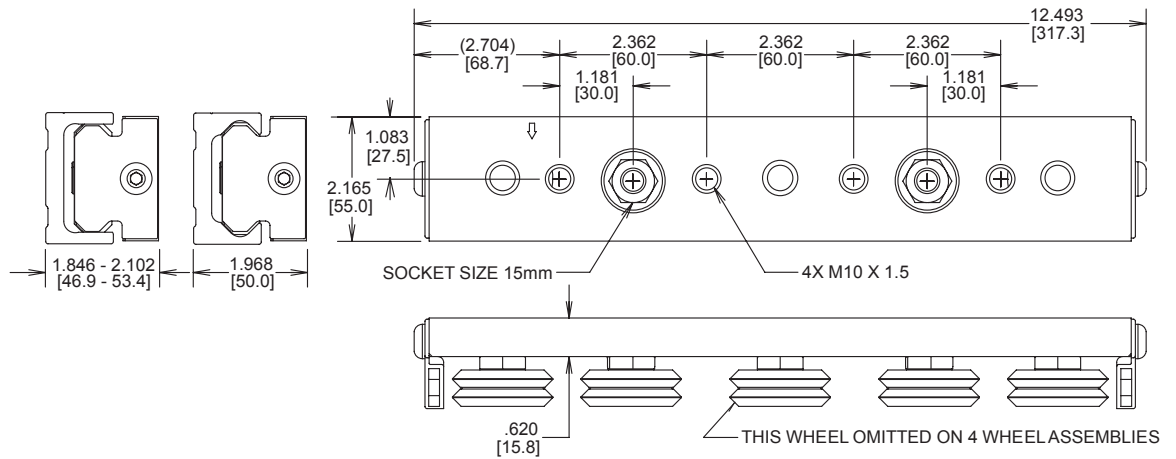
* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale

SW Series, Size 3

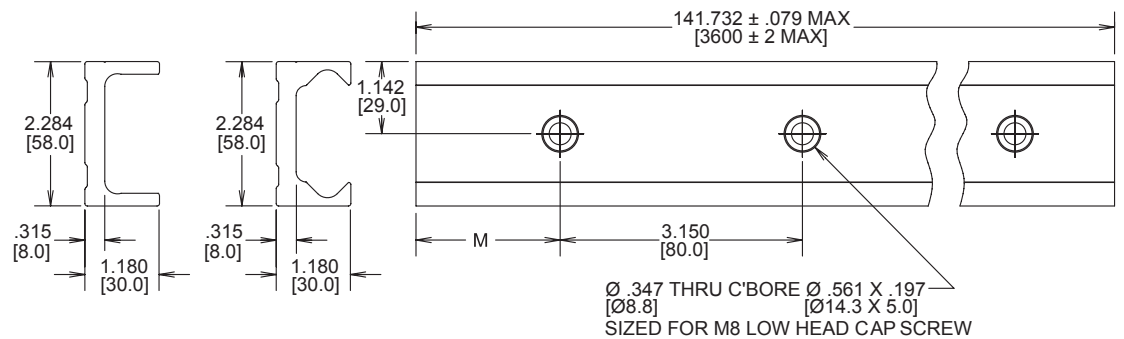
3 Wheel Plate



4 and 5 Wheel Plate



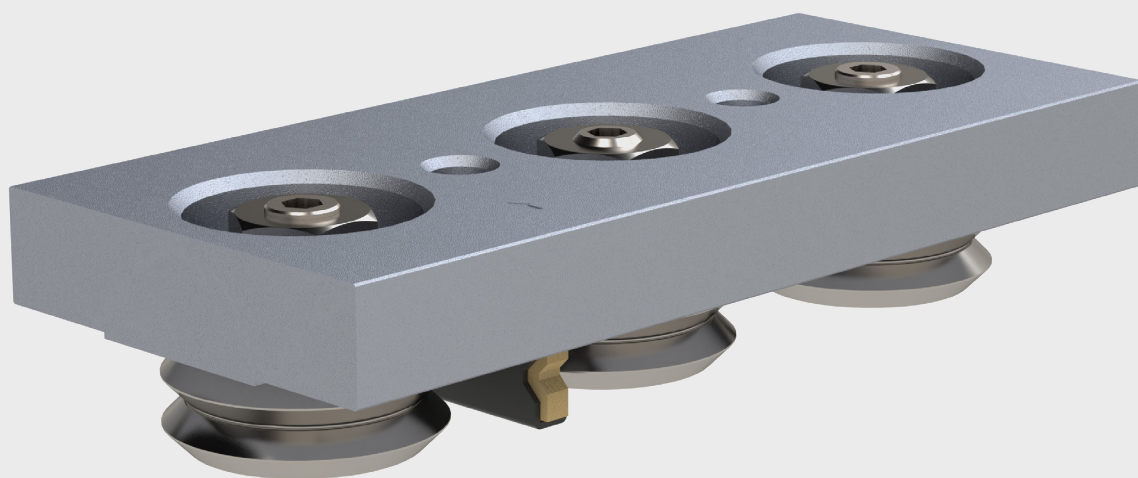
Channel



* Dimensions are shown in inch and [metric] values
 ** Wheel plate is representative of both DualVee wheels and MadeWell crown rollers
 *** Drawings are not to scale

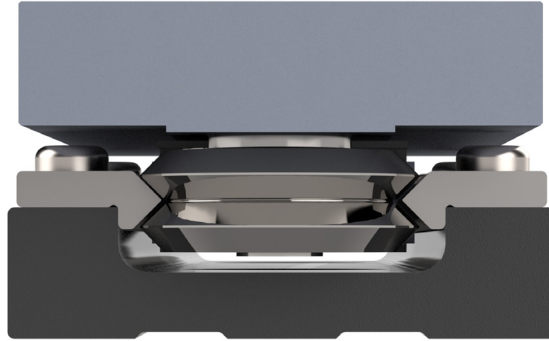
UtiliTrak[®] CR Series

A CORROSION
RESISTANT LINEAR
GUIDE SOLUTION



Introduction

The UtiliTrak® CR Series has been designed and engineered as a corrosion resistant stainless steel guide wheel plate paired with composite channel with aluminum base and polished stainless steel track. It is ideal for medium to heavy duty transport applications where corrosion resistance is required.



90° Vee

Design Benefits

- Medium to heavy duty applications
- Eccentric bearing for easy wheel plate adjustment
- Ease of installation
- Low noise
- Corrosion resistant
- Very low rolling friction operation
- Low noise
- High speed capacity
- Butt-joining precision ground channel for unlimited travel lengths
- Food processing compatible & meets FDA standard

Key Industries

- Food Processing
- Vertical Farming
- Nuclear
- Cutting

Application Examples

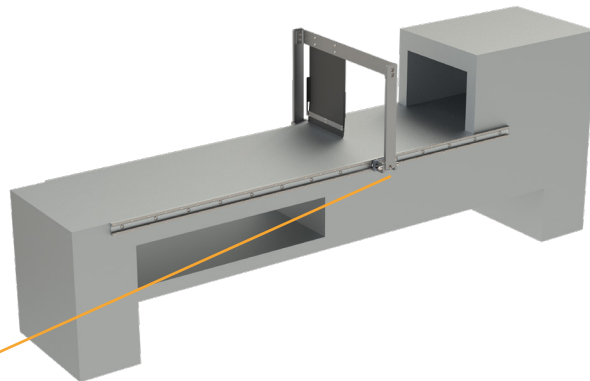
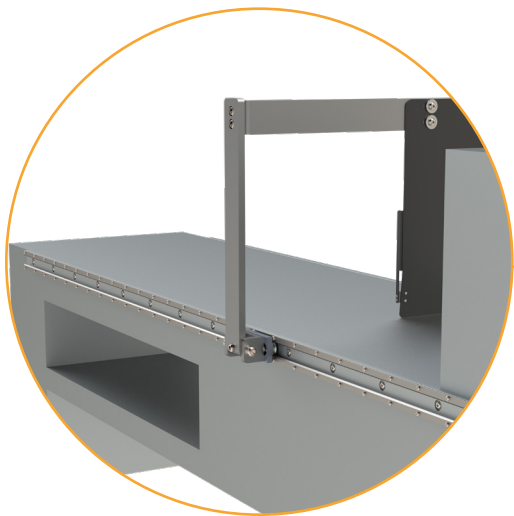
- Chicken cutting, slicing, and processing with regular chemical washdowns
- Automated or manual pool cover
- Chemical dipping & coating
- Envelope accumulator

		CR Series
		90° Vee
Overview	Compatible Channel	90° Vee
	Compatible Wheel Plate	90° Vee
	Loading Direction	Axial & Radial
	Optional Brake	Not Available
	Available Sizes	1, 2, 3
Channel	Material	Stainless Steel & Aluminum
	Standard Coating(s)	Clear Anodized Base, Oiled Channel
	Hardened	Yes
	Finish	Polished
Wheel Plate	# of Wheels	3
	Bearing	Double Row Angular Contact
	Wheel Material	Stainless Steel
	Material Grade	440C
	Max Angular Misalignment	0°
	Wheel Bottom Hex Feature (Size 2 and 3)	Not Available
	Preload Adjustment Hex	Metric
	Lubrications	Stamped Stainless Steel Center Mounted
	Wheel Protection	Sealed Seal/Shield
	Wheel Versions	Corrosion Resistant

Application Examples

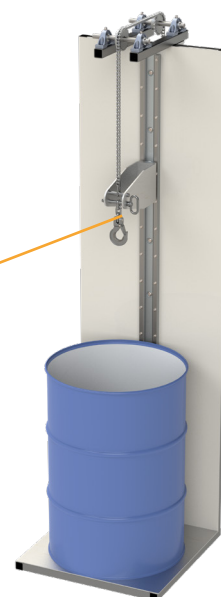
Envelop Sorter

The UtiliTrak® CR Series linear guides are available with long single-piece channel lengths that are ideal for bulk processing and production equipment. This machine uses a parallel pair of CR series linear guides to control the outflow of envelopes and paper products.



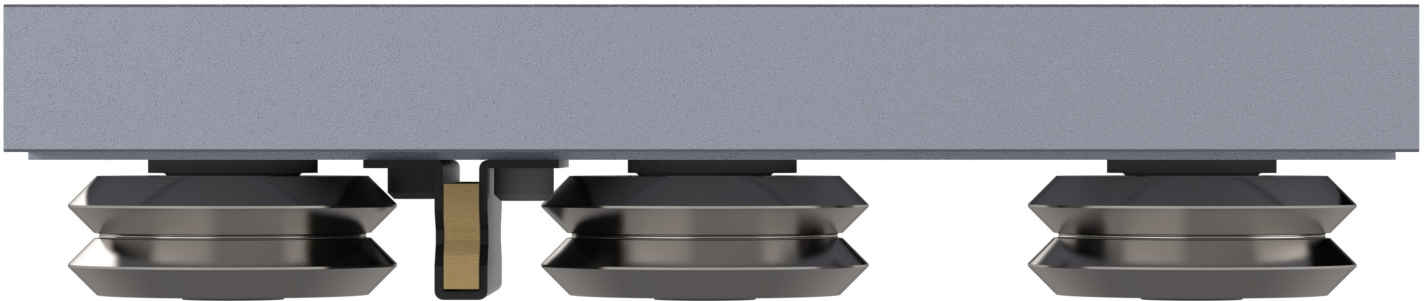
Chemical Dipping

UtiliTrak® CR Series with corrosion resistant stainless steel components is used as a linear guide for supporting fragile but heavy loads as they are lowered into a barrel of chemicals for a treatment process.



Wheel Plate Max Load Capacity

	Wheel Size	Stock Code	Mass (g)	Axial L _A		Radial L _R		Pitch M _P		Yaw M _Y		Roll M _R		C	
				(N)	(lbF)	(N)	(lbF)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(Nm)	(lbF-ft)	(N)	(lbF)
Stainless Steel	1	UTCCA1-SS	136	1111	250	705	158	14	10.3	21	15.5	3	2.2	1625	365
	2	UTCCA2-SS	385	2671	600	1749	393	40	29.5	61	45	9	6.6	3900	877
	3	UTCCA3-SS	1107	5739	1290	4763	1071	146	107.7	176	129.8	35	25.8	8400	1888
Stainless High Temp	1	UTCCA1-227	136	1111	250	564	127	11.2	8.3	21	15.5	2.4	1.8	1625	365
	2	UTCCA2-227	385	2671	600	1399	315	32	23.6	61	45.0	7.2	5.3	3900	877
	3	UTCCA3-227	1107	5739	1290	3810	857	116.8	86.2	176	129.8	28	20.7	8400	1888



Clear Anodized Base with Polished Stainless Steel Channel Assembly

90° Vee

UTCOMP1SS - (Channel length in mm)

UTCOMP2SS - (Channel length in mm)

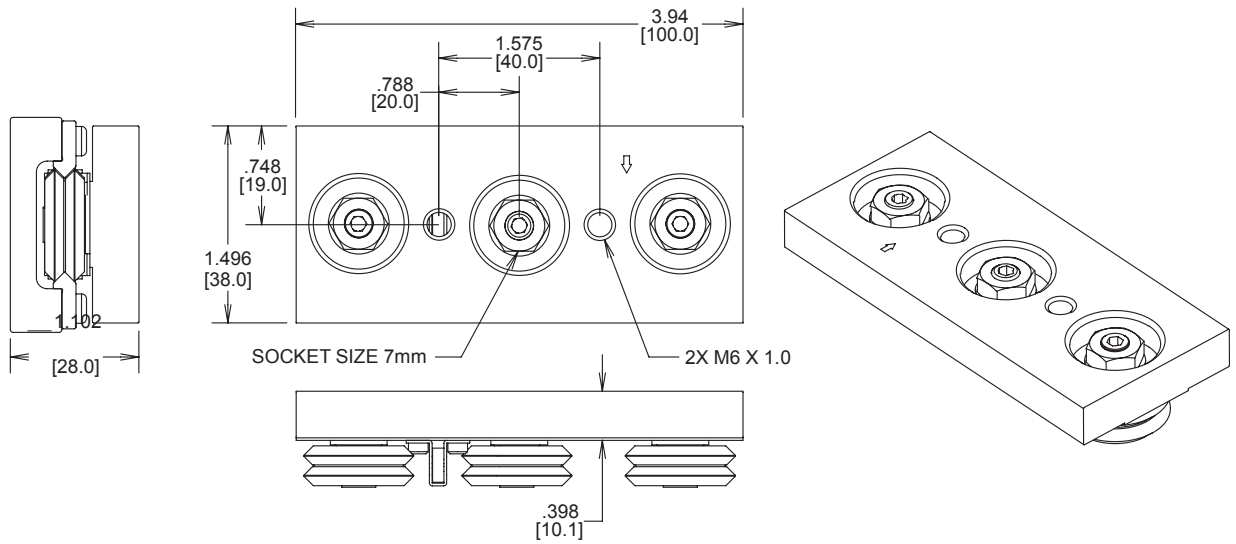
UTCOMP3SS - (Channel length in mm)

CR Standard Channel Length (mm)													
Size 0	-	-	-	-	-	-	-	-	-	-	-	-	-
Size 1	190	290	390	490	590	690	790	890	990	1090	2990	3490	-
Size 2	240	390	540	690	840	990	1140	1290	1440	1590	2190	2790	3390
Size 3	415	665	915	1165	1415	1665	1915	2165	2415	2665	2915	3165	3415

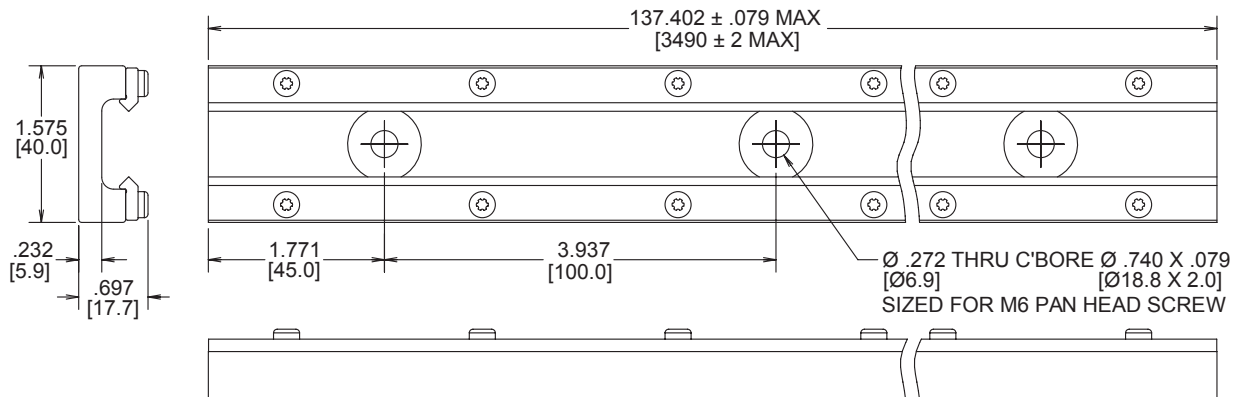
Channel lengths come in stock lengths and are customizable by application.
Butt-joining channel for unlimited travel lengths.

