

A-C Pump

NS Series Non-Clog, Solids Handling Pumps



A-C Pump



ITT Industries
Engineered for life

Heavy-duty Design Features for Tough Wastewater Services

EXTERNALLY ADJUSTABLE ROTATING ASSEMBLY

Permits easy renewal of
critical operating clearances
and pump efficiency.

HEAVY-DUTY BEARINGS

For superior L10 bearing life.

BACK PULL-OUT DESIGN

Eliminates the need to remove
casing from piping.

SEALING FLEXIBILITY

A wide range of sealing options
are available to suit the
application including packing,
double mechanical seal,
cartridge mechanical seal, or
EQUISEAL™ dynamic seal.

UNIVERSAL STUFFING BOX

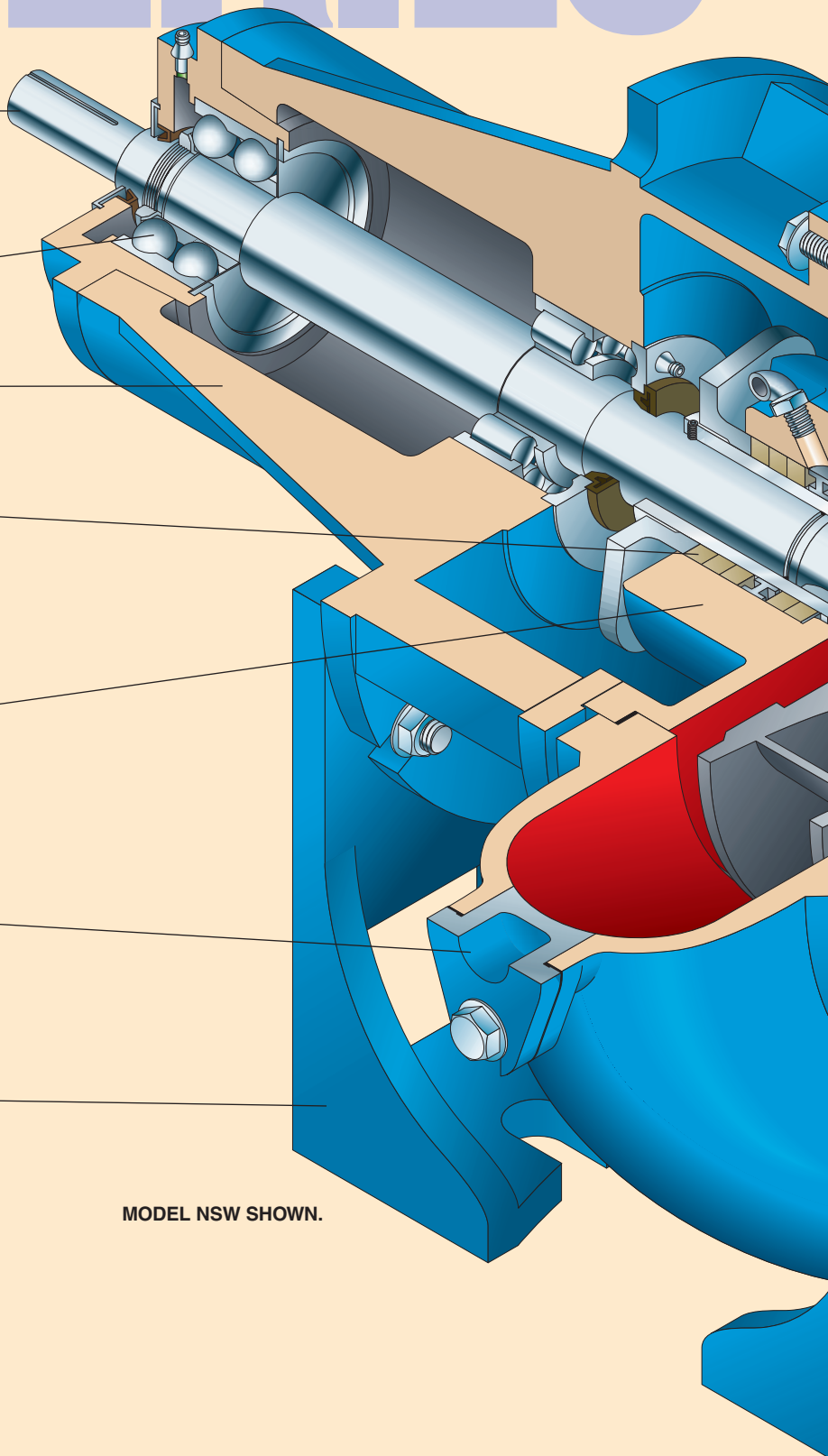
Accepts packing or mechanical
seals. Makes converting shaft
sealing methods in the field easy.

