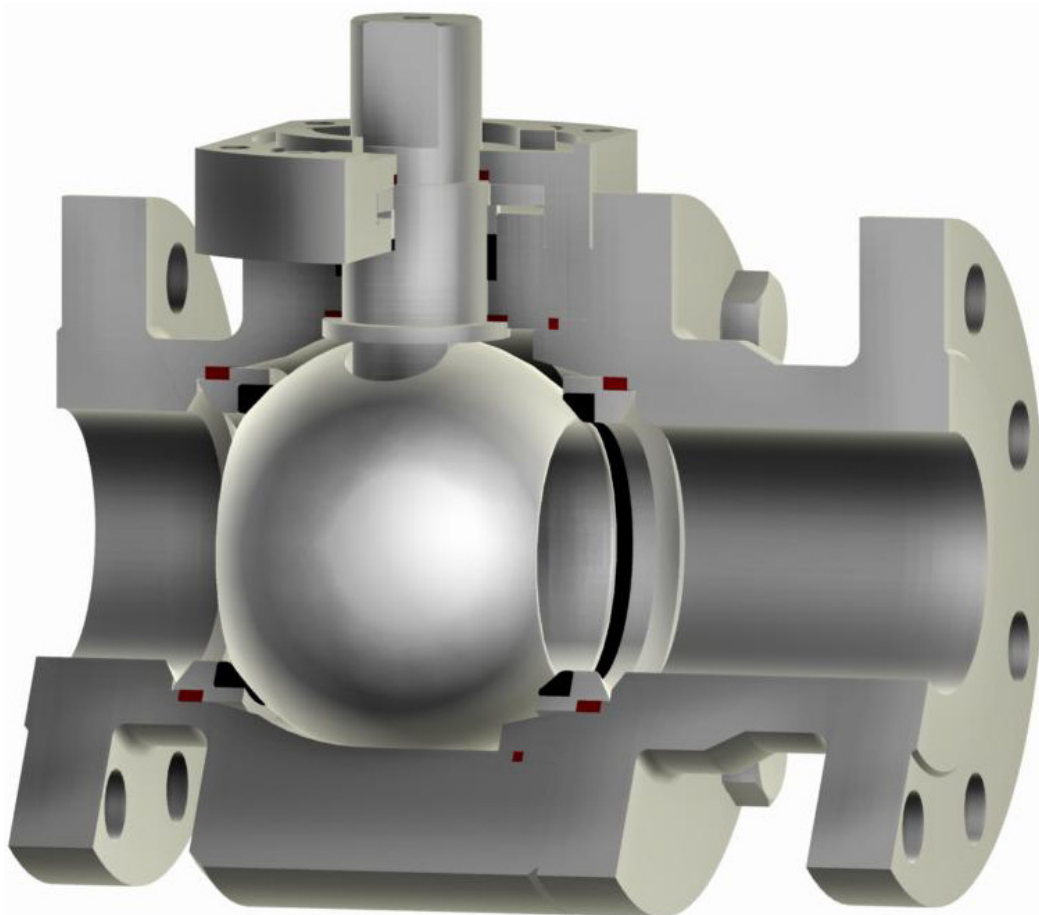




Two-Way Carbon Seated Ball Valve Type 70-C



Design Characteristics

- ✓ Two piece body
- ✓ Floating ball
- ✓ Blow out proof stem
- ✓ Live loaded stem packing

Design Standards

- ✓ EN 12516, EN 1983, ISO 5211, AD-2000
- ✓ ASME B 16.34, API 608

Range of Application

- ✓ Diameter ½" to 12" / DN 15 to 300
- ✓ Class 150 to 2500 / PN 10 to 420
- ✓ -20°F to +750°F / -60°C to +400°C

Approvals

- ✓ "TA-Luft" certified for low fugitive emissions
- ✓ Fire safe approved acc. ISO 10497 / API 607

Testing Standards

- ✓ EN 12266-1/2
- ✓ API 598



Main Parts

- 1 Body
- 2 Body End Connection
- 5 Ball
- 6 Stem
- 8 Gland Washer
- 10 Bearing Cover
- 16 Plate Spring
- 20 Sealing Ring
- 21 Seat Unit
- 23 Body Gasket
- 24 Stem Packing
- 25 Bearing Ring
- 26 Bearing Ring
- 28 Screw
- 29 Screw