CR Series, Size 1

3 Wheel Plate



Channel

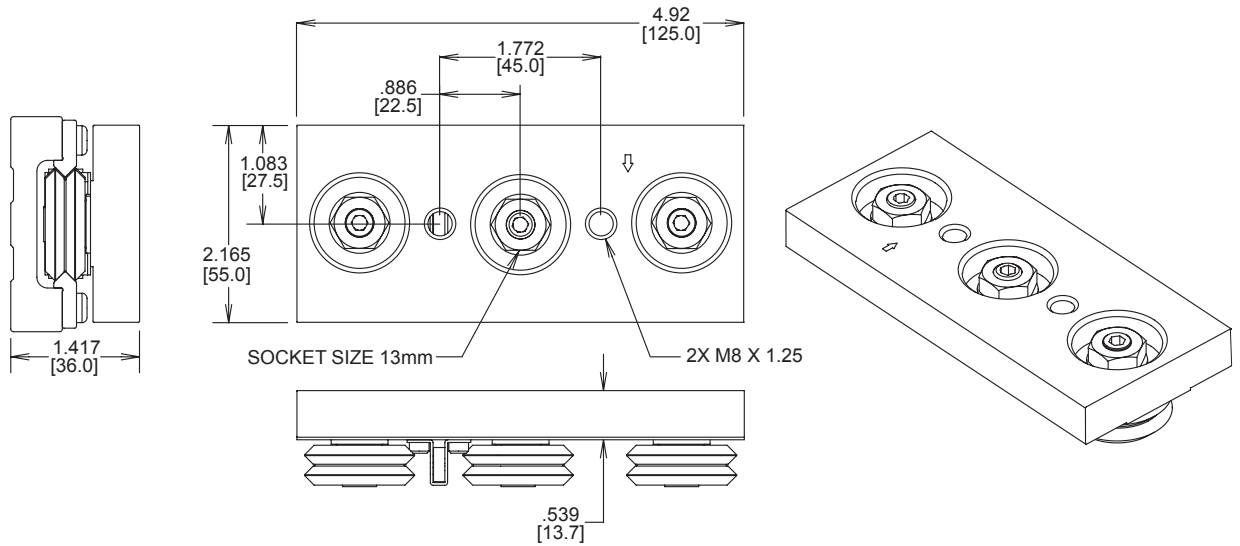


* Dimensions are shown in inch and [metric] values

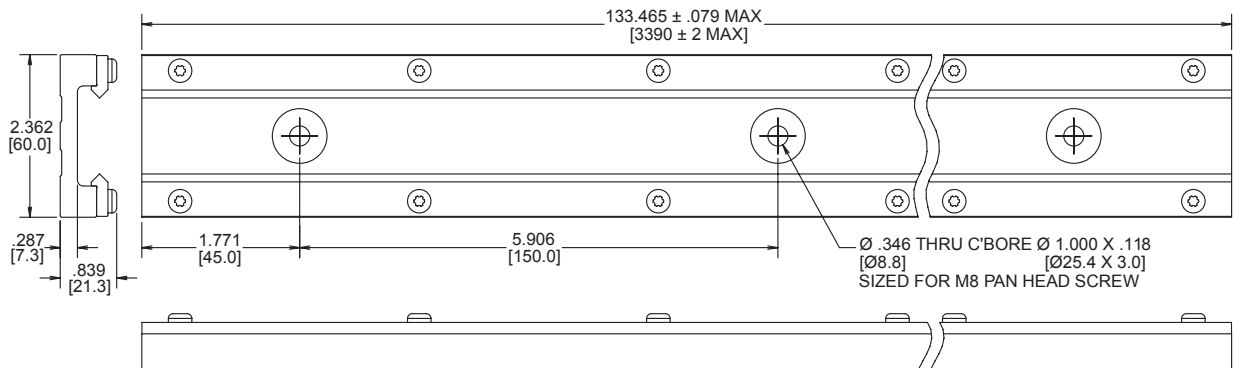
** Drawings are not to scale

CR Series, Size 2

3 Wheel Plate



Channel



* Dimensions are shown in inch and [metric] values

** Drawings are not to scale



UtiliTrak[®] Series

A LINEAR
GUIDE SOLUTION

Accessories

Wheel Plate Hand Brake

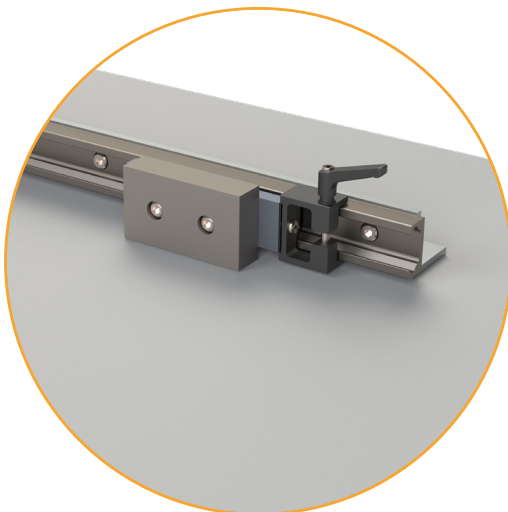
- Compact system ideal for applications where handle arm access space is limited
- Brake system allows steel (VC and SW series) and aluminum (PW series) UtiliTrak® wheel plates, to be manually locked at any user-selected position on vee and C channel
- Brake block fabricated from aluminum and hard anodized for corrosion resistance, abrasion resistance, good gripping/braking action, and long life

	Size	Stock Code	Mass (g)
Hand Brake	0	UT0BRKCLMPK	45
	1	UT1BRKCLMPK	54
	2	UT2BRKCLMPK	77
	3	UT3BRKCLMPK	181

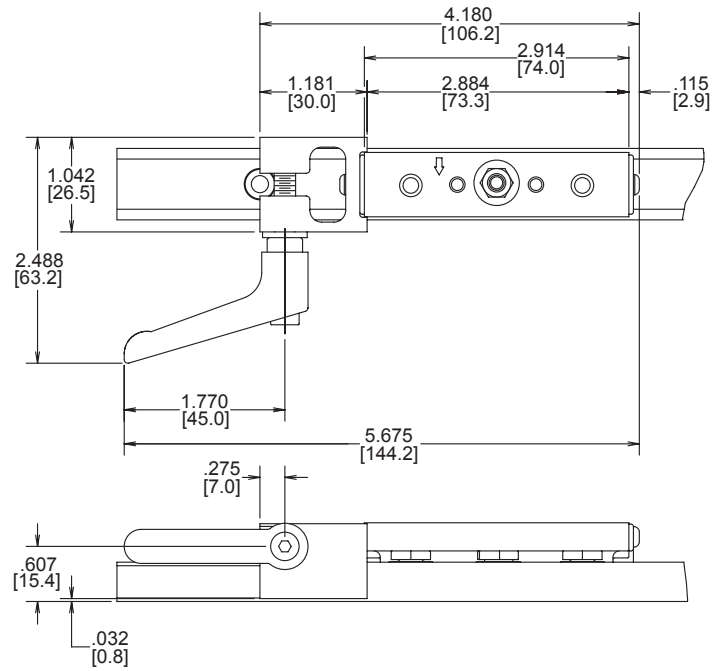


Workbench

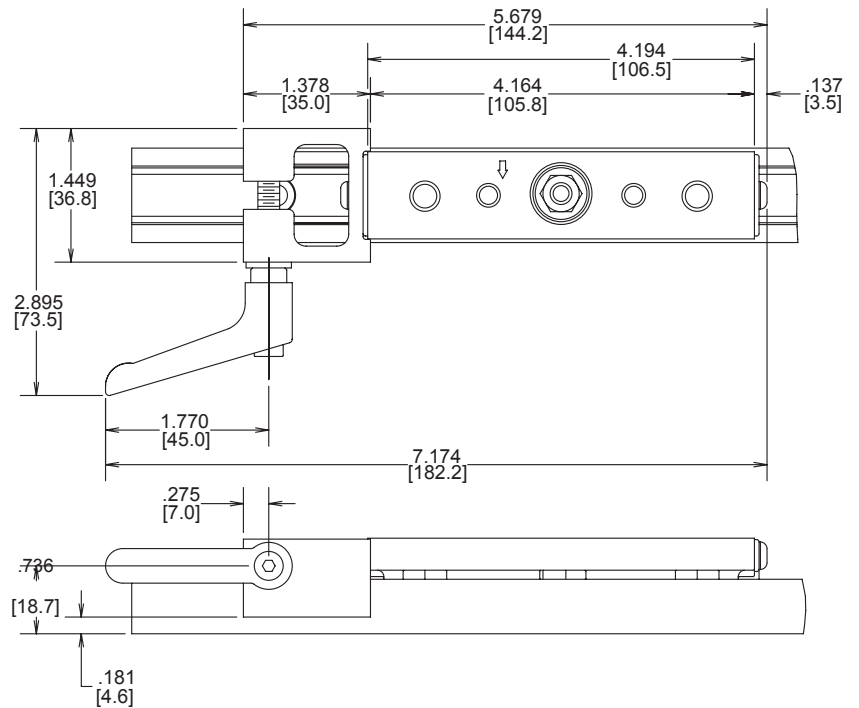
A channel mounted to a workbench acts as a guide when utilizing the wheel plate as a method for pushing material towards a saw. A hand brake is added for manually setting the braking point.



Brake Kit, Size 0

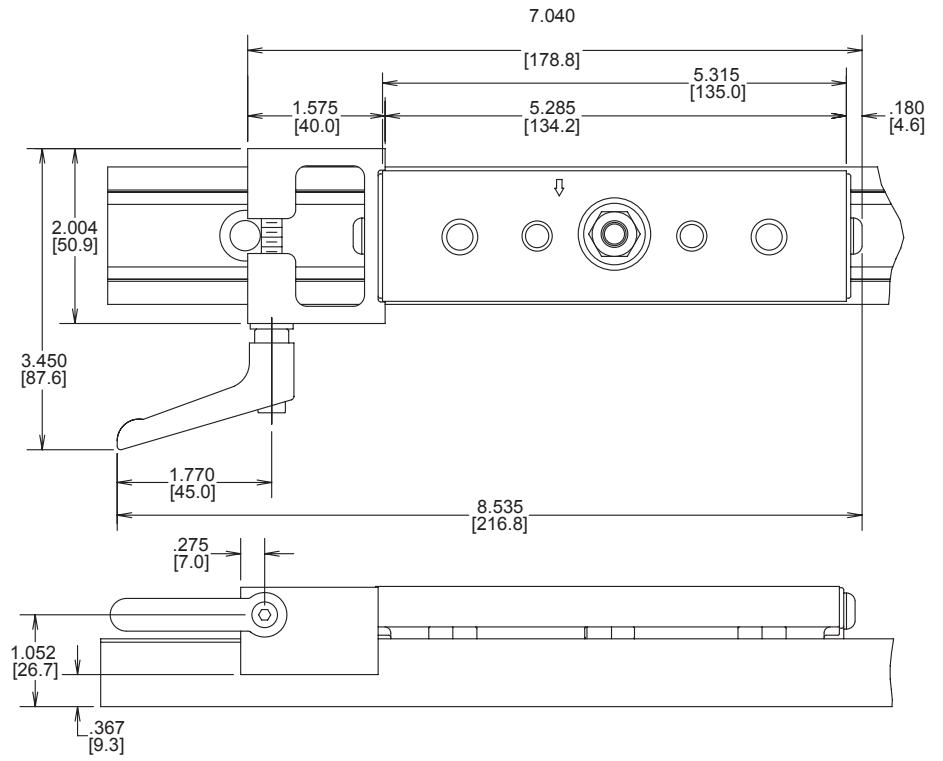


Brake Kit, Size 1

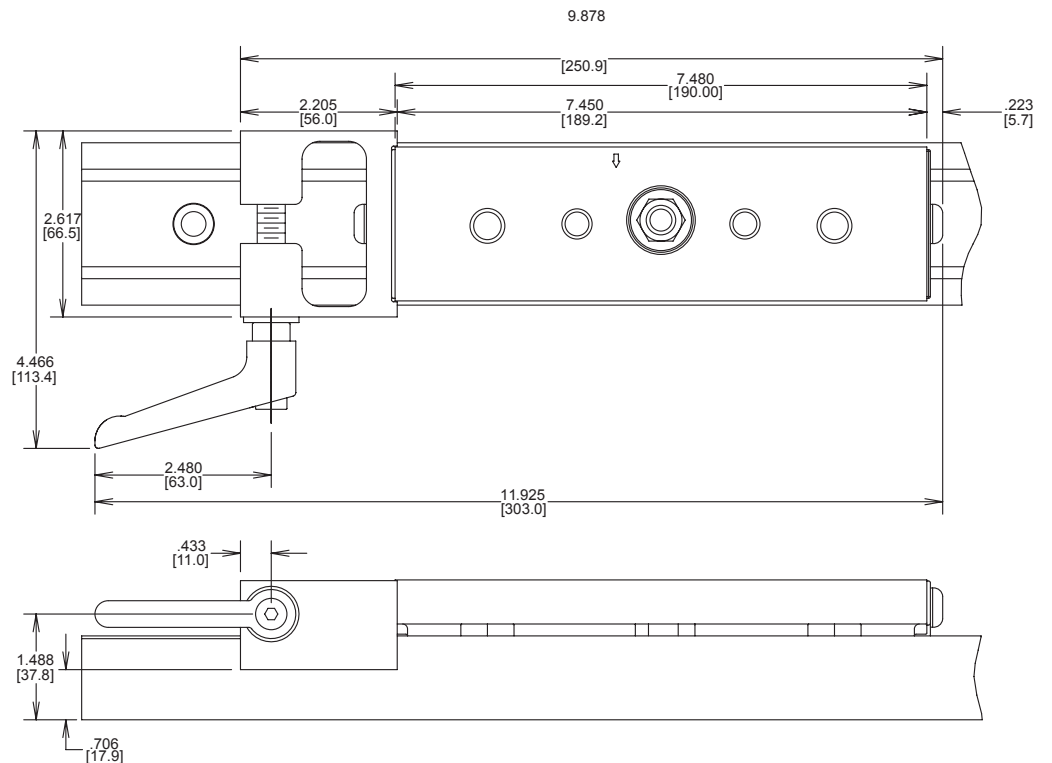


* Drawings are not to scale

Brake Kit, Size 2



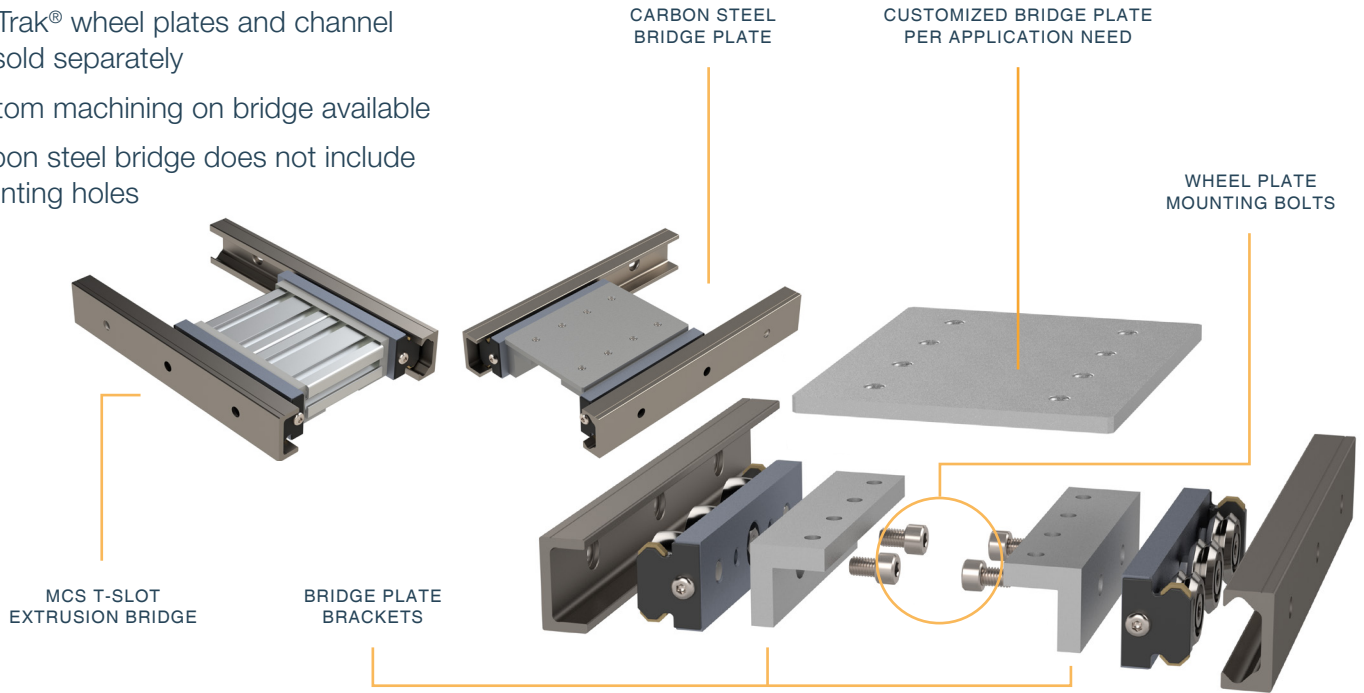
Brake Kit, Size 3



* Drawings are not to scale

Bridge Kit

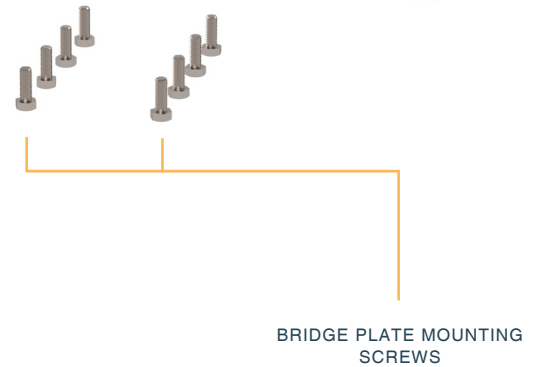
- Includes fasteners and brackets to mount bridge element to UtiliTrak® wheel plates
- UtiliTrak® wheel plates and channel are sold separately
- Custom machining on bridge available
- Carbon steel bridge does not include mounting holes



