ARGUS

Ball Valves ANSI Class 150-1500

A4

ARGUS Technology for you

ARGUS

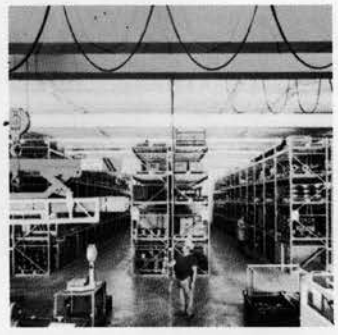
Ball Valves ANSI Class 150-1500

A4

Contents

ARGUS

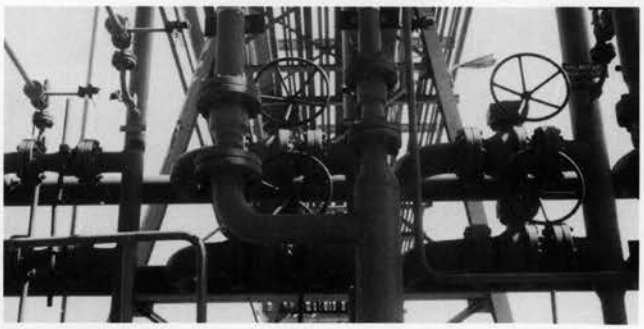
ARGUS ball valves, the valve with extra built-in quality



Production
Precision products call for precision production techniques. We at ARGUS go to all lengths to ensure state-of-the-art perfection in each and every ball valve that leaves our factories. Naturally perfection starts with people. People like the ARGUS pioneers who literally wrote the book on ball valves in Germany more than 50 years ago.
Since then, nearly 200 domestic patents alone document innovative ARGUS know-how, and testify to the fruits of its ongoing research development effort.

Today, every ball valve bearing the ARGUS name is the product of highly skilled, highly experienced professionals.
All welding, for example, is performed by qualified tube welders using a process approved by Germany's stringent, government-appointed TÜV acceptance authority and complying with the ASME Code, Section IX.
ARGUS experts, of course, are backed up by some of the latest, most sophisticated plant equipment in the industry. All the advantages of machine programming for automated schedules are systematically exploited. Thus we are more flexible and more responsive to changing situations. This alone gives us a significant competitive lead.

Applications of ARGUS ball valves

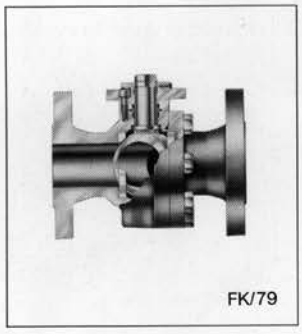


Applications of ARGUS ball valves

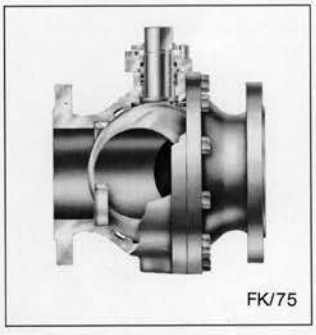
- Oil and gas On- and Offshore
  (Manifolds – separator systems – filter systems – drying systems)
- Oil and gas transport
  (Pumping and compressor stations – pig launching stations)
- Gas distribution
  (Measuring/Metering and pressure regulation stations)
- Petrochemical industry, its processes and storing facilities
- Chemical industry, its processes and storing facilities
- Construction of power plants, nuclear or classical
  (oil and gas)
- Gasification of coal
- Hydrogenation of coal
- Transport of solids
- Food industry

We have mentioned just a few important industries where our ball valves are used.

