

Trunnion Mounted Ball Valves Structure Properties

General

The Trunnion mounted ball valves designed in accordance with API 6D for classes ASME class 150,300, 600, 900, 1500 and 2500.

three-piece split body cast steel and three-piece forged steel side entry design bolted connections between body and closure, trunnion bolted connection, body thickness comply with ANSI B16.34.

Seat ring is floating type, spring loaded to assure the contact with the ball in order to provide an effective tight seal even at low differential pressure between cavity and downstream closure.

Standard design is soft seated.

A different soft seat materials are available based on the customer working condition.

Available in full and reduced bore.

Electric, pneumatic and hydraulic actuator are available based on customer requirement.

Valves have been designed for use with various combinations of materials such as Carbon steel, Low carbon steel, special alloy; stainless steel, MONEL and Inconel.

Body Joint Construction

Three pieces body and side entry design, graphite ring or O-ring Viton for request seal ensure absolute seal integrity. The boiled body designs include at tight tolerance overlapping metal fit between the body and the adapter to minimize any possibility of movement due to pipeline stress.

High temperature spiral wound stainless steel / grafoil filled gasket is used for absolute seal.

Body and adaptors are dimensioned for metal contact to ensure correct gasket crush.

Stem design / Anti Blowout

The stem is made separately from the ball, anti-blow-up design with suitable PTFE and graphite ring and antistatic devices, See Fig.1

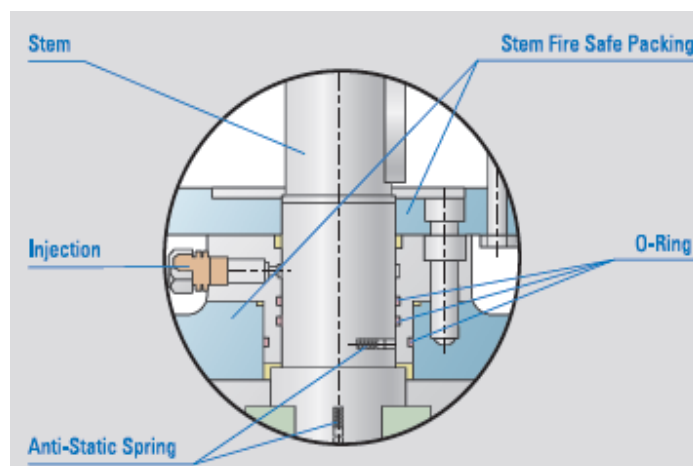


Fig 1

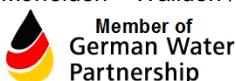
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Nero Trunnion Mounted Ball Valves

Anti- Static Device

All flow control- floating flange ball valves include dual grounding systems from stem to ball and stem to body. Valve testing to BS 5351 and BS 5146 was performed for all sizes, and witnessed by a third party inspection company. See Fig. 1

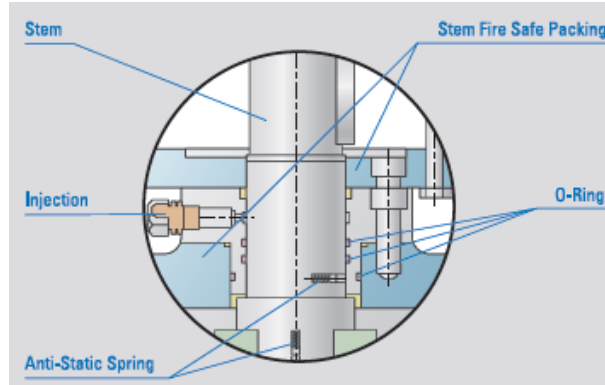


Fig 1

Emergency Sealant Injection

The trunnion Type ball valves are filled with emergency seal to restore sealing in case of soft seal damage. See Fig 1 & Fig 2

