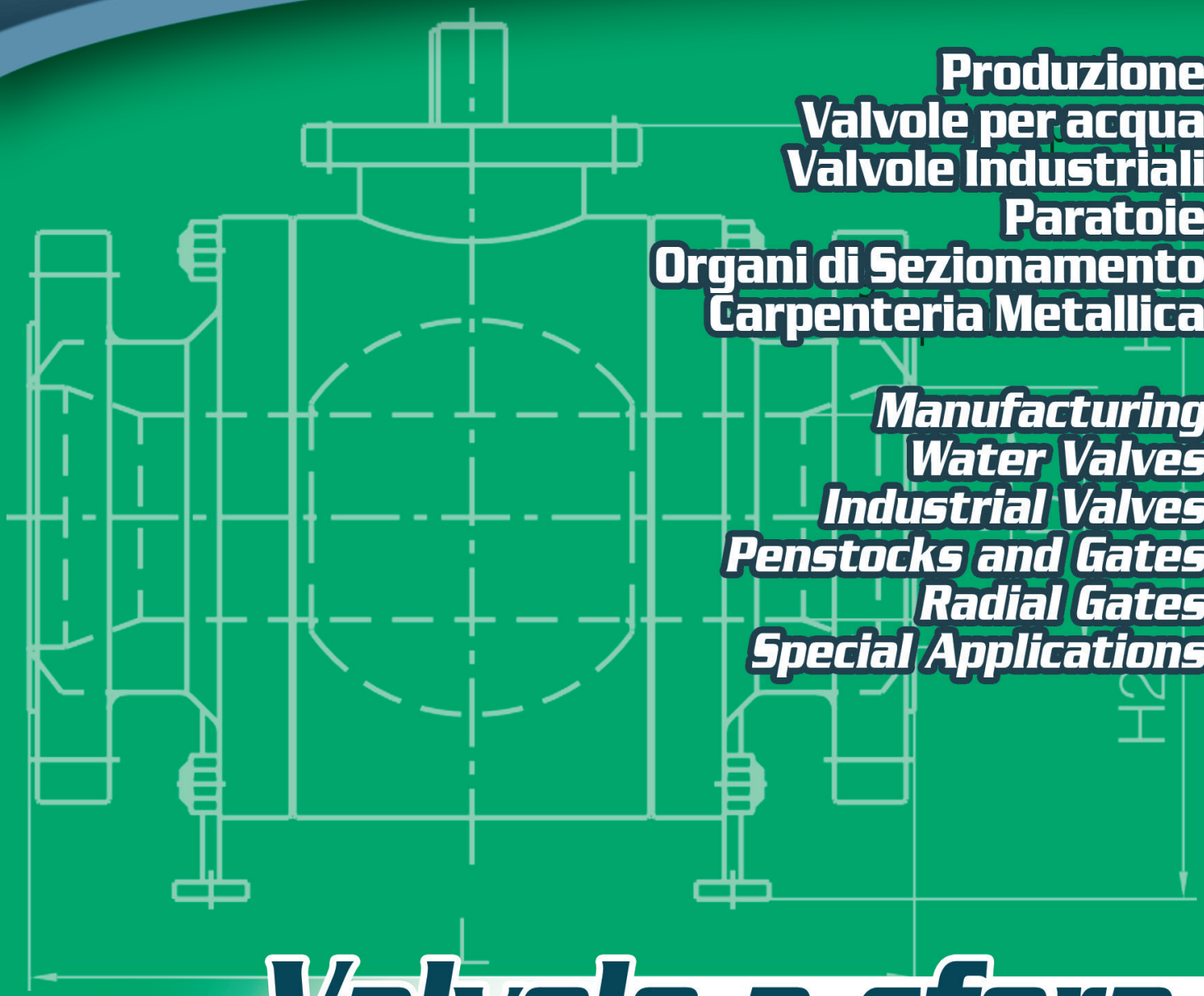
DI NICOLA®

Produzione
Valvole per acqua
Valvole Industriali
Paratoie
Organi di Sezionamento
Carpenteria Metallica

Manufacturing
Water Valves
Industrial Valves
Penstocks and Gates
Radial Gates
Special Applications



Valvole a sfera

Ball valves

TÜVRheinland® CERTIFIED

Management System ISO 9001:2008

www.tuv.com ID9105084789

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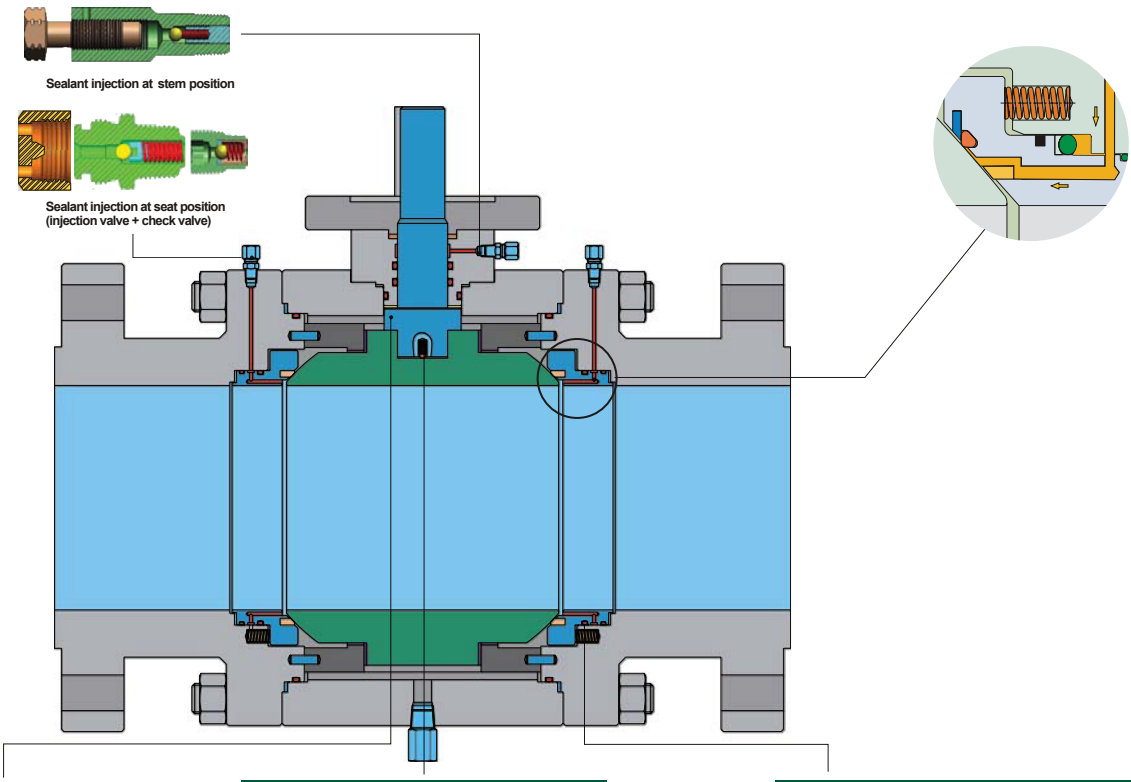


Anti-Blowout Design

For the sake of safety, the stem must be designed with a blow-out proof device to prevent the stem from being blown out by the internal pressure when the packing gland or actuator yoke is removed.

