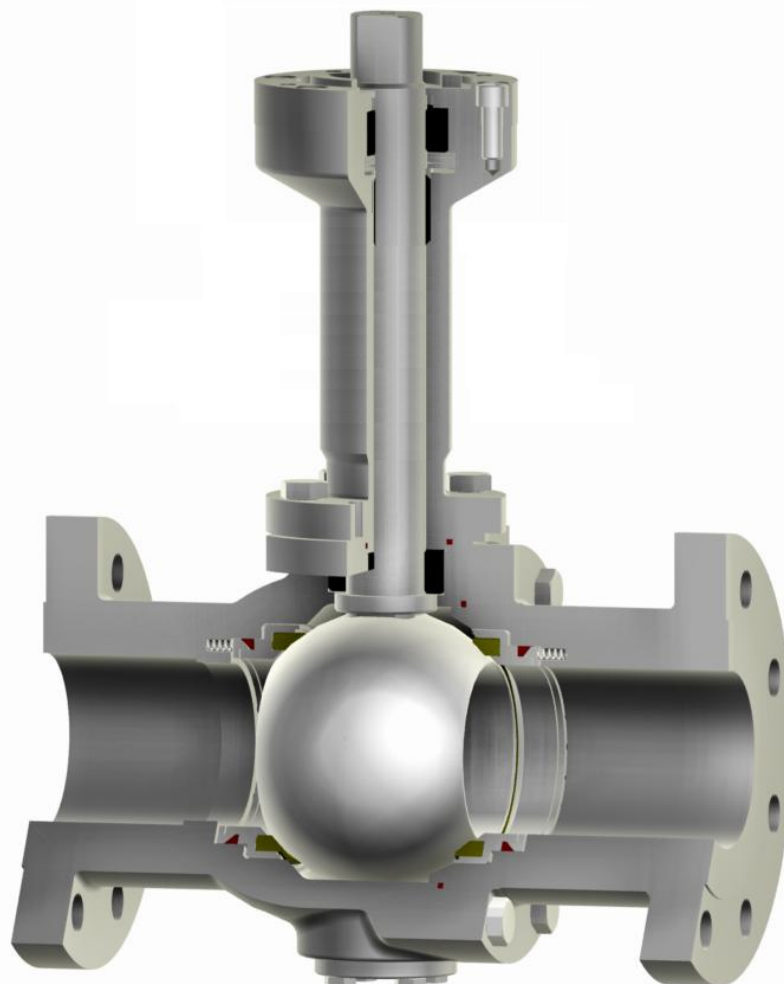




Two-Way Soft Seated Ball Valve Type 14-K



Design Characteristics

- ✓ Two piece body
- ✓ Trunnion mounted ball
- ✓ Blow out proof stem
- ✓ Live loaded stem packing
- ✓ Spring loaded seat system
- ✓ Integrated stem extension
- ✓ Cryogenic application

Design Standards

- ✓ EN 12516, EN 1983, ISO 5211, AD-2000
- ✓ ASME B16.34, API 608

Range of Application

- ✓ Diameter 1" to 24" / DN 25 to 600
- ✓ Class 150 to 900 / PN 10 to 160
- ✓ -321°F to +392°F / -196°C to +200°C

Approvals

- ✓ "TA-Luft" certified for low fugitive emissions

Testing Standards

- ✓ EN 12266-1/2
- ✓ API 598



Main Parts

- 1 Body
- 2 Body End Connection
- 3 Retainer Ring
- 4 Retainer Ring
- 5 Ball
- 6 Stem
- 7 Lower Trunnion
- 8 Gland Washer
- 9 Bearing Bush
- 10 Bearing Cover
- 11 Extension
- 16 Plate Spring
- 17 Coil Spring
- 18 Body Gasket
- 20 Sealing Ring
- 21 Seat Ring
- 23 Body Gasket
- 24 Stem Packing
- 25 Bearing Ring
- 26 Bearing Ring
- 27 Body Gasket
- 28 Screw
- 29 Screw
- 30 Screw
- 31 Screw