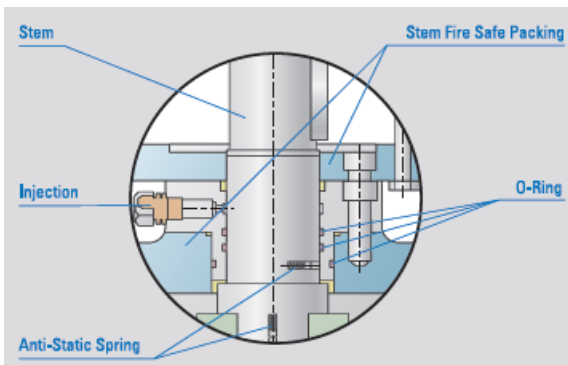


Fig 1

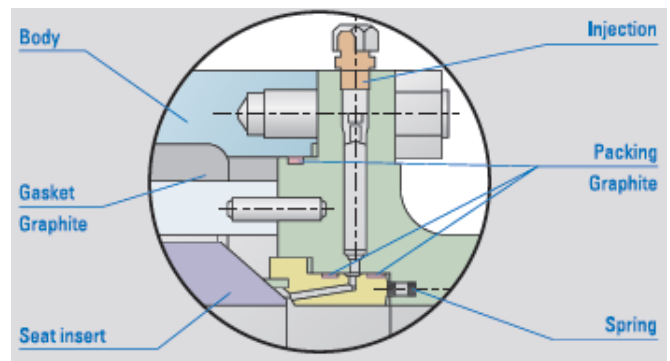


Fig 2

Fire Safety

All fire-safety valves conform to API 607 and API 6FA standards. See Fig.1 & Fig. 2

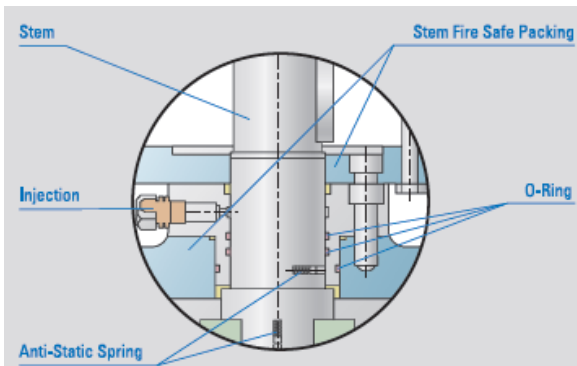


Fig 1

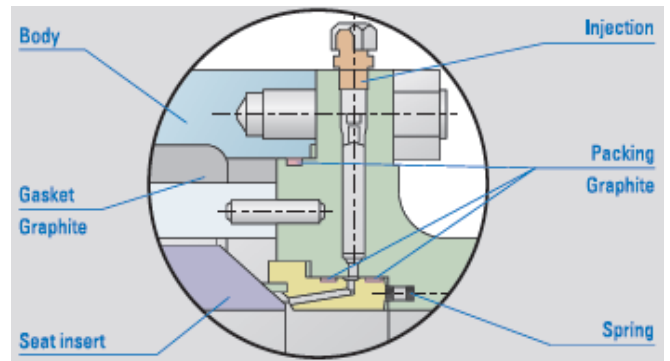


Fig 2

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Trunnion Mounted Ball Valves

Model: NVT33: Side entry Design, three -piece Body



1. Features:

Valve design according to API6D for pipeline service

Antistatic and anti blow-out stem design

Seat design with perfect tightness, available either as self-relieving type or double piston effect type

Design minimizes friction leading to low operating torque.

Available as double block and bleed model which allows venting and draining of fluid from the body cavity

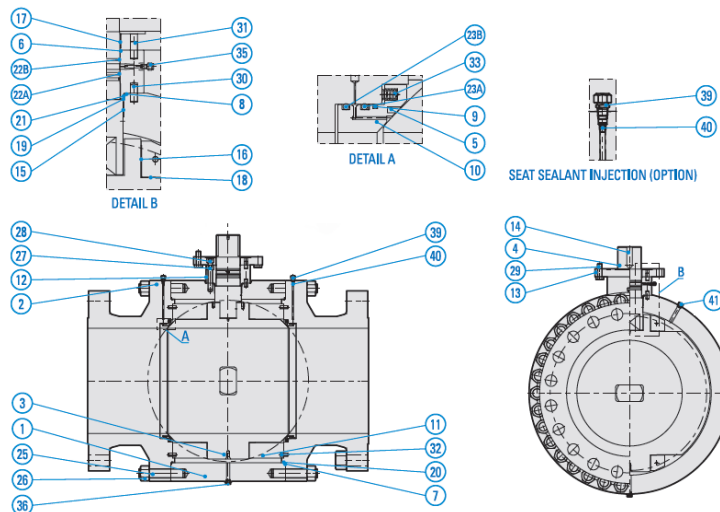
Available full and reduced bore

Ball valve fire safe tested acc. to BS EN 12266-2, API 6FA and API 607.