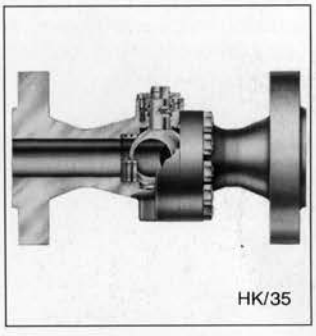
EK/71



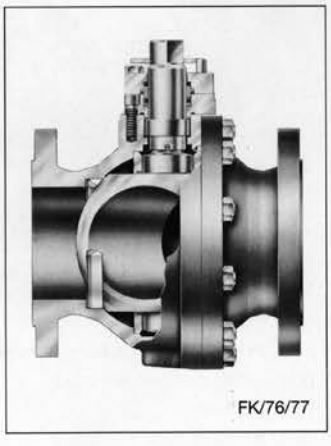
FK/79



FK/75



HK/35



FK/76/77

Why choose ARGUS ball valves?

- because they remain constantly leakproof throughout the whole range of pressure/temperature ratings. They are suitable for vacuum services
- because their spring-supported ball seats ensure a pressure relief
- because the stem is double sealed
- because wear on the sealing is reduced to a minimum by a clear separation between the sealing and the bearing functions
- because they are fire-safe
- because they are safe to operate due to the anti-blow-out stem
- because they are anti-static
- because they have long lifetime and low operating torques
- because they are designed in accordance with international standards, rules and regulations
- because they are constructed, manufactured and tested under quality control in accordance with a detailed quality assurance program.

Technical features

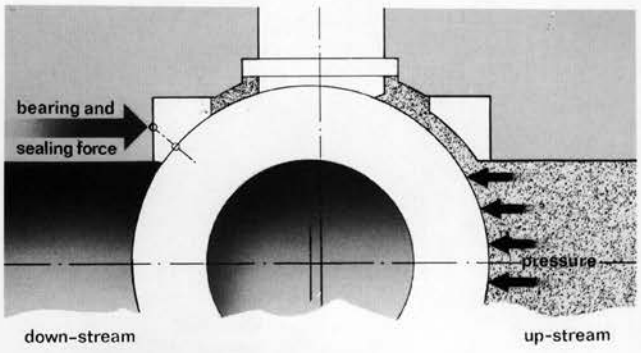
Sealing of ARGUS ball valves

Effective sealing depends on
- the contact pressure
- the contact surface of the seat
- the accuracy of surface finish on the ball and ball seat
- the sealing design and the sealing material.

The contact pressure is built up by the initial stress in the seat (compact or spring supported) and the medium pressure.

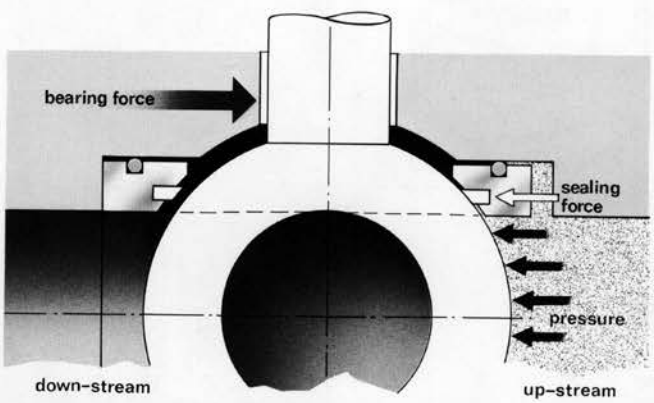
The extremely high durability of ARGUS sealing systems is achieved on the one hand by a close observance of manufacturing tolerances, which are guaranteed by the ARGUS Quality Assurance System and on the other hand by construction such as e.g. the ARGUS Teflon ball seats, backed up with a stainless steel support ring.

The width of the contact surfaces is kept in a balanced proportion between the aspects of safety and economy by an absolute spherical ball, a maximum surface finish of one (metric) micron and a fixing of the ball for DN 65 and larger.



The sealing principle of the floating ball

- Sealing is effected at the downstream seat.
  The ball is pressed against the opposite seat by the medium pressure.
- In doing so the seat rings have a double function. They seal off and at the same time serve as a bearing.
- The seal at the upstream seat can be relieved in order to avoid a build-up of pressure.

