

Patented
Dual-Seal Ball Valve
Model 30 and 40

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WORLDWIDE OILFIELD MACHINE



TABLE OF
CONTENTS

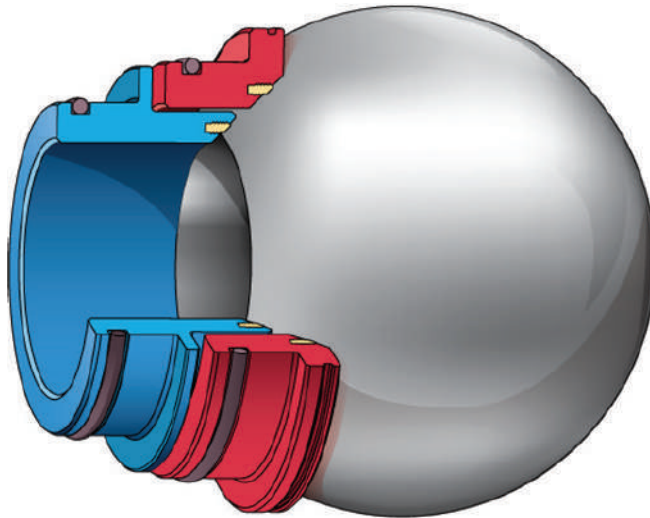


Patented Dual-Seal Ball Valve	4
Dual-Seal Ball Valve Features and Benefits	
Model 30 and Model 40 Features and Benefits	5
Dual-Seal Ball Valve Model 30	
Model 30 Parts	6
Model 30 and 40 Trim Chart	7
Dual-Seal Ball Valve Model 40	
Model 40 Parts	8
Model 30 and 40 Trim Chart	9
How It Works	10-12
Special Options Can Be Your Standard	13
Model 30-Dimensional Data	
150 CLASS	14
300 CLASS	15
600 CLASS	16
900 CLASS	17
Model 40-Dimensional Data	
150 CLASS	18
300 CLASS	19
600 CLASS	20
900 CLASS	21
1500 CLASS	22
General Design Standards	23
Vertical Integration	24
Patented Design	25
Fire Test Certification	26
Fugitive Emission Test Certification	27
Pressure Temperature Rating	28

Patented Dual-Seal Ball Valve

WOM's Dual Seal Ball Valve is the only trunnion mounted ball valve with two independent seats on both sides of the ball. The Primary Seat take the normal wear and tear when the valve is cycled. If it ever gets damaged the Secondary Seat takes over. This redundant sealing technology can more than double the useful life of the valve.

Even after the Primary Seat gets damaged, it will continue to work as a wiperring. Each time the valve is cycled the Primary Seat will clean trash and line debris off of the ball before it can damage the Secondary Seat.



*Shown here the Primary seat (blue)
and the Secondary Seat (red).*

WOM's Dual Seal Ball Valve typically comes with two seats upstream and two seats downstream of the ball. But it can be configured to have the outer seat on the downstream side modified to act as a Third seal. The third seal will provide one more seal on the downstream side of the valve. The valve is still bi-direction, even with the Third Seal option.

The Dual-Seal was designed specifically so that it could not trap pressure in the body cavity. This is critical in hazardous liquids service, where thermal expansion can cause pressure build-up inside the body. The Dual-Seal will automatically self-relieve to the low pressure side of the valve. However, if the third seal is installed, it forces the valve to self-relieve to the upstream side. You are in control of the direction that the self-relieving seats vent to.

Redundant sealing technology, the third seal, and being able to control the direction of the thermal expansion pressure makes the Dual-Seal ball valve unsurpassed in real life performance. This combination of seats gives you a valve that will outlast typical ball or gate valves. It will lower your operational costs, add safety, and increase reliability.

In today's world you need every benefit you can get from your equipment. Put innovation to work by using the Dual-Seal ball valve. The durability and long term performance is unmatched by any other ball or gate valve in the industry.



Dual-Seal Ball Valve

Features and Benefits

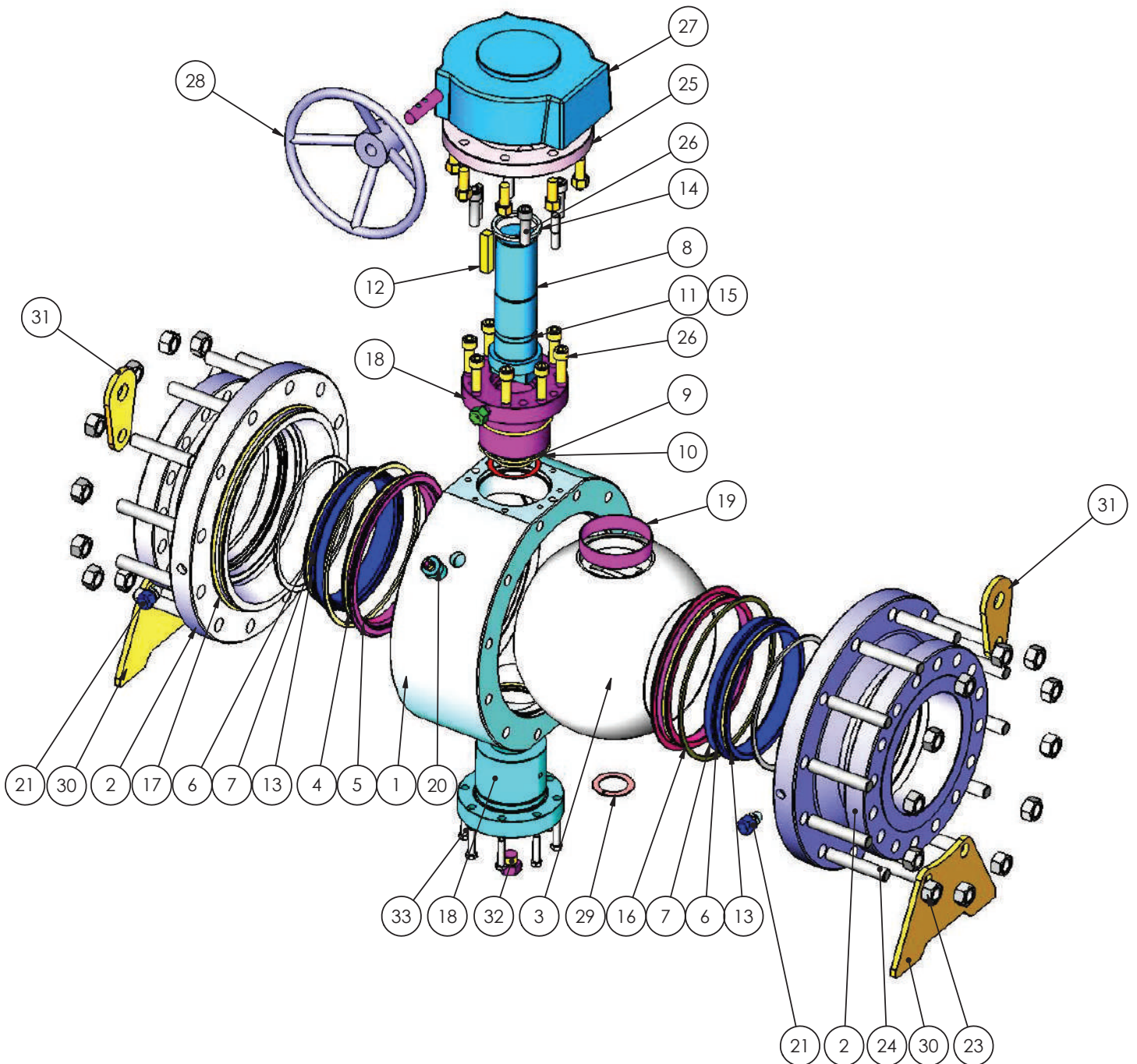
Model 30 & 40 Features and Benefits

- Dual-Seal Ball Valve Model 30 available in sizes ranging from 2" to 36", Available in ASME Pressure classes 150-900
- Dual-Seal Ball Valve Model 40 available in sizes ranging from 2" to 12", Available in ASME Pressure classes 150-1500, with working pressures ranging from 285 psi to 3,705 psi
- All valves are Double Block and Bleed (DBB)
- Cannot trap pressure in the body eliminating the need for thermal relief in liquids service
- All Dual-Seal Ball Valves are Fugitive Emissions Certified per ISO 15848-1
- Primary Seal acts as a wiper ring to clean off the ball and protect the Secondary Seal
- Fire-Safe per ISO, API 6FA, or API 607
- API 6A - 2,000-3,000 PSI in size 2 1/16" - 7 1/16" in Model 40
- Integral stop ensures precise 90 degrees of rotation
- Patented Split-Block in the Model 40 features the Valve stem inserted from body interior, making the stem positively blowout proof
- Optional Third Seal for additional protection, and to control which end of the valve the thermal relief will bleed to
- Optional Metal to Metal Primary seat for severe service conditions
- Designed to replace through-conduit gate valves in mainline service



