Global Energy Market Solutions

OmniSeal® Double Block & Bleed Expanding Plug Valve

High integrity double block and bleed expanding plug valves for product isolation, blending, metering, custody transfer, terminal, storage and other land or offshore zero-leakage applications.

Omni Valve
(610) 270-2814
www.omnivalve.com

OmniSeal® DBB expanding plug valves in service

OmniSeal® DBB expanding plug valves during installation

OmniSeal® DBB expanding plug valves are ideally suited for product blending & refining applications

Introduction

OmniSeal® expanding plug valves are designed for applications where positive shut-off, verifiable zero leakage and double block and bleed (DBB) capabilities are required. They meet API-6D definition of Double Isolation and Bleed valves (DIB) as defined in paragraph 4.8.

They are ideal for a variety of applications including leased automated custody transfer (LACT), product metering, aviation fueling, product isolation, blending, lockout/tagout (LOTO), multi-product manifolds, tank storage and other DBB applications.

The OmniSeal® is a single valve solution that simultaneously blocks both the upstream and downstream flow while allowing the user to verify seal integrity using a manual or automatic body bleed system. It replaces older double block and bleed systems that use two valves with a spool and bleed valve in-between. It also has significant design advantages when compared with some other single DBB valve designs.

All OmniSeal® DBB expanding plug valves are manufactured and monogrammed per API 6D and ISO 9001, fire tested per API 607 and API 6FA and have specific certifications such as CE/PED, CRN (Canadian Registration), TA-Luft or similar design or regional certifications where appropriate.

Omniseal® DBB expanding plug valves have been determined to be a “Product of the USA “ by the US Customs and Border Protection Agency (CBP). This applies to valve procurement for both commercial and US military installations.

TABLE OF CONTENTS

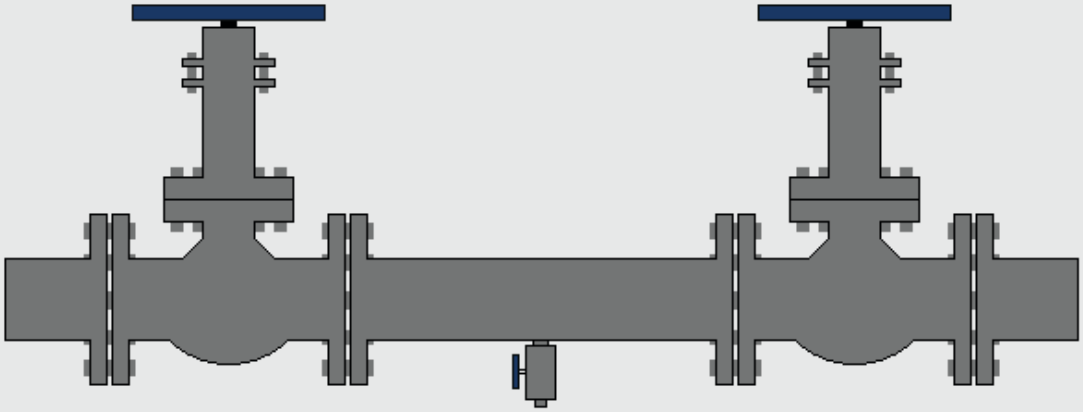
Applications

OmniSeal® expanding plug valves are ideal for applications that require positive shut-off, verifiable zero leakage and double block and bleed (DBB) capability. Some of the more common applications include:

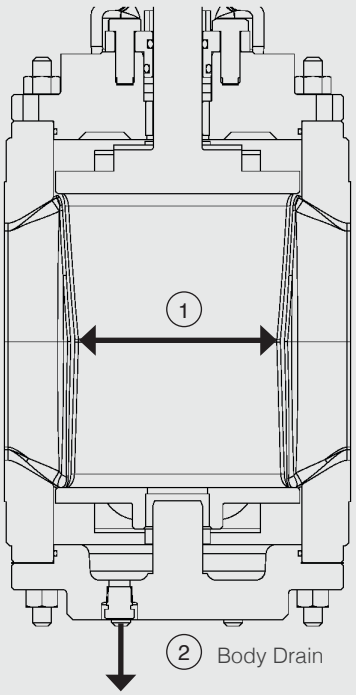
- **BLENDING UNITS:** Accurate blending of ethanol or other regional fuel grades requires valves with exceptionally high seal integrity to ensure accurate measurement of additives and blending stocks. The OmniSeal® DBB is specifically designed for applications of this type.
- **PRODUCT ISOLATION:** Secure isolation of Biofuels or other process-sensitive fluids is critical for environmental and process safety. The OmniSeal® DBB's verifiable zero leakage and positive shutoff capabilities make it an ideal solution for isolation and process-sensitive applications.
- **MULTI-PRODUCT MANIFOLDS:** Pipeline, refinery and transfer manifolds need to flow multiple products (e.g. diesel, jet fuel, gasoline, blending stocks, etc.) reliably and without contamination. The OmniSeal® DBB is an effective tool for preventing product cross-contamination.
- **PROVER LOOPS:** Proper calibration of flow meters requires that every valve in the prover loop system must have a zero leak rate. Any leak could mean an error in calibration. OmniSeal® DBB valves are used to ensure leak tight closure and accurate calibration.
- **CUSTODY TRANSFER UNITS:** Transfer of valuable media relies on accurate measurement of product transfer quantity. The OmniSeal® DBB provides positive shutoff and zero leak rate, thereby ensuring accurate calculation of transfer quantity.
- **OFFSHORE PLATFORMS:** Valve leakage on an offshore platform can result in damage to equipment and the environment. The OmniSeal® DBB has excellent low pressure positive shut-off characteristics and is a great choice for use on offshore platforms.
- **TERMINALS:** Terminals used for loading and unloading tankers require valves with positive sealing in order to prevent environmental damage due to spillage. The OmniSeal® DBB provides positive sealing and zero leak rate in a reliable single valve solution.
- **TANK FARMS (OIL DEPOTS):** Tank isolation valves, which are operated frequently, require zero leak rate and a high degree of reliability. The OmniSeal® DBB valve provides a reliable high integrity seal designed for frequent and long-term use.
- **AVIATION FUELING SYSTEMS:** Airport fueling systems require valves that close quickly and have verifiable seal integrity. This allows for quick maintenance, repair, leak location and testing. The OmniSeal® DBB valve's verifiable zero leak rate ensures that maintenance, repair, leak location and hydrant testing can be done safely and quickly. Omniseal® DBB expanding plug valves have been determined to be a "Product of the USA " by the US Customs and Border Protection Agency (CBP). This applies to valve procurement for both commercial and US military installations.

Single Valve DBB Solution

The OmniSeal® replaces antiquated two-valve systems with a single DBB valve solution. The OmniSeal® has two seats (slips) and provides a bubble tight seal.



Older double block & bleed systems (as shown above) used two valves and a spool piece with a bleed valve used to drain the spool and verify seal integrity.

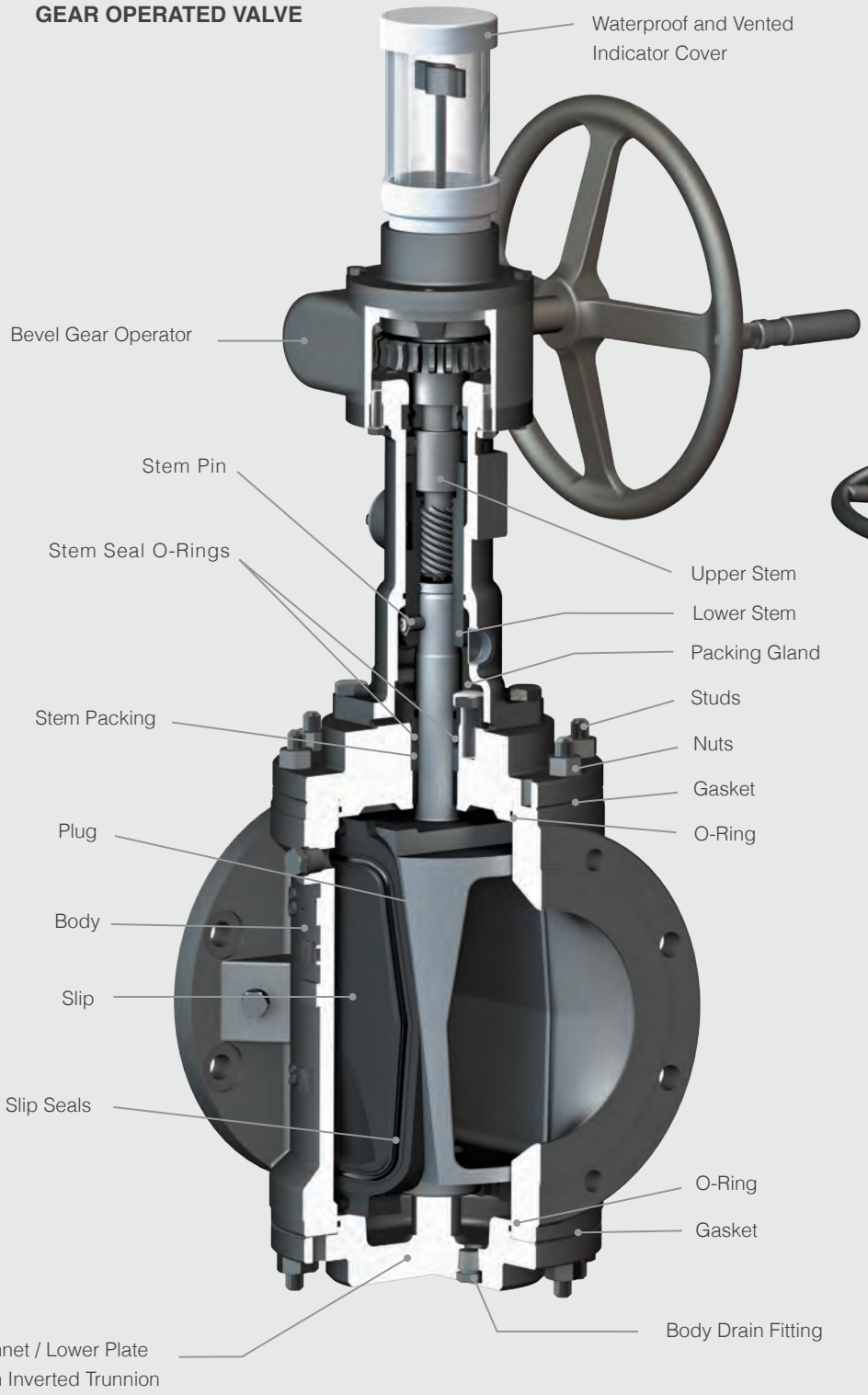


1. The upstream and downstream slip seals provide the same function as the two block valves shown above.

2. The OmniSeal® body (serving as the spool piece shown above) bleeds to verify seal integrity.

Typical Valve Configuration

GEAR OPERATED VALVE



HANDWHEEL OPERATED VALVE

Size Range & Materials of Construction

AVAILABLE SIZES AND PRESSURES

SIZE (inches)