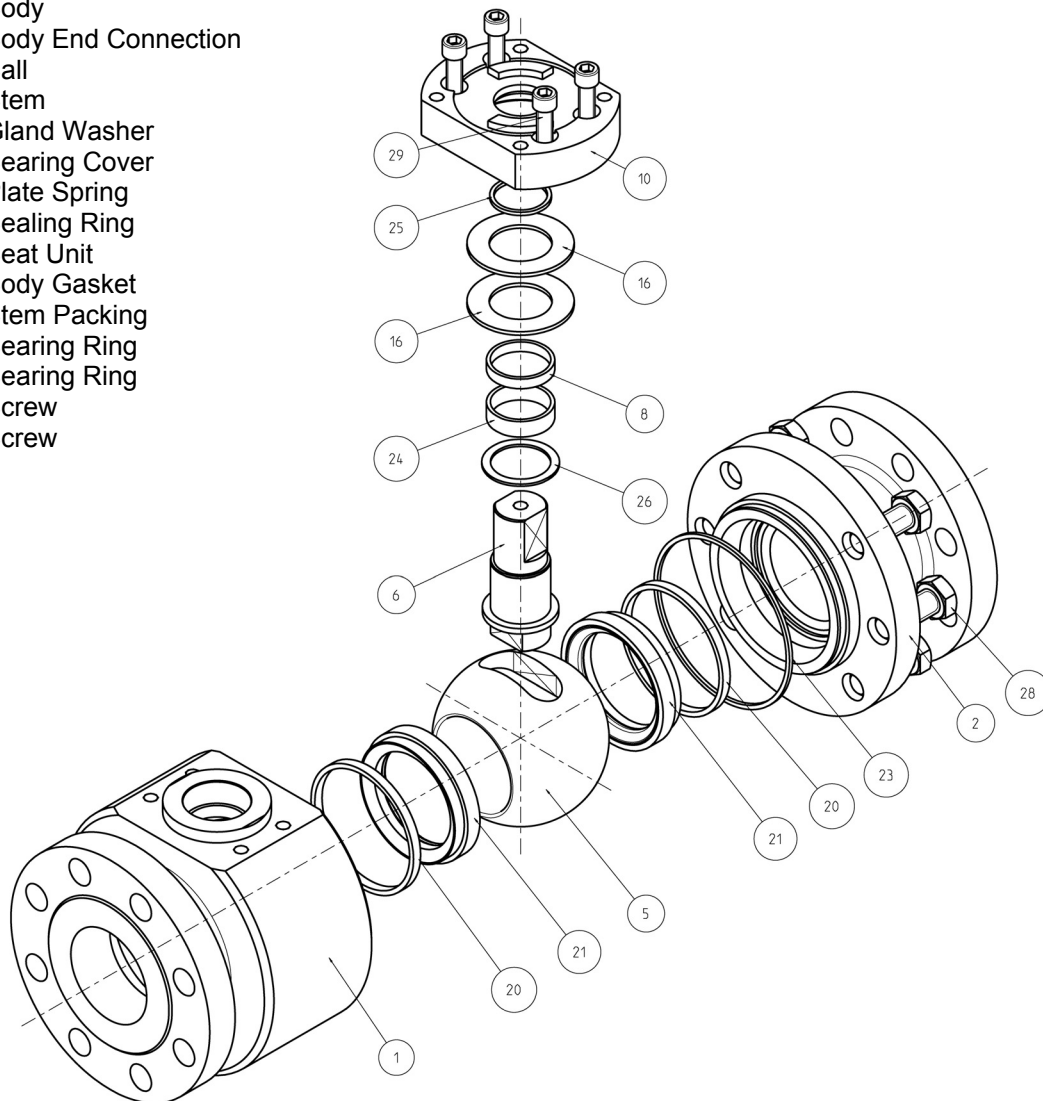


Fig.1

Description

This PERRIN ball valve design features a two piece body and a floating, seat supported ball. The stem packing is spring loaded and the seat rings are pre-loaded.

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 and Fire Safe approval. The stem packing and sealings are "TA-Luft" certified for low fugitive emissions.