Anti-static Device

In order to avoid accidents arising from static accumulation, all metal ball valves are provided with an anti-static device at the body, the ball and the stem, so that the static electricity produced by the valve itself can be smoothly discharged out of the valve. The anti-static device is composed of the metal ball and the spring.

Fire Safe Design

The valve is designed to have double-sealing. The first seal is the soft seal and the second seal is the metal seal. In case of fire, the soft seal is burnt and the metal seal will play its role in reducing medium leakage. The fire resistance design of valves is qualified by fire testing in accordance with API 607, API 6FA and ISO 10497, and meets the fire-safe requirements in API 607 and API 6FA.

One Piece Body Type Ball Valve Summery

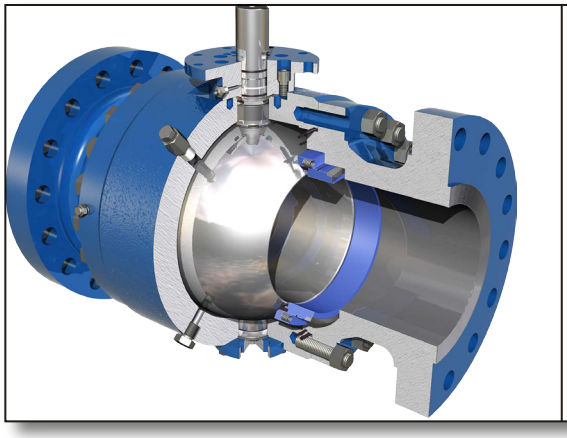
The one-piece body ball valve is designed as reduced bore & floating ball structures. The body is overall casted without bonnet so that there's no leakege point on the body.

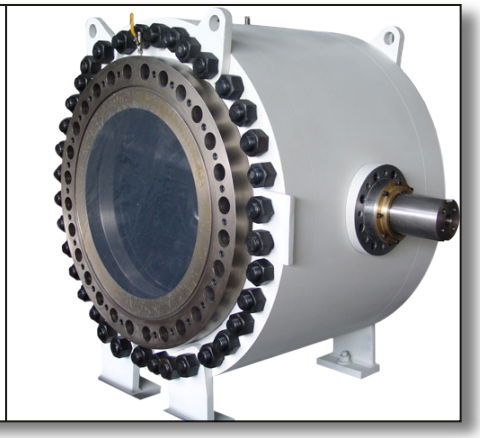
Standard design

API 608, ISO 17292 design standard
ASME B16.5, B16.25 ends connection
Anti-blowout stem
Fire-safe, anti-static
Floating ball type
Fire safe acc to ISO 10497, API 607, API 6FA, BS 6755-2