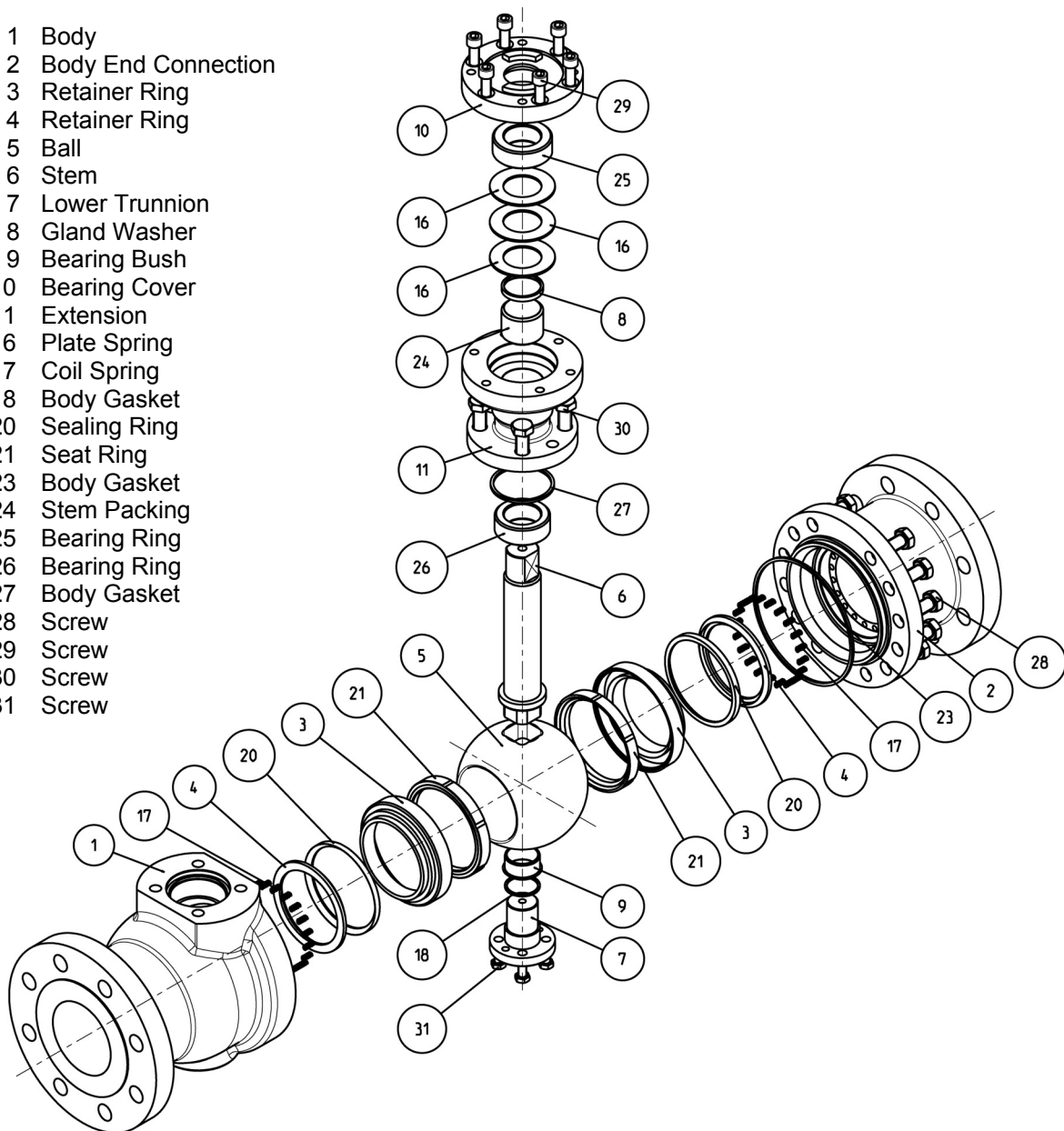


Fig. 1

Description

This PERRIN ball valve is a floating ball design with a two piece split body housing. The spring loaded seat system and live loaded stem packing also provide continuous tightness during short-term temperature and pressure changes. The integrated stem extension and low temperature suitable materials are the main features of this design.

The valve is equipped with an integral actuator mounting flange for actuator connection according to ISO 5211. Stem extensions, locking devices and actuators with accessories, can be attached without operating interruptions.

The ball valve has an antistatic design, with blow out proof stem. The stem packing and sealings are "TA-Luft" certified for low fugitive emissions.