Parts List / Materials

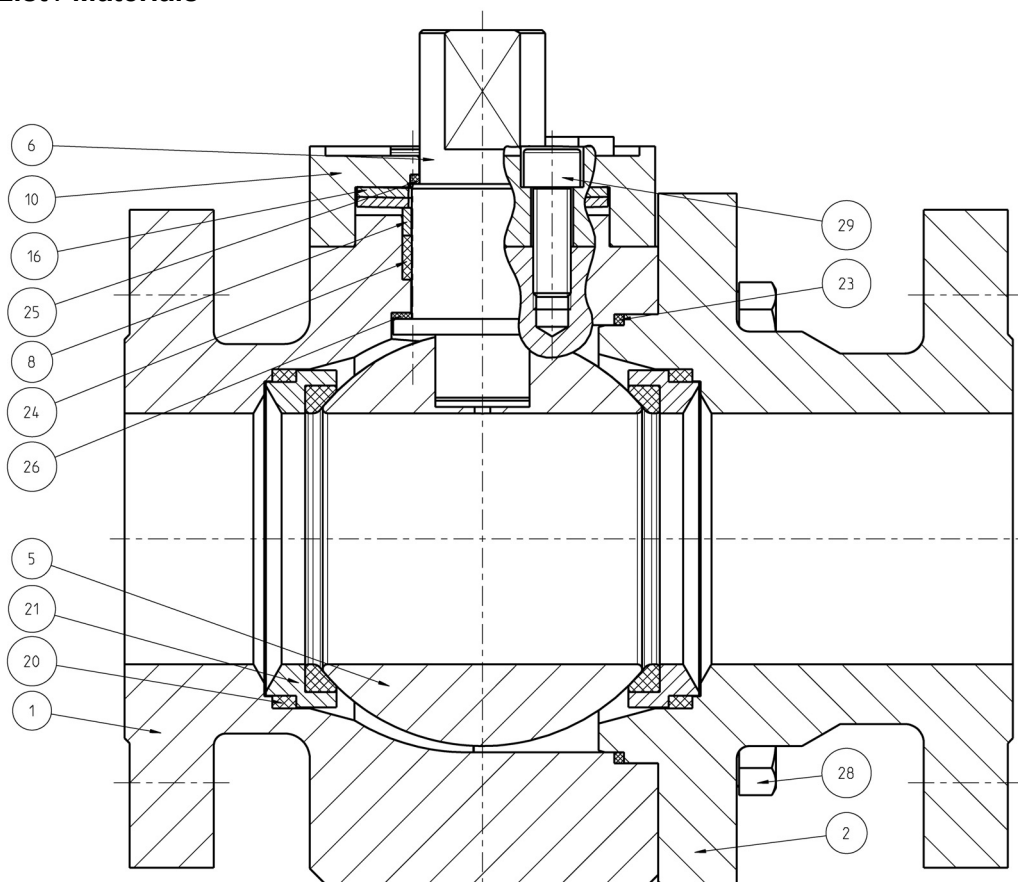


Fig.2

Item	Designation	ASME		DIN EN	
		-20°F up to +750°F	-20°F up to +750°F	-60°C up to +400°C	-10°C up to +400°C
1	Body	A351 CF8M	A216 WCB	1.4408 ¹⁾	1.0619
2	Body End Connection	Type 316 (up to 2")	A105 (up to 2")	1.4571 (up to 2")	1.0460 (up to 2")
5	Ball	Type 316 A351 CF8M	Type 316 A351 CF8M	1.4571 1.4408 ¹⁾	1.4571 1.4408 ¹⁾
6	Stem	Type 51 ²⁾ Type 316	Type 51 ²⁾ Type 316	1.4462 ²⁾ 1.4571	1.4462 ²⁾ 1.4571
8	Gland Washer	Type 316	Type 316	1.4571	1.4571
10	Bearing Cover	Type 316	A105	1.4571	1.0460
16	Plate Spring ³⁾	Type 301	AISI 6150	1.4310	1.8159
20	Sealing Ring	Graphite	Graphite	Graphite	Graphite
21	Seat Unit	Type 316 / Carbon	Type 316 / Carbon	1.4571 / Carbon	1.4571 / Carbon
23	Body Gasket	Graphite	Graphite	Graphite	Graphite
24	Stem Packing				
25	Bearing Ring				
26	Bearing Ring	Graphite with SS	Graphite with SS	Graphite with SS	Graphite with SS
28	Hexagonal Screw	SS	SS	SS	SS
29	Socket Screw	SS	SS	SS	SS

Tab. 1

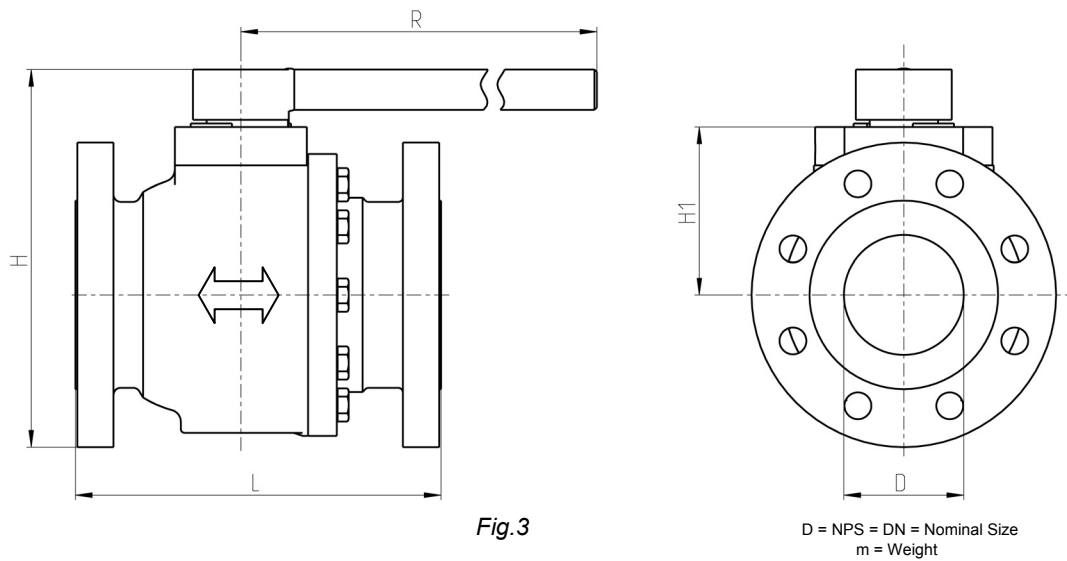
1) Temperature limitation 300°C [576°F] acc. to German technical rule AD-2000 W5 if intercrystalline corrosion resistant is required