Dual-Seal Ball Valve Model 30

Model 30 Parts



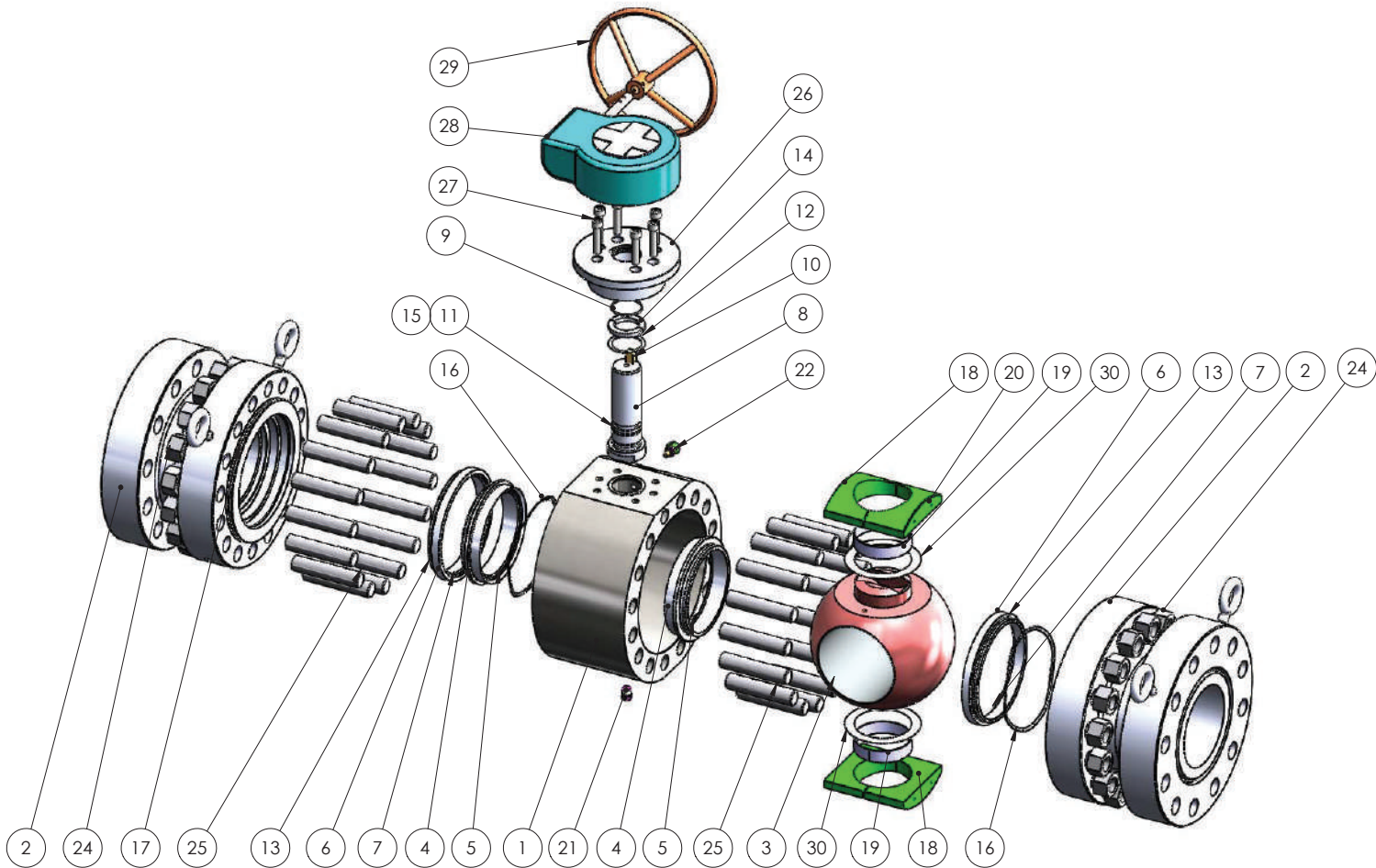
Model 30 & 40 Trim Chart

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE	Low Temp.Service (-50 deg.F)	Low Temp.SS Service (-50 deg.F)
1	Body	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A352GR LCC	ASTM A352GR LCC
2	End Connection Adapter	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A352 GR LCC	ASTM A352 GR LCC
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel/ASTM A352LCC Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
4	Primary Seat Carrier	Carbon Steel /Alloy Steel Nickel Chrome Plated	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
5	Primary Seat Insert	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE
6	Secondary Seat Carrier	Carbon Steel /Alloy Steel Nickel Chrome Plated	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
7	Secondary Seat Insert	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE
8	Stem	SAE 4130 Nickel Chrome Plated	SAE 4130 Nickel Chrome Plated	SS410 /17-4PH/ Inconel 718	SAE 4130 Nickel Chrome Plated	SS410 /17-4PH/ Inconel 718
9	Stem O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Low temp.HNBR	Low temp.HNBR
10	Stem Thrust Washer	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze
11	Anti-static Spring	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316
12	Stem Key	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel
13	Seat O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Nitrile (Low temp.HNBR)	Nitrile (Low temp.HNBR)
14	Stem Packing	Polypak (Fluorocarbon)/ Graphite	Polypak (Fluorocarbon)/ Graphite	Polypak (Fluorocarbon) Graphite	Polypak (Fluorocarbon) Graphite	Polypak (Fluorocarbon)/ Graphite
15	Anti-static Ball	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316
16	Springs	17-7PH SS	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
17	Body O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Nitrile-Buna (Low temp.HNBR)	Nitrile-Buna (Low temp.HNBR)
18	Trunnion	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel
19	Trunnion DU Bearing	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.
20	Bleed Fitting	Alloy Steel	Alloy Steel/Stainless Steel	Stainless Steel	Alloy Steel/Stainless Steel	Alloy Steel/Stainless Steel
21	Grease Fitting	Alloy Steel	Alloy Steel / Stainless Steel	Stainless Steel	Alloy Steel / Stainless Steel	Alloy Steel / Stainless Steel
22	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
23	Nuts	ASTM A194 2H	ASTM A194 2H / 2HM	ASTM A194 2H /2HM	ASTM A194 2H	ASTM A194 2H
24	Studs	ASTM A193 B7	ASTM A193 B7 / B7M	ASTM A193 B7 / B7M	ASTM A320 L7	ASTM A320 L7
25	Gland/Adapter Plate	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
26	FerryHead Capscrews	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7
27	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
28	Handwheel	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106
29	Thrust Washer	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze
30	Foot Support	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
31	Lift Eye	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
32	Drain Plug	Alloy Steel	Alloy Steel / Stainless Steel	Stainless Steel	Alloy Steel / Stainless Steel	Alloy Steel / Stainless Steel
33	Hex Head Bolt	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7



Dual-Seal Ball Valve Model 40

Model 40 Parts



Model 30 & 40 Trim Chart

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE	Low Temp.Service (-50 deg.F)	Low Temp.SS Service (-50 deg.F)
1	Body	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A352GR LCC	ASTM A352GR LCC
2	End Connection Adapter	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A216 GR WCC	ASTM A352 GR LCC	ASTM A352 GR LCC
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel/ASTM A352LCC Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
4	Primary Seat Carrier	Carbon Steel /Alloy Steel Nickel Chrome Plated	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
5	Primary Seat Insert	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE
6	Secondary Seat Carrier	Carbon Steel /Alloy Steel Nickel Chrome Plated	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex	Carbon Steel / Alloy Steel Nickel Chrome Plated	17-4PH/ASTM A182 GR.51 UNS31803 Duplex
7	Secondary Seat Insert	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE	25% Carbon PTFE
8	Stem	SAE 4130 Nickel Chrome Plated	SAE 4130 Nickel Chrome Plated	SS410 /17-4PH/ Inconel 718	SAE 4130 Nickel Chrome Plated	SS410 /17-4PH/ Inconel 718
9	Stem O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Low temp.HNBR	Low temp.HNBR
10	Stem Thrust Washer	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze
11	Anti-static Spring	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316
12	Stem Key	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel
13	Seat O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Nitrile (Low temp.HNBR)	Nitrile (Low temp.HNBR)
14	Stem Packing	Polypak (Fluorocarbon)/ Graphite	Polypak (Fluorocarbon)/ Graphite	Polypak (Fluorocarbon) Graphite	Polypak (Fluorocarbon) Graphite	Polypak (Fluorocarbon) Graphite
15	Anti-static Ball	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316
16	Springs	17-7PH SS	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
17	Body O-Ring	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Fluorocarbon (Viton)	Nitrile-Buna (Low temp.HNBR)	Nitrile-Buna (Low temp.HNBR)
18	Trunnion	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel	SAE 4130 /Alloy steel
19	Trunnion DU Bearing	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.	Phosphor bronze-C.S.
20	Bleed Fitting	Alloy Steel	Alloy Steel/Stainless Steel	Stainless Steel	Alloy Steel/Stainless Steel	Alloy Steel/Stainless Steel
21	Grease Fitting	Alloy Steel	Alloy Steel / Stainless Steel	Stainless Steel	Alloy Steel / Stainless Steel	Alloy Steel / Stainless Steel
22	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
23	Nuts	ASTM A194 2H	ASTM A194 2H / 2HM	ASTM A194 2H /2HM	ASTM A194 2H	ASTM A194 2H
24	Studs	ASTM A193 B7	ASTM A193 B7 / B7M	ASTM A193 B7 / B7M	ASTM A320 L7	ASTM A320 L7
25	Gland/Adapter Plate	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
26	FerryHead Capscrews	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7	ASTM A320 L7
27	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
28	Handwheel	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106	Carbon Steel /ASTM A106
29	Thrust Washer	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze	Aluminium Bronze
30	Foot Support	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
31	Lift Eye	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
32	Drain Plug	Alloy Steel	Alloy Steel / Stainless Steel	Stainless Steel	Alloy Steel / Stainless Steel	Alloy Steel / Stainless Steel
33	Hex Head Bolt	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7



How It Works

Upstream Sealing Primary Seal (Blue)

Figure 1

The inner ring, the **Primary Seal**, takes all of the wear and tear during normal operation.

