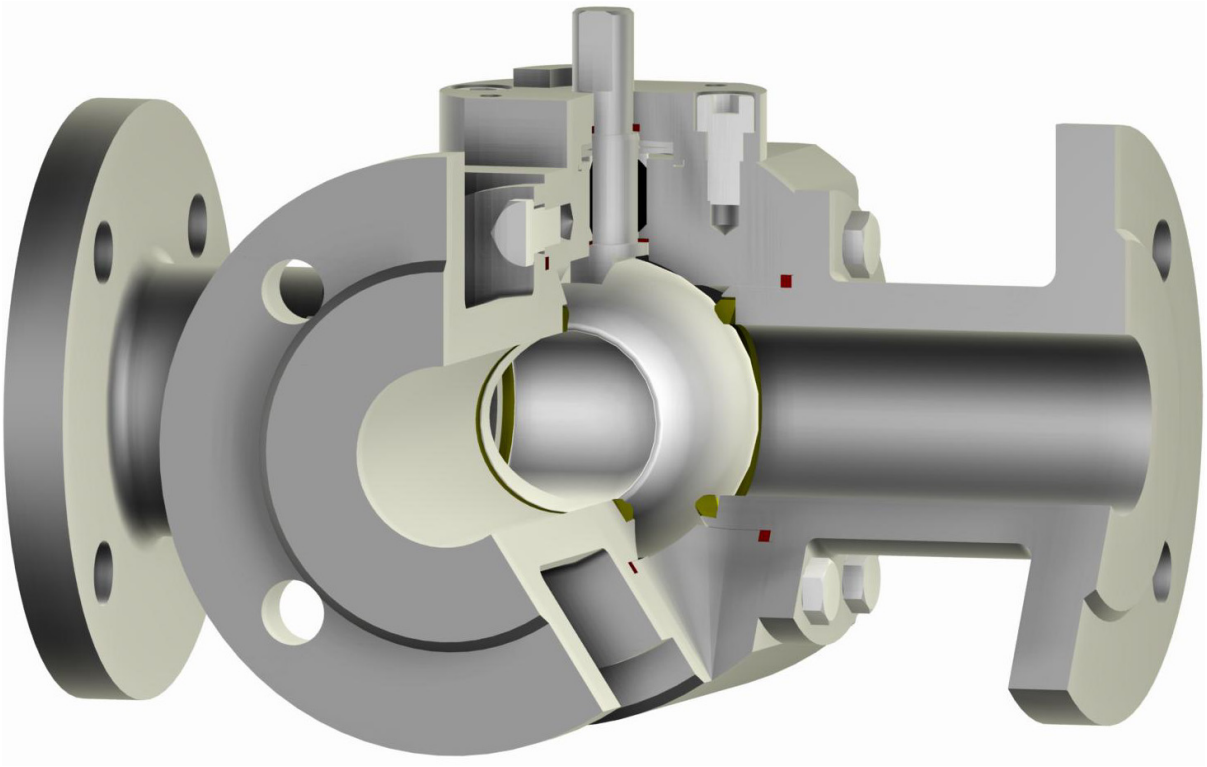
Three-Way Soft Seated Ball Valve
Type 20-S



Design Characteristics

- ✓ Split body
- ✓ Floating ball with L- or T-port
- ✓ 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 4" / DN 15 to 100
- ✓ Class 150 to 300 / PN 10 to 40
- ✓ -20°F to +400°F / -60°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
5	Ball
6	Stem
8	Gland Washer
10	Bearing Cover
16	Plate Spring
21	Seat Ring
23	Body Gasket
24	Stem Packing
25	Bearing Ring
26	Bearing Ring
28	Hexagonal Screw
29	Socket Screw