2) Temperature limitation 280°C [536°F]

3) Material 2.4668 (Inconel 718) is generally required for operating temperature over 200°C [392°F]

4) Materials for lower / higher temperature and pressure 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]
½	15	5,9	150	2,0	51	7	180	4,25	108	27	9	4
¾	20	5,9	150	2,0	51	7	180	4,62	117	47	12	5,5
1	25	6,8	172	2	62	7	180	5	127	74	13	6
1¼	32	7	190	2,7	68	7	180	5,5	140	123	22	10
1½	40	8,1	206	3	81	12	300	6,5	165	191	31	14
2	50	8,9	226	4,0	101	12	300	7	178	298	37	17
2½	65	9,7	247	4,2	106	12	300	7,5	190	504	55	25
3	80	12,2	309	5	125	18	450	8	203	763	77	35
4	100	13	342	6	140	18	450	9	229	1192	97	44

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]
¾	½	6,3	161	2	51	7	180	4,62	117	24	10	4,5
1	¾	6,3	161	2	51	7	180	5	127	43	13	6
1¼	1	7	177	2,4	62	7	180	5,5	140	67	17	7,5
1½	1¼	7,9	201	2,7	68	7	180	6,5	165	110	25	11,5
2	1½	8,3	211	3,2	81	12	300	7	178	172	33	15
2½	2	9,4	239	4	101	12	300	7,5	190	268	44	20
3	2½	10,1	257	4,2	106	12	300	8	203	454	64	29
4	3	12,7	322	4,9	125	18	450	9	229	687	79	36

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]
½	15	5,9	151	2,0	51	7	180	5,5	140	27	11	5
¾	20	6,2	157	2,0	51	7	180	6	152	47	14	7
1	25	6,6	168	2	62	7	180	6,5	165	74	18	8
1¼	32	7,3	186	2,7	68	12	300	7	178	123	29	13
1½	40	8,5	217	3	81	12	300	7,5	190	191	37	17
2	50	9	228	4,0	101	12	300	8,5	216	298	48	22
2½	65	9,7	247	4,2	106	12	300	9,5	241	504	73	33
3	80	12	305	4,9	125	18	450	11,12	282	763	92	42
4	100	13,5	343	6	140	28	700	12	305	1192	123	56

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]
¾	½	6,4	162	2	51	7	180	6	152	24	13	6
1	¾	6,4	162	2	51	7	180	6,5	165	43	16	7
1¼	1	6,8	173	2,4	62	7	180	7	178	67	20	9
1½	1¼	7,8	197	2,7	68	7	180	7,5	190	110	33	15
2	1½	8,7	222	3,2	81	12	300	8,5	216	172	43	20
2½	2	9,5	241	4	101	12	300	9,5	241	268	56	25
3	2½	10,1	257	4,2	106	12	300	11,12	282	454	83	38
4	3	12,4	315	4,9	125	18	450	12	305	687	106	48

Tab.5

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
15	150	51	180	130	115	23	4	3
20	150	51	180	150	120	41	5	4
25	172	62	180	160	125	64	6	5
32	190	68	300	180	130	106	8	7
40	206	81	300	200	140	165	10	9
50	226	101	300	230	150	258	12	11
65	247	106	300	290	170	436	19	17
80	309	125	450	310	180	660	25	21
100	342	140	700	350	190	1031	35	29

Tab.6

Other dimensions and pressure classes on request.

