



Nordstrom Iron Plug Valves



Experience In Motion

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Glossary of Terms Used on Valve Dimension Tables

CWP (Cold Working Pressure) is the maximum service pressure permitted in the ambient temperature range -20°F to +100°F (-29°C to +38°C). CWP is expressed in psig (pounds per square inch gage).

DN (Diameter Nominale), an indication of nominal diameter.

Test The Hydrostatic Shell Test Pressure. See chart on page 42.

Upper dimensions and weights are in inches and pounds.

Lower dimensions and weights are in millimeters and kilograms.

About This Catalog

Every attempt has been made to assure that the data in this catalog is as accurate as possible. Flowserve reserves the right to make product modifications that contradict the contents of this catalog without notification to its holders. Flowserve cannot be held responsible for any data found to be inaccurate or incomplete.

Other Valve and Valve-Related Publications

Nordstrom Multiport Valves (NVABR1022)

Nordstrom Poly-Gas® Polyethylene Valves (NVABR1006)

Nordstrom Steel Plug Valves (NVABR1004)

Nordstrom Sealant and Sealant Equipment (NVABR1014)

Nordstrom Valves For Water and Wastewater Service (NVABR1005)

Nordstrom Poly-Chem® Valves (NVABR1007)

Nordstrom Poly-Water® Valves (NVABR1008)

Valve Figure Number Explanation

Valve figure numbers ending in a 1, 2, 3, 4 or 5 indicate wrench-operated valves. Valve figure numbers ending in 1 indicate compression style ends. Valve figure numbers ending in 2 or 4 indicate threaded ends. Valve figure numbers ending in 3 or 5 indicate flanged ends.

Valve figure numbers ending in a 9 indicate flanged ends with worm gear operator.

Valve Figure Number Index

Figure Number	Page	Figure Number	Page	Figure Number	Page
114	15	189	18	1169	16, 17
115	15	214	20	1485	25
142	12	265	28	1489	25, 27
143	12, 13	269	29	1585	30
149	14	305	23	1589	30, 32
164	21	524	24	2815	34
50165	21	525	24	2865	34
50169	22	824	33	23144	37
185	18	825	33	24191	36

Valve Working Pressure Index

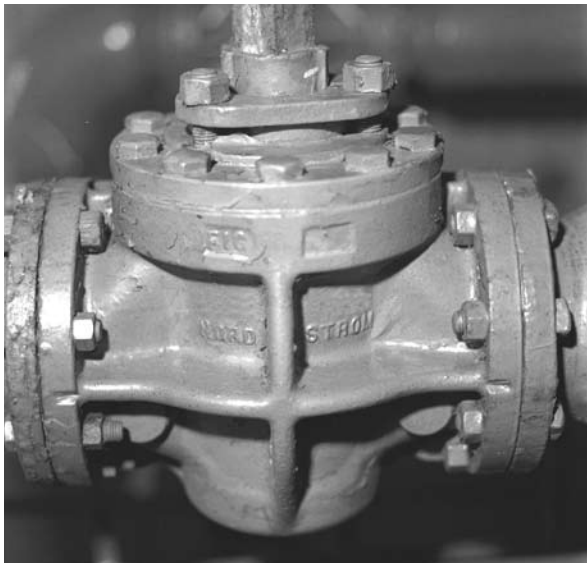
Working Pressures	Type of Operation	Pattern	Nominal Size	Page No.	
Straightway Valves					
120 CWP (8.3 bar)	Worm Gear	Venturi	30 & 36 (DN 750 & 900)	17	
150 CWP (10.3 bar)	Worm Gear	Venturi	14–24 (DN 350–600)	17	
200 CWP (13.8 bar)	Wrench	Short (Gate Length)	½–5 (DN 15–125)	12	
	Wrench	Short (Gate Length)	6–10 (DN 150–250)	13	
	Worm Gear	Short (Gate Length)	6–12 (DN 150–300)	14	
	Wrench & Worm Gear	Short (Gate Length)	6–10 (DN 150–250)	18	
	Worm Gear	Venturi	6–12 (DN 150–300)	16	
	Wrench	Regular	½–4 (DN 15–100)	15	
	Worm Gear	Regular	4–12 (DN 100–300)	22	
	Wrench	Regular	4–8 (DN 100–200)	21	
	Wrench	Compression Ends	6 (DN 150)	36	
300 CWP (20.7 bar)	Wrench	Grooved Ends	2–4 (DN 50–100)	37	
	Worm Gear	Venturi	16–24 (DN 400–600)	27	
	Wrench	Short	1 & 2 (DN 25 & 50)	20	
	Wrench	Short	2–4 (DN 50–100)	23	
	Wrench	Venturi	6–8 (DN 150–200)	25	
	400 CWP (27.6 bar)	Worm Gear	Venturi	6–12 (DN 150–300)	25
	Wrench	Regular	4 & 6 (DN 100 & 150)	28	
	Worm Gear	Regular	6–12 (DN 150–300)	29	
	Worm Gear	Venturi	16–24 (DN 400–600)	32	
500 CWP (34.5 bar)	Wrench	Regular	½–4 (DN 15–100)	24	
	Wrench	Venturi	6 & 8 (DN 150 & 200)	30	
800 CWP (55.2 bar)	Worm Gear	Venturi	6–12 (DN 150–300)	30	
	Wrench	Regular	¾–4 (DN 20–100)	33	
Steam Jacketed Valves					
200 CWP (13.8 bar)	Wrench	—	1–4 (DN 25–100)	34	
Special Order Valves					
FM Valves	Wrench	Regular	½–4 (DN 15–100)	39	

⚠ WARNING: Numerous products described in this catalog and manufactured before January 1, 1986 were equipped with packings and/or gaskets that contained asbestos. When servicing, disassembling or disposing of these products, avoid breathing the asbestos fibers or dust. Respirators should be worn to avoid breathing the asbestos fibers or dust.



Nordstrom Iron Plug Valves

Over the past 70 years, an estimated 70,000,000 Nordstrom valves have been installed in just about every type of commercial service imaginable. Many of these valves — still in service today — are considerably older than the persons currently operating them.



This widespread acceptance and long-time usage is a tribute to the versatility, proven performance and rugged durability of the Nordstrom valve design. It also demonstrates the effectiveness of the many improvements that have resulted from Nordstrom's continuing advances in valve design, materials application engineering and production technology, all of which have upgraded valve performance while maintaining competitive pricing. Obviously, a great many users agree that the Nordstrom iron plug valve is one of the best values on the market today!

A Technology Leader

At Nordstrom, high technological effort has been — and continues to be — dedicated to providing one of the valve industry's most outstanding research, development and test capabilities, as well as advanced manufacturing systems.

Nordstrom's broadening investment in product research and development activities, computer-aided design systems, experimental and qualification testing facilities, new production techniques, and state-of-the-art equipment and plant facilities has resulted in greater efficiencies and cost savings in the design and production of Nordstrom plug valves.

These ongoing efforts have continued to keep Flowserve Nordstrom Valves at the forefront of plug valve technology, while assuring Nordstrom's leadership role in today's plug valve marketplace.



Advanced Manufacturing Systems

Nordstrom iron plug valves are manufactured at Sulphur Springs, Texas. Here, Nordstrom engineers, quality assurance inspectors and other valve production experts are involved in the manufacturing process from start to finish to assure high standards of excellence.

Nordstrom's manufacturing technology leadership is particularly evident where state-of-the-art production equipment and processes have been implemented in the production of smaller Nordstrom iron plug valves. This manufacturing capability is rivaled by few (if any) other valve manufacturers today.

Once a valve body has been machined it is matched with its own individually mated plug. The plug is then coated with a low-coefficient friction coating. The valve components are moved to the final assembly area where each valve cover bolt is individually hand-torqued to exacting torque specifications. Each and every valve must undergo and pass rigorous hydrostatic testing. Finally, the valve receives its red coating - the color that has identified a genuine Flowserve Nordstrom Iron plug valve for decades.

Customer Service

The Nordstrom plug valve customer sales and service organization, trained to assist with the valve specifications and applications, is one of the largest in the industry — and, we believe, the most experienced and technically qualified.

And they work with one of the valve industry's largest stocking distributor organizations — over 500 strategically located branch stores throughout the United States alone!

Internationally, our own customer sales and service representatives are augmented by international sales agents, who represent Nordstrom plug valve products in principal cities throughout the world.

In the development of advanced materials and processes; in the creation of soundly engineered and innovative designs; in rigorous proof of performance testing; in advanced, cost-effective production facilities; in the breadth of proven product lines; in the scope of customer sales and service capabilities — these are the areas of performance that demonstrate the strengths and resources of Nordstrom Valves.



Advantages of Nordstrom Iron Plug Valves

Flowserve Nordstrom valves are made in a variety of patterns that assure maximum economy and efficiency for the full range of valve services. Gray Iron Nordstrom valves are suitable for air conditioning and heating services, oil and gas applications, water treatment installations — wherever there is a need for rugged, dependable quarter-turn plug valves!

Valve Seat Never Exposed

The vital seating surfaces are self-protecting and self-cleaning. Any abrasive ingredient that touches the plug in a closed position is wiped off when the plug turns back to the open position.

Positive Quarter-turn Operation

Operating Nordstrom valves is sure, quick and easy. Positive quarter-turn rotary action opens and closes the valve. There are no enlarged pockets or recesses to collect sediment, scale deposits or other foreign matter that might interfere with valve action.

No Part Vibration When Throttling

Because of their positive seating principle and rotary action, Nordstrom valves are not affected by vibration of loose parts. Nordstrom plug valves have been used successfully for many years in continuous throttling services to reduce pressures and control the rate of flow.

Instant Seat Replacement

The plug in a Nordstrom valve can momentarily be jacked from its seat by a few turns of the lubricant screw or by injection of sealant from a lubricant gun. This plug-jacking assures that even after long periods of disuse, the plug can be operated easily, and the valve will seal drop-tight.

Push-Button Seat Replacement

You can renew the seat in a Nordstrom valve in seconds — all from outside — by quick, inexpensive sealant injection. See the Nordstrom Sealant and Sealant Equipment catalog.

Drop-Tight Seating

There's no equal to the Nordstrom valve's tight shutoff when used with a regular program of sealant replacement in critical services.



Most Compact Sizes

Nordstrom valves have no projecting yokes or bonnets, no exposed threads to corrode, no underhanging body to waste vital space. This allows for the most efficient and economical design in the construction of manifolds, pumping stations, etc.

No Seat Leakage

Proper performance of a tapered-plug valve requires correct plug adjustment. Every Nordstrom valve is factory-adjusted to specific settings — and assembly assures that this correct adjustment will be retained for drop-tight sealing.

Gray Iron

The gray iron in Nordstrom valve castings is a high-tensile-strength flake-graphite cast iron produced in electric induction furnaces. Its composition and microstructure are closely controlled so that it consistently exhibits a tensile strength exceeding the minimum required for Class B (31,000 psi) of ASTM Specification A 126-Gray Iron Castings for Valves, Flanges and Pipe Fittings. Conformance to all other requirements of the specification is assured through established quality control procedures. Nordstrom high-strength gray iron valves are of the “all-iron” type and contain no non-ferrous metals in their construction.



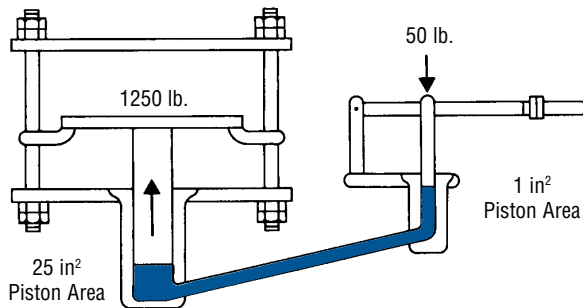
Pascal's Law

The Basic Principle of the Nordstrom Valve

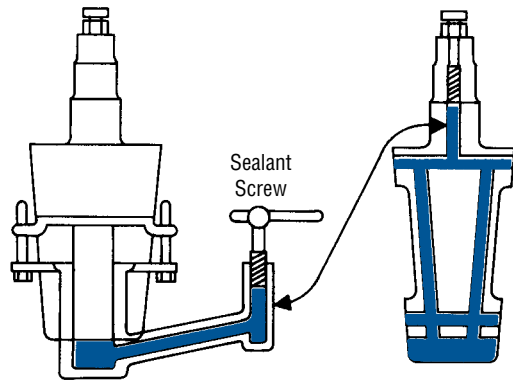
Pascal's Principle: Nordstrom Valves make use of the scientific principle known as Pascal's Law. This law states that "a unit pressure applied to the fluid contained in a sealed vessel is transmitted uniformly to all areas of the confining surfaces of the fluid with undiminished force, thus multiplying the force many times, depending on the area of the interior of the vessel."

Sealant systems are incorporated in metal-seated plug valves as an integral part of the valve, and sealant is required to ensure proper valve performance.

Shown is a demonstration of Pascal's Law. A given force of 50 lb. lifts 1,250 lb. over an enlarged area of 25 to 1 ratio.



This superimposed drawing of a Nordstrom plug valve shows application of Pascal's Law. The sealant screw, when turned, exerts powerful hydraulic force, which will slightly raise the plug from its seat if necessary.

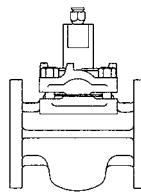


The sealant fitting or screw, inserted in top of the plug, performs the same operation, pressure being transmitted through the sealant grooves. The sealant grooves connect in the plug and body, forming a transmission line to the bottom chamber. The plug is always sealed against line pressure.

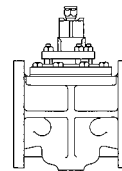
Plug Valve Patterns

Nordstrom plug valves are available with threaded, flanged, compression and grooved ends to meet the needs of your piping systems. Valves are wrench- or gear-operated, as listed in the detailed specification pages.

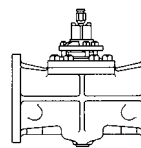
Nordstrom valves come in a variety of engineered patterns to assure maximum efficiency and economy for the full range of valve services. These include Regular, Short and Venturi patterns, as shown below.



Regular Pattern, which provides the largest port opening in a trapezoidal configuration.



Short Pattern, which incorporates the largest practical port area consistent with matching gate valve face-to-face dimensions.



Venturi Pattern, which has a smaller port than either the regular or short patterns. Venturi pattern provides optimized approach and discharge angles, plus smooth flow contours to provide minimum pressure drop.