Bridge Kits

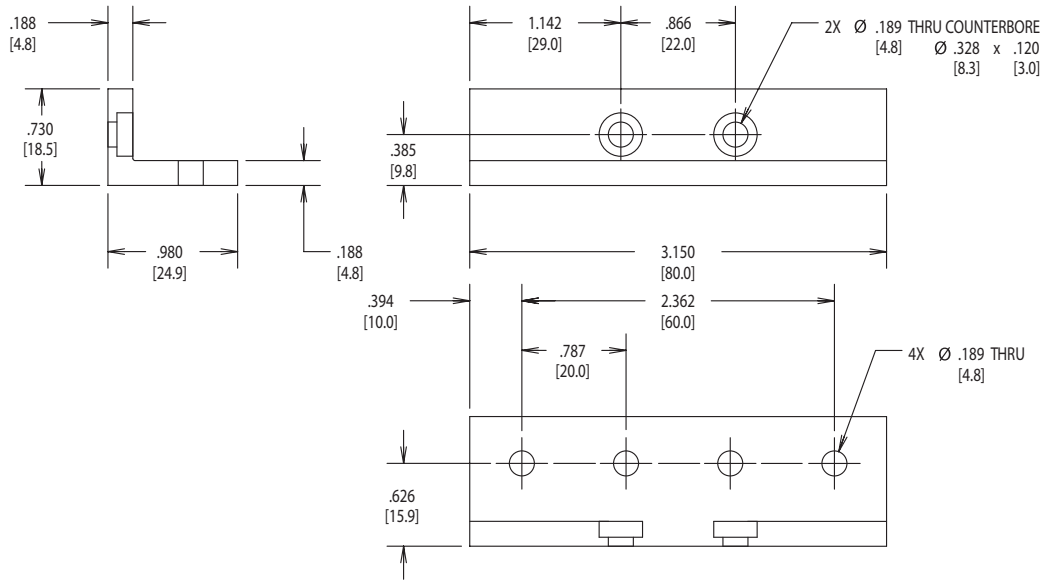
Wheel Plate Size	Wheel Count	Channel Span Width Range (mm)	Bridge Element Type	Stock Code
0	3	125 to 200	Carbon Steel Plate	UT0BC3Knnnn*
			MCS T-Slot Extrusion	UT0BE3Knnnn*
	4 or 5	125 to 300	Carbon Steel Plate	UT0BC5Knnnn*
			MCS T-Slot Extrusion	UT0BE5Knnnn*
1	3	150 to 300	Carbon Steel Plate	UT1BC3Knnnn*
			MCS T-Slot Extrusion	UT1BE3Knnnn*
	4 or 5	150 to 450	Carbon Steel Plate	UT1BC5Knnnn*
			MCS T-Slot Extrusion	UT1BE5Knnnn*
2	3	150 to 375	Carbon Steel Plate	UT2BC3Knnnn*
			MCS T-Slot Extrusion	UT2BE3Knnnn*
	4 or 5	150 to 600	Carbon Steel Plate	UT2BC5Knnnn*
			MCS T-Slot Extrusion	UT2BE5Knnnn*
3	3	225 to 500	Carbon Steel Plate	UT3BC3Knnnn*
			MCS T-Slot Extrusion	UT3BE3Knnnn*
	4 or 5	225 to 1000	Carbon Steel Plate	UT3BC5Knnnn*
			MCS T-Slot Extrusion	UT3BE5Knnnn*

* nnnn is the channel span width in mm

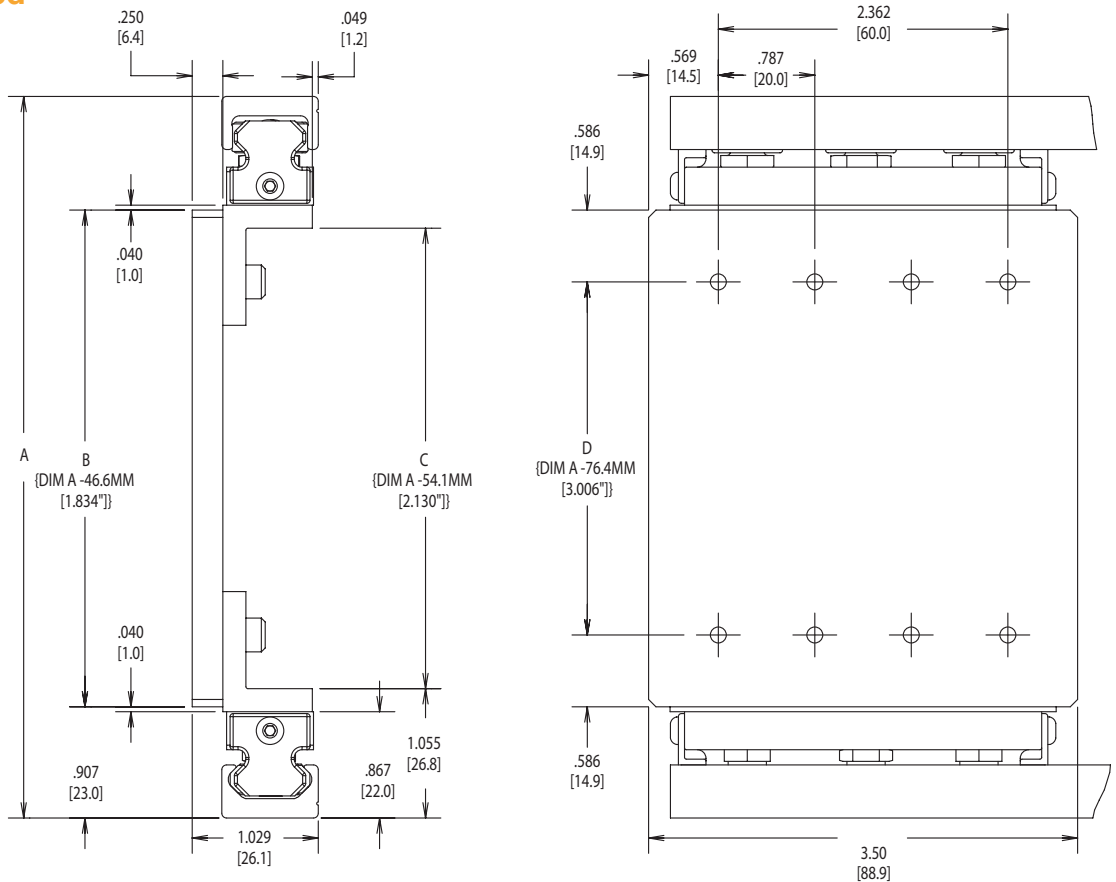


Carbon Steel Plate, Size 0

3 Wheel Plate Brackets



Wheel Plate Mounted

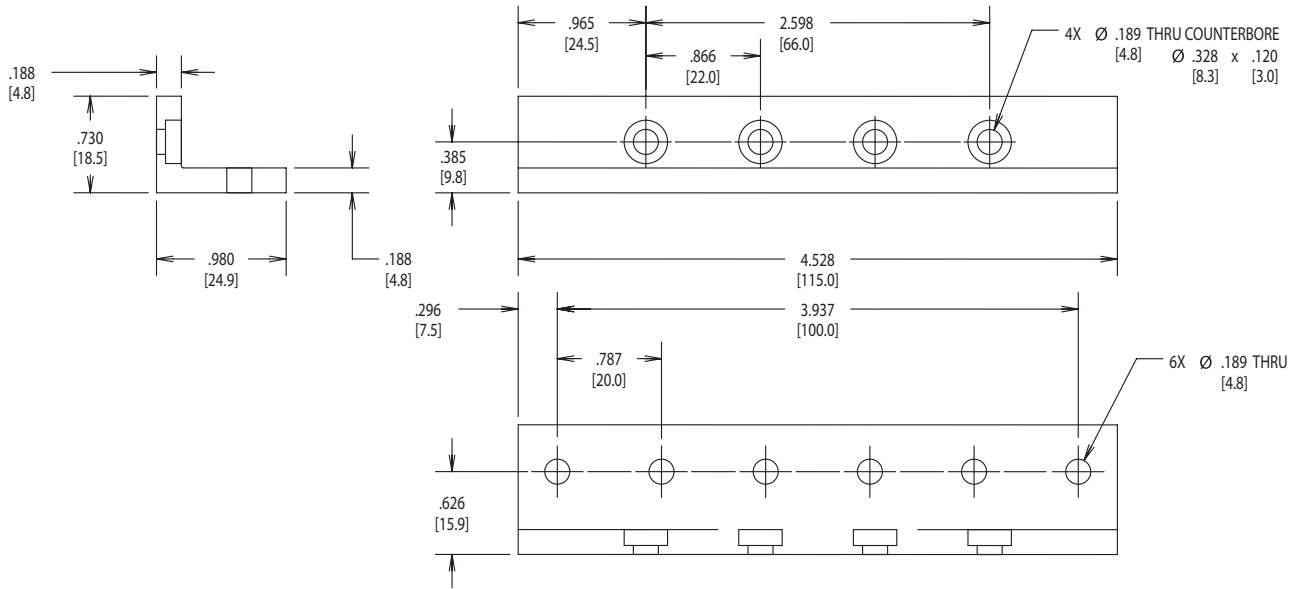


* Drawings are not to scale

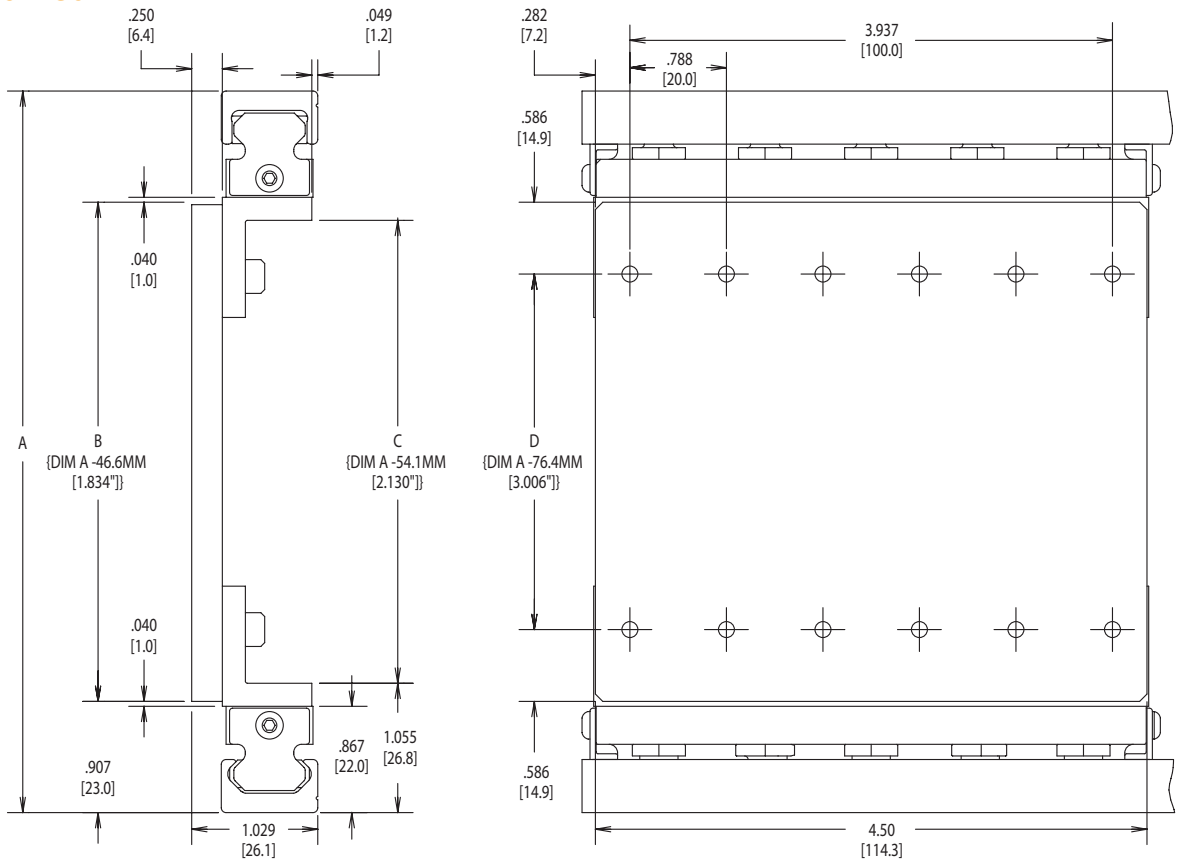
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 0