ANSI CLASS	2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36
150	HW/GO	HW/GO	HW/GO	HW/GO	GO*	GO*	GO*	GO*	GO*	GO*	GO*	G0*	GO*	GO*	GO*	GO*
300	HW/GO	HW/GO	HW/GO	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	N/A
600	HW/GO	HW/GO	GO	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	GO*	NA	N/A	N/A	N/A

HW = Available Only as Handwheel Operated
GO = Available Only as Gear Operated
HW/GO = Available as Handwheel or Gear Operated

***** These sizes have lifting lugs

STANDARD MATERIALS OF CONSTRUCTION

COMPONENT	STANDARD TEMP. (-20º TO 200º F)	LOW TEMP. (-40º TO 200º F)
BODY	Cast ASTM A216 WCC *	Cast ASTM A352 LCC *
BONNET/ LOWER PLATE	Cast ASTM A216 WCC	Cast ASTM A352 LCC
PLUG AND STEM	Cast ASTM A216 WCC **	Cast ASTM A352 LCC **
SLIPS	Cast Ductile Iron / Cast A395 GR 60-40-18	Cast ASTM A352 LCC
PACKING GLAND	Cast ASTM A216 WCC	Cast ASTM A352 LCC
STEM PACKING	Pre-Formed Flexible Graphite	Pre-Formed Flexible Graphite
GASKET	Pre-Formed Flexible Graphite	Pre-Formed Flexible Graphite
O-RINGS & SLIP SEALS	Viton B ***	Viton GFLT ***
BONNET TO BODY STUDS	ASTM A193 Gr. B7	ASTM A320 Gr. L7
BONNET NUTS	A 194 Gr. 2H	A 194 Gr. 2H
RELIEF SYSTEM TUBING	AISI 316 SS / AISI 304 SS	AISI 316 SS / AISI 304 SS
RELIEF SYSTEM NEEDLE VALVES	AISI 316 SS	AISI 316 SS
RELIEF SYSTEM CHECK VALVE	AISI 316 SS	AISI 316 SS

* Electroless Nickel Plated - Entire Internal Surface
** Electroless Nickel Plated - Entire Component
*** All Omniseal® valves in class 300 & 600 are supplied with double reinforced Viton seals.

OPTIONAL MATERIALS OF CONSTRUCTION & OTHER CUSTOMIZED FEATURES

OmniSeal® DBB Expanding Plug Valves are also available in a variety of alternate configurations or materials of construction depending on customer preferences, specifications, severe temp ranges and / or service conditions.

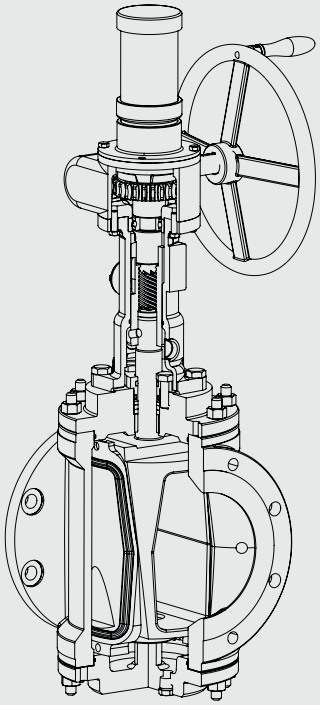
Some common options include valves as follows:

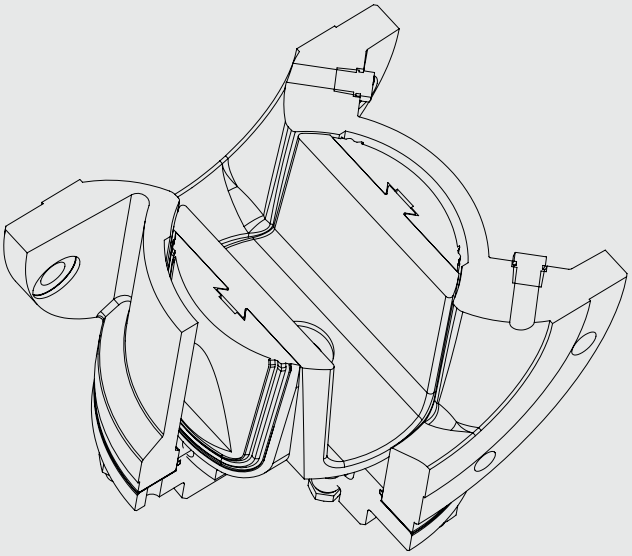
- Constructed to meet requirements of NACE MR0175 / ISO 15156
- With flanges drilled to DIN standard
- Subjected to more rigorous customer-specified extended testing regimes
- With application of special coatings based on customer specifications, service conditions or cosmetic preferences
- Constructed to withstand extreme high or low temperatures - *Please consult factory*
- With customer specified limit switches or other accessories
- With special Automatic Body Bleed Valve (ABBV)

Valve Operation

FULL OPEN POSITION

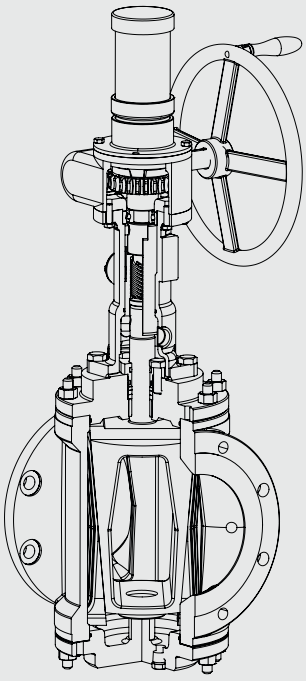
In the fully open position, the resilient seals are positioned out of the flow path and protected within the body of the valve itself.

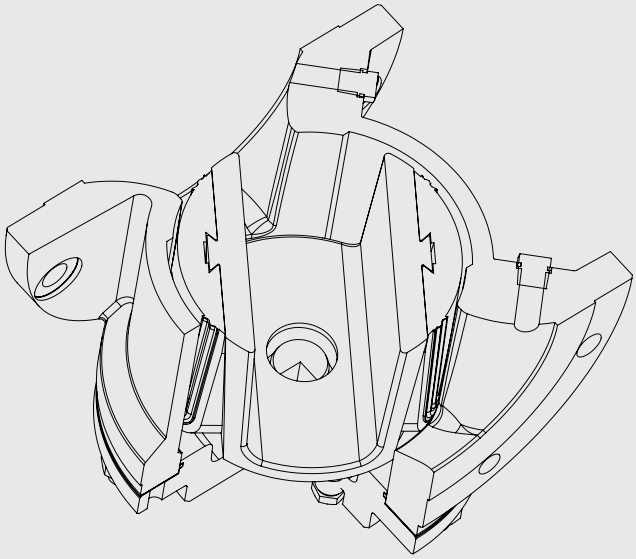




PARTIALLY CLOSED POSITION

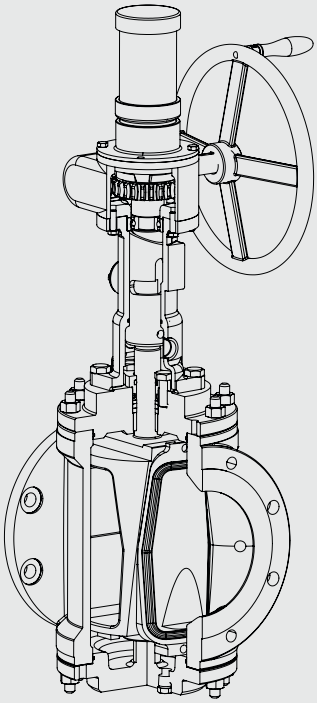
As the valve is cycled from the fully open to closed position, the plug begins a 90 degree rotation. During the entire rotation of the plug the resilient seals located on both slips are retracted away from the body. This ensures that there is no rubbing or scraping action on these resilient seals during rotation of the plug from the open to the closed position.