Super Nordstrom Two-Bolt Cover-Type Iron Valve

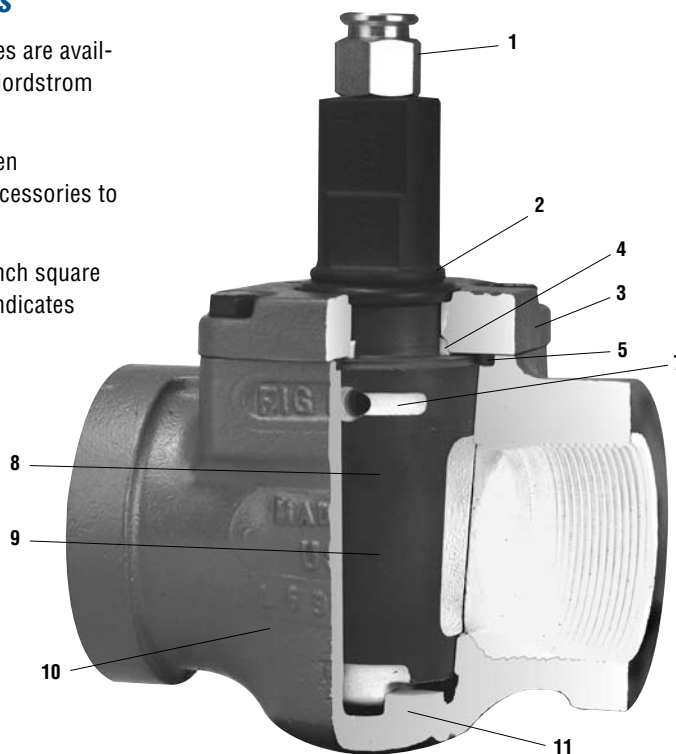
A low-cost iron body plug valve with all the benefits of Nordstrom Valve designs

It's true! All of these time-proven quality features are available to the gas industry in the low-cost Super Nordstrom plug valve.

External leakage is eliminated through the proven Nordstrom designs without the use of costly accessories to protect exposed, threaded stems.

All valves may be operated by a standard two-inch square wrench with the use of an adapter that clearly indicates valve open and closed positions above ground.

These valves incorporate all of the well-known features of conventional Nordstrom valves including quarter-turn operation; a thermally bonded, low-friction plug coating for low operating torque; and sealant jacking to ensure positive operation and drop-tight closure.



1. **Sealant Injection Fitting** provides for simple, quick injection of sealant in Super Nordstrom valves for instant seat replacement. The fitting also serves as a compression screw when sealant is used in stick form; can be removed, with caution, under pressure.
2. **Weatherseal** eliminates the trash pocket between the cover and stem to provide optimum environmental corrosion protection.
3. **Offset Cover** is flush with body to eliminate potential leak paths; cover bolts are recessed to allow easy wrench operation. Cover and bolts provide greater resistance against external corrosion.
4. **Stem Seal** limits plug lift and provides added protection against external leakage.
5. **Cover Seal Gasket** is independent of plug positioning mechanism and provides maximum protection against external leakage.
6. **Double Ball Checks** (not shown) maintain sealant pressure in the enclosed grooving system in the plug and body and prevent back pressure on the sealant chamber.

7. **Sealdport™ Grooving System** is carefully designed to give complete distribution of pressurized sealant to seating surfaces; surrounds the body port for complete sealing.
8. **Statically Balanced Plug** The spring (below plug) and loaded reinforced TFE washer (above plug) assure proper plug positioning, "always turn" capability and predictable torque.
9. **Tapered Iron Plug** is coated with a material that has an exceptionally low friction coefficient, is permanently bonded to metal surface and provides permanent separation of metal plug and body. The coating is inert to most liquids and gases.
10. **Iron Body**
11. **Internal Stops** eliminate trash pockets around the cover and stem to provide maximum environmental corrosion protection.

Super Nordstrom® Regular Pattern Iron Plug Valve

The figures 114 & 115 have been redesigned to incorporate the Super Nordstrom design for lower cost and more efficient valves.

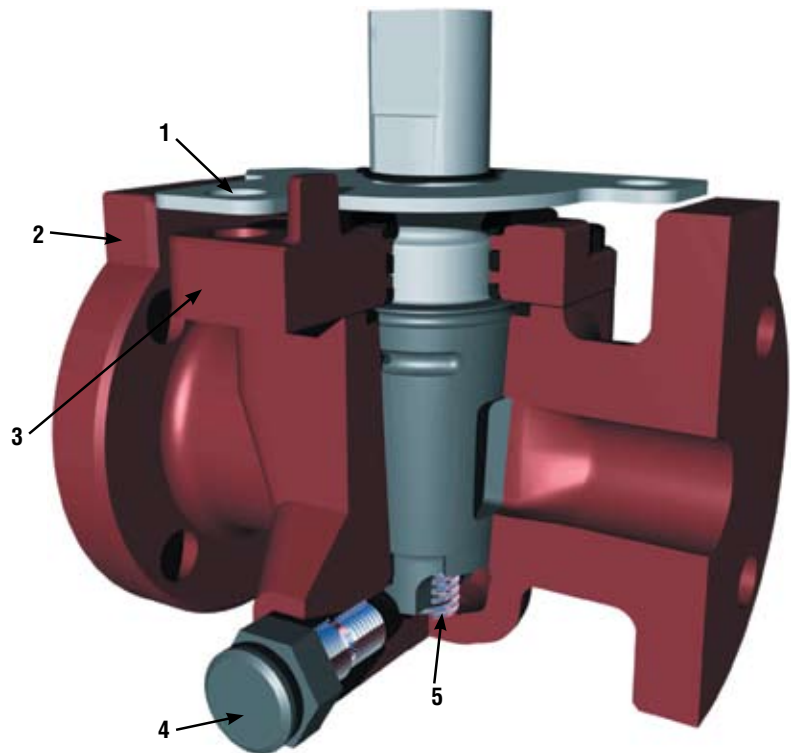
The A114 & A115 Super Nordstrom valves now have actuator mounting pads for ease of converting to an actuated valve. They also have an integral stop and locking device already assembled to the valve.

External leakage is eliminated through the redesigned cover that also eliminates debris trap around the stem that can retain moisture and cause corrosion. A balance

spring has also been incorporated into the valves to provide lower and predictable operating torques. The side mounted sealant injection fitting provides effective plug jacking and does not get in the way of mounting an actuator.

These valves incorporate all the well known features of conventional Nordstrom valves including quarter turn operation; a thermally bonded, low-friction plug coating for low operating torque; and sealant jacking to ensure positive operation and drop-tight closure.

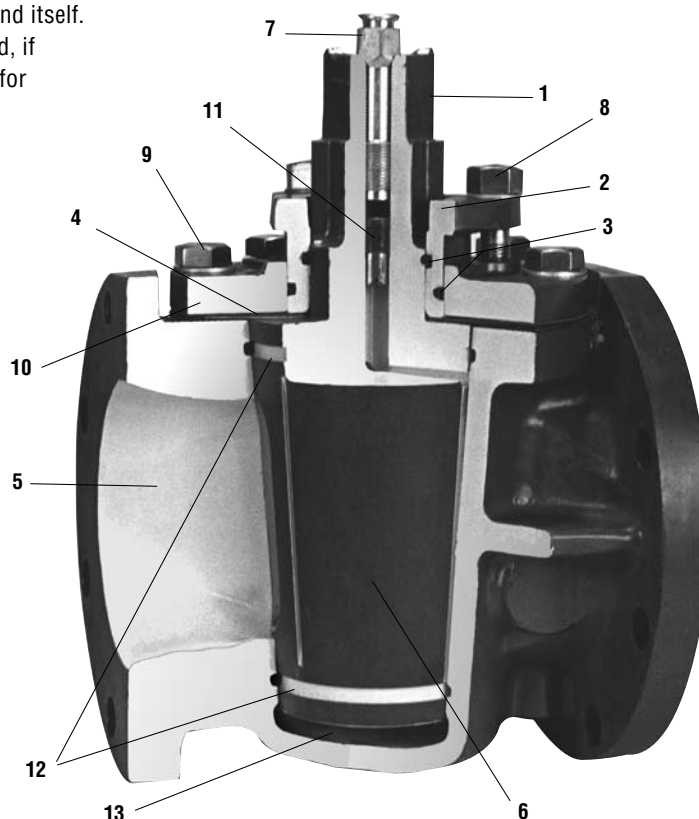
1. **Integral Stop and Locking Device** – Same reliable and easy-to-use design as two-bolt cover valves.
2. **Actuator Mounting Pads** – Allows for convenient field attachment of operator/ actuator mounting brackets thus eliminating the need for expensive saddle-type brackets or violating the integrity of the cover bolts.
3. **Redesigned Cover** – Eliminates debris trap around stem that can retain moisture and cause corrosion.
4. **Side-Mounted Sealant Injection Fitting** – Improved sealant injection system allowing sealant injection under plug for effective plug jacking.
5. **Balance Spring** – Mechanically balanced providing lower and predictable operating torques.



Nordstrom Bolted Gland-Type Iron Plug Valves

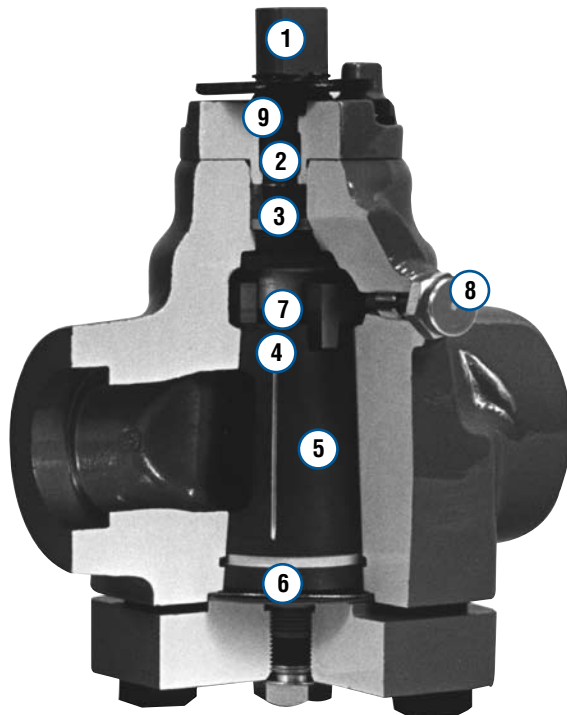
In bolted gland-type valves, illustrated below, controlled plug motion is provided by flexing of the gland itself. The bolted-type gland valves can be adjusted, if needed, but normally require little attention for leak-free, easy-turning valve performance.

The tapered plug is lapped individually with its matching body, providing perfect seating contact. The sealant channels in the plug and body seats provide lubrication, which, together with the positive rotary action of the tapered-plug valve, protect the seating surfaces against corrosion, erosion and accumulation of solid deposits. This valve is designed with a heavy-wall body, which is constructed beyond its requirements as a pressure vessel so that its maximum rated working pressure can withstand the higher-than-line sealant pressure and expected line stresses.



1. **Wrench Square**
2. **Fixed Adjustment Gland**
3. **O-rings**
4. **Flexible Metal Sealing Diaphragm and Gasket**
5. **Heavy-Wall Body**
6. **Plug**
7. **Sealant Fitting** (combination Sealant Screw and Gun Fitting)
8. **Gland Cap Screw**
9. **Cover Cap Screw**
10. **Cover**
11. **Sealant Check Valve** (Double Ball-Check prevents escape of sealant)
12. **Sealant Grooves** (provides Sealant system)
13. **Sealant Chamber** (provides plug "jacking" force)

Dynamic Balance Plug Valves



1. **Stem Head** – is obround with two wrench flats that align the wrench in the direction of the port opening, thus becoming an easily visible position indicator. Square adapters are available to allow operational flexibility where space is limited.
2. **Stem** – treated with low-friction PTFE coating to reduce overall valve torque. Wrench-operated valve stems are made of 400 series stainless steel for corrosion protection (i.e., tough offshore applications).
3. **Stem Packing** – specially designed and patented by Flowserve Nordstrom Valves, manufactured from a combination of graphite and TFE, the stem packing is pressure-energized (no external adjustments necessary) and is inert to a wide range of fluids and gases.
4. **Plug-Balancing Spring** – is designed to preload the plug to prevent vibration and thermal cycling from wedging the plug into the taper regardless of installed position.
5. **Plug** – is coated with permanently bonded, low-friction coating.
6. **Bottom Balance Hole** (not shown) – is an integral part of the Dynamic Balance system which maintains pressure equalization between the plug port and the bottom of the plug.
7. **Balance Hole with Ball Check** (not shown) – ensures that pressure above the plug is the same as or greater than in the plug port.
8. **Sealant Injection Fitting** – permits restoration of damaged seats and drop-tight shutoff on hard-to-hold fluids.
9. **Weatherseal** – two different types are found in Dynamic Balance valves. The stem weatherseal is specially shaped and constructed to protect the stem and packing from hostile environments that can lead to corrosion. The cover weatherseal is an elastomeric ring compressed between the body and cover to protect cover bolts from corrosion.



Principal Features

- Turns easily every time, shuts off with the proven dependability of a plug valve and eliminates the problems generally associated with conventional plug valves.
- As shown in the photograph, balance holes at the top and bottom of the plug maintain equal pressure above and below the plug and in the plug port so that line pressure cannot jam the plug into the body taper. A stainless steel spring pre-loads the plug to prevent vibration and thermal cycling from wedging the plug in the taper. Loading the top of the plug in this way also compensates for the weight of the plug when the valve is installed upside down.
- The Dynamic Balance design provides durable, metal-to-metal seats and a sealant system for bubble-tight shutoff on hard-to-hold fluids and restoration of damaged seats.
- The Dynamic Balance design also offers the Protected Pressure Balancing feature for increased reliability in service where there is a possibility of foreign particles in the media. This design ensures that the balancing holes are not exposed to the line media in the plug port, providing added security compared with normal pressure balancing.
- Sealant systems are incorporated in metal-seated plug valves as an integral part of the valve, and sealant is required to ensure proper valve performance.
- Dynamic Balance plug valves with their metal-to-metal seats have been fire-tested in conformance with API Standards 607 and 6FA.