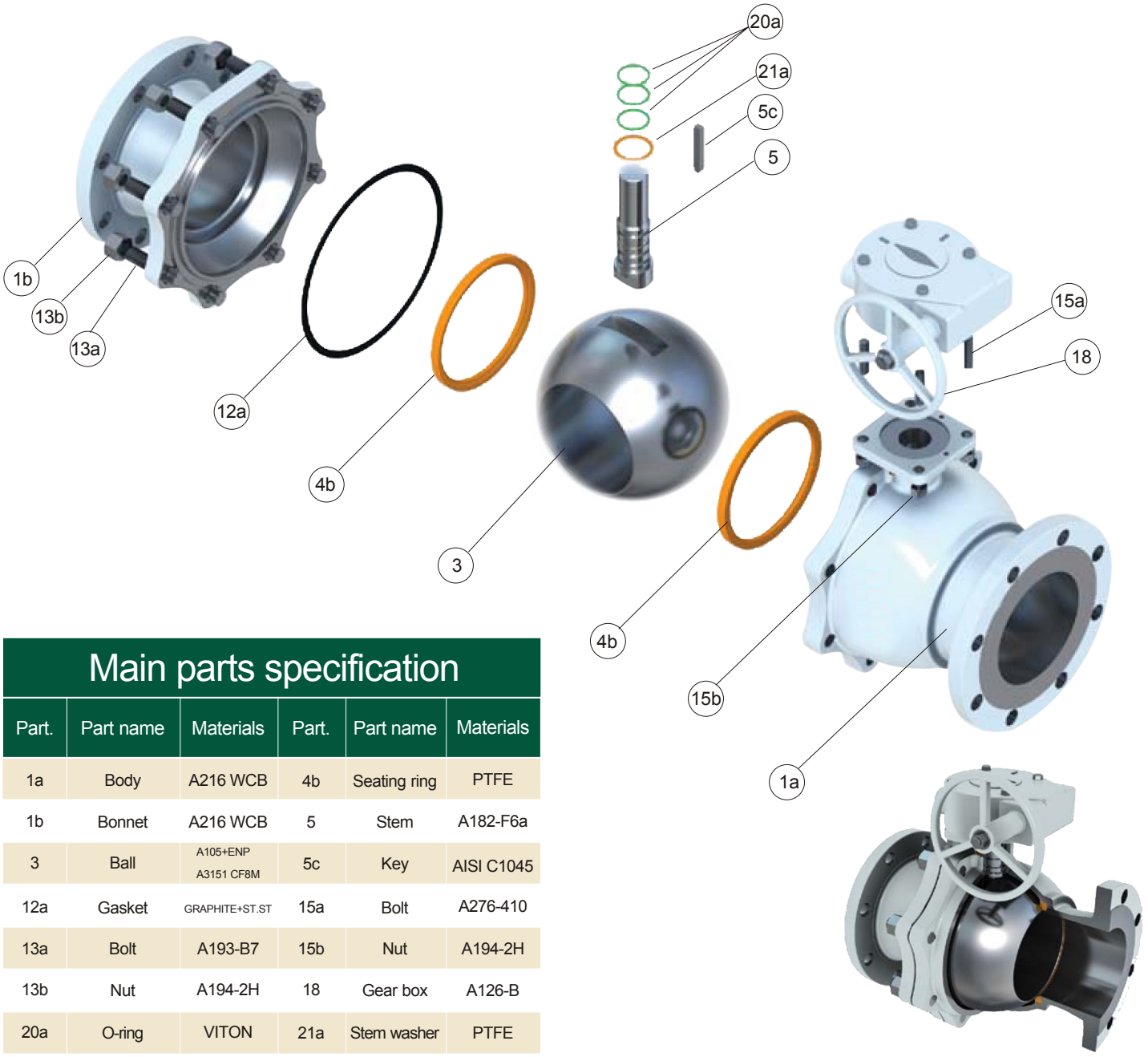
Optional design

Connection end as reqired
Unidirectional seal type
Extended stem
Extended bonnet
Metal to metal seat
On-site maintenance pocket overlay
Seat or stem seal area
Wetted parts overlay





Side Entry Floating Ball Valve



Main parts specification

Part.	Part name	Materials	Part.	Part name	Materials
1a	Body	A216 WCB	4b	Seating ring	PTFE
1b	Bonnet	A216 WCB	5	Stem	A182-F6a
3	Ball	A105+ENP A3151 CF8M	5c	Key	AISI C1045
12a	Gasket	GRAPHITE+ST.ST	15a	Bolt	A276-410
13a	Bolt	A193-B7	15b	Nut	A194-2H
13b	Nut	A194-2H	18	Gear box	A126-B
20a	O-ring	VITON	21a	Stem washer	PTFE

Side entry floating ball valve summery

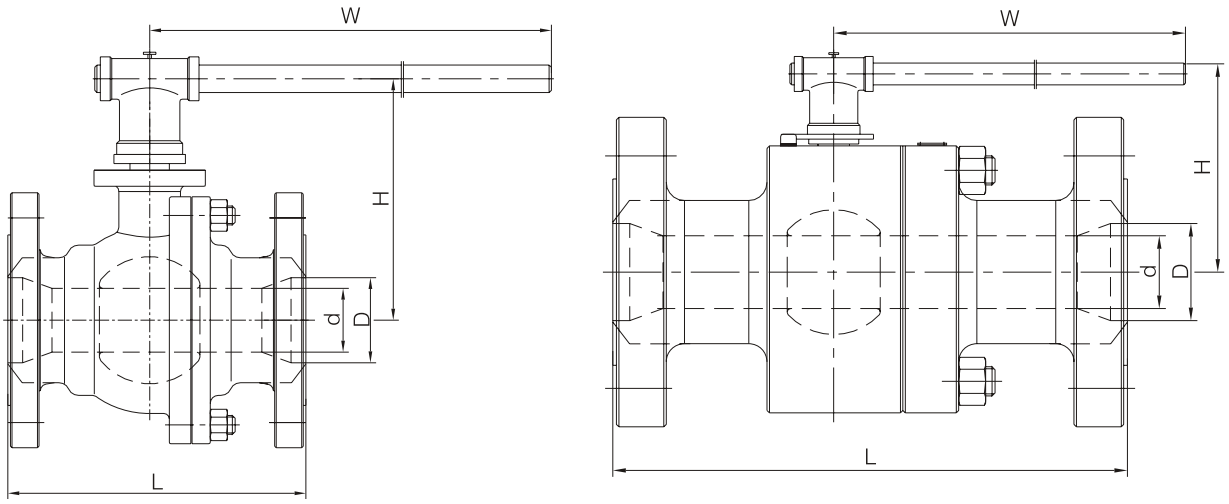
The floating ball valve is simple structure type. It has two seat supporting the ball, the ball can tightly move towards the se aling to easure seal at outlet end.

Standard design

API 608, ISO 17292 design and construction
ASME B16.5, B16.25 ends connection
Anti-blowout stem
Fire-safe, anti-static
Floating ball type
Fire safe acc to ISO 10497, API 607, API 6FA, BS 6755-2

Optional design

Connection end as required
Unidirectional seal type
Extended stem
Extended bonnet
Metal to metal seat
On-site maintenance pocket overlay
Seat or stem seal area overlay
Wetted parts overlay



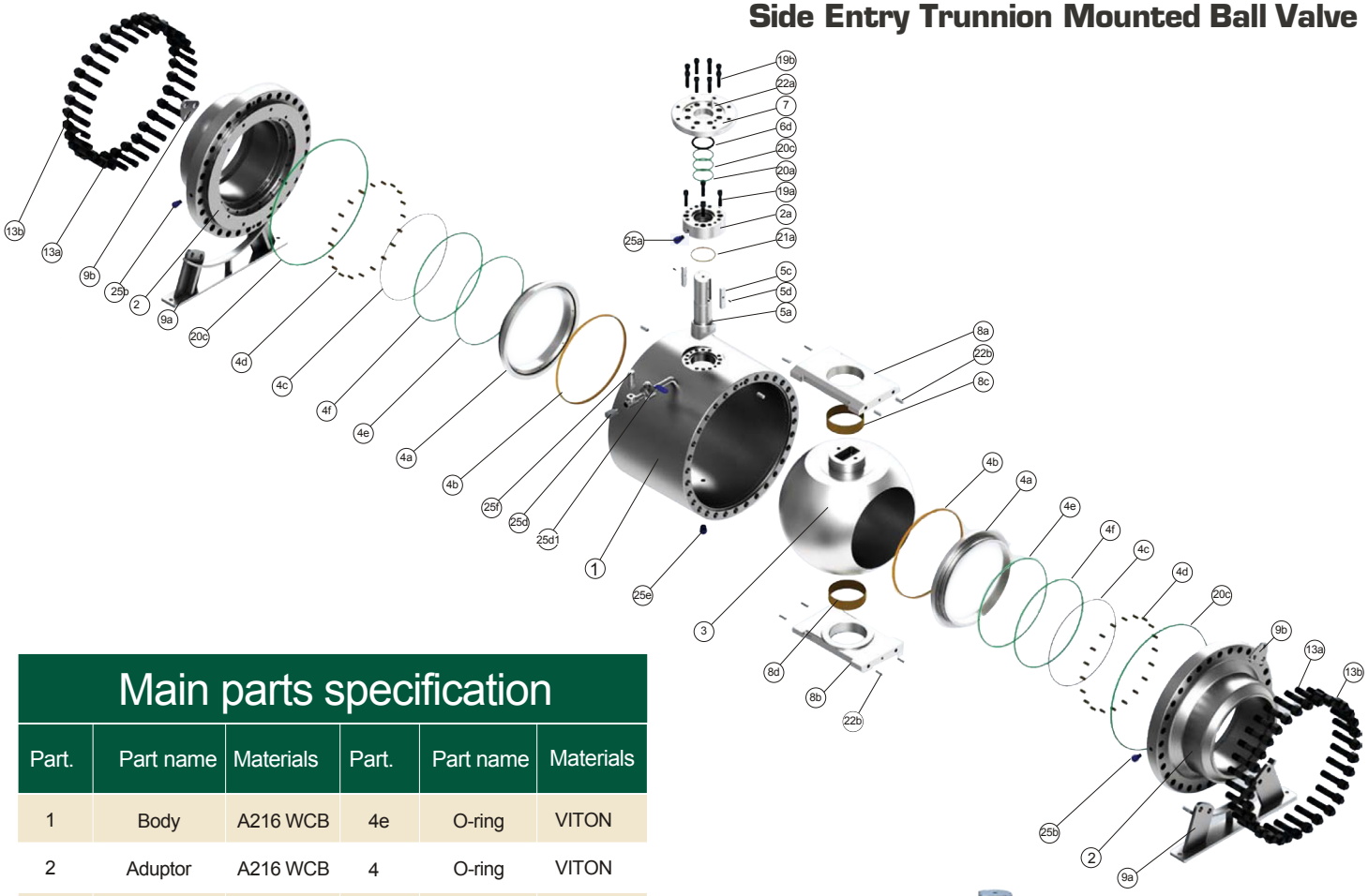
Split Body Floating Ball Valve dimensions & weights