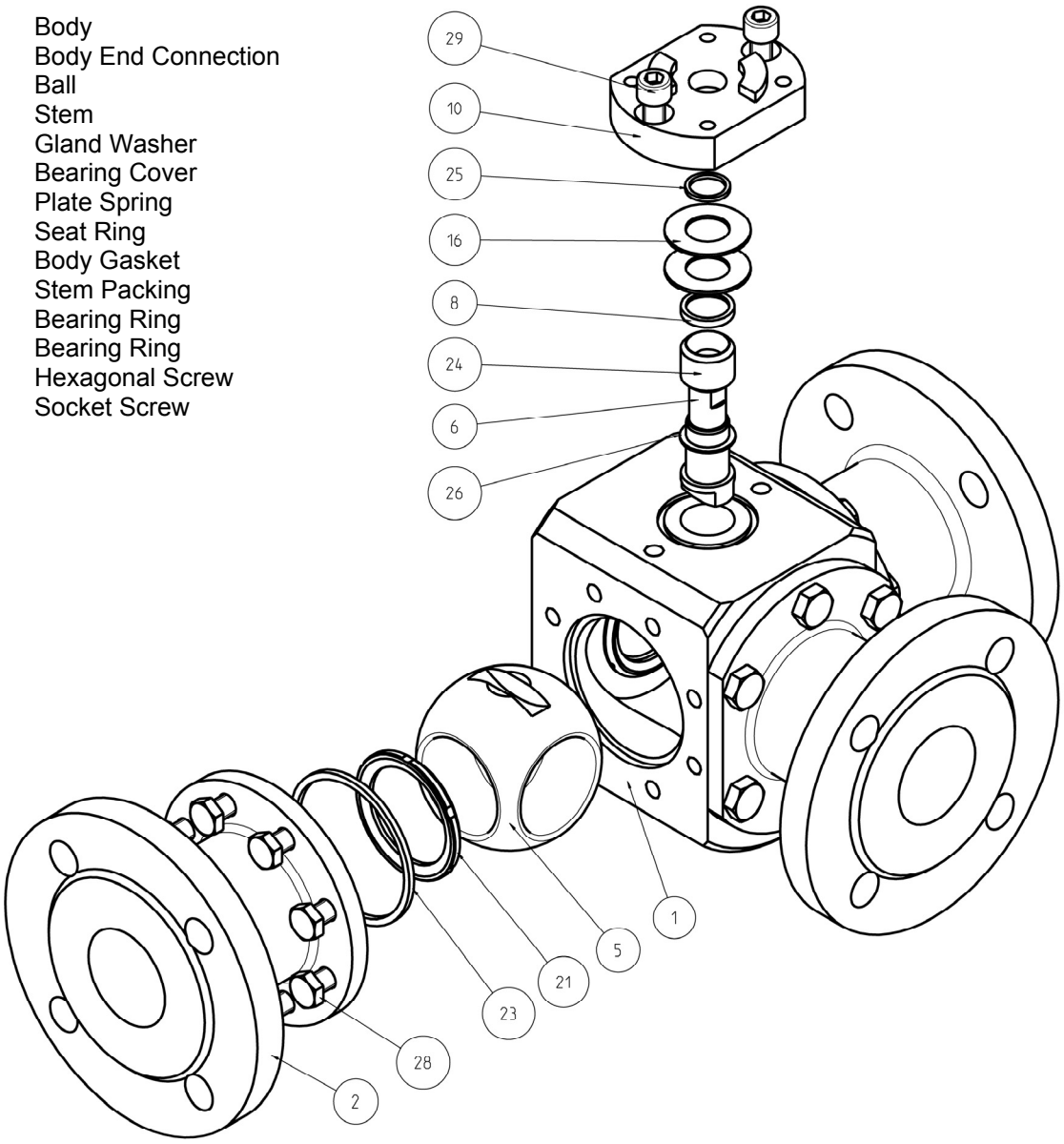


Fig. 1

Description

This PERRIN ball valve design features a split body and a floating, seat supported ball. The stem packing is spring loaded, the seat units are pre-loaded. Ball valve can be designed as transflow or non-transflow (see options).