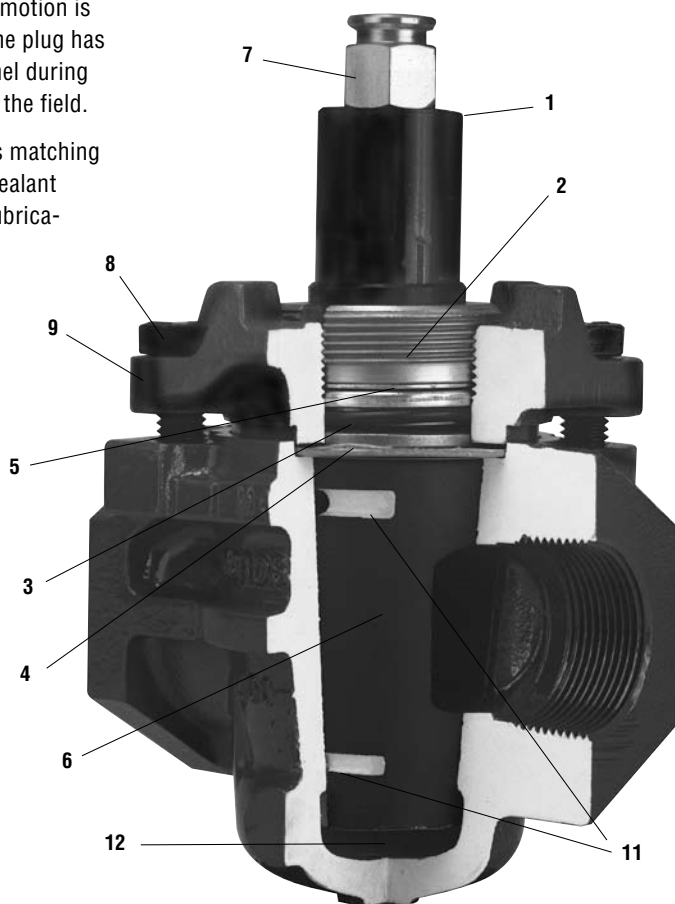
Nordstrom Screwed Gland-Type Iron Plug Valves

In screwed gland-type valves, controlled plug motion is provided by flexing of spring washers. Once the plug has been carefully adjusted by Nordstrom personnel during valve assembly, no adjustments are needed in the field.

The tapered plug is lapped individually with its matching body, providing perfect seating contact. The sealant channels in the plug and body seats provide lubrication, which, together with the positive rotary action of the tapered-plug valve, protect the seating surfaces against corrosion, erosion or accumulation of solid deposits.

Flowserve Nordstrom screwed gland-type valves also offer a thermally bonded, low-friction plug coating for low operating torque, and sealant jacking to ensure positive operation and drop-tight closure.

1. **Wrench Flats**
2. **Slotted Fixed Adjustment Gland**
3. **O-ring Holder with O-rings**
4. **Flexible Metal Sealing Diaphragm and Gasket**
5. **Spring Washers**
6. **Plug**
7. **Sealant Fitting** (combination Sealant Screw and Giant Button Head Fitting)
8. **Cover Cap Screw**
9. **Cover**
10. **Sealant Check Valve** (not shown) (Double Ball-Check prevents escape of sealant)
11. **Sealant Grooves** (provides Sealport sealant system)
12. **Sealant Chamber** (provides plug "jacking" force)



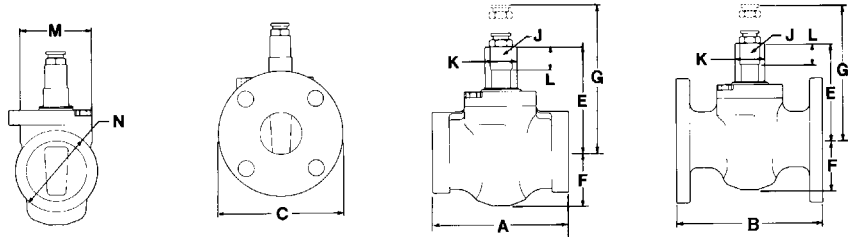
Super Nordstrom Two-Bolt Cover-Type Iron Plug Valves

Short Pattern (Gate Length)

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 142 Threaded, Wrench
Operated, Sizes ½ to 4

Figure 143 Flanged, Wrench
Operated, Sizes 1 to 5



Size	NPS	½	¾	1	1¼	1½	2	2½	3	4	5
	DN	15	20	25	32	40	50	65	80	100	125
End-to-end, threaded, Figure 142	A	4.50 114	4.50 114	4.50 114	5.00 127	5.00 127	5.88 149	7.00 178	7.62 194	9.00 229	
End-to-end, flanged, Figure 143	B			5.50 140	6.50 165	6.50 165	7.00 178	7.50 191	8.00 203	9.00 229	10.00 254
Diameter of flange	C			4.3 109	4.6 117	5.0 127	6.0 152	7.0 178	7.5 191	9.0 229	10.0 254
Center to top of stem	E	3.8 97	3.8 97	3.8 97	4.1 104	4.1 104	4.7 119	4.7 119	5.6 142	6.3 160	6.3 160
Center to bottom of body	F	1.9 48	1.9 48	1.9 48	2.1 53	2.1 53	2.4 61	2.4 61	3.4 86	4.0 102	4.0 102
Clearance required to remove sealant fitting	G	5.5 140	5.5 140	5.5 140	5.8 147	5.8 147	6.4 163	6.4 163	7.2 183	8.0 203	8.0 203
Width of stem flats	J	.81 21	.81 21	.81 21	1.00 25	1.00 25	1.00 25	1.00 25	1.25 32	1.25 32	1.25 32
Diameter of stem	K	1.06 27	1.06 27	1.06 27	1.38 35	1.38 35	1.38 35	1.38 35	1.75 44	1.75 44	1.75 44
Height of stem flats	L	.9 23	.9 23	.9 23	1.0 25	1.0 25	1.0 25	1.0 25	1.3 33	1.3 33	1.3 33
Extreme width of body, Figure 142	M	2.6 66	2.6 66	2.6 66	3.2 81	3.2 81	3.2 81	3.2 81	4.0 102	4.8 122	
Diameter of hub, Figure 142	N	2.3 58	2.3 58	2.3 58	2.9 74	2.9 74	3.6 91	4.3 109	5.2 132	6.4 163	
Size of Sealant Stick	—	B	B	B	B	B	B	B	B	B	B
Size of wrench	—	SN-1	SN-1	SN-1	SN-2	SN-2	SN-2	SN-2	SN-4*	SN-4*	SN-4*
Length of wrench	—	7.0 178	7.0 178	7.0 178	10.5 267	10.5 267	10.5 267	10.5 267	17.5 445	15.0 381	15.0 381
Weight (approx.), Figure 142	—	6 3	6 3	6 3	9 4	9 4	13 6	17 8	29 13	48 22	
Weight (approx.), Figure 143	—			9 4	14 6	14 6	20 9	25 11	38 17	65 29	80 36

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 142 and 143 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; ASME B16.10; API 5B; ASTM A126, Class B; and MSS SP-78. See page 38.

Figure 143 face-to-face lengths are interchangeable with ASME Class 125 and API 175 CWP Cast Iron Gate Valves.

Figures 142 and 143 valves Size 5 (125 mm) and smaller are not recommended for temperatures above +200°F (+93°C).

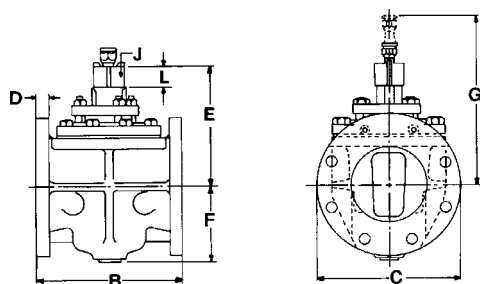
* Use the longer SN-3 wrench for valves used in cold climates such as Canada.

Nordstrom Bolted Gland-Type Iron Plug Valves

Short Pattern (Gate Length)

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 143 Flanged, Wrench
Operated, Sizes 6, 8 and 10



Size	NPS	6	8	10
	DN	150	200	250
Face-to-face, flanged, Figure 143	B	10.50	11.50	13.00
		267	292	330
Diameter of flange	C	11.0	13.5	16.0
		279	343	406
Thickness of flange	D	1.06	1.19	1.25
		27	30	32
Number and size of tapped holes in each flange*	—	two 3/4"	two 3/4"	two 7/8"
Center to top of stem	E	9.6	11.9	14.2
		244	302	361
Center to bottom of body	F	5.4	7.1	9.2
		137	180	234
Clearance required to remove sealant fitting	G	13.6	16.9	19.2
		345	429	488
Width of stem square	J	1.75	2.00	2.00
		44	51	51
Height of stem square	L	1.8	2.0	2.1
		46	51	53
Size of wrench	—	P-2	T-2	T-2
Length of wrench	—	27.0	36.0	36.0
		686	914	914
Size of sealant stick	—	D	G	G
Weight (approx.), Figure 143	—	137	230	356
		62	104	161

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figure 143 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

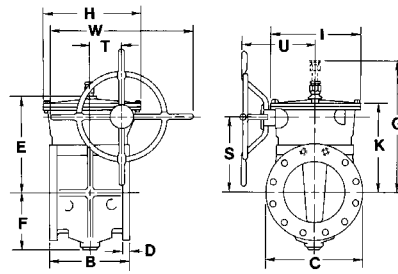
Figure 143 face-to-face lengths are interchangeable with ASME Class 125 and API 175 CWP Cast Iron Gate Valves.

*Note: Studs or capscrews required. For sizes and lengths, see page 48.

Short Pattern (Gate Length)

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 149 Flanged, Worm Gear Operated,
Sizes 6, 18, 10 and 12



Size	NPS	6	8	10	12
	DN	150	200	250	300
Face-to-face, flanged, Figure 149	B	10.50 267	11.50 292	13.00 330	14.00 356
Diameter of flange	C	11.0 279	13.5 343	16.0 406	19.0 483
Thickness of flange	D	1.06 27	1.19 30	1.25 32	1.31 33
Number and size of tapped holes in each flange*	—	two ¾"	two ¾"	two 7/8"	two 7/8"
Center to top of stem	E	11.4 289	13.4 340	15.7 399	18.7 475
Center to bottom of body	F	5.4 137	7.1 180	9.2 234	10.6 269
Clearance required to remove sealant fitting	G	15.4 391	18.4 467	20.7 526	23.7 602
Length of gear housing	H	15.5 394	15.5 394	15.9 404	19.5 495
Width of gear housing	I	13.8 351	13.8 351	14.8 376	17.8 452
Center to top of housing	K	10.6 269	12.6 320	15.1 384	18.1 460
Center of port to center of handwheel	S	8.8 224	10.7 272	12.8 325	15.9 404
Transverse centerline to center of worm shaft	T	5.3 135	5.3 135	5.3 135	7.5 191
Longitudinal centerline to face of handwheel	U	12.6 320	12.6 320	13.3 338	14.5 368
Overall diameter of handwheel	W	20.0 508	20.0 508	23.0 584	26.0 660
Turns of handwheel to open valve	—	12½	12½	12½	19½
Size of Sealant Stick	—	D	G	G	G
Weight (approx.), Figure 149	—	228 103	321 146	458 208	760 345

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figure 149 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

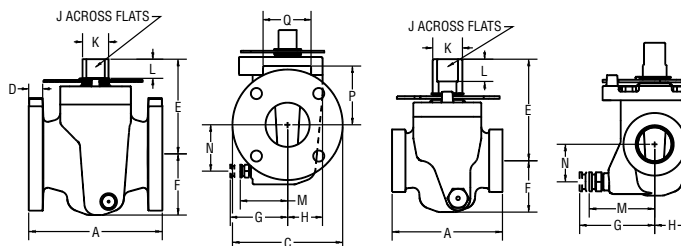
*Note: Studs or capscrews required. For sizes and lengths, see page 48.

Super Nordstrom Two-Bolt Cover-Type Iron Plug Valve

Regular Pattern

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 114 Threaded, Wrench Operated, Sizes ½ to 3
Figure 115 Flanged, Wrench Operated, Sizes 1 to 4



Nominal Valve Size	NPS	½	¾	1	1½	2	2-½	3	4
	DN	15	20	25	40	50	65	80	100
End-to-end, Fig. A114	A	3.75 95	3.75 95	4.38 111	5.13 130	6.50 165		8.06 205	
End-to-end, Fig. A115	A			5.50 140	6.50 165	7.50 191	8.25 210	9.00 229	9.00 229
Diameter of Flange	C			4.3 109	5.0 127	6.0 152	7.0 178	7.5 191	9.0 229
Thickness of Flange	D			.50 13	.63 16	.69 18	.75 19	.81 21	1.00 25
Center to Top	E	3.9 98	3.9 98	3.9 98	4.8 120	4.8 120	5.6 142	6.3 160	7.1 180
Center to Bottom	F	1.9 49	1.9 49	1.9 49	2.4 60	2.4 60	2.5 62	4.0 103	4.6 117
Removal Clearance	G	3.4 86	3.4 86	3.4 86	3.6 92	3.6 92	3.6 92	3.6 92	4.0 101
Center to Back	H	1.3 33	1.3 33	1.3 33	1.6 40	1.6 40	2.0 50	2.4 60	2.7 69
Width of Flat	J	.81 21	.81 21	.81 21	1.00 25	1.00 25	1.25 32	1.25 32	1.38 35
Diameter of Shank	K	1.06 27	1.06 27	1.06 27	1.38 35	1.38 35	1.75 44	1.75 44	1.94 49
Height of Flat	L	.9 22	.9 22	.9 22	1.0 25	1.0 25	1.3 33	1.3 33	1.5 38
Center to Fitting	M	2.9 74	2.9 74	2.9 74	3.2 80	3.2 80	3.1 79	3.2 80	3.5 89
Center to Fitting	N	1.4 35	1.4 35	1.4 35	1.7 44	1.7 44	2.6 67	3.1 79	3.5 90
Center to Top of Pad (Flange End Only)	P			2.25 57	2.52 64	3.10 79	3.56 93	3.75 95	4.50 114
Length of Actuator Pad (Flange End Only)	Q			2.62 67	3.16 80	3.16 80	3.65 93	3.65 93	6.00 152
Wrench	-	SN-1	SN-1	SN-1	SN-2	SN-2	SN-4*	SN-4*	M-9
Length of Wrench	-	7.0 178	7.0 178	7.0 178	10.5 267	10.5 267	15.0 381	15.0 381	21.0 533
Weight (Approx.) Fig. A114	-	7 3	7 3	7 3	12 5	14 6		44 20	
Weight (Approx.) Fig. A115	-			10 4	17 8	21 10	38 17	55 25	79 36

* Use the longer SN-3 wrench for valves in cold climates such as Canada.