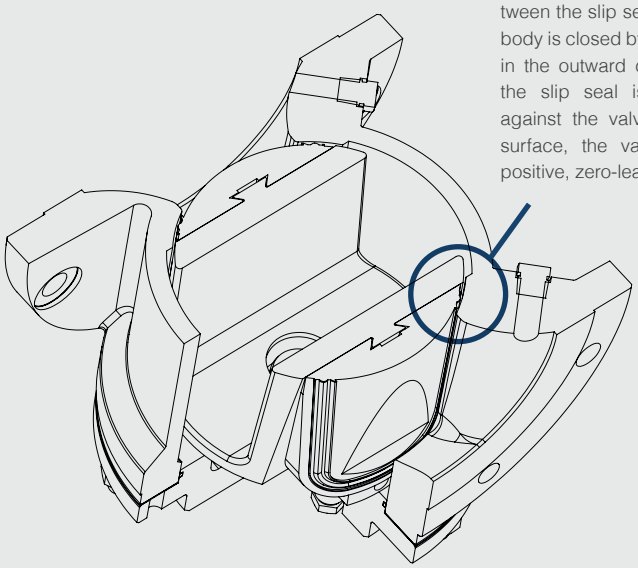
Valve Operation

CLOSED POSITION PRIOR TO SEALING

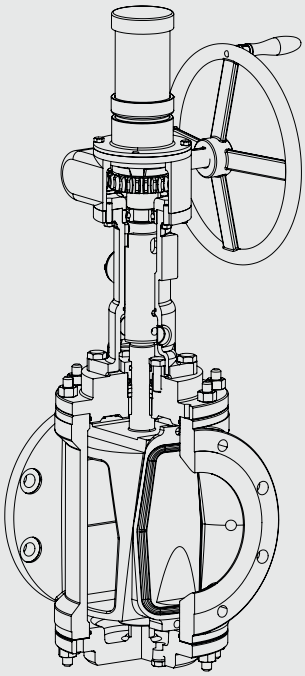


After the plug has been rotated 90 degrees from the fully open to fully closed position, the resilient seals on both slips have not yet been forced outward and into the seating position. This expansion only occurs with continued rotation of the handwheel or actuator.

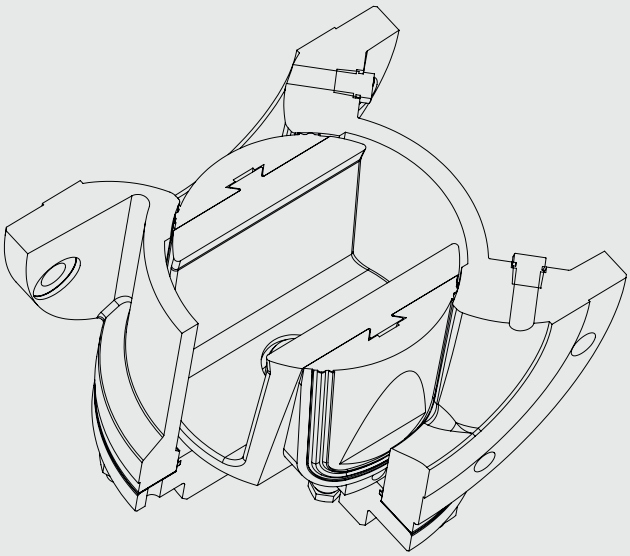
With continued rotation of the handwheel, this small gap between the slip seal and the valve body is closed by the slip moving in the outward direction. Once the slip seal is firmly seated against the valve body sealing surface, the valve achieves a positive, zero-leakage seal.



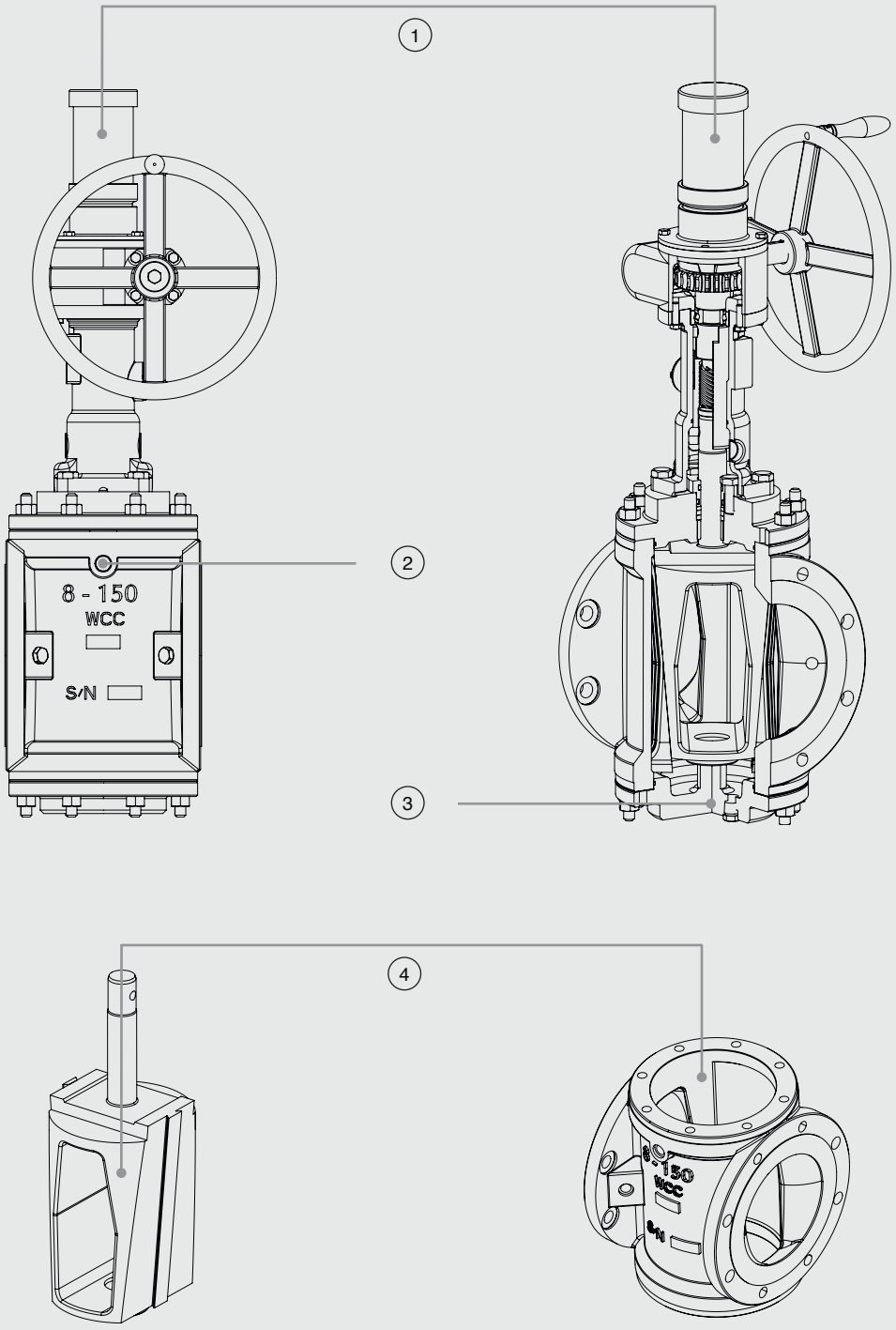
FULLY CLOSED (SEALED) POSITION



To fully close the valve and provide positive shut-off, the slips are expanded outward with continued rotation of the handwheel or actuator. This outward expansion is achieved by the tapered plug moving downward which causes the resilient seals on the slips to seal against the valve body.



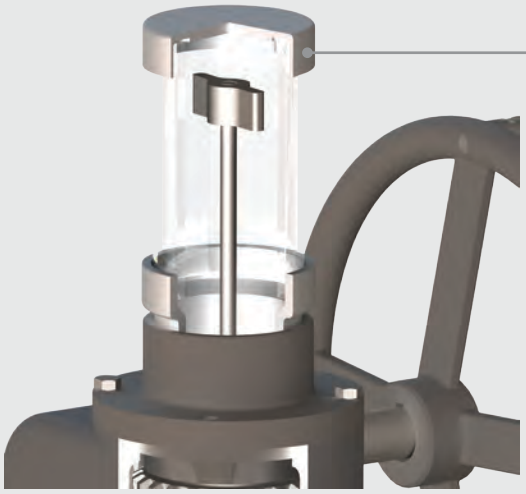
Design Features

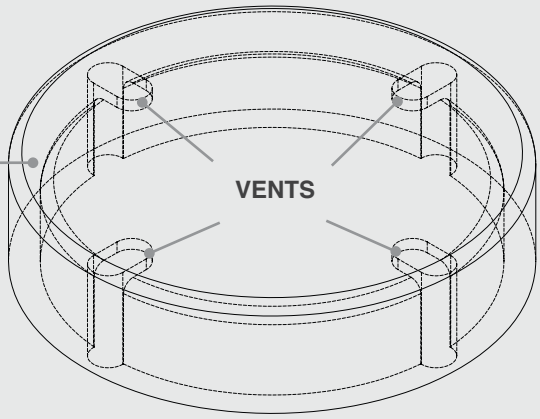


Design Features

OmniSeal® DBB expanding plug valves have a number of design features that set it apart from competitive offerings.

1. POLYCARBONATE PROTECTOR CAP





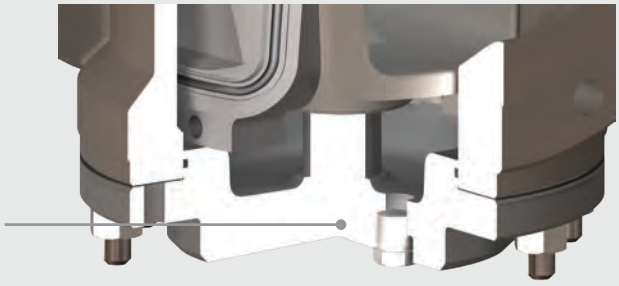
OmniSeal® DBB expanding plug valve has a robust clear acrylic indicator flag protector. This keeps moisture and debris from infiltrating the operator housing. The top of the indicator cap (shown above) is vented to ensure that air flow will quickly evaporate any condensation that appears inside the clear housing.