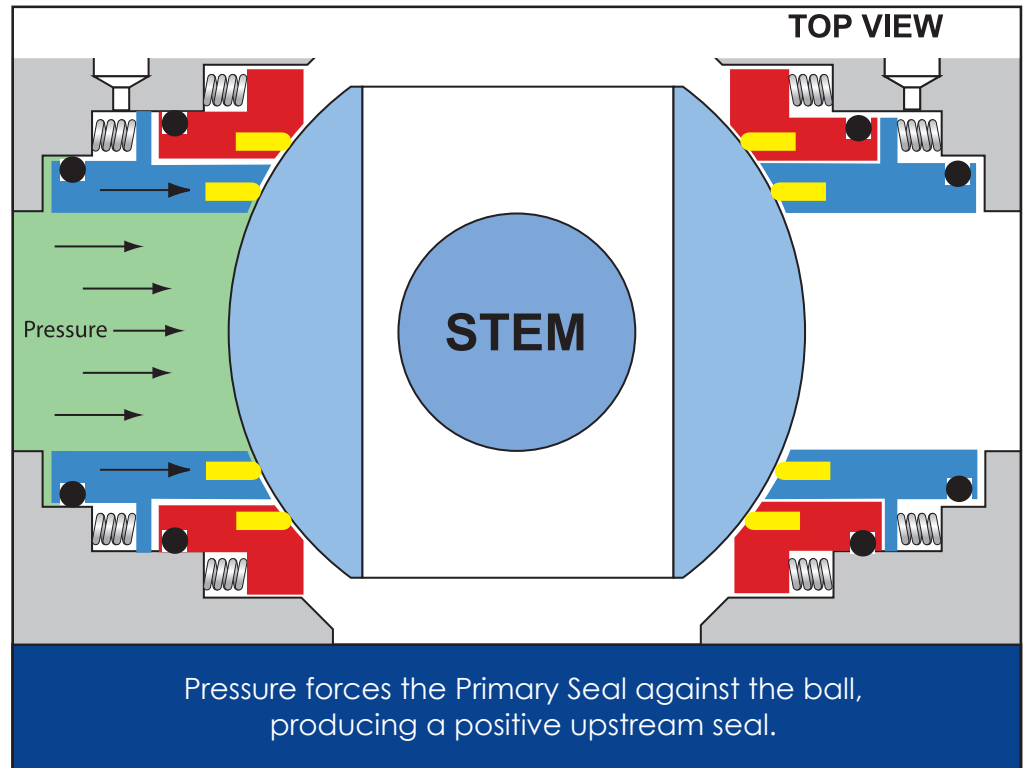


Figure 1

Upstream Sealing Secondary Seal (Red)

Figure 2

If the **Primary Seal** is damaged, the pressure bleeds past it and energizes the outer ring, the **Secondary Seal**. This gives the valve a new seal and a new area of the ball to seal against, producing another positive upstream seal. Even if it is damaged, the **Primary Seal** acts as a wiper ring to keep line debris away from the **Secondary Seal**.

Damaged Seal

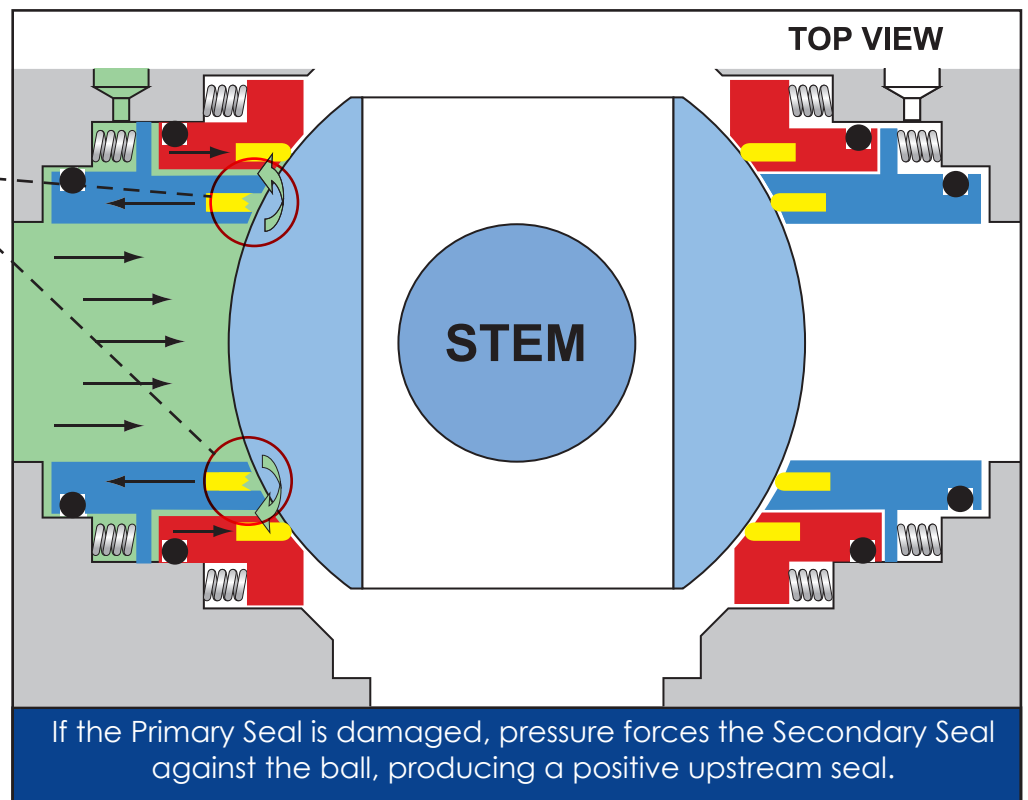


Figure 2



Optional Third Seal (Purple)

Figure 3

The **Optional 3rd Seal** is achieved by simply moving the Elastomeric Seal from the outside diameter to the inside diameter of a standard **Secondary Seal** on the downstream side of the valve. This seal also assures that any overpressure from thermal expansion will always vent back upstream rather than downstream as with conventional ball valves. The Dual-Seal Ball Valve is still bidirectional, even with the addition of the **3rd Seal**.

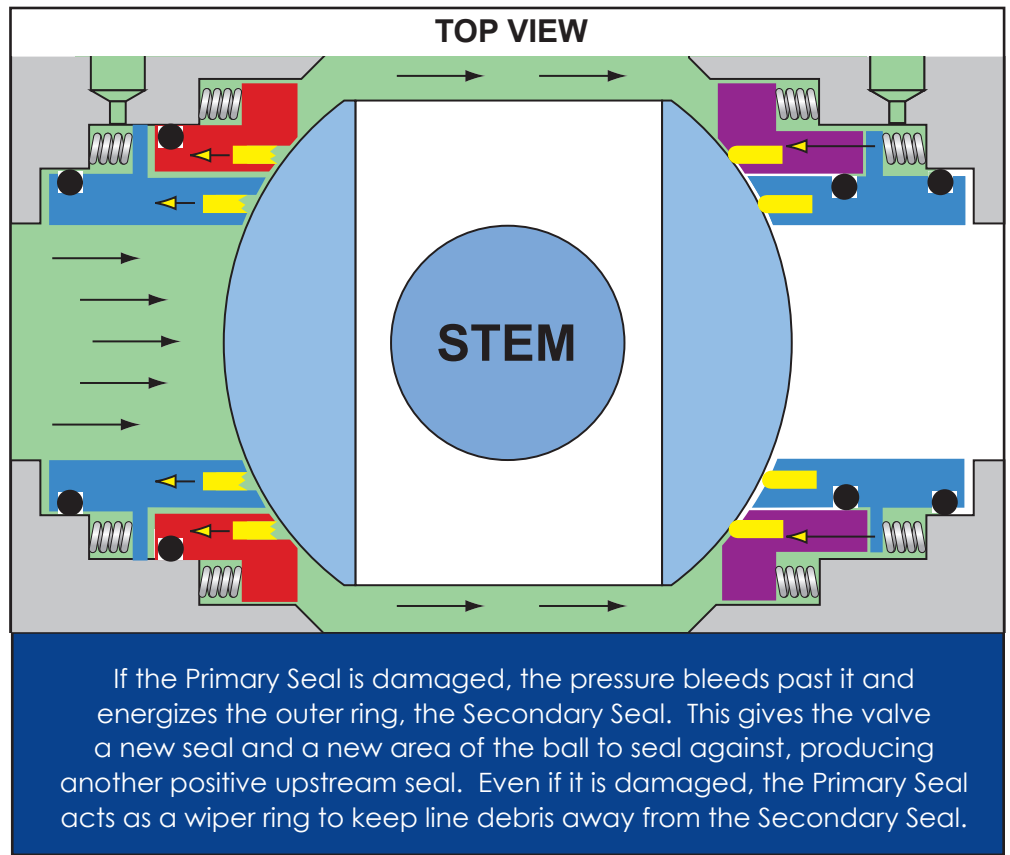


Figure 3

Test Port Sealant Port

Figure 4

Individually Check Each Seat with the Dual-Seal Ball Valve you can check which seal, the **Primary** or **Secondary**, is sealing by relieving pressure through one of the seat sealant injection fittings. This is the only valve in the industry that allows you to monitor seal integrity while the valve is still in service.

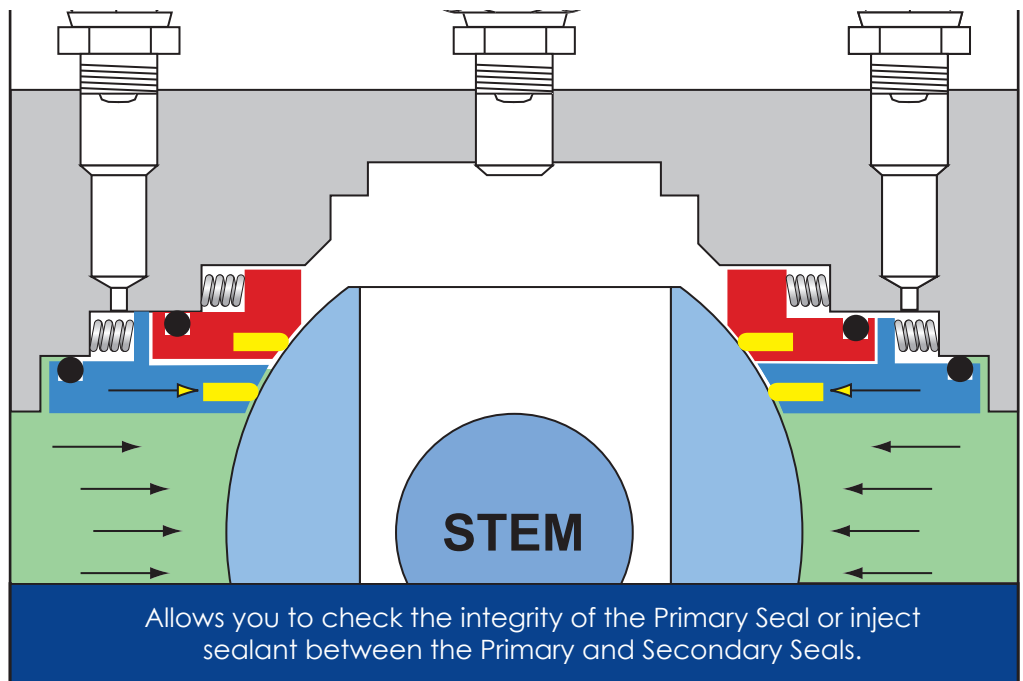


Figure 4

Double Block & Bleed Open Position

Figure 5

Valve is in the full open position, the through bore being pressurized and the body cavity having been vented.