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 114 and 115 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; ASME B16.10 ASME B16.33, ASME B16.38, CGA 3.11, 10 CFR 49 Part 192, MSS SP-25, MSS SP-6; API 5B; ASME A126, Class B; and MSS SP-78. See 38 for details.

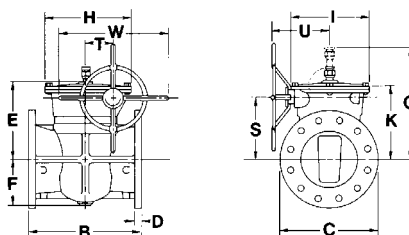
NOTE: Figures 114 and 115 are also Factory Mutual approved. See page 39 for further details.

Nordstrom Bolted Gland-Type Iron Plug Valves

Venturi Pattern

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 1169 Flanged, Worm Gear
Operated, Sizes 6, 8, 10 and 12



Size	NPS	6	8	10	12
	DN	150	200	250	300
Face-to-face, flanged	B	15.50 394	18.00 457	21.00 533	24.00 610
Diameter of flange	C	11.0 279	13.5 343	16.0 406	19.0 483
Thickness of flange	D	1.06 27	1.19 30	1.25 32	1.31 33
Center to top of stem	E	11.3 287	13.2 335	15.0 381	16.1 409
Center to bottom of body	F	5.4 137	6.8 173	8.9 226	10.0 254
Clearance required to remove sealant fitting	G	15.4 391	18.2 462	20.0 508	21.1 536
Length of gear housing	H	15.6 396	15.6 396	15.9 404	19.5 495
Width of gear housing	I	13.8 351	13.8 351	14.8 376	17.8 452
Center to top of housing	K	10.8 274	12.0 305	14.0 356	15.1 384
Center of port to center of handwheel	S	8.8 224	10.0 254	11.6 295	12.8 325
Transverse centerline to center of worm shaft	T	5.3 135	5.3 135	5.3 135	7.5 191
Longitudinal centerline to face of handwheel	U	12.6 320	12.6 320	13.3 338	14.5 368
Overall diameter of handwheel	W	20.0 508	20.0 508	23.0 584	26.0 660
Turns of handwheel to open valve	—	12½	12½	12½	19½
Size of Sealant Stick	—	D	G	G	G
Weight (approx.)	—	248 112	371 168	522 237	803 364

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

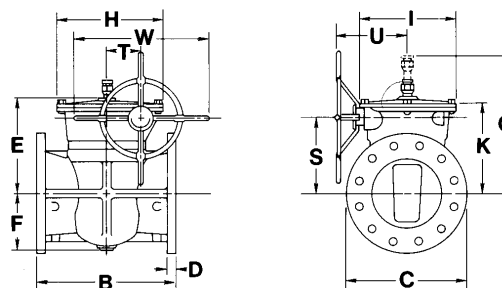
Figure 1169 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

Venturi Pattern

Sizes 14–24
 150 CWP (10.3 bar)
 300 psig (20.7 bar) Test

Sizes 30 and 36
 120 CWP (8.3 bar)
 240 psig (16.6 bar) Test

Figure 1169 Flanged, Worm Gear Operated, Sizes 14 to 36



Size	NPS	14	18	20	24	30	36*
	DN	350	450	500	600	750	900
Face-to-face, flanged	B	27.00 686	34.00 864	36.00 914	42.00 1067	51.00 1295	63.00 1600
Diameter of flange	C	21.0 533	25.0 635	27.5 699	32.0 813	38.8 986	46.0 1168
Thickness of flange	D	1.50 38	1.63 41	1.75 44	2.00 51	2.25 57	2.50 64
Center to top of stem	E	19.9 505	21.8 554	23.5 597	25.4 645	28.7 729	33.0 838
Center to bottom of body	F	12.5 318	13.9 353	15.3 389	17.6 447	20.7 526	25.6 650
Clearance required to remove sealant fitting	G	24.9 632	26.8 681	28.5 724	30.4 772	33.7 856	38.0 965
Length of gear housing	H	27.3 693	27.3 693	27.3 693	37.4 950	37.4 950	
Width of gear housing	I	24.5 622	24.5 622	24.5 622	35.8 909	35.8 909	
Center to top of housing	K	19.6 498	20.4 518	22.1 561	24.4 620	26.9 683	
Center of port to center of handwheel	S	16.6 422	17.4 442	19.1 485	21.1 536	24.1 612	27.9 709
Transverse centerline to center of worm shaft	T	11.1 282	11.1 282	11.1 282	15.1 384	15.1 384	19.9 505
Longitudinal centerline to face of handwheel	U	17.9 455	19.7 500	19.7 500	26.1 663	26.1 663	29.0 737
Overall diameter of handwheel	W	26.0 660	29.0 737	29.0 737	32.0 813	32.0 813	43.0 1092
Turns of handwheel to open valve	—	22½	22½	22½	32	32	43¼
Size of Sealant Stick	—	G	G	G	G	G	G
Weight (approx.)	—	1465 665	1983 899	2163 981	4120 1869	6580 2985	10846 4920

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figure 1169 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

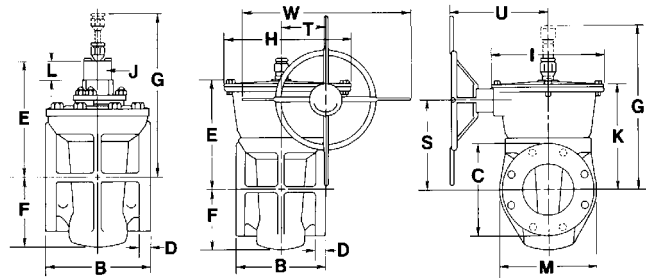
*Size 36 (DN 900) valve does not have enclosed worm gearing. Supplied with open-type gearing only.

Short Pattern (Gate Length)

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 185 Flanged, Wrench Operated,
Sizes 6, 8 and 10

Figure 189 Flanged, Worm Gear Operated,
Sizes 6, 8 and 10



Size	NPS	6	8	10
	DN	150	200	250
Face-to-face, flanged, Figures 185 and 189	B	10.50 267	11.50 292	13.00 330
Diameter of flange	C	11.0 279	13.5 343	16.0 406
Thickness of flange	D	1.06 27	1.19 30	1.25 32
Number and size of tapped holes in each flange*	—	four ¾"	four ¾"	two 7/8"
Center to top of stem, Figures 185 and 189	E	11.9/13.4 302/340	13.4/15.3 340/389	15.3/17.1 389/434
Center to bottom of body	F	7.0 178	9.4 239	9.5 241
Clearance required to remove sealant fitting, Figures 185 and 189	G	16.9/18.4 429/467	18.4/20.3 467/516	20.3/22.1 516/561
Length of gear housing	H	15.5 394	15.9 404	15.9 404
Width of gear housing	I	13.8 351	14.8 376	14.8 376
Width of stem square, Figure 185	J	2.00 51	2.00 51	2.00 51
Center to top of housing	K	12.5 318	14.6 371	16.0 406
Height of stem square, Figure 185	L	2.0 51	2.0 51	2.1 53
Extreme width of body	M	11.5 292	13.5 343	16.0 406
Center of port to center of handwheel	S	10.6 269	12.4 315	13.8 351
Transverse centerline to center of worm shaft	T	5.3 135	5.3 135	5.3 135
Longitudinal centerline to face of handwheel	U	12.6 320	12.6 320	13.3 338
Overall diameter of handwheel	W	20.0 508	20.0 508	23.0 584
Turns of handwheel to open valve	—	12½	12½	12½
Size of Sealant Stick	—	G	G	G
Size of wrench	—	T-2	T-2	T-2
Length of wrench	—	36.0 914	36.0 914	36.0 914
Weight (approx.), Figure 185	—	208 94	292 132	368 167
Weight (approx.), Figure 189	—	256 116	347 157	484 220

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 185 and 189 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASME A126, Class B; and MSS SP-78. See page 38.

Figures 185 and 189 face-to-face lengths are interchangeable with ASME Class 125 and API 175 CWP Cast Iron Gate Valves.

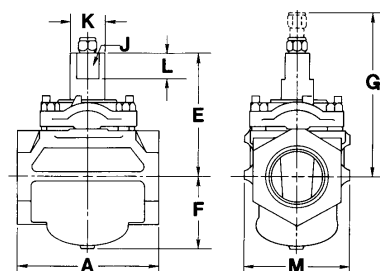
*Note: Studs or capscrews required. For sizes and lengths, see page 48.

Nordstrom Screwed Gland-Type Iron Plug Valves

Short Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 214 Threaded, Wrench Operated, Sizes 1 and 2



Size	NPS	1	2
	DN	25	50
End-to-end, threaded	A	4.38 111	6.50 165
Center to top of stem	E	4.1 104	5.7 145
Center to bottom of body	F	2.2 56	3.2 81
Clearance required to remove sealant fitting	G	6.7 170	8.3 211
Width of stem flats	J	.88 22	1.12 28
Diameter of stem	K	1.22 31	1.59 40
Height of stem flats	L	1.0 25	1.4 36
Extreme width of body	M	3.3 84	4.6 117
Size of Sealant Stick	—	B	B
Size of wrench	—	E-8	K-8
Length of wrench	—	7.0 178	14.0 356
Weight (approx.)	—	8 4	24 11

Figure 214 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; ASME B16.10; API 5B; ASTM A126, Class B; and MSS SP-78. See page 38.

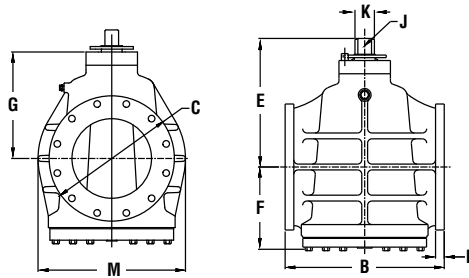
Nordstrom Bolted Gland-Type Iron Plug Valves

Regular Pattern

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Sizes 4-8

Figure 50165 Flanged, Wrench Operated



Size	NPS	4	6	8
	DN	100	150	200
Face-to-face, flanged	B	12.0 305	15.5 394	18.0 457
Diameter of flange	C	9.0 229	11.0 279	13.5 343
Thickness of Flange	D	1.0 25	1.1 28	1.2 31
Center to top of stem	E	8.4 213	10.8 274	13.7 348
Center to bottom of body	F	5.5 140	7.5 191	9.4 239
Center to top of Body	G	6.6 168	9.3 236	12.2 310
Width of stem square	J	1.0 25	1.0 25	1.0 25
Diameter of stem	K	1.4 36	1.4 36	1.4 36
Extreme width of body	M	8.9 226	13.5 343	17.0 432
Size of wrench		DB-3	DB-3	DB-3
Weight		173 79	325 147	601 273

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 164 and 165 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; ASME B16.10; API 5B; ASTM A126,

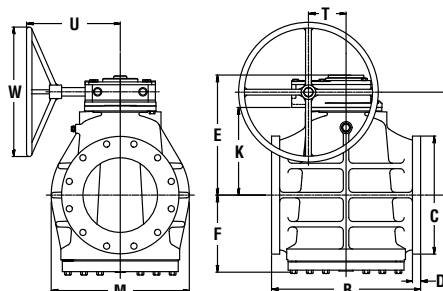
Class B; and MSS SP-78. See page 38.

Regular Pattern

200 CWP (13.8 bar)
400 psig (27.6 bar) Test
Sizes 4-12

150 CWP (10.3 bar)
300 psig (20.7 bar) Test
Sizes 14-20

Figure 50169 Flanged, Worm Gear Operated



Size	NPS	4	6	8	10	12	14	16	18	20
	DN	100	150	200	250	300	350	400	450	500
Face-to-face, flanged	B	12.0 305	15.5 394	18.0 457	21 533	24 610	27 686	30 762	34 864	36 914
Diameter of flange	C	9.0 229	11.0 279	13.5 343	16 406	19 483	21 533	23.5 597	25 635	27.5 699
Thickness of Flange	D	1.0 25	1.1 28	1.2 31	1.3 33	1.3 33	1.5 38	1.5 38	1.62 41	1.8 46
Center to top of gearing	E	10.5 267	13.2 335	15.2 386	17.4 442	20 508	21.6 549	24.3 617	27.7 704	31.11 790
Center to bottom of body	F	5.5 140	7.5 191	9.4 239	11.6 295	13.7 348	15.3 389	17.5 445	18.7 475	19.5 495
Center to top of Gear Flange	K	6.8 173	9.5 241	11.5 292	13.2 335	15.1 384	16.6 422	19.3 490	20.3 516	22.4 569
Extreme width of body	M	8.9 226	13.5 343	17.0 432	19.7 500	22.3 566	25.1 638	30 762	32 813	33 838
Center to center of handwheel	S	8.7 221	11.5 292	13.5 343	15.1 384	17 432	18.6 472	21.9 556	22.8 579	26.2 666
Center of gearing to center of handwheel	T	3.5 89	3.5 89	3.5 89	4.8 122	6.1 155	6.1 155	2.1 53	10.4 264	3.87 98
Center to Handwheel	U	9.1 231	9.1 231	10.3 262	14.1 358	15.1 384	15.1 384	19.5 495	20.8 528	22.3 566
Handwheel Diameter	W	10 254	10 254	18 457	24 610	24 610	24 610	24 610	24 610	30 762
Handwheel Turns to Open	-	15	15	15	17	22	22	45	62.5	62.5
Weight	-	213 97	365 166	641 291	1027 466	1640 744	1898 861	2993 1358	3568 1618	4025 1826

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

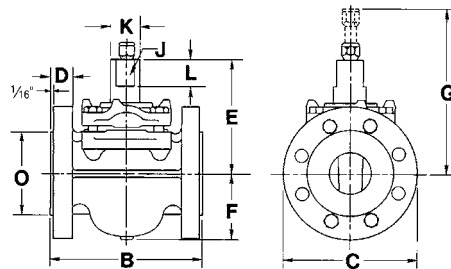
Figure 50169 valves conform to the following standards where applicable: ASME B1.20.1.; ASME B16.1; ASME B16.10; AWWA C110/A21.10-93; MSS SP-6; MSS SP-25; MSS SP-78. See page 38.