2. LOCATION OF RELIEF SYSTEM PORT

Some competitive DBB valve offerings have the top port for the relief system located on the upper bonnet. Therefore, the relief system must be disconnected whenever the upper bonnet needs to be removed for maintenance or repair. On the OmniSeal®, this port is located on the upper section of the valve body. This eliminates any need to disassemble the relief system in order to remove the valve bonnet.

3. LOWER TRUNNION DESIGN

The lower trunnion of the OmniSeal® DBB valve is an integral part of the lower bonnet and is not part of the plug. This design feature means that there is no cavity present in the bottom of the valve body to collect dirt, scale, ice or other debris that could make the valve hard to turn or otherwise interfere with valve function.

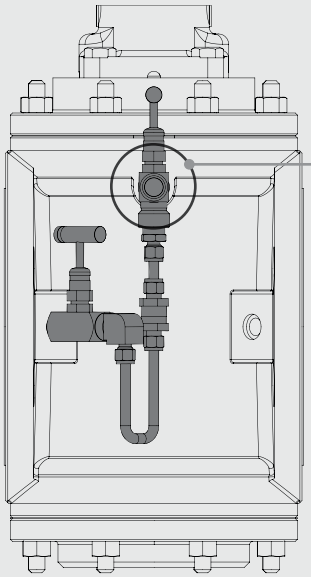


4. SURFACE TREATMENT OF BODY CAVITY AND PLUG

The interior cavity of the valve body and the entire plug are plated with electroless nickel to ensure a corrosion-free sealing surface for slip seals.

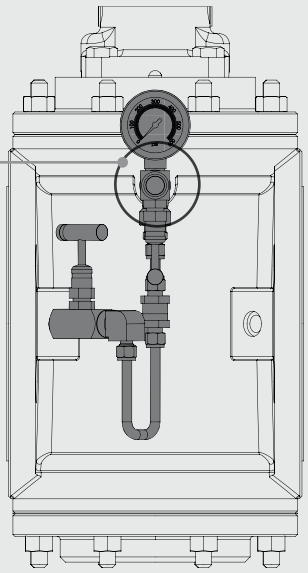
Relief Systems

MANUAL BLEED WITH THERMAL RELIEF TO UPSTREAM

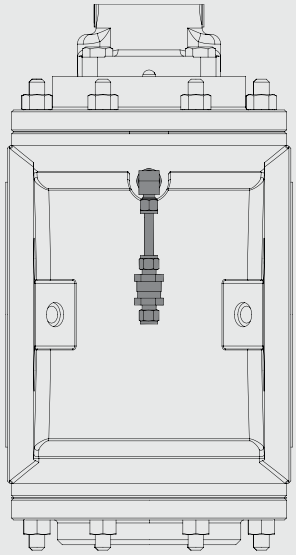


Manual Relief Valve

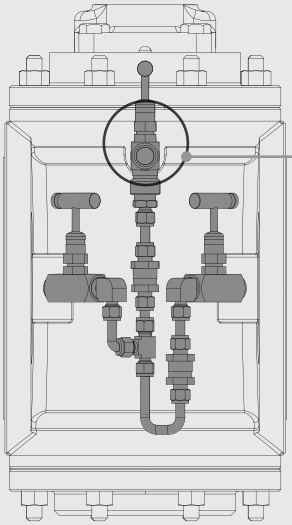
MANUAL BLEED WITH THERMAL RELIEF TO UPSTREAM - WITH GAUGE



THERMAL RELIEF TO ATMOSPHERE

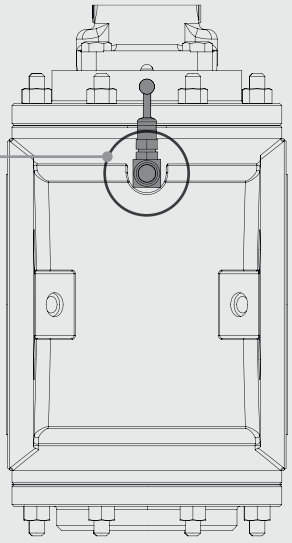


MANUAL RELIEF TO ATMOSPHERE, THERMAL RELIEF FROM DOWN-STREAM AND BODY TO UPSTREAM



Manual Relief Valve

MANUAL BLEED TO ATMOSPHERE



Relief Systems

The OmniSeal® DBB expanding plug valve can be delivered with a variety of relief systems. Some of the more common relief systems are:

STANDARD : MANUAL BLEED WITH THERMAL RELIEF TO UPSTREAM

This is the standard relief systems offered on the OmniSeal® DBB valve. It is designed to relieve excess pressure in the valve cavity due to thermal expansion when the valve is in the closed position. It is similar to a thermal relief to atmosphere system; however, it has a manual valve that provides both manual and automatic relief capabilities. The thermal relief system will relieve pressure to the upstream if differential pressure exceeds 25 psi.

IMPORTANT: In order for the automatic relief system to function properly, the valve that controls the upstream relief must be kept open and the valve that controls the manual bleed to atmosphere must be kept closed.

MANUAL BLEED WITH THERMAL RELIEF TO UPSTREAM - WITH GAUGE

This relief system is designed to relieve excess pressure in the valve cavity due to thermal expansion. It is similar to a thermal relief to upstream system; however, it uses a gauge to measure the valve seal integrity. Using this system a positive seal can be verified at all times without dispersing any line media. The thermal relief system will relieve to upstream when differential pressure exceeds 25 psi.

THERMAL RELIEF TO ATMOSPHERE

This system is designed to relieve excess pressure in the valve cavity due to thermal expansion when the valve is in the closed position. This is an automatic system that relieves when trapped internal body pressure reaches the working pressure of the valve. The excess pressures will relieve to atmosphere or to a receptacle the customer has piped to the bleed port.

MANUAL RELIEF TO ATMOSPHERE, THERMAL RELIEF FROM DOWNSTREAM AND BODY TO UPSTREAM

This system is designed to relieve excess pressure in the valve cavity and downstream components due to thermal expansion when the valve is in the closed position. This system operates in the same manner as the standard relief system; however it also has a thermal relief from downstream to upstream. The thermal relief system will relieve to upstream if differential pressure exceeds 25 psi. The upstream and downstream relief systems operate independently.

IMPORTANT: In order for the automatic relief system to function properly, the valves that control the upstream and downstream relief must be kept open and the valve that controls the manual bleed to atmosphere must be kept closed.

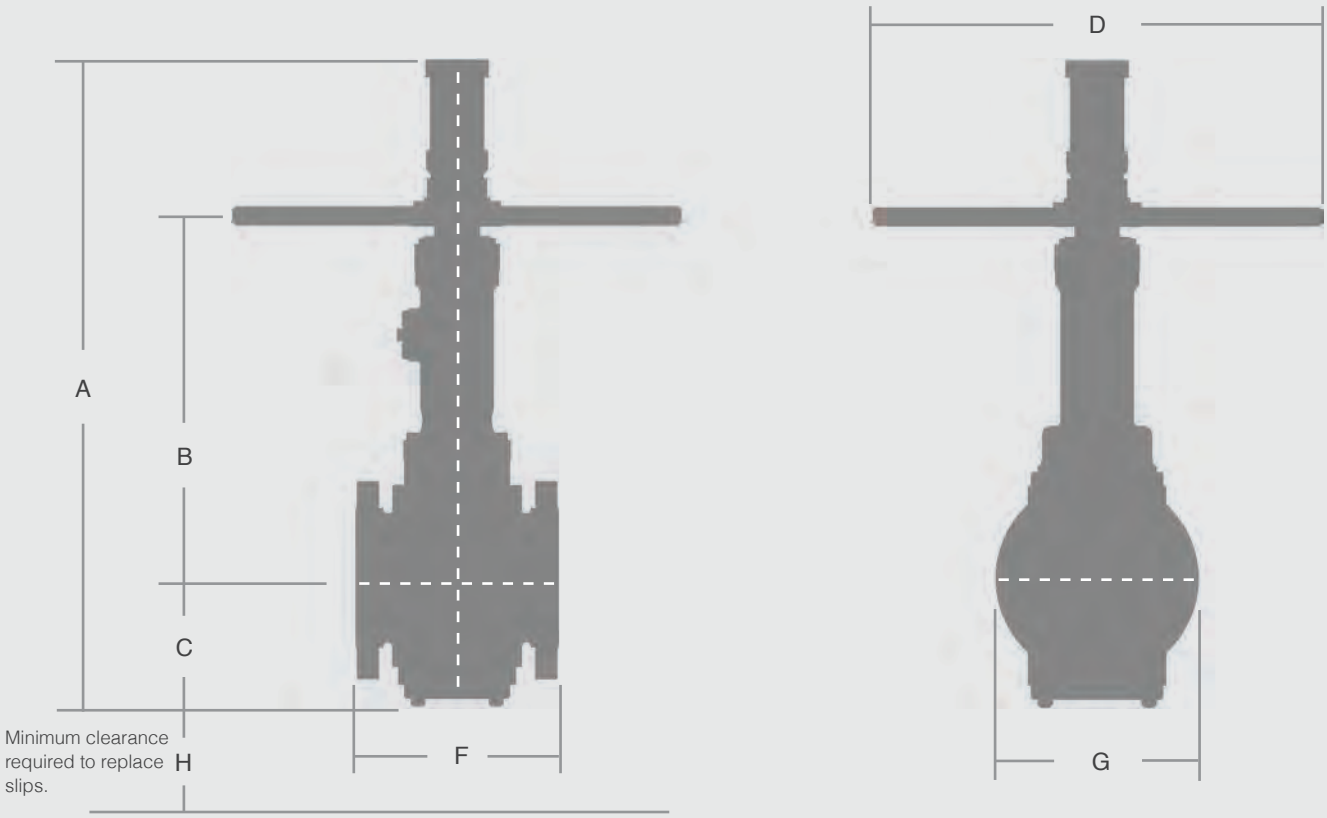
MANUAL BLEED TO ATMOSPHERE

This system is operated manually. When the valve is in the closed position, the manual bleed valve can be opened to confirm seal integrity. The manual bleed valve should be closed before opening the valve bore.

