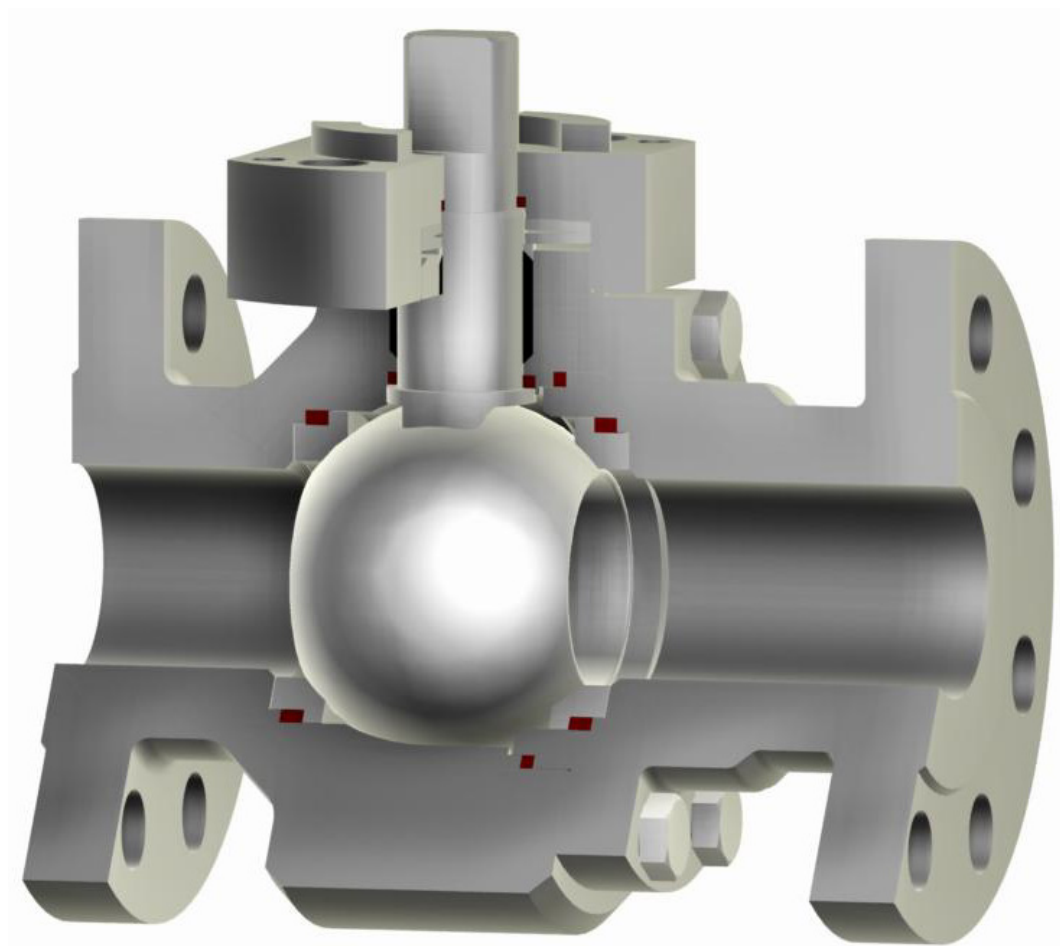




Two-Way Metal Seated Ball Valve Type 70-M



Design Characteristics

- ✓ Two piece body
- ✓ Floating ball
- ✓ Blow out proof stem
- ✓ Live loaded stem packing
- ✓ Fire Safe design optional

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 300 / PN 10 to 40
- ✓ -20°F to +850°F / -60°C to +450°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
- 5 Ball
- 6 Stem
- 8 Gland Washer
- 10 Bearing Cover
- 16 Plate Spring
- 20 Sealing Ring
- 21 Seat Ring
- 23 Body Gasket
- 24 Stem Packing
- 25 Bearing Ring
- 26 Bearing Ring
- 28 Hexagonal Screw
- 29 Socket Screw