4 and 5 Wheel Plate Brackets



Wheel Plate Mounted

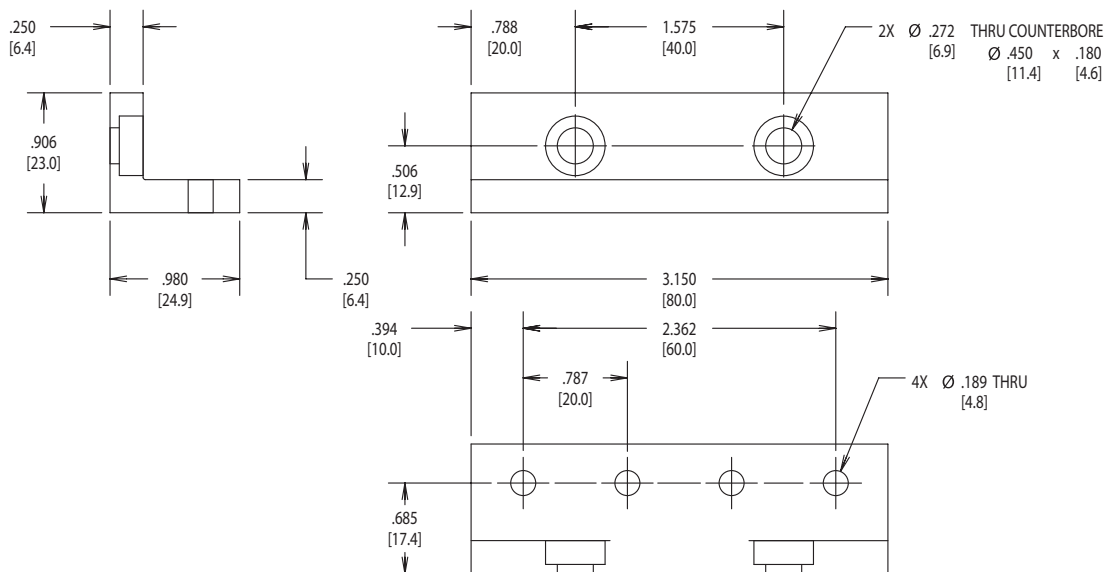


* Drawings are not to scale

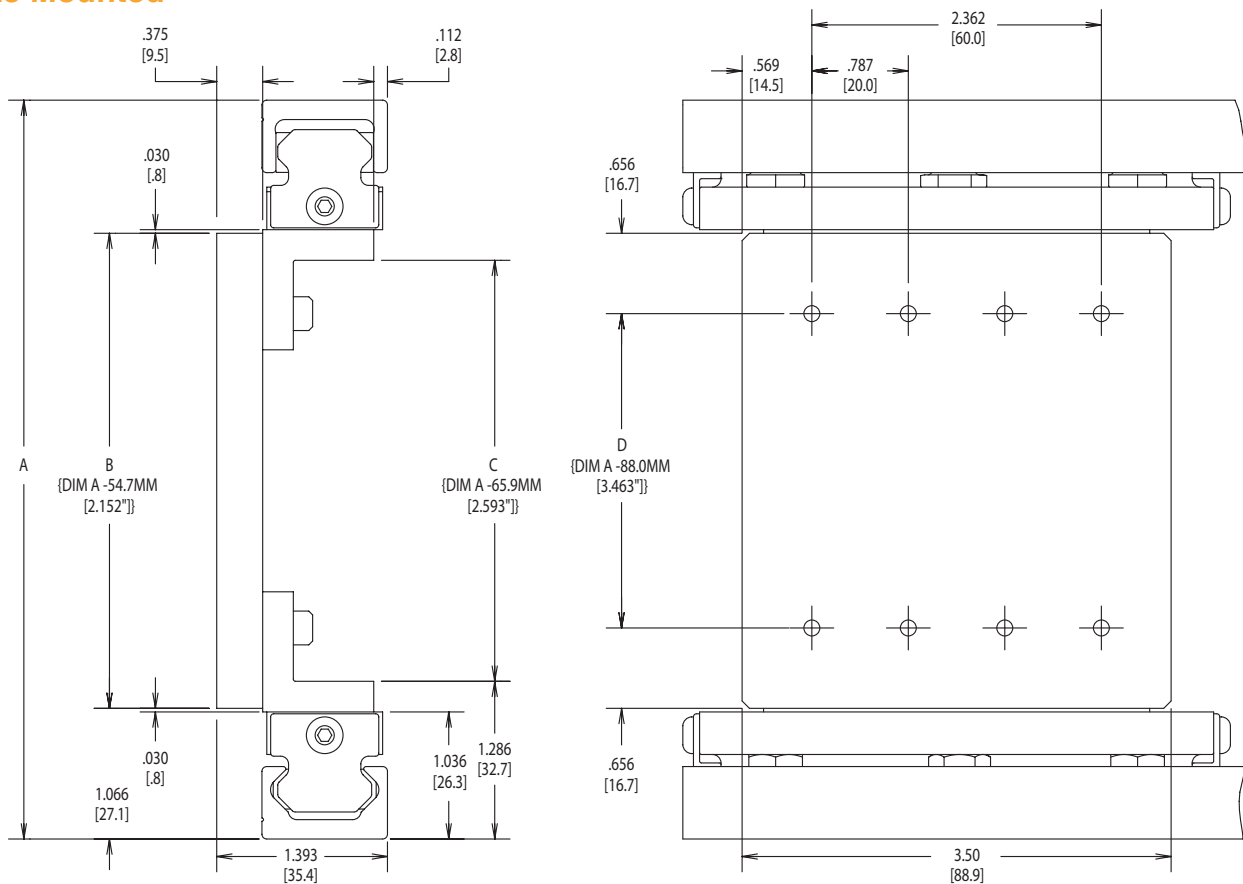
A = Rail-to-rail mounting span width. Customer defines when ordering. B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 1

3 Wheel Plate Brackets



Wheel Plate Mounted



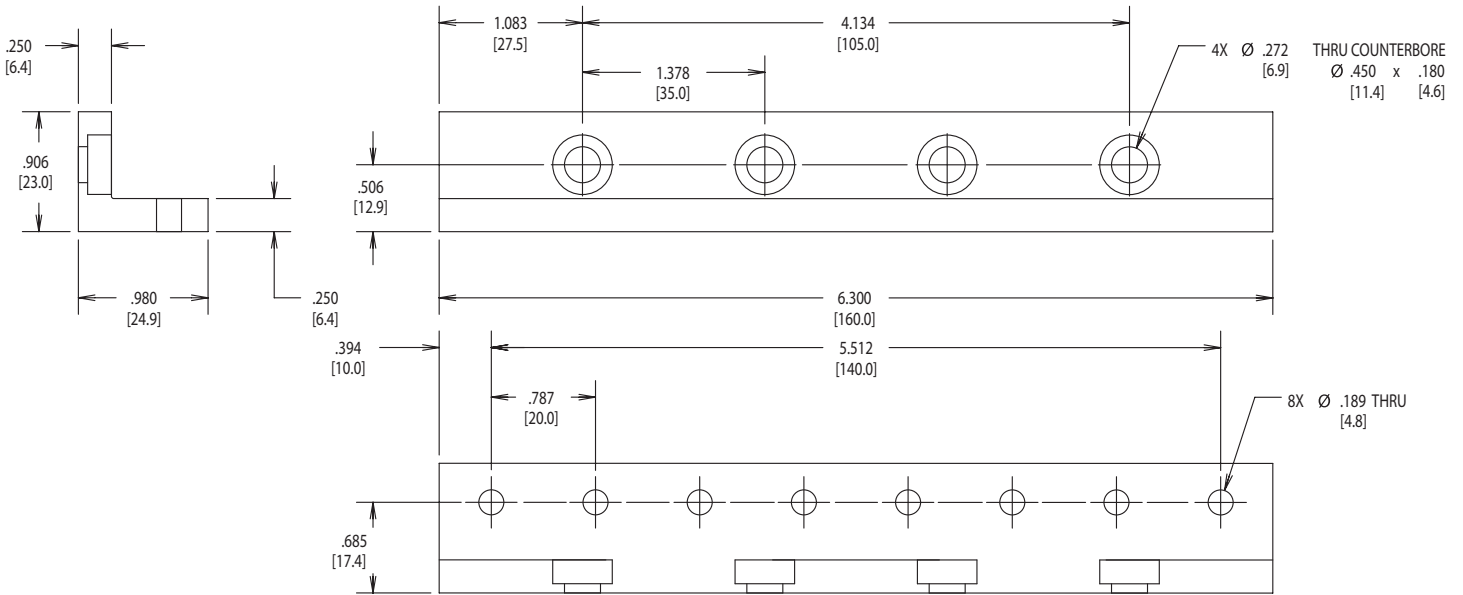
* Drawings are not to scale

A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces

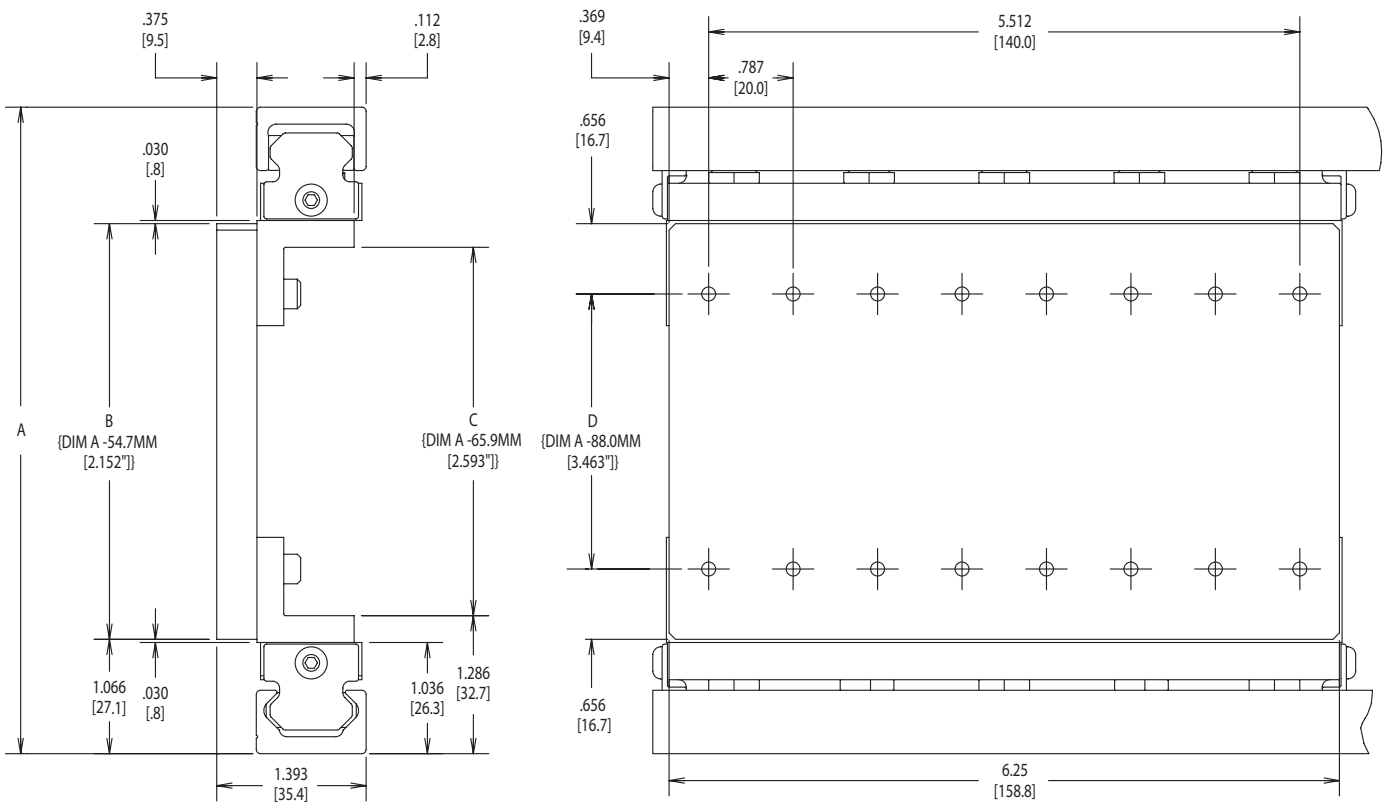
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 1

4 and 5 Wheel Plate Brackets



Wheel Plate Mounted

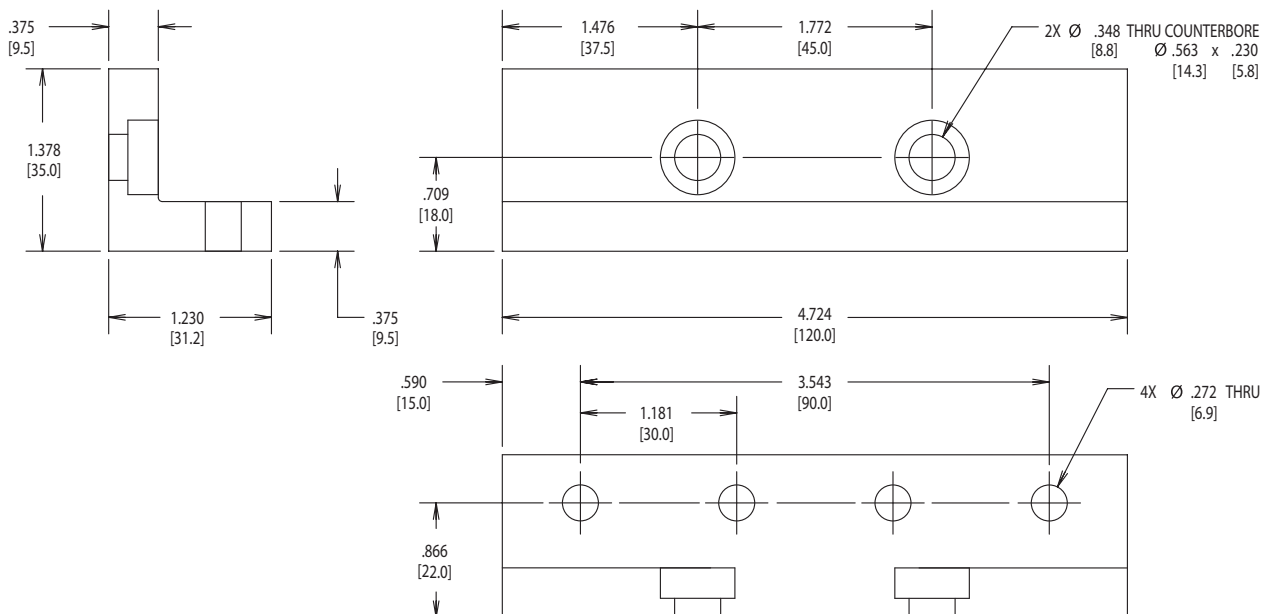


* Drawings are not to scale

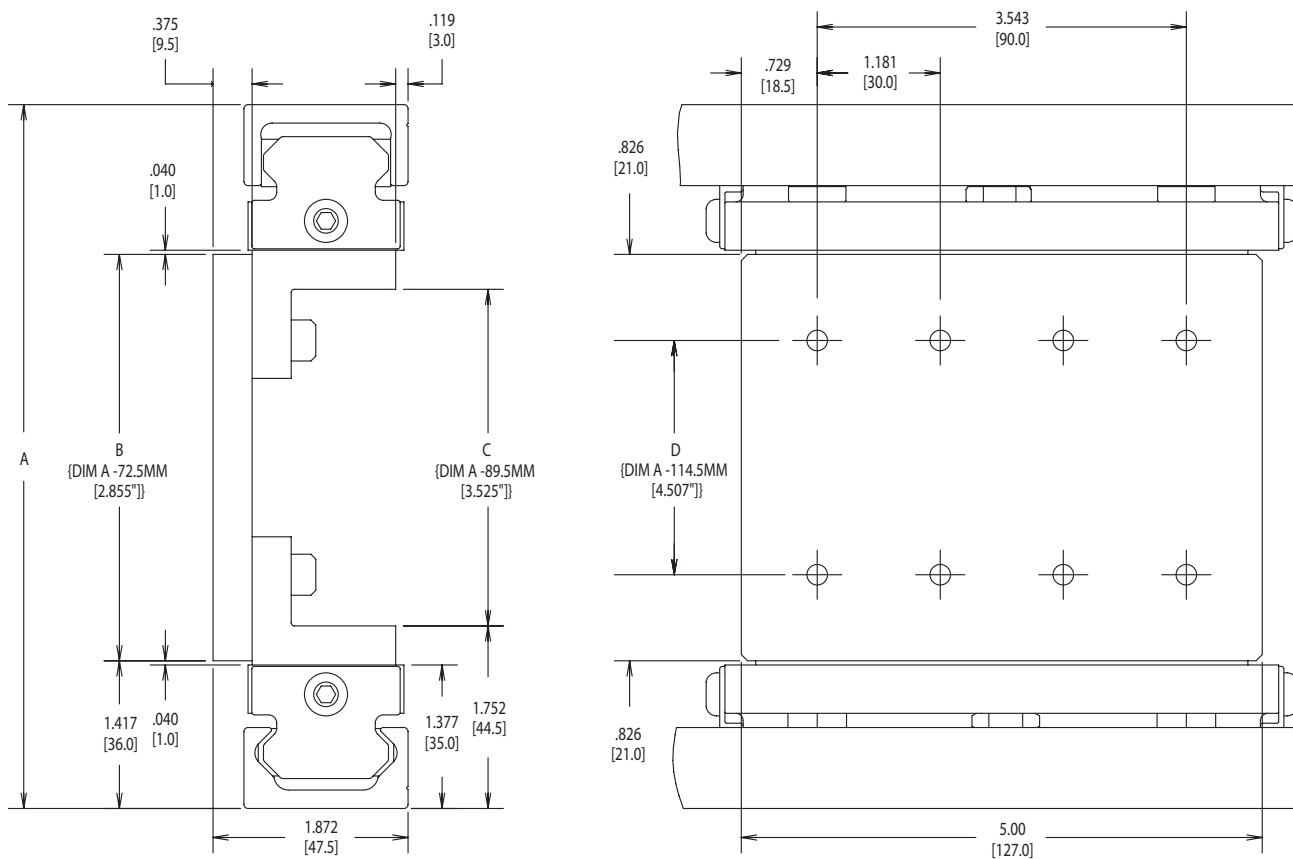
A = Rail-to-rail mounting span width. Customer defines when ordering. B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 2