CUSTOMER-SPECIFIED RELIEF SYSTEMS

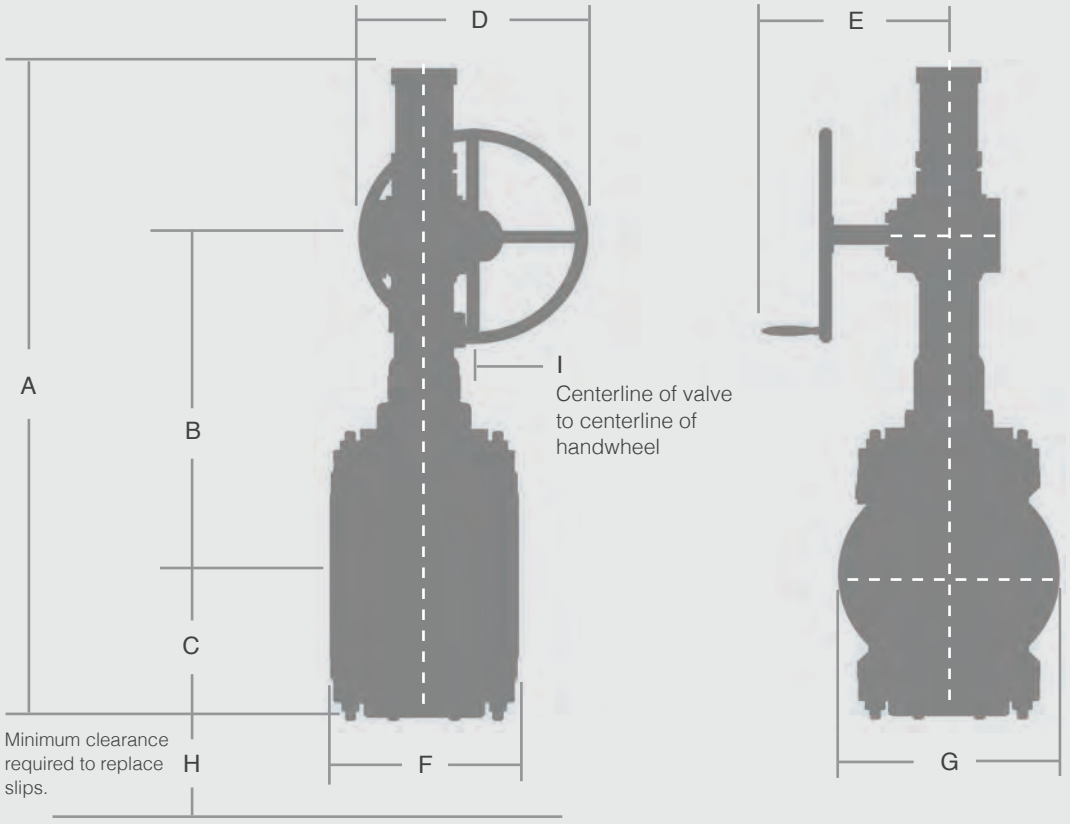
The OmniSeal® DBB valve is also available with welded or other customized relief systems. Please contact Omni Valve for more details.

Dimension Tables



CLASS	SIZE	OPER.	A		B		C		D		F		G		H		Weight		(NUMBER) & SIZE TAPPED HOLES	CV
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kgs	EACH FLANGE	(GPM)
150	2	37H	18.0	457	10.6	269	4.0	102	10	254	7	178	6	152	3	76	46	21	none	202
	3	37H	18.0	457	10.6	269	4.0	102	10	254	8	203	7.5	191	3	76	59	27	none	208
	4	50H	27.5	699	16.0	406	6.0	152	20	508	9	229	9	229	4.5	114	132	60	none	594
	6	50H	32.6	828	18.0	457	7.5	191	20	508	10.5	267	11	279	8	203	196	89	(4) 3/4"-10 UNC	1438
300	2	37H	18.0	457	10.6	269	4.0	102	10	254	8.5	216	6.5	165	3	76	52	24	none	212
	3	37H	18.0	457	10.6	269	4.0	102	10	254	11.1	282	8.25	210	3	76	73	33	none	223
	4	50H	28.3	719	16.0	406	5.5	140	20	508	12	305	10	254	5	127	158	72	none	624
600	2	50H	26.0	660	15.5	394	4.0	102	20	508	11.5	292	6.5	165	2.5	64	100	45	none	288
	3	50H	26.0	660	16.0	406	5.0	127	20	508	14	356	8.3	211	3.5	89	142	64	none	300

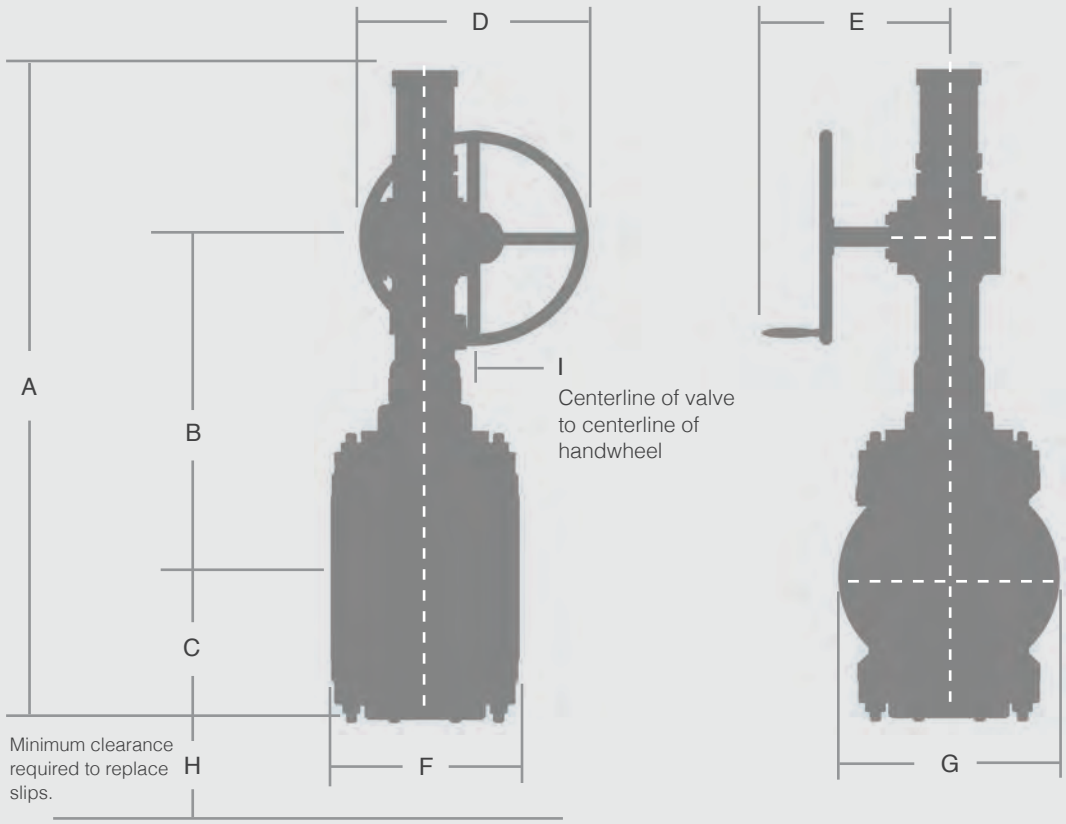
Dimension Tables



CLASS	SIZE	OPER.	A		B		C		D		E		F		G		H		I		WEIGHT		(NUMBER) & SIZE TAPPED HOLES	CV
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	LBS	KGS	EACH FLANGE	(GPM)
150	2	37G	22.8	579	11.9	302	4.0	102	10	254	12.4	315	7	178	6	152	3	76	1.8	44	50	23	none	202
	3	37G	22.8	579	11.9	302	4.0	102	10	254	12.4	315	8	203	7.5	191	3	76	1.8	44	50	23	none	208
	4	55G	30.0	762	16.1	409	6.0	152	10	254	14.7	373	9	229	9	229	4.5	114	2.4	61	148	67	none	594
	6	55G	34.6	879	18.3	465	7.5	191	10	254	14.4	366	10.5	267	11	279	10	254	2.4	61	214	97	(4) 3/4"-10 UNC	1438
	8	62G	42.5	1080	22.0	559	9.2	234	14	356	14.7	373	11.5	292	13.5	343	14	356	3	76	428	194	(4) 3/4"-10 UNC	2428
	10	62G	46.0	1168	24.0	610	11.0	279	14	356	14.7	373	13	330	16	406	16	406	3	76	522	237	(4) 7/8" - 9 UNC	3588
	12	75G	55.0	1397	31.0	787	12.5	318	20	508	14.7	373	14	356	19	483	26	660	3.5	89	832	377	(4) 7/8" - 9 UNC	4012
	14	75G	58.0	1473	32.5	826	14.3	363	20	508	14.7	373	15	381	21	533	28	711	3.5	89	1074	487	(4) 1.0"- 8 UNC	5500
	16	12G	65.0	1651	39.0	991	16.0	406	20	508	17.5	445	16	406	23.5	597	30	762	5	127	1472	668	(8) 1.0"- 8 UNC	7016
	16V	75G	58.0	1473	32.5	826	14.3	363	20	508	14.7	373	16	406	23.5	597	28	711	3.5	89	1110	503	(8) 1.0"- 8 UNC	5500
	18	12G	60.0	1524	36.0	914	14.0	356	20	508	17.5	445	34	864	25	635	30	762	5	127	2658	1206	none	10900
	18V	12G	64.9	1648	38.7	983	16.0	406	20	508	17.5	445	17	432	25	635	30	762	5	127	1407	638	(8) 1-1/8 "-8 UNC	7000
	20	12G	63.0	1600	37.0	940	15.3	389	20	508	17.5	445	40	1016	27.5	699	27	686	5	127	3306	1500	none	15730
	20V	12G	69.5	1765	40.3	1024	18.6	472	20	508	17.5	445	32	813	27.5	699	32	813	5	127	2860	1297	(4) 1-1/8"- 8 UNC	8500
	24	12G	75.0	1905	44.0	1118	21.0	533	20	508	17.5	445	48	1219	32	813	32	813	5	127	6264	2841	none	24000
	24V	12G	77.9	1979	45.6	1158	21.8	554	20	508	17.5	445	36	914	32	813	37	940	5	127	3830	1737	(8) 1-1/4"- 8 UNC	11250
	26	14G	99.0	2515	56.7	1441	29.5	748	32	813	26	660	42	1067	34.3	870	38	965	9	229	9680	4400	(16) 1-1/4"-8 UNC	27778
	28	14G	99.0	2515	56.7	1441	29.5	748	32	813	26	660	42	1067	36.4	925	38	965	9	229	10714	4870	(12) 1-1/4"-8 UNC	31675
	30	15G	97.3	2471	75.2	1910	27.4	696	32	813	26	660	60	1524	38.8	986	41	1041	9	229	13900	6305	(12) 1-1/4"-8 UNC	33000
	36	15G	119.2	3028	76.0	1930	30.0	762	32	813	26	660	78	1981	46	1168	41	1041	9	229	20600	9344	none	48000