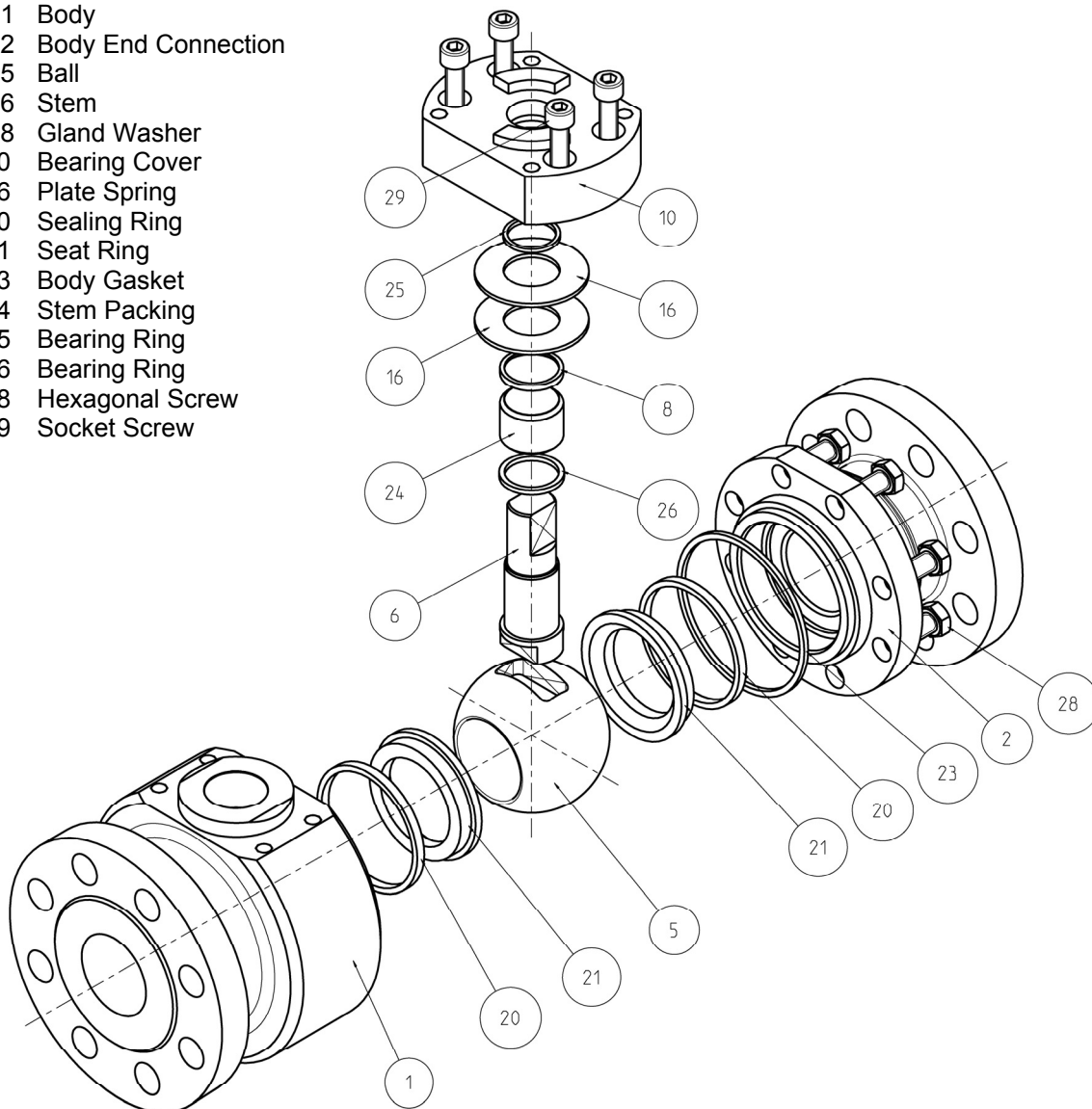


Fig. 1

Description

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

The valve is equipped with an integral actuator mounting flange for actuator connection according to ISO 5211 standard. 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