3 Wheel Plate Brackets



Wheel Plate Mounted

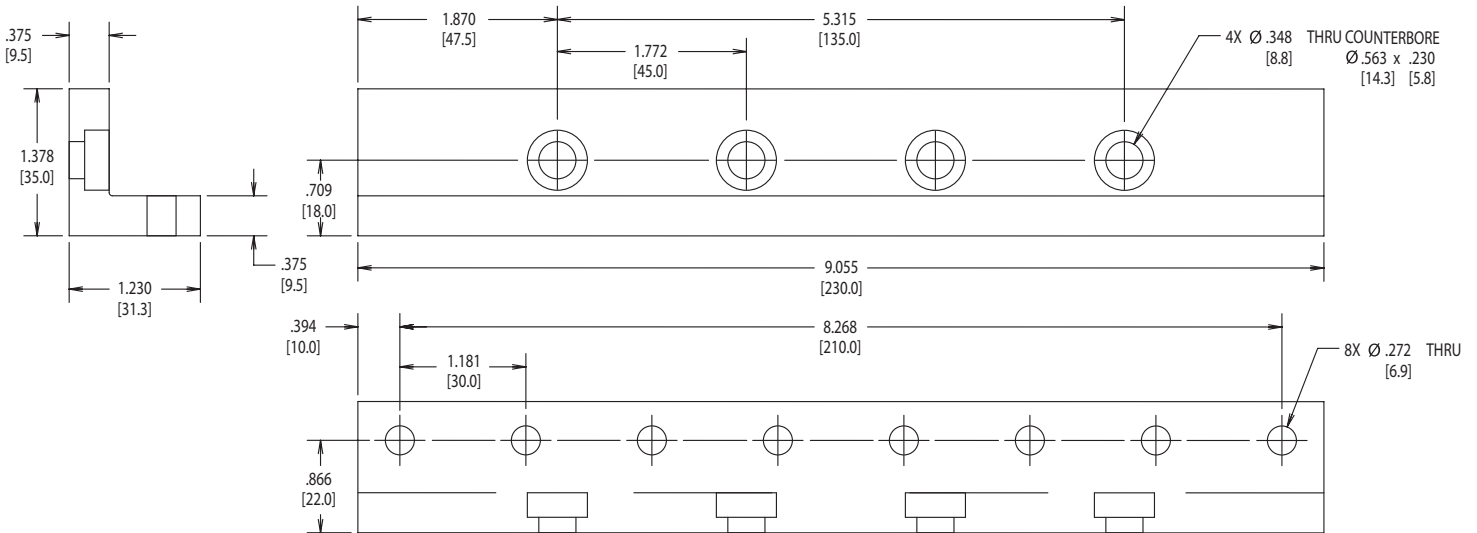


* Drawings are not to scale

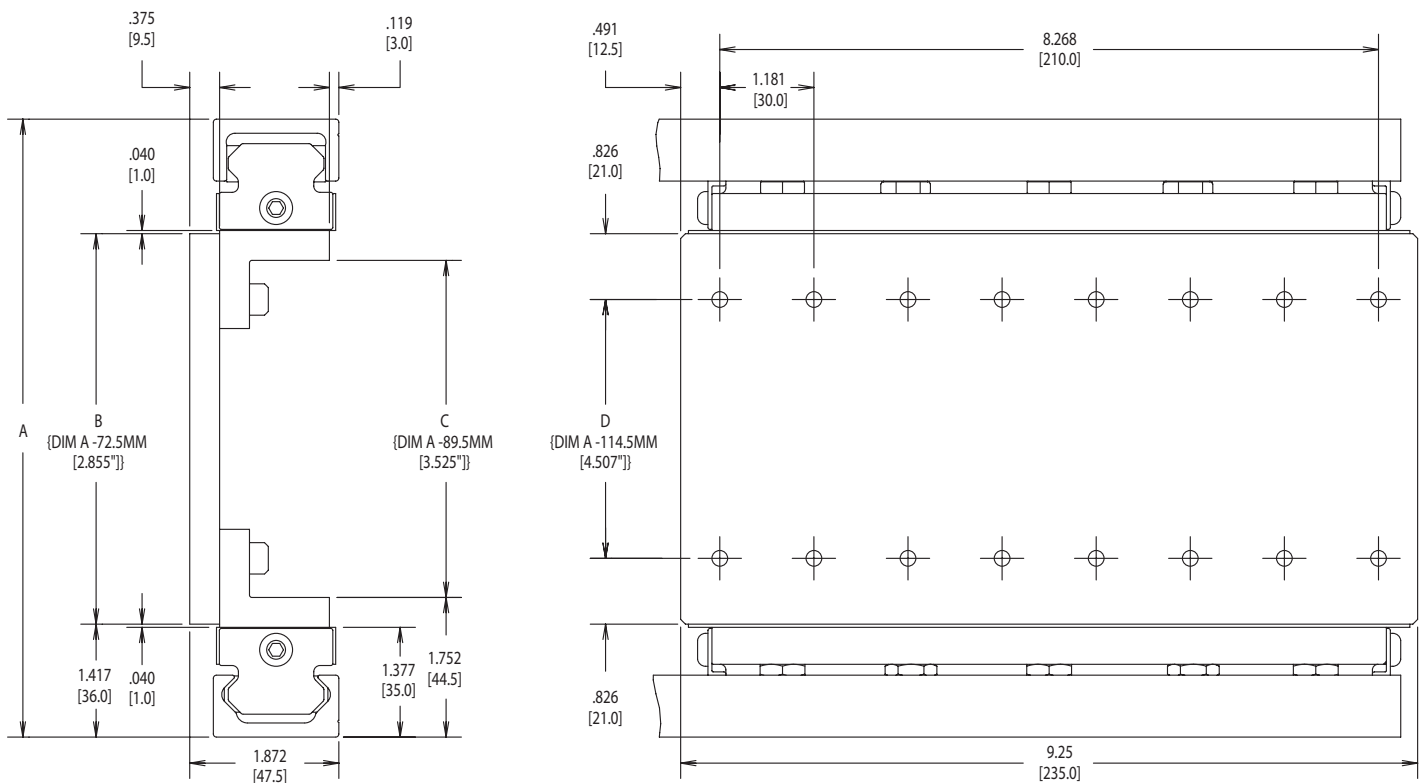
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 2

4 and 5 Wheel Plate Brackets



Wheel Plate Mounted

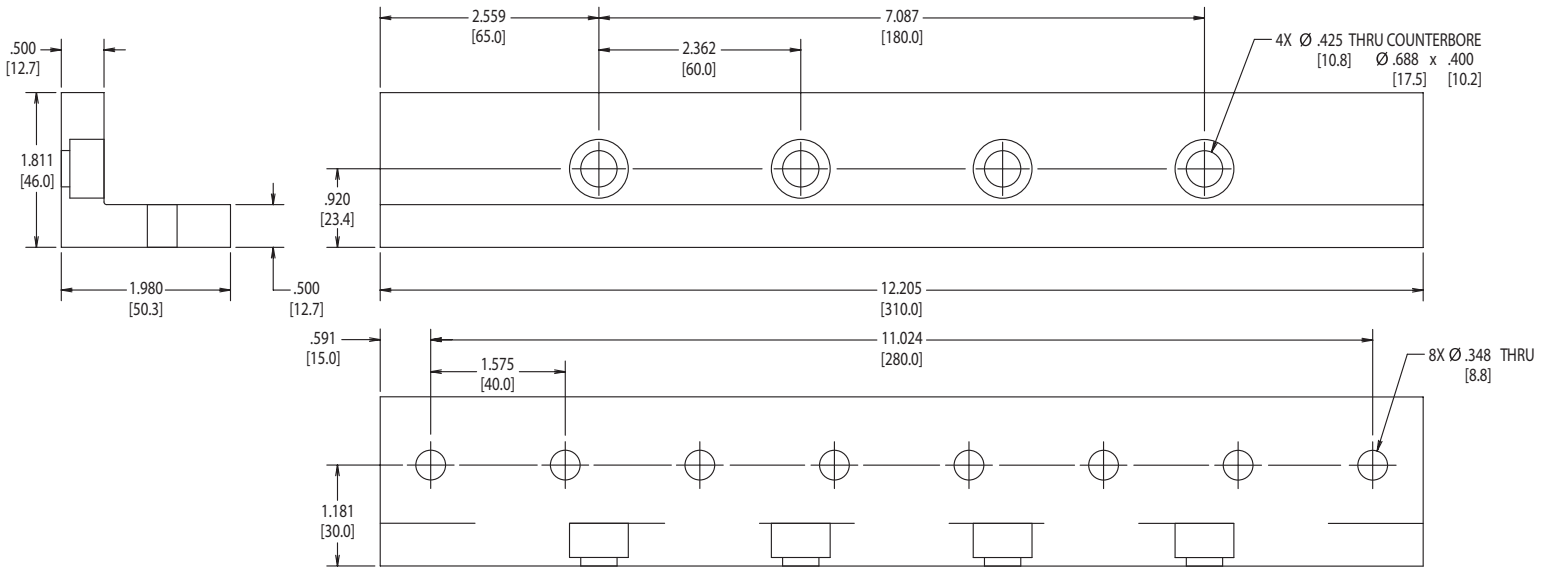


* Drawings are not to scale

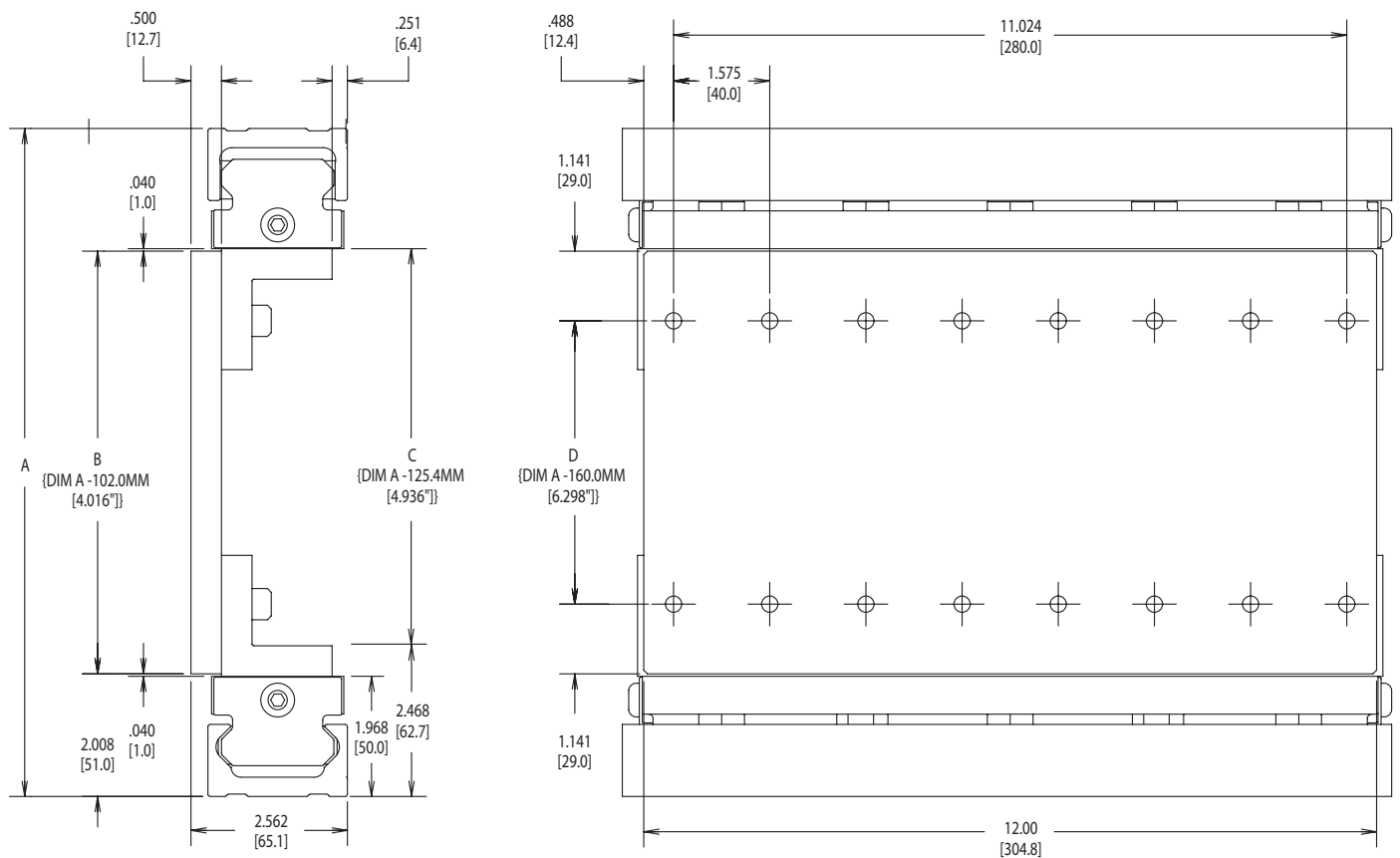
A = Rail-to-rail mounting span width. Customer defines when ordering., **B** = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

Carbon Steel Plate, Size 3

4 and 5 Wheel Plate Brackets



Wheel Plate Mounted

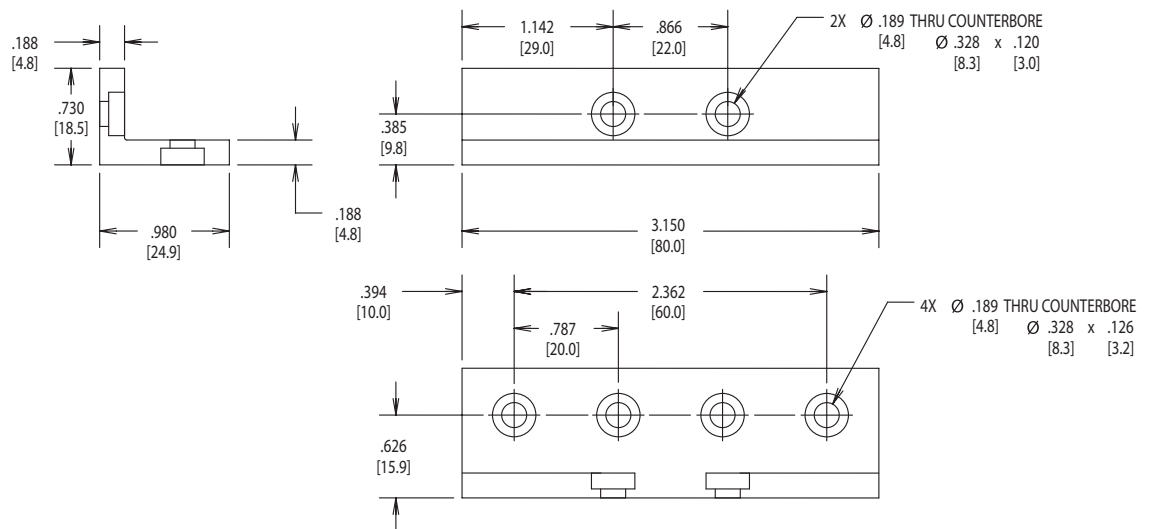


* Drawings are not to scale

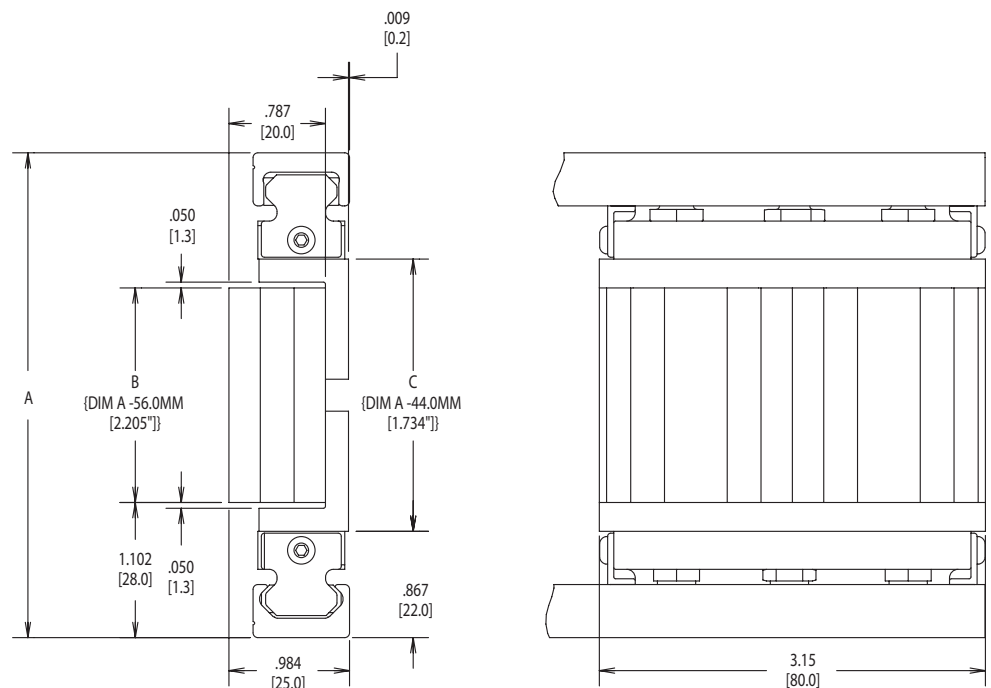
A = Rail-to-rail mounting span width. Customer defines when ordering., **B** = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width of space available between the brackets for the steel bridge plate