Electric, pneumatic and hydraulic actuators are available upon customer's requirement

2. Material Specifications

Pos	Parts	Standard	Pos	Part	Standard	Pos	Parts	Standard
1	Body	A216 WCB	16	Trunnion Bearing	DU-Bush	26	Nut	A194 2H
2	CAP	A216 WCB	17	Pad Bearing	DU-Bush	27	Seal cover Bolt	A193 B8
3	Ball	A351 CF8M	18	Thrust Bearing	SS304+PTFE	28	Pad Bolt	A193 B8
4	Stem	A276 T316	19	Thrust Bearing	DU-Bush	29	Gear Box Bolt	A194 B7
5	Seat ring	PTFE	20	O-Ring	NBR	30	PIN-A	SS304
6	Packing	PTFE		Back Up Ring	PTFE	31	Pin-B	SS304
7	Gasket	PTFE	21	O-Ring	NBR	32	Pin-C	SS307 X7
8	Gasket	PTFE		Back Up Ring	PTFE	33	Spring	Inconel X50
9	Fire Safe Seal	Graphite	22a	O-Ring	NBR	35	Sealant Fitting	SS304
10	Seat Retainer	A276 T316		Back Up Ring	PTFE	36	Drain Plug	SS304
11	Trunnion Plate	A376 T316	22B	O-Ring	NBR	39	Sealant Injection	SS304
12	Seal Cover	A105	23A	O-Ring	NBR	40	Check Valve	SS304
13	ISO Mounting PaD	A105		Back Up Ring	PTFE	41	Vent Plug	SS304
14	Key	A576 1045	23B	O-Ring	NBR			
15	Stem Bearing	DU-Bush	25	Cap Bolt	A193 B7			



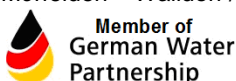
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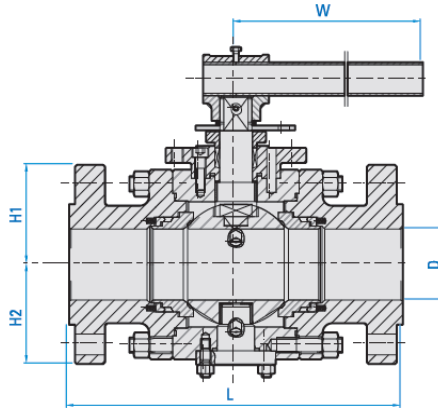


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Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three -piece Body
Full Port/ Class 150



Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	51	178	105	100	32
3	76	203	160	130	53
4	102	229	205	170	100
6	152	394	245	190	157
8	203	457	280	230	250
10	254	533	326	280	390
12	305	610	350	300	578
14	337	686	380	330	770
16	387	762	415	350	1100
18	438	864	440	400	1250
20	489	914	500	440	1800
22	540	991	520	470	2400
24	591	1067	585	530	3100
26	635	1143	630	570	3700
28	686	1244	645	650	4500
30	736	1295	700	700	5300
32	781	1371	740	750	6900
34	832	1473	770	780	8200
36	876	1524	820	800	9700
40	978	1753	900	900	13000
42	1022	1855	960	950	15000
48	1168	2134	1100	1100	23000
56	1368	2489	1300	1250	34150

Note:

1. Face to face are according to API 6D
2. For 2" to 24" . flanges are according to ASME B16.5
3. For over 24" . flanges are according to ASME B16.47 series A