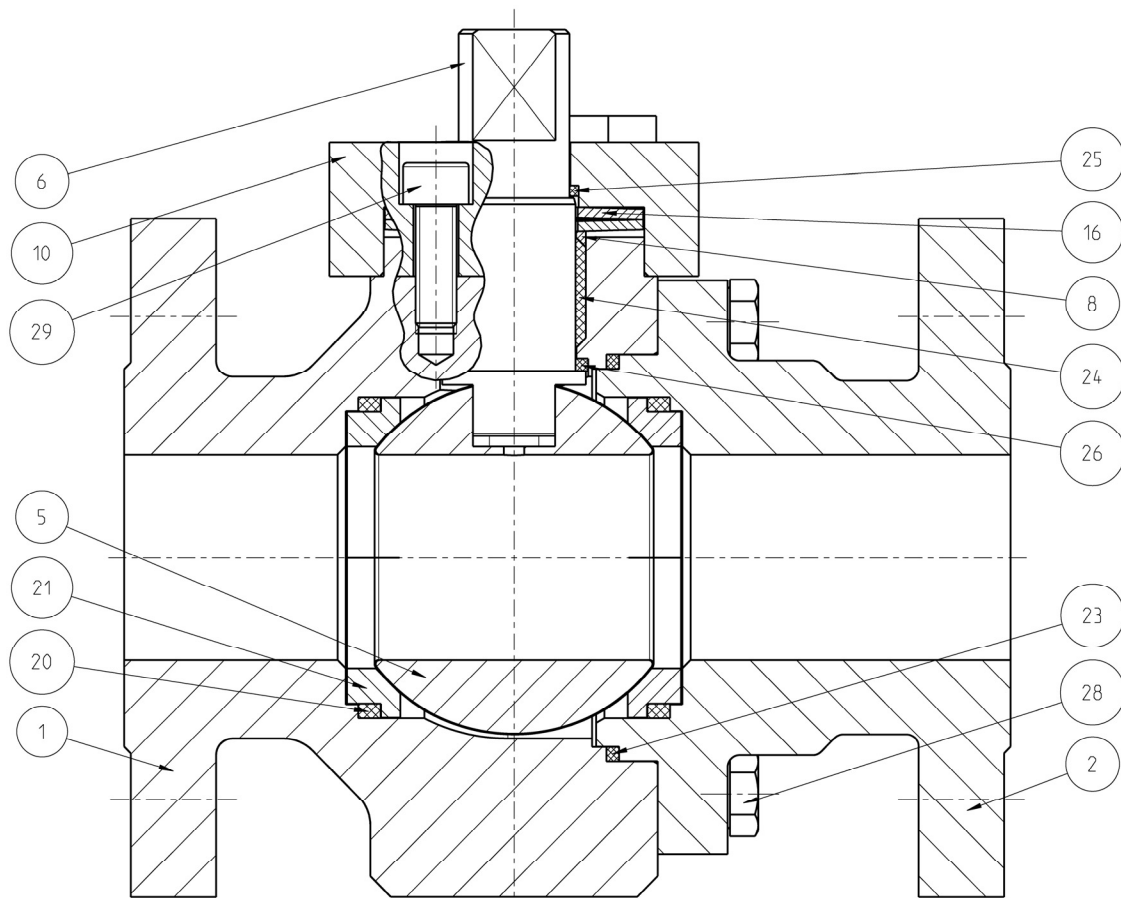


Fig. 2

Item	Designation	ASME		DIN EN	
		-20°F up to +850°F	-20°F up to +850°F	-60°C up to +450°C	-10°C up to +450°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 coated A351 CF8M coated	Type 316 coated A351 CF8M coated	1.4571 coated 1.4408 ¹⁾ coated	1.4571 coated 1.4408 ¹⁾ coated
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 Ring	Type 316 coated	Type 316 coated	1.4571 coated	1.4571 coated
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

