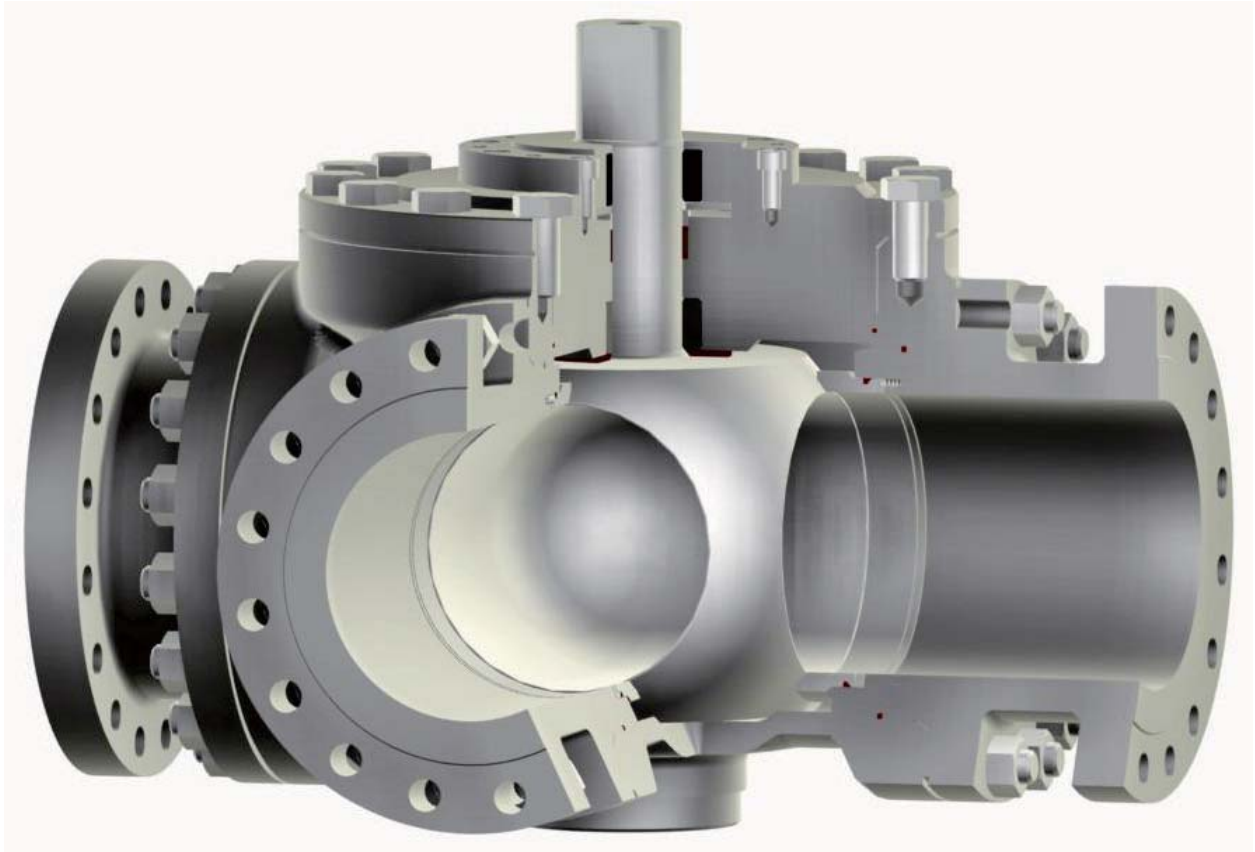




# 三通金属硬密封球阀 21-M



## 结构特征

- ✓ 分体式结构
- ✓ 阀杆一体式阀球，双轴承阀杆
- ✓ 动负载阀杆填料
- ✓ 弹簧加载阀座密封结构
- ✓ 消防火烧安全设计（选项）
- ✓ 阀球流道 90° L- 或 T-port

## 应用范围

- ✓ 设计通径 ½" to 20" / DN 15 to 500
- ✓ 压力等级 Class 150 to 1500 / PN 10 to 250
- ✓ 操作温度 -20°F to +1000°F / -60°C to +550°C

## 环保认证

- ✓ "TA-Luft" 低逸散性排放认证

## 设计参照标准

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

## 测试参照标准

- ✓ EN 12266-1/2
- ✓ API 598



## 主要部件清单

- 1 阀体
- 2 阀体连接端
- 4 弹簧挡圈
- 5 阀杆一体式球阀
- 8 填料压环
- 10 填料压盖
- 12 阀盖
- 13 轴承环
- 14 定距盘
- 16 碟簧
- 17 柱簧
- 20 阀座密封环
- 21 阀座
- 23 阀体垫片
- 24 阀杆填料
- 25 阀杆轴套
- 26 阀杆轴套
- 27 密封圈
- 28.1 螺栓
- 28.2 螺母
- 29 螺钉
- 30 螺钉