Nordstrom Screwed Gland-Type Iron Plug Valves

Short Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 305 Flanged, Wrench Operated,
Sizes 2, 3 and 4



Size	NPS	2	3	4
	DN	50	80	100
Face-to-face, flanged (includes 1/16" raised face), Figure 305	B	7.25	9.25	10.50
		184	235	267
Diameter of flange	C	6.5	8.3	10.0
		165	211	254
Thickness of flange (includes 1/16" raised face)	D	1.06	1.19	1.50
		27	30	38
Number and size of tapped holes in each flange*	—	four 5/8"	two 3/4"	
Center to top of stem	E	5.7	7.0	7.5
		145	178	191
Center to bottom of body	F	3.3	4.3	4.8
		84	109	122
Clearance required to remove sealant fitting	G	8.3	9.6	10.1
		211	244	257
Width of stem flats	J	1.12	1.38	1.38
		28	35	35
Diameter of stem	K	1.59	1.97	1.97
		40	50	50
Height of stem flats	L	1.4	1.8	1.8
		36	46	46
Diameter of 1/16" raised face	O	4.1	5.6	6.9
		104	142	175
Size of wrench	—	K-8	M-8	M-8
Length of wrench	—	14.0	21.0	21.0
		356	533	533
Size of Sealant Stick	—	B	B	B
Weight (approx.), Figure 305	—	37	75	105
		17	34	48

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

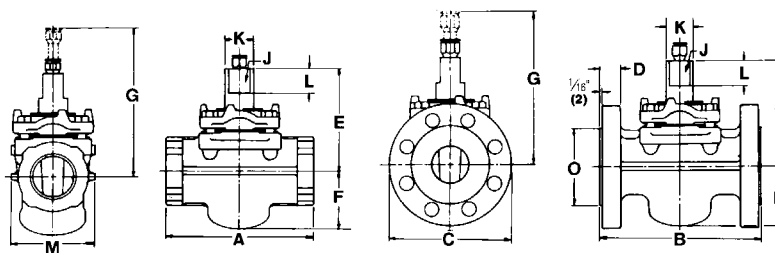
Figure 305 valves conform to the following standards where applicable: ASME B16.10; API 5B; ASTM A126, Class B; and MSS SP-78. See page 38.

**Studs or capscrews required. For sizes and lengths, see page 48.*

Regular Pattern

500 CWP (34.5 bar)
1000 psig (69.0 bar) Test

Figure 524 Threaded, Wrench
Operated, Sizes ½ to 4
Figure 525 Flanged, Wrench
Operated, Sizes 1 to 4



Size	NPS	½	¾	1	1¼	1½	2	2½	3	4
	DN	15	20	25	32	40	50	65	80	100
End-to-end, threaded, Figure 524	A	3.75 95	3.75 95	4.88 124	5.38 137	6.75 171	8.00 203	9.50 241	9.38 238	10.50 267
Face-to-face, flanged (includes 1/16" raised face), Figure 525	B			6.25 159		7.50 191	8.50 216	9.50 241	11.13 282	12.00 305
Diameter of flange	C			4.9 124		6.1 155	6.5 165	7.5 191	8.3 211	10.0 254
Thickness of flange (include 1/16" raised face)	D			.75 19		.94 24	1.06 27	1.19 30	1.31 33	1.50 38
Center to top of stem	E	3.9 99	3.9 99	4.1 104	4.6 117	4.9 124	5.7 145	6.2 157	7.0 178	7.5 191
Center to bottom of body	F	2.0 51	2.0 51	2.2 56	2.5 64	2.8 71	3.2 81	3.7 94	4.3 109	4.7 119
Clearance required to remove sealant fitting	G	6.5 165	6.5 165	6.7 170	7.2 183	7.5 191	8.3 211	8.8 224	9.6 244	10.1 257
Width of stem flats	J	.81 21	.81 21	.88 22	.94 24	1.00 25	1.13 29	1.25 32	1.38 35	1.38 35
Diameter of stem	K	1.09 28	1.09 28	1.22 31	1.31 33	1.41 36	1.59 40	1.78 45	1.97 50	1.97 50
Height of stem flats	L	.9 23	.9 23	1.0 25	1.1 28	1.2 30	1.4 36	1.5 38	1.8 46	1.8 46
Extreme width of body, Figure 524	M	3.1 79	3.1 79	3.3 84	3.6 91	3.9 99	4.6 117	5.4 137	6.0 152	6.8 173
Diameter of 1/16" raised face	O			2.6 66		3.5 89	4.1 104	4.9 124	5.6 142	6.9 175
Size of wrench	—	D-8	D-8	E-8	H-8	J-8	K-8	L-8	M-8	M-8
Length of wrench	—	5.5 140	5.5 140	7.0 178	9.0 229	10.5 267	14.0 356	17.5 445	21.0 533	21.0 533
Size of Sealant Stick	—	B	B	B	B	B	B	B	B	B
Weight (approx.), Figure 524	—	6 3	6 3	9 4	13 6	18 8	27 12	43 20	58 26	80 36
Weight (approx.), Figure 525	—			14 6		28 13	38 17	56 25	81 37	110 50

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 524 and 525 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; ASME B16.10; API 5B; ASTM A126,

Class B; and MSS SP-78. See page 38.

Figure 525 face-to-face lengths are interchangeable with ASME Class 250 and API 500 CWP Cast Iron Gate Valves.

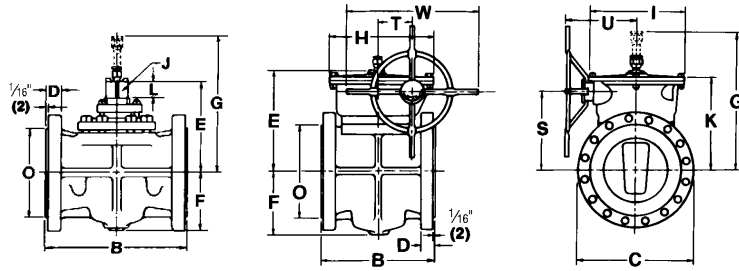
Nordstrom Bolted Gland-Type Iron Plug Valves

Venturi Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 1485 Flanged, Wrench
Operated, Sizes 6 and 8

Figure 1489 Flanged, Worm
Gear Operated, Sizes 6 to 12



Size	NPS	6*	8	10	12
	DN	150	200	250	300
Face-to-face (includes 1/16" raised face), flanged, Figures 1485 and 1489	B	13.00 330	14.25 362	16.75 425	17.50 445
Diameter of flange	C	12.5 318	15.0 381	17.5 445	20.5 521
Thickness of flange (includes 1/16" raised face)	D	1.50 38	1.69 43	1.93 49	2.06 52
Center to top of stem, Figures 1485/1489	E	9.6/11.8 243/300	11.8/13.9 300/353	-/15.0 -/381	-/19.0 -/483
Center to bottom of body	F	5.6 142	6.9 175	8.9 226	10.9 277
Clearance required to remove sealant fitting, Figures 1485/1489	G	13.6/15.8 345/401	16.9/18.2 429/462	-/20.0 -/508	-/24.0 -/610
Length of gear housing	H		15.5 394	15.9 404	19.5 495
Width of gear housing	I		13.8 351	14.8 376	17.8 452
Width of stem square	J	1.75 44	2.00 51		
Center to top of housing	K		11.9 302	13.9 353	17.9 455
Height of stem square	L	1.8 46	2.0 51		
Diameter of 1/16" raised face	O	9.7 246	11.9 303	14.0 356	16.4 417
Center of port to center of handwheel	S	8.9 226	10.0 254	11.6 295	15.6 396
Transverse centerline to center of worm shaft	T		5.3 135	5.3 135	7.5 191
Longitudinal centerline to face of handwheel	U	9.8 249	12.6 320	13.3 338	14.5 368
Overall diameter of handwheel	W	20.0 508	20.0 508	23.0 584	26.0 660
Turns of handwheel to open valve	—	12½	12½	12½	19½
Size of Sealant Stick	—	D	G	G	G
Size of wrench	—	P-2	T-2		
Length of wrench	—	27.0 686	36.0 914		
Weight (approx.), Figure 1485	—	205 93	320 145		
Weight (approx.), Figure 1489	—	283 128	388 176		946 429

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.
Figures 1485 and 1489 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

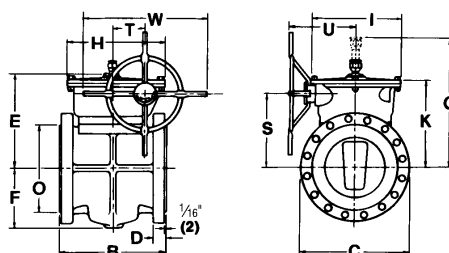
*Fig. 1489 Size 6 (DN 150) available with open gearing only.

Note: Studs or capscrews required. For sizes and lengths, see page 48.

Venturi Pattern

300 CWP (20.7 bar)
600 psig (41.4 bar) Test

Figure 1489 Flanged, Worm Gear Operated,
Sizes 16 to 24



Size	NPS	16	18	20	24
	DN	400	450	500	600
Face-to-face (includes 1/16" raised face), flanged	B	33.00 838	36.00 914	39.00 991	45.00 1143
Diameter of flange	C	25.5 648	28.0 711	30.5 775	36.0 914
Thickness of flange (includes 1/16" raised face)	D	2.44 62	2.50 64	2.69 68	2.94 75
Center to top of stem	E	20.0 508	21.8 554	23.5 597	25.4 645
Center to bottom of body	F	13.0 330	14.5 368	15.9 404	17.9 455
Clearance required to remove sealant fitting	G	25.0 635	26.8 681	28.5 724	30.4 772
Length of gear housing	H	27.3 693	27.3 693	27.3 693	37.4 950
Width of gear housing	I	24.5 622	24.5 622	24.5 622	35.8 909
Center to top of housing	K	19.6 498	20.4 518	22.1 561	23.9 607
Diameter of 1/16" raised face	O	21.0 533	23.3 592	25.5 648	30.3 770
Center of port to center of handwheel	S	16.6 422	17.4 442	19.1 485	21.1 536
Transverse centerline to center of worm shaft	—	11.1 282	11.1 282	11.1 282	15.1 384
Longitudinal centerline to face of handwheel	U	17.9 455	19.7 500	19.7 500	26.1 663
Overall diameter of handwheel	W	26.0 660	29.0 737	29.0 737	32.0 813
Turns of handwheel to open valve	—	22½	22½	22½	32
Size of Sealant Stick	—	G	G	G	G
Weight (approx.), Figure 1489	—	1815 823	2515 1141	2975 1349	4220 1914

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

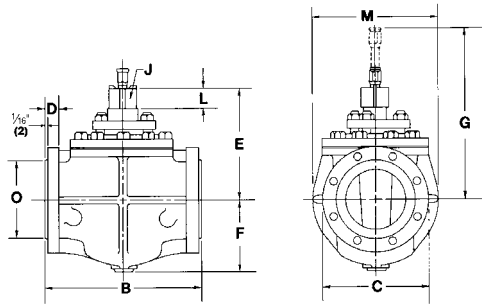
Figure 1489 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

Note: Studs or capscrews required. For sizes and lengths, see page 48.

Regular Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 265 Flanged, Wrench Operated, Sizes 4 and 6



Size	NPS	4	6
	DN	100	150
Face-to-face, flanged, Figure 265 (includes 1/16" raised face)	B	13.00 330	16.75 425
	C	10.0 254	12.5 318
Thickness of flange	D	1.37 35	1.68 43
Center to top of stem	E	9.6 244	12.1 307
Center to bottom of body	F	5.7 145	7.8 198
Clearance required to remove sealant fitting	G	13.5 343	17.1 434
Width of stem square	J	1.75 44	2.00 51
Height of stem square	L	1.8 46	2.1 53
Extreme width of body	M	10.0 254	14.3 363
	O	6.9 175	9.6 244
Size of wrench	—	P-2	T-2
Length of wrench	—	27.0 686	36.0 914
	—	D	G
Weight (approx.), Figure 265	—	184 83	385 175

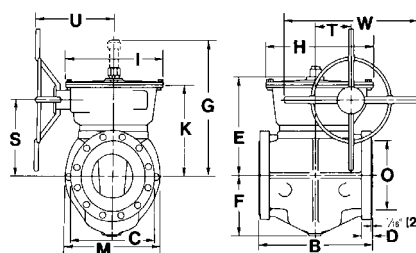
Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figure 265 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10 (Size 6 [DN 150] only); ASTM A126, Class B; and MSS SP-78. See page 38.

Regular Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 269 Flanged, Worm Gear Operated,
Sizes 6, 8, 10 and 12



Size	NPS	6	8	10	12
	DN	150	200	250	300
Face-to-face (includes 1/16" raised face), flanged	B	16.75 425	19.75 503	23.50 597	28.00 711
Diameter of flange	C	12.5 318	15.0 381	17.5 445	20.5 521
Thickness of flange (includes 1/16" raised face)	D	1.68 43	1.94 49	1.94 49	2.06 52
Center to top of stem	E	14.1 358	16.1 409	19.1 485	21.8 554
Center to bottom of body	F	7.8 198	9.8 249	12.2 310	14.2 361
Clearance required to remove sealant fitting	G	19.1 485	21.1 536	24.1 612	26.8 681
Length of gear housing	H	15.9 404	19.5 495	27.3 693	27.3 693
Width of gear housing	I	14.8 376	17.8 452	24.5 622	24.5 622
Center to top of housing	K	12.9 328	14.9 378	18.6 472	20.3 516
Extreme width of body	M	14.3 363	17.8 452	21.5 546	23.8 605
Diameter of 1/16" raised face	O	9.6 244	11.9 302	14.0 356	16.4 417
Center of port to center of handwheel	S	10.7 272	12.8 325	15.7 399	17.4 442
Transverse centerline to center of worm shaft	—	5.3 135	7.5 191	11.1 282	11.1 282
Longitudinal centerline to face of handwheel	U	12.6 320	14.3 363	17.9 455	19.7 500
Overall diameter of handwheel	W	23.0 584	26.0 660	26.0 660	29.0 737
Turns of handwheel to open valve	—	12½	19½	22½	22½
Size of Sealant Stick	—	G	G	G	G
Weight (approx.)	—	475 215	778 353	1120 508	1685 764

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

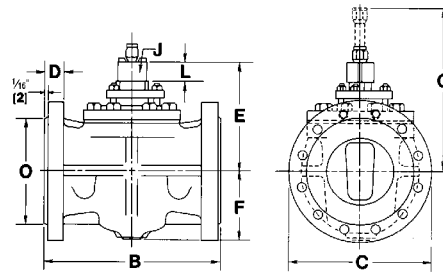
Figure 269 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