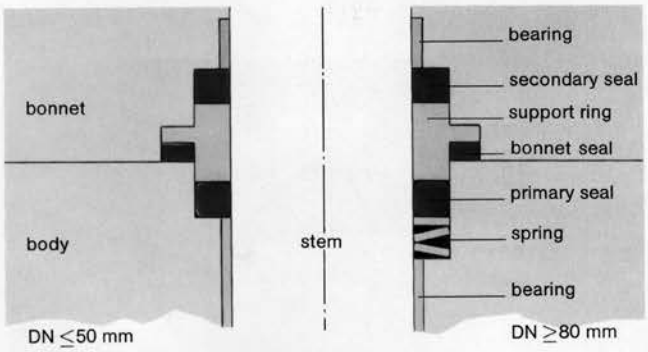


The sealing principle of the fixed ball

- Sealing is effected at the upstream seat.
  The spring supported seat is pressed against the fixed ball by the medium pressure.
- Fixing of the ball can be achieved in different ways:
  by bearing pads in the body
  by trunnions
  by bearing stems

  A pressure build-up is prevented by the spring supported seats in connection with the fixed ball.

The separation of sealing and bearing functions ensures exemplary operating reliability and durability of ARGUS ball valves. This design aspect is observed without any compromises.

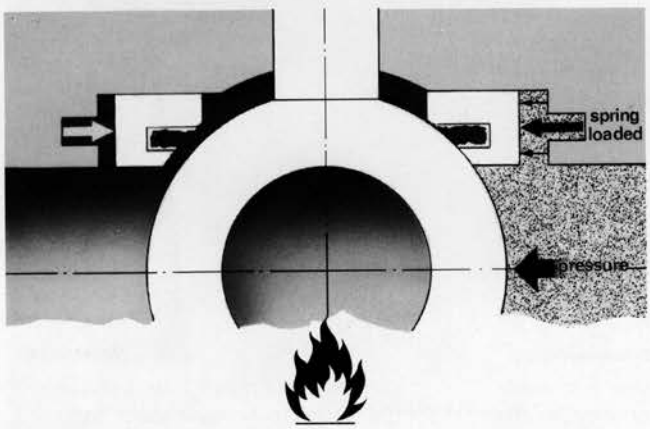


The unique ARGUS double stem seal system

In line serviceable long life double stem system, incorporating primary seal in several material possibilities (e.c. PTFE, Viton . . .) and the secondary seal ring and bonnet seal in celastic for emergency and fire safety. Stem supported in bearings to ensure seals are free from valve operating loads.
This stem sealing construction fully complies with the TA-Luft fugitive emissions regulations and neets EPA-Requirements certified by Lloyd's.

Anti-blow-out

The stems are designed in a way which prevents them from being blown out when any incompetent operation occurs.



Fire safe

In case of fire, metallic contact surfaces serve as emergency sealing, supported by heat-resistant sealing materials. The operating safety can thus be guaranteed in case of emergency up to a temperature of +600 °C and can be verified in accordance with the requirements of BS 6755 and API 607
or in accordance with customers' specifications.

Anti-static

A stainless steel coil spring between bonnet and stopplate (≤ DN 50) or a stainless steel spring washer between stem and ball (≥ DN 80) ensures earthed continuity between ball, stem and body.

Secondary sealing system

The secondary sealing system comes into action where disconnection from the pipeline can only be achieved with difficulty eg.: in buried service, or when, during commissioning, the possibiliy of damage to the ball seats cannot be excluded. The injection of a lubricant paste into the sealing areas between the ball surface and the seats enables effective sealing of any damaged areas, even against medium/high pressure, for both liquid and gas.

Standards

Depending on type and pressure class, ARGUS ball valves are designed in conformity with international standards, e.g. BS 5351 – API 6 D and ANSI B 16.34. Verifications are continuously carried out by using test programs, which were developed by BS and API. Testing organisations such as BS – Lloyd's Register – TÜV – DNV – Bureau Veritas, as well as independent inspection authorities regularly carry out these tests on behalf of ARGUS or their customers.

Sour service

Material choice and hardness in accordance with NACE MR – 01 – 75.