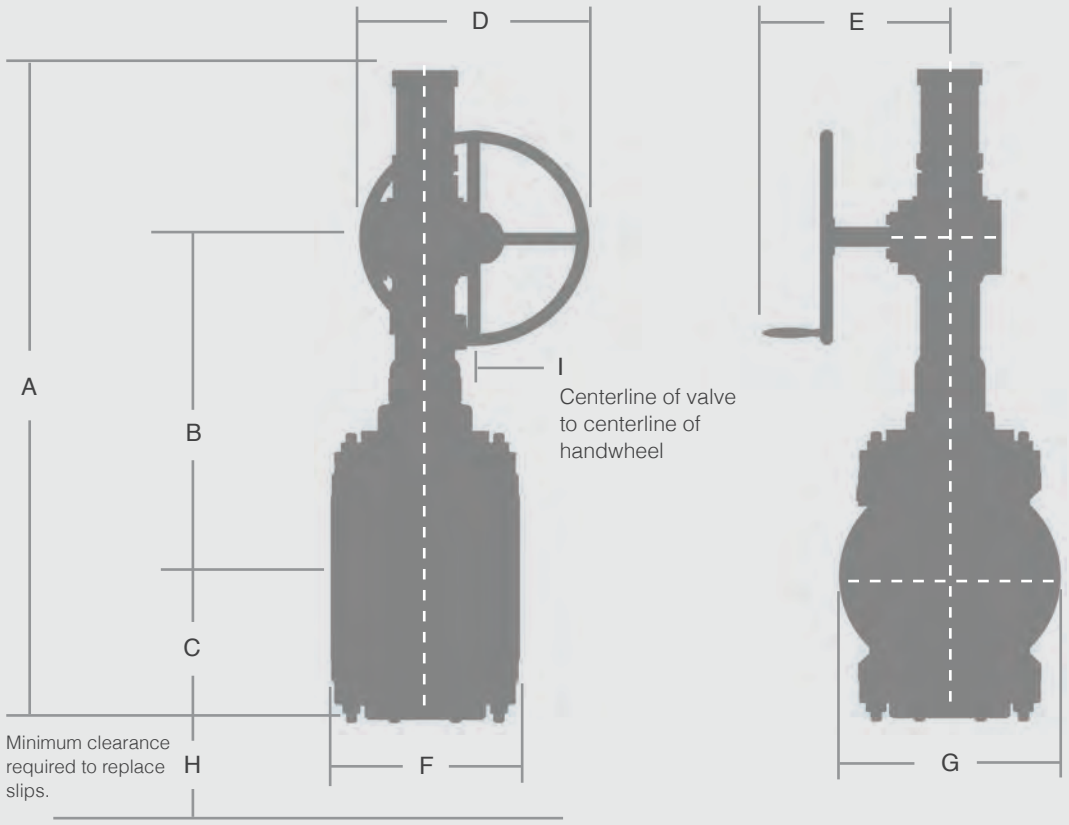
(V) Designates a valve with a reduced face-to-face dimension versus the Omni standard pattern, except for the 16V

Dimension Tables



CLASS	SIZE	OPER.	A		B		C		D		E		F		G		H		I		WEIGHT		(NUMBER) & SIZE TAPPED HOLES	CV
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	LBS	KGS	EACH FLANGE	(GPM)
300	2	37G	22.8	579	11.9	302	4.0	102	10	254	12.4	315	8.5	216	6.5	165	3	76	1.8	46	65	29	none	212
	3	37G	22.8	579	11.9	302	4.0	102	10	254	12.4	315	11.1	282	8.3	211	3	76	1.8	46	76	34	none	223
	4	55G	30.0	762	16.2	411	5.5	140	10	254	14.7	373	12	305	10	254	5	127	2.4	61	171	78	none	624
	6	62G	39.0	991	20.5	521	7.7	196	14	356	14.7	373	15.9	404	12.5	318	10	254	3	76	342	155	none	1776
	8	75G	49.0	1245	28.0	711	9.5	241	20	508	14.7	373	16.5	419	15	381	14	356	3.5	89	658	298	(4) 7/8 " -9 UNC	3008
	10	75G	51.8	1316	29.0	737	11.0	279	20	508	14.7	373	18	457	17.5	445	16	406	3.5	89	878	398	(4) 1.0" -8 UNC	3550
	12	12G	61.0	1549	36.5	927	14.0	356	20	508	17.5	445	19.8	503	20.5	521	26	660	5	127	1402	636	(8) 1-1/8 "-8 UNC	4712
	14	12G	60.9	1547	36.8	935	13.7	348	20	508	17.5	445	30	762	23	584	26	660	5	127	1990	903	none	6000
	16	12G	60.3	1532	36.5	927	13.5	343	20	508	17.5	445	33	838	25.5	648	23	584	5	127	2662	1207	none	9400
	16F	14G	81.4	2066	49.6	1260	18.9	481	32	813	26	660	35	889	25.5	648	27	686	9	229	5521	2504	(8) 1-1/4" -8 UNC	13400
	18	12G	71.0	1803	40.5	1029	17.0	432	20	508	17.5	445	36	914	28	711	26	660	5	127	3550	1610	(12) 1-1/4"-8 UNC	11500
	20	14G	81.4	2068	48.0	1219	20.0	508	32	813	26	660	39	991	30.5	775	29	737	9	229	4155	1885	(12) 1-1/4"-8 UNC	16300
	24	14G	91.3	2319	54.1	1373	24.5	621	32	813	26	660	45	1143	36	914	38	965	9	229	8150	3697	none	27000
	30	15G	120.0	3048	71.0	1803	32.5	826	32	813	26	660	65	1651	43	1092	41	1041	9	229	15300	6940	none	33500

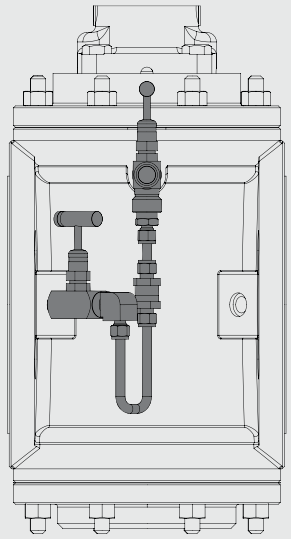
Dimension Tables



CLASS	SIZE	OPER.	A		B		C		D		E		F		G		H		I		WEIGHT		(NUMBER) & SIZE TAPPED HOLES	CV
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	LBS	KGS	EACH FLANGE	(GPM)
600	2	55G	28.0	711	15.5	394	4.0	102	10	254	14.5	368	11.5	292	6.5	165	2.5	64	2.4	61	108	49	none	288
	3	55G	29.0	737	16.0	406	5.0	127	10	254	14.5	368	14	356	8.3	211	3.5	89	2.4	61	151	68	none	300
	4	62G	36.0	914	19.0	483	6.2	157	14	356	14.7	373	17	432	10.8	274	3.5	89	3	76	275	125	none	850
	6	75G	45.6	1158	26.0	660	8.0	203	20	508	14.7	373	22	559	14	356	10	254	3.5	89	700	318	none	2265
	8	75G	48.2	1224	27.0	686	10.0	254	20	508	14.7	373	26	660	16.5	419	12	305	3.5	89	1100	499	none	3600
	10	12G	58.4	1483	36.5	927	11.5	292	20	508	17.5	445	31	787	20	508	14	356	5	127	1975	896	none	5100
	12	12G	61.0	1549	37.5	953	13.1	333	20	508	17.5	445	33	838	22	559	22	559	5	127	2532	1149	none	9300
	14	14G	75.9	1928	47.0	1194	16.0	406	32	813	26	660	35	889	23.8	605	25	635	9	229	4100	1860	(4) 1-3/8"-8 UNC	9500
	16	14G	75.7	1923	47.0	1194	15.8	401	32	813	26	660	39	991	27	686	25	635	9	229	4300	1950	(8) 1-1/2"-8 UNC	11000
	18	14G	79.5	2019	48.8	1240	18.1	461	32	813	26	660	43	1092	29.3	743	25	635	9	229	7920	3600	(8) 1-5/8"-8 UNC	13457
	20	15G	99.4	2525	69.5	1765	20.5	521	32	813	26	660	47	1194	32	813	25	635	9	229	9500	4309	none	16500
	24	15G	107.8	2738	71.5	1816	23.5	597	32	813	26	660	55	1397	37	940	25	635	9	229	15000	6804	(8) 1-7/8"-8 UNC	27500

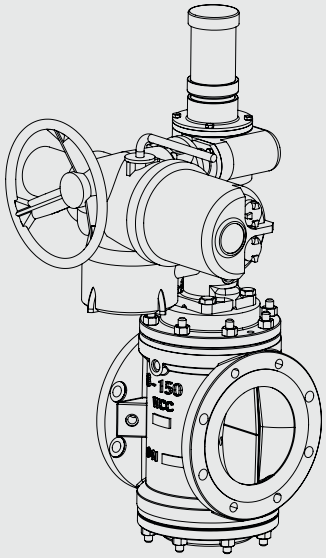
Automation

OmniSeal® DBB expanding plug valves are available with Motor Adapter Kits (MAK's) designed to accept most commercially available electric actuators.