CLEAN-OUT PORT

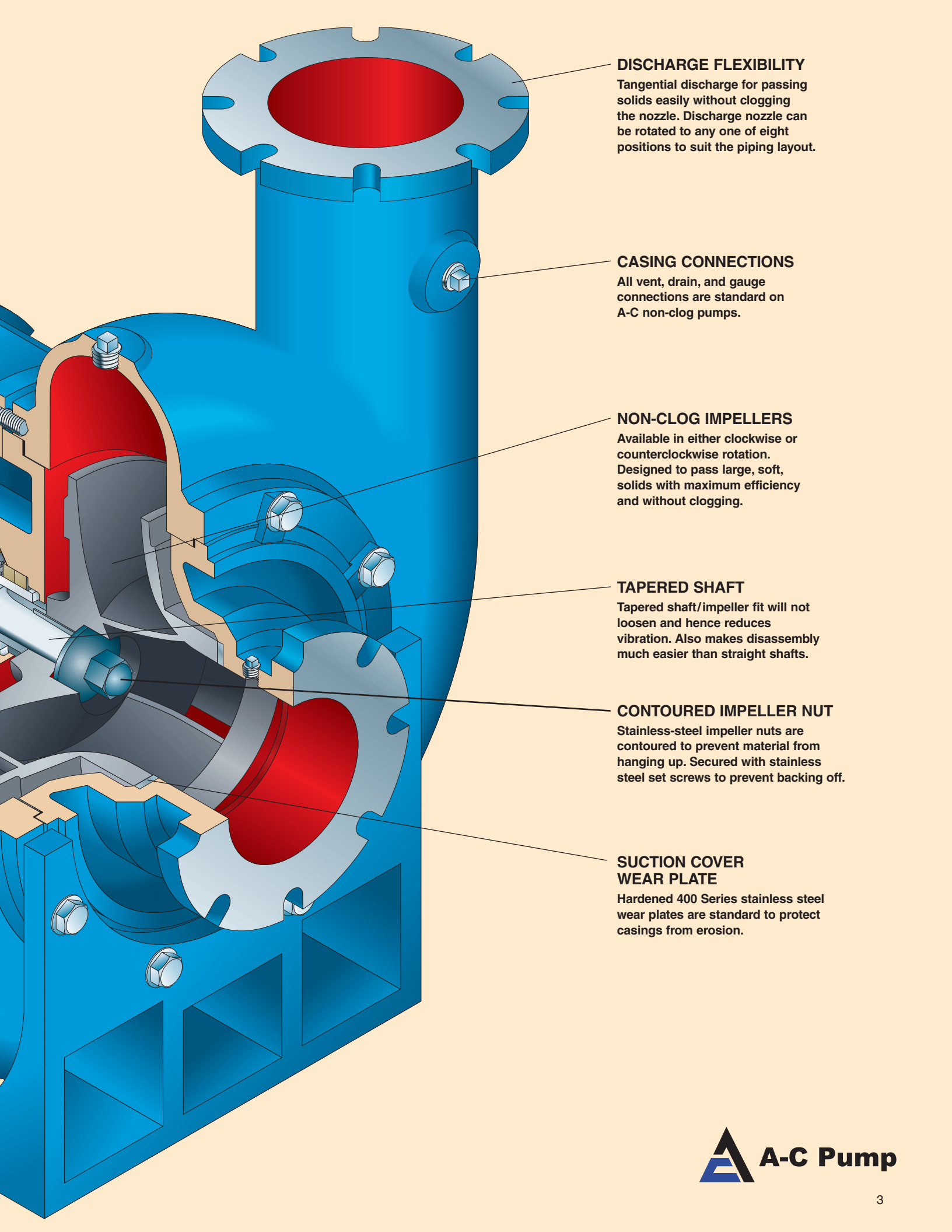
Hand hole clean-out port
is standard on casing (and
suction nozzle when applicable.)
Provides for easy inspection of,
and access to, impeller.

MOUNTING FLEXIBILITY

Several horizontal and vertical
mounting arrangements available
for various installation options.



MODEL NSW SHOWN.



DISCHARGE FLEXIBILITY
Tangential discharge for passing solids easily without clogging the nozzle. Discharge nozzle can be rotated to any one of eight positions to suit the piping layout.

CASING CONNECTIONS
All vent, drain, and gauge connections are standard on A-C non-clog pumps.

NON-CLOG IMPELLERS
Available in either clockwise or counterclockwise rotation. Designed to pass large, soft, solids with maximum efficiency and without clogging.

TAPERED SHAFT
Tapered shaft/impeller fit will not loosen and hence reduces vibration. Also makes disassembly much easier than straight shafts.

CONTOURED IMPELLER NUT
Stainless-steel impeller nuts are contoured to prevent material from hanging up. Secured with stainless steel set screws to prevent backing off.

SUCTION COVER WEAR PLATE
Hardened 400 Series stainless steel wear plates are standard to protect casings from erosion.

Proven Worldwide Installations

NS Series pumps are designed to handle wastewater and other non-corrosive liquids with soft solids in suspension. Typical applications include municipal and industrial wastewater treatment, food processing, and storm water run-off.



Model NSWV with Tri-base on RAS service.



54" WSYV pumps in primary influent service. Each pump rated for 69,500 gpm.



Model NSWV pumps with PEG base installed in a sewage treatment plant in Florida.

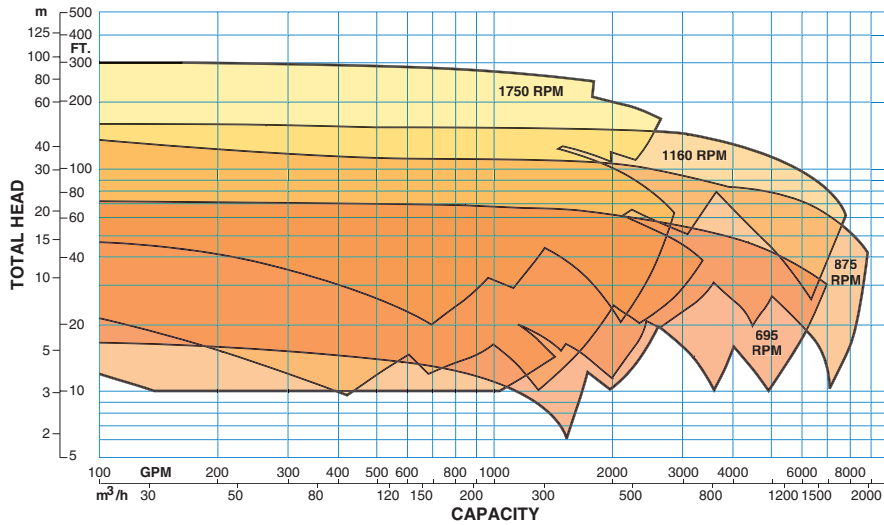


16" NSY unit on digester service.