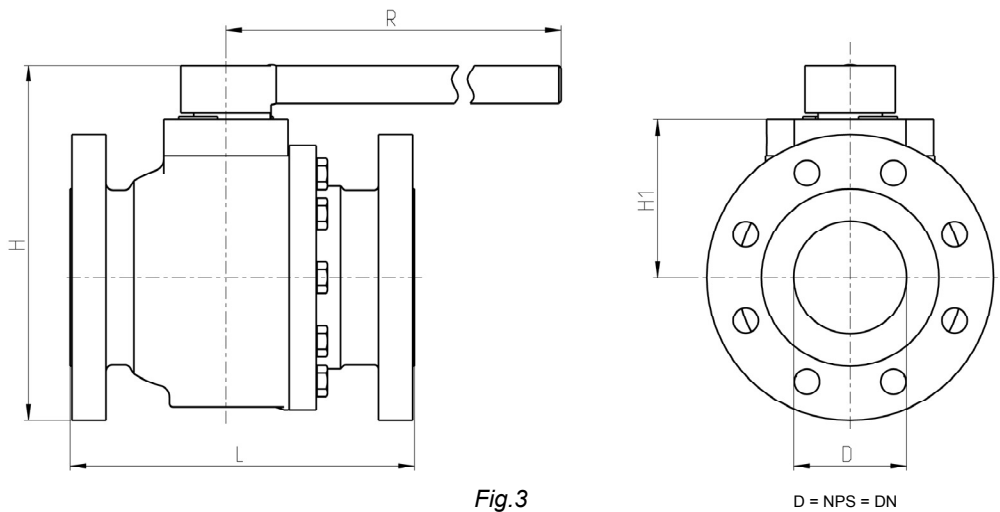
2) Temperature limitation 280°C [536°F]

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

4) Materials for lower / higher temperature on request



Technical Data



Nominal Size		Class 150 - Full Bore Dimensions acc. to ASME Standards						Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	DN [mm]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	R [inch]	R [mm]	L [inch]	L [mm]		kg	lbs
½	15	5.9	150	2.0	51	7	180	4.25	108	27	4	9
¾	20	5.9	150	2.0	51	7	180	4.62	117	48	5.5	12
1	25	6.8	172	2	62	7	180	5	127	75	6	13
1¼	32	7	190	2.7	68	7	180	5.5	140	124	10	22
1½	40	8.1	206	3	81	12	300	6.5	165	193	14	31
2	50	8.9	226	4.0	101	12	300	7	178	302	17	37
2½	65	9.7	247	4.2	106	12	300	7.5	190	510	25	55
3	80	12.2	309	5	125	18	450	8	203	772	35	77
4	100	13	342	6	140	18	450	9	229	1206	44	97

Tab.2

Nominal Size		Class 150 - *Single Reduced Bore Dimensions acc. to ASME Standards						Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	*SRB [inch]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	R [inch]	R [mm]	L [inch]	L [mm]		kg	lbs
½	-	-	-	-	-	-	-	-	-	-	-	-
¾	½	5.9	150	2.0	51	7	180	4.62	117	27	4.5	10
1	¾	5.9	150	2.0	51	7	180	5	127	48	6	13
1¼	1	6.8	172	2	62	7	180	5.5	140	75	7.5	17
1½	1¼	7	190	2.7	68	7	180	6.5	165	124	11.5	25
2	1½	8.1	206	3	81	12	300	7	178	193	15	33
2½	2	8.9	226	4.0	101	12	300	7.5	190	302	20	44
3	2½	9.7	247	4.2	106	12	300	8	203	510	29	64
4	3	12.2	309	5	125	18	450	9	229	772	36	79