When OmniSeal® DBB valves are automated, it is necessary to employ some type of body cavity pressure relief system.

This is due to thermal expansion **(see pages 12 and 13)**. If a relief system is not employed the valve could be difficult to operate or could become stuck in the closed position.



ACTUATOR SIZING

Valve choice and actuator sizing depend on a number of factors:

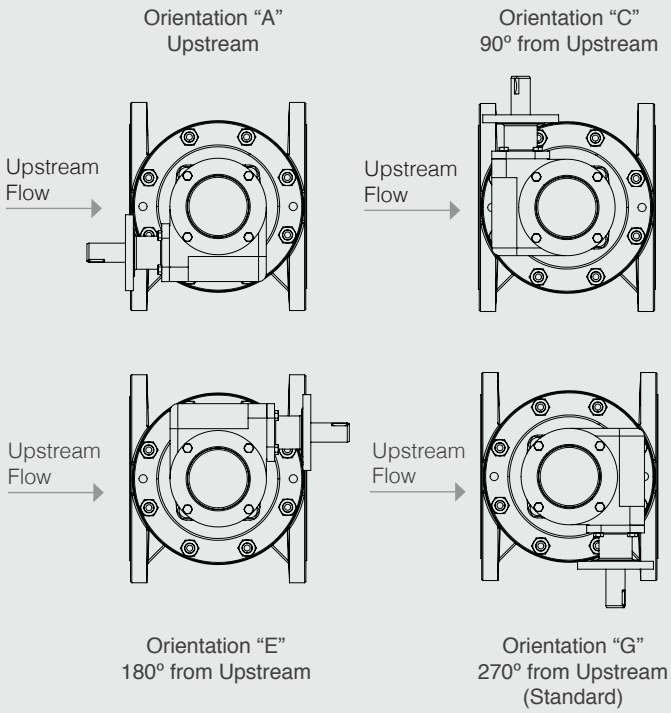
- Service Conditions (Media Type, Temperature and Pressure)
- Required Operating Speed
- Access to the Handwheel
- Available Power Source

Selection of the proper valve and electric actuator can be a highly specialized task and is the responsibility of the end-user.

STANDARD MOUNTING CONFIGURATIONS

Omniseal DBB valves with or without MAK's can be configured with a variety of hand wheel/ actuator orientations. Some of the available mounting configurations are shown at the right.

- Model 37G/ 55G can be rotated in 90° increments
- Model 62G/75G/12G can be rotated in 45° increments
- Model 14G/15G can be rotated in 30° increments



Torque and Turns Chart

		HANDWHEEL			GEAR OPERATOR						
	Size	Model	Torque (ft-lbs)	Turns	Model	Torque (ft-lbs)	SSFT(3)	Turns	WORMSHAFT DIA. (in.)	KEY Size (in.)	WORMSHAFT EXT. (in.)
CLASS ANSI 150	2	37H	46	1.4	37G	2	23	18	.865 / .870	.3125 x .25	1.54
	3	37H	114	1.5	37G	5	23	18	.865 / .870	.3125 x .25	1.54
	4	50H	123	2.0	55G	7	75	17	1.000 / 1.002	.25 X .25	2.60
	6	50H	163	2.9	55G	19	75	21	1.000 / 1.002	.25 X .25	2.60
	8				62G	41	113	22	1.245 / 1.247	.3125 X .25	2.60
	10				62G	52	113	20	1.245 / 1.247	.3125 X .25	2.60
	12				75G	70	225	27	1.245 / 1.247	.3125 X .25	2.60
	14				75G	92	225	26	1.245 / 1.247	.3125 X .25	2.60
	16				12G	104	338	46	1.245 / 1.247	.3125 X .25	3.66
	16V				75G	92	225	26	1.245 / 1.247	.3125 X .25	2.60
	18		NA		12G	125	338	45	1.245 / 1.247	.3125 X .25	3.66
	18V				12G	104	338	45	1.245 / 1.247	.3125 X .25	3.66
	20				12G	158	338	45	1.245 / 1.247	.3125 X .25	3.66
	20V				12G	150	338	45	1.245 / 1.247	.3125 X .25	3.66
	24				12G	167	338	57	1.245 / 1.247	.3125 X .25	3.66
	24V				12G	161	338	57	1.245 / 1.247	.3125 X .25	3.66
	26				14G	207	404	62	1.618 / 1.622	.375 X .3125	3.14
	28				14G	207	404	62	1.618 / 1.622	.375 X .3125	3.14
	30				15G	214	703	63	1.618 / 1.622	.375 X .3125	3.14
	36				15G	310	703	63	1.618 / 1.622	.375 X .3125	3.14
CLASS ANSI 300	2	37H	120	1.8	37G	2	23	18	.865 / .870	.3125 x .25	2.60
	3	37H	148	1.8	37G	5	23	18	.865 / .870	.3125 x .25	2.60
	4	50H	175	2.3	55G	19	75	18	1.000 / 1.002	.25 X .25	2.60
	6				62G	49	113	21	1.245 / 1.247	.3125 X .25	2.60
	8				75G	105	225	29	1.245 / 1.247	.3125 X .25	2.60
	10				75G	138	225	31	1.245 / 1.247	.3125 X .25	2.60
	12				12G	184	338	45	1.245 / 1.247	.3125 X .25	3.66
	14		NA		12G	209	338	46	1.245 / 1.247	.3125 X .25	3.66
	16				12G	250	338	40	1.245 / 1.247	.3125 X .25	3.66
	16F				14G	244	404	59	1.618 / 1.622	.375 X .3125	3.14
	18				12G	252	338	45	1.245 / 1.247	.3125 X .25	3.66
	20				14G	255	404	55	1.618 / 1.622	.375 X .3125	3.14
	24				14G	266	404	53	1.618 / 1.622	.375 X .3125	3.14
	30				15G	538	703	62	1.618 / 1.622	.375 X .3125	3.14
CLASS ANSI 600	2	50H	161	1.5	55G	19	75	14	1.000 / 1.002	.25 X .25	2.60
	3	50H	173	1.9	55G	28	75	14	1.000 / 1.002	.25 X .25	2.60
	4				62G	38	113	18	1.245 / 1.247	.3125 X .25	2.60
	6				75G	117	225	30	1.245 / 1.247	.3125 X .25	2.60
	8				75G	129	225	30	1.245 / 1.247	.3125 X .25	2.60
	10				12G	185	338	46	1.245 / 1.247	.3125 X .25	3.66
	12		N/A		12G	219	338	50	1.245 / 1.247	.3125 X .25	3.66
	14				14G	317	404	55	1.618 / 1.622	.375 X .3125	3.14
	16				14G	323	404	55	1.618 / 1.622	.375 X .3125	3.14
	18				15G	476	404	55	1.618 / 1.622	.375 X .3125	3.14
	20				15G	562	703	56	1.618 / 1.622	.375 X .3125	3.14

*** These are the dimensions of the worm shaft diameter itself.**
Drive bushing bore should have between .004 and .006 clearance over shaft dimension.