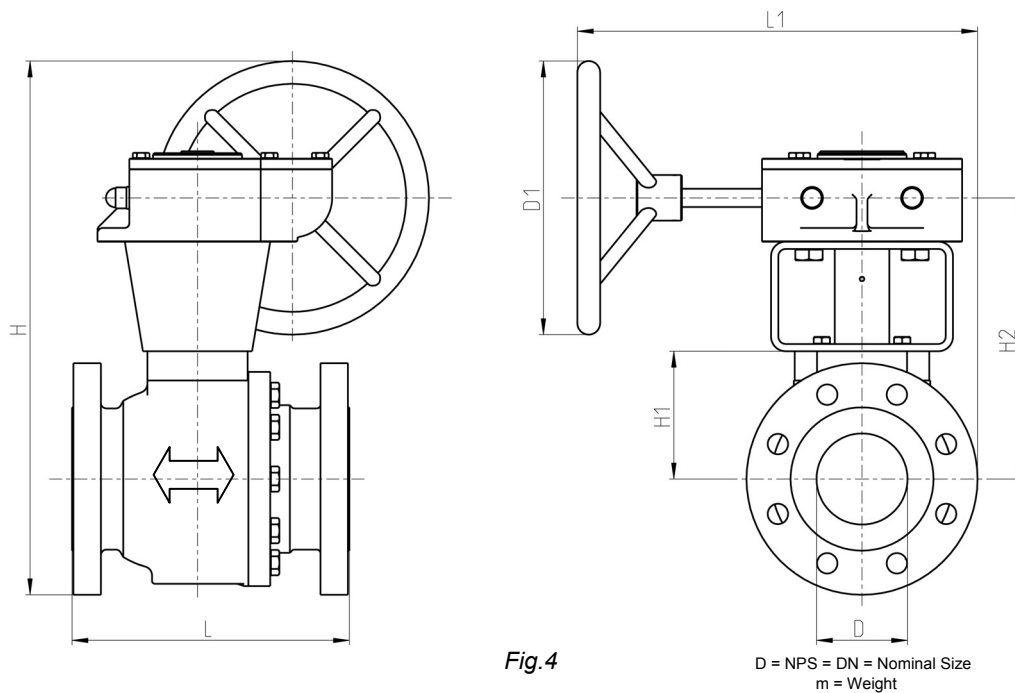


Fig.4

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	31,9	811	7,8	197	13	321	14,7	373	28	700	15,5	394	2548	295	134
8	200	35,6	903	9,5	241	15	382	18	467	28	700	18	457	4528	486	221
10	250	38	966	11,1	282	18,2	463	21	528	24	600	21	533	7358	779	354
12	300	43	1097	13	338	21,9	556	24	600	24	600	24	610	10190	1118	508

Tab.7

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	19,3	489	5,5	140	10,4	264	12,3	312	18	450	15,5	394	1676	223	101
8	6	32,6	828	7,8	197	13,3	338	14,7	373	28	700	18	457	2414	339	154
10	8	37,1	943	9,5	241	16,6	422	18,4	467	28	700	21	533	4291	559	254
12	10	39,5	1003	11,1	282	19,7	500	20,8	528	24	600	24	610	6972	894	407

Tab.8



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	33	841	9	241	15	382	20	515	24	600	15,9	403	2548	383	174
8	200	35	880	11	282	18	464	23	588	18	450	20	502	4528	608	277
10	250	42	1058	13	338	25	636	27	679	16	400	22	568	7358	938	427
12	300	52	1310	18	452	30	750	30	770	24	600	26	648	10190	1469	668

Tab.9

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	28	701	7,8	197	13	338	12	315	28	700	15,9	403	1676	319	145
8	6	34	865	9	241	15	382	20	515	24	600	20	502	2414	507	230
10	8	40	1006	11	282	18	464	23	588	18	450	22	568	4291	782	355
12	10	43	1083	13	338	25	636	27	679	16	400	26	648	6972	1224	556

Tab.10

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	814	197	321	435	700	480	350	2320	117	101
200	902	241	382	526	700	600	400	4124	192	167
250	966	282	463	600	600	730	450	6701	307	267
300	1086	338	556	687	600	850	500	9279	441	384

Tab.11

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	965	241	365	506	900	480	350	2320	151	132
200	836	282	423	585	450	600	400	4124	240	209
250	944	338	519	682	400	730	450	6701	371	322
300	1228	452	670	768	600	850	500	9279	580	505

Tab.12

Other dimensions and pressure classes on request.