The valve is equipped with an integral actuator mounting flange for actuator connection acc. 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

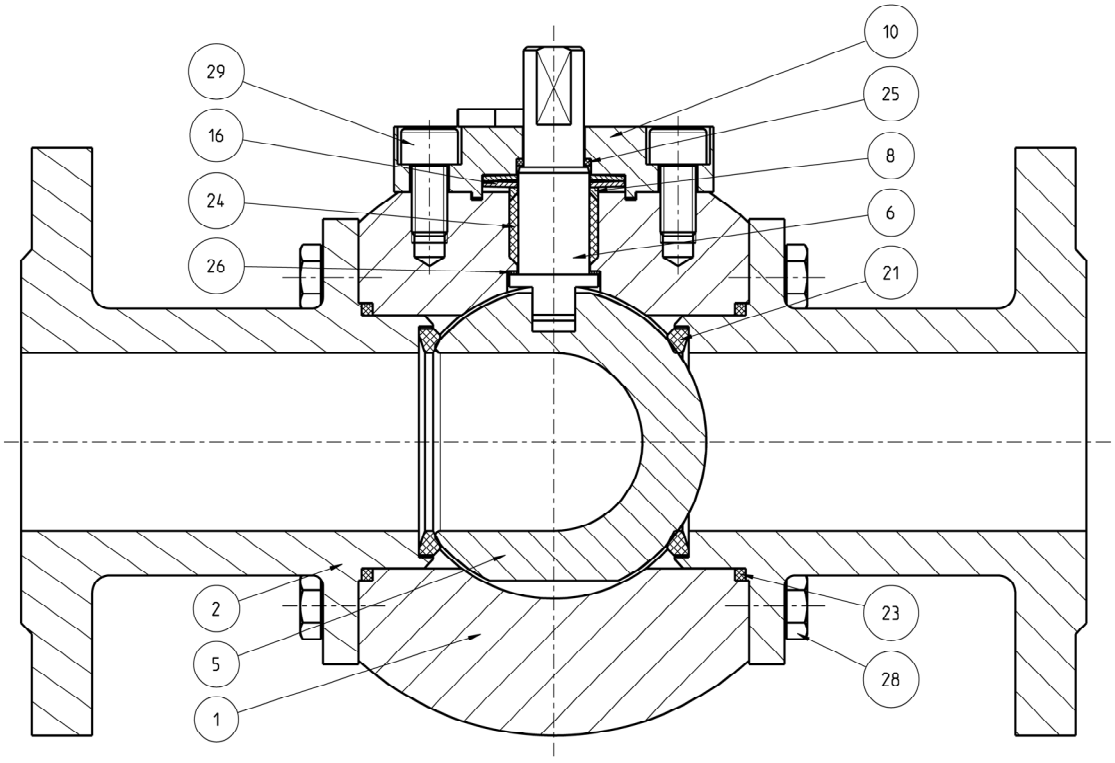


Fig. 2

Item	Designation	ASME		DIN EN	
		-20°F up to +400°F	-20°F up to +400°F	-60°C up to +200°C	-10°C up to +200°C
1	Body	A351 CF8M Type 316 (up to 2")	A216 WCB A105 (up to 2")	1.4408 1.4571 (up to 2")	1.0619 1.0460 (up to 2")
2	Body End Connection				
5	Ball	Type 316 A351 CF8M	Type 316 A351 CF8M	1.4571 1.4408	1.4571 1.4408
6	Stem	Type 316	Type 316	1.4571	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[1)]	Type 301	AISI 6150	1.4310	1.8159
21	Seat Ring	Mod. PTFE TFM 1600	Mod. PTFE TFM 1600	Mod. PTFE TFM 1600	Mod. PTFE TFM 1600
23	Body Gasket	PTFE-Glass	PTFE-Glass	PTFE-Glass	PTFE-Glass
24	Stem Packing	PTFE-Con. Pigment	PTFE-Con. Pigment	PTFE-Con. Pigment	PTFE-Con. Pigment
25	Bearing Ring	Carbon	Carbon	Carbon	Carbon
26	Sealing Ring	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony
28	Hexagonal Screw	SS	SS	SS	SS
29	Socket Screw	SS	SS	SS	SS