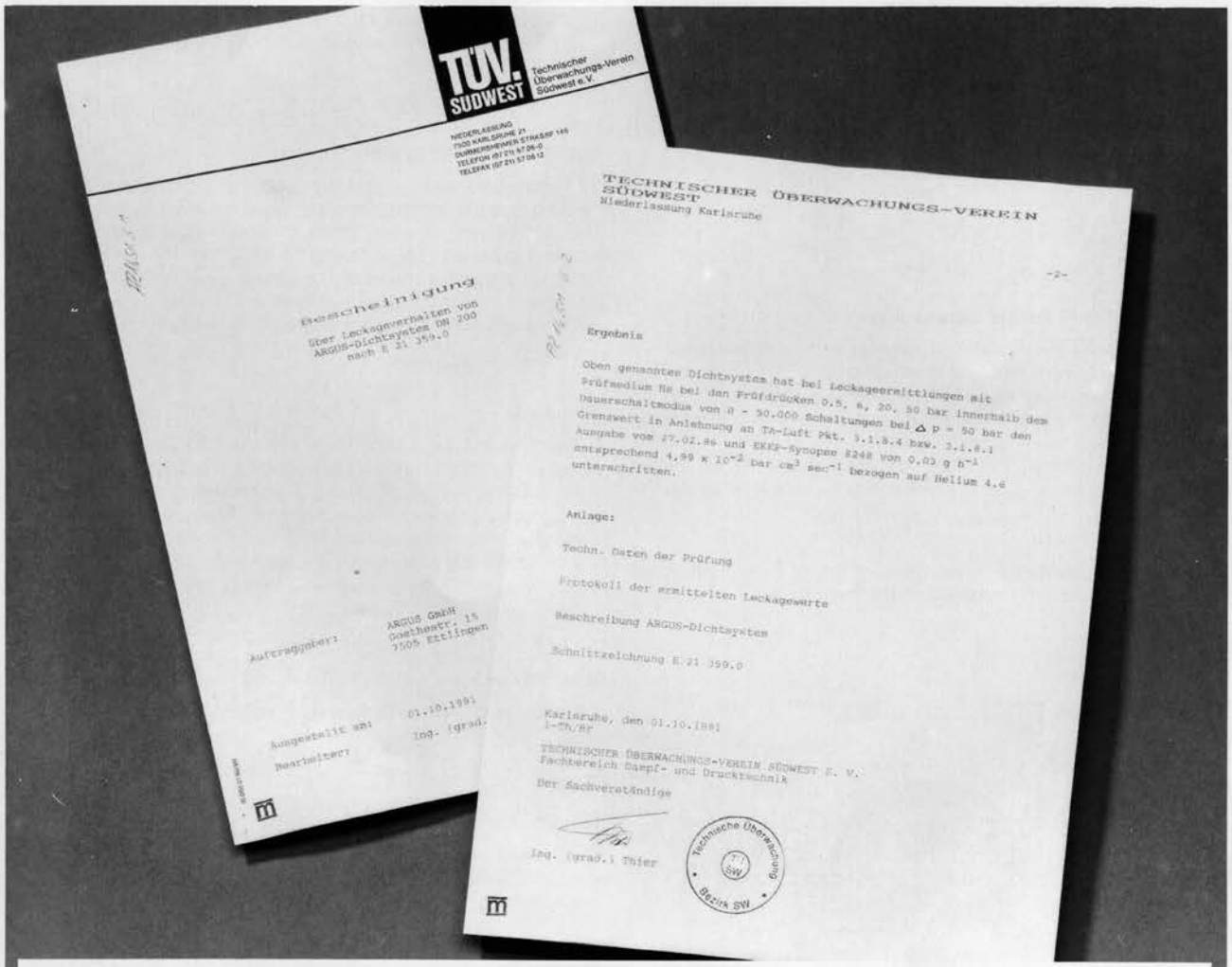
QA/QC

Design and production is carried out in accordance with the ARGUS QA manual/QC system which is subject to continual supervision.