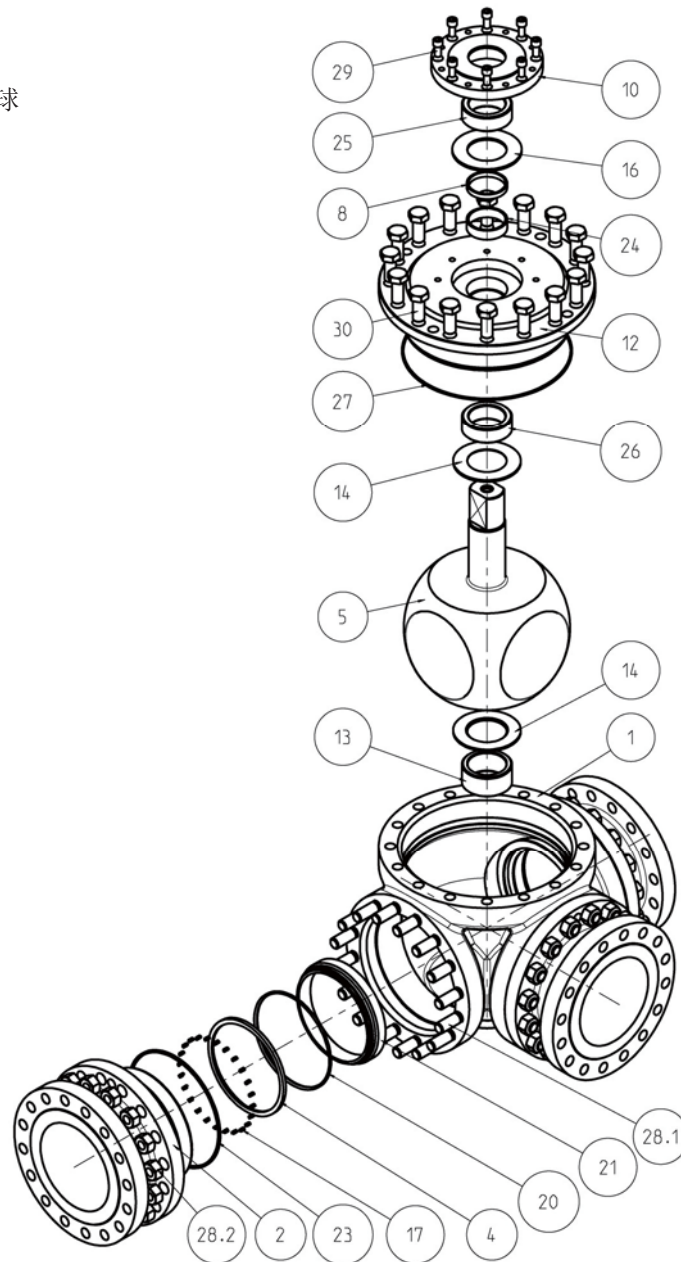


Fig.1

## 产品介绍

Perrin 21-M系列球阀的阀球是和阀杆一体式的，阀杆球阀使用双轴承定位，阀体为分体式结构。金属硬密封阀座采用弹簧预紧的密封方式，动负载阀杆填料确保在使用温度和压力变化时提供连续可靠的密封性能。