Tab.3



Nominal Size		Class 300 - Full Bore Dimensions acc. to ASME Standards						Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	DN [mm]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	R [inch]	R [mm]	L [inch]	L [mm]		kg	lbs
½	15	5.9	151	2.0	51	7	180	5.5	140	27	5	11
¾	20	6.2	157	2.0	51	7	180	6	152	48	7	14
1	25	6.6	168	2	62	7	180	6.5	165	75	8	18
1¼	32	7.3	186	2.7	68	12	300	7	178	124	13	29
1½	40	8.5	217	3	81	12	300	7.5	190	193	17	37
2	50	9	228	4.0	101	12	300	8.5	216	302	22	48
2½	65	9.7	247	4.2	106	12	300	9.5	241	510	33	73
3	80	12	305	4.9	125	18	450	11.12	282	772	42	92
4	100	13.5	343	6	140	28	700	12	305	1206	56	123

Tab.4

Nominal Size		Class 300 - *Single Reduced Bore Dimensions acc. to ASME Standards						Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	*SRB [inch]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	R [inch]	R [mm]	L [inch]	L [mm]		kg	lbs
½	-	-	-	-	-	-	-	-	-	-	-	-
¾	½	5.9	151	2.0	51	7	180	6	152	27	6	13
1	¾	6.2	157	2.0	51	7	180	6.5	165	48	7	16
1¼	1	6.6	168	2	62	7	180	7	178	75	9	20
1½	1¼	7	186	2.7	68	7	180	7.5	190	124	15	33
2	1½	8.5	217	3	81	12	300	8.5	216	193	20	43
2½	2	9.0	228	4.0	101	12	300	9.5	241	302	25	56
3	2½	9.7	247	4.2	106	12	300	11.12	282	510	38	83
4	3	12.0	305	4.9	125	18	450	12	305	772	48	106

Tab.5

Nominal Size	PN 16 - PN 40 Dimensions [mm] acc. to DIN EN Standards			Face to Face DIN EN 558		Kv [m³/h]	Weights [kg]	
DN	H	H1	R	GR1	GR27		GR1	GR27
				L	L			
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.