Our quality assurance conforming to ISO 9001 is certified by the German Quality Assurance Association DQS.

QUALITY ASSURANCE
ISO 9001
certified
SINCE 1988

ARGUS ball valves tested in accordance with fugitive emissions regulations



Endurance tests were conducted on ARGUS ball valves to verify suitability of the ARGUS stem seal system in conformity with the requirements of TA-Luft, § 3.1.8.4. During and after 100,000 operational cycles with helium as the test medium at room temperature under a pressure of 55 bars, the respective leakages were measured on the stem housing.

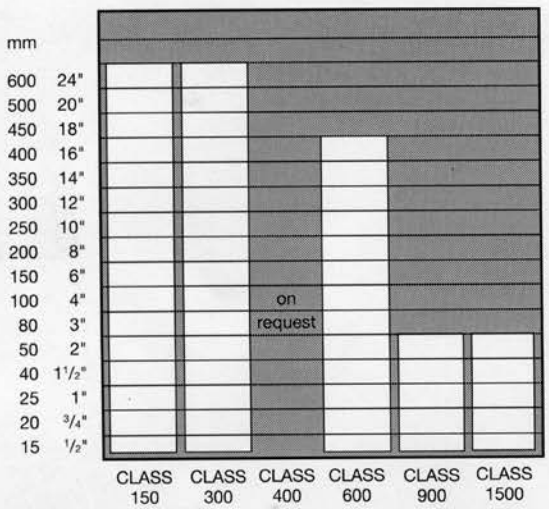
The test results show that, even after 100,000 operational cycles, helium leakages on the ARGUS stem seal did not exceed a value of $7.0 \cdot 10^{-5}$ bars $cm^3 \cdot s^{-1}$ during the stem motion and that leakages amounted to approximately $3\text{-}4 \cdot 10^{-5}$ bars $cm^3 \cdot s^{-1}$ in the idle position. Therefore, the measured values are more than 100 times less than the maximum permitted emission rates.

With this test result, it was possible for the Baden technical inspectorate (TÜV Baden) to confirm an adequate leak resistance within the meaning to the TA-Luft requirements (§ 3.1.8.4.) for the analyzed stem system belonging to ARGUS ball valves (Technical Report No. 3/88/489 dated 26.05.1988, TÜV Baden e.V., FRG).