阀门可按照客户要求设计为流体阻断切换型和非阻断切换型。

阀门按照ISO5211标准设计了一体式执行机构安装法兰，便于装配阀门驱动机构、阀杆加长件以及阀位锁定机构。

阀门采用防静电填料和防喷出式阀杆设计，阀杆填料和密封取得了“TA-Luft”低逸散性排放认证。



部件及材质列表

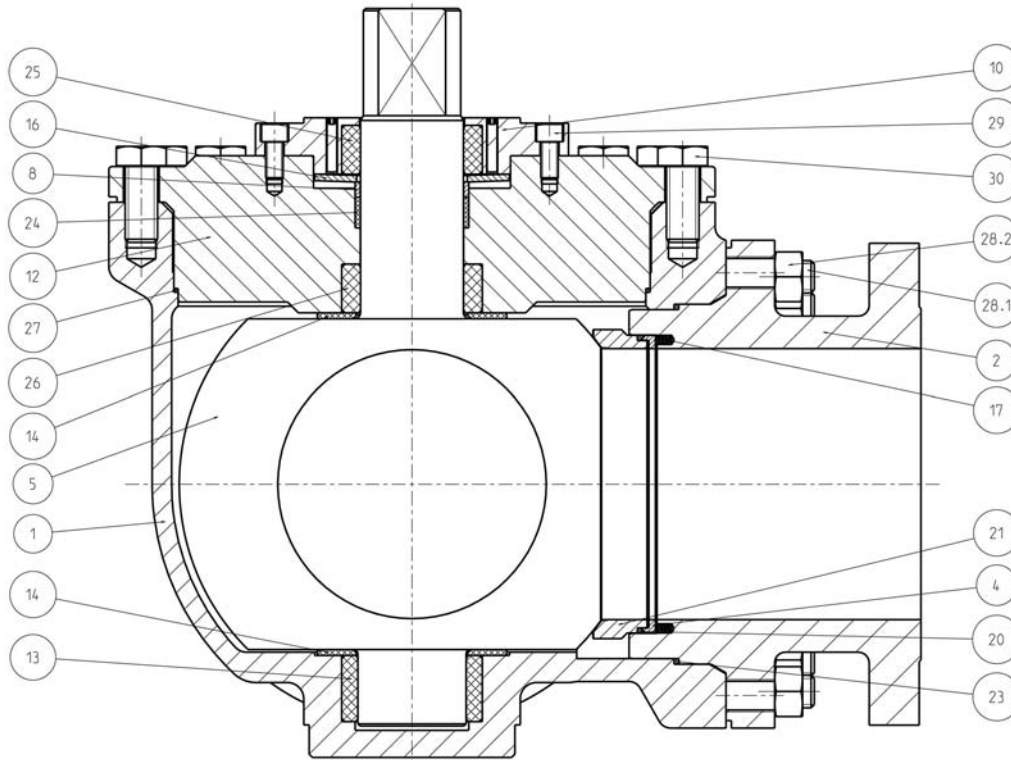


Fig.2

Item	Designation	ASME		DIN EN	
		-20°F up to +1000°F	-20°F up to +1000°F	-60°C up to +550°C	-10°C up to +450°C
1	阀体	A351 CF8M	A216 WCB	1.4408 <sup>1)</sup>	1.0619
2	阀体连接端	Type 316 (up to 2")	A105 (up to 2")	1.4571 (up to 2")	1.0460 (up to 2")
4	弹簧挡圈	Type 316	Type 316	1.4571	1.4571
5	阀杆一体式阀球	Type 316 coated A351 CF8M coated	Type 316 coated A351 CF8M coated	1.4571 coated 1.4408 <sup>1)</sup> coated	1.4571 coated 1.4408 <sup>1)</sup> coated
8	填料压环	Type 316	Type 316	1.4571	1.4571
10	填料压盖	Type 316	A105	1.4571	1.0460
12	阀盖	Type 316 A351 CF8M	A216 WCB A105	1.4571 1.4408 <sup>1)</sup>	1.0619 1.0460
13	轴承环	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony
14	定距盘	Type 316	Type 316	1.4571	1.4571
16	碟簧 <sup>2)</sup>	Type 301	AISI 6150	1.4310	1.8159
17	柱簧	Type 316	Type 316	1.4571	1.4571
20	阀座密封环	Graphite	Graphite	Graphite	Graphite
21	阀座	Type 316 coated	Type 316 coated	1.4571 coated	1.4571 coated
23	阀体垫片	Graphite	Graphite	Graphite	Graphite
24	阀杆填料				
25	阀杆轴承	Carbon	Carbon	Carbon	Carbon
26	阀杆轴承	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony	Carbon-Antimony
27	密封圈	Graphite	Graphite	Graphite	Graphite
28.1	螺栓	SS	SS	SS	SS
28.2	螺母	SS	SS	SS	SS
29	螺钉	SS	SS	SS	SS
30	螺钉	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) Material 2.4668 (Inconel 718) is generally required for operating temperature over 200°C [392°F]  
3) Materials for lower / higher temperature on request