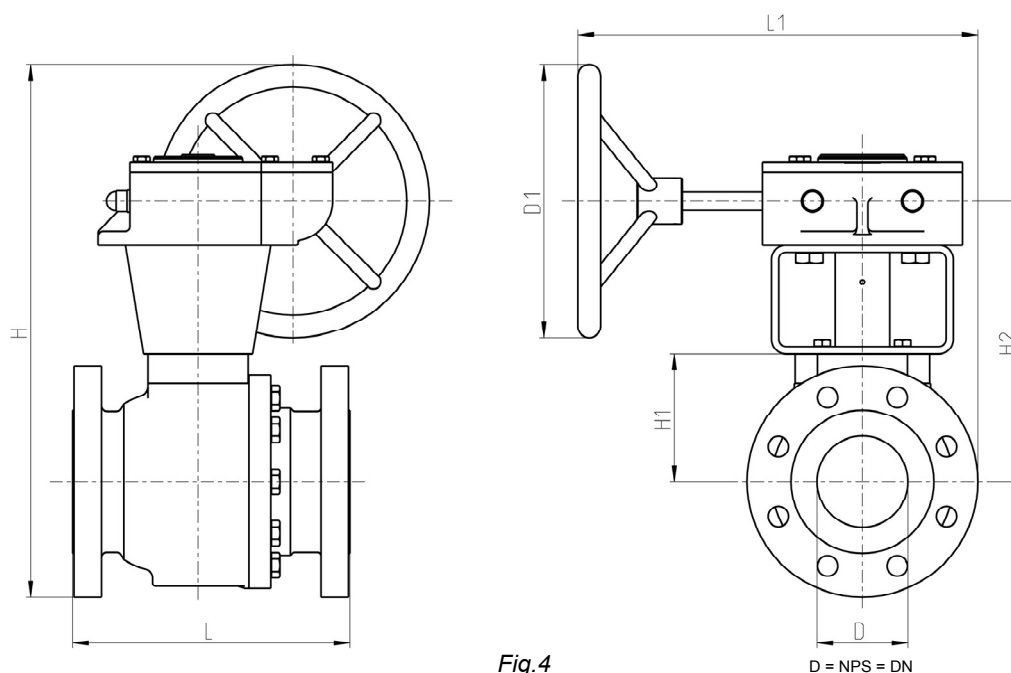


Fig.4

Nominal Size		Class 150 - Full Bore Dimensions acc. to ASME Standards										Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	DN [mm]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	H2 [inch]	H2 [mm]	L1 [inch]	L1 [mm]	D1 [inch]	D1 [mm]	L [inch]	L [mm]		kg	lbs
6	150	31.9	811	7.8	197	13	321	14.7	373	28	700	15.5	394	2714	134	295
8	200	35.6	903	9.5	241	15	382	18	467	28	700	18	457	4825	221	486
10	250	38	966	11.1	282	18.2	463	21	528	24	600	21	533	7840	354	779
12	300	43	1097	13	338	21.9	556	24	600	24	600	24	610	10856	508	1118

Tab.7

Nominal Size		Class 150 - *Single Reduced Bore Dimensions acc. to ASME Standards										Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	*SRB [inch]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	H2 [inch]	H2 [mm]	L1 [inch]	L1 [mm]	D1 [inch]	D1 [mm]	L [inch]	L [mm]		kg	lbs
6	4	20	514	10.4	264	11	289	12.3	312	18	450	15.5	394	1206	101	223
8	6	31.9	811	12.1	307	13	321	14.7	373	28	700	18	457	2714	154	339
10	8	35.6	903	14.4	366	15	382	18	467	28	700	21	533	4825	254	559
12	10	38	966	17.8	452	18.2	463	21	528	24	600	24	610	7840	407	894

Tab.8



Nominal Size		Class 300 - Full Bore Dimensions acc. to ASME Standards										Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	DN [mm]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	H2 [inch]	H2 [mm]	L1 [inch]	L1 [mm]	D1 [inch]	D1 [mm]	L [inch]	L [mm]		kg	lbs
6	150	39	991	9	241	15	382	20	515	35	900	15.9	403	2714	174	383
8	200	35	880	11	282	18	464	23	588	18	450	20	502	4825	277	608
10	250	42	1058	13	338	25	636	27	679	16	400	22	568	7840	427	938
12	300	52	1310	18	452	30	750	30	770	24	600	26	648	10856	668	1469

Tab.9

Nominal Size		Class 300 - *Single Reduced Bore Dimensions acc. to ASME Standards										Face to Face ASME B16.10		Cv [gal/min]	Weights	
NPS [inch]	*SRB [inch]	H [inch]	H [mm]	H1 [inch]	H1 [mm]	H2 [inch]	H2 [mm]	L1 [inch]	L1 [mm]	D1 [inch]	D1 [mm]	L [inch]	L [mm]		kg	lbs
6	4	27	688	7.8	197	13	338	12	315	28	700	15.9	403	1206	145	319
8	6	39	991	9	241	15	382	20	515	35	900	20	502	2714	230	507
10	8	35	880	11	282	18	464	23	588	18	450	22	568	4825	355	782
12	10	42	1058	13	338	25	636	27	679	16	400	26	648	7840	556	1224

Tab.10

Nominal Size	PN 16 Dimensions [mm] acc. to DIN EN Standards					Face to Face DIN EN 558		Kv [m³/h]	Weights [kg]		
	DN	H	H1	H2	L1	D1	GR1		GR27	GR1	GR27
							L		L		
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

Nominal Size	PN 40 Dimensions [mm] acc. to DIN EN Standards					Face to Face DIN EN 558		Kv [m³/h]	Weights [kg]		
	DN	H	H1	H2	L1	D1	GR1		GR27	GR1	GR27
							L		L		
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.

