

# **Roto-Disc**<sup>®</sup>

Heavy Duty Spherical Valves



When All Else Fails

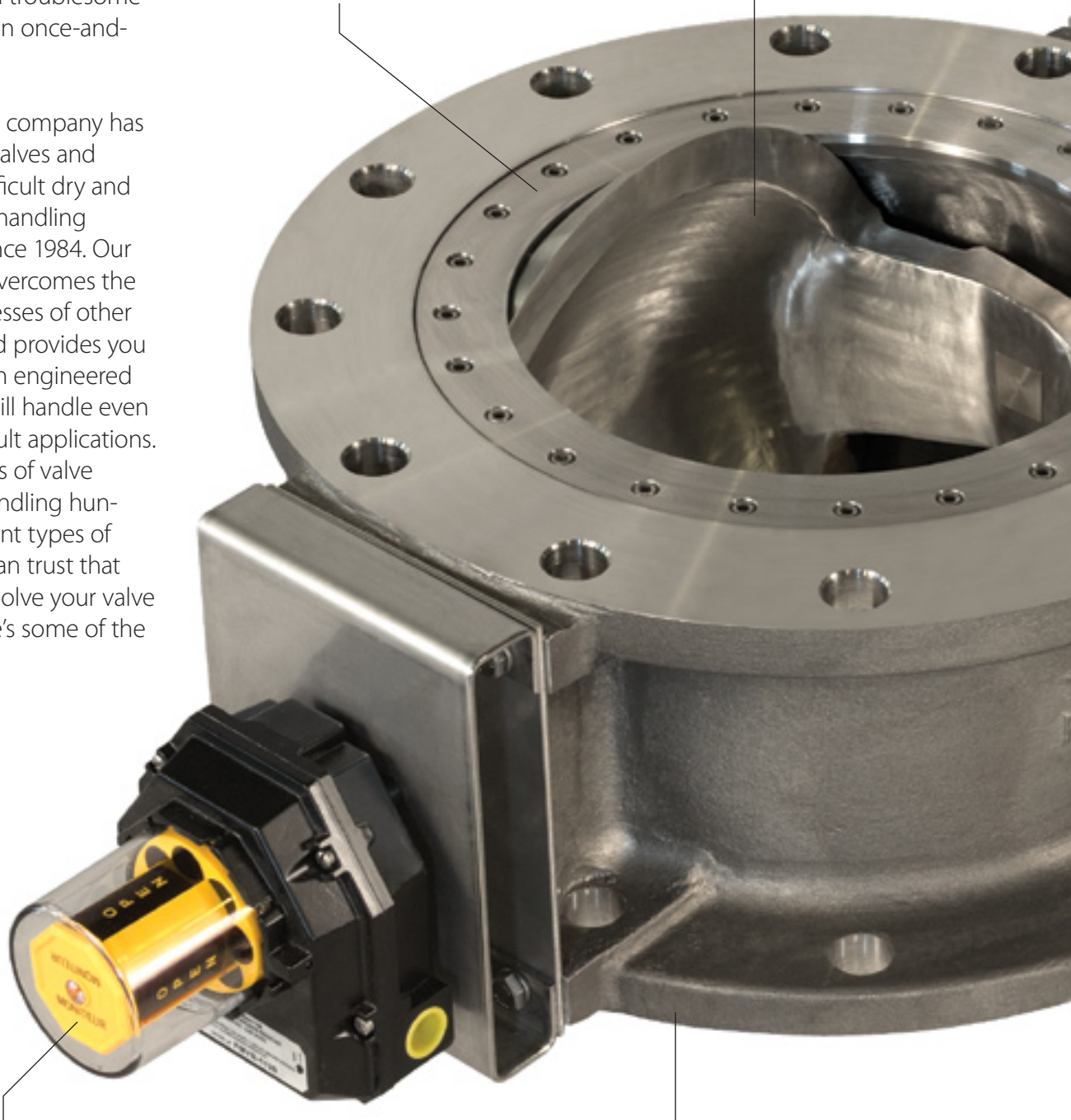
# Roto-Disc® Valves

Are you tired of flimsy valves that gum-up, jam or leak? Do you need a valve that is specifically designed for dry material rather than one designed for liquids or gasses? Want to solve a troublesome valve installation once-and-for-all?