Class		CLASS 150 Full bore						CLASS 300 Full bore					
NPS	d	L-RF	L-RTJ	L-WE	H	W	Weight(Kg)	L-RF	L-RTJ	L-WE	H	W	Weight(Kg)
1/2"	13	108	108	140	81	150	2.8	140	151	140	81	150	3
3/4"	19	117	117	152	85	150	3.7	152	165	152	85	150	4
1"	25	127	140	165	98	180	5.3	165	178	165	98	180	6.6
1 1/2"	38	165	178	190	133	280	8.3	190	203	190	133	280	12.9
2"	49	178	191	216	141	280	15	216	232	216	141	280	21.4
2 1/2"	62	191	203	241	139	400	22.5	241	257	241	139	400	32.5
3"	74	203	216	283	150	400	27	283	298	283	150	400	45
4"	100	229	241	305	223	650	44.2	305	321	305	223	650	64.8
6"	150	394	406	457	297	*280	127.6	403	419	403	297	*300	147.5
8"	201	457	470	521	378	*280	221.8	502	518	521	378	*300	287.5
10"	252	533	546	559	408	*400	430	568	584	559	408	*400	550
12"	303	610	622	635	430	*400	680						

Class		CLASS 400 Full bore						CLASS 600 Full bore					
NPS	d	L-RF	L-RTJ	L-WE	H	W	Weight(Kg)	L-RF	L-RTJ	L-WE	H	W	Weight(Kg)
1/2"	13	165	167	165	66	150	3.5	165	167	165	66	150	3.5
3/4"	19	190	190	190	88	170	5	190	190	190	88	170	5
1"	25	216	216	216	90	250	7.5	216	216	216	90	250	7.5
1 1/2"	38	241	241	241	120	400	15	241	241	241	120	400	15
2"	49	292	295	292	135	400	29.4	292	295	292	135	400	29.4
2 1/2"	62	330	333	330	150	400	39.3	330	333	330	150	400	39.3
3"	74	356	359	356	164	400	58.2	356	359	356	164	400	58.2
4"	100	406	410	406	224	995	81.2	432	435	432	224	995	81.2

DINICOLA®

Side Entry Trunnion Mounted Ball Valve



Main parts specification

Part.	Part name	Materials	Part.	Part name	Materials
1	Body	A216 WCB	4e	O-ring	VITON
2	Aduptor	A216 WCB	4	O-ring	VITON
2a	Cover	A105+ENP	5a	Stem	A182-F6a
		A3151 CF8M			
3	Ball	A216 WCB+ENP	5c	Key	AISI C1045
		A3151 CF8M			
4a	Seat	A105	5d	Screw	A193-B7
		CF8M			
4b	Seal ring	PTFE	6d	Packing	FLEXIBLE
					GRAPHITE
4d	Spring	INCONEL X-750	7	Mounting Flange	A105
8a	Retainer(Up)	A105	13a	Bolt	A193-B7
8b	Retainer(Down)	A105	13b	Nut	NTA194-2H
8c	Bushing	S41600	20a	O-ring	VITON
8d	Bushing	S41600	22a	Pin	AISI C 1045

Side entry floating ball valve summery

The valve body can be designed casting type or forging type, the seats can have soft-seal and metal-to-metal type. And the trun nion ball can be designed with supporting plate to support the ball or up and down stem support.

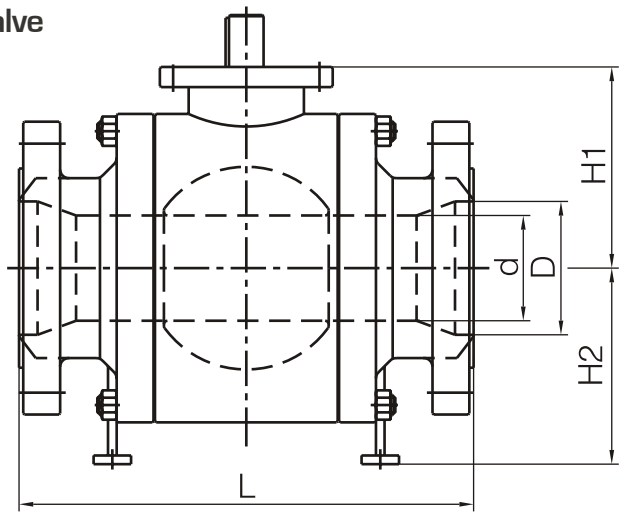
Standard design

API 6D, API 608, ISO 17292 ASME VIII design and construction
ASME B16.5, B16.25 connection end
Anti-blowout stem
Fire-safe, anti-static
Trunnion mounted ball type (pivot)
DBB structure
Self-Relieving Seat Effect
Fire safe acc to ISO 10497, API 607, API 6FA, BS 6755-2