NOTES

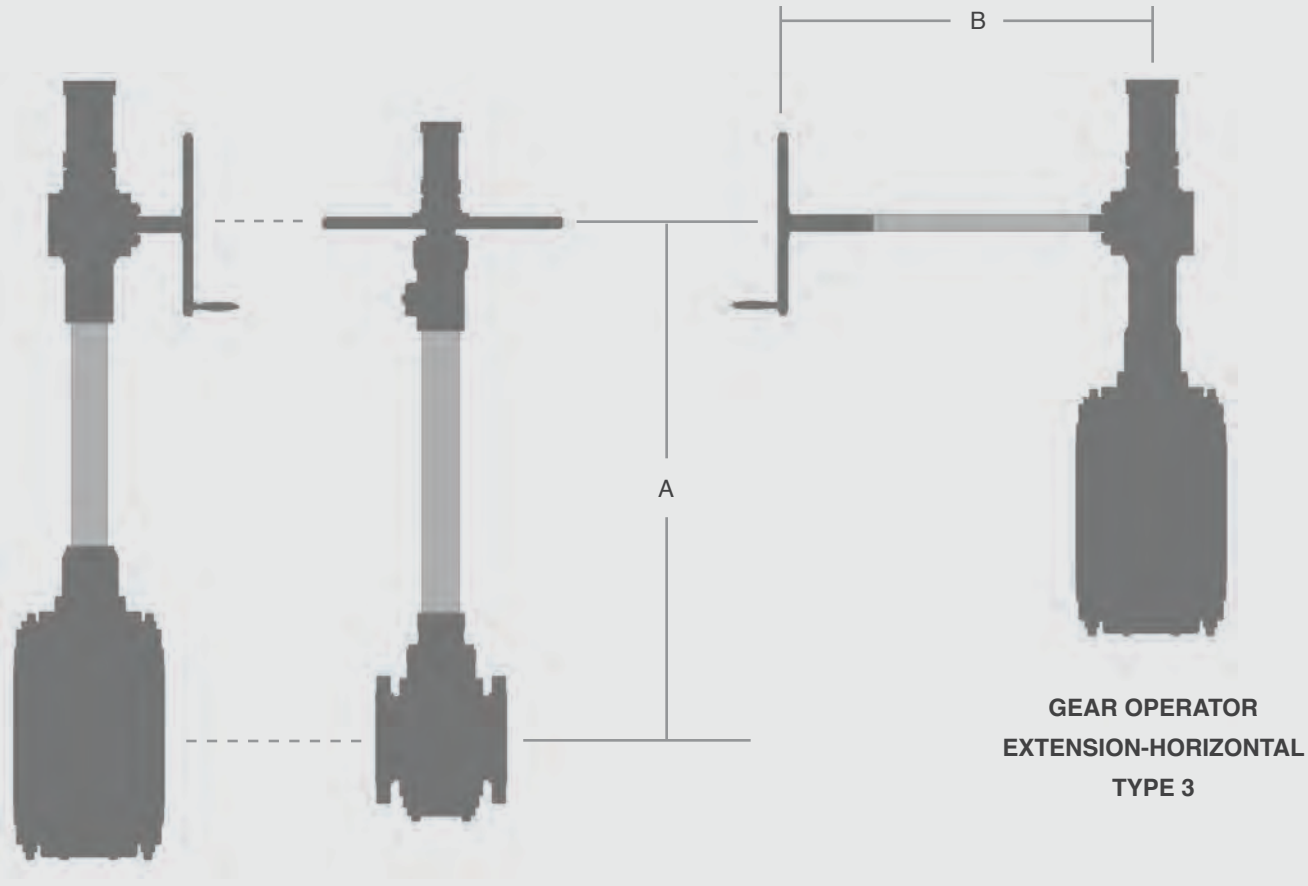
(1) Torque value to unseat valve at maximum Δ P. There is no safety factor built in by Omni.

(2) The OmniSeal DBB is a "lift & turn" valve. The components that allow the plug valve to operate by lifting the stem before it rotates are built into the gear box. It will not function with other gear operators.

(3) SSFT (Suggested Safety Factor Torque) values for each operator are the suggested maximum torques not to be exceeded in order to minimize possibility of damage to the operator or valve due to over-torque.

Stem Extensions

OmniSeal® DBB expanding plug valves can be supplied with vertical or horizontal stem extensions (or a combination of both). It is important to specify Dimension A when ordering vertical extensions and Dimension B when ordering horizontal extensions.



GEAR OPERATOR EXTENSION-HORIZONTAL TYPE 3

GEAR OPERATOR EXTENSION-CLOSED TYPE 1

HAND OPERATOR EXTENSION-CLOSED TYPE 1

-OR-

HAND OPERATOR EXTENSION-OPEN TYPE 2

NOTES

Type 1 extensions are suitable for underground burial

Type 2 extensions are exposed and not suitable for burial.

Type 3 extensions should be supported if dimension **B** is 36 inches (900 mm) or greater.

Figure Numbers

OmniSeal® figure numbers provide an easy way to specify the valve you need and communicate with Omni Valve or its distributors.

Please use the following format to determine the appropriate figure number for any one of our valve sizes or configurations:

CLASS – SIZE / OPER / MAK (optional)

CLASS

These digits refer to the ANSI class of the valve.

150 = ANSI Class 150, 300 = ANSI Class 300, 600 = ANSI Class 600

SIZE

These digits refer to the valve size.

2 = ANSI 2", 3,4,6,8,10,12,14,16,18,20,24,28,30,36, etc.

OPER

These digits refer to the valve operator.

Handhweel Operators	**Gear Operators**
37H, 50H	37G, 55G, 62G, 75G, 12G, 14G, 15G

MAK

These digits are only used if a MAK (Motor Adapter Kit) is required for the valve to be automated.

EXAMPLE:

A) 8" ANSI 300 Gear Operated, with MAK
1) CLASS – 300
2) SIZE – Dash 8
3) OPERATOR – Slash
4) MAK Needed – Slash MAK

Figure number for above: **300-8/75G/MAK**

B) 10" ANSI 150, Gear Operated: 150-10/62G

NOTE: If specifying a reduced face-to-face pattern valve (for 16,18, 20 and 24" Class 150 valves only)
Then figure number is the same except that a "**V**" added to the number in the class section

Figure number: **V150-18/12G**

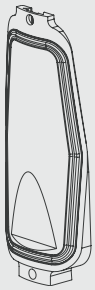
If MAK needed: **V150-18/12G/MAK**

Replacement Parts and Rebuild Kits

SPARE PARTS

Omni Valve stocks a complete line of replacement parts for the OmniSeal® DBB Expanding Plug Valve.

Please contact our exclusive global distributor for more information.

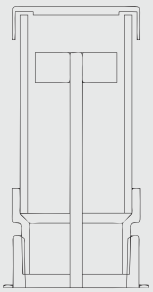


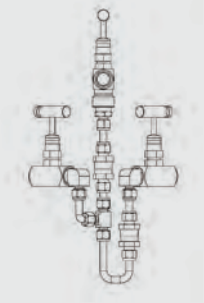
SLIPS

Slips for each plug valve size in standard Viton B trim are available off the shelf. Alternative seal materials are available upon request.

CLEAR ACRYLIC PROTECTOR CAPS

Clear acrylic protector caps and shipping caps for all sizes. →





RELIEF SYSTEMS AND COMPONENTS

Standard relief systems and components for each valve size are available off the shelf. Custom relief systems available upon request.

KITS

Omni Valve stocks various rebuild kits for the OmniSeal® DBB Expanding Plug Valve as follows.

Please contact our exclusive global distributor for more information.

CLOSURE KIT (CK)	(1) Body O-Ring and (1) Fire Seal Body Gasket. A closure kit is required for each of the upper and lower bonnets.
STEM KIT (SK)	(1) Stem Packing Set, (1) Stem Seal ID O-Ring and (1) Stem Seal OD O-Ring.
REBUILD KIT (RK)	(2) Closure Kits and (1) Stem Kit.
MOTOR ADAPTOR KIT (MAK)	(1) Actuator Mounting Flange and (1) Stem Spacer Sleeve.

NOTES

(1) Stem packing is pre-formed flexible graphite.

(2) O-Rings are 75D Viton B unless otherwise specified.

(3) Gaskets are flexible graphite unless otherwise specified.

Factory and Exclusive Distributor

EXCLUSIVE MANUFACTURER FOR
OMNISEAL® DBB EXPANDING PLUG VALVES

GHATGE PATIL INDUSTRIES LTD.
UCHAGAON, KOLHAPUR- 416005, INDIA.
www.GPI.co.in

6D-0364

EXCLUSIVE GLOBAL SALES
One Schuylkill Pkwy. | Bridgeport, PA 19405 U.S.A.
Phone (610) 270-2814
Fax (610) 270-0113
Attention: Dan Bradley, Director Of Sales
dan.bradley@omnivalve.com

ENGINEERING, SERVICE AND DISTRIBUTION
4520 Chandler Rd. | Muskogee, OK 74403 U.S.A.
Phone (918) 687-6100
Fax (918) 687-6105
quality@omnivalve.com

Limited Product Warranty

All products manufactured or sold by Omni are warranted against defects of material and workmanship for a period of twelve (12) months from the date of installation or eighteen (18) months from date of shipment, whichever period first expires, when all such products are used in the service and within the pressure range for which they were manufactured.

In the case of products or parts not wholly of Omni's manufacture, Omni's liability shall be limited to the extent of Omni's recovery from the original manufacturer of such products or parts under its warranty or liability to Omni.

Any repair work performed by Omni is warranted for one year from completion of such repairs and applies only to work performed. If, within these specified periods, Omni receives notice from Buyer of any alleged defect in or nonconformance of any product or repair and if in Omni's sole judgment the product or repair does not conform or is found to be defective in material or workmanship, then, Buyer shall, at Omni's request, return the part or product F.O.B. to Omni's designated plant or service location.

Omni has no liability for removal or reinstallation of products or equipment. Omni, at its option and expense, shall repair or replace the defective part or product, or repay to Buyer the full price paid by Buyer for such defective part, repair or product. Any repayment of purchase price shall be without interest.

Omni's warranty liability, including defects caused by Omni's negligence, shall be limited to such repair, replacement or refund, and shall not include claims for labor costs, expenses of Buyer resulting from such defects, recovery under general tort law or strict liability or for damages resulting from delays, loss of use, or other direct, indirect, incidental or consequential damages of any kind.

Omni will not be responsible for failures of products which have been in any way tampered with or altered by anyone other than an authorized representative of Omni, failures due to lack of compliance with recommended maintenance procedures or products which have been repaired or altered in such a way (in Omni's judgment) as to affect the products adversely.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH EXCEED THE FOREGOING WARRANTY.

If you have questions regarding this warranty or if you would like information about other Omni products and services please contact us at the address and phone numbers below.

OMNI VALVE

Global Energy Market Solutions

OmniSeal® Double Block & Bleed Expanding Plug Valve

SCAN TO VIEW PDF

Omni Valve
(610) 270-2814
www.omnivalve.com

 BRO-EPV Rev: 3.0