Top Works

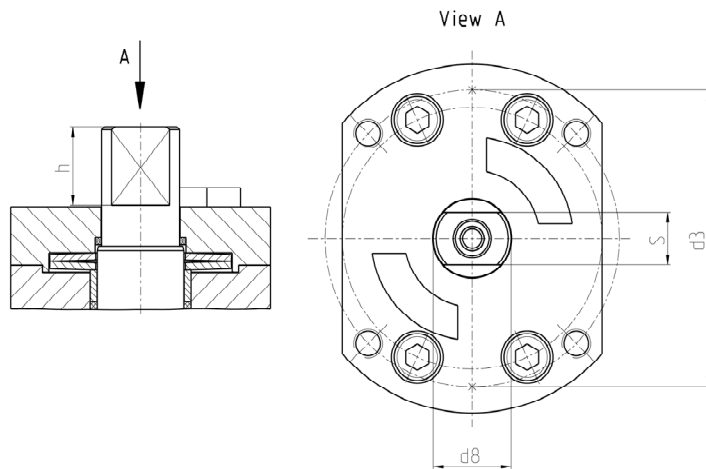


Fig.5

Dimensions								
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.13

Nominal Size		Actuator-Connection ISO 5211 Full Bore		**Feather keyway	Nominal Size		Actuator-Connection ISO 5211 *Single Reduced Bore	
NPS [inch]	DN [mm]	Class 150	Class 300		NPS [inch]	*SRB [inch]	Class 150	Class 300
½	15	F05	F05		½	-	-	-
¾	20	F05	F05		¾	½	F05	F05
1	25	F05	F05		1	¾	F05	F05
1¼	32	F07	F07		1¼	1	F05	F05
1½	40	F07	F10		1½	1¼	F07	F07
2	50	F07	F10		2	1½	F07	F10
2½	65	F07	F10		2½	2	F07	F10
3	80	F10	F12		3	2½	F07	F10
4	100	F10	F12		4	3	F10	F12
6	150	F14	F14		6	4	F10**	F12
8	200	F14	F14**		8	6	F14	F14
10	250	F16	F16**		10	8	F14	F14**
12	300	F25	F25**		12	10	F16	F16**