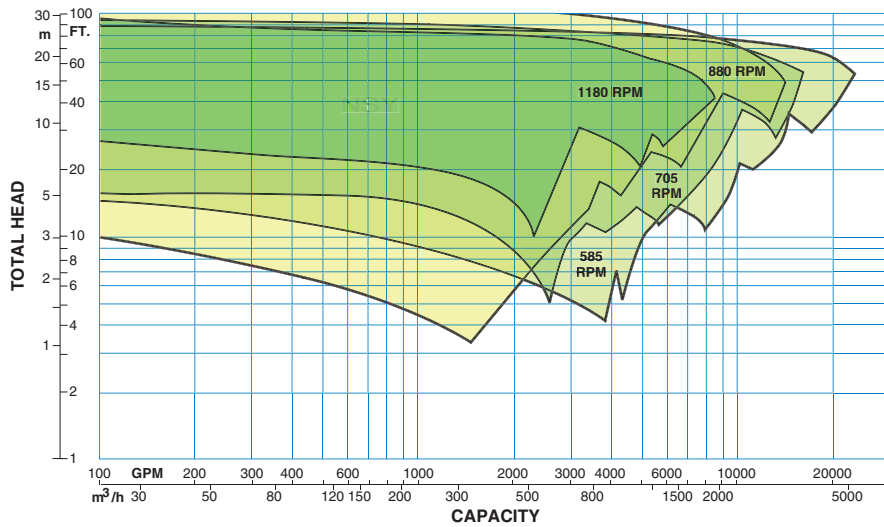
24" Model NSSE pumps handling wastewater in Florida.

Hydraulic Coverage NS Series



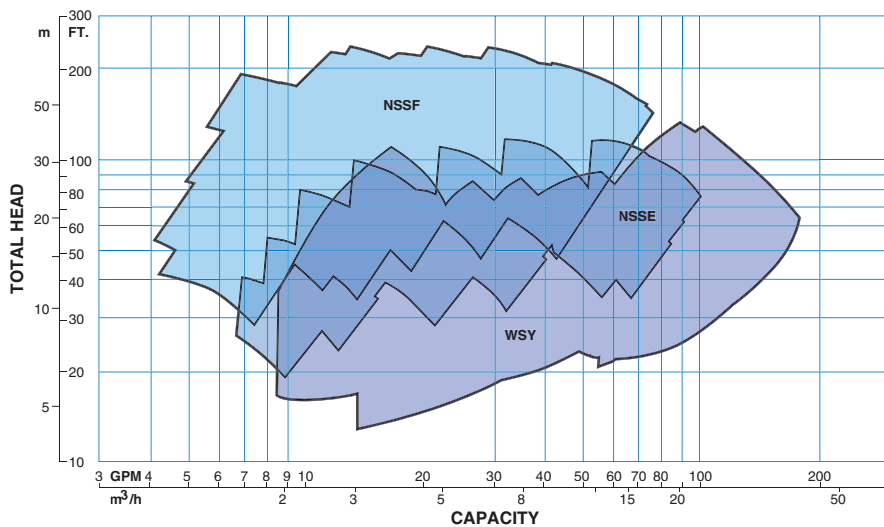
Models NSW/NSWV

- Capacities to 9,000 gpm (2,044 m³/h)
- Heads to 275 ft. (84 m)
- Solids to 6.38 in. (162 mm)



Models NSY/NSYV

- Capacities to 23,000 gpm (5,223 m³/h)
- Heads to 85 ft. (26 m)
- Solids to 9 in. (229 mm)



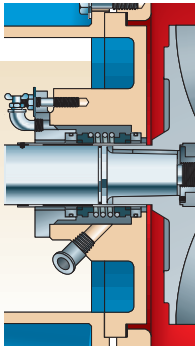
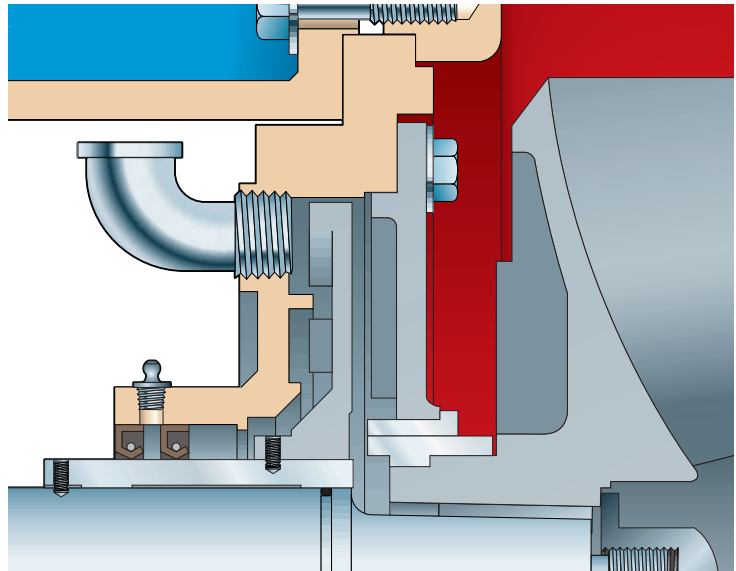
Models NSSE/NSSEV, NSSF/NSSFV, WSY/WSYV