Parts List / Materials

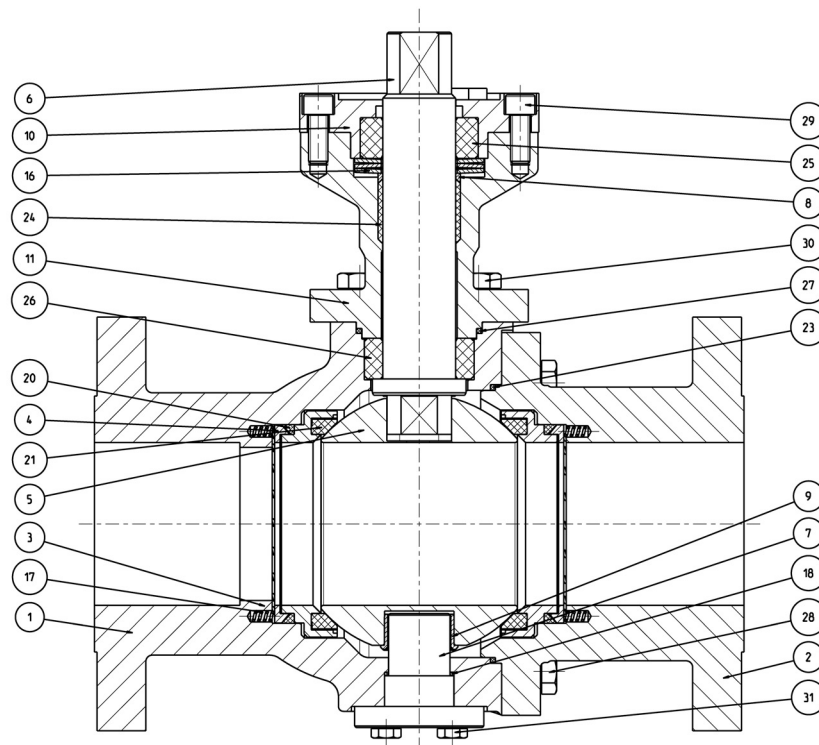


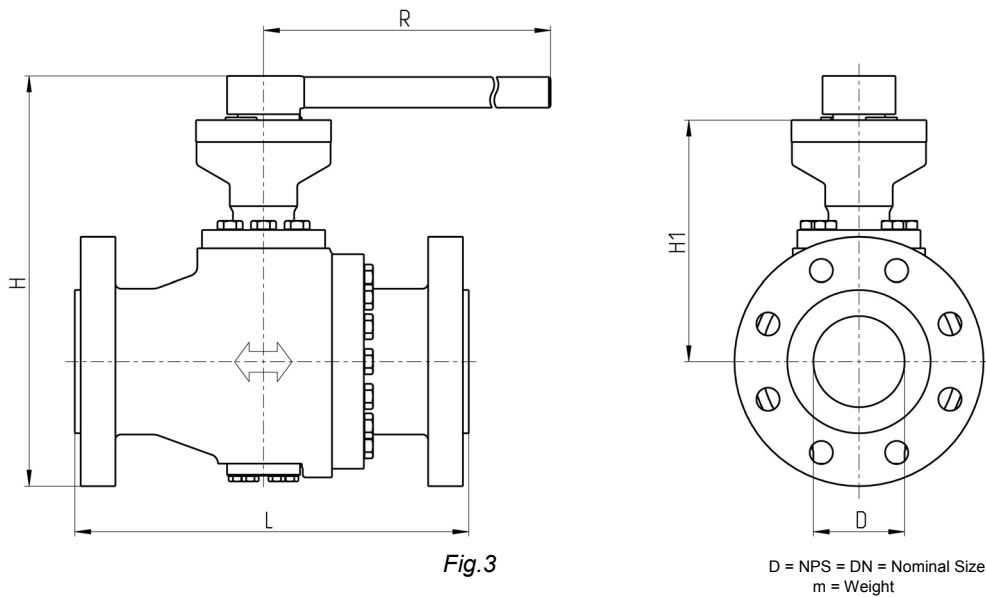
Bild 2

Pos.	Designation	-196°C to 100°C / -321°F to 212°F	-29°C to +200°C / -20°F to +392°F
1	Body	1.4571 / 1.4408	1.0460 / 1.0619
2	Body End Connection	(A182 F316 Ti / A351 CF8M)	(A105 / A216 WCB)
3	Retainer Ring	1.4571 (A 182 F316 Ti)	1.4571 (A 182 F316 Ti)
4	Retainer Ring		
5	Ball	1.4571 / 1.4408 (A182 F316 Ti / A351 CF8M)	1.4571 / 1.4408 (A182 F316 Ti / A351 CF8M)
6	Stem	1.4571 (A182 F316 Ti)	1.4571 (A182 F316 Ti)
7	Lower Trunnion		
8	Gland Washer	1.4571 (A182 F316 Ti)	1.4571 (A182 F316 Ti)
9	Bearing Bush	PEEK	PEEK
10	Bearing Cover		
11	Extension	1.4571 (A182 F316 Ti)	1.4571 (A182 F316 Ti)
16	Plate Spring ¹⁾	1.4301	1.8159
17	Coil Spring	1.4571 (A182 F316 Ti)	1.4571 (A182 F316 Ti)
18	Body Gasket	PTFE	PTFE
20	Sealing Ring		
21	Seat Ring	R-PTFE / Mod. PTFE / PCTFE ¹⁾	R-PTFE / Mod. PTFE / PCTFE ¹⁾
23	Body Gasket	PTFE	PTFE
24	Stem Packing	PTFE - Antistatic	PTFE - Antistatic
25	Bearing Ring	PTFE - 25% Glass	PTFE - 25% Glass
26	Bearing Ring		
27	Body Gasket	PTFE	PTFE
28	Screw		
29	Screw	A2.70	A2.70
30	Screw		
31	Screw	A2.70	A2.70

Tab.1

1) Material selection, depending on the operating temperatures (PCTFE up to max. 100 °C / 212 °F)
2) Materials for lower / higher temperature on request

Technical Data



CLASS 150 - Full Bore

NPS [inch]	DN [mm]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	25	15.7	398	12.9	328	12	300	5	127	74	20	9
1¼	32	16.5	418	13.1	333	12	300	5.5	140	123	24	11
1½	40	18.0	458	14.6	370	18	450	6.5	165	191	33	15
2	50	19.2	488	14.9	378	18	450	7	178	298	62	28
2½	65	20.6	522	15.4	392	18	450	7.5	190	504	84	38
3	80	21.9	555	16	405	28	700	8	203	763	106	48
4	100	25	623	18.0	458	28	700	9	229	1192	202	92

Tab.2

CLASS 150 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	¾	15.7	398	12.9	328	12	300	5	127	43	20	9
1¼	1	16.5	418	13.1	333	12	300	5.5	140	67	24	11
1½	1¼	18.0	458	14.6	370	12	300	6.5	165	110	33	15
2	1½	19.2	488	14.9	378	18	450	7	178	172	62	28
2½	2	20.6	522	15.4	392	18	450	7.5	190	268	84	38
3	2½	21.9	555	15.9	405	18	450	8	203	454	106	48
4	3	24.5	623	18	458	28	700	9	229	687	202	92

Tab.3



CLASS 300 - Full Bore

NPS [inch]	DN [mm]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	25	15.7	398	12.9	328	12	300	6.5	165	74	26	12
1¼	32	16.5	418	13.1	333	12	300	7	178	123	35	16
1½	40	18.0	458	14.6	370	18	450	7.5	190	191	53	24
2	50	19.2	488	14.9	378	18	450	8.5	216	298	66	30
2½	65	20.6	522	15.4	392	18	450	9.5	241	504	92	42
3	80	21.9	555	16	405	28	700	11.12	282	763	110	50
4	100	25	623	18.0	458	28	700	12	305	1192	209	95

Tab.4

CLASS 300 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	¾	15.7	398	12.9	328	12	300	6.5	165	43	22	10
1¼	1	16.5	418	13.1	333	12	300	7	178	67	31	14
1½	1¼	18.0	458	14.6	370	12	300	7.5	190	110	40	18
2	1½	19.2	488	14.9	378	18	450	8.5	216	172	59	27
2½	2	20.6	522	15.4	392	18	450	9.5	241	268	55	25
3	2½	21.9	555	15.9	405	18	450	11.12	282	454	106	48
4	3	24.5	623	18	458	28	700	12	305	687	189	86

Tab.5

CLASS 600 - Full Bore

NPS [inch]	DN [mm]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	25	15.7	398	12.9	328	12	300	8.5	216	74	29	13
1¼	32	16.5	418	13.1	333	18	450	9	229	123	40	18
1½	40	18.0	458	14.6	370	18	450	9.5	241	191	66	30

Tab.6

CLASS 600 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	¾	7.6	398	4.5	328	12	300	8.5	216	43	24	11
1¼	1	16.5	418	13.1	333	12	300	9	229	67	33	15
1½	1¼	18.0	458	14.6	370	18	450	9.5	241	110	46	21

Tab.7



CLASS 900 - Full Bore

NPS [inch]	DN [mm]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	25	17.4	443	14.2	360	12	300	10.0	254	74	59	27
1¼	32	20.0	508	16.2	411	18	450	11	279	123	75	34
1½	40	20.0	507	16.2	411	18	450	12.0	305	191	84	38

Tab.8

CLASS 900 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		R		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
1	¾	17.4	443	14.2	360	12	300	10.0	254	43	59	27
1¼	1	20.0	508	16.2	411	18	450	11	279	67	75	34
1½	1¼	20.0	507	16.2	411	18	450	12.0	305	110	79	36

Tab.9

PN 16 – PN 40

DN [mm]	H [mm]	H1 [mm]	R [mm]	L [mm] DIN EN 558		Kv [m³/h]	m [kg]	
				GR1	GR27		GR1	GR27
25	398	328	300	160	125	64	9	8
32	418	333	300	180	130	106	11	10
40	458	370	450	200	140	165	15	13
50	488	378	450	230	150	258	28	24
65	522	392	450	290	170	436	38	33
80	555	405	700	310	180	660	48	42
100	623	458	700	350	190	1031	92	80

Tab.10

PN 100 – PN 150

DN [mm]	H [mm]	H1 [mm]	R [mm]	L [mm] DIN EN 558		Kv [m³/h]	m [kg]	
				GR1	GR27		GR1	GR27
25	398	328	300	160	125	64	13	11
32	418	333	300	180	130	106	18	16
40	458	370	450	200	140	165	30	26

Tab.11

Other dimensions and pressure classes on request.