Tab.1

1) Material 2.4668 (Inconel 718) is generally required for operating temperature over 200°C [392°F]
2) Materials for lower / higher temperature on request

Technical Data

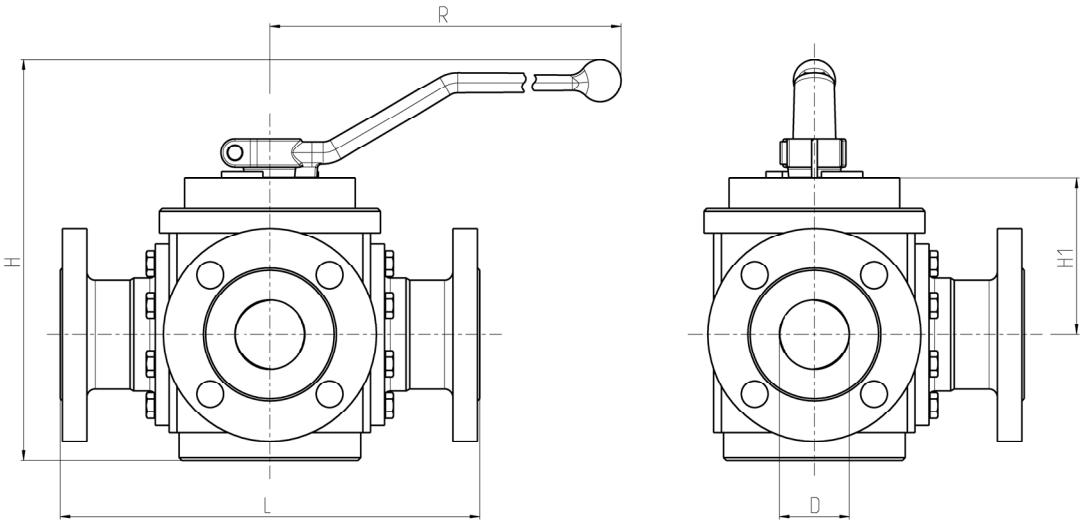


Fig.3

Nominal Size		Class 150 - Full Bore Dimensions acc. to ASME Standards						Face to Face Perrin Standard		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	4.9	124	2.3	58	7	180	8	210	23	8	18
¾	20	5.4	137	2.8	70	7	180	9	230	42	10	22
1	25	6	153	2.9	74	12	300	9	230	67	14	31
1¼	32	6.4	163	3.1	80	12	300	10	260	110	22	48
1½	40	8.4	213	3.9	100	18	450	10	260	173	31	68
2	50	9.1	230	4.4	112	18	450	12	300	270	43	95
2½	65	9.6	244	4.7	119	18	450	13	340	459	61	134
3	80	11.9	301	6	156	31	800	15	380	695	83	183
4	100	13	323	6.6	167	31	800	17	430	1087	115	253

Tab.2

Nominal Size		Class 150 - *Single Reduced Bore Dimensions acc. to ASME Standards						Face to Face Perrin Standard		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	4.9	124	2.3	58	7	180	9	230	23	9	20
1	¾	5.4	137	2.8	70	7	180	9	230	42	12	25
1¼	1	6	153	2.9	74	12	300	10	260	67	16	35
1½	1¼	6.4	163	3.1	80	12	300	10	260	110	25	56
2	1½	8.4	213	3.9	100	18	450	12	300	173	36	78
2½	2	9.1	230	4.4	112	18	450	13	340	270	49	109
3	2½	9.6	244	4.7	119	18	450	15	380	459	70	154
4	3	11.9	301	6	156	31	800	17	430	695	95	210