Venturi Pattern

500 CWP (34.5 bar)
1000 psig (69.0 bar) Test

Figure 1585 Flanged, Wrench Operated,
Sizes 6 and 8

Figure 1589 Flanged, Worm Gear Operated,
Sizes 6 to 12



Size	NPS	6	8	10	12
	DN	150	200	250	300
Face-to-face (includes 1/16" raised face), flanged, Figures 1585 and 1589	B	15.88 403	16.50 419	18.00 457	19.75 502
Diameter of flange	C	12.5 318	15.0 381	17.5 445	20.5 521
Thickness of flange (includes 1/16" raised face)	D	1.69 43	1.94 49	2.19 56	2.31 59
Number and size of tapped holes in each flange*	—		two 7/8"	two 1"	two 1 1/8"
Center to top of stem, Figures 1585/1589	E	9.6/11.8 244/300	11.8/13.2 300/335	-/15.0 -/381	-/18.9 -/480
Center to bottom of body	F	5.7 145	7.0 178	9.0 229	11.1 282
Clearance required to remove sealant fitting, Figures 1585/1589	G	13.4/15.8 340/401	16.8/18.2 427/462	-/20.0 -/508	-/23.9 -/607
Length of gear housing	H	15.6 396	15.9 404	15.9 404	19.5 495
Width of gear housing	I	13.8 351	14.8 376	14.8 376	17.8 452
Width of stem square	J	1.75 44	2.00 51		
Center to top of housing	K	10.8 274	12.6 320	14.0 356	17.9 455
Height of stem square	L	1.8 46	2.0 51		
Diameter of 1/16" raised face	O	9.7 246	11.9 302	14.0 356	16.4 417
Center of port to center of handwheel	S	8.8 224	10.2 259	11.6 295	15.6 396
Transverse centerline to center of worm shaft	T	5.3 135	5.3 135	5.3 135	7.5 191
Longitudinal centerline to face of handwheel	U	12.6 320	12.6 320	13.3 338	14.5 368
Overall diameter of handwheel	W	20.0 508	20.0 508	23.0 584	26.0 660
Turns of handwheel to open valve	—	12 1/2	12 1/2	12 1/2	19 1/2
Size of Sealant Stick	—	D	G	G	G
Size of wrench	—	P-2	T-2		
Length of wrench	—	27.0 686	36.0 914		
Weight (approx.), Figures 1585 and 1589	—	241/320 109/145	368/450 167/204	-/628 -/285	-/1076 -/488

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 1585 and 1589 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

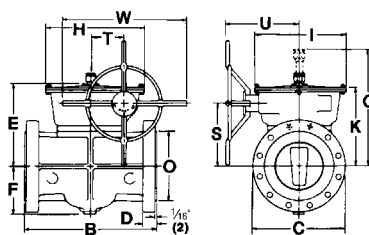
Figure 1589 (Size 6 [DN 150] to Size 12 [DN 300]) face-to-face lengths are interchangeable with ASME Class 250 and API 500 CWP Cast Iron Gate Valves.

*Note: Studs or capscrews required. For sizes and lengths, see page 48.

Venturi Pattern

400 CWP (27.6 bar)
800 psig (55.2 bar) Test

Figure 1589 Flanged, Worm Gear
Operated, Sizes 16 to 24



Size	NPS	16	18	20	24
	DN	400	450	500	600
Face-to-face (includes 1/16" raised face), flanged	B	33.00	36.00	39.00	45.00
		838	914	991	1143
Diameter of flange	C	25.5	28.0	30.5	36.0
		648	711	775	914
Thickness of flange (includes 1/16" raised face)*	D	2.69	2.75	3.00	3.31
		68	70	76	84
Center to top of stem	E	19.9	21.8	23.5	25.4
		505	554	597	645
Center to bottom of body	F	13.0	14.5	16.1	18.5
		330	368	409	470
Clearance required to remove sealant fitting	G	25.0	26.8	28.5	30.4
		635	681	724	772
Length of gear housing	H	27.3	27.3	27.3	37.4
		693	693	693	950
Width of gear housing	I	24.5	24.5	24.5	35.8
		622	622	622	909
Center to top of housing	K	19.6	20.4	22.1	24.4
		498	518	561	620
Diameter of 1/16" raised face	O	21.0	23.3	25.5	30.3
		533	592	648	770
Center of port to center of handwheel	S	16.6	17.4	19.1	21.1
		422	442	485	536
Transverse centerline to center of worm shaft	T	11.1	11.1	11.1	15.1
		282	282	282	384
Longitudinal centerline to face of handwheel	U	17.9	19.7	19.7	26.1
		455	500	500	663
Overall diameter of handwheel	W	26.0	29.0	29.0	32.0
		660	737	737	813
Turns of handwheel to open valve	—	22½	22½	22½	32
Size of Sealant Stick	—	G	G	G	G
Weight (approx.)	—	2080	2800	3525	5730
		943	1270	1599	2599

Flanges are drilled to ASME Class 250 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figure 1589 valves conform to the following standards where applicable: ASME B16.1; ASME B16.10; ASTM A126, Class B; and MSS SP-78. See page 38.

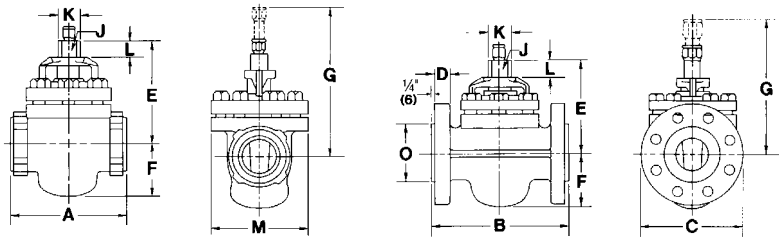
*Figure 1589 Size 16 (DN 400) to 24 (DN 600) valves have flanges thicker than those specified for ASME Class 250 and have correspondingly higher pressure ratings. They are intended for use between steel flanges ASME B16.5 Class 300. Flange bolting and gaskets should conform to ASME B16.5 Class 300.

Nordstrom Screwed Gland-Type Iron Plug Valves

Regular Pattern

800 CWP (55.2 bar)
1600 psig (110.3 bar) Test

Figure 824 Threaded, Wrench Operated, Sizes ¾ to 3
Figure 825 Flanged, Wrench Operated, Sizes 2 to 4



Size	NPS	¾	1	2	3	4
	DN	20	25	50	80	100
End-to-end, threaded, Figure 824	A	3.75 95	4.88 124	8.13 206	10.00 254	
Face-to-face, flanged (includes ¼" raised face), Figure 825	B			11.50 292	14.00 356	17.00 432
Diameter of flange	C			6.5 165	8.3 211	10.8 274
Thickness of flange (not including ¼" raised face)	D			1.25 32	1.50 38	1.88 48
Center to top of stem	E	4.3 109	4.7 119	6.5 165	8.1 206	8.6 218
Center to bottom of body	F	1.8 46	2.1 53	3.2 81	4.5 114	5.0 127
Clearance required to remove sealant fitting	G	6.9 175	7.4 188	9.2 234	10.7 272	11.2 284
Width of stem flats	J	.81 21	.88 22	1.12 28	1.38 35	1.38 35
Diameter of stem	K	1.09 28	1.22 31	1.59 40	1.97 50	1.97 50
Height of stem flats	L	.8 20	.9 23	1.1 28	1.3 33	1.3 33
Extreme width of body, Figure 824	M	3.2 81	3.3 84	6.3 160	7.8 198	
Diameter of ¼" raised face	O			3.6 91	5.0 127	6.2 157
Size of wrench	—	SN-1	E-9	K-9	M-9	M-9
Length of wrench	—	7.0 178	7.0 178	14.0 356	34.0 864	34.0 864
Size of Sealant Stick	—	B	B	B	B	B
Weight (approx.), Figure 824	—	7 3	10 5	38 17	82 37	
Weight (approx.), Figure 825	—			56 25	118 54	178 81

Flanges are drilled to American Hydraulic Class 800 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 824 and 825 valves conform to the following standards where applicable: ASME B1.20.1; ASME B16.1; API 5B; ASTM A126, Class B; and MSS SP-78. See page 38.

Flange dimensions and drilling are the same as for ASME Class 600 steel flanges, except for flange thickness.

Nordstrom Screwed and Bolted Gland-Type Iron Plug Valves

Steam Jacketed

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 2815 (Screwed Gland-Type),
Flanged, Wrench Operated, Sizes 1,
2 and 3

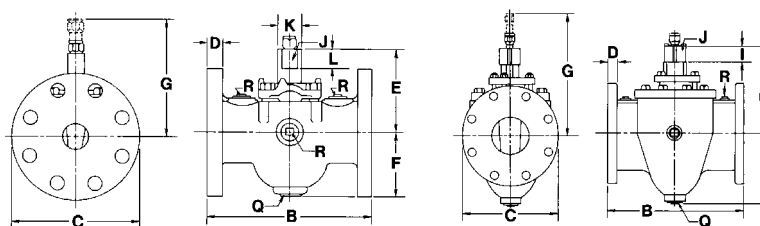


Figure 2865 (Bolted Gland-Type),
Flanged, Wrench Operated, Size 4

Size	NPS	1 (2x1x2)	2 (3x2x3)	3 (4x3x4)	4 (6x4x6)
	DN	25	50	80	100
Face-to-face, flanged, Figure 2815 and 2865	B	7.50 191	9.25 235	12.00 305	16.00 406
Diameter of flange* (flange diameter is one or more sizes larger than nominal)	C	6.0 152	7.5 191	9.0 229	11.0 279
Thickness of flange	D	.63 16	.75 19	.94 24	1.00 25
Center to top of stem	E	4.1 104	5.7 145	7.0 178	9.6 244
Center to bottom of body	F	3.1 79	4.6 117	5.6 142	8.4 213
Clearance required to remove sealant fitting	G	6.7 170	8.3 211	9.6 244	13.5 343
Width of stem flats/square	J	.88 22	1.13 29	1.38 35	1.75 44
Diameter of stem, Figure 2815	K	1.2 30	1.6 41	1.9 48	
Height of stem flats/square	L	1.0 25	1.4 36	1.8 46	1.8 46
Size of steam connections in bottom of body (NPT and mm)	Q	.75 19	1.50 38	1.25 32	2.00 51
Number and size of steam connections in sides and throats of body	R	four ½"	**	four 1"	four 1¼"
		15		25	32
Size of wrench	—	E-8	K-8	M-8	P-2
Length of wrench	—	7.0 178	14.0 356	21.0 533	27.0 686
		B	B	B	D
Weight (approx.), Figure 2815	—	22 10	49 22	99 45	
Weight (approx.), Figure 2865	—				216 98

Flanges are drilled to ASME Class 125 Cast Iron Flange Standard Template. For drilling and bolting data, see page 45.

Figures 2815 and 2865 valves conform to the following standards where applicable: ASME B16.1; ASTM A126, Class B; and MSS SP-78. See page 38.

*Note: Drilling template is determined by diameter of valve flanges, which are one or more sizes larger than nominal size valve.

**Two Size 1 (DN 25) in sides; two Size ¾ (DN 20) in throats.

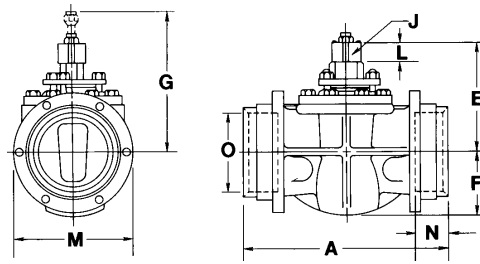
Jackets are designed for maximum saturated steam pressure of 160 psi (11 bar).

Nordstrom Bolted Gland-Type Iron Plug Valves

Style 38 Compression Ends for Steel Pipe

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 24191 Wrench Operated, Six-Bolt End, Size 6



Size	NPS	6
	DN	150
End-to-end	A	18.00 457
Center to top of stem	E	9.6 244
Center to bottom of body	F	5.4 137
Clearance required to remove sealant fitting	G	13.7 348
Width of stem square	J	1.75 44
Height of stem square	L	1.8 46
Extreme width of body	M	10.4 264
Depth of hub bore	N	2.5 64
Minimum inside diameter of hub	O	6.7 170
Size of wrench	—	P-2
Length of wrench	—	27.0 686
Size of Sealant Stick	—	D
Weight (approx.)	—	163 74

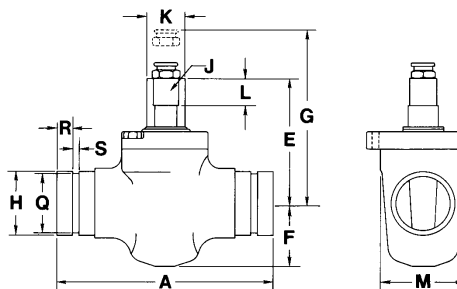
Figure 24191 body and plug material conform to ASTM A126, Class B and MSS SP-78. See page 38.

Super Nordstrom Two-Bolt Cover-Type Iron Plug Valves

Grooved Ends for Steel Pipe

200 CWP (13.8 bar)
400 psig (27.6 bar) Test

Figure 23144 Wrench Operated, Sizes
2, 3 and 4



Size	NPS	2	3	4
	DN	50	80	100
End-to-end	A	8.00 203	9.50 241	10.75 273
Center to top of stem	E	4.7 119	5.6 142	6.3 160
Center to bottom of body	F	2.4 61	3.4 86	4.0 102
Clearance required to remove sealant fitting	G	6.4 163	7.2 183	8.0 203
Outside diameter of hub	H	2.38 60	3.50 89	4.50 114
Width of stem flats	J	1.00 25	1.25 32	1.25 32
Diameter of stem	K	1.38 35	1.75 44	1.75 44
Height of stem flats	L	1.0 25	1.3 33	1.3 33
Extreme width of body	M	3.2 81	4.0 102	4.8 122
Diameter of hub groove	Q	2.24 57	3.34 85	4.33 110
Length of finish portion of hub	R	.56 14	.56 14	.61 15
Width of groove	S	.26 7	.26 7	.31 8
Size of Sealant Stick	—	B	B	B
Size of wrench	—	SN-2	SN-4*	SN-4*
Length of wrench	—	10.5 267	17.5 445	15.0 381
Weight (approx.)	—	14 6	27 12	46 21

Figure 23144 valve is not recommended for temperatures above 200°F (93°C).

Grooved couplings are not supplied with valves.

Figure 23144 body and plug material conform to ASTM A-126, Class B and MSS SP-78. See page 38.