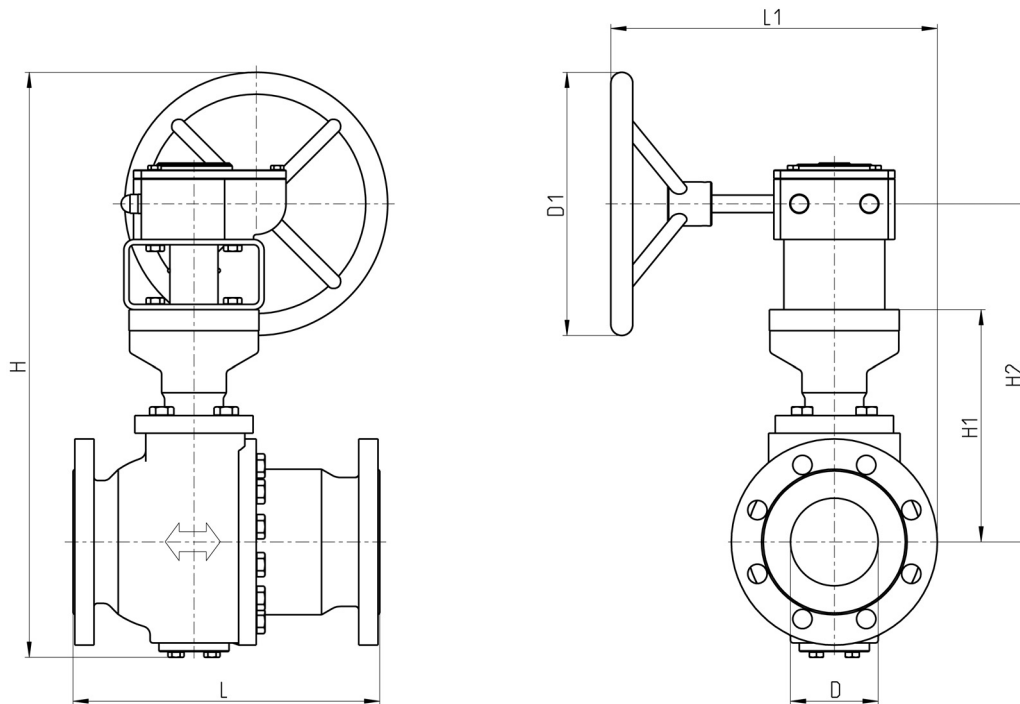


Fig.4

D = NPS = DN = Nominal Size
m = Weight

CLASS 150 - Full Bore

NPS [inch]	DN [mm]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	150	40	1005	18	458	23	596	17	435	18	450	15.5	394	2682	312	142
8	200	48	1216	22	554	27	695	18	467	28	700	18	457	4767	601	273
10	250	54	1384	26	650	33	831	22	559	28	700	21	533	7746	801	364
12	300	56	1412	29	728	37	946	25	638	18	450	24	610	10727	1122	510
14	350	58	1484	27	694	39	992	28	724	18	450	27	686	14599	1595	725
16	400	60	1536	23	590	35	888	32	808	28	700	30	762	19069	2178	990
18	450	62	1576	28	710	40	1008	37	930	20	500	34	864	24134	3727	1694
20	500	67	1689	28	700	43	1090	39	978	20	500	36	914	29796	4759	2163
24	600	79	2009	34	863	49	1253	41	1035	28	700	42	1067	42906	7051	3205

Tab.12

CLASS 150 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	5	36	912	19	473	24	597	15	373	14	350	15.5	394	1676	227	103
8	6	40	1015	19	495	24	619	15	373	18	450	18	457	2414	345	157
10	8	50	1258	22	564	28	705	18	467	28	700	21	533	4291	568	258
12	10	53	1342	22	570	30	751	21	528	28	700	24	610	6972	900	409
14	12	56	1414	28	704	36	922	24	600	18	450	27	686	9654	1287	585
16	14	58	1463	25	642	37	940	28	699	18	450	30	762	13139	1832	833
18	16	63	1598	25	632	37	930	28	699	28	700	34	864	17162	2917	1326
20	18	64	1629	25	632	37	930	31	777	28	700	36	914	21720	4103	1865
24	20	69	1746	28	700	43	1090	39	979	20	500	42	1067	26816	5472	2487

Tab.13

CLASS 300 - Full Bore

NPS [inch]	DN [mm]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	150	44	1108	18	458	24	599	20	515	28	700	15.88	403	2682	387	176
8	200	52	1327	22	554	29	736	23	588	31	800	19.75	502	4767	616	280
10	250	58	1470	26	650	37	948	27	679	24	600	22.38	568	7746	948	431
12	300	60	1536	29	728	40	1026	30	770	20	500	25.5	648	10727	1474	670
14	350	64	1626	27	694	43	1084	35	888	20	500	30	762	14599	2277	1035
16	400	64	1613	23	590	42	1064	38	953	18	450	33	838	19069	3452	1569
18	450	75	1906	28	710	43	1100	39	985	35	900	36	914	24134	4352	1978
20	500	76	1927	28	700	43	1083	40	1019	36	914	39	991	29796	5656	2571
24	600	85	2160	34	863	49	1246	47	1202	36	914	45	1143	42906	9328	4240