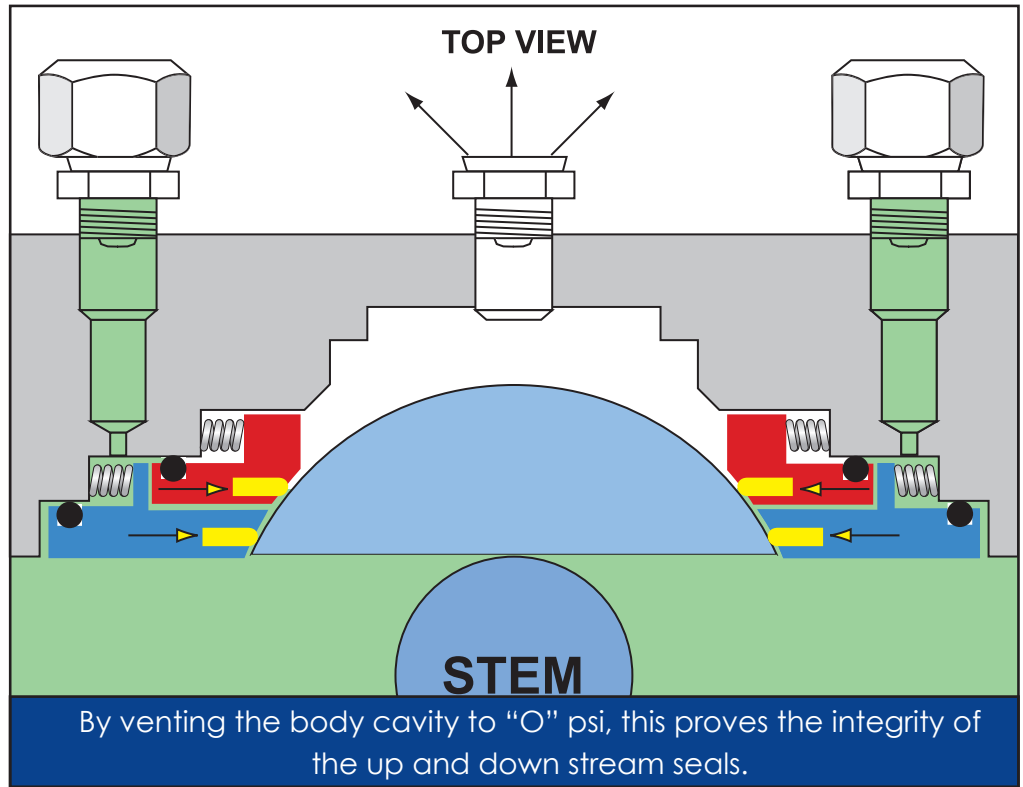


Figure 5

Double Block & Bleed Closed Position

Figure 6

Valve is in the full closed position with equal pressure on both sides of the ball and the body cavity vented to the atmosphere

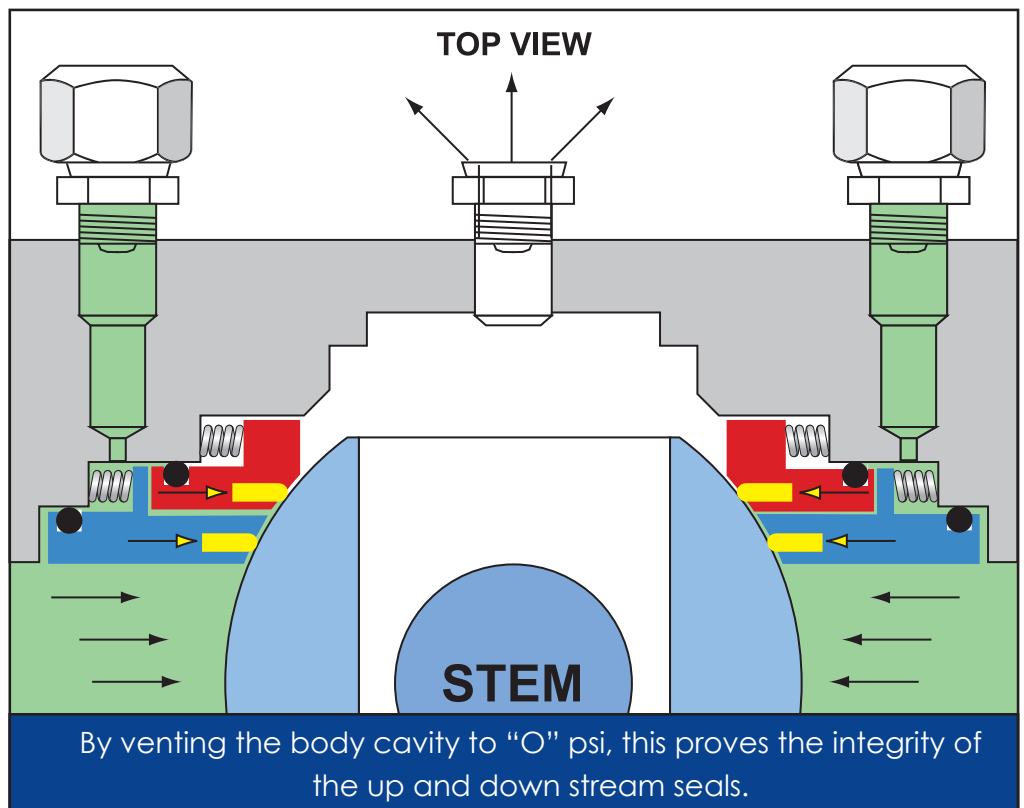
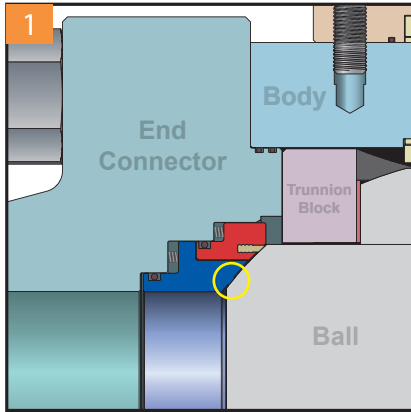
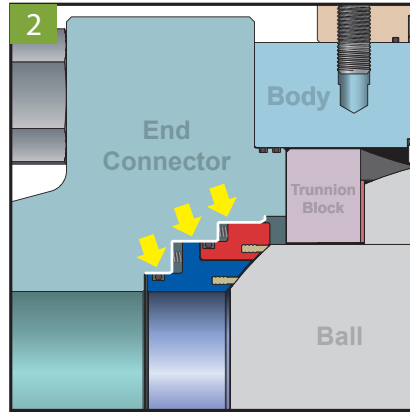