技术数据

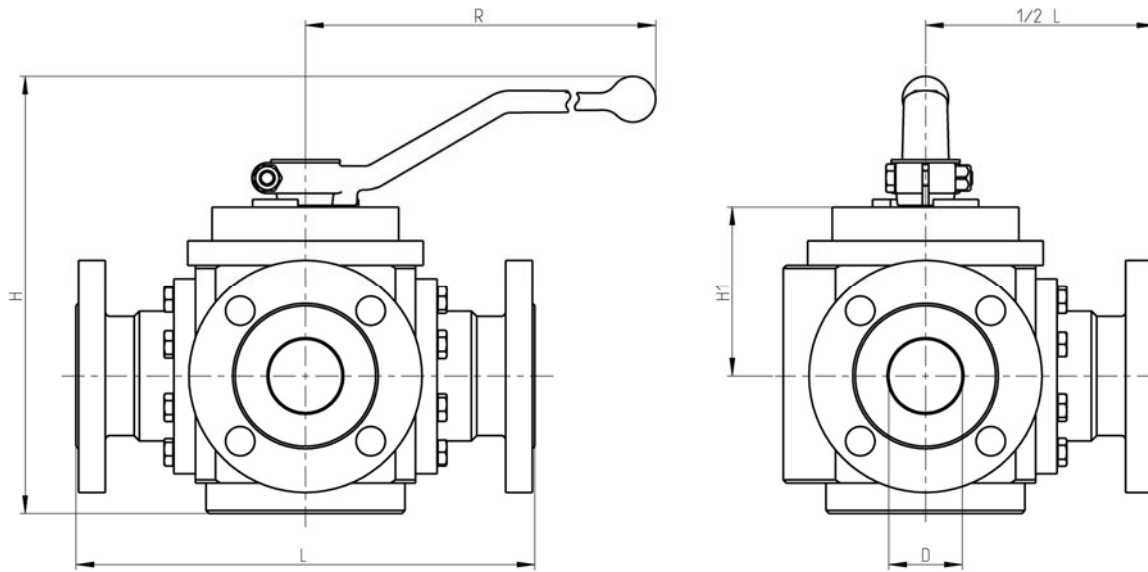


Fig.3

D = NPS = DN = Nominal Size  
m = Weight  
Cv; Kv = Flow Rate for L-Port

**CLASS 150 - Full Bore**

NPS [inch]	DN [mm]	H		H1		R		L Perrin Standard		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
½	15	6,9	176	2,9	74	7	180	8	210	23	18	8
¾	20	7,1	181	2,8	70	7	180	9	230	42	22	10
1	25	7,2	182	3,6	91	12	300	9	230	67	31	14
1¼	32	7,5	191	3	77	12	300	10	260	110	48	22
1½	40	10,4	263	3,9	100	18	450	10	260	173	68	31
2	50	11,3	287	4,4	112	18	450	12	300	270	95	43
2½	65	11,8	299	4,7	119	18	450	13	340	459	134	61
3	80	12,3	312	6,1	156	31	800	15	380	695	183	83
4	100	13,3	337	6,6	167	31	800	17	430	1087	253	115

Tab.2

**CLASS 150 - Reduced Bore**

NPS [inch]	NPS-R [inch]	H		H1		R		L Perrin Standard		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
¾	½	6,9	176	2,9	74	7	180	9	230	23	20	9
1	¾	7,1	181	2,8	70	7	180	9	230	42	25	12
1¼	1	7,2	182	3,6	91	12	300	10	260	67	35	16
1½	1¼	7,5	191	3	77	12	300	10	260	110	56	25
2	1½	10,4	263	3,9	100	18	450	12	300	173	78	36
2½	2	11,3	287	4,4	112	18	450	13	340	270	109	49
3	2½	11,8	299	4,7	119	18	450	15	380	459	154	70
4	3	12,3	312	6,1	156	31	800	17	430	695	210	95

Tab.3



**CLASS 300 - Full Bore**

NPS [inch]	DN [mm]	H		H1		R		L		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	Perrin [inch]	Standard [mm]		[lbs]	[kg]
½	15	6,9	176	2,9	74	7	180	8	210	23	20	9
¾	20	7,1	181	2,8	70	7	180	9	230	42	26	12
1	25	7	182	3,6	91	12	300	9	230	67	35	16
1¼	32	7,5	191	3,0	77	12	300	10	260	110	55	25
1½	40	10,4	263	3,9	100	18	450	10	260	173	77	35
2	50	11,3	287	4,4	112	18	450	12	300	270	101	46
2½	65	11,8	299	5,7	145	18	450	13	340	459	143	65
3	80	12,3	312	6	156	31	800	15	380	695	198	90
4	100	13	337	6,6	167	31	800	17	430	1087	282	128

Tab.4

**CLASS 300 - Reduced Bore**

NPS [inch]	NPS-R [inch]	H		H1		R		L		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	Perrin [inch]	Standard [mm]		[lbs]	[kg]
¾	½	6,9	176	2,9	74	7	180	9	230	23	20	9
1	¾	7,1	181	2,8	70	7	180	9	230	42	25	12
1¼	1	7,2	182	3,6	91	12	300	10	260	67	35	16
1½	1¼	7,5	191	3	77	12	300	10	260	110	56	25
2	1½	10,4	263	3,9	100	18	450	12	300	173	78	36
2½	2	11,3	287	4,4	112	18	450	13	340	270	109	49
3	2½	11,8	299	4,7	119	18	450	15	380	459	154	70
4	3	12,3	312	6,1	156	31	800	17	430	695	210	95