Tab.14

CLASS 300 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	5	36	907	14.4	366	20	507	12	315	31	800	15.9	403	1676	323	147
8	6	44	1108	18	458	24	599	20	515	28	700	20	502	2414	513	233
10	8	52	1327	22	554	29	736	23	588	31	800	22	568	4291	790	359
12	10	58	1470	26	650	37	948	27	679	24	600	26	648	6972	1228	558
14	12	60	1536	29	728	40	1026	30	770	20	500	30	762	9654	1899	863
16	14	64	1626	27	694	43	1084	35	888	20	500	33	838	13139	2877	1308
18	16	67	1706	23	590	39	980	36	913	35	900	36	914	17162	3762	1710
20	18	75	1906	28	710	43	1100	39	985	35	900	39	991	21720	4714	2143
24	20	76	1927	28	700	43	1083	40	1019	36	914	45	1143	26816	7773	3533

Tab.15

CLASS 600 – CLASS 900 - Full Bore

NPS [inch]	DN [mm]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
2	50	20	500	15.4	392	23	582	18	461	10	250	11.5	292	298	136	62
2½	65	20.7	527	15.9	403	21	544	18	461	14	350	13	330	504	163	74
3	80	19.8	503	15	375	16	416	20	510	24	600	14	356	763	229	104
4	100	23	588	17.2	438	24	620	23	588	31	800	17	432	1192	275	125
6	150	28	712	21	540	33	838	25	639	20	500	22	559	2682	557	253
8	200	43	1083	20	514	26	655	28	720	24	600	26	660	4767	1441	655
10	250	48	1210	20	518	28	700	33	842	18	450	31	787	7746	2486	1130
12	300	58	1461	25	634	37	932	35	900	20	500	33	838	10727	3300	1500
14	350	73	1859	28	710	43	1100	35	898	36	914	35	889	14599	3960	1800
16	400	75	1912	28	722	44	1112	38	972	36	914	39	991	19069	4840	2200
18	450	82	2089	34	870	50	1260	39	1001	36	914	43	1092	24134	5896	2680
20	500	86	2186	37	940	52	1323	41	1038	36	914	47	1194	29796	6820	3100
24	600	90	2289	39	980	54	1363	43	1102	36	914	55	1397	42906	10780	4900

Tab.16

CLASS 600 – CLASS 900 - Reduced Bore

NPS [inch]	NPS-R [inch]	H		H1		H2		L1		D1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
2	1½	19.7	500	15.4	392	23	582	18	461	10	250	11.5	292	172	130	59
2½	2	21	527	15.9	403	21	544	18	461	10	250	13	330	268	163	74
3	2½	19.8	503	14.8	375	20	516	18	461	14	350	14	356	454	207	94
4	3	23.1	588	17	438	24	620	20	510	24	600	17	432	687	295	134
6	5	28	712	17.3	440	33	838	23	588	31	800	22	559	1676	557	253
8	6	43	1083	20	514	26	655	25	639	20	500	26	660	2414	880	400
10	8	48	1210	20	518	28	700	28	720	24	600	31	787	4291	1584	720
12	10	51	1308	21	531	33	829	33	842	18	450	33	838	6972	2783	1265
14	12	58	1461	25	634	37	932	35	900	20	500	35	889	9654	3795	1725
16	14	73	1859	28	710	43	1100	35	898	36	914	39	991	13139	4554	2070
18	16	75	1912	28	722	44	1112	37	939	36	914	43	1092	17162	5566	2530
20	18	81	2060	34	870	50	1260	38	972	36	914	47	1194	21720	6472	2942
24	20	86	2186	37	940	52	1323	41	1038	36	914	55	1397	26816	7843	3565

Tab.17



PN 16

DN [mm]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	D1 [mm]	L [mm] DIN EN 558		Kv [m³/h]	m [kg]	
						GR1	GR27		GR1	GR27
150	1005	458	596	435	450	480	350	2320	142	123
200	1216	554	695	526	700	600	400	4124	273	237
250	1384	650	831	600	700	730	450	6701	364	317
300	1412	728	946	687	450	850	500	9279	510	443
350	1484	694	992	770	450	980	550	12629	725	630
400	1536	590	888	800	700	1100	762	16496	990	861
450	1578	710	1008	830	500	1200	-	20877	1723	1498
500	1698	700	1090	987	500	1250	914	25775	2056	1788
600	2023	863	1253	1049	700	1450	-	37116	2964	2577

Tab.18

PN 40

DN [mm]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	D1 [mm]	L [mm] DIN EN 558		Kv [m³/h]	m [kg]	
						GR1	GR27		GR1	GR27
150	1108	458	599	506	700	480	350	2320	387	337
200	1327	554	736	585	800	600	400	4124	616	536
250	1470	650	948	682	600	730	450	6701	948	824
300	1536	728	1026	768	500	850	500	9279	1747	1519
350	1626	694	1084	926	500	980	550	12629	2277	1980
400	1613	590	1064	959	450	1100	762	16496	1364	1186
450	1808	710	1008	972	914	1200	-	20877	1978	-
500	1925	700	1090	1010	914	1250	914	25775	2236	1944
600	2155	863	1253	1190	914	1450	-	37116	3687	-

Tab.19

PN 100 – PN 150

DN [mm]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	D1 [mm]	L [mm] DIN EN 558		Kv [m³/h]	m [kg]	
						GR1	GR27		GR1	GR27
50	500	392	582	492	250	230	150	258	43	62
65	527	403	544	498	350	290	170	436	59	74
80	503	375	416	562	600	310	180	660	74	104
100	588	438	620	651	800	350	190	1031	130	125
150	712	540	838	529	700	480	350	2320	261	253
200	1083	514	655	605	800	600	400	4124	522	655
250	1210	518	700	692	600	730	450	6701	957	832
300	1318	592	810	768	500	850	500	9279	1304	1134
350	1480	632	930	936	500	980	550	12629	1565	1361
400	1531	678	976	959	450	1100	762	16496	2200	1913
500	1947	722	1112	1010	914	1250	914	25775	3100	2696
600	2176	884	1274	1190	914	1450	-	37116	4900	4261

Tab.20

Other dimensions and pressure classes on request.