Optional design

Connection end as required
Double piston effect seat
One side single piston effect seat and other side double piston effect seat
Sealant injection at seat and stem
Extended stem
Extended bonnet
Metal to metal seat
On-site maintenance Pocket overlay
Seat or stem seal area overlay
Wetted parts overlay

Trunnion Mounted Ball Valve



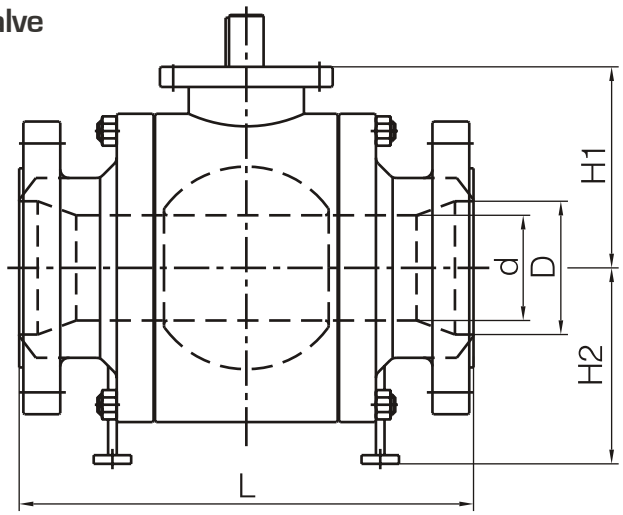
ASME Class 150 Full bore

Valve type		Side entry					
ND	D	L-RF	L-RTJ	L-WE	H1	H2	Weight (Kg)
2"	49	178	191	216	106	102	16
2 1/2"	62	191	203	241	155	105	20
3"	74	203	216	283	157	111	39
4"	100	229	241	305	198	187	55
6"	150	394	406	457	242	235	169
8"	201	457	470	521	288	280	244
10"	252	533	546	559	323	320	439
12"	303	610	622	635	375	355	688
14"	334	686	699	762	430	400	886
16"	385	762	775	838	448	470	1215
18"	436	864	876	914	477	510	1625
20"	487	914	927	991	520	550	1850
22"	538	991	1003	1092	528	477	2359
24"	589	1067	1080	1143	640	640	3120
26"	633	1143	1270	1245	675	700	4120
28"	684	1245	1376	1346	728	720	5200
30"	735	1295	1423	1397	749	780	5946
32"	779	1372	1555	1524	803	760	7020
34"	830	1473	1655	1626	850	900	7800
36"	874	1524	1758	1727	895	930	10300
40"	976	1753		1780	965	948	13350
42"	1020	1790		1840	965	948	14280

ASME Class 300 Full bore

Valve type		Side entry					
ND	D	L-RF	L-RTJ	L-WE	H1	H2	Weight (Kg)
2"	49	216	232	216	100	85	21
2 1/2"	62	241	257	241	125	100	25
3"	74	283	298	283	158	121	50
4"	100	305	321	305	191	142	87
6"	150	403	419	403	242	235	192
8"	201	502	518	521	288	280	333
10"	252	568	584	559	337	320	559
12"	303	648	664	635	375	355	728
14"	334	762	778	762	407	400	985
16"	385	838	854	838	473	460	1390
18"	436	914	930	914	485	510	1810
20"	487	991	1010	991	540	555	2350
22"	538	1092	1114	1092	560	575	2788
24"	589	1143	1165	1143	673	635	3715
26"	633	1245	1270	1245	677	700	4780
28"	684	1346	1372	1346	762	720	5600
30"	735	1397	1422	1397	772	800	6530
32"	779	1524	1553	1524	815	848	7820
34"	830	1626	1654	1626	820	8860	9040
36"	874	1727	1756	1727	918	950	12010
40"	976	1850		1780	987	980	15000
42"	1020	1900		1840	1012	1020	16105

Trunnion Mounted Ball Valve



ASME Class 400 Full bore

Valve type		Side entry					
NPS	D	L-RF	L-RTJ	L-WE	H1	H2	Weight (Kg)
2"	49	292	295	292	102	98	36
2 1/2"	62	330	333	330	130	110	51
3"	74	356	359	356	165	128	72
4"	100	406	410	406	210	160	102
6"	150	495	498	495	242	235	230
8"	201	597	600	597	289	280	420
10"	252	673	676	673	337	320	630
12"	303	762	765	762	379	365	902
14"	334	826	829	826	398	395	1121
16"	385	902	905	902	453	470	1612
18"	436	978	981	978	500	510	2010
20"	487	1054	1060	1054	540	560	2446
22"	538	1143	1153	1143	625	593	3787
24"	589	1232	1241	1232	641	660	4095
26"	633	1308	1321	1308	681	700	5020
28"	684	1397	1410	1397	738	760	6200
30"	735	1524	1537	1524	781	800	7370
32"	779	1651	1667	1651	819	850	9890
34"	830	1778	1794	1778	840	850	11336
36"	874	1880	1895	1880	920	880	13250
40"	976	2000		1900	987	980	18335
42"	1020	2100		1950	1012	1020	21356

ASME Class 600 Full bore

Valve type		Side entry					
NPS	D	L-RF	L-RTJ	L-WE	H1	H2	Weight (Kg)
2"	49	292	295	292	102	98	36
2 1/2"	62	330	333	330	130	110	51
3"	74	356	359	356	165	128	72
4"	100	432	435	432	210	160	123
6"	150	559	562	559	248	235	290
8"	201	660	664	660	297	280	456
10"	252	787	791	787	337	320	777
12"	303	838	841	838	379	365	1029
14"	334	889	892	889	398	400	1295
16"	385	991	994	991	447	458	1732
18"	436	1092	1095	1092	541	510	2400
20"	487	1194	1200	1194	289	560	2820
22"	538	1295	1305	1295	642	600	3787
24"	589	1397	1407	1397	692	645	4770
26"	633	1448	1461	1448	730	690	5785
28"	684	1549	1562	1549	794	790	6900
30"	735	1651	1664	1651	789	820	8355
32"	779	1778	1794	1778	833	860	9890
34"	830	1930	1946	1930	850	860	11336
36"	874	2083	2099	2083	920	880	16170
40"	976	2000		1900	987	980	18335
42"	1020	2100		1950	1012	1020	21356