* Use the longer SN-3 wrench for valves used in cold climates such as Canada.

Conformance to Standard Specifications

Wherever applicable, iron plug valves by Flowserve Nordstrom Valves conform to the latest edition of the standard specifications listed below as to pressure ratings, dimensions and construction. Consult Flowserve for additional information.

ASME – American Society of Mechanical Engineers

- B1.20.1** Pipe Threads, General Purpose (Inch)
- B16.1** Cast Iron Pipe Flanges and Flanged Fittings (except valves having slightly thicker flanges)
- B16.10** Face-to-face and End-to-end Dimensions of Valves

API – American Petroleum Institute

- 5B** Threading, Gaging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads

CGA – Canadian Gas Association

- 3.11** Lever-Operated Pressure-Lubricated Plug-Type Gas Shut-Off Valves (Figures 114 and 115 only)

DOT – United States Department of Transportation

- 49 CFR PART 192** Pipeline Safety Regulations

FMSA – Factory Mutual System Approved

- Bulletin 6-18** Loss Prevention Data (Figures 114 FM and 115 FM only)

Flowserve Nordstrom Valves is an ISO 9001 Certified Company

MSS – Manufacturers Standardization Society of the Valve and Fittings Industry

- SP-6** Standard Finish for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
- SP-25** Standard Marking System for Valves, Fittings, Flanges and Unions
- SP-78** Cast Iron Plug Valves, Flanged and Threaded Ends

Skids of Nordstrom iron plug valves await shipment to over 500 strategically located distributor branch stores throughout the US.



Gas Safety Control Valves Approved by Factory Mutual Laboratories

A positive method of preventing fuel explosions in multi-burner gas-fired industrial furnaces, ovens, dryers and boilers has been developed by the Factory Mutual Engineering and Research Corporation. This method is described in detail in *Factory Mutual Engineering and Research Corporation Loss Prevention Bulletin Number 6-18*.

Briefly, the method of assuring closure of all individual burner cocks before the main burner gas safety shutoff valve can be opened is a Supervising Cock and Gas Safety Control System. The Supervising Cock, a Flowserve Nordstrom valve, is similar to a standard Nordstrom valve

except that it incorporates two side outlets, which are connected in series with copper tubing to adjacent valves. With this design, when the gas passages of all valves are closed, a new continuous passageway is provided through all of the closed valves in the system.

The special Nordstrom valves shown below have been approved by Factory Mutual Engineering and Research Corporation for use as Supervising Cocks in Gas Safety Control Systems.

Valve Figure Number	Iron Pipe Size DN	Maximum Rated Operating Pressure (psig/bar)	Copper Tubing Checking System Connections Iron Pipe Size
Figure 114 FM	½, ¾, 1, 1½, 2, 3	50	Size 2 and smaller – ¼
	15, 20, 25, 40, 50, 80	3.5	
Figure 115 FM	1, 1½, 2, 2½, 3, 4	50	Size 2½ and larger – ¼
	25, 40, 50, 65, 80, 100	3.5	

Notes:

1. Connection piping is not provided. Valves shipped with pipe plugs in lieu of piping.
2. Suitable for manufactured, natural, propane and butane gases.
3. Above valves are made on special order and require special wrenches that are permanently dowel-pinned to each valve.
4. Factory Mutual-approved valves should only be lubricated in full open or full closed positions.

Actuators for Nordstrom, Super Nordstrom and Dynamic Balance Valves

Flowserve Nordstrom Valves can supply hydraulic, pneumatic or electric power actuators for mechanical operation of Nordstrom, Super Nordstrom and Dynamic Balance valves. To obtain equipment in close conformance with customer requirements, the following information should be provided at the time of the inquiry:

1. Valve size and pressure class
 - A. If the power actuator is being ordered for field conversion, describe the actuator currently installed on the valve.
2. Type of actuator desired
 - A. Hydraulic
 - B. Pneumatic
 - C. Electric
3. Maximum differential pressure across valve during operation.
4. Speed of operation required in minutes or seconds
 - A. To open
 - B. To close
5. Frequency of operation.
6. For an electric operator, specify:
 - A. AC or DC voltage
 - B. Single or three-phase
 - C. Type of motor
 1. Explosion-proof
 2. Weatherproof
 3. Other
 - D. Frequency
7. If pneumatic or hydraulic actuator is desired, specify:
 - A. Minimum and maximum pressure available.
8. Position indicator (visual indicator on valves is standard)
 - A. Remote reading
 1. Selsyn
 2. Potentiometer
9. Full instrumentation to be furnished by:
 - A. Flowserve
 - B. Others
- B. Operating medium
 1. Gas
 2. Air
 3. Fluid (specify type)
- C. Accessory equipment desired
 1. Filter
 2. Pump
 3. Control valving:
 - a. electrically operated
 - b. manually operated
 - c. pilot operated

Locking Devices For Wrench-Operated Valves

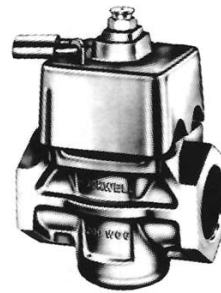
- A. Super Nordstrom iron plug valve with locking hood attached.**



- B. Super Nordstrom iron plug valve with locking wrench used as a locking device.**



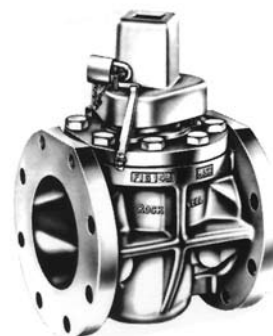
- C. Locking device attached to valve with screwed-type gland without stop collar.**



- D. Locking Device attached to valve with screwed-type gland (800 CWP).**



- E. Locking device attached to valve with bolted-type gland.**



Locking Devices For Wrench-Operated Valves

For Super Nordstrom Two-Bolt Cover-Type Valves

A Plain Locking Device

Size	½, ¾, 1	1¼, 1½, 2 & 2½	3	4 & 5
Part Description	Part Number			
Hood	3001225	3001115	3001153	3001155
Chain Assembly	2753423	2753423	2753424	2753425
Complete Assembly	2752670	2752671	2752672	2752673

B Combination Reversible Locking Device and Wrench

Size	½, ¾, 1	1¼, 1½, 2, 2½	3	4 & 5
Part Description	Part Number			
Locking Wrench	2752770	3001165	2752771	2752772
Chain Assembly	2753426	2753427	2753428	2753429
Complete Assembly	2752861	2752862	2752863	2752864

For Screwed Type Gland Valves

C Without Stop Collars 200, 400 and 500 CWP

Size	½, ¾	1	1¼*	1½**	2	2½	3 & 4
Part Description	Part Number						
Hood	57563	57564	2889	15627	15633	15635	45801
Yoke	57565	57565	15505	15629	15634	15636	45802
Cap Screw	None	None	910083	910109	None	None	None
Washer	None	None	15668	15668	None	None	None
Complete Assembly	20670	20671	24591	20673	20674	20675	20676

*Threaded **Flanged 1¼

D With Stop Collars 800 CWP

Size	½ & ¾	1	1¼, 1½	2	2½	3 & 4
Part Description	Part Number					
Hood	85998	85999	86000	86001	86002	86003
Yoke	85941	85942	85943	85944	85945	85946
Complete Assembly	86032	86033	86034	86035	86036	86037

E For Nordstrom Bolted Gland-Type Valves

Size	Size 10" Figures 143, 185 & 1485 Size 6" Figure 265	Size 6" & 8" Figures 143, 185, 1485 & 1585 Size 4" Figure 265 & Size 6" 24191
Part Description	Part Number	Part Number
Hood	57629	57630
Locking Clip	57613	45926
Dart & Chain	57734	57734
Complete Assembly	58092	58093

F For Dynamic Balance Straightway Valves

Size	4", 6" & 8"
Yoke	482820
Cover	482821
Retaining Ring	946031
Complete Assembly	482822

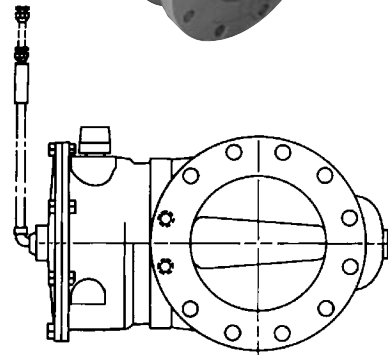
Gearing

Simple Worm Gearing for Valves with Side-Mounted Handwheel

Simple worm gearing enclosed in a weatherproof housing is used on Flowserve Nordstrom Valves. An indicator on top readily shows the valve operating position. This gearing is adaptable for mounting electric actuators. Worm-gear-operating mechanisms are built to withstand abuse under all types of conditions. Wear tests have proven them reliable for thousands of cycles at full rated output of the unit.

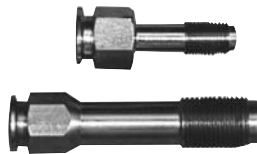
Worm Gearing for Buried Service

Standard iron valves for typical buried services (such as those found in waterworks) can be factory modified to provide watertight worm gearing that includes a two-inch operating nut and a bent sealant pipe. This modification protects the valve plug stem and brings sealant injection to ground level. With this buried worm gearing, the valve is operated with a tee-handle socket wrench.



Sealant Fittings

The Nordstrom Valves Sealant Fitting is standard equipment on all Nordstrom valves. Nordstrom Valves Sealant Fittings allow both manual and automatic sealant injection without need for other special fittings. They are available separately, in several sizes, as replacements for damaged fittings or the lube screw on older design Nordstrom valves still in service.



Sealant Stick Size	Parallel Thread Size	Carbon Steel Fitting Part Number
B	1/4"	3000711
C	3/8"	37416
D	1/2"	37417
G	3/4"	37418

Integral Locking System Valves

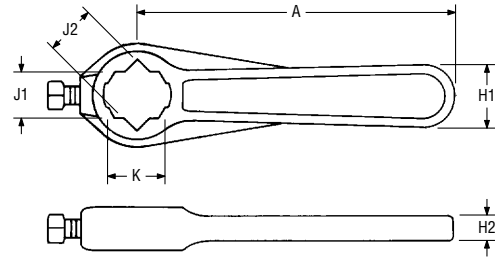
Super Nordstrom Two-Bolt, Cover-Design valves with the Integral Locking System (ILS) help prevent accidental operation or tampering of the valve while, allowing you to lock or seal the valve quickly and easily. Available in sizes 2, 3 and 4. See Sales Brochure NVABR1023.



Wrenches

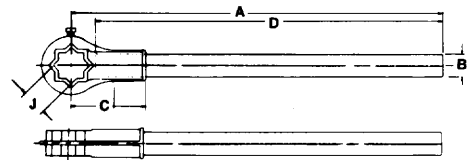
Wrenches for Valves with Square or Obround Stems

Size	Part #	Weight	A	H1	H2	J1	J2	K
SN-1	3001198	.9	7.0	1.1	.4	.81	.89	1.10
		.4	178	28	10	21	23	28
SN-2	3001197	1.7	10.5	1.5	.5	1.00	1.10	1.41
		.8	267	38	13	25	28	36
SN-3	3001196	5.6	25.0	1.8	.6	1.25	1.50	1.82
		2.5	635	46	15	32	38	46
SN-4	2756546	4.8	15.0	1.8	.6	1.25	1.50	1.82
		2.2	381	46	15	32	38	46



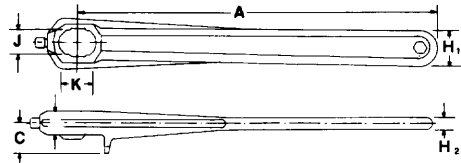
Wrenches for Valves with Square Heads

Size	Part No.	Weight	A	B (Diameter)	C	J
P-2	8889	6	27.0	1.7	5.5	1.84
		3	686	43	140	47
T-2	8148	11	36.0	1.9	6.7	2.09
		5	914	48	170	53
V-2	8890	17	48.0	1.9	7.0	2.56
		8	1219	48	178	65



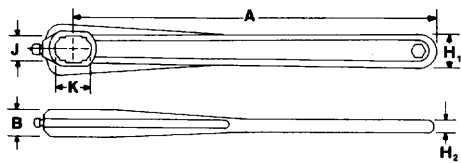
Wrenches for Valves with Obround Heads (with stop lugs)

Size	Part No.	Weight	A	B	C	H1	H2	J	K
D-8	13340	.8	5.5	.8	1.2	1.1	.4	.81	1.10
		.4	140	20	30	28	10	21	28
E-8	13341	1.0	7.0	.8	1.3	1.3	.5	.88	1.23
		.5	178	20	33	33	13	22	31
H-8	13342	1.3	9.0	.9	1.3	1.4	.5	.94	1.32
		.6	229	23	33	36	13	24	34
J-8	13343	1.8	10.5	.9	1.3	1.5	.5	1.00	1.41
		.8	267	23	33	38	13	25	36
K-8	30535	2.3	14.0	1.1	1.4	1.6	.6	1.13	1.60
		1.0	356	28	36	41	15	29	41
L-8	13345	4.0	17.5	1.2	1.6	1.8	.6	1.25	1.79
		1.8	445	30	41	46	15	32	45
M-8	13346	5.5	21.0	1.3	1.7	1.9	.6	1.38	1.98
		2.5	533	33	43	48	15	35	50



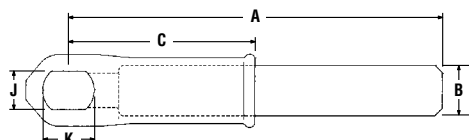
Wrenches for Valves with Obround Heads (without stop lugs)

Size	Part #	Weight	A	B	H1	H2	J	K
E-9	15105	1.0	7.0	.8	1.3	.5	.88	1.23
		.5	178	20	33	13	22	31
H-9	15106	1.3	9.0	.9	1.4	.5	.94	1.32
		.6	229	23	36	13	24	34
K-9	15108	2.5	14.0	1.1	1.6	.6	1.13	1.60
		1.1	356	28	41	15	29	41
L-9	15109	3.8	17.5	1.2	1.8	.6	1.25	1.79
		1.7	445	30	46	15	32	45
M-9	15110	5.5	21.0	1.3	1.9	.6	1.38	1.98
		2.5	533	33	48	15	35	50



Cast Heads Fitted with Pipe Handles for Dynamic Balance Valves

Size	Part #	Weight	A	B (Dia.)	C	J	K
DB-3	482137	6.8	36	1.3	4.7	1.03	1.44
		3	914	33	119	26	37



Square Adapters

For Wrench-Operated Valves

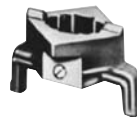
Adapters are available for all sizes and types of wrench-operated valves. All adapters have 2" (51mm) square wrench flat, so that all valves fitted with adapters may be operated with a single lever or socket wrench having 2" (51mm) square opening.