Top Works

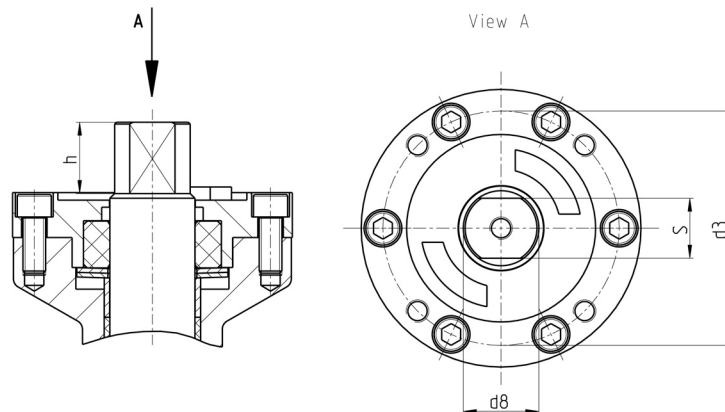


Fig.5

F	h		s		d3		d8	
	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
F07	22	0,9	12	0,5	70	2,8	17	0,7
F10	27	1,1	18	0,7	102	4	27	1,1
F12	38	1,5	32	1,3	125	4,9	40	1,6
F14	38	1,5	38	1,5	140	5,5	57	2
F16	48	1,9	44	1,7	165	6,5	68	2,7
F25	48	1,9	55	2,2	254	10	82	3,2
F35	94	3,7	65	2,6	356	14	98	3,9

Tab.21

Actuator-Connection DIN EN ISO 5211

Full Bore

NPS [inch]	DN [mm]	CLASS / PN		
		150 / 16	300 / 40	600 / 100
1	25	F07	F07	F07
1¼	32	F07	F10	F10
1½	40	F07	F10	F10
2	50	F10	F10	F10
2½	65	F10	F10	F10
3	80	F12	F12	F12
4	100	F12	F12	F12
6	150	F12	F14	F16
8	200	F14	F16	F25
10	250	F16	F25	F35
12	300	F16	F25	F35
14	350	F25	F35	F35*
16	400	F25	F35	F35*
18	450	F25	F35*	F40*
20	500	F35	F35*	F40*
24	600	F35	F40*	F48*

Reduced Bore

NPS [inch]	NPS-R [inch]	CLASS		
		150	300	600
1	¾	F07	F07	F07
1¼	1	F07	F07	F07
1½	1¼	F07	F10	F10
2	1½	F07	F10	F10
2½	2	F10	F10	F10
3	2½	F10	F10	F10
4	3	F12	F12	F12
6	4	F12	F12	F12
8	6	F12	F14	F16
10	8	F14	F16	F25
12	10	F16	F25	F35
14	12	F16	F25	F35
16	14	F25	F35	F35*
18	16	F25	F35	F35*
20	18	F25	F35	F35*
24	20	F35	F35*	F40*