- Capacities to 180,000 gpm (40,878 m³/h)
- Heads to 230 ft. (70 m)
- Solids to 13.25 in. (337 mm)

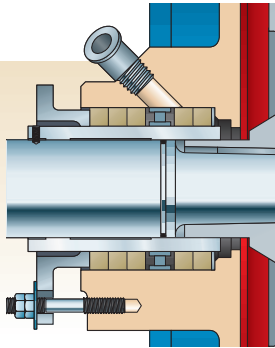
Sealing Flexibility

EQUISEAL™ Dynamic Seal

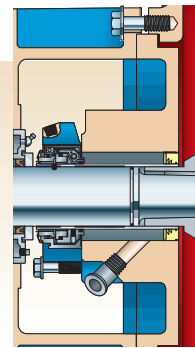
- Packing and expensive mechanical seals are eliminated
- Seal flush is not required thus conserving water and eliminating retreatment costs
- No metal-to-metal rubbing parts and no critical operating clearances means significantly longer life than other sealing methods
- Static seals prevent leakage when pump is not operating
- Packed or mechanically sealed pumps can be easily converted in the field



Double Mechanical Seal



Packing



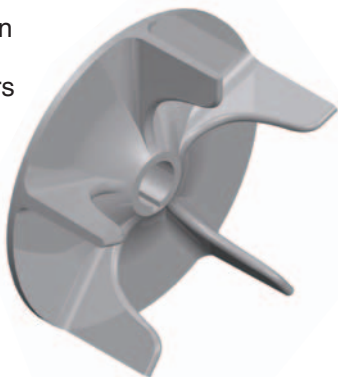
Chesterton 442 Split Seal with SpiralTrac™ Bushing*

*Can be used without any external flush. Contact factory with application details.
SpiralTrac™ is a registered trademark of the EnviroSeal Engineering Products LTD.

Other Features

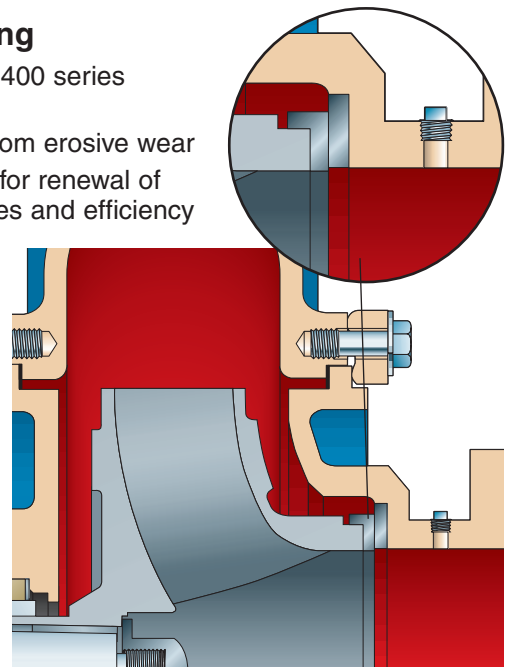
Shearpeller™

- Available on pumps up to 8"
- Made of high impact 431 stainless steel
- Larger solids handling capability than standard non-clog impellers
- Capable of handling fluids with high percentages of suspended solids
- More efficient than pumps with fully recessed impellers
- Ideal for digester sludge and grit services



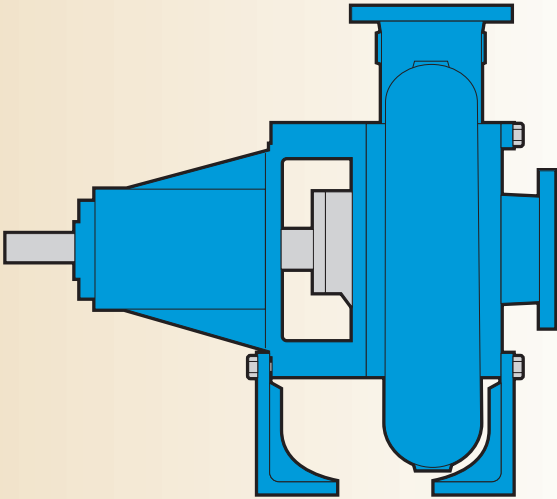
Impeller Wear Ring

- Made of hardened 400 series stainless steel
- Protects impeller from erosive wear
- Easily replaceable for renewal of operating clearances and efficiency
- Provides up to 0.25" of wear allowance
- Optional on NSW, standard on all other models



Installation Flexibility

Horizontal



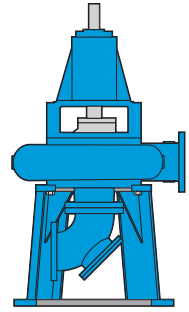
Foot Mounted

- Pump mounted horizontally on fabricated steel channel baseplate with motor and OSHA guarded coupling

Vertical

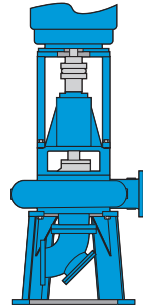
Half Pedestal

- Pump mounted vertically on cast or fabricated half pedestal
- For use with intermediate drive shafting
- Prevents expensive motor damage during flooding



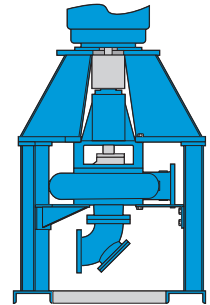
Full Pedestal

- Pump mounted vertically on cast or fabricated pedestal for direct motor drive
- Compact footprint requires less space to install