The Roto-Disc® company has been making valves and air-locks for difficult dry and slurry material handling applications since 1984. Our unique valve overcomes the natural weaknesses of other valve styles and provides you with a precision engineered product that will handle even the most difficult applications. With thousands of valve installations handling hundreds of different types of product, you can trust that Roto-Disc will solve your valve problems. Here's some of the reasons why...

*Product contact surfaces can be polished up to a mirror finish. Teflon®, stick-release and other coatings are also available.*

*Steel seat retainer protects seat from exposure to product.*

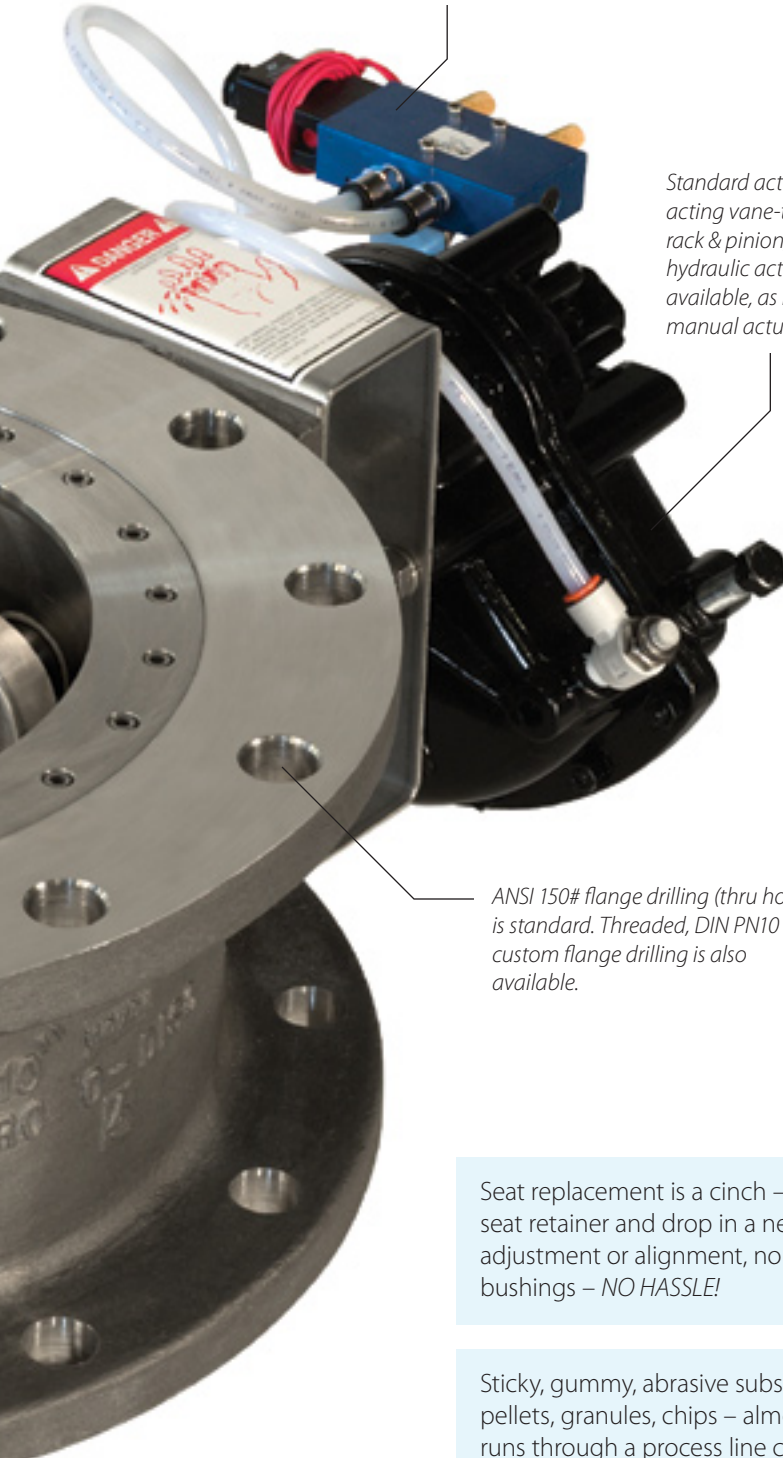


*Position Indicators with visual beacon let you and your control system know the position of the valve.*

*Body & Dome are manufactured from heavy-duty cast steel alloys, aluminum or ductile iron.*



Solenoid valves control the actuator and can cause the valve to fail closed, fail open, or fail last. Voltages can be 12-24VDC or 110-240VAC. Other controls can be supplied for dribble-feed or throttling.



