



Two-Way Metal Seated Ball Valve Type 14-E



Design Characteristics

- ✓ Two piece body
- ✓ Trunnion mounted ball
- ✓ Blow out proof stem
- ✓ Live loaded stem packing
- ✓ Spring loaded seat system
- ✓ Fire Safe design optional

Design Standards

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

Range of Application

- ✓ Diameter 2" to 20" / DN 50 to 500
- ✓ Class 300 and 600 / PN 63 and 100
- ✓ +1000°F to +1472°F / +540°C to +800°C

Approvals

- ✓ „TA-Luft“ certified for low fugitive emissions

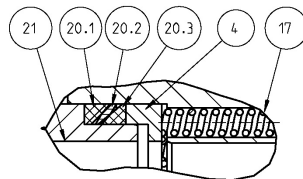
Test Standards

- ✓ EN 12266-1/2
- ✓ API 598

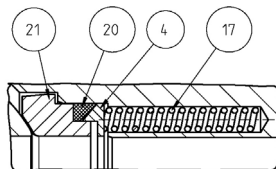


Main Parts

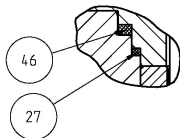
1	Body
2	Body End Connection
4	Retainer Ring
5	Ball
6	Stem
7	Lower Trunnion
8	Gland Washer
9	Bearing Bush
10	Bearing Cover
11	Extension
16	Disk Spring
17	Coil Spring
18	Body Gasket
20.1; 20.3	Sealing Ring
20.2	Ring
21	Seating
23	Body Gasket
24	Stem Packing
25	Bearing Bush
26	Bearing Bush
27	Body Gasket
28.1 - 31.1	Stud Bolt
28.2 - 31.2	Hexagon Nut
42; 46; 47	Sealing Line
52	Featherkey



Detail „X“ (from Class 600)



Detail „X“ (to Class 300)