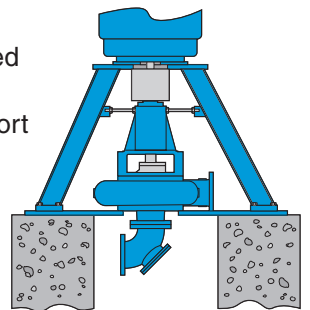
PEG Mount

- Pump mounted vertically on fabricated PEG base for direct motor drive
- Eliminates natural frequencies encountered with direct coupled non-clog pumps
- Ideal for variable speed pumping applications



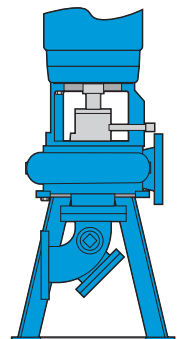
Tri-Base Mount

- Pump mounted vertically on fabricated Tri-Base mount
- Engineered independent motor support and concrete pier supports
- Rubber dampening washers reduce transmittal of vibration to foundation
- Eliminates natural frequencies encountered with direct coupled non-clog pumps
- Excellent for variable speed application



Close-coupled (NSWV only)

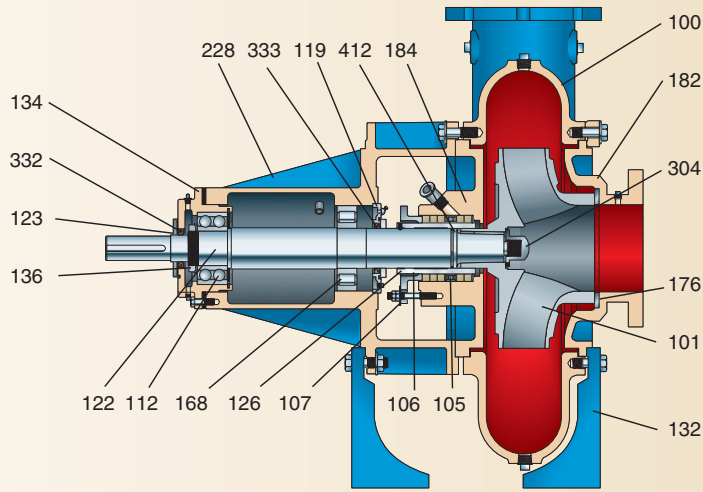
- True close-coupled pump mounted vertically on cast or fabricated pedestal
- High thrust P-base ODP or TEFC motors
- Motors suitable for variable frequency drive available
- Short profile is excellent for packaged lift station applications



Models NSW/NSWV

Features

- Horizontal and vertical mounting
- Regreasable anti-friction bearings
- Packing, mechanical seal, or EQUISEAL™ Dynamic Seal available
- Other metallurgies, including stainless steels, available upon request



Materials of Construction

Item No.	Part Name	Cast Iron	2 - 3% Nickel Cast iron
100	Casing	Cast Iron (ASTM A48 Class 30) ¹	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel) ¹
101	Impeller	Ductile Iron (ASTM A536 GR. 65-45-12)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
105	Ring, Lantern	Teflon®	Teflon®
106	Packing	Acrylic Yarn with TFE	Acrylic Yarn with TFE
107	Gland, Split (Packing)	Bronze	Bronze
112	Bearing, Ball (Outboard)	SKF or Equal	SKF or Equal
119	Cap, Bearing (Inboard)	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
122	Shaft	Steel ² (AISI 4140)	Steel ² (AISI 4140)
123	Deflector	Molded Rubber	Molded Rubber
126	Shaft Sleeve	Hardened AISI 420SS (500BHN) ³	Hardened AISI 420SS (500BHN) ³
132	Foot, Casing	Steel	Steel
134	Housing, Bearing (Outboard)	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
136	Locknut, Bearing (Outboard)	Steel	Steel
165	Wear Ring, Impeller (Optional)	AISI 410SS (300-325BHN) ⁴	AISI 410SS (300-325BHN) ⁴
168	Bearing, Roller (Inboard)	SKF or Equal	SKF or Equal
175	Cover, Hand Hole (Not shown)	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
176	Wear Plate, Suction Cover	AISI 410SS (350-375BHN) ⁴	AISI 410SS (350-375BHN) ⁴
182	Cover, Suction	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
184	Stuffing Box Cover	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
228	Frame	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
304	Nut, Impeller	304SS	304SS
332	Seal, Grease (Outboard)	Garlock or Equal	Garlock or Equal
333	Seal, Grease (Inboard)	Garlock or Equal	Garlock or Equal
412	O-Ring, Shaft Sleeve	Synthetic Rubber	Synthetic Rubber

Notes: Teflon is a registered trademark of E.I. DuPont

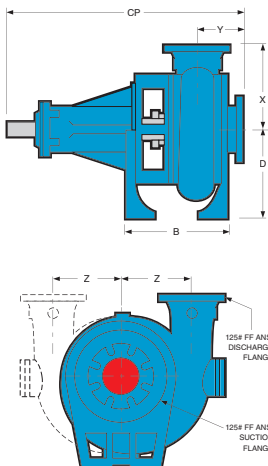
¹Ductile iron casing is standard for 5X5X17 and 6X6X17

²Heat treated AISI 416SS is standard on F7-M3 and F7-B4 frame

³304SS for pump with mechanical seal

⁴AISI 410 Stainless Steel (11.5% - 14% Chrome). Harder wear rings with higher Brinell Hardness Number also available as option