Nominal Diameter and Dimensions

NP 16	mm	100	150	200	250	300	350	400	500
	L*	350	480	600	650	750	850	950	1150
	L1*	350	480	600	650	750	850	950	1150
	H*	245	285	330	380	425	490	550	650
	H1*	185	210	245	295	340	430	465	570
	P/W Kg	48	150	280	445	665	843	1015	1921

Nominal Diameter and Dimensions

NP 25	mm	100	150	200	250	300	350	400	500
	L*	350	480	600	650	750	850	950	1150
	L1*	350	480	600	650	750	850	950	1150
	H*	245	285	330	380	425	490	550	650
	H1*	165	215	260	310	350	450	500	600
	P/W Kg	78	1195	335	595	765	1145	1546	2625

Nominal Diameter and Dimensions

NP 40	mm	100	150	200	250	300	350	400	500
	L*	350	480	600	650	750	850	950	1150
	L1*	350	480	600	650	750	850	950	1150
	H*	245	285	330	380	425	490	550	650
	H1*	165	215	260	310	350	450	500	600
	P/W Kg	78	1195	335	595	765	1145	1546	2625

Nominal Diameter and Dimensions

NP 64	mm	100	150	200	250	300	350	400	500
	L*	350	480	600	650	750	850	950	1150
	L1*	350	480	600	650	750	850	950	1150
	H*	245	285	330	380	425	490	550	650
	H1*	165	215	260	310	350	450	500	600
	P/W Kg	115	210	390	640	830	1215	1615	2730

*Note - H, L and L1 are expressed in mm.(dimensions are only indicative)

MATERIALS COMPARISON

CASTINGS			FORGINGS		
ASTM	EN 10213	EN No.	ASTM	EN 10213	EN No.
A216 WCB	GP240GH (GS-C 25N)	1.0619	A105	(C22.8)	1.0460
A352 LCB	G20Mn5	1.6220	A352 LF2		1.0437
A352 LC2					
A352 LC3	G9Ni14	1.5638	A352 LF3		1.5637
A217 WC1	G20Mo5	1.5419	A182 F1		1.5415
A217 WC6	G17CrMo5-5	1.7357	A182 F11	14CrMo4-5	1.7335
A217 WC9	GS12CrMo9-10	1.7380	A182 F22		1.7380
A217 C5	GX15CrMo5	1.7365 (1.7363)	A182 F5		1.7362
A217 CA15			A182 F6	(X20Cr13)	1.4021
A217 C12	(GX12CrMo10-1)	(1.7389)	A182 F9	(15CrMo12.1)	1.4920
A351 CF3	X2CrNi19-11	1.4306	A182 F304L	X2CrNi19-11	1.4306
A351 CF3M	X2CrNiMo17-12-2	1.4404	A182 F316L	X2CrNiMo17-12-2	1.4404
A351 CF8	GX5CrNiMo19-10	1.4308	A182 F304	X5CrNi18-10	1.4301
A351 CF8C	GX5CrNiNb19-11	1.4552	A182 F321	X6CrNiTi18-10	1.4541
A351 CF8C	GX5CrNiNb19-11	1.4552	A182 F347	X6CrNiNb18-10	1.4550
A351 CF8M	GX5CrNiMo19-11-2	1.4408	A182 F316	X5CrNiMo17-12-2	1.4401
A351 CF8MC	GX5CrNiMoNb19-11-2	1.4581	A182 F348	X6CrNiMoNb17-12-2	1.4580
A351 CG8M	GX2CrNiMoN22-5-3	1.4470	A182 F317		
A351 CK3MCuN			A182 F44		
A351 CN7M			A182 F20		

BOLTS-ASME MATERIALS

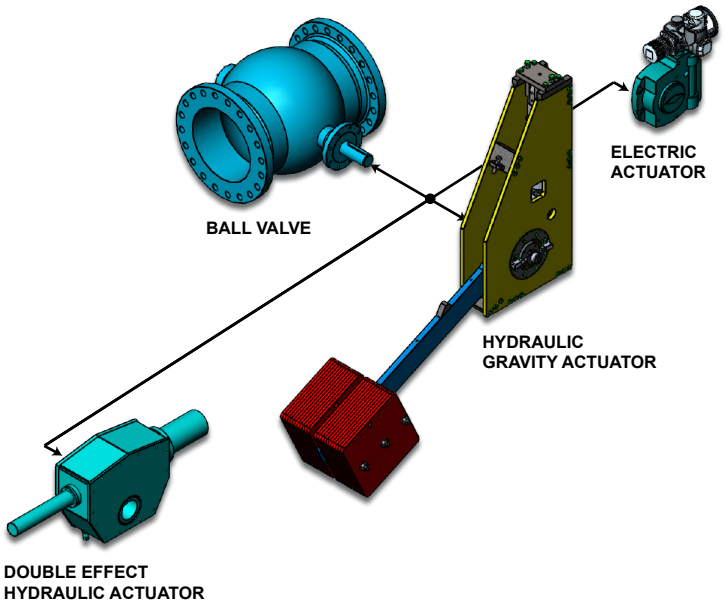
BOLTS		NUTS	
B7	ASTM A193 B7	2H	ASTM A194 Gr.2H
B16	ASTM A193 B16	Gr.4	ASTM A194 Gr.4
L7	ASTM A320 L7	Gr.4	ASTM A194 Gr.4
B8M	ASTM A193 B8M	Gr.8M	ASTM A193 Gr.8M
B8	ASTM A193 B8 CL. 1	Gr.8 A	ASTM A194 Gr.8A
320 B8	ASTM A320 B8 CL.1	Gr.8 A	ASTM A194 Gr.8A
307 B	ASTM A307 Gr.B		
B8	ASTM A193 B8 CL. 1	2H	ASTM A194 Gr.2H

BOLTS-DIN MATERIALS

MATERIALS			BOLTS	NUTS
Y	C35	1.0501	C35	C35
YK	CK35	1.1181	CK35	C35
G	24CrMo5	1.7258	24CrMo5	CK35
GA	21CrMoV57	1.7709	21CrMoV57	24CrMo5
	A2-70		A2-70	A2-70
	A4-70		A4-70	A4-70