Technical Data High Pressure Applications

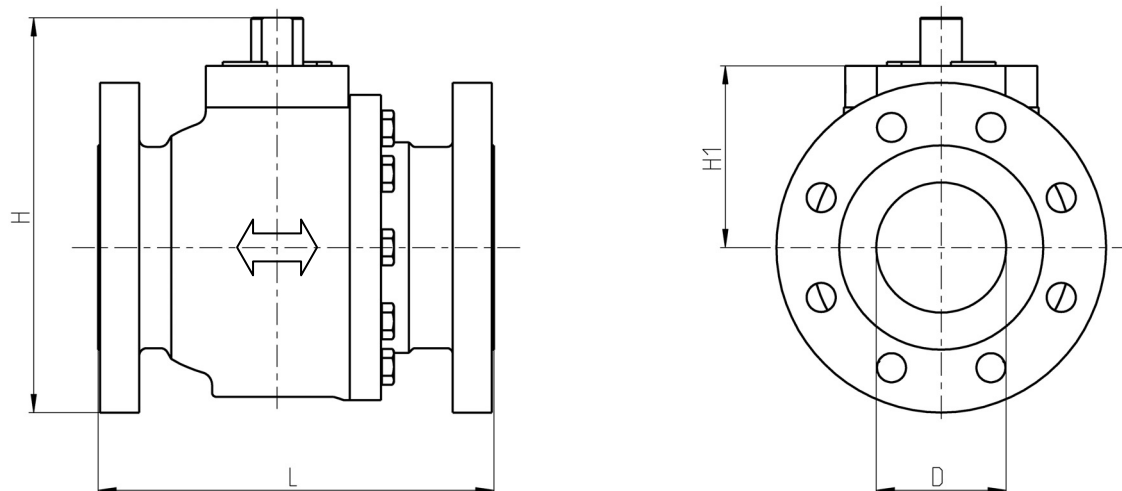


Fig.5

D = NPS = DN = Nominal Size
m = Weight

CLASS 600 - Full Bore

NPS [inch]	DN [mm]	H		H1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
½	15	5	128	2,3	58	6,5	165	27	15	7
1	25	5,5	140	2,3	58	8,5	216	74	22	10
1½	40	6,2	158	2,3	58	9,5	241	191	31	14
2	50	8	211	4	101	11,5	292	298	59	27
3	80	9	240	4,2	106	14	356	763	106	48
4	100	12,4	314	5,5	140	17	432	1192	207	94
6	150	16,4	417	8,1	206	22	559	2682	458	208

Tab.13

CLASS 900 - Full Bore

NPS [inch]	DN [mm]	H		H1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
½	15	5,5	140	2,3	58	8,5	216	27	24	11
1	25	6,1	155	2,3	58	10	254	74	33	15
1½	40	8,2	209	3,7	93	12	305	191	68	31
2	50	10,2	258	4,5	114	14,5	368	298	136	62
3	80	11,1	283	4,9	125	15	381	763	165	75
4	100	14,6	372	8	204	18	457	1192	367	167
6	150	18,9	481	9,3	235	24	610	2682	673	306

Tab.14



CLASS 1500 - Full Bore

NPS [inch]	DN [mm]	H		H1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
½	15	5,5	140	2,3	58	8,5	216	27	24	11
1	25	6,1	155	2,3	58	10	254	74	33	15
1½	40	8,2	209	4	93	12,0	305	191	68	31
2	50	10	258	4,5	114	14,5	368	298	136	62
3	80	12	296	4,9	125	11,12	470	763	216	98
4	100	14,8	375	7	171	21	546	1192	444	202
6	150	15,8	401	6,7	171	15,88	705	2682	678	308

Tab.15

CLASS 2500 - Full Bore

NPS [inch]	DN [mm]	H		H1		L ASME B16.10		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
½	15	5,5	140	2,3	58	8,5	216	27	24	11
1	25	6,1	155	2,3	59	10	254	74	33	15
1½	40	10,7	272	4	89	15,2	387	191	108	49
2	50	10,9	278	4,9	124	17,8	451	298	194	88
3	80	11,7	296	4,9	125	11,12	470	763	216	98
4	100	14,8	375	7	171	21	546	1192	444	202
6	150	25,4	646	12,2	311	15,88	914	2682	2543	1156

Tab.16

Other dimensions and pressure classes on request.

Top Works

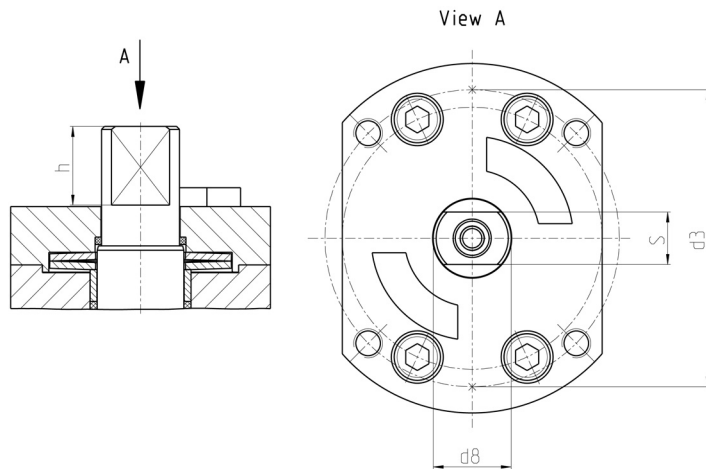


Fig.6

F	h		s		d3		d8	
	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
F05	17	0,7	10	0,4	50	2	13	0,5
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	2,2
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
F30	99	3,9	65	2,6	298	11,7	93	3,7

Tab.17

Actuator-Connection ISO 5211 Full Bore

NPS [inch]	DN [mm]	CLASS / PN					
		150 / 16	300 / 40	600 / 100	900 / 160	1500 / 250	2500 / 420
½	15	F05	F05	-	-	-	-
¾	20	F05	F05	-	-	-	-
1	25	F05	F05	F07	F07	F07	F10
1¼	32	F07	F07	F10	F10	F10	F10
1½	40	F07	F10	F10	F10	F10	F10
2	50	F07	F10	F10	F12	F12	F12
2½	65	F07	F10	F10	F12	F12	F16
3	80	F10	F12	F10	F12	F12	F16
4	100	F10	F12	F12	F14	F16	F16
6	150	F14	F14	F16	F16	F16	F25
8	200	F14	F14*				
10	250	F16	F16*				
12	300	F25	F25*				