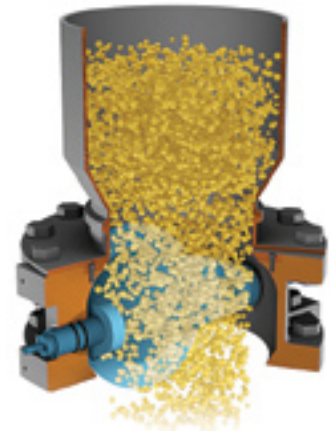
Standard actuator is a double acting vane-type. Spring return, rack & pinion, electric or hydraulic actuators are also available, as is a handle for manual actuation.

ANSI 150# flange drilling (thru holes) is standard. Threaded, DIN PN10 or custom flange drilling is also available.

Seat replacement is a cinch – just take off the seat retainer and drop in a new seat. No shaft adjustment or alignment, no counter-rotating bushings – **NO HASSLE!**

Sticky, gummy, abrasive substances, powders, pellets, granules, chips – almost anything that runs through a process line can be handled by this valve.

If you can't afford to spend time looking for replacements or have your valves out of service for repair, you need a Roto-Disc. It could end your valve head-aches forever!



▲ Roto-Disc® totally open: Material falls unobstructed through the inlet opening. Nothing is in the flow stream to cause product bridging, so you get the full flow capacity of the valve. Notice that the sealing surfaces are protected from direct contact with material.



▲ Roto-Disc® closing: As the valve begins to rotate closed, the dome wipes against the seat, smoothly cutting off the flow of product and pushing material above or below the valve instead of wedging it between the dome and seat. The design naturally resists abrasive wear and there are no pinch points or places for material to hang-up.



▲ Roto-Disc® fully closed: Closure is clean and the valve is fully seated. The dome and seat, machined to the same curvature, are wiped clean with each cycle and form a positive seal that eliminates leakage.

# Direct Drive System



▲ Break-through design eliminates taper/shear pins both inside and outside the valve

Roto-Disc® valves are now available with our new direct-drive feature. This system eliminates taper/shear pins and actuator couplings, and connects the dome and the actuator directly through the shaft.

This robust design allows additional torque to be applied to power the valve through hard or sticky substances. Removal and re-insertion of the shafts and actuator is greatly simplified and several parts are eliminated.



▲ Square shaft and dome holes are machined to exacting tolerances to provide a tight slip-fit that won't allow the actuator and dome to become decoupled.

# Inlet/Outlet Options



▲ **Flange Adaptors** with outlet reducer for matching port and flange sizes



▲ **Weld Ferrules** for sanitary Tri-Clamp Connections



▲ **Stub Ends** for Flexible Hose Connections

Roto-Disc valves can be adapted to fit your connection requirements. Several common options are illustrated.

## Airlock / Double-Dump Assemblies

Roto-Disc Company commonly supplies valves in airlock / double-dump assemblies for processing material into and/or out-of pressure or vacuum vessels. Intermediate accumulator chambers are sized to meet processing requirements and are designed for ledge-free flow of material from valve-to-valve. Cycle-timing and pressure equalization couplings are available for turn-key feeding solutions. These are a perfect replacement for leaky rotary vane feeders or other, flimsy double-dump valves.