MATERIALS EQUIVALENCE

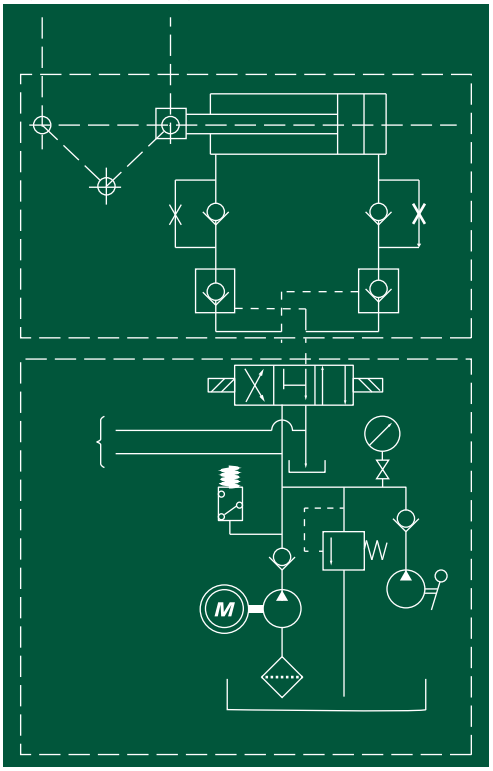
ASTM	EN 10213	EN No.	UNS	JIS
A216 WC	GP240GH	1.0619	J03002	SCPH2
A352 LCB	G20Mn5	1.6220		
A352 LC2			SCPL1	J03003
A352 LC3		1.5638	J31550	SCPL31
A217 WC1	G20Mo5	1.5419	J12524	SCPH11
A217 WC	G17CrMo5-5	1.7357	J12072	SCPH21
A217 WC	GS12CrMo9-10	1.7380	J21890	SCPH32-CF
A217 C5	GX15CrMo5	1.7365 (1.7363)	J42045	SCPH61
A217 C12	(GX12CrMo10-1)	(1.7389)	J82090	
A351 CF3	X2CrNi19-11	1.4306	J92500	SCS19
A351 CF3M	X2CrNiMo17-12-2	1.4404	J92800	SCS16
A351 CF8	GX5CrNiMo19-10	1.4308	J92600	SCS13
A351 CF8C	GX5CrNiNb19-11	1.4552	J92710	
A351 CF8M	GX5CrNiMo19-11-2	1.4408	J92900	SCS14
A351 CF8MC	GX5CrNiMoNb19-11-2	1.4581		

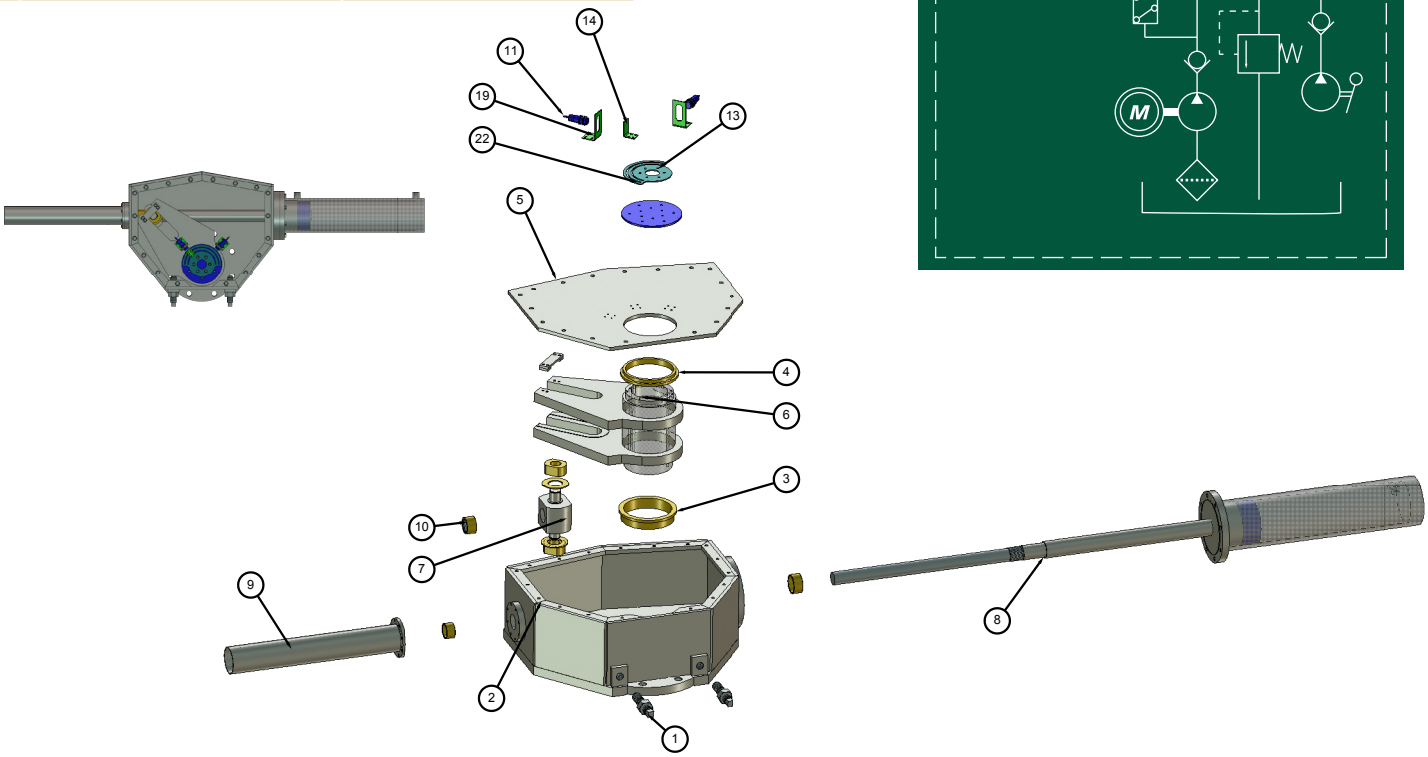


This actuator feature is a common application in Hydropower turbine chambers , in oilfield pipelines and water main distribution pipeline . Di Nicola Double effect hydraulic actuators are the best solution in high pressure operating conditions and large size valves. They are supplied with hydraulic power pack including manual pump for emergency operating , with solar panel power unit and several accessories . For more info , please refer to Di Nicola product catalogue