Dimensions



Frame	Size	Suction	Discharge	A	B	D	X	Y	Z	CP	Weight
F7-M3	4X4X10 SC	4 (100)	4 (100)	12.0 (305)	13.7 (348)	12.5 (318)	9.0 (229)	5.8 (148)	7.3 (184)	27.1 (689)	400 (182)
	4X4X10 LC	4 (100)	4 (100)	12.0 (305)	14.6 (370)	12.5 (318)	10.0 (254)	3.3 (83)	7.9 (200)	28.0 (711)	425 (193)
	4X4X12 LC	4 (100)	4 (100)	12.0 (305)	14.6 (370)	12.5 (318)	12.0 (305)	6.3 (159)	9.0 (229)	28.0 (711)	580 (264)
	5X5X12	5 (125)	5 (125)	12.0 (305)	14.7 (373)	12.5 (318)	13.0 (330)	7.3 (184)	9.5 (241)	29.1 (738)	670 (305)
F7-K2	6X6X12 SC	6 (150)	6 (150)	12.0 (305)	14.7 (373)	12.5 (318)	13.0 (330)	7.3 (184)	9.5 (241)	29.1 (738)	680 (309)
	6X6X12 LC	6 (150)	6 (150)	12.0 (305)	16.8 (424)	15.5 (394)	13.0 (330)	7.3 (184)	9.5 (241)	30.3 (768)	700 (318)
F7-D3	6X4X14 LC	6 (150)	4 (100)	16.0 (406)	16.8 (427)	17.0 (432)	14.8 (375)	7.8 (198)	10.4 (264)	37.0 (940)	700 (318)
	6X4X14 CV	6 (150)	4 (100)	16.0 (406)	16.8 (427)	17.0 (432)	14.8 (375)	7.8 (198)	10.4 (264)	37.0 (940)	700 (318)
	6X6X14	6 (150)	6 (150)	16.0 (406)	17.7 (449)	17.0 (432)	17.0 (432)	8.8 (222)	12.2 (310)	38.1 (968)	860 (391)
F7-B4	8X8X14	8 (200)	8 (200)	16.0 (406)	17.7 (449)	17.0 (432)	18.0 (457)	9.1 (232)	18.0 (457)	38.9 (987)	1060 (482)
	5X5X17	5 (125)	5 (125)	16.0 (406)	20.8 (527)	19.0 (483)	16.0 (406)	8.0 (203)	11.5 (292)	41.4 (1051)	936 (426)
	6X6X17	6 (150)	6 (150)	16.0 (406)	20.8 (527)	19.0 (483)	17.0 (432)	8.4 (213)	12.2 (310)	41.8 (1061)	1004 (456)
	8X8X17 SC	8 (200)	8 (200)	16.0 (406)	22.0 (559)	19.0 (483)	18.0 (457)	9.1 (232)	18.0 (457)	43.1 (1095)	1125 (511)
F7-C4	8X8X17 LC	8 (200)	8 (200)	16.0 (406)	22.0 (559)	19.0 (483)	18.0 (457)	9.1 (232)	18.0 (457)	43.1 (1095)	1150 (523)
	8X8X21	8 (200)	8 (200)	20.0 (508)	24.4 (619)	25.5 (648)	21.0 (533)	10.5 (267)	18.8 (502)	57.8 (1467)	2400 (1091)
	10X10X21 SC	10 (250)	10 (250)	20.0 (508)	25.4 (645)	25.5 (648)	24.0 (610)	11.0 (279)	17.9 (454)	58.8 (1492)	2460 (1118)
	10X10X21 LC	10 (250)	10 (250)	20.0 (508)	25.4 (645)	25.5 (648)	24.0 (610)	11.0 (279)	17.9 (454)	58.8 (1492)	2560 (1164)
	12X12X21	12 (300)	12 (300)	20.0 (508)	25.4 (645)	25.5 (648)	24.0 (610)	12.8 (324)	18.4 (467)	60.5 (1537)	2930 (1332)

All weights are in pounds (Kg) and dimensions are in inches (mm).

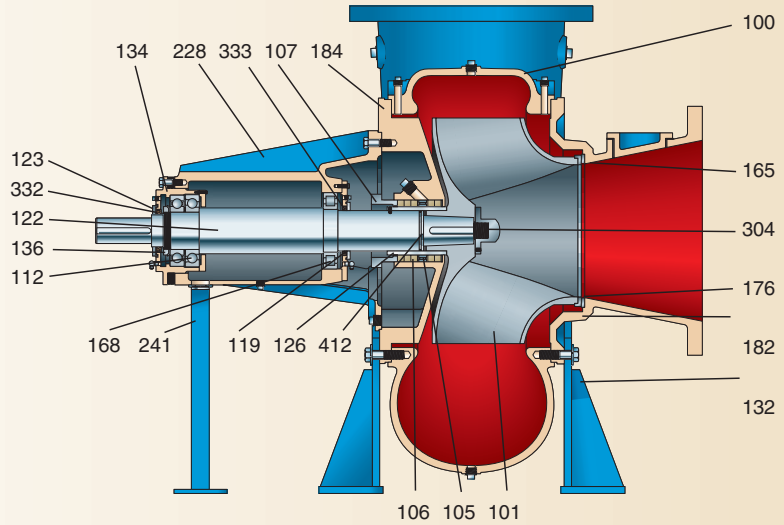
These dimensions should not be used for construction or installation purposes.

Pumps are available as right hand (CW) or left hand (CCW) rotation with different discharge positions.