Detail „Y“

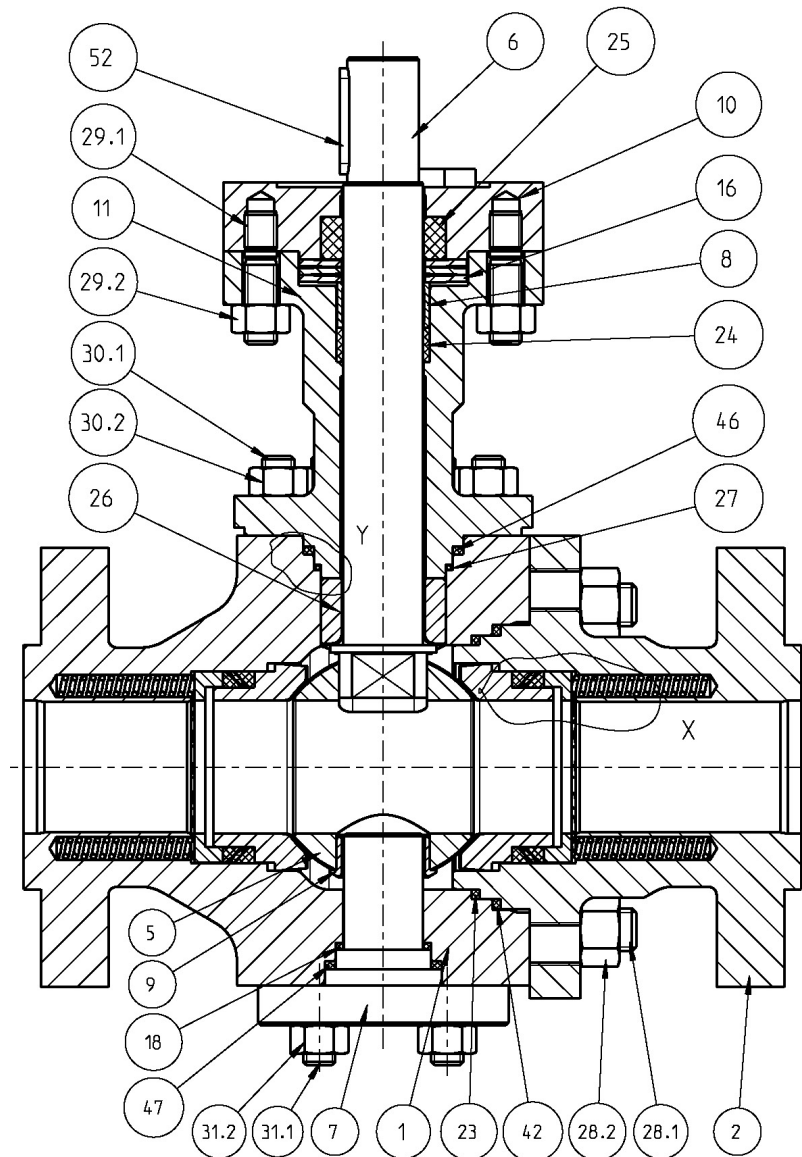


Fig. 1

Description

This PERRIN ball valve is a trunnion mounted ball design with a two piece split body housing. The spring loaded metallic seat system and live loaded stem packing also provide continuous tightness during short-term temperature and pressure changes.

The ball 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 blowout proof stem. The stem packing and sealings are „TA-Luft“ certified for low fugitive emissions.



Parts List / Materials

Item	Description	ASME		DIN EN	
		+1000°F to +1150°F	+1150°F to +1472°F	+540°C to +620°C	+620°C to +800°C
01	Body	A351 CF8M ¹⁾ A182 F316H	A351 CF8M ¹⁾ A182 F316H	1.4876	1.4876
02	Body End Connection	A351 CF8M ¹⁾ A182 F316H	A351 CF8M ¹⁾ A182 F316H	1.4876	1.4876
04	Retainer Ring	A182 F316H	A182 F316H	1.4876	1.4876
05	Ball	A351 CF8M ¹⁾ coated A182 F316H coated	A351 CF8M ¹⁾ coated A182 F316H coated	1.4408 ²⁾ coated 1.4876 coated	1.4408 ²⁾ coated 1.4876 coated
06	Stem	UNS N07718 coated	UNS N06230 coated	2.4668 coated	2.4733 coated
07	Lower Trunnion	A182 F316H coated	A182 F316H coated	1.4876 coated	1.4876 coated
08	Gland Washer	A182 F316H	A182 F316H	1.4876	1.4876
09	Bearing Bush	A182 F316H coated	A182 F316H coated	1.4876 coated	1.4876 coated
10	Bearing Cover	A182 F316H	A182 F316H	1.4876	1.4876
11	Extension	A182 F316H	A182 F316H	1.4876	1.4876
16	Disk Spring	2.4668(Inconel 718)	2.4668(Inconel 718)	2.4668(Inconel 718)	2.4668(Inconel 718)
17	Coil Spring	Inconel X 718	Inconel X 718	Inconel X 718	Inconel X 718
18	Body Gasket	Graphite	Graphite	Graphite	Graphite
20*/20.1 /20.3	Sealing Ring	Graphite	Graphite	Graphite	Graphite
20.2	Ring	A182 F316H	A182 F316H	A182 F316H	A182 F316H
21	Seatring	A182 F316H coated	A182 F316H coated	1.4876 coated	1.4876 coated
23	Body Gasket	Graphite	Graphite	Graphite	Graphite
24	Stem Packing	Graphite	Graphite	Graphite	Graphite
25	Bearing Bush	Carbon	A182 F316H coated	Carbon	1.4876 coated
26	Bearing Bush	A182 F316H coated	A182 F316H coated	1.4876 coated	1.4876 coated
27	Body Gasket	Graphite	Graphite	Graphite	Graphite
28.1 - 31.1	Stud Bolt	A193 B8 Cl.1	A193 B8 Cl.1	2.4952	2.4952
28.2 - 31.2	Hexagon Nut	A194 Gr.8	A194 Gr.8	2.4952	2.4952
42; 46; 47	Sealing Line	BuraGlas HT	BuraGlas HT	BuraGlas HT	BuraGlas HT

Tab.1

* only for pressure stage Class 300

1) Carbon content => 0,04%

2) Temperature limitation 300°C [572°F] acc. to German technical rule AD 2000 WS, is intercrystalline corrosion resistant is request.