Tab.3

Nominal Size		Class 300 - Full Bore Dimensions acc. to ASME Standards						Face to Face Perrin Standard		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	4.9	124	2.3	58	7	180	8	210	23	9	20
¾	20	5.4	137	2.8	70	7	180	9	230	42	12	26
1	25	6	153	2.9	74	12	300	9	230	67	16	35
1¼	32	6.4	163	3.1	80	12	300	10	260	110	25	55
1½	40	8.4	213	3.9	100	18	450	10	260	173	35	77
2	50	9.1	230	4.4	112	18	450	12	300	270	46	101
2½	65	9.6	244	4.7	119	18	450	13	340	459	65	143
3	80	11.9	301	6	156	31	800	15	380	695	90	198
4	100	13	323	6.6	167	31	800	17	430	1087	128	282

Tab.4

Nominal Size		Class 300 - *Single Reduced Bore Dimensions acc. to ASME Standards						Face to Face Perrin Standard		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	4.9	124	2.3	58	7	180	9	230	23	9	20
1	¾	5.4	137	2.8	70	7	180	9	230	42	12	25
1¼	1	6	153	2.9	74	12	300	10	260	67	16	35
1½	1¼	6.4	163	3.1	80	12	300	10	260	110	25	56
2	1½	8.4	213	3.9	100	18	450	12	300	173	36	78
2½	2	9.1	230	4.4	112	18	450	13	340	270	49	109
3	2½	9.6	244	4.7	119	18	450	15	380	459	70	154
4	3	11.9	301	6	156	31	800	17	430	695	95	210

Tab.5

Nominal Size	PN 16 Dimensions [mm] acc. to DIN EN Standards			Face to Face Perrin Standard	Kv [m^3/h]	Weights [kg]
DN	H	H1	R	L		
15	124	58	180	210	20	8
20	137	70	180	230	36	10
25	153	74	300	230	57	14
32	163	80	300	260	94	22
40	213	100	450	260	148	31
50	230	112	450	300	231	43
65	244	119	450	340	392	61
80	301	156	800	380	594	83
100	323	167	800	430	929	115

Tab.6

Nominal Size	PN 40 Dimensions [mm] acc. to DIN EN Standards			Face to Face Perrin Standard	Kv [m^3/h]	Weights [kg]
DN	H	H1	R	L		
15	124	58	180	210	20	8
20	137	70	180	230	36	10
25	153	74	300	230	57	14
32	163	80	300	260	94	22
40	213	100	450	260	148	31
50	230	112	450	300	231	47
65	244	119	450	340	392	66
80	301	156	800	380	594	90
100	323	167	800	430	929	127

Tab.7

Other dimensions and pressure classes on request.