Tab.5



**PN 16**

DN [mm]	H [mm]	H1 [mm]	R [mm]	L [mm] Perrin Standard	Kv [m <sup>3</sup> /h]	m [kg]
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

**PN 40**

DN [mm]	H [mm]	H1 [mm]	R [mm]	L [mm] Perrin Standard	Kv [m <sup>3</sup> /h]	m [kg]
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.**

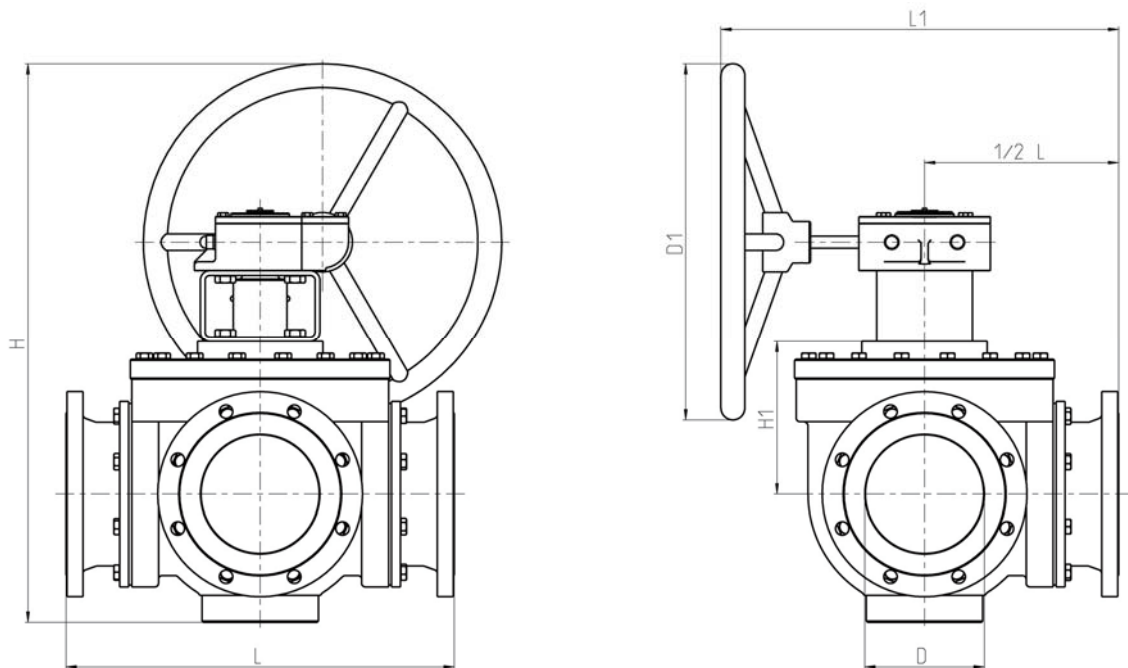


Fig.4

D = NPS = DN = Nominal Size  
m = Weight  
Cv; Kv = Flow Rate for L-Port

**CLASS 150 - Full Bore**

NPS [inch]	DN [mm]	H		H1		H2		L1		D1		L		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	Perrin [inch]	Standard [mm]		[lbs]	[kg]
6	150	32	821	8	201	13	331	20	515	28	700	22	550	2448	352	160
8	200	35	877	10	266	18	456	23	588	20	500	26	650	4351	840	382
10	250	42	1057	11	284	20	504	29	725	28	700	31	775	7070	1135	516
12	300	41	1053	12	312	20	512	30	770	24	600	35	900	9789	2070	941
14	350	45	1152	14	345	25	635	39	995	20	500	40	1025	13324	2992	1360
16	400	55	1408	19	470	30	760	42	1075	28	700	45	1150	17405	3696	1680
20	500	78	1987	30	763	46	1181	47	1202	36	914	49	1250	27195	5416	2462

Tab.8

**CLASS 150 - Reduced Bore**

NPS [inch]	NPS-R [inch]	H		H1		H2		L1		D1		L		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	Perrin [inch]	Standard [mm]		[lbs]	[kg]
6	4	27	687	7	167	12	297	19	492	20	500	22	550	1699	329	150
8	6	34	852	8	201	13	331	20	515	28	700	26	650	2448	405	184
10	8	36	909	10	266	18	456	23	588	20	500	31	775	4351	966	439
12	10	43	1095	11	284	20	504	29	725	28	700	35	900	7070	1305	593
14	12	42	1079	12	312	20	512	30	770	24	600	40	1025	9789	2381	1082
16	14	47	1183	14	345	25	635	39	995	20	500	45	1150	13324	3441	1564
20	16	57	1459	19	470	30	760	42	1075	28	700	49	1250	17405	5148	2340