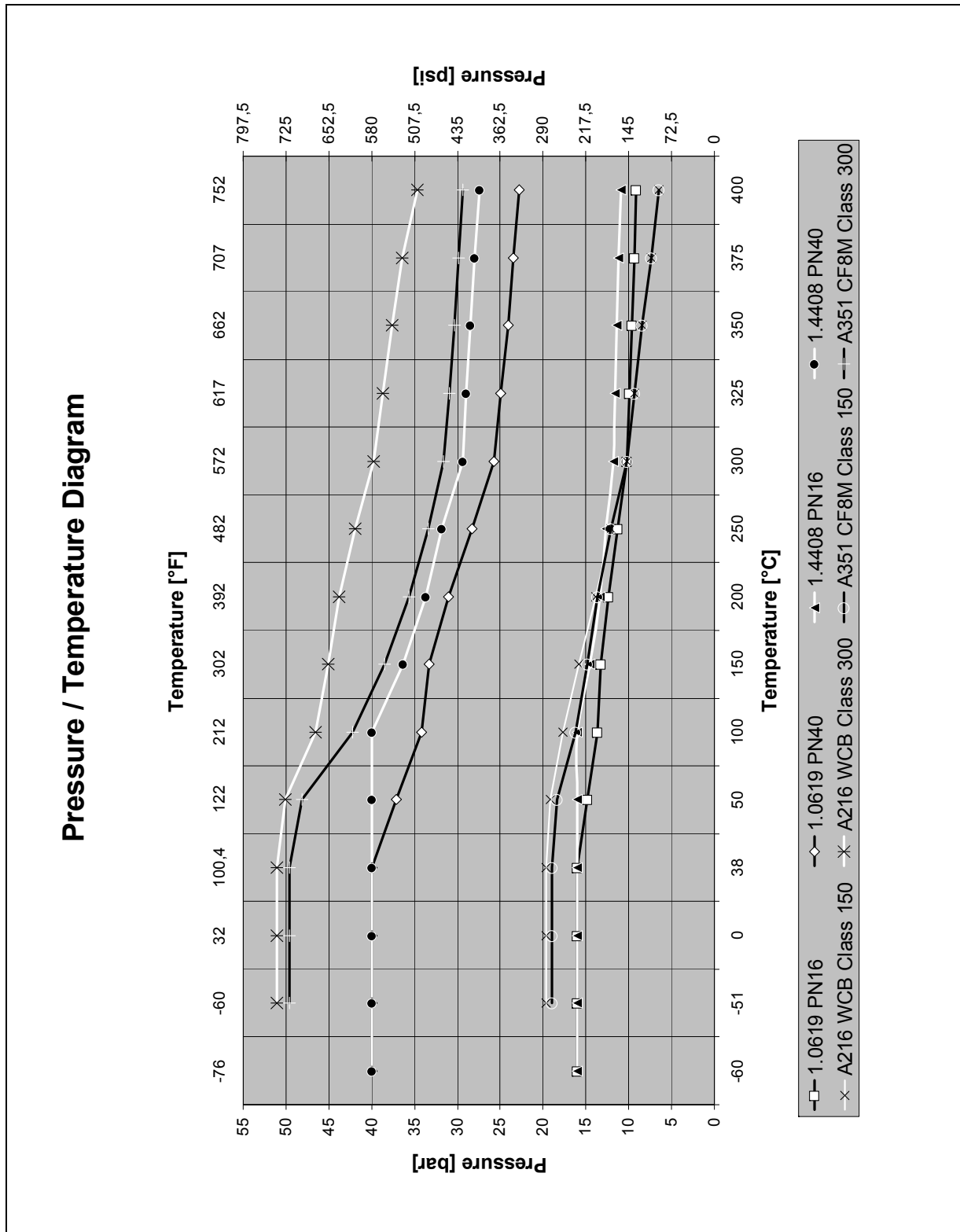
* Feather Keyway

Reduced Bore

NPS [inch]	NPS-R [inch]	CLASS	
		150	300
½	-	-	-
¾	½	F05	F05
1	¾	F05	F05
1¼	1	F05	F05
1½	1¼	F07	F07
2	1½	F07	F10
2½	2	F07	F10
3	2½	F07	F10
4	3	F10	F12
6	4	F10	F12
8	6	F14	F14
10	8	F14	F16
12	10	F16	F16*