Figure 6

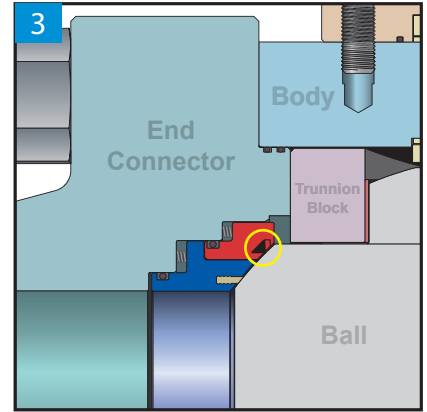
Special Options Can Be Your Standard



1
Optional Metal to Metal
Primary Seal



2
Optional Corrosive Resistant Alloy (CRA) Welded Inlay in Seat Pockets or other Sealing Areas.

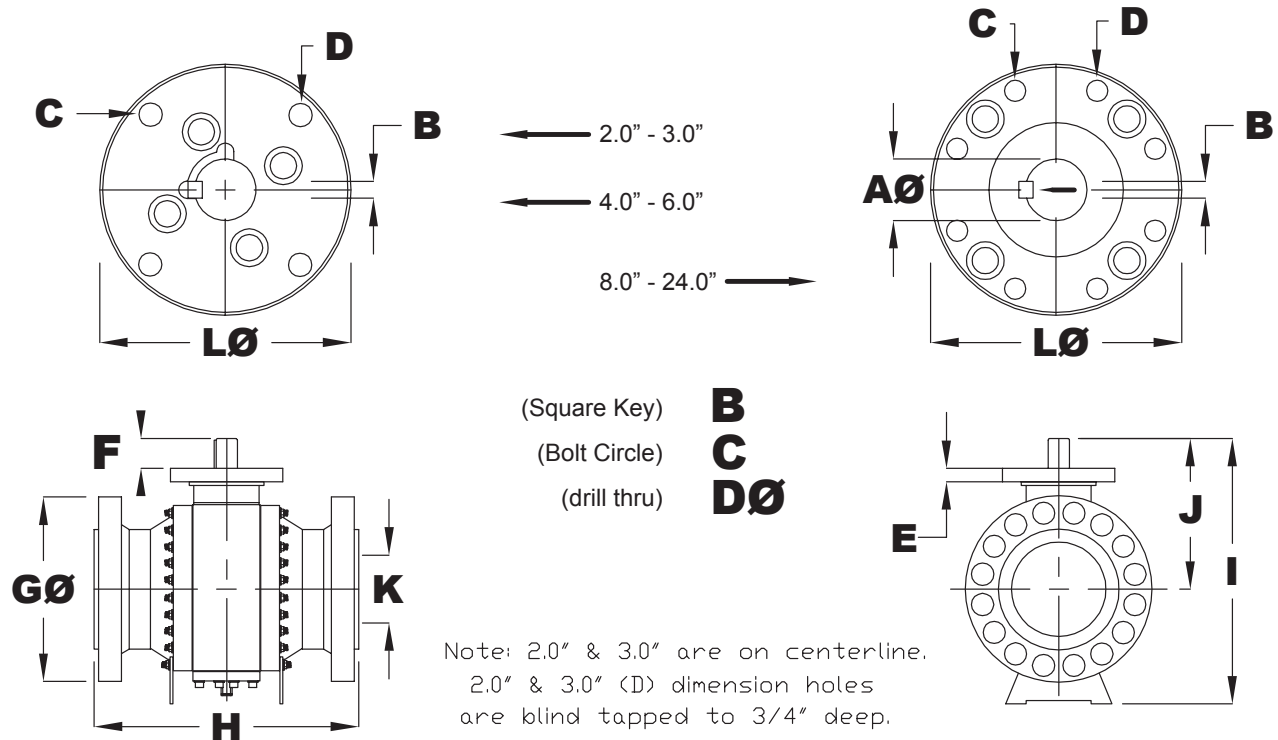


3
Optional Delta Shaped Elastomeric Seal used for ultra low working pressures in 150 Class - 300 Class.



Model 30-Dimensional Data

150 CLASS



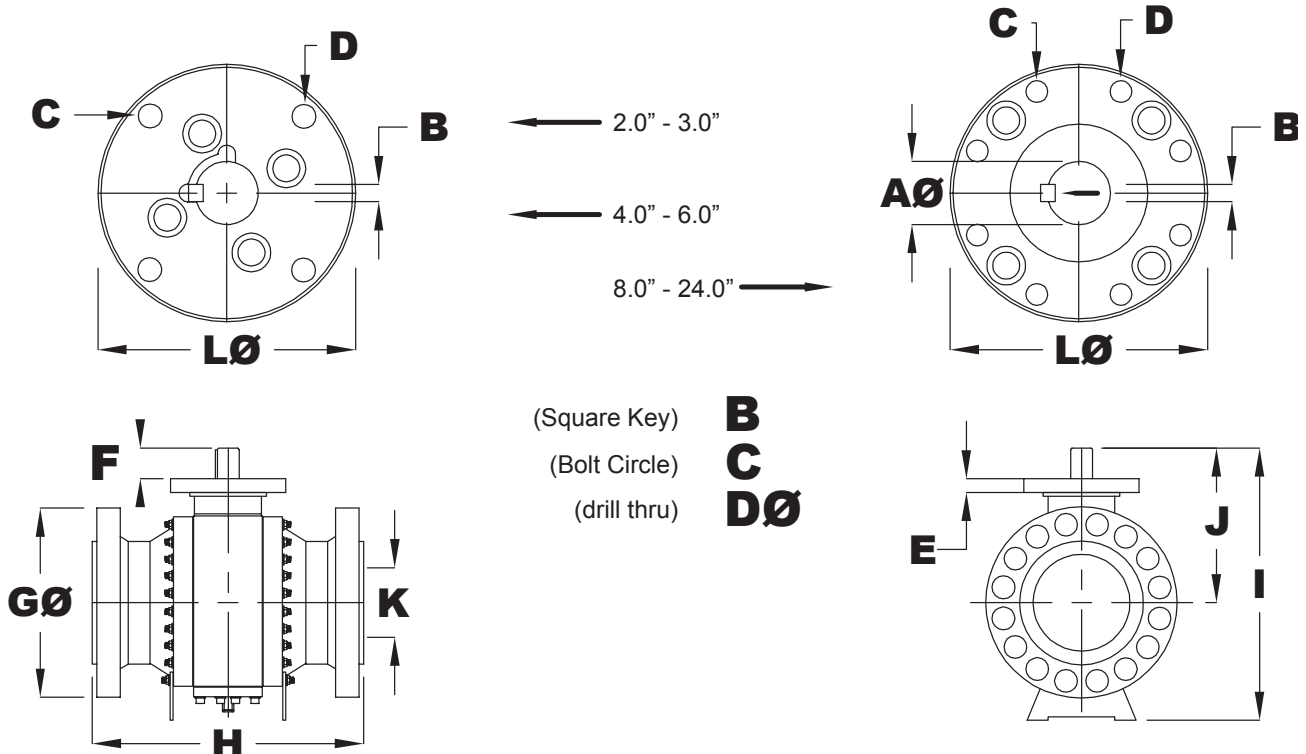
DN	50	80	100	150	200	250	300	350	400	450	500	600
VALVE SIZE (IN.)	2	3	4	6	8	10	12	14	16	18	20	24
A	0.950	1.250	1.574	1.564	2.369	3.186	3.186	3.186	3.186	3.376	3.376	3.376
B	.250	.375	.375	.375	.500	.750	.750	.750	.750	.875	.875	.875
C	4.921 F12	4.921 F12	6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	11.732 F30
D	4 17/32	4 17/32	4 25/32	4 25/32	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 7/8
E	.88	.88	.88	1.00	1.13	1.25	1.25	1.25	1.25	1.25	1.50	1.50
F	1.75	1.75	1.75	2.37	4.00	3.76	4.09	4.13	4.13	4.41	4.69	4.40
G	6.0	7.5	9.0	11.0	13.5	16.0	19.0	21.0	23.5	25.0	27.5	32.0
H	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00
I	15.78	15.53	17.13	21.88	27.03	34.81	35.21	40.06	44.06	46.56	49.59	55.38
J	8.13	8.00	9.13	12.38	15.40	19.81	19.21	21.25	21.25	23.84	26.19	28.38
K	2.00	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	23.25
L	5.90	5.90	8.28	8.28	11.81	11.81	11.81	11.81	11.81	11.81	11.81	16.34
WEIGHT (LBS)	115	130	242	450	620	1383	1950	-	2930	-	-	-
GEAR	N/A	N/A	N/A	DT12	DT21	DT36	DT36	DT36	DT36	-	-	-
TURNS	N/A	N/A	N/A	14.25	15	13.25	13.25	13.25	13.25	-	-	-

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.



Model 30-Dimensional Data

300 CLASS



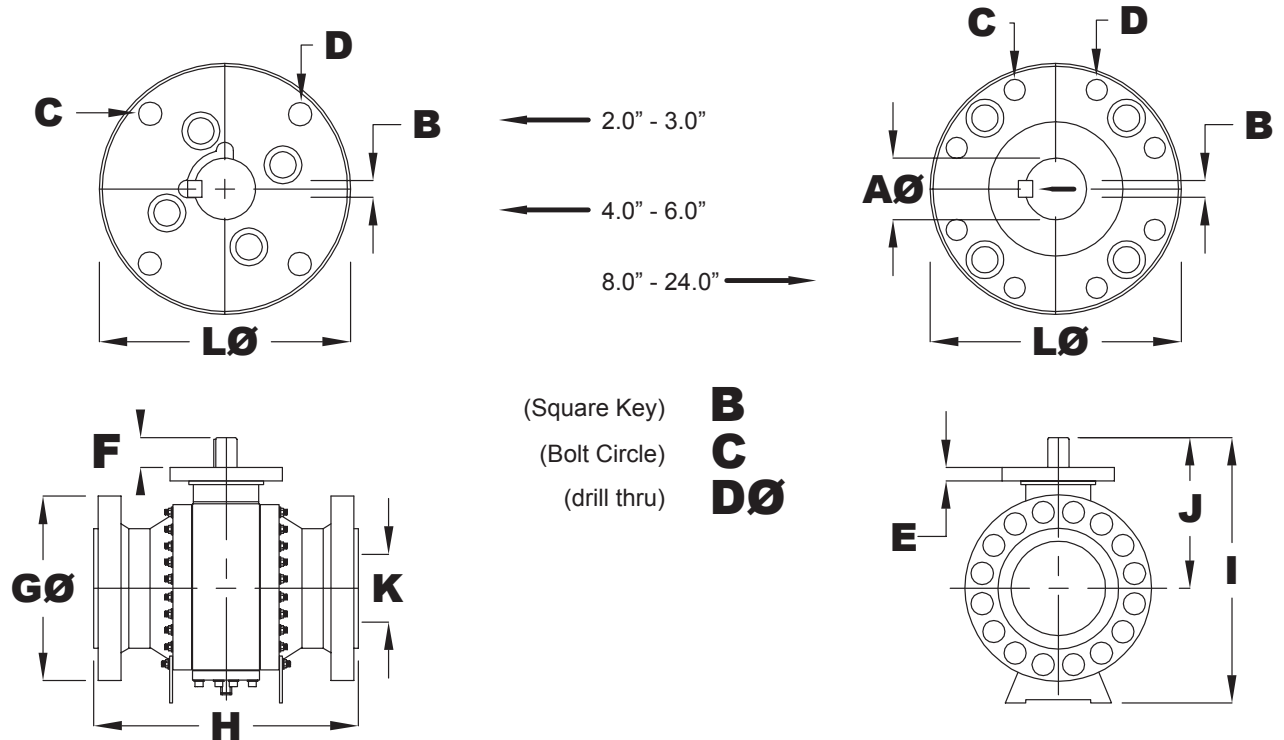
DN	50	80	100	150	200	250	300	350	400	450	500	600
VALVE SIZE (IN.)	2	3	4	6	8	10	12	14	16	18	20	24
A	0.950	1.250	1.574	1.564	2.369	3.186	3.186	3.186	3.186	3.376	3.376	3.376
B	.250	.375	.375	.375	.500	.750	.750	.750	.750	.875	.875	.875
C	4.921 F12	4.921 F12	6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	11.732 F30
D	4 17/32	4 17/32	4 25/32	4 25/32	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 7/8
E	.88	.88	.88	1.00	1.13	1.25	1.25	1.25	1.25	1.25	1.50	1.50
F	1.75	1.75	1.75	2.37	4.00	3.74	4.09	4.13	4.13	4.41	4.69	4.40
G	6.50	8.25	10.00	12.50	15.00	17.50	20.50	23.00	25.50	28.00	30.50	36.00
H	8.50	11.14	12.00	15.88	19.75	22.36	25.50	30.00	33.00	36.00	39.00	45.00
I	15.78	15.53	17.13	21.88	27.03	34.81	35.21	40.06	40.06	46.56	49.59	55.38
J	8.13	8.00	9.13	12.38	15.40	19.81	19.21	21.25	21.25	23.84	26.19	28.38
K	2.00	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	23.25
L	5.90	5.90	8.28	8.28	11.81	11.81	11.81	11.81	11.81	11.81	11.81	16.34
WEIGHT (LBS)	115	-	264	475	678	1440	2085	2552	3200	4225	-	8041
GEAR	N/A	N/A	N/A	DT12	DT21	DT36	DT36	DT36	DT60	DT90	-	DT140
TURNS	N/A	N/A	N/A	14.25	15	13.25	13.25	13.25	15	60	-	90