* Feather Keyway

Tab.22



Pressure / Temperature Diagrams

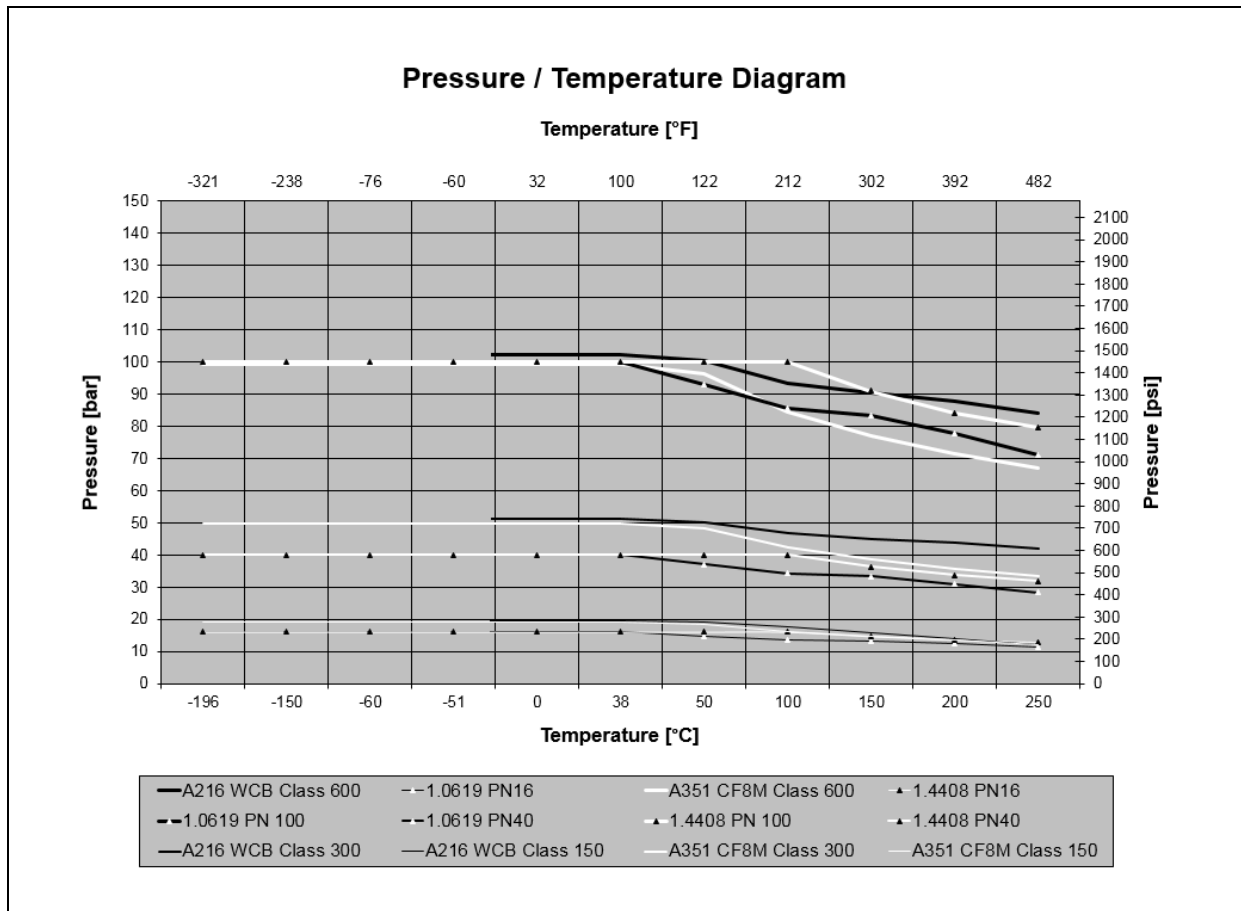


Fig. 6

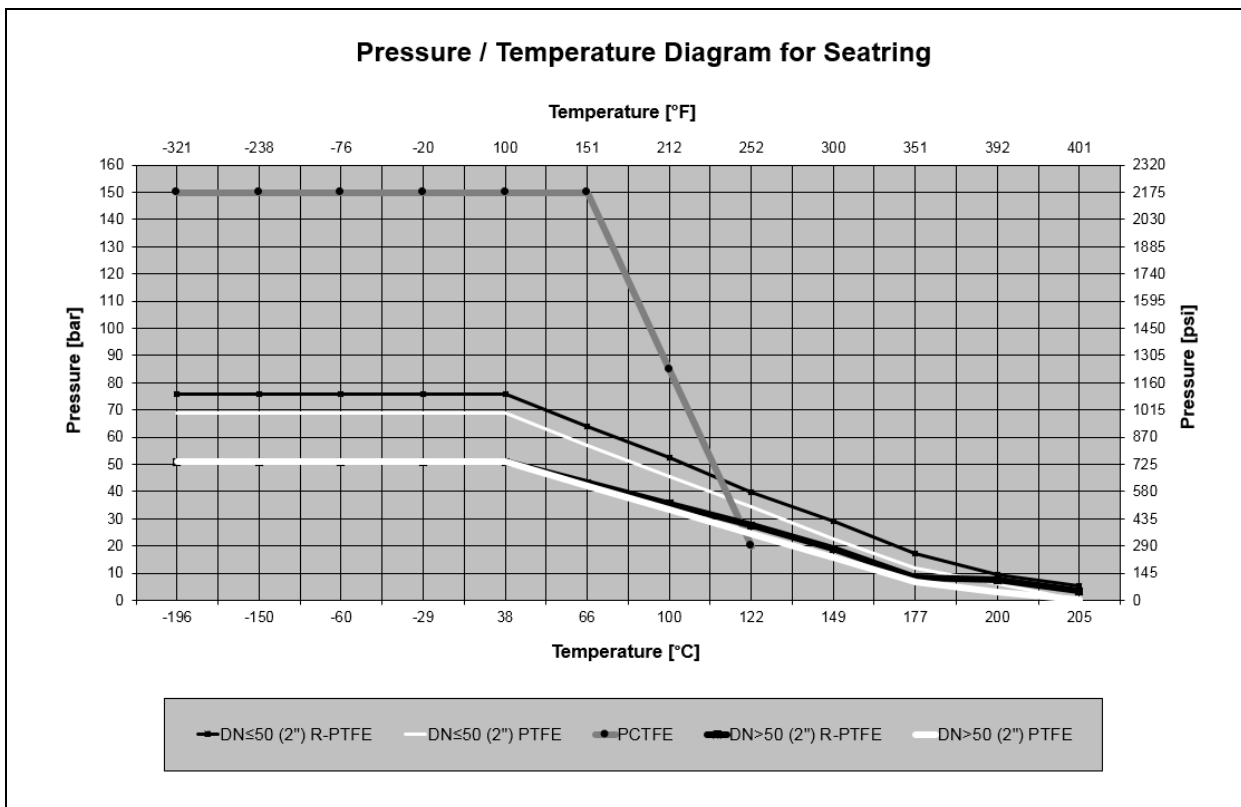
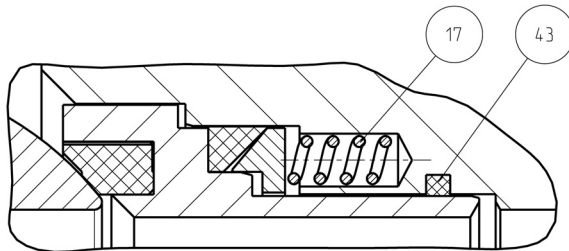


Fig. 7

Options

1) Seat system with protected spring area



The area where the springs (17) are located is protected by graphite-based seal (43). This seal prevents material from entering the spring area or recess but allow the spring chamber to be energized by line pressure.