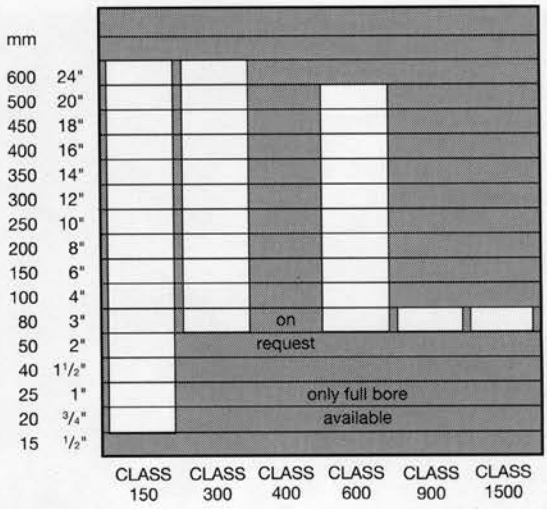
Summary of the ball valve program

ARGUS

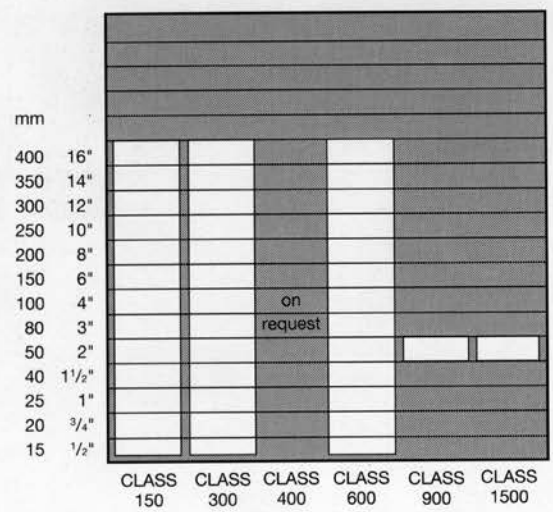
Flanged ball valves full bore



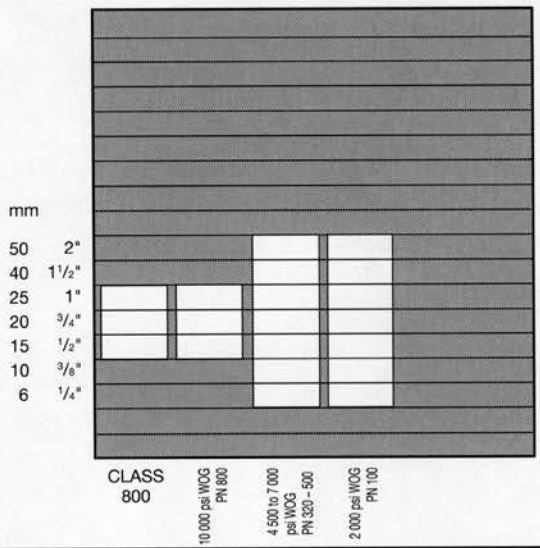
Flanged ball valves reduced bore



Welded ends ball valves full bore. Reduced bore on request



Screwed ball valves and socket weld with pipe pups

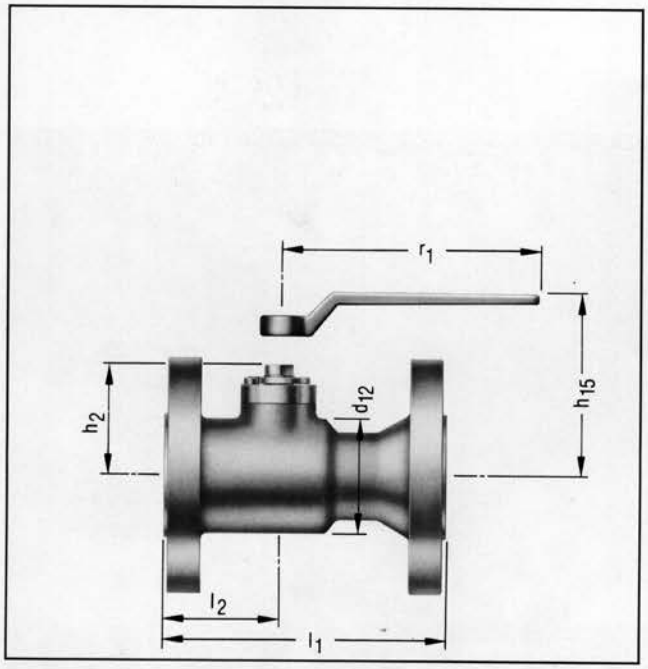


International technical standards

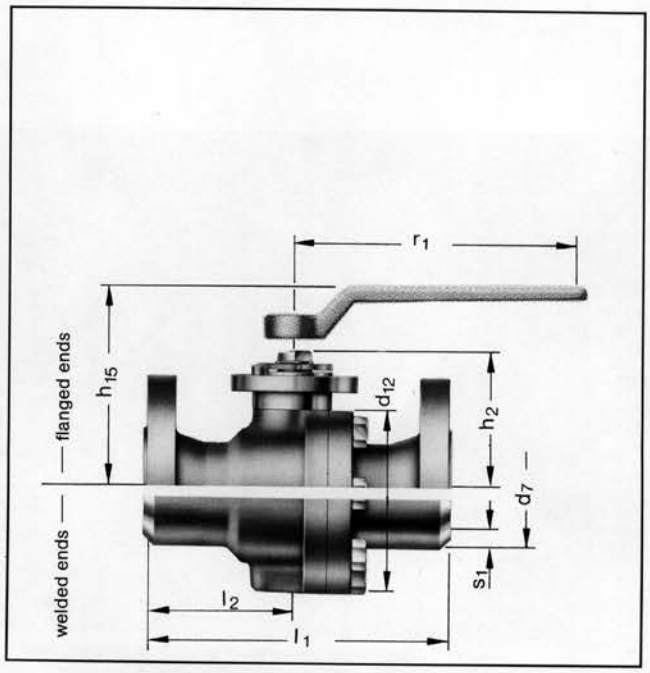
ARGUS ball valves, the valve with extra built-in quality