T-Slot Extrusion, Size 0

3 Wheel Plate Brackets



T-Slot Mounted

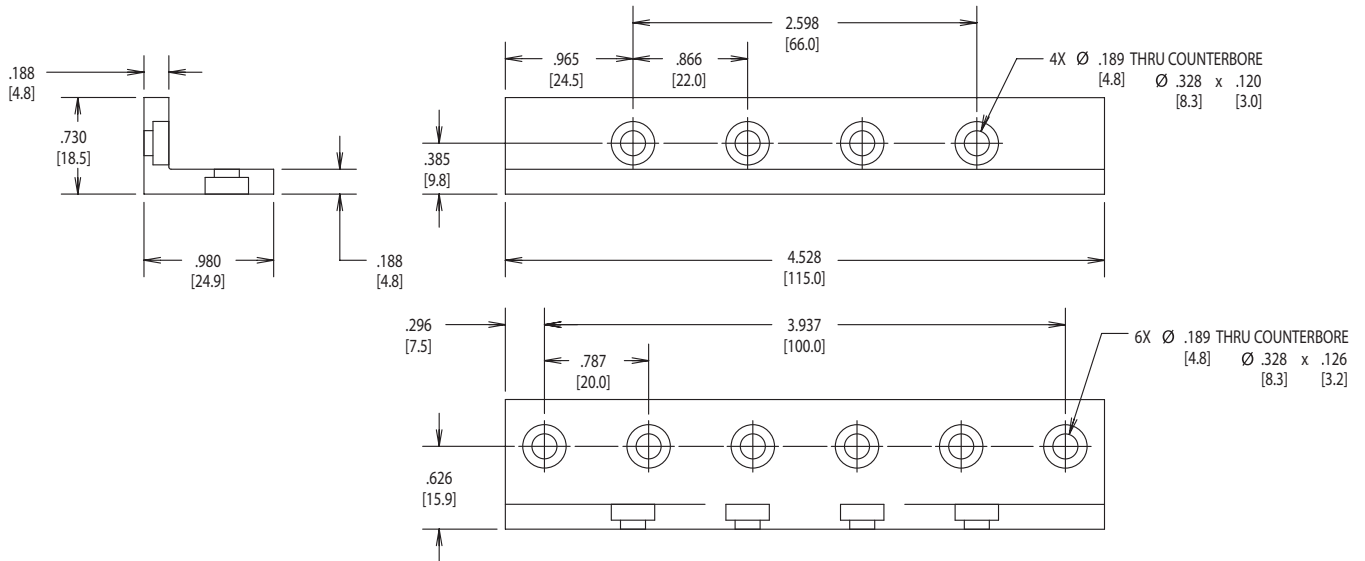


* Drawings are not to scale

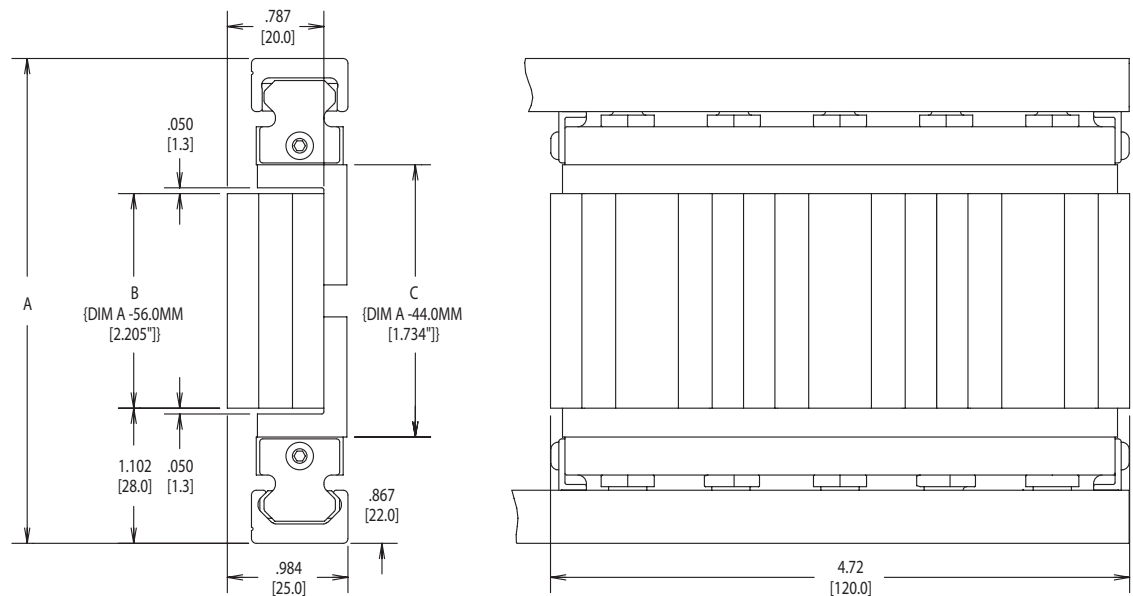
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 0

4 and 5 Wheel Plate Brackets



T-Slot Mounted

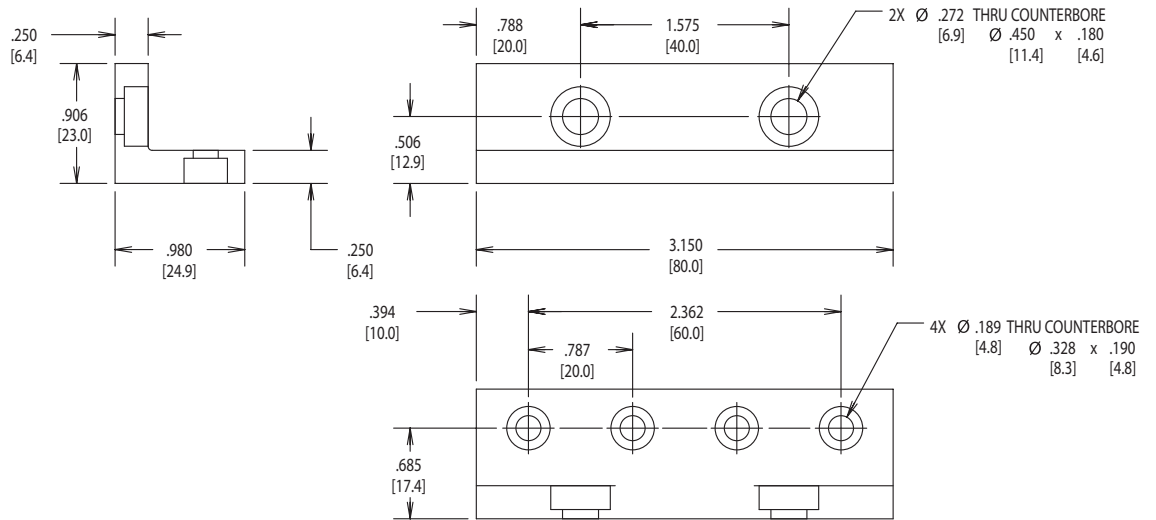


* Drawings are not to scale

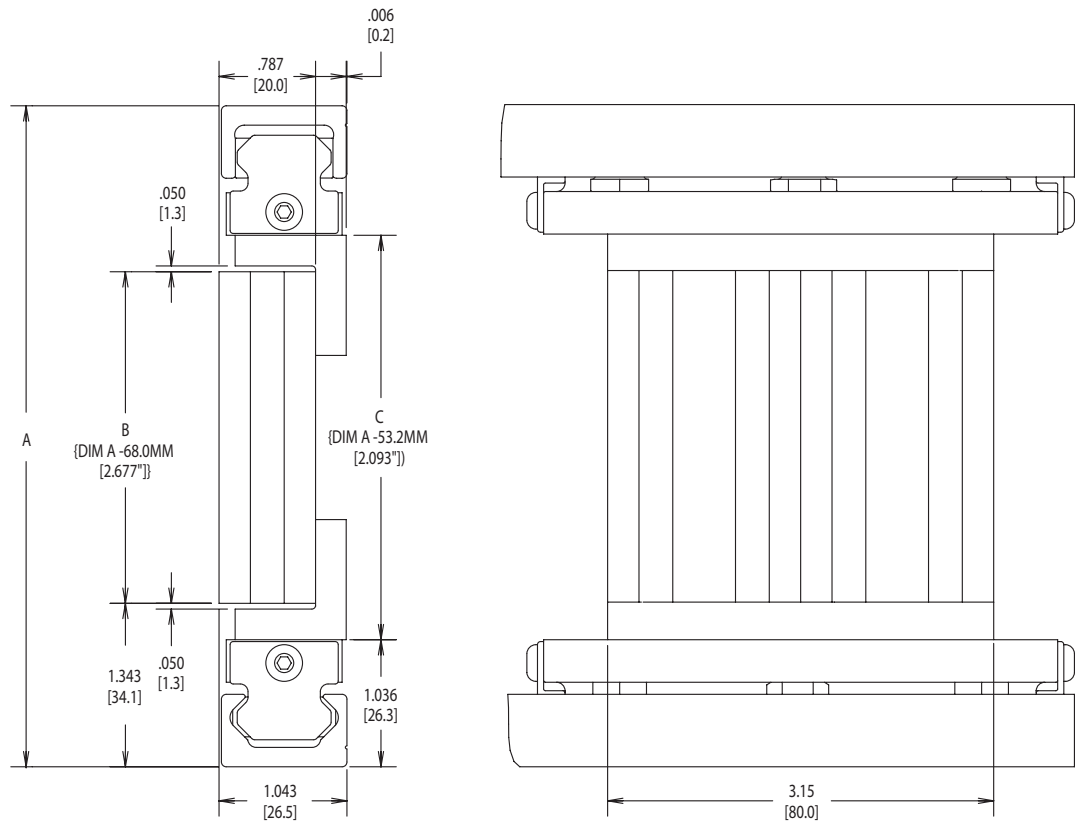
A = Rail-to-rail mounting span width. Customer defines when ordering., **B** = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 1

3 Wheel Plate Brackets



T-Slot Mounted

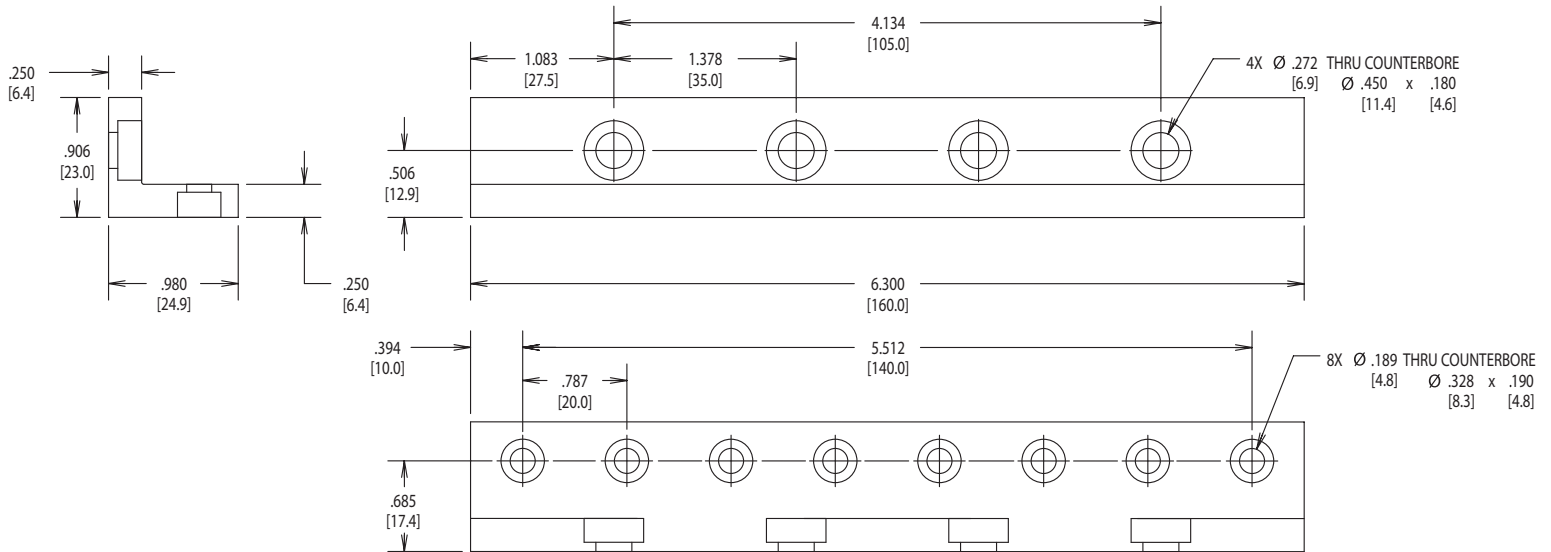


* Drawings are not to scale

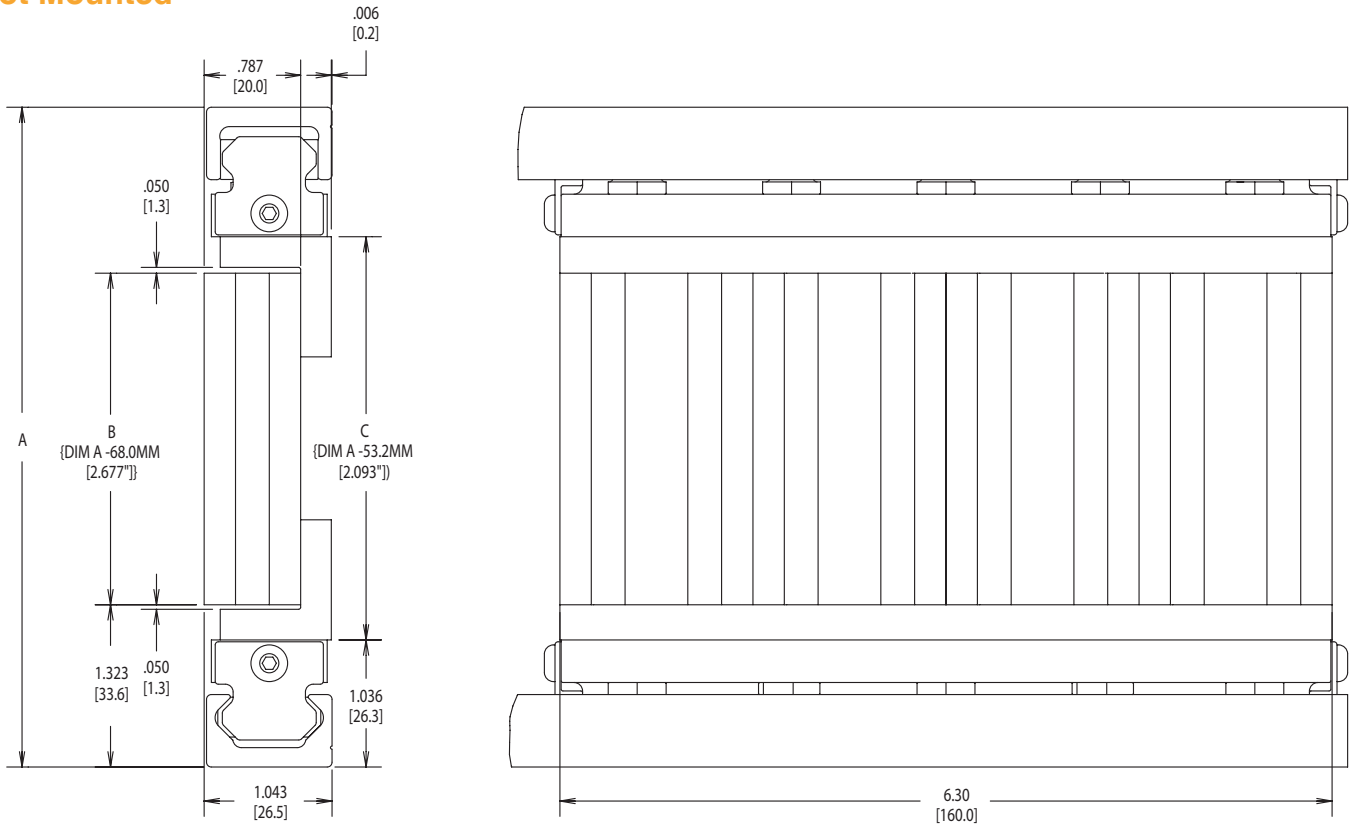
A = Rail-to-rail mounting span width. Customer defines when ordering., **B** = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 1