Top Works

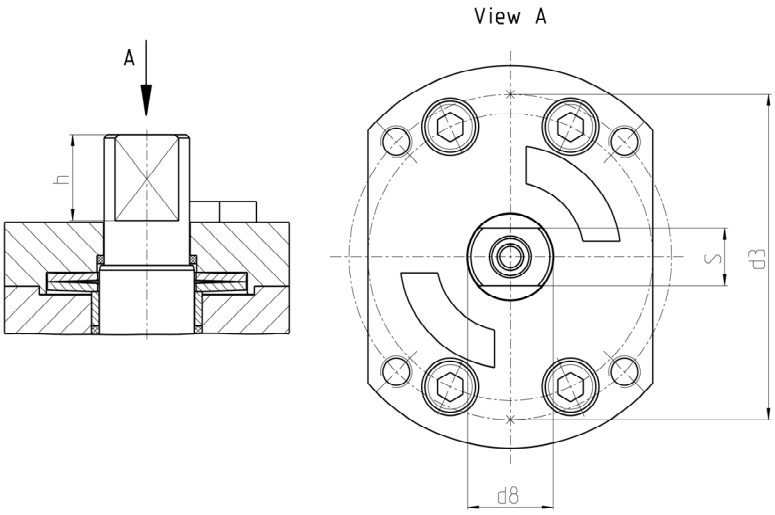


Fig.4

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	5	40	1.6

Tab.8

Nominal Size		Actuator-Connection ISO 5211 Full Bore	
NPS [inch]	DN [mm]	Class 150	Class 300
½	15	F05	F05
¾	20	F05	F05
1	25	F05	F05
1¼	32	F07	F07
1½	40	F07	F10
2	50	F07	F10
2½	65	F07	F10
3	80	F10	F12
4	100	F10	F12

Nominal Size		Actuator-Connection ISO 5211 *Single Reduced Bore	
NPS [inch]	*SRB [inch]	Class 150	Class 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