Tab.14

Pressure / Temperature Diagram

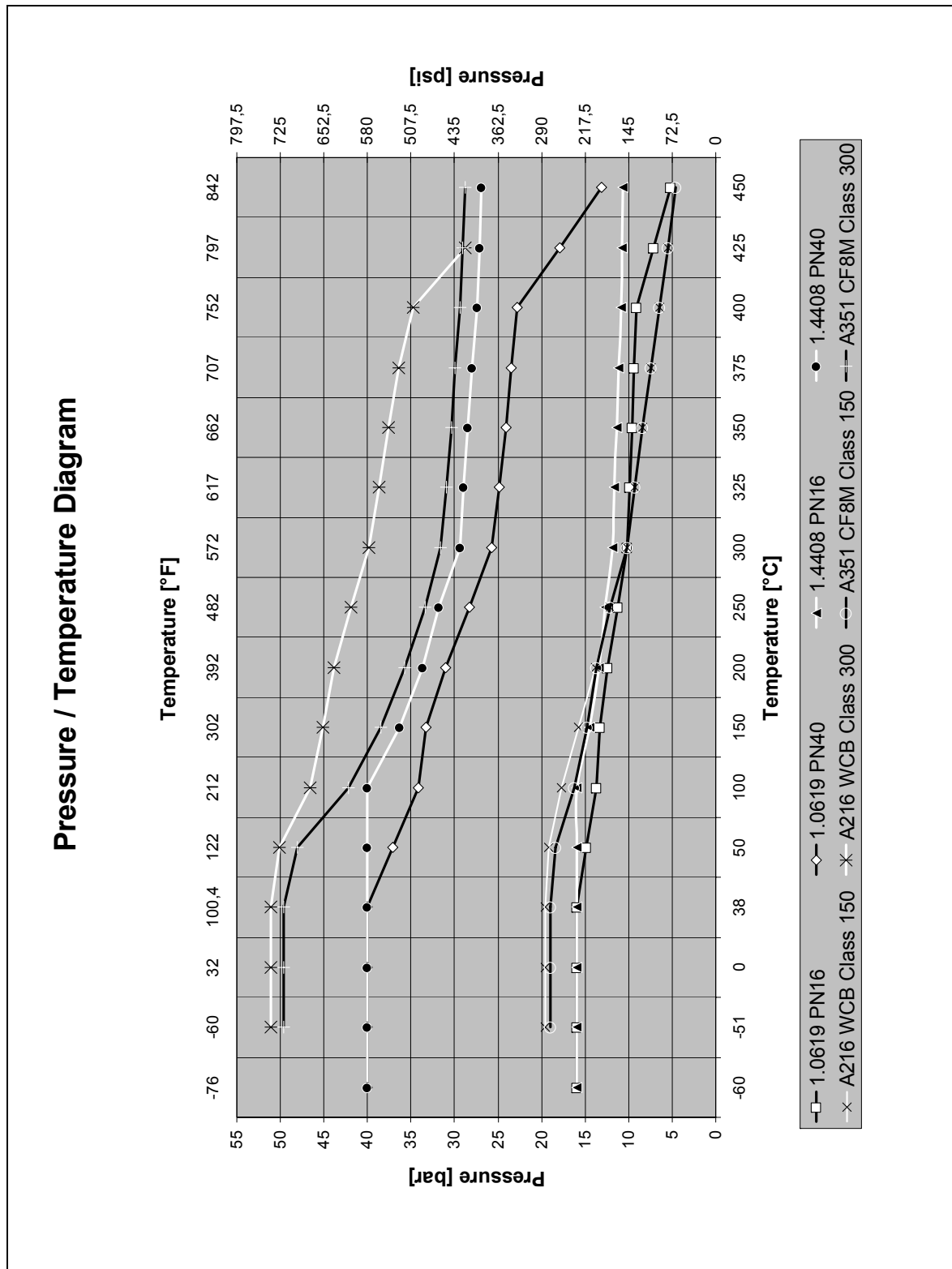


Fig.6



Options

1) Adjustable stem packing

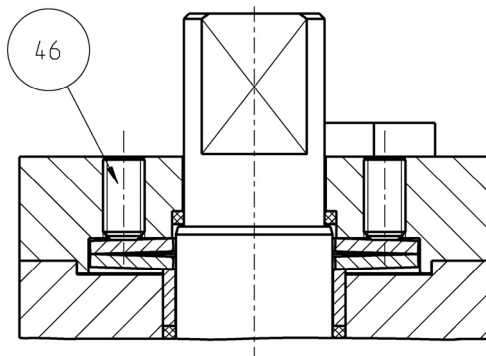


Fig.7

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

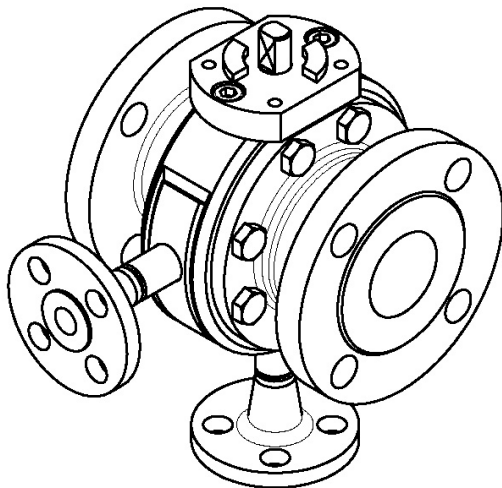


Fig.8

Technical modifications are reserved.