4 and 5 Wheel Plate Brackets



T-Slot Mounted

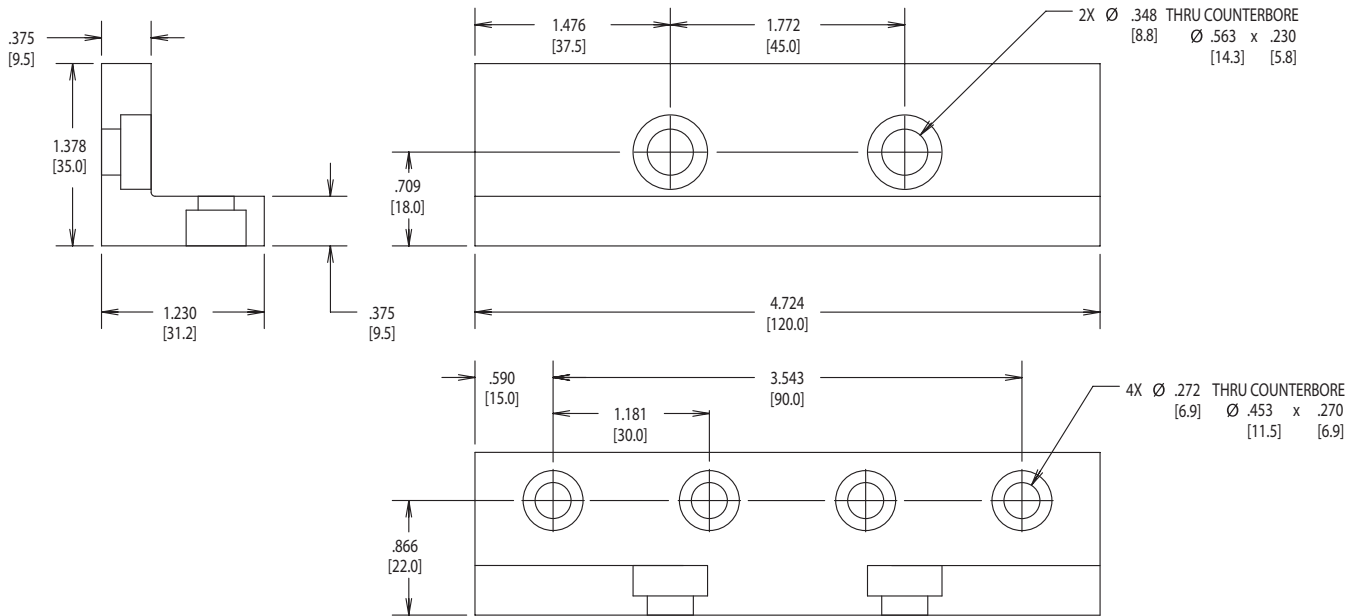


* Drawings are not to scale

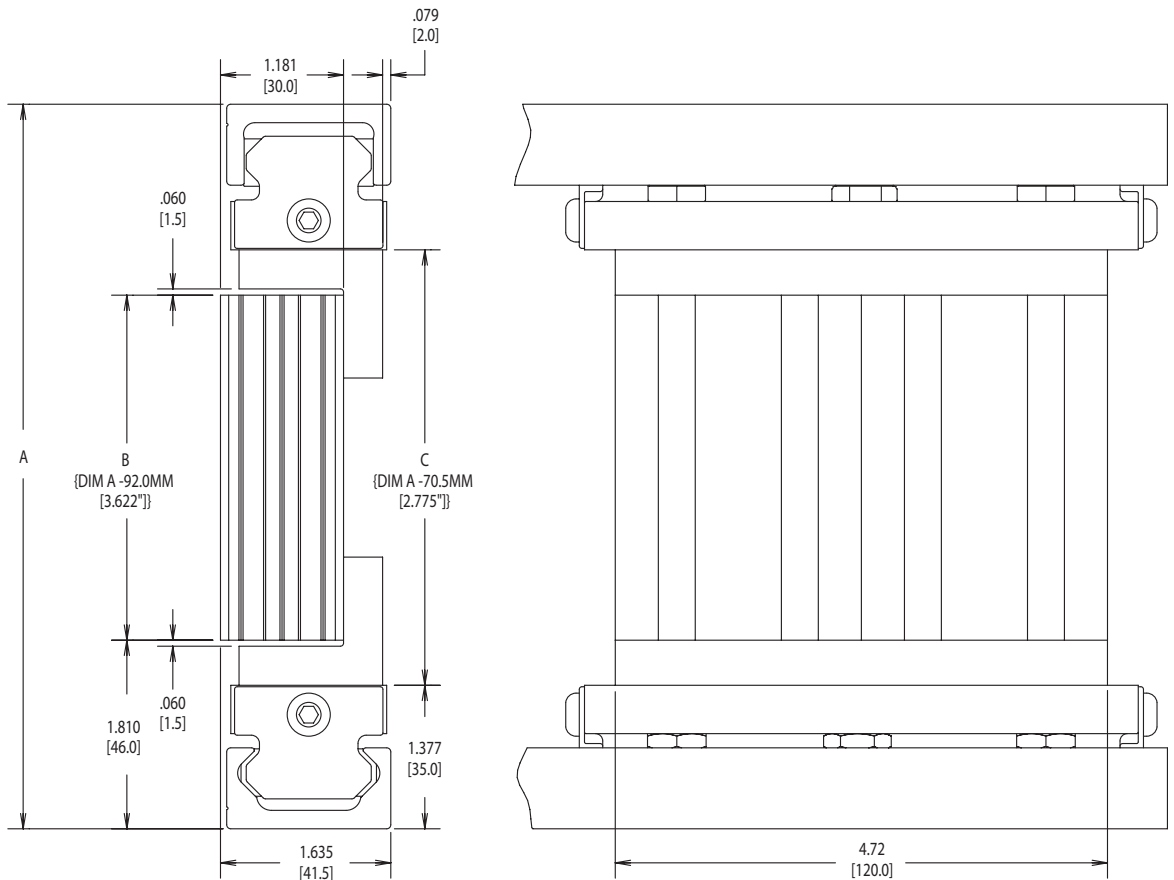
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 2

3 Wheel Plate Brackets



T-Slot Mounted

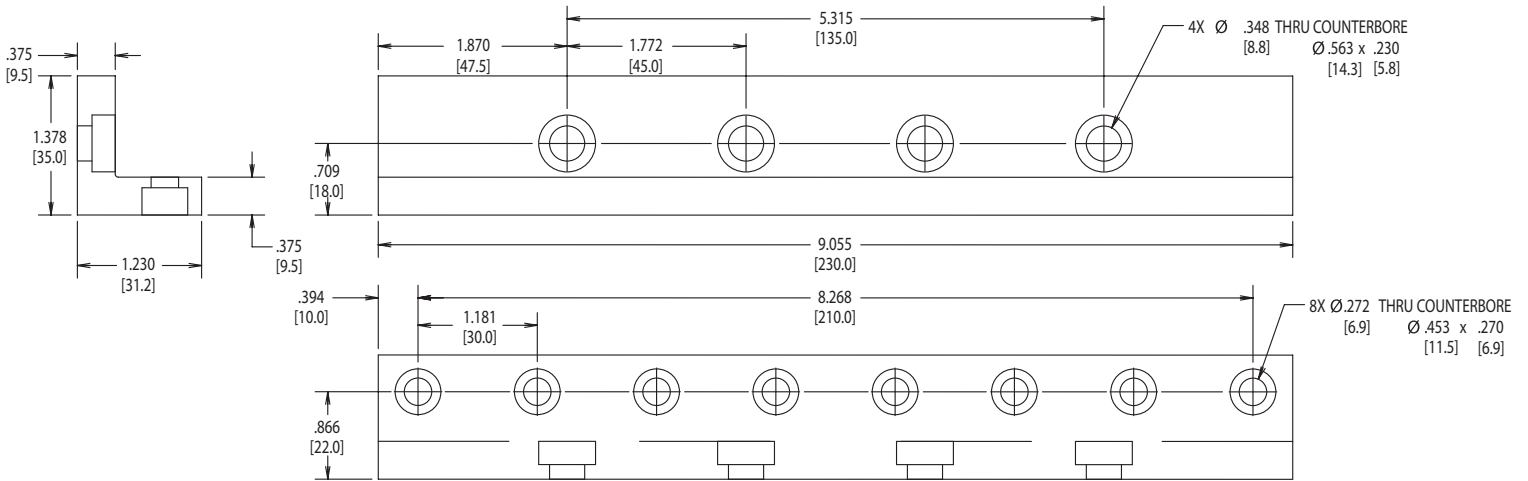


* Drawings are not to scale

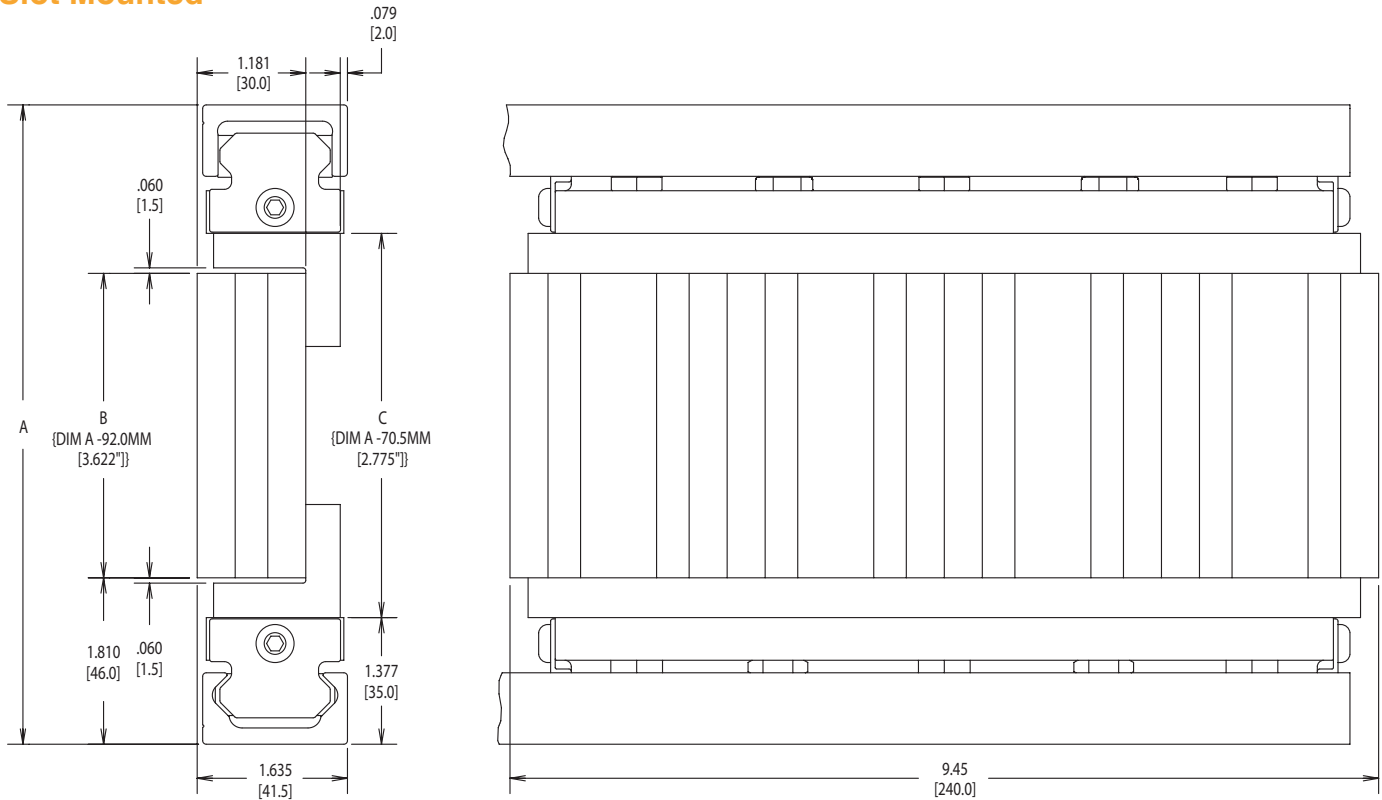
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 2

4 and 5 Wheel Plate Brackets



T-Slot Mounted

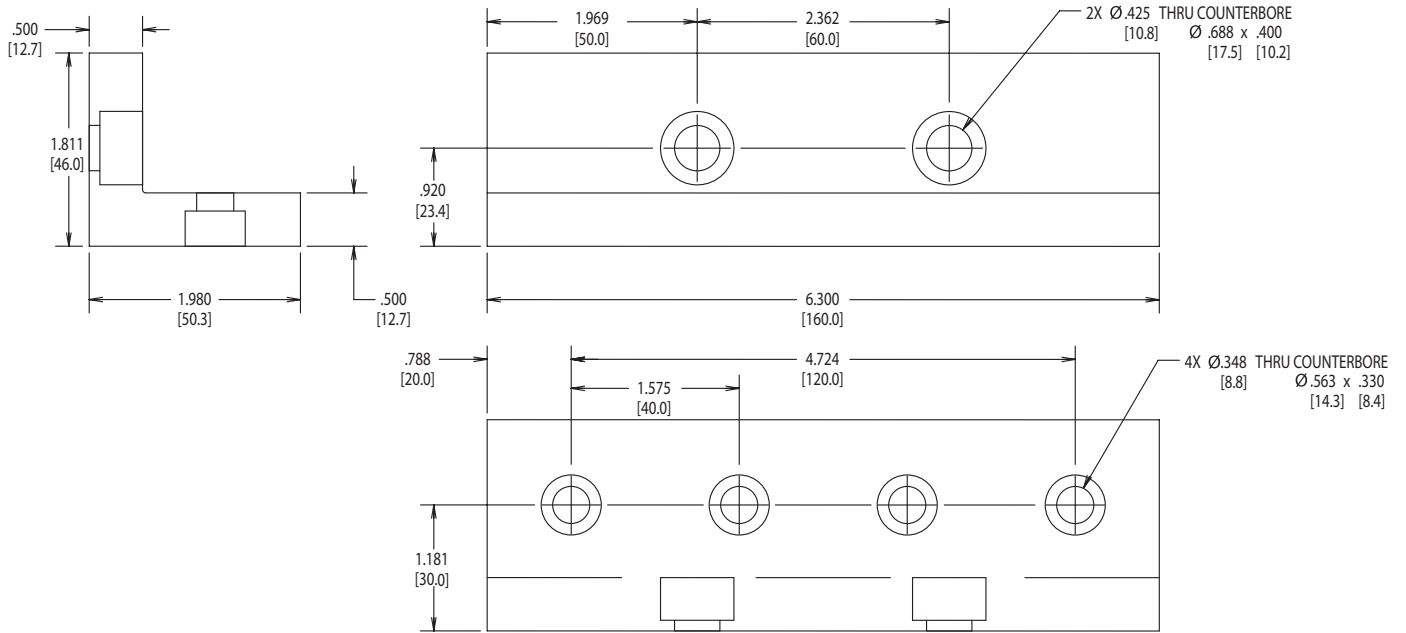


* Drawings are not to scale

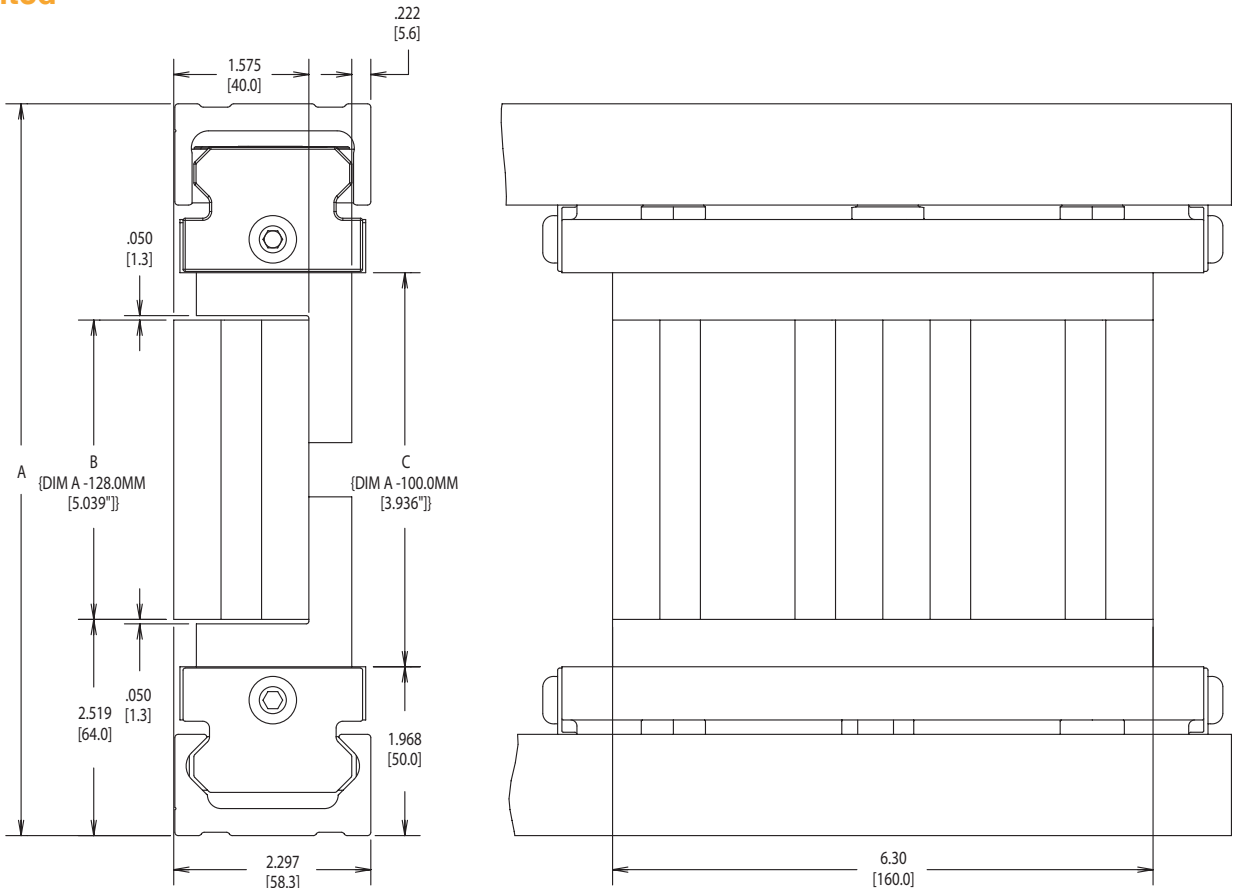
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 3