▲ **Airlock / Double-Dump Assembly**  
Two Roto-Disc valves are placed in series and are opened and closed independently, so pressure or vacuum is contained above or below the assembly

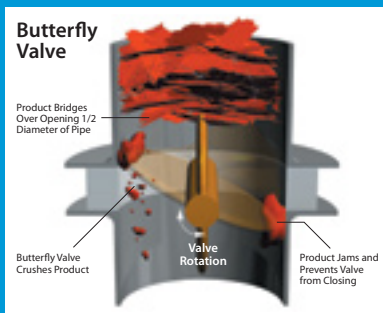
# Typical Applications

Roto-Disc® valves handle a wide range of dry and slurry material in many different applications. Here is just a sample of the many diverse valve installations:

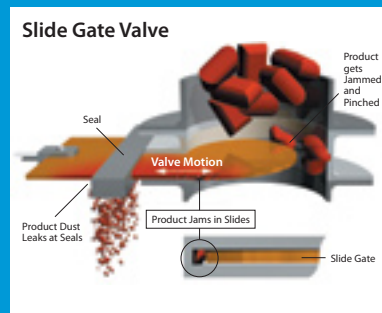
Manufacturer Type	Material	Application
General Chemical	Potassium Tantalum	Isolation Valve
General Chemical	Silica Gel	Dense Phase Pneumatic Conveying
General Chemical	Hydro Bromine Salts	Line Shut-off
General Chemical	Zinc Stearate	Reactor Fill/Shut-off
General Chemical	TiO <sub>2</sub>	Silo Discharge
Alternative Energy	Crumb Rubber	Gasification
Diversified Food	Cake Frosting	Mixer Discharge
Diversified Food	Maltodextrin	Control Valve
Major Pharmaceutical	Pharmaceutical Powder	Vacuum Dryer Discharge
Major Pharmaceutical	Pharmaceutical Powder	Vacuum Conveying System
Major Pharmaceutical	Pharmaceutical Powder	Centrifuge Discharge
Biofuels	Rapeseed (Canola)	Gasification
Aggregate & Mining	Aluminum Silicate Powder	Silo Discharge
Agricultural Processor	Poultry Biocide	Nauta Mixer Discharge
Agricultural Processor	Corn Gluten	Weigh Bin Fill
Batteries	Magnesium Dioxide	L.I.W. Feeder Refill
Bio-pharmaceutical	Dried Milk Formula	Air Lock (Double-dump)
Coal Fired Power Plant	Hot Fly Ash	Bag House Discharge
Computer Printers	Toner Powder	Metering Hopper
Flavorings & Spices	Food Flavoring	Hopper Discharge
Flavorings & Spices	Powdered Flavoring	Mixer Discharge
Flavorings & Spices	Salt & Seasoning	Ribbon Blender Discharge
Petro-chemical	Catalyst	Reactor Fill/Shut-off
Petro-chemical	Polyester Chips	Reactor Fill/Shut-off
Petro-chemical	Plastic Pellets	L.I.W. Feeder Refill
Glass Products	Glass Batch	Hopper Discharge
Hazardous Materials Recycling	Broken Glass	Roaster Inlet & Discharge
Plastic Pellet/Resin	ABS Powder & Pellets	Box Filling
Plastic Pellet/Resin	Plastic Pellets	L.I.W. Feeder Refill
Nuclear Fuel Reprocessing	Uranium Pellets	Air Lock (Double-dump)
Nuclear Waste Processing & Disposal	Uranium Oxide Powder	Air Lock (Double-dump)
Oil Field Services	Deep-sea Drill Cuttings	Dense-phase Conveying
Pigments	Color Pigments	Nauta Mixer Discharge
Pigments	Various Fine Powders	L.I.W. Feeder Refill
Specialty Chemical	Ceramic Balls	Air Lock (Double-dump)
Specialty Chemical	Sulfamic Acid	Reactor Fill/Shut-off
Powdered Metals	Metallic Brace Shoe Fibers	Mixer Discharge
Powdered Metals	Titanium Sponge	Air Lock (Double-dump)
Original Equipment Manufacturer	Activated Carbon & Polymers	Mixer Discharge
Original Equipment Manufacturer	Cigarette Additive	L.I.W. Feeder Refill
Pet Food	Cat Food	Hopper Shut-off

## In Comparison

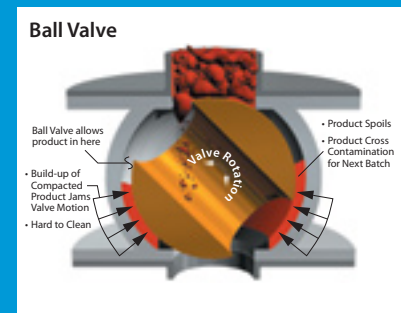
Troublesome valve installations can cause “off spec” product, require constant maintenance and restrict production time. Other valve styles, some of them originally designed for liquid handling, have shortcomings, as shown below.