Model NSY/NSYV

Features

- Horizontal and vertical mounting
- Regreasable anti-friction bearings
- Packing, mechanical seal, or EQUISEAL™ Dynamic Seal available
- Other metallurgies, including stainless steels, available upon request
- Bottom suction mount available



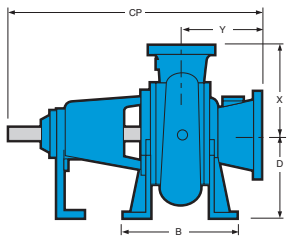
Materials of Construction

Item No.	Part Name	Cast Iron	2 - 3% Nickel Cast iron
100	Casing	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
101	Impeller	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)	2 - 3% Ni-Cast iron (ASTM A48 CL. 35B W/ 2-3% Nickel)
105	Ring, Lantern	Teflon®	Teflon®
106	Packing	Graphite Yarn	Graphite Yarn
107	Gland, Split (Packing)	Cast Iron	Cast Iron
112	Bearing (Outboard)	SKF or Equal	SKF or Equal
119	Cap, Bearing (Inboard)	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
122	Shaft	Steel (AISI 4140)	Steel (AISI 4140)
123	Deflector	Molded Rubber	Molded Rubber
126	Shaft Sleeve	Hardened AISI 420SS (500BHN) ¹	Hardened AISI 420SS (500BHN) ¹
132	Foot, Casing	Steel	Steel
134	Housing, Bearing (Outboard)	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
136	Locknut, Bearing (Outboard)	Steel	Steel
165	Wear Ring, Impeller	AISI 410SS (300-325BHN) ²	AISI 410SS (300-325BHN) ²
168	Bearing (Inboard)	SKF or Equal	SKF or Equal
175	Cover, Hand Hole (Not shown)	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron
176	Wear Plate, Suction Cover	AISI 410SS (350-375BHN) ²	AISI 410SS (350-375BHN) ²
182	Cover, Suction	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron
184	Stuffing Box Cover	Cast Iron (ASTM A48 Class 30)	2 - 3% Ni-Cast iron
228	Frame	Cast Iron (ASTM A48 Class 30)	Cast Iron (ASTM A48 Class 30)
304	Nut, Impeller	304SS	304SS
332	Seal, Grease (Outboard)	Garlock or Equal	Garlock or Equal
333	Seal, Grease (Inboard)	Garlock or Equal	Garlock or Equal
412	O-Ring, Shaft Sleeve	Synthetic Rubber	Synthetic Rubber

Notes: Teflon is a registered trademark of E.I. DuPont

¹304SS for Pump with Mechanical Seal

²AISI 410 Stainless Steel (11.5% - 14% Chrome). Harder wear rings with higher Brinell Hardness Number also available as option



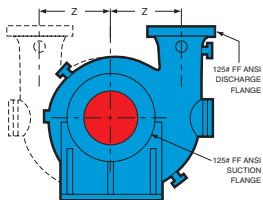
Dimensions

Frame	Size	Suction	Discharge	A	B	D	X	Y	Z	CP	Weight
F8-J1	10X10X13.5	10 (250)	10 (250)	18.0 (457)	20.8 (527)	16.0 (406)	14.0 (356)	16.5 (419)	10.5 (267)	42.9 (1089)	1500 (682)
	12X12X15	12 (300)	12 (300)	20.5 (521)	24.3 (616)	18.5 (470)	15.0 (381)	18.5 (470)	10.8 (273)	49.1 (1248)	1950 (886)
	14X14X17.5	14 (350)	14 (350)	18.5 (470)	29.8 (756)	22.3 (565)	17.5 (445)	20.1 (511)	12.8 (324)	50.4 (1280)	2695 (1225)
	16X16X20	16 (400)	16 (400)	20.0 (508)	31.0 (787)	25.0 (635)	20.0 (508)	23.0 (584)	14.5 (368)	53.0 (1346)	3775 (1716)
F8-H2	18X18X23	18 (450)	18 (450)	27.8 (705)	35.0 (889)	27.5 (699)	22.5 (572)	24.0 (610)	16.4 (416)	66.5 (1689)	4195 (1907)
	20X20X25	20 (500)	20 (500)	24.8 (629)	35.5 (902)	29.4 (746)	25.0 (635)	26.0 (660)	18.0 (457)	68.5 (1740)	5120 (2327)
F8-G2	24X24X30	24 (600)	24 (600)	36.0 (914)	42.5 (1080)	35.0 (889)	30.0 (762)	31.3 (794)	21.6 (549)	82.5 (2096)	6440 (2927)

All weights are in pounds (Kg) and dimensions are in inches (mm).

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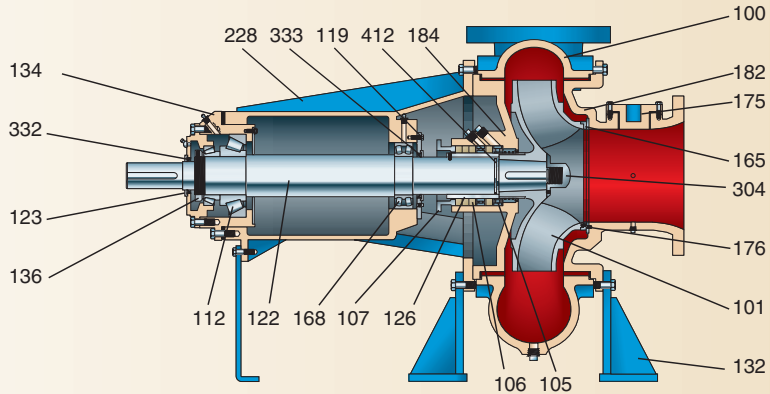
Pumps are available as right hand (CW) or left hand (CCW) rotation with different discharge positions.