Tab.9

Pressure / Temperature Diagrams

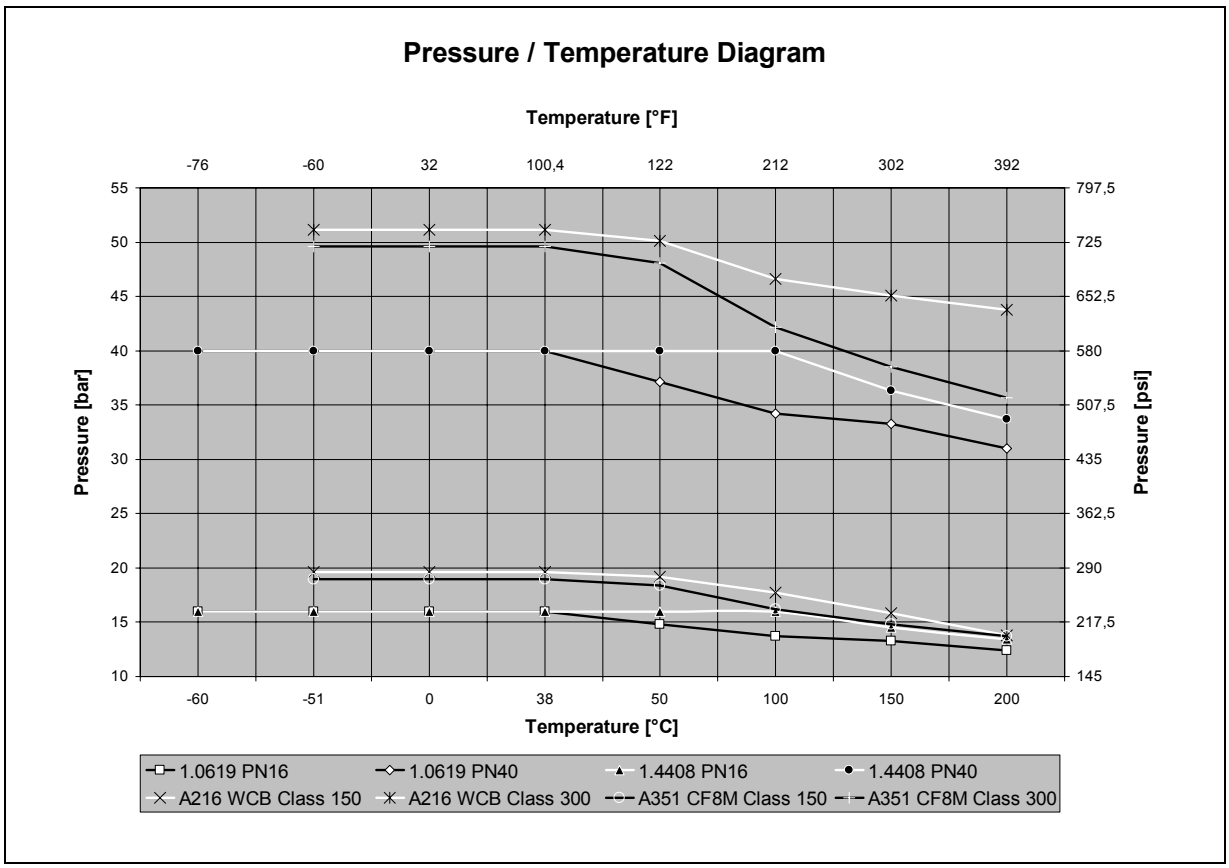


Fig.5

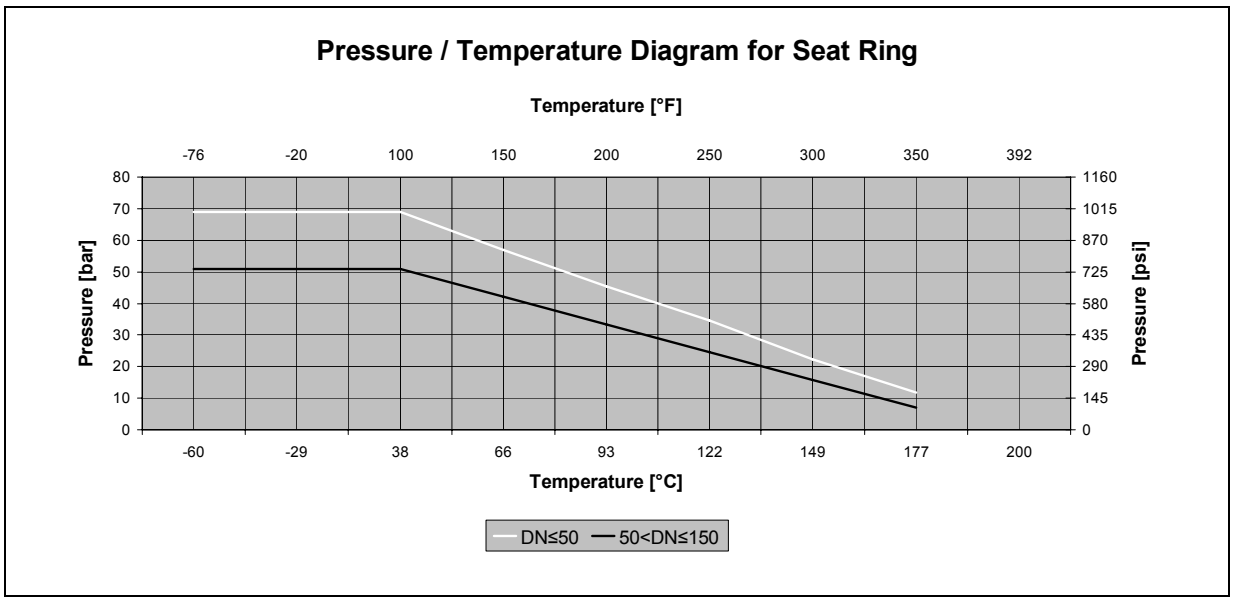


Fig.6

Options

1) Adjustable stem packing

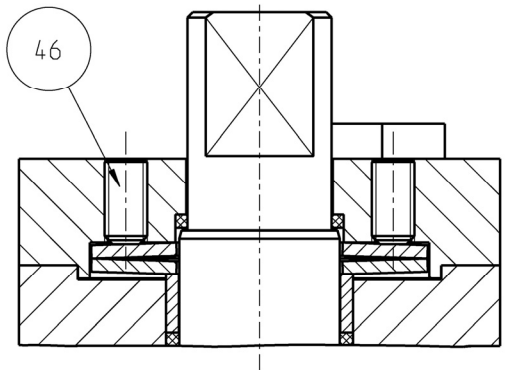


Fig.7

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) Double-stage gland packing with purge connection