▲ **Butterfly Valves** have a vane in the center of the flow stream that can cause bridging and obstruct product flow. Since the seat and the vane are exposed they can wear quickly, making them unable to seal.



▲ **Slide Gate Valves** can pinch and/or cut product, jamming the valve so it won't close completely. The linear motion of the valve can drag material across the seal, causing wear and allowing product to leak out thru the sliding seal.



▲ **Ball Valves** were developed over a century ago for liquids and gasses. They are heavy and take up a lot of headroom. More importantly they have a dead space between the casting and ball that can fill and pack with product causing abrasive wear on the seals and ball or causing cross contamination/spoilage between batches.

# Technical Information

## Materials of Construction

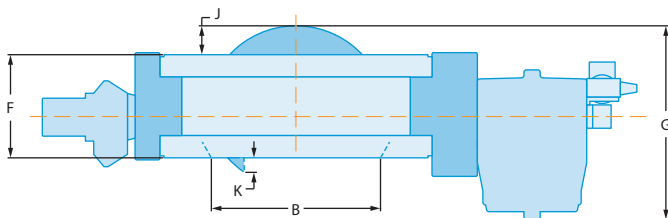
**Body & Dome:** Stainless Steel (316, 304, 410), Carbon Steel (4140, WCB), Ductile Iron, Aluminum A319, Hastelloy-C, Monel, Aluminum Bronze, other alloys upon request

**Soft Seats:** Reinforced Teflon® PTFE, PFA, UHMW, Vespel, PEEK, other engineered plastics upon request

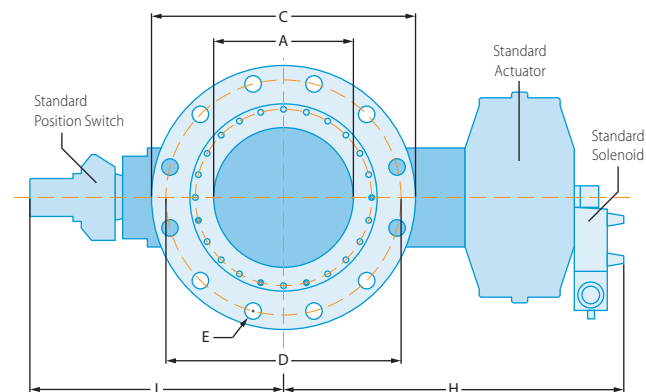
**Metal Seats:** Stainless Steel (316, 304), Abrasion Resistant Steel (AR400), Stellite, Bronze, other alloys upon request

**Coatings & Hardfacing:** Teflon® P100, Halar ECTFE, Teflon® PFA, Tungsten Carbide, Silicone Carbide, other stick-release coatings

Teflon® is a registered trademark of DuPont.



Valve Size	Weight in Stainless Steel or Carbon Steel with Standard Controls LBS. (Kg)	Weight with Aluminum Body, Stainless or Carbon Steel Dome & Standard Controls LBS. (Kg)	Minimum Torque Required INCH-LB. (nm)	Typical Torque Required INCH-LB. (nm)
3	55 lbs. (25)	25 lbs. (11)	210 (24)	480 (51)
4	61 lbs. (28)	30 lbs. (14)	300 (34)	480 (51)
6	114 lbs. (52)	68 lbs. (31)	680 (77)	1450 (164)
8	148 lbs. (67)	90 lbs. (41)	1150 (130)	3600 (407)
10	207 lbs. (94)	127 lbs. (58)	1800 (203)	3600 (407)
12	430 lbs. (195)	220 lbs. (100)	2660 (301)	5325 (602)
14	422 lbs. (191)	N/A	4130 (467)	5325 (602)
16	501 lbs. (227)	N/A	5480 (619)	9350 (1056)
18	639 lbs. (290)	N/A	7400 (836)	9350 (1056)
20	1100 lbs. (499)	N/A	11300 (1277)	24000 (3389)
24	1445 lbs. (655)	N/A	15110 (1707)	24000 (3389)