3 Wheel Plate Brackets



T-Slot Mounted

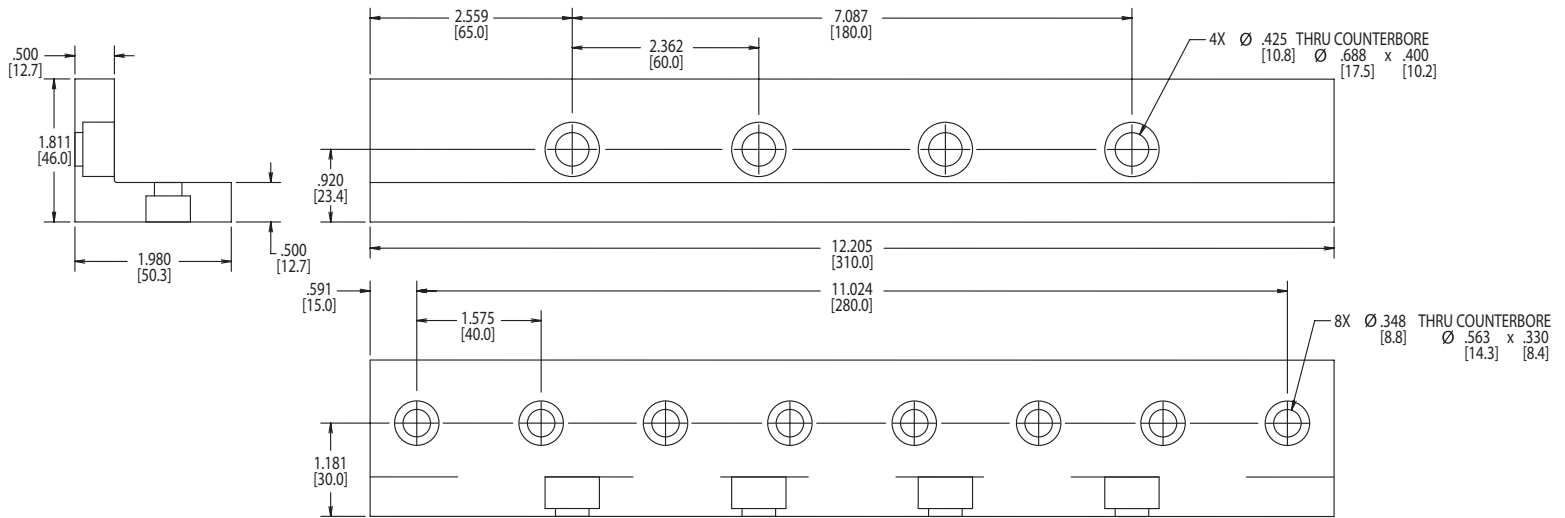


* Drawings are not to scale

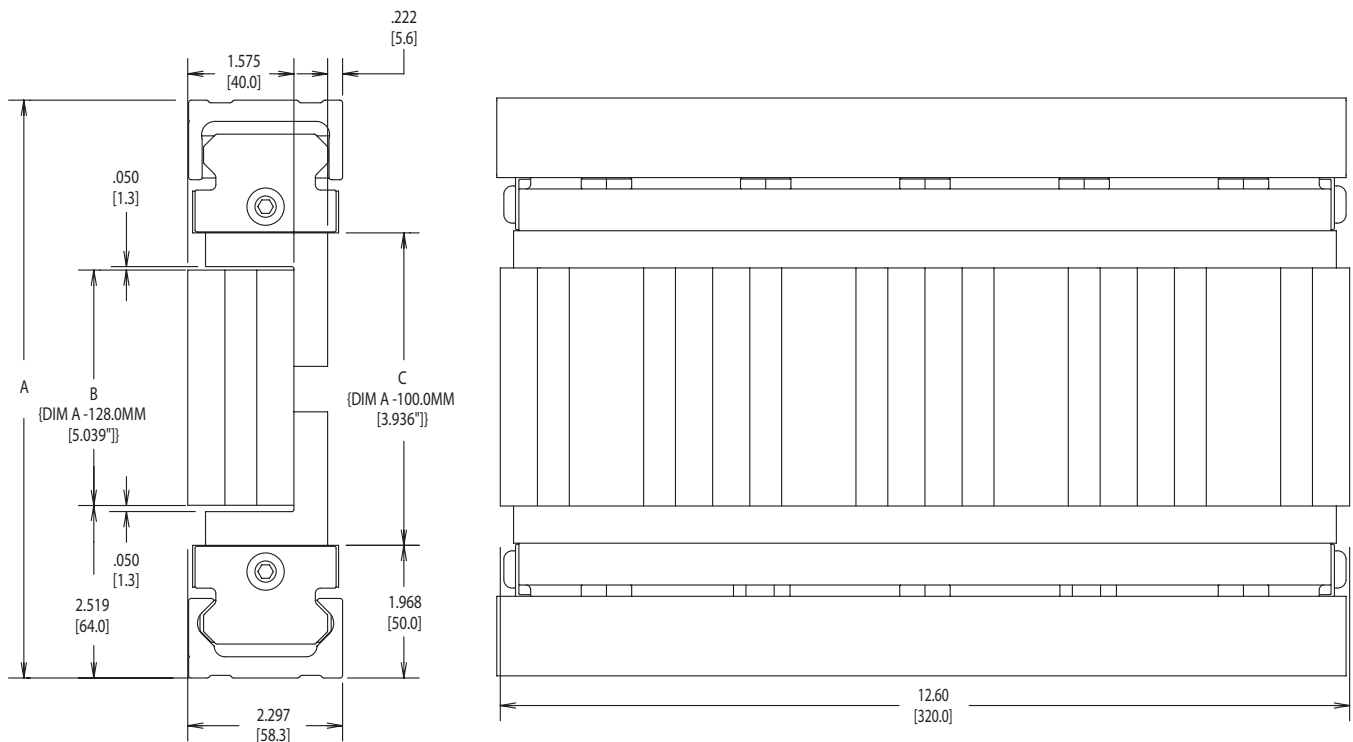
A = Rail-to-rail mounting span width. Customer defines when ordering., B = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

T-Slot Extrusion, Size 3

4 and 5 Wheel Plate Brackets



T-Slot Mounted



* Drawings are not to scale

A = Rail-to-rail mounting span width. Customer defines when ordering., **B** = Width of the steel bridge plate or bridge T-slot extrusion pieces
C = Width between the mounting surfaces on the wheel plates

UtiliTrak[®]
Series
A LINEAR
GUIDE SOLUTION

**Technical
Data**

Fit Up Adjustment

Fit up is pre-set at the factory (except for VC), but is easily field adjusted by rotating the eccentric guide wheels. This allows modification of running characteristics such as drag and breakaway force.

- 1 Fit up adjustment should be performed while wheel plate is engaged with the channel.
- 2 Looking down on the top of the wheel plate, as shown in Fig. 1, the eccentric stud is locked into place with a hex nut.



Fig. 1
Fit up adjustment of a UtiliTrak linear guide

- 3 Loosen the eccentric wheel/stud by turning the hex nut counter-clockwise with a socket wrench.
- 4 When the wheel/stud is loose enough, it can be rotated with a wrench, as shown in Fig. 2. Rotating the eccentric wheel's stud will adjust the wheel location into or out of mesh with the channel.



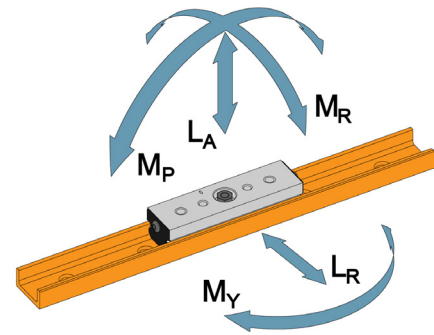
Fig. 2
Fit up adjustment

- 5 Begin with a small adjustment to the fit up and re-tighten the stud by turning the hex nut clockwise. If the fit up is too loose, the wheel plate will exhibit excessive play, such as rocking. If the fit up is too tight, the wheel plate will exhibit excessive drag. Move the wheel plate up and down the entire channel length to ensure that it does not feel too loose or tight at any given location along the channel.

Mounting Orientations

The UtiliTrak vee guide can be employed to accept loads in all orientations. However, it is primarily intended to support loads in the radial plane (L_R). As such, it is good engineering practice to orient the slide such that the two outside wheels support the load radially. Each wheel plate includes an arrow pointing towards the optimal direction of load orientation. Loads oriented in this direction will produce a radial load on each of the concentric stud mounted guide wheels.

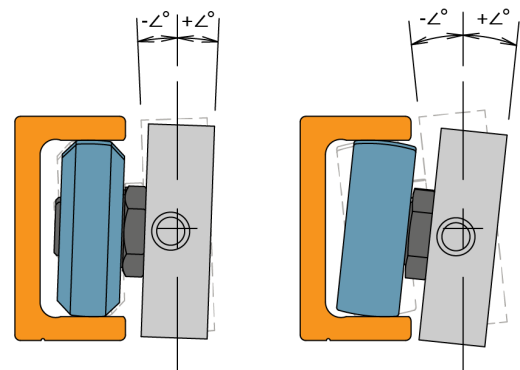
The crown roller should be subjected to radial loads only.



Misalignment Capabilities

Vee/Crown Wheel
Up to 2° Misalignment

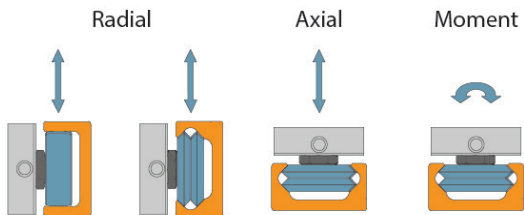
Crown Wheel
Up to 7° Misalignment



Recommended

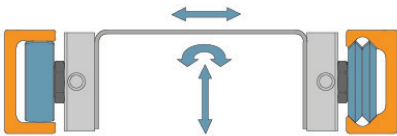
1A Vee/C channel with direct loading

The vee channel can be used on its own to support radial or axial loading. The C channel only supports radial loads and must be accompanied with a vee channel.



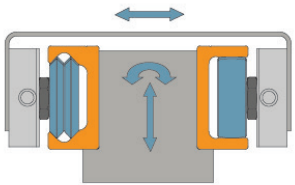
1B Face-to-face vee and C channel

Together, the vee and C channels stabilize radial loads and applied moments. The vee channel also constrains the axial motion of the bridged assembly.



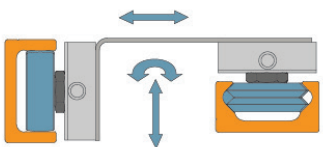
1C Back-to-back vee and C channel

Similar to 1B, the channels stabilize radial loads and applied moments while mounted back-to-back.



1D C channel facing vee channel (90 degrees)

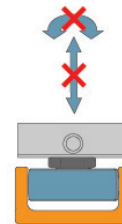
The vee channel stabilizes in its radial direction. The C channel also stabilizes in its own radial direction and supports applied moments.



Non-Recommended

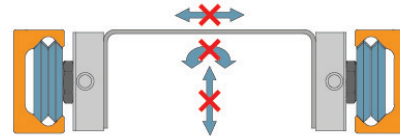
2A C channel with direct loading

The C channel does not support axial loads or applied moments, only radial loads. A C channel should not be used on its own in the axial load direction.



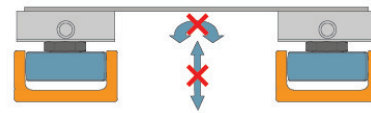
2B Face-to-face vee channel

The bridge is over-constrained in both the axial and radial directions due to the precise fit of the vee guide wheels. This configuration requires high precision mounting to prevent binding.



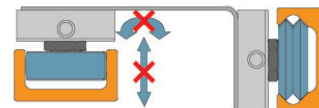
2C Side-to-side C channels

The bridge is unsupported in the axial direction by the C channels. Even when the bearings are loaded radially, the assembly drifts in the axial direction.



2D Vee facing C channel (90 degrees)

Though seemingly similar to 1D, the orientation of the C channel provides little support for moments applied to the bridge.



Load Capacity

The load capacity ratings in this guide are based on 100km (4 million inches) of service life. As with any linear bearing technology, UtiliTrak sizing should be done conservatively. If the guide selection is such that load capacities are marginal, it may be appropriate to consider the next larger size. Our applications engineers are available to assist with the evaluation of any application specific loading parameters.

The recirculating elements within DualVee guide wheels are permanently lubricated and sealed against the operating environment. The contact surfaces between the wheel and channel, however, require lubrication to maximize the life and speed capacity of the guide. All UtiliTrak wheel plates come complete with lubricators, consisting of an oil saturated felt within a housing. Lubricators should be periodically checked and reoiled to ensure that a sufficient coating of lubricant is maintained on the channel guideway surfaces.

Accuracy

The precision of UtiliTrak is defined differently than typical square rail recirculating ball guides. Square rail guides are designed primarily for “high end” positioning applications, such as machine tool guideways, Cartesian coordinate robotics, and precision XY inspection equipment. These guides are more rigidly defined in terms of the running parallelism of wheel plates to rail, and are measured as a function of rail length. The tight tolerances are achieved through grinding and finishing operations. UtiliTrak, in contrast, has been developed for commercial applications.

As with any linear guide, installed accuracy is directly related to the straightness and flatness of the surface to which it is mounted. Because the guide will conform to the mounting surface, it is important for that surface to be more rigid than the UtiliTrak channel.

Load/Life Calculations

The summation of applied loads divided by system load capacities (Max) should be less than or equal to one:

$$\frac{F_R}{L_{RMax}} + \frac{F_A}{L_{AMax}} + \frac{M_R}{M_{RMax}} + \frac{M_Y}{M_{YMax}} + \frac{M_P}{M_{PMax}} \leq 1$$

The applied force on the system is equivalent to:

$$F = F_R + \left(\frac{F_A}{L_{AMax}} + \frac{M_R}{M_{RMax}} + \frac{M_Y}{M_{YMax}} + \frac{M_P}{M_{PMax}} \right) * L_{RMax}$$

With an equivalent applied load, the system life can now be calculated:

$$L_{Km} = 100 * \left(\frac{C}{F} * \frac{1}{f_c} \right)^3$$

L_{Km} = System Life in Kilometers

C = System Dynamic Load Rating

F = Equivalent Load

f_c = Correction Factor

Environmental Factor	Correction Value f_c
No Shock, No Vibration, Cleaning Working Environment, Below 1 meter/sec	1.46
Light Shock, Light Vibration, Between 1 meter/sec to 2 meters/sec	1.85
Shocks, Vibrations, Harsh Environment, Above 2 meters/sec	3

BISHOP WISECARVER

Bishop-Wisecarver®

DualVee® Guide Wheels
MadeWell® Crown and Radial Wheels
MinVee® Linear Slide System
QuickTrak® Modular Linear Guide Kit
UtiliTrak® Linear Guide
LoPro® Linear Motion System

SMLA®

Signature Motion Linear Actuators

SlickStick™
XLA™
ECO60™
SteadyRail™

HepcoMotion®

ALR Aluminum Rings
HDCB Heavy Duty Compact Beam
MCS Machine Construction System
PRT2 Precision Ring and Channel System
SBD Sealed Belt Drive
GV3 Linear Guidance and Transmission System
Simple Select
SL2 Stainless Steel Based Slide System
HDS2 Heavy Duty Slide System
MHD Heavy Duty Channel Roller Guidance System
PDU2 Profile Driven Unit
DAPDU2 Double Acting Profile Driven Unit
DLS Driven Linear System
HDLS Heavy Duty Driven Linear System
PSD Precision Screw Drive Actuator
HDCS Heavy Duty Compact Screw
DTS2 Driven Channel System
HDRT Heavy Duty Ring Slides and Channel System

SIGNATURE EXPERIENCE

When engaging with Bishop-Wisecarver, customers can expect a Signature Experience as it relates to prompt customer service, technical collaboration and exceptional lead times. As a result, our commitment consistently fulfills expectations with reliable motion solutions that are on time and on budget, with no surprises.

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News & Updates



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