Tab.9



**CLASS 300 - Full Bore**

NPS [inch]	DN [mm]	H		H1		H2		L1		D1		L Perrin Standard		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	150	33	840	12	307	17	431	24	610	20	500	22	550	2448	726	330
8	200	39	998	14	366	20	507	31	790	24	600	31	800	4351	1397	635
10	250	49	1255	18	452	25	633	28	718	31	800	37	940	7070	1976	898
12	300	52	1313	24	610	33	828	31	792	18	450	41	1050	9789	2583	1174
14	350	59	1495	24	600	35	898	37	937	24	610	45	1150	13324	3505	1593
16	400	61	1559	25	632	37	930	38	975	24	610	45	1150	17405	4037	1835
20	500	83	2097	34	863	49	1253	50	1278	36	914	49	1250	27195	6057	2753

Tab.10

**CLASS 300 - Reduced Bore**

NPS [inch]	NPS-R [inch]	H		H1		H2		L1		D1		L Perrin Standard		Cv [gal/min]	m	
		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]		[lbs]	[kg]
6	4	31	796	7	167	13	337	22	560	24	600	22	550	1699	678	308
8	6	34	872	12	307	17	431	24	610	20	500	31	800	2448	926	421
10	8	41	1029	14	366	20	507	31	790	24	600	37	940	4351	1607	730
12	10	51	1293	18	452	25	633	28	718	31	800	41	1050	7070	2272	1033
14	12	53	1345	24	610	33	828	31	792	18	450	45	1150	9789	2970	1350
16	14	60	1527	24	600	35	898	37	937	24	610	45	1150	13324	3863	1756
20	16	64	1622	25	632	37	930	38	975	24	610	49	1250	17405	4653	2115

Tab.11

**PN 16**

DN [mm]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	D1 [mm]	L [mm] Perrin Standard	Kv [m³/h]	m [kg]
150	824	201	331	515	700	550	2092	139
200	1026	266	456	588	800	650	3719	332
250	1007	284	504	679	600	775	6043	449
300	992	312	512	770	500	900	8367	818
350	1145	345	635	888	500	1025	11388	1183
400	1275	470	760	953	450	1150	14876	1461
500	1996	763	1181	1202	914	1250	23244	2141

Tab.12

**PN 40**

DN [mm]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	D1 [mm]	L [mm] Perrin Standard	Kv [m³/h]	m [kg]
150	924	307	431	515	700	550	2092	287
200	1077	366	507	588	800	650	3719	552
250	1136	452	633	679	600	775	6043	781
300	1308	610	828	770	500	900	8367	1021
350	1408	600	898	888	500	1025	11388	1385
400	1445	632	930	953	450	1150	14876	1596
500	2068	863	1253	1202	914	1250	23244	2394

Tab.13

Other dimensions and pressure classes on request.





## Top Works

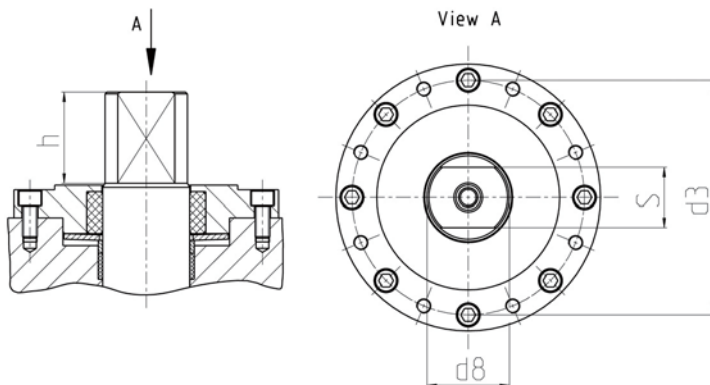


Fig.5

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.14

### Actuator-Connection ISO 5211 Full Bore

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

### Reduced Bore

NPS [inch]	NPS-R [inch]	CLASS	
		150	300
½	-	-	-
¾	-	-	-
1	¾	F07	F07
1¼	1	F07	F07
1½	1¼	F07	F10
2	1½	F07	F10
2½	2	F10	F10
3	2½	F10	F12
4	3	F12	F12
6	4	F12	F14
8	6	F12	F14
10	8	F14	F16
12	10	F16	F25
14	12	F16	F25
16	14	F25	F35*
20	16	F25*	F35*