Valve Size	Standard ANSI Flange Size	Optional ANSI Flange Size	Standard Valve Dimensions – IN. (mm)										
			A*	B*	C*	D*	E* # Holes x Hole Dia.	F*	G*	H*	I*	J*	K*
3	4", 150# ANSI	3", 150# ANSI	3-3/8" (86)	4-1/8" (105)	9" (229)	7-1/2" (191)	8 x 3/4" (8 x 19)	4" (102)	6" (152)	14-5/8" (372)	12-1/16" (306)	7/16" (11)	0" (0)
4	6", 150# ANSI	4", 150# ANSI	4-3/8" (111)	6-1/16" (154)	11" (279)	9-1/2" (241)	8 x 7/8" (8 x 22)	4" (102)	6-15/16" (176)	15-3/4" (400)	13-1/8" (333)	3/4" (19)	7/8" (22)
6	8", 150# ANSI	6", 150# ANSI	6-1/2" (165)	8-1/8" (206)	13-1/2" (343)	11-3/4" (299)	8 x 7/8" (8 x 22)	5-1/4" (133)	8-13/16" (224)	17-7/16" (443)	14-3/8" (365)	1-7/16" (37)	1-7/32" (31)
8	10", 150# ANSI	8", 150# ANSI	8-1/2" (216)	10-1/4" (260)	16" (406)	14-1/4" (362)	12 x 1" (12 x 25)	6-1/4" (159)	11-3/4" (299)	20-3/4" (527)	15-5/8" (397)	1-3/4" (45)	2-17/32" (64)
10	12", 150# ANSI	10", 150# ANSI	10-1/2" (267)	12-1/4" (311)	19" (483)	17" (432)	12 x 1" (12 x 25)	8" (203)	12-13/32" (315)	22-1/4" (565)	17-1/8" (435)	2-13/32" (61)	2-11/16" (68)
12	16", 150# ANSI	12", 150# ANSI	12-1/2" (318)	15-1/2" (394)	23-1/2" (597)	21-1/4" (540)	16 x 1-1/8" (16 x 29)	9-3/4" (248)	16-5/8" (422)	25-1/4" (641)	19-1/8" (486)	2-17/32" (64)	3-5/16" (84)
14	20", 150# ANSI	14", 150# ANSI	14-1/2" (368)	22-3/8" (568)	27-1/2" (699)	25" (635)	20 x 1-1/8" (20 x 29)	12-3/8" (314)	19-11/32" (491)	27-13/16" (706)	21-29/32" (556)	2-1/2" (64)	5-5/32" (131)
16	20", 150# ANSI	16", 150# ANSI	16-1/2" (419)	22" (559)	27-1/2" (699)	25" (635)	20 x 1-1/4" (20 x 32)	10-3/4" (273)	18-25/32" (477)	28-3/4" (730)	22-1/8" (562)	3-11/16" (94)	5-17/32" (141)
18	26", Series A,CL-150	18", 150# ANSI	18-1/2" (470)	27" (686)	34-1/4" (870)	31-3/4" (806)	24 x 1-3/8" (24 x 35)	15-1/4" (387)	21-5/8" (549)	32-1/8" (816)	24-7/8" (632)	3-1/8" (79)	5-31/32" (152)
20	30", Series A,CL-150	20", 150# ANSI	20-1/2" (521)	31-13/16" (808)	38-3/4" (984)	36" (914)	28 x 1-3/8" (28 x 35)	17-1/4" (438)	25-19/32" (650)	41-7/8" (1064)	26-11/16" (678)	3-5/16" (84)	7-5/16" (186)
24	36", Series A,CL-150	24", 150# ANSI	24-1/2" (622)	38" (965)	46" (1168)	42-3/4" (1086)	32 x 1-5/8" (32 x 41)	21-5/8" (549)	28-21/32" (728)	45-23/32" (1161)	30-9/32" (769)	3-7/8" (98)	7-15/16" (202)

\* Dimensions vary with Inlet / Outlet Options and with non-standard controls. Fractional dimensions rounded up to the next 1/32"



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