Technical Data

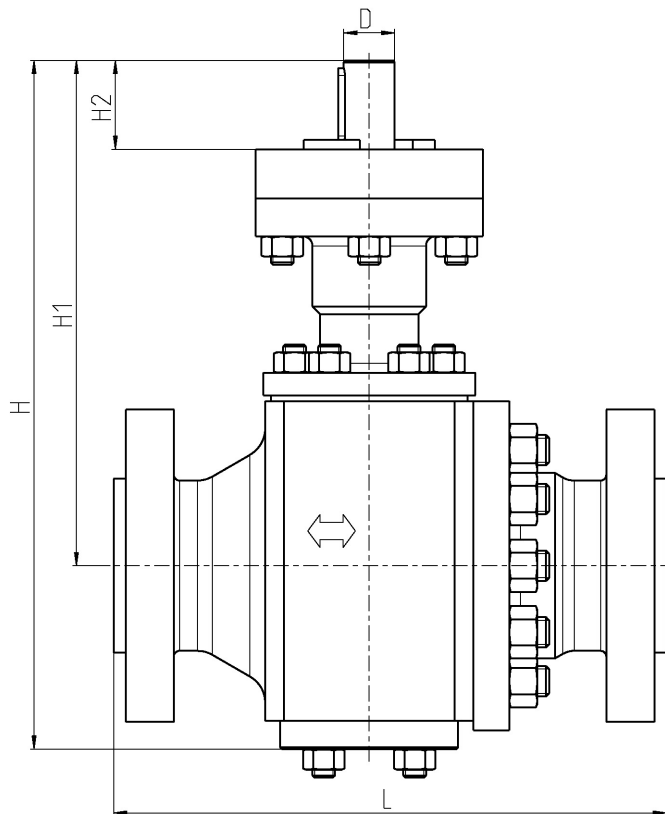
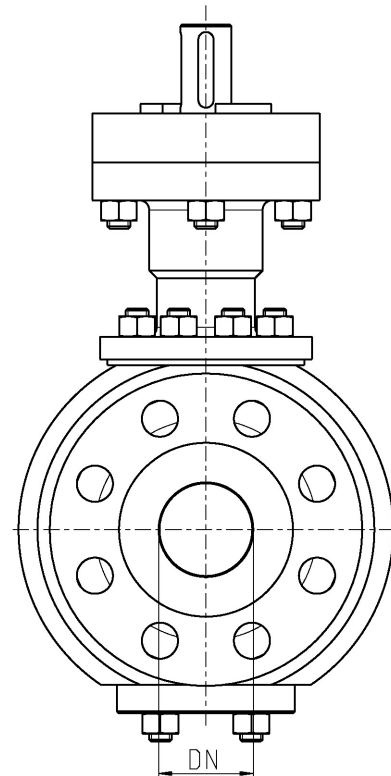


Fig. 2



D = NPS = DN = Nominal size
m = weight

Class 300 – full bore (temperature range: +540 °C to +620 °C)
(over DN 14" with 2 featherkey)

NPS [inch]	DN [mm]	H		H1		H2		D		L		F	Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	ASME B16.10 [inch]	[mm]			[lbs]	[kg]
2	50	13,8	350	10,0	255	1	35	1	20	11,5	292	7	298	138	63
3	80	16,1	410	11	290	2	40	1	30	14,04	356	10	763	168	76
4	100	18	445	12,4	315	2	45	1	30	17	432	12	1192	241	96
6	150	28	710	20,1	510	3	70	1	30	22	559	14	2682	452	181
8	200	34	860	23,0	585	3	80	2	45	26	660	16	4767	1232	493
10	250	38	960	25,0	635	4	110	2	45	31	787	16	7748	1976	790
12	300	41	1040	26,8	680	5	130	2	52	33	838	25	10727	2327	931
14	350	46	1165	30,5	775	4	110	2	60	30	762	30	14599	2360	944
16	400	50	1275	33,1	840	6	145	2	60	33	838	30	19069	3505	1402
18	450	52	1310	34,1	865	6	150	2	60	36	914	30	24134	4558	1823
20	500	57	1455	36,8	935	6	150	3	85	39	991	35	29796	6848	2739

Tab.2

Class 300 – full bore (temperature range: +620 °C to +800 °C)
(over DN 8" with 2 featherkey)