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.



Model 30-Dimensional Data

600 CLASS



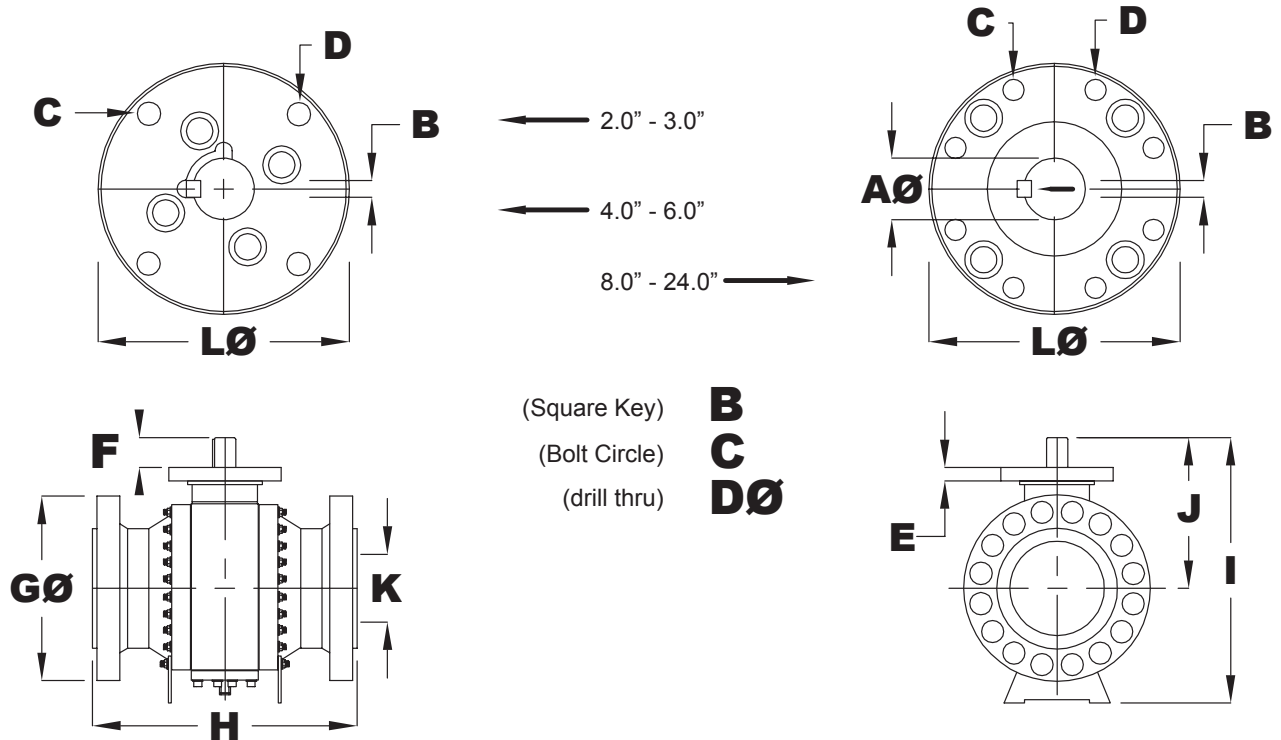
DN	50	80	100	150	200	250	300	350	400	450	500	600	750
VALVE SIZE (IN.)	2	3	4	6	8	10	12	14	16	18	20	24	30
A	0.950	1.250	1.574	1.564	2.369	3.186	3.186	3.186	3.186	3.376	3.376	3.376	5.875
B	.250	.375	.375	.375	.500	.750	.750	.750	.750	.875	.875	.875	.875
C	4.921 F12	4.921 F12	6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	11.732 F30
D	4 17/32	4 17/32	4 25/32	4 25/32	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 1-1/4 7/8
E	.88	.88	.88	1.00	1.13	1.25	1.25	1.25	1.25	1.25	1.50	1.50	2.00
F	1.75	1.75	1.75	2.37	4.00	3.75	4.09	4.13	4.13	4.41	4.69	4.40	9.76
G	6.50	8.25	10.75	14.00	16.50	20.00	22.00	23.75	27.00	29.25	32.00	37.00	44.50
H	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00
I	15.78	15.53	17.13	21.88	27.03	34.81	35.21	40.06	40.06	46.56	49.59	55.38	71.30
J	8.13	8.00	9.13	12.38	15.40	19.81	19.21	21.25	21.25	23.84	26.19	28.38	40.25
K	2.00	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	23.25	28.93
L	5.90	5.90	8.28	8.28	11.81	11.81	11.81	11.81	11.81	11.81	11.81	16.34	22.04
WEIGHT (LBS)	130	165	282	600	1000	2035	2475	-	3784	5060	6171	9230	19291
GEAR	N/A	N/A	N/A	DT12	DT36	DT36	DT36	DT60	DT90	DT140	DT140	DT140	-
TURNS	N/A	N/A	N/A	14.25	13.25	13.25	13.25	15	60	90	90	90	-

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.



Model 30-Dimensional Data

900 CLASS



DN	50	80	100	150	200	250	300	350	400	450	500	600	750
VALVE SIZE (IN.)	2	3	4	6	8	10	12	14	16	18	20	24	30
A	0.950	1.250	1.574	1.564	2.369	3.186	3.186	3.186	3.186	3.376	3.376	3.376	5.875
B	.250	.375	.375	.375	.500	.750	.750	.750	.750	.875	.875	.875	.875
C	4.921 F12	4.921 F12	6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	10.00 F25	14.016 F35	11.732 F30
D	4 17/32	4 17/32	4 25/32	4 25/32	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 11/16	8 7/8
E	.88	.88	.88	1.00	1.13	1.25	1.25	1.25	1.25	1.25	1.50	1.50	2.00
F	1.74	1.77	1.79	2.39	4.02	3.75	4.09	4.13	4.13	4.41	4.69	4.40	9.76
G	8.50	9.50	11.50	15.00	18.50	21.50	24.00	25.25	27.75	31.00	33.75	41.00	48.50
H	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	69.29
I	15.78	15.53	17.13	21.88	27.03	34.81	35.21	40.06	40.06	45.56	49.59	55.38	71.30
J	8.13	8.00	9.13	12.38	15.40	19.81	19.21	21.25	21.25	23.84	26.19	28.38	40.25
K	2.00	3.00	4.00	6.00	8.00	10.00	12.00	12.68	14.69	16.65	18.54	22.44	28.00
L	5.90	5.90	8.28	8.28	11.81	11.81	11.81	11.81	11.81	11.81	11.81	16.34	22.04
WEIGHT (LBS)	130	165	282	600	1000	2035	2475	-	3784	N/A	N/A	N/A	19291
GEAR	N/A	N/A	DT8	DT12	DT36	DT60	DT90	DT60	DT140	DT140	DT140	DT140	-
TURNS	N/A	N/A	7.5	14.25	13.25	15	60	15	90	90	90	90	-

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.