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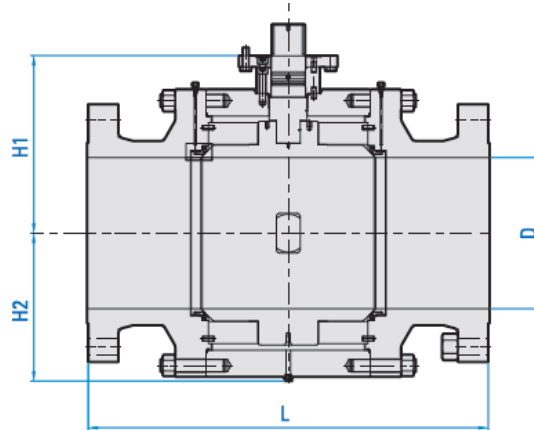
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Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three -piece Body
Reduce Port/ Class 150



Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
3x2x3	51	76	203	105	100	36
4x3x4	76	102	229	160	130	63
6x4x6	102	152	394	205	170	105
8x6x8	152	203	457	245	190	200
10x8x10	203	254	533	280	230	300
12x10x12	254	305	610	326	280	470
14x10x14	254	337	686	320	280	530
14x12x14	305	337	686	350	300	630
16x12x16	305	387	762	350	300	700
16x14x16	337	387	762	380	330	830
18x16x18	387	438	864	415	350	1100
20x16x20	387	489	914	415	350	1200
22x18x22	438	489	914	440	400	1300
24x20x24	489	591	1067	500	440	2100
30x24x30	635	736	1295	585	530	3400
36x30x36	781	876	1524	700	700	6400

Note:

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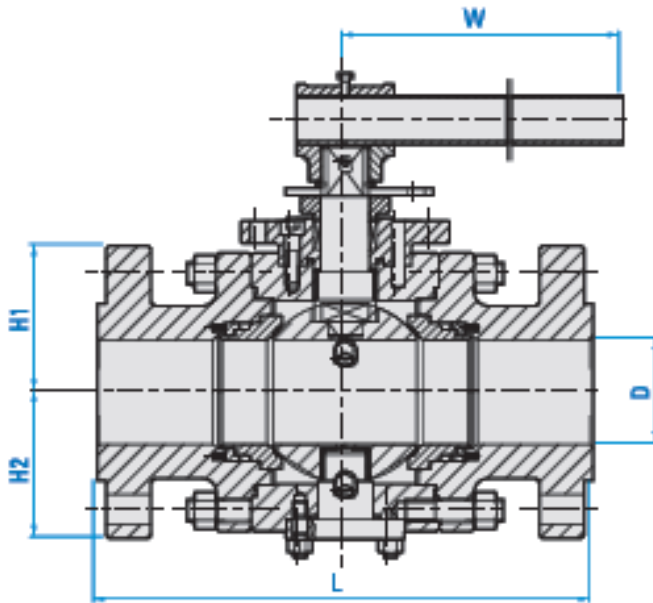
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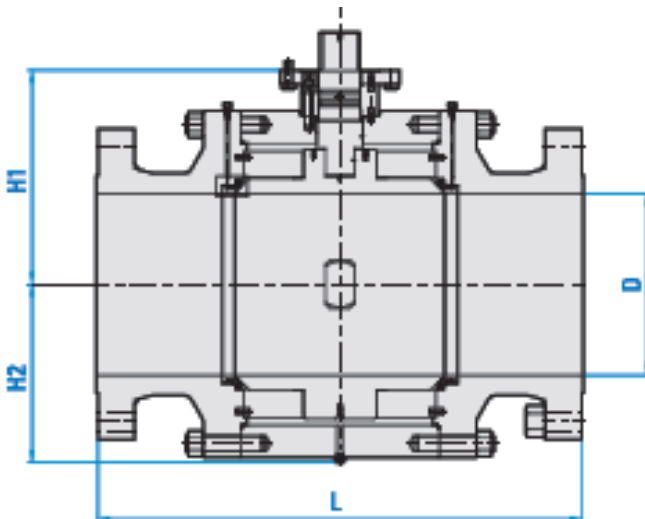


Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three -piece Body
Full port class 300