NPS [inch]	DN [mm]	H		H1		H2		D		L ASME B16.10		F	Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]			[lbs]	[kg]
2	50	14,8	375	11,0	280	2	55	2	45	11,5	292	12	298	139	63
3	80	18,1	460	13	340	3	80	2	52	14,04	356	14	763	170	77
4	100	20	500	14,6	370	4	90	2	52	17	432	14	1192	214	97
6	150	28	710	20,1	510	5	120	2	60	22	559	16	2682	400	182
8	200	33	850	22,6	575	5	120	2	60	26	660	16	4767	1089	495
10	250	39	980	25,8	655	5	130	3	70	31	787	16	7748	1745	793
12	300	42	1060	27,6	700	6	150	3	85	33	838	25	10727	2059	936
14	350	50	1265	34,4	875	8	210	3	85	30	762	30	14599	2090	950
16	400	53	1350	36,0	915	9	220	4	100	33	838	30	19069	3106	1412
18	450	55	1400	37,6	955	9	240	4	100	36	914	30	24134	4037	1835
20	500	63	1605	42,7	1085	12	300	5	120	39	991	35	29796	6070	2759

Tab.3

Class 600 – full bore (temperature range: +540 °C bis +620 °C)
(over DN 10" with 2 featherkey)

NPS [inch]	DN [mm]	H		H1		H2		D		L ASME B16.10		F	Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]			[lbs]	[kg]
2	50	14,0	355	10,2	260	2	40	1	30	11,5	292	10	298	138	63
3	80	16,5	420	12	300	2	50	1	30	14,04	356	12	763	182	83
4	100	18	465	13,2	335	3	65	1	30	17	432	12	1192	231	105
6	150	27	675	19,1	485	3	85	2	45	22	559	16	2682	520	237
8	200	34	855	22,8	580	5	120	2	52	26	660	25	4767	1186	539
10	250	38	970	25,4	645	5	115	2	52	31	787	25	7748	1911	869
12	300	40	1020	26,0	660	4	110	3	70	33	838	30	10727	2240	1018
14	350	47	1205	32,1	815	5	125	3	85	35	889	35	14599	2361	1073
16	400	52	1315	34,6	880	6	160	3	85	39	991	35	19069	3648	1658
18	450	53	1355	35,8	910	7	170	3	85	43	1092	35	24134	4715	2143
20	500	60	1515	39,2	995	8	210	4	100	47	1194	40	29796	7119	3236

Tab.4



Class 600 – full bore (temperature range: +620 °C bis +800 °C)
(with 2 featherkey)

NPS [inch]	DN [mm]	H		H1		H2		D		L ASME B16.10		F	Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]			[lbs]	[kg]
2	50	14,8	375	11,0	280	3	65	2	45	11,5	292	12	298	139	63
3	80	18,1	460	13	340	4	90	2	52	14,04	356	14	763	185	84
4	100	20	500	14,6	370	4	100	2	52	17	432	14	1192	234	106
6	150	28	700	19,7	500	5	120	3	70	22	559	16	2682	526	239
8	200	34	875	23,6	600	6	140	3	85	26	660	25	4767	1197	544
10	250	41	1040	28,1	715	7	185	3	85	31	787	25	7748	1924	875
12	300	44	1120	29,9	760	8	210	4	100	33	838	30	10727	2261	1028
14	350	53	1340	37,4	950	10	260	5	120	35	889	35	14599	2398	1090
16	400	58	1485	41,3	1050	13	330	5	120	39	991	35	19069	880	400
18	450	61	1540	43,1	1095	14	355	5	120	43	1092	35	24134	4767	2167
20	500	69	1755	48,6	1235	18	450	6	140	47	1194	40	29796	7207	3276

Tab.5

Other dimensions and pressure classes on request.