Models NSSE/NSSEV, NSSF/NSSFV, WSY/WSYV

Features

- Horizontal and vertical mounting (including bottom suction)
- Regreasable anti-friction bearings
- Packing or mechanical seal available
- Other metallurgies, including stainless steels, available upon request



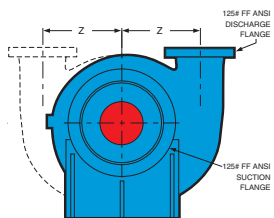
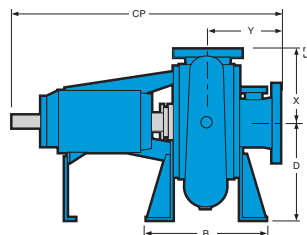
Materials of Construction

Item No.	Part Name	Cast Iron	2 - 3% Nickel Cast iron
100	Casing	Cast Iron (ASTM A48 Class 30)	Refer to Factory
101	Impeller	Cast Iron (ASTM A48 Class 30)	
105	Ring, Lantern	Bronze	
106	Packing	Graphite Impregnated Teflon®	
107	Gland, Split (Packing)	Cast Iron or Bronze	
112	Bearing (Outboard)	SKF or Equal	
119	Cap, Bearing (Inboard)	Cast Iron	
122	Shaft	Steel (SAE1045)	
123	Deflector	Molded Rubber or Bronze	
126	Shaft Sleeve	Hardened 400 Series Stainless Steel ¹	
132	Foot, Casing	Cast Iron or Fabricated Steel	
134	Housing, Bearing (Outboard)	Cast Iron	
136	Locknut, Bearing (Outboard)	Steel	
165	Wear Ring, Impeller	Hardened 400 Series Stainless Steel	
168	Bearing (Inboard)	SKF or Equal	
175	Cover, Hand Hole	Cast Iron (ASTM A48 Class 30)	
176	Wear Plate, Suction Cover	Hardened 400 Series Stainless Steel	
182	Cover, Suction	Cast Iron (ASTM A48 Class 30)	
184	Stuffing Box Cover	Cast Iron (ASTM A48 Class 30)	
228	Frame	Cast Iron	
304	Nut, Impeller	304SS	
332	Seal, Grease (Outboard)	Garlock or Equal	
333	Seal, Grease (Inboard)	Garlock or Equal	
412	O-Ring, Shaft Sleeve	Synthetic Rubber	

Notes: Teflon is a registered trademark of E.I. DuPont

¹ 304SS for pump with mechanical seal

Dimensions



Model	Size	Suction	Discharge	D	X	Y	Z	CP
WSY	16X16	16	16	18.0 (457)	23.4 (594)	24.1 (612)	9.1 (231)	61.8 (1570)
	20X20	20	20	27.0 (686)	24.2 (615)	30.1 (765)	19.5 (495)	77.5 (1969)
	24X24	24	24	34.0 (864)	29.0 (737)	36.0 (914)	23.3 (592)	92.5 (2350)
	30X30	30	30	39.5 (1003)	36.0 (914)	45.3 (1151)	29.3 (744)	116.5 (2959)
	36X36	36	36	RTF	48.8 (1240)	52.6 (1336)	34.0 (864)	135.4 (3439)
	42X42	42	42	RTF	51.0 (1295)	RTF	40.8 (1036)	RTF
	48X48	48	48	RTF	65.5 (1664)	RTF	46.5 (1181)	RTF
54X54	54	54	25.0 (635)	30.4 (772)	RTF	52.5 (1334)	RTF	
NSSE	20X18	20	18	27.0 (686)	28.0 (711)	29.0 (737)	20.5 (521)	83.0 (2108)
	24X20	24	20	30.0 (762)	31.0 (787)	32.0 (813)	23.0 (584)	92.0 (2337)
	30X24	30	24	39.5 (1003)	32.0 (813)	34.0 (864)	30.0 (762)	102.0 (2591)
	36X30	36	30	45.0 (1143)	40.0 (1016)	35.0 (889)	34.0 (864)	RTF
NSSF	42X36	42	36	58.0 (1473)	45.0 (1143)	45.0 (1143)	44.0 (1118)	RTF
	48X42	48	42	63.0 (1600)	60.0 (1524)	48.0 (1219)	48.0 (1219)	RTF
	14X12	14	12	25.5 (648)	19.5 (495)	19.1 (484)	18.6 (473)	71.6 (1819)
	16X14	16	14	24.0 (610)	22.8 (578)	24.0 (610)	21.8 (552)	75.0 (1905)
	18X16	18	16	27.5 (699)	26.0 (660)	28.0 (711)	24.8 (629)	82.0 (2083)
	20X18	20	18	31.0 (787)	29.0 (737)	30.0 (762)	28.0 (711)	86.5 (2197)
	24X20	24	20	34.0 (864)	32.0 (813)	33.0 (838)	31.0 (787)	95.0 (2413)
30X24	30	24	41.0 (1041)	39.0 (991)	38.0 (965)	37.0 (940)	107.0 (2718)	
36X30	36	30	51.5 (1308)	49.0 (1245)	45.0 (1143)	47.0 (1194)	RTF	

All dimensions are in inches (mm).

These dimensions should not be used for construction or installation purposes.

Pumps are available as right hand (CW) or left hand (CCW) rotation with different discharge positions.

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