2" Square Adapters for Valves with Obround Wrench Heads



Valves with Stop Collars

Distance Across Flats of Obround Wrench Head on Valve (See Dimension "J")*	Adapter Part No.
.81 21	12180
.88 22	12181
.94 24	12182
1.00 25	12183
1.12 29	12184
1.25 32	12185
1.38 35	12186



Valves without Stop Collars

Distance Across Flats of Obround Wrench Head on Valve (See Dimension "J")*	Adapter Part No.
.81 21	3713
.88 22	3714
.94 24	3715
1.00 25	2755338 ¹
1.12 29	3717
1.25 32	3718
1.38 35	3719

* For dimension "J" refer to valve dimension tables.

¹ Supersedes adapter 3716.

2" Square Adapters for Valves with Square Wrench Heads

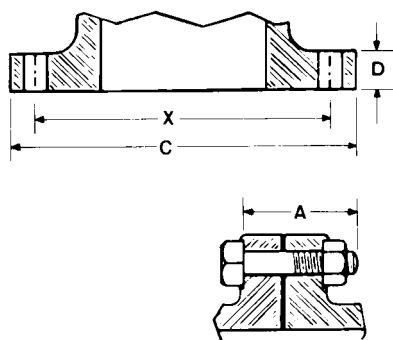


Distance Across Flats of Square Stem Head on Valve (See Dimension "J")*	Adapter Part No.
.83 21	63530
.91 23	63531
1.06 27	63532
1.25 32	63533
1.44 37	63588
1.50 38	63588
1.59 40	63589
1.75 44	1277
2.00 51	None Required
2.44 62	27002
2.50 64	27002

* For dimension "J" refer to valve dimension tables.

¹ Assembly includes adapter, sealant nipple and sealant fitting.

Drilling Templates, Flange Dimensions and Bolting Data



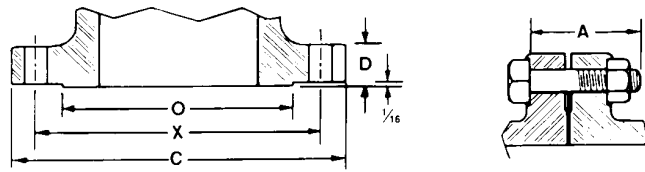
Class 125 Cast Iron Flange Standard (ASME B16.1)

Nominal Pipe Size	Diameter of Flange	Thickness of Flange*	Diameter of Bolt Circle	No. of Bolts	Diameter of Bolts	Length
	C	D	X			A
1	4.25	.44	3.12	4	½	1.75
1¼	4.62	.50	3.50	4	½	2.00
1½	5.00	.56	3.88	4	½	2.00
2	6.00	.62	4.75	4	⅝	2.25
2½	7.00	.69	5.50	4	⅝	2.50
3	7.50	.75	6.00	4	⅝	2.50
4	9.00	.94	7.50	8	⅝	3.00
5	10.00	.94	8.50	8	¾	3.00
6	11.00	1.00	9.50	8	¾	3.25
8	13.50	1.12	11.75	8	¾	3.50
10	16.00	1.19	14.25	12	7/8	3.75
12	19.00	1.25	17.00	12	7/8	3.75
14	21.00	1.38	18.75	12	1	4.25
16	23.50	1.44	21.25	16	1	4.50
18	25.00	1.56	22.75	16	1⅝	4.75
20	27.50	1.69	25.00	20	1⅝	5.00
24	32.00	1.88	29.50	20	1¼	5.50
30	38.75	2.12	36.00	28	1¼	6.25
36	46.00	2.50	42.75	32	1½	8.25

* Some Nordstrom Iron valve flanges are thicker than ASME Class 125 and Class 250 Cast Iron flanges. See valve dimension tables. In some cases bolt lengths shown above are longer than standard.

NOTE: Always check thickness of valve flanges, gaskets and companion flanges to determine correct bolt lengths required.

Drilling Templates, Flange Dimensions and Bolting Data



Class 250 Cast Iron Flange Standard (ASME B16.1)

Nominal Pipe Size	Diameter of Flange	Thickness of Flange	Diameter of Raised Face	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Length of Bolts**
	C	D	O	X			A
1	4.88	.69	2.69	3.50	4	5/8	2.50
1¼	5.25	.75	3.06	3.88	4	5/8	2.50
1½	6.12	.81	3.56	4.50	4	¾	2.75
2	6.50	.88	4.19	5.00	8	5/8	2.75
2½	7.50	1.00	4.94	5.88	8	¾	3.25
3	8.25	1.12	5.69	6.62	8	¾	3.50
4	10.00	1.25	6.94	7.88	8	¾	3.75
5	11.00	1.38	8.31	9.25	8	¾	4.00
6	12.50	1.44	9.69	10.62	12	¾	4.25
8	15.00	1.62	11.94	13.00	12	7/8	4.75
10	17.50	1.88	14.06	15.25	16	1	5.50
12	20.50	2.00	16.44	17.75	16	1 1/8	5.75
14	23.00	2.12	18.94	20.25	20	1 1/8	6.00
16	25.50	2.25	21.06	22.50	20	1 ¼	6.50
18	28.00	2.38	23.31	24.75	24	1 ¼	6.75
20	30.50	2.50	25.56	27.00	24	1 ¼	7.00
24	36.00	2.75	30.25	32.00	24	1 ½	7.75

** Certain valves have tapped holes in each end flange, requiring use of studs or cap screws. For quantity and size see tables on page 48. Certain other valves have a limited amount of clearance behind the flange at some bolt hole locations. When this condition is encountered, two to four bolts will have to be shortened or bolt-studs substituted.

NOTE: Bolt holes are drilled 1/8 inch larger than the diameter of the bolt. Drilling templates are in multiples of four holes so that the valves may be turned in any quarter when being installed. Bolt holes straddle the centerline.

NOTE: Always check thickness of valve flanges, gaskets and companion flanges to determine correct bolt lengths required.

American Hydraulic Class 800 Cast Iron Flange Standard

Nominal Pipe Size	Diameter of Flange	Thickness of Flange	Diameter of Raised Face	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Length of Bolts Male to Male	Male to Female
	C	D	O	X			A	B
2	6.50	1.25	3.62	5.00	8	5/8	3.75	3.50
2½	7.50	1.38	4.12	5.88	8	¾	4.25	4.00
3	8.25	1.50	5.00	6.62	8	¾	4.50	4.25
4	10.75	1.88	6.19	8.50	8	7/8	5.50	5.25
5	13.00	2.12	7.31	10.50	8	1	6.00	5.75
6	14.00	2.25	8.50	11.50	12	1	6.25	6.00
8	16.50	2.50	10.62	13.75	12	1 1/8	7.00	6.75
10	20.00	2.88	12.75	17.00	16	1 ¼	7.75	7.50
12	22.00	3.00	15.00	19.25	20	1 ¼	8.00	7.75

NOTE: Bolt holes are drilled 1/8" larger than the diameter of the bolt. Drilling templates are in multiples of four holes so that the valves may be turned in any quarter when being installed. Bolt holes straddle the centerline unless otherwise ordered.

Cap Screws and Studs



For Valves with Tapped Holes in End Flanges

The valves listed below have tapped holes in each end flange and require the use of cap screws or studs. Use the table below to determine quantity, diameter and length required for each flange.

Figure Number		Nominal Size of Valve								
Wrench Operated	Worm Gear Operated	2	2½	3	4	5	6	8	10	12
Cap Screws										
305		4 5/8 x 2.00	—	2 3/4 x 2.50	—	—	—	—	—	—
143	149	—	—	—	—	—	2 3/4 x 2.00	2 3/4 x 2.00	2 7/8 x 2.25	2 7/8 x 2.50
1485	1489	—	—	—	—	—	2 3/4 x 3.00	2 7/8 x 3.75	2 1 x 4.00	4 1 1/8 x 3.50
1585	1589	—	—	—	—	—	—	2 7/8 x 3.75	2 1 x 4.25	2 1 1/8 x 3.50
185	189	—	—	—	—	—	4 3/4 x 2.00	4 3/4 x 2.00	2 7/8 x 2.25	—
Studs										
305		4 5/8 x 2.75	—	2 3/4 x 3.50	—	—	—	—	—	—
143	149	—	—	—	—	—	2 3/4 x 3.00	2 3/4 x 3.25	2 7/8 x 3.50	2 7/8 x 3.75
1585	1589	—	—	—	—	—	—	2 7/8 x 4.50	2 1 x 5.00	2 1 1/8 x 4.75
1485	1489	—	—	—	—	—	2 3/4 x 3.50	2 7/8 x 4.00	2 1 x 4.50	4 1 1/8 x 4.75
185	189	—	—	—	—	—	4 3/4 x 2.88	4 3/4 x 3.00	2 7/8 x 3.25	—

Cap Screws and Studs are National Coarse Thread Series.

Recommended Pressure/Temperature Ratings and Hydrostatic Shell Test Pressures

For Nordstrom and Super Nordstrom Iron Plug Valves

Pressure in psig

Temperature (°F)	Working Pressure						
	120 CWP	150 CWP	200 CWP*	300 CWP	400 CWP	500 CWP	800 CWP
-20 to 150	120	150	200	300	400	500	800
200	110	135	190	280	370	460	—
225	105	130	180	270	355	440	—
250	100	125	175	260	340	415	—
275	95	120	170	250	325	395	—
300	90	110	165	240	310	375	—
325	85	105	155	230	295	355	—
353	80	100	150	220	280	335	—
Hydrostatic Shell Test Pressure†	240	300	400	600	800	1000	1600
Seat Test Pressure‡	180	225	300	450	600	750	1200

† Exceeds the requirements of 49CFR Part 192.145.

‡ Meets the requirements of 49CFR Part 192.145.

Pressure in bar

Temperature (°C)	Working Pressure						
	8.3 bar MWP	10.3 bar MWP	13.8 bar MWP*	21.0 bar MWP	28.0 bar MWP	34.0 bar MWP	55.0 bar MWP
-29 to 65	8.3	10.3	13.8	21.0	28.0	34.0	55.0
80	7.6	9.8	13.3	20.0	26.0	33.0	—
100	7.2	9.2	12.7	19.0	25.0	31.0	—
120	6.9	8.6	12.1	18.0	24.0	29.0	—
135	6.6	8.3	11.7	17.2	22.0	27.0	—
140	6.2	8.0	11.5	17.0	22.0	27.0	—
149	5.9	7.2	10.7	15.9	20.0	24.0	—
178	5.5	6.9	10.3	15.2	19.3	23.0	—
Hydrostatic Shell Test Pressure	16.6	21.0	28.0	41.0	55.0	69.0	110.0
Seat Test Pressure	12.5	15.5	20.7	31.5	42.0	51.0	82.5

*Super Nordstrom Two-Bolt Cover valves should not be used at temperatures above 200°F (80°C) because of packing material limitations. Super Nordstrom Regular Pattern (A114/115) valves are suitable for temperatures up to 350°F.

Test Times

	Valve Sizes	Hydrostatic Shell Test Time (min)	Hydrostatic Seat Test Time (min)
Super Nordstrom and Screwed Gland	½ to 4	½	1
Bolted Gland Valves	4 to 8	1	1
	10 to 18	1	1
	20 and larger	3	2

Typical Materials of Construction

Super Nordstrom Two-Bolt Cover-Type Valve

Part Name	Standard Construction
Body	Gray Iron
Plug and Stem	Gray Iron
Cover	High Elon Iron
Cover Bolting	A449-SAE Gr5
Spring	Stainless Steel
Cover Seal	Buna-N
Stem Seal	TFE
Weatherseal	Buna-N
Sealant Fitting	Carbon Steel
Check Valve	Carbon Steel

Nordstrom Screwed Gland-Type Valve

Part Name	Standard Construction
Body	Gray Iron
Cover	High Elon Iron
Plug and Stem	Gray Iron
Gland	Carbon Steel
Cover Bolting	A449-SAE Gr5
Gland / Stem Seals	Buna-N
Seal Holder	Carbon Steel
Gasket	Asbestos-Free Sheet Gasket Material
Diaphragm	Stainless Steel
Check Valve	Carbon Steel
Sealant Fitting	Carbon Steel
Washer	Carbon Steel
Weatherseal	Polyethylene

Nordstrom Bolted Gland-Type Valve

Part Name	Standard Construction
Body	Gray Iron
Cover	High Elon Iron
Plug and Stem	Gray Iron
Gland	High Elon Iron
Cover Bolting	A449-SAE Gr5
Gland Bolting / Nuts	A193 GrB7 / A307 GrB
Gaskets	Asbestos-Free Sheet Gasket Material
Diaphragm	Stainless Steel
Gland / Stem Seals	Buna-N
Check Valve	Carbon Steel
Sealant Fitting	Carbon Steel

Dynamic Balance Valve

Part Name	Standard Construction
Body	Gray Iron
Plug	Gray Iron
Cover	Carbon Steel
Cover Bolting	A449 Gr 5
Gland Bolting	A449 Gr 5
Thrust Ball	Alloy Steel
Adjusting Screw	Carbon Steel
Adjusting Screw Cap	Carbon Steel
Thrust Button	Carbon Steel
Balance Ball	Stainless Steel
Retainer	Spring Steel
Ball Retainer Washer	Stainless Steel
Stop Collar	Carbon Steel
Stem	Stainless Steel
Check Valve	Carbon Steel
Sealant Fitting	Carbon Steel
Cover Gasket	Asbestos-Free Sheet
Weatherseal - Stem	Neoprene
Gland	Carbon Steel
Spring	Stainless Steel
O-Ring (Stem & Adjusting Screw)	Buna-N

Super Nordstrom Regular Pattern Valve

Part Name	Standard Construction
Body	Gray Iron
Cover	Ductile Iron
Cover Bolting	A449-SAE Gr5
Plug & Stem	Gray Iron
Spring	Stainless Steel
Cover Seal	Fluorocarbon
Stem Seal	Fluorocarbon
Sealant Fitting	Carbon Steel
Check Valve	Carbon Steel
Weatherseal (O-ring)	EPDM
Stop Collar	Carbon Steel
Retainer Ring	Carbon Steel or Spring Steel
Shim	Stainless Steel



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