\* Feather Keyway

Tab.15



额定压力温度曲线

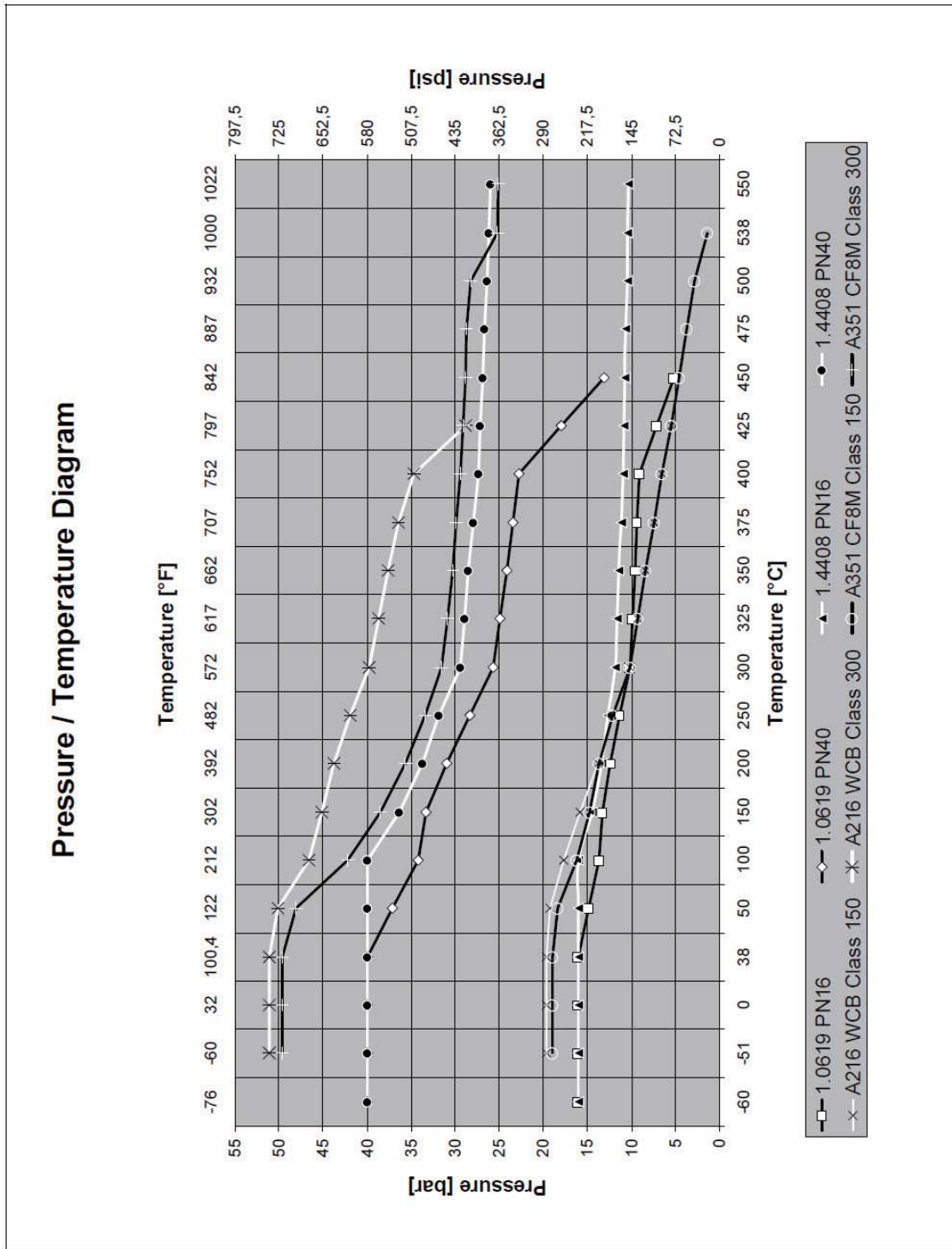


Fig.6



## 阀门配置选项

### 1) 具有弹簧防护功能的阀座系统:

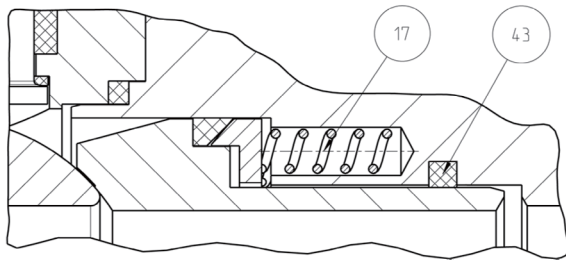


Fig.7

密封线(43)可保护阀座系统的弹簧(17)区域。  
密封线可阻挡管路介质中的泥浆或颗粒进入弹簧区域,同时又能使管线压力进入以保证阀座单元的密封比压。

### 2) 带可调压紧机构的填料压盖

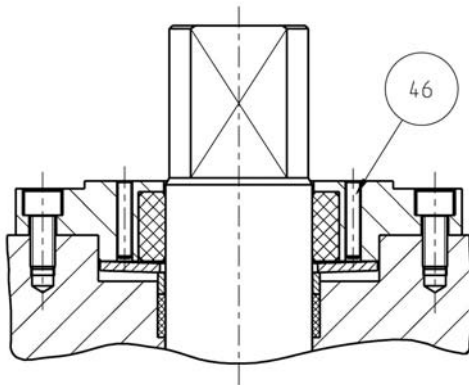


Fig.8

可为动负载阀杆填料配置带调整螺钉(46)的填料压盖。填料发生泄漏时,拧紧这些调整螺钉可增加填料的压紧力。

### 3) 带伴热夹套的球阀

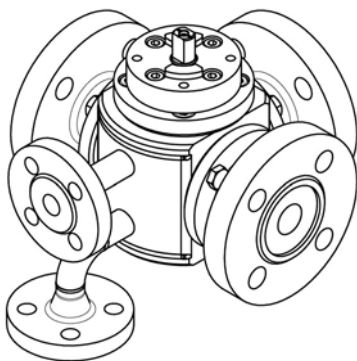


Fig.9



4) 阀球流道型式