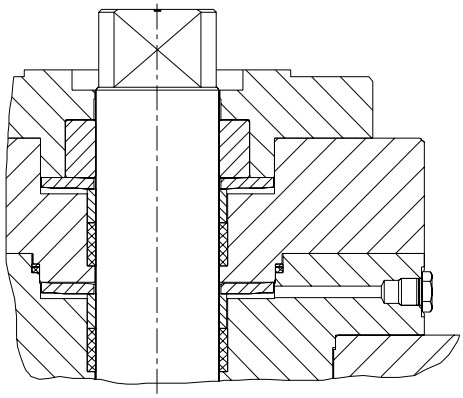


Fig.8

3) Valve with heating jacket

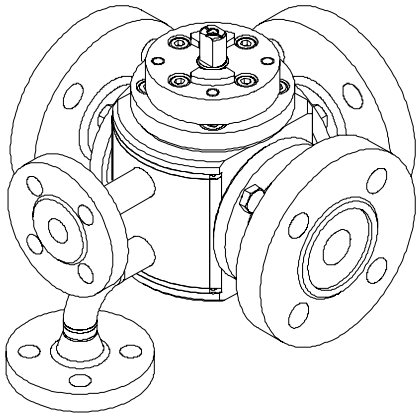


Fig.9

4) Ball options

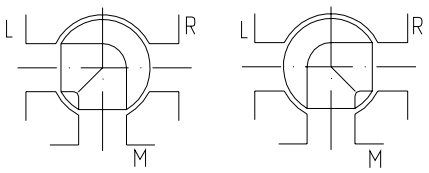


Fig.10 L-port

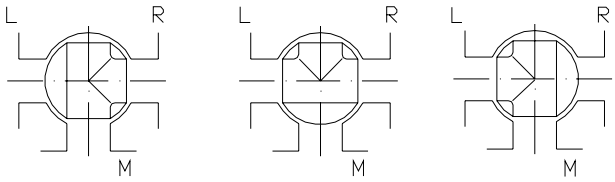


Fig.11 T-port

5) Flow options (Schematic drawing taken from Valve Type 21-M)

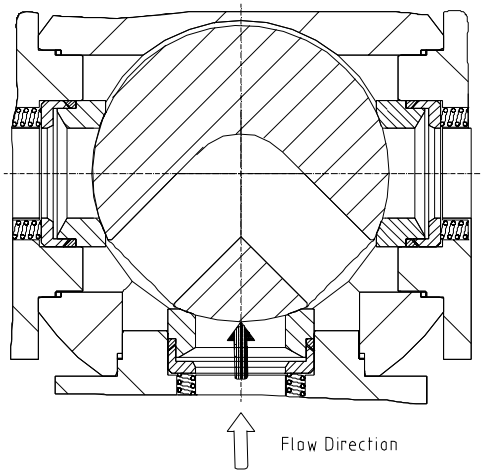


Fig.12 Non-transflow

Direct flow cannot occur across run outlets during position change, and flow is completely blocked.

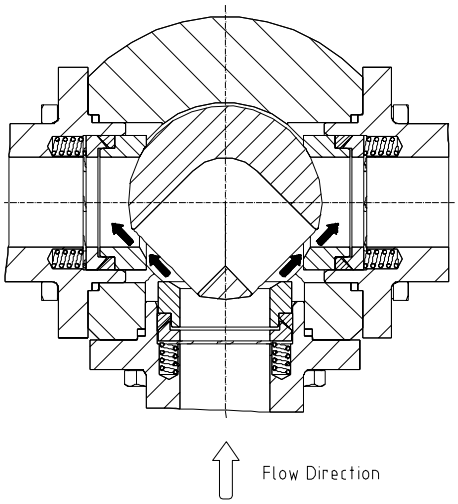


Fig.13 Transflow

Inlet cannot be isolated from both outlets at the same time.

Technical modifications are reserved.

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