Options

1) Seat system with protected spring area

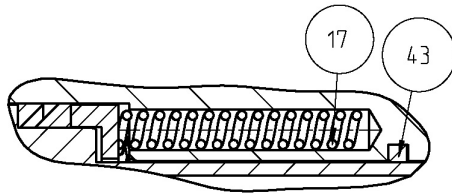


Fig. 3

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

2) Seat-system variant

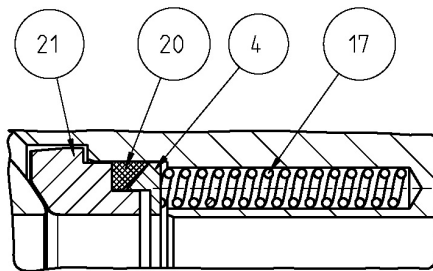


Fig. 4

Only for pressure stage Class 300

3) Adjustable stem packing

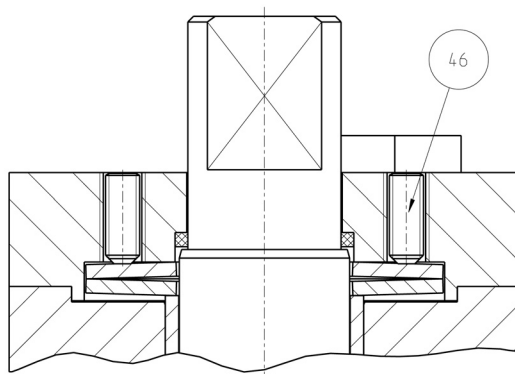


Fig. 5

Additionally the live loaded stem packing may be equipped with threaded pins (46). By tighten these threaded pins, it is possible to increase the spring force to the packing in case of leakage.



4) Double-stage gland packing with sniffing connection

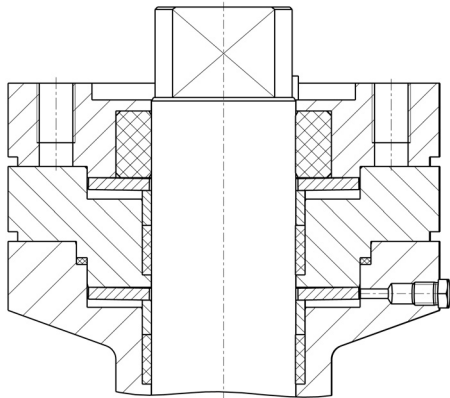


Fig. 6

5) „Double Block and Bleed Port“ with bleed and/or „Vent Port“

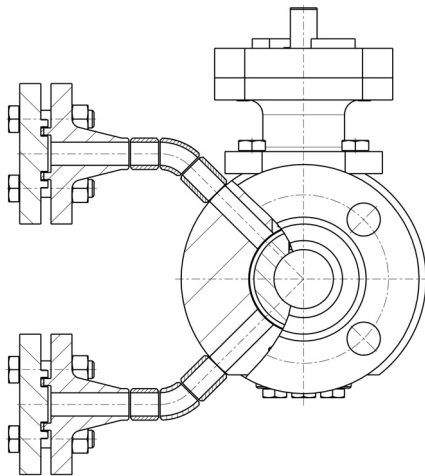


Fig. 7

If required the ball valve can be equipped With bleed and vent ports.

6) Three piece body

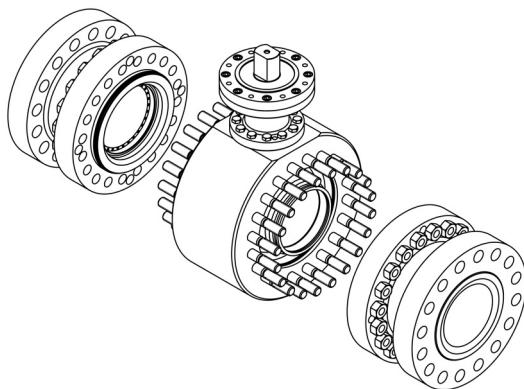


Fig. 8

The three piece body construction for specific requirements.



7) For cooling

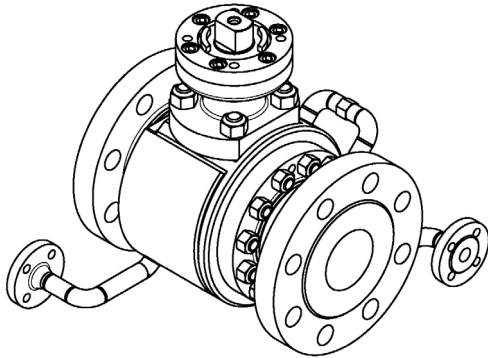


Fig. 9

On demand !

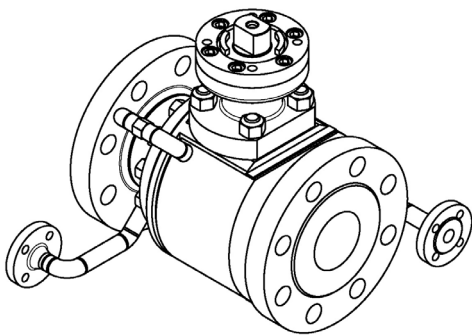


Fig. 10

Technical modifications are reserved.