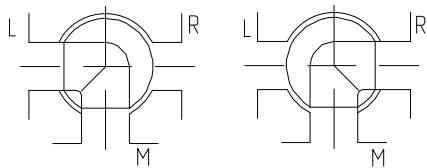


Fig. 10 L-port

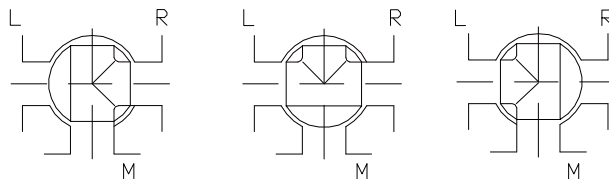


Fig. 11 T-port

5) T-port 阀门的阀座系统型式

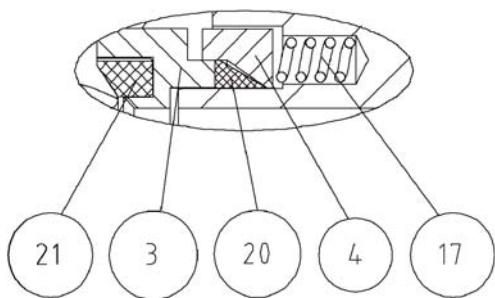


Fig. 12

6) 带探测接口的双级填料结构

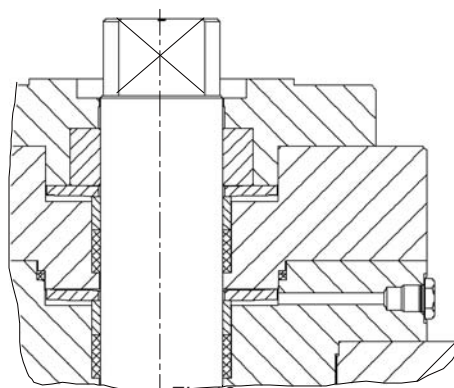


Fig. 13

7) 流通型式

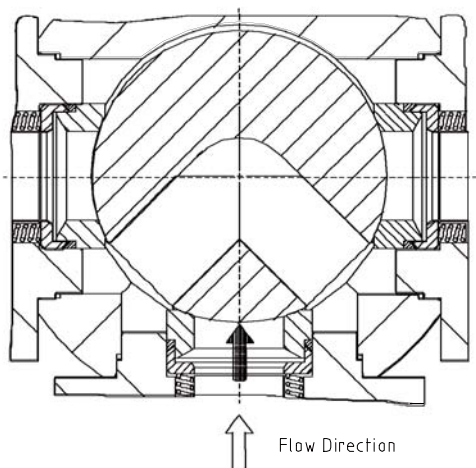


Fig. 14 Non-transflow 阻断切换型

在流向切换过程中，流体被阻断。

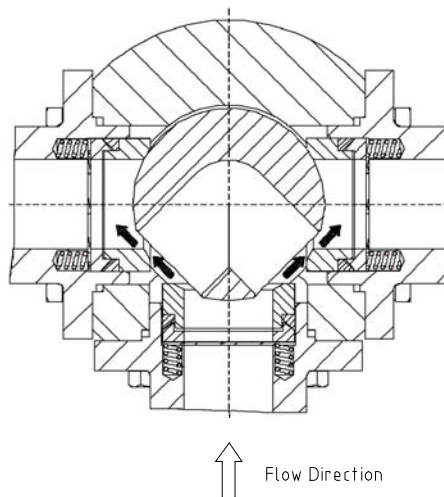


Fig. 15 Transflow 非阻断切换型

在流向切换过程中，流体向两个流向分流，不被阻断。

Technical modifications are reserved.