Model 40-Dimensional Data

150 CLASS

Dn	50	80	100	150	200	250	300
VALVE SIZE (IN.)	2	3	4	6	8	10	12
A	0.950	NA	1.514	1.564	2.369	3.186	3.186
	–		–	2.000	–	–	–
B	0.250		0.375	0.375	0.500	0.750	0.750
	–		–	0.500	–	–	–
C	5.512 F14		6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25
	–		–	–	–	–	–
D	4		4	4	8	8	8
	11/16		7/8"	7/8"	3/4"	3/4"	3/4"
E	0.88		1	1.00	1.1	1.2	1.465
	–		–	–	–	–	–
F	1.54		2.25	2.40	3.66	4.46	4.66
	–		–	2.45	–	3.75	4.858
G	6.50		10.75	14.00	16.50	20.00	22.00
	6.00		9.00	11.00	13.50	16.00	19.00
H	11.50		17.00	22.00	26.00	31.00	33.00
	7.00		9.00	15.50	18.00	21.00	24.00
I	12.810		18.23	20.64	26.22	34.81	38.9
	–		–	–	–	–	–
J	7.890		10.23	12.64	15.53	18.66	20.72
	–		–	12.82	–	18.052	–
K	2.00	4.00	6.00	8.00	10.00	12.00	
	–	–	–	–	–	–	
L	6.89	8.28	8.28	11.81	11.81	11.81	
	–	–	–	–	–	–	
WEIGHT (LBS)	130	282	600	2035	2035	2475	
GEAR	–	DT8	DT12	DT36	DT36	DT60	
TURNS	–	7.500	14.25	13.25	13.25	13.25	

*Dimensional data is to be used as general guidelines only;
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Model 40-Dimensional Data

300 CLASS

Dn	50	80	100	150	200	250	300
VALVE SIZE (IN.)	2	3	4	6	8	10	12
A	0.950	NA	1.514	1.564	2.369	3.186	3.186
	–		–	2.000	–	–	–
B	0.250		0.375	0.375	0.500	0.750	0.750
	–		–	0.500	–	–	–
C	5.512 F14		6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25
	–		–	–	–	–	–
D	4		4	4	8	8	8
	11/16		7/8"	7/8"	3/4"	3/4"	3/4"
	–		–	–	–	–	–
E	0.88		1	1.00	1.1	1.2	1.465
	–		–	–	–	–	–
F	1.54		2.25	2.40	3.66	4.46	4.66
	–		–	2.45	–	3.75	4.858
G	6.50		10.75	14.00	16.50	20.00	22.00
	–		10.00	12.50	15.00	17.50	20.50
H	11.50		17.00	22.00	26.00	31.00	33.00
	8.50		12.00	15.88	19.75	22.38	25.50
I	12.810		18.23	20.64	26.22	34.81	38.9
	–		–	–	–	–	–
J	7.890		10.23	12.64	15.53	18.66	20.72
	–	–	12.82	–	18.052	–	
K	2.00	4.00	6.00	8.00	10.00	12.00	
	–	–	–	–	–	–	
L	6.89	8.28	8.28	11.81	11.81	11.81	
	–	–	–	–	–	–	
WEIGHT (LBS)	130	282	600	2035	2035	2475	
GEAR	–	DT8	DT12	DT36	DT36	DT60	
TURNS	–	7.500	14.25	13.25	13.25	13.25	

*Dimensional data is to be used as general guidelines only;
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Model 40-Dimensional Data

600 CLASS

Dn	50	80	100	150	200	250	300
VALVE SIZE (IN.)	2	3	4	6	8	10	12
A	0.950	NA	1.514	1.564	2.369	3.186	3.186
	–		–	2.000	–	–	–
B	0.250		0.375	0.375	0.500	0.750	0.750
	–		–	0.500	–	–	–
C	5.512 F14		6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25
	–		–	–	–	–	–
D	4.000		4.000	4.000	8.000	8.000	8.000
	11/16		7/8"	7/8"	3/4"	3/4"	3/4"
	–		–	–	–	–	–
E	0.880		1.000	1.000	1.100	1.200	1.465
	–		–	–	–	–	–
F	1.540		2.250	2.400	3.660	4.460	4.660
	–		–	2.450	–	3.750	4.858
G	6.500		10.750	14.000	16.500	20.000	22.000
	–		–	–	–	–	–
H	11.500		17.000	22.000	26.000	31.000	33.000
	–		–	–	–	–	–
I	12.810		18.230	20.640	26.220	33.000	38.900
	–		–	–	–	–	–
J	7.890		10.230	12.640	15.530	18.660	20.720
	–	–	12.820	–	18.052	–	
K	2.000	4.000	6.000	8.000	10.000	12.000	
	–	–	–	–	–	–	
L	6.890	8.280	8.280	11.810	11.810	11.810	
	–	–	–	–	–	–	
WEIGHT (LBS)	130.000	282.000	600.000	2035.000	2035.000	2475.000	
GEAR	–	DT8	DT12	DT36	DT36	DT60	
URNS	–	7.500	14.250	13.250	13.250	13.250	

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.

Model 40-Dimensional Data

900 CLASS

Dn	50	80	100	150	200	250	300
VALVE SIZE (IN.)	2	3	4	6	8	10	12
A	-		-	-	-	-	-
B	0.250		0.375	0.375	0.500	0.750	0.750
C	4.921 F12		6.496 F16	6.496 F16	10.00 F25	10.00 F25	10.00 F25
D	5.510 F14		-	-	-	-	-
E	4.000		4.000	4.000	8.000	8.000	8.000
F	17/32		25/32	25/32	11/16	11/16	11/16
G	0.690		7/8"	7/8"	0.750	0.750	0.750
H	-		-	-	-	-	-
I	-		-	-	-	-	-
J	-		-	-	-	-	-
K	8.500		11.500	15.000	18.500	21.500	24.000
L	-		-	-	-	-	-
M	14.500		18.000	24.000	29.000	33.000	38.000
N	-		-	-	-	-	-
O	-		-	-	-	-	-
P	-		-	-	-	-	-
Q	-		-	-	-	-	-
R	2.000		4.000	6.000	8.000	10.000	12.000
S	-		-	-	-	-	-
T	5.900		8.280	8.280	11.810	11.810	11.810
U	6.890		-	-	-	-	-
GEAR	N/A		DT8	DT12	DT36	DT60	DT90
TURNS	N/A		7.500	14.250	13.250	15.000	60.000

Dimensional data is to be used as general guidelines only;
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Model 40-Dimensional Data

1500 CLASS

Dn	50	250
VALVE SIZE (IN.)	2	10
A	–	–
	–	–
B	PENDING	PENDING
	0.250	0.880
C	PENDING	PENDING
	5.510 F14	10.00 F25
D	PENDING	PENDING
	4.000	8.000
	0.690	3/4"
E	–	–
	–	–
F	–	–
	–	–
G	PENDING	25.750
	8.500	23.000
H	14.610	39.370
	–	–
I	–	–
	–	–
J	–	–
	–	–
K	1.930	9.410
	2.000	9.510
L	PENDING	PENDING
	6.890	12.000
GEAR	–	–
TURNS	–	–

Dimensional data is to be used as general guidelines only;
Not to be used for design work and is subject to change without notice.



General Design Standards

API Specifications

API 6A	Specification for Wellhead and Christmas tree equipment
API 6D	Specification for Pipeline valves
API 6FA	Specification for fire testing of valves
API 598	Valve inspection and testing
API 607	Fire test for soft seated quarter turn valves

ASTM Standards

ASTM A193	Alloy steel & SS bolting Materials for High Temperature service
ASTM A194	Carbon & alloy steel Nuts for High Pressure and High Temperature service

MSS Standards

SP-6	Standard finishes for contact faces of pipe flanges and connection –end flanges of valves & fittings
SP-25	Standard Marking System for valves
SP-44	Steel Pipeline Flanges
SP-45	By-pass and drain connection
SP-55	Quality Standard for Steel castings visual Method
SP-61	Hydro-testing of Steel valves

CSA Standards- Canada

Z45.15	Steel Valves
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ANSI/ASME Standards

B16.5	Steel pipe flanges & flanged fittings
B16.10	Face to face & end to end dimensions of ferrous valves
B16.25	Butt welding ends
B31.3	Chemical plant and petroleum refinery piping
B31.4	Liquid petroleum transportation piping systems
B31.8	Gas transmission and distribution piping systems
B46.1	Surface texture
BPV Sec. VIII Div. 1	Rules for construction of Pressure Vessels
BPV Sec. VIII Div. 2	Alternative Rules for construction of Pressure Vessels
BPV Sec. IX	Qualification Standard for Welding and Brazing Procedures, Welders, Brazers and welding & brazing operators

ISO Standards

ISO 9001:2008	Quality Management Systems – Requirements
ISO 5211	Top Woks –Industrial Valves , Part Turn Actuator attachments
ISO 15156	Petroleum & Natural gas industries , material for use in H2S containing environments in Oil & gas production
ISO 15848	Fugitive Emission Qualification Testing

Operating Pressures - ASME B 16.34			
ASME Class	Working Pressure	API 6A Pressure Rating	Working Pressure
150	285		
300	740		
600	1480	2000	2000
900	2220	3000	3000
1500	3705	5000	5000
2500	6170		
Typical Operating PSI for Carbon Steel @ -20 to 250 degrees F			
Temperatures Higher or Lower, Please Consult Factory			



Vertical Integration



Vertical Integration. We cast the steel, we machine the steel, and we assemble and test. At WOM we have full control of the manufacturing process, unlike other valve manufacturers.

Patented Design

United States Patent Number
5,494,256

US005494256A
(11) **Patent Number:** 5,494,256
(45) **Date of Patent:** Feb. 27, 1996