Fig.8

2) Ball Valve with uni-directional single seat system

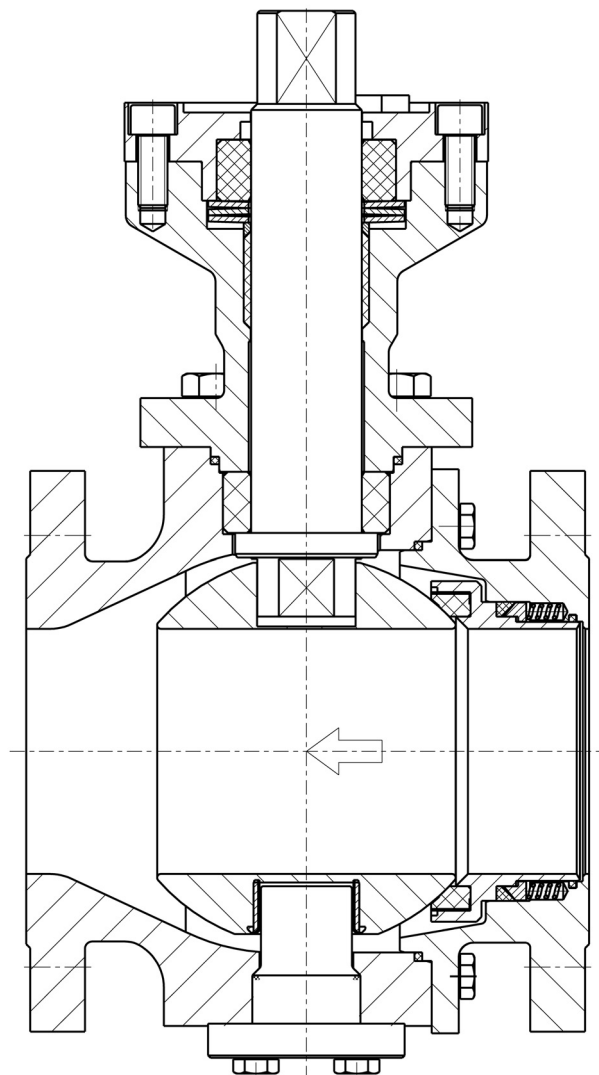


Fig.9



3) Adjustable stem packing

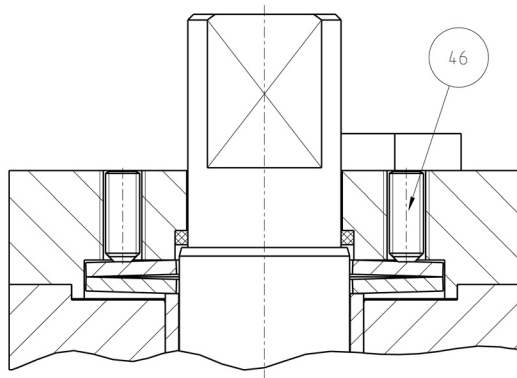


Fig.10

Additionally the live loaded stem packing may be equipped with hexagon socket screws (46). To fasten these screws it is possible to increase the spring force on the packing in the event of leakage.

4) Double-stage gland packing with sniffing connection

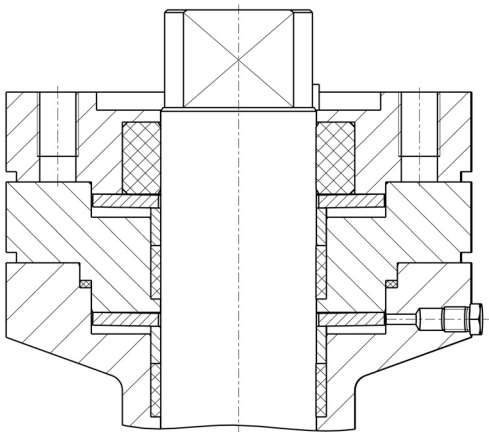


Fig.11

5) Double block and bleed with bleed and/or vent port

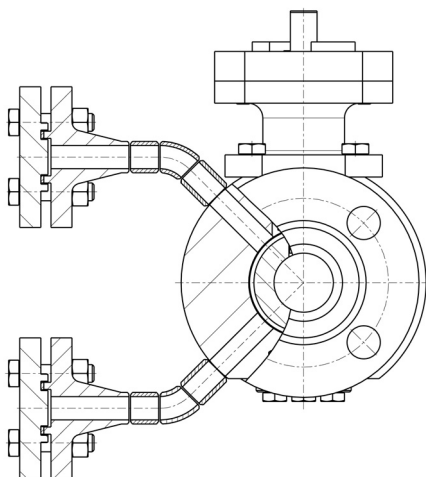


Fig.12

If required the valves can be equipped with bleed and vent ports.



6) Three piece body

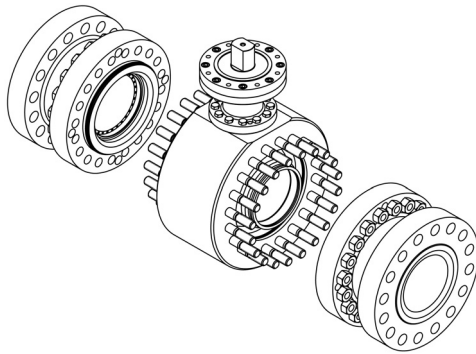


Fig.13

The three piece body construction for specific requirements.

7) Valve with heating jacket

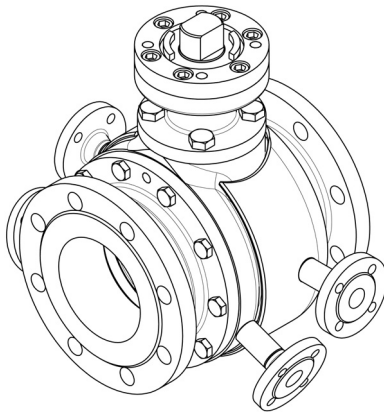


Fig.14

If required the valves can be designed with heating jacket.

8) Valve with control orifice

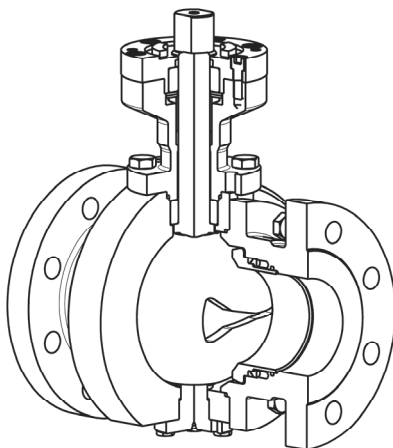
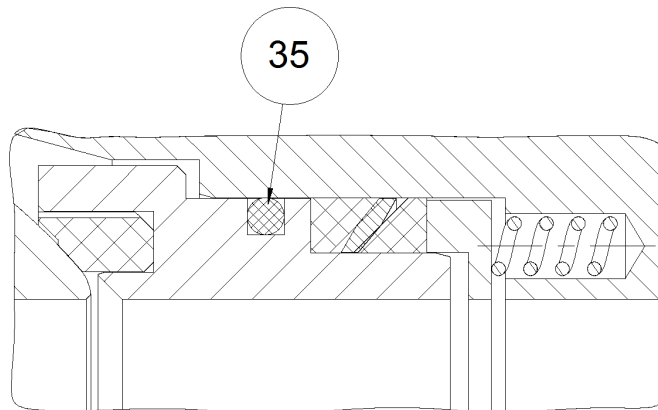


Fig. 15

If required the valves can be designed with ball for flow regulation.



9) Valve with O-ring sealing on seat ring



If required the valves can be additional tightened with O-ring (35) on seat ring.

Fig.16

Technical modifications are reserved.