Reduce Port/ Class 300



Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	51	216	105	100	31
3	76	283	160	130	58
4	102	305	205	170	110
6	152	403	245	190	180
8	203	502	280	230	280
10	254	568	326	280	410
12	305	648	350	300	760
14	337	762	380	330	1100
16	387	838	415	350	1600
18	438	914	440	400	1700
20	489	991	500	440	2300
22	540	1092	520	470	2900
24	591	1143	585	530	3500
26	635	1245	630	570	4900
28	686	1346	645	650	6000
30	736	1397	700	700	6800
32	781	1524	740	750	8000
34	832	1626	770	780	9100
36	876	1727	820	800	11000
40	978	1956	900	900	14000
42	1022	2083	960	950	17000
48	1168	2170	1100	1100	25000
56	1368	2743	1300	1275	38200

Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H1(mm)	Weight(kg)
3x2x3	51	76	283	105	100	34
4x3x4	76	102	305	160	130	70
6x4x6	102	152	403	205	170	120
8x6x8	152	203	502	245	190	220
10x8x10	203	254	568	280	230	320
12x10x12	254	305	648	326	280	600
14x10x14	254	337	762	320	280	660
14x12x14	305	337	762	350	300	850
16x12x16	305	387	838	350	300	1000
16x14x16	337	387	838	380	330	1200
18x16x18	387	438	914	415	350	1700
20x16x20	387	489	991	415	350	1700
22x18x22	438	489	991	440	400	1850
24x20x24	489	591	1143	500	440	2700
30x24x30	591	736	1397	585	530	4600
36x30x36	736	876	1727	700	700	8000

Note:

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3. For over 24". flanges are according to ASME B16.47 series A

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Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three -piece Body



Full port class 600

Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	51	292	105	100	35
3	76	356	160	130	66
4	102	432	205	170	118
6	152	559	245	190	270
8	203	660	280	230	500
10	254	787	325	280	780
12	305	838	350	300	1100
14	337	889	380	330	1100
16	387	991	415	350	1600
18	438	1092	440	400	2160
20	489	1194	500	440	2700
22	540	1296	520	470	3900
24	591	1397	585	530	5000
26	635	1448	630	570	5700
28	686	1549	645	650	7000
30	736	1651	700	700	9000
32	781	1778	740	750	9800
34	832	1930	770	780	12000
36	876	2083	820	800	14000
40	978	2337	900	900	19000
42	1022	2437	960	950	22000
48	1168	2540	1100	1100	31500
56	1368	2949	1300	1290	48050

Reduce Port Class 600

Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
3x2x3	51	76	356	105	100	42
4x3x4	76	102	432	160	130	90
6x4x6	102	152	559	205	170	160
8x6x8	152	203	660	245	190	300
10x8x10	203	254	787	280	230	560
12x10x12	254	305	838	325	280	820
14x10x14	254	337	889	320	280	920
14x12x14	305	337	889	350	300	1200
16x12x16	305	387	991	350	300	1400
16x14x16	337	387	991	380	330	1400
18x16x18	387	438	1092	415	350	1700
20x16x20	387	489	1194	415	350	2100
22x18x22	438	489	1194	440	400	2400
24x20x24	489	591	1397	500	440	3300
30x24x30	591	736	1651	585	530	5900
36x30x36	736	876	2083	700	700	11000

Note:

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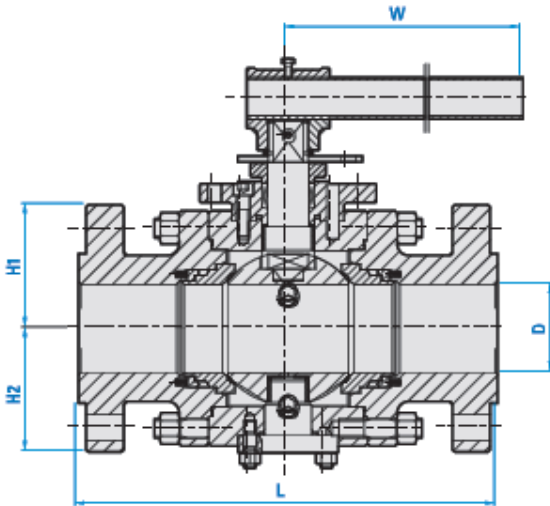
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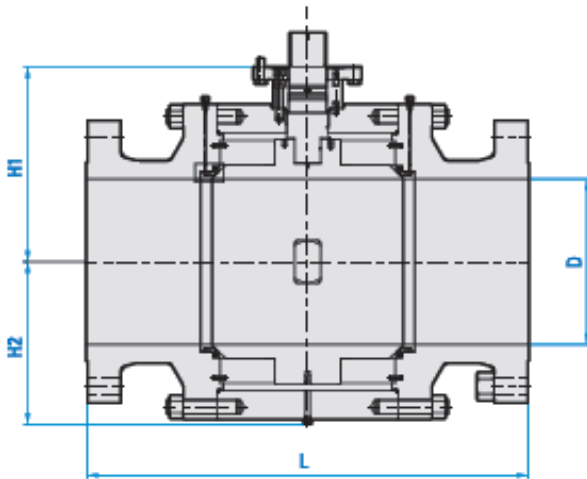
Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three-piece Body
Full port class 900



Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	51	388	105	100	50
3	76	381	160	130	80
4	102	457	205	170	150
6	152	610	245	190	360
8	203	737	280	230	620
10	254	838	326	280	1100
12	305	965	350	300	1600
14	324	1029	380	330	1450
16	375	1130	415	350	2200
18	425	1219	440	400	2800
20	473	1321	500	440	4250
22	524	1422	520	470	6500
24	572	1549	585	530	7000
26	669	1651	630	570	8000
28	667	1753	645	650	9500
30	714	1880	700	700	12500
32	762	2032	740	750	12000
34	808	2159	770	780	18000

Reduce Port Class 900



Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
3x2x3	51	76	381	105	100	55
4x3x4	76	102	457	160	130	100
6x4x6	102	152	610	205	170	220
8x6x8	152	203	737	245	190	450
10x8x10	203	254	838	280	230	560
12x10x12	254	305	965	326	280	820
14x10x14	254	337	1029	320	280	920
14x12x14	305	337	1029	350	300	1200
16x12x16	305	387	1130	350	300	1400
16x14x16	324	387	1130	380	330	1400
18x16x18	375	438	1219	415	350	1700
20x16x20	375	489	1321	415	350	2100
22x18x22	425	489	1321	440	400	2400
24x20x24	473	591	1549	500	440	3300
30x24x30	572	736	1880	585	530	5900
36x30x36	714	876	2286	700	700	11000

Note:

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Trunnion Mounted Ball Valves

Model: NVT3: Side entry Design, three -piece Body



Full port class 1500

Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	51	368	110	105	60
3	76	470	165	130	100
4	102	546	220	170	210
6	146	705	260	230	500
8	194	832	310	290	850
10	241	991	370	360	1600
12	289	1130	430	440	2300
14	317	1257	450	450	2950
16	362	1384	500	600	4200

Full port class 2500

Size(in.)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
2	44.5	451	120	130	100
3	63.5	578	180	200	200
4	89	673	230	250	390
6	133	914	260	250	790
8	181	1022	400	350	1400
10	226	1270	450	420	2200
12	267	1422	520	510	3400

Reduce Port Class 1500

Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
3x2x3	51	76	470	110	105	70
4x3x4	76	102	546	165	130	130
6x4x6	102	146	705	220	170	300
8x6x8	146	194	832	260	230	580
10x8x10	194	241	991	310	290	1100
12x10x12	241	289	1130	370	360	1800
14x10x14	241	317	1257	370	360	2200
14x12x14	289	317	1257	430	440	2600
16x12x16	289	362	1384	430	440	2900
16x14x16	317	362	1384	450	450	3300
18x16x18	362	407	1537	500	600	5000
20x16x20	362	457	1664	500	600	5600

Reduce Port Class 2500

Size(in.)	d(mm)	D(mm)	L(mm)	H1(mm)	H2(mm)	Weight(kg)
3x2x3	44.5	63.5	578	120	130	170
4x3x4	63.5	89	673	180	200	280
6x4x6	89	133	914	260	250	520
8x6x8	133	181	1022	400	250	1100
10x8x10	181	226	1270	450	350	1700
12x10x12	226	267	1422	450	420	2600

Note:

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3. For over 24". flanges are according to ASME B16.47 series A

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