Tab.18

Pressure / Temperature Diagram Class 150 – Class 300

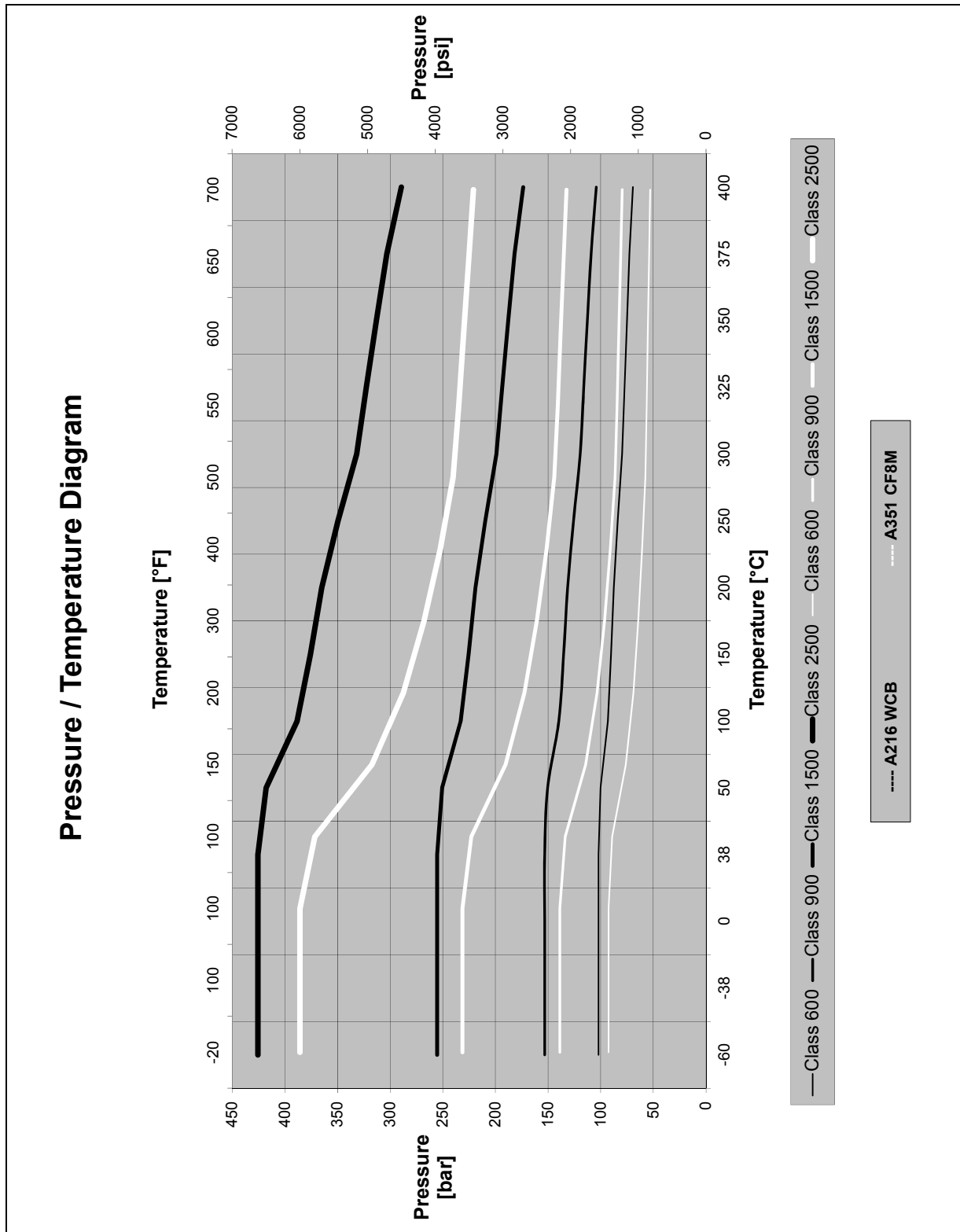


* The "rating" for carbon seat is equivalent to the housing material.

Fig.7



Pressure / Temperature Diagram Class 600 – Class 2500



* The "rating" for carbon seat is equivalent to the housing material.

Fig.8



Options

1) Adjustable stem packing

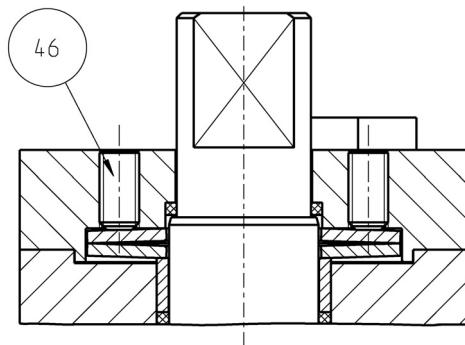


Fig.9

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.

2) Valve with heating jacket

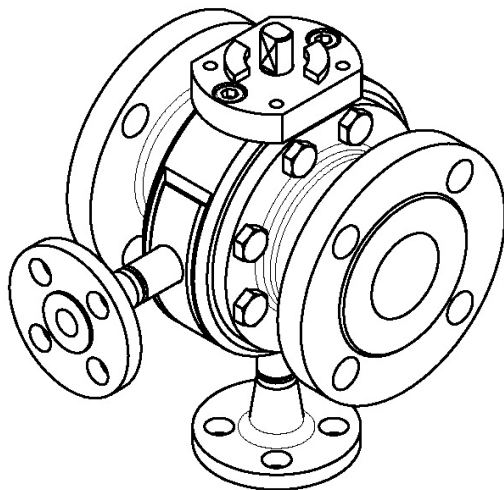


Fig.10

Technical modifications are reserved.