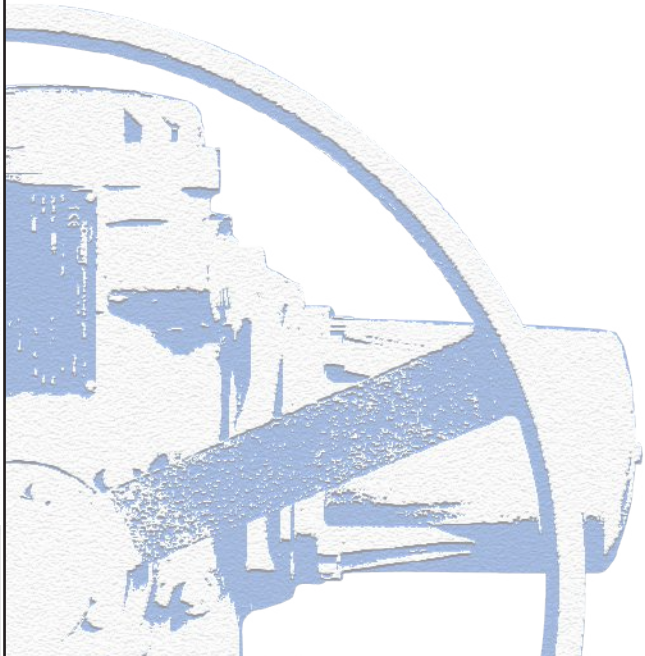
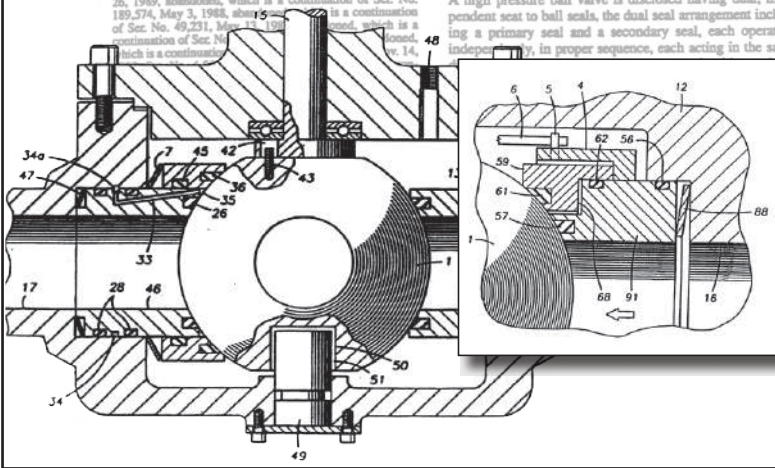
[54] **DUAL SEAL BALL VALVE**
[76] **Inventor:** John Beson, 10938 Leaning Ash, Houston, Tex. 77079
[*] **Notice:** The portion of the term of this patent subsequent to Aug. 16, 2011, has been disclaimed.
[21] **Appl. No.:** 284,909
[22] **Filed:** Aug. 2, 1994
Related U.S. Application Data

[51] **Int. Cl.⁶** F16K 5/06; F16K 5/20
[52] **U.S. CL.** 251/172; 251/174
[58] **Field of Search** 251/172, 174, 251/170, 315

[56] **References Cited**
U.S. PATENT DOCUMENTS
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3,504,885 4/1970 Hulsey 251/174 X
4,083,376 4/1978 Alaniz 251/172 X
4,280,522 7/1981 Pechnyo et al. 251/174 X
5,090,661 2/1992 Parks, Jr. et al. 251/174 X

Primary Examiner—Martin P. Schwadron
Assistant Examiner—Kevin L. Lee
Attorney, Agent, or Firm—David M. Ostfeld

[57] **ABSTRACT**
A high pressure ball valve is disclosed having dual, independent seat to ball seals, the dual seal arrangement including a primary seal and a secondary seal, each operating independently, in proper sequence, each acting in the same



US008490949B2

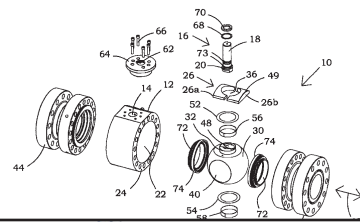
(12) **United States Patent**
Lanning et al.
(10) **Patent No.:** US 8,490,949 B2
(45) **Date of Patent:** Jul. 23, 2013

(54) **VALVE STEM ASSEMBLY FOR ROTARY VALVE AND METHOD**
(75) **Inventors:** William W. Lanning, Montgomery, TX (US); Robert Eric Maki, Oklahoma City, OK (US)
(73) **Assignee:** Worldwide Oilfield Machine, Inc., Houston, TX (US)
[*] **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 366 days.
(21) **Appl. No.:** 12/835,071
(22) **Filed:** Jul. 13, 2010
Prior Publication Data
US 2011/0240898 A1 Oct. 6, 2011
Related U.S. Application Data
(60) Provisional application No. 61/319,342, filed on Mar. 31, 2010, provisional application No. 61/333,517, filed on May 11, 2010.
(51) **Int. Cl.** F16K 5/06 (2006.01)
(52) **U.S. CL.** 251/315.09; 251/315.01; 251/315.14
(58) **Field of Classification Search**
USPC 251/315.08, 315.09, 315.14, 315.15, 251/304, 305.01
See application file for complete search history.
(56) **References Cited**
U.S. PATENT DOCUMENTS
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Primary Examiner—John K. Fristoe, Jr.
Assistant Examiner—Marina Tietjen
(74) **Attorney, Agent, or Firm**—Kenneth L. Nash

(57) **ABSTRACT**
A valve body defines a valve stem opening. A valve stem comprises an enlarged portion greater than the valve stem opening to thereby secure the valve stem within the valve body by limiting radially outward movement of the valve stem with respect to the valve body. A rotary member comprise upper and lower bosses. Upper and lower split trunnions, with split components that can be inserted from opposite sides of the valve body, are used to rotationally support the upper and lower bosses to permit rotation of the rotary member while preventing axial movement of the axial flow path of the valve.

18 Claims, 2 Drawing Sheets



A revolutionary design
protected by several patents.



Fugitive Emission Test Certification

Fugitive Emission Test Certificate

ISO 15848-1: 2006



Name of Manufacturer:	Worldwide Oilfield Machine, Inc	Test Date:	June 11, 2014
Designation of Valve:	Trunnion Ball Valve 10116566-1	Report/Certificate Number:	214158A
Size Tested (Inches):	6	Pressure Class:	ANSI Class 900
Body Material:	A-216 WCC	Stem Material:	AISI 4130
Stem Seal:	Filled TFE insert	Body Seal:	4130 Alloy Steel with ENP
Endurance Class:	CO1 – 500 cycles	Temperature Class:	RT
Tightness Class:	BH	Number of Packing Adjustments	0

Valve Sizes / Classes Qualified:	2 - 24" Class 150, 300, 600 and 900
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This certificate refers to the above mentioned product. This is to certify that the test specimen provided is in conformity with the standard mentioned above. This certificate does not imply assessment of the production of the product. Qualification of other sizes and pressure classes of similar valves to the tested valve shall be done in accordance with Section 8 of the test specification.

Laboratory Information

Name:	Yarmouth Research and Technology, LLC
Address:	434 Walnut Hill Road North Yarmouth, ME 04097 USA
Tester:	Matthew Wasielewski, PE info@yarmouthresearch.com www.yarmouthresearch.com (207) 829-5359

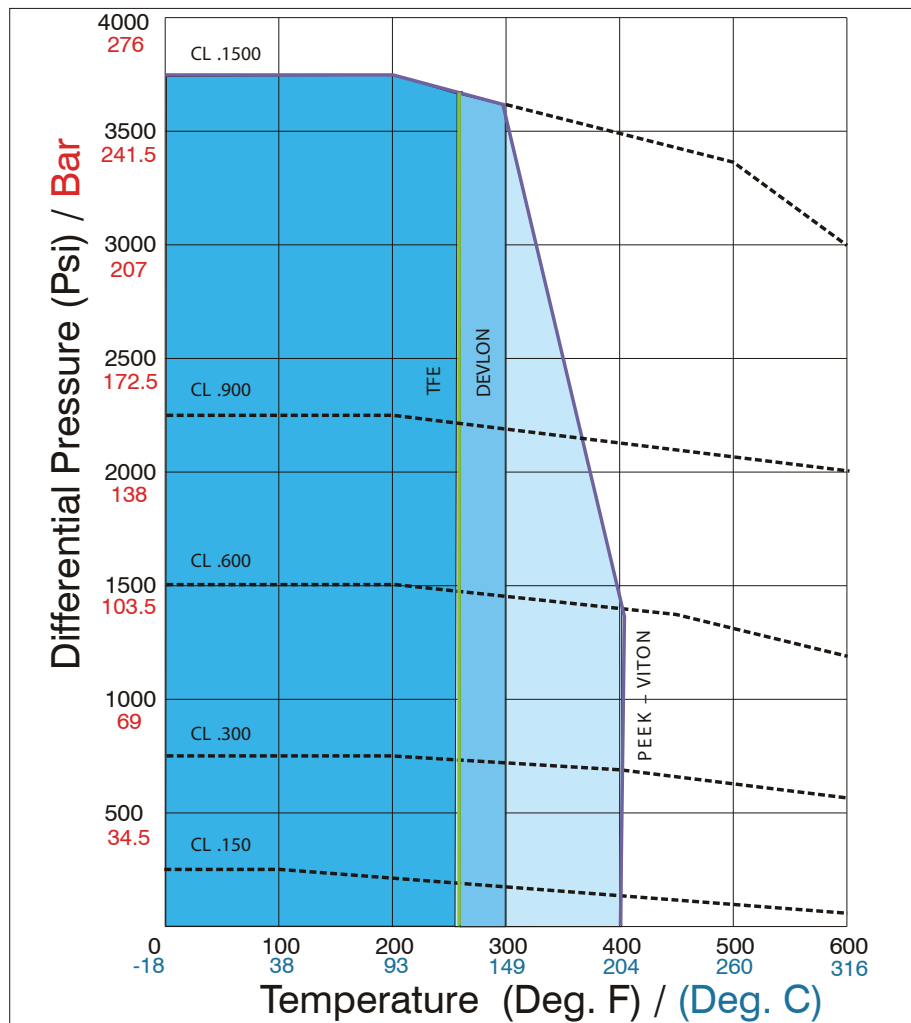


WOM Ball Valve Before and During the Fire Test

Pressure Temperature Rating

Pressure / Temperature range for seat insert materials for Model 30 ball valves

Insert Materials:
 TFE (reinforced teflon)
 DEVLON
 PEEK



For applications above 350°F consult WOM
 Other ratings are available on request.
 Metal to metal seats are also supplied on request.

Note: These ratings are a guide for general service.
 Please consult WOM for specific recommendations.



WOM proudly celebrates 40 years of providing the oil & gas industry with meticulously designed, well-engineered pressure and flow control equipment. WOM looks forward to continuing to make a positive impact on the process of safely extracting one of the world's most precious resources. We are honored to work with the businesses that have trusted our commitment to excellence and appreciate each member of our group that has contributed to our success.

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