ITE	Descrizione	Materiale
1	Mechanical stopper	Galvanized steel 8.8
2	Case	S275J0/R EN10025
3	Bushing	B14
4	Bushing	B14
5	Cover	S275J0/R EN10025
6	Bevel	S275J0/R EN10025
7	Anchoring nut	C40-C45
8	Hydraulic cylind	Assembled
9	Protection tube	S235J0/R EN10025
1	Mechanical locking	Bronze
1	Proximity switch	Assembled

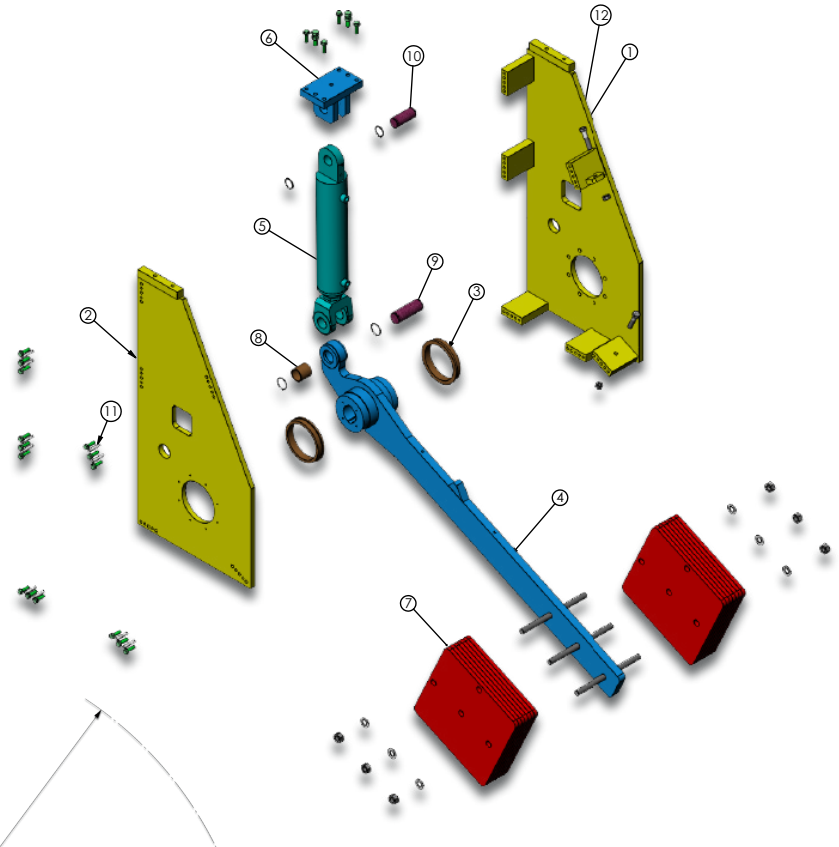
Hydraulic diagram

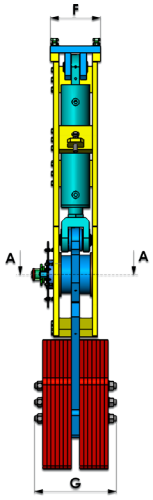


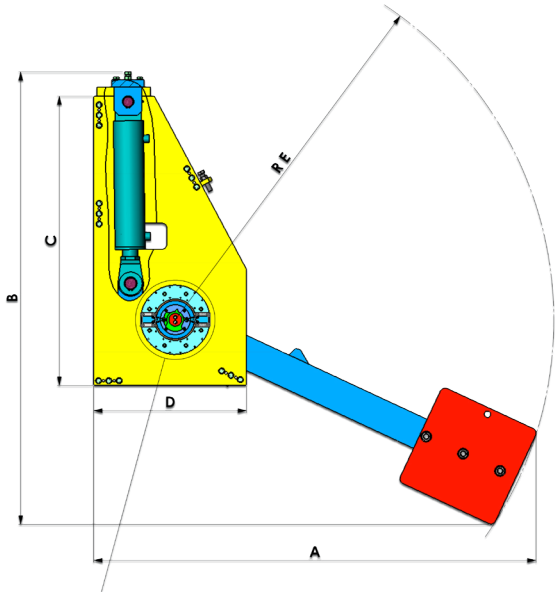


This actuator is a common application in Hydropower safety turbine system as quick closing safety valve , as quick opening valve in turbine Bypass and in common pipelines as pipe- burst safety device preventing reservoirs from draining off and/or washout of roads and railway tracks in the event of a pipe burst. The particular design allow opening or closing the valve by means of a counterweight with mechanical and electronic position indicators, for more info refer to Di Nicola product catalogue.

ITEM	DESCRIZIONE	MATERIALE
1	Shoulder sx	S275J0/R EN10025
2	Shoulder dx	S275J0/R EN10025
3	Bushing	LG2 BS 14000
4	Lever	S275J0/R EN10025
5	Hydraulic cylind	Assembled
6	Cylindrical shank	S275J0/R EN10025
7	Counterweight	S235J0/R EN10025
8	Bushing	LG2 BS 14000
9	Foot shaft	AISI 420 B
10	Head shaft	AISI 420 B
11	Pin	100Cr6
12	Mechanical stopper	Galvanized steel 8.8







CHARACTERISTICS HYDRAULIC ACTUATORS

TIPO/TYPE	COPPIA/ TORQUE (Nm)	ALESAGGIO CILINDRO/ BORE CYLINDER (mm)	PRESSIONE/ PRESSURE (Bar)	A	B	C	D	E	F	G
ATT80Nm_00	80	25	100/120	813	750	530	220	710	95	200
ATT6E2Nm_01	600	50	100/120	1050	1110	700	330	900	125	250
ATT9E2Nm_01	900	60	100/120	1290	1255	780	435	1100	135	310
ATT15E2Nm_01	1500	80	100/120	1600	1600	1025	530	1370	170	300
ATT4E3Nm_01	4000	80	100/120	1860	1900	1220	650	1600	180	330
ATT7E3Nm_01	7000	100	100/120	1800	1750	1195	680	1460	205	500
ATT10KNm_01	10000	120	100/120	2065	2115	1350	715	1765	245	400
ATT15kNm_00	15000	120	100/120	2230	2050	1780	970	1730	250	630
ATT20kNm_00	20000	130	100/120	2360	2120	1800	990	1840	250	620
ATT30kNm_00	30000	160	100/120	2760	2440	1970	1040	2185	300	700
ATT40kNm_00	40000	200	100/120	2820	2475	2125	1245	2180	350	740
ATT55kNm_00	55000	220	100/120	3165	2710	2295	1415	2360	400	735

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