ANSI Class 150 (PN 20) full bore

Max. working pressure 19.3 bar (275 psi WOG). Hydr. test pressure 29.9 bar (425 psi).



Type EK/71 DN 15
Type description see page 38.



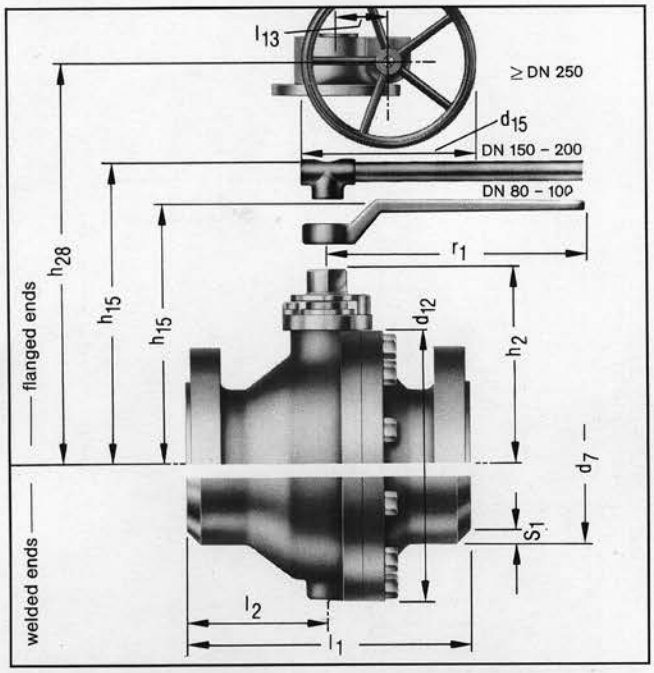
Type FK/79 DN 15 – 50
Type description see page 40.

Nominal size			Flanged ends				Welding ends				Wrench operated				Wormgear operated					Weight/kg	
		Valve type	RF		RTJ															Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15	½	EK/71	108	54							38	45	118	155						2	
15	½	FK/79	108	50			270	135	21.3		82	47.5	120.5	155						3.8	
20	¾	FK/79	117.5	51			270	135	26.9		92	58.5	130	173						4.2	
25	1	FK/79	127	55			270	135	33.7		94	61	132.5	173						6	
40	1½	FK/79	165.1	82			270	135	48.3		120	94	164.5	220						9	
50	2	FK/79	177.8	89			300	150	60.3		140	101.5	172	220						12	
80	3	FK/75	203	102			450	225	88.9		190	150	171	327						23	
100	4	FK/75	229	114			520	260	114.3		214	166	187	327						32	
150	6	FK/75	394	197			700	350	168.3		330	244	306	935	M 100	256	86	610	378	98	117
200	8	FK/75	457	229			800	400	219		410	279	341	935	M 100	291	86	610	378	166	185
250	10	FK/76	533	267			900	450	273		540	384			M 200	360	137	610	338	(355)	390
300	12	FK/76	610	305			1050	525	323.9		614	421			M 200	398	137	610	338	(430)	465
350	14	FK/76	685.8	330.5			on request				650	507			M 200	484	137	610	338	(880)	915
400	16	FK/76	762	381			762	381	406.4		798	574			M 400	575	60	610	437	(1120)	1167
450	18	FK/78	864	431			on request				850	601			M 750	575	68	610	454	(1050)	1130
500	20	FK/78	914	481							950	637			M 750	611	68	610	454	(1200)	1280
600	24	FK/78	1067	533							1100	715			M1500	724	237	610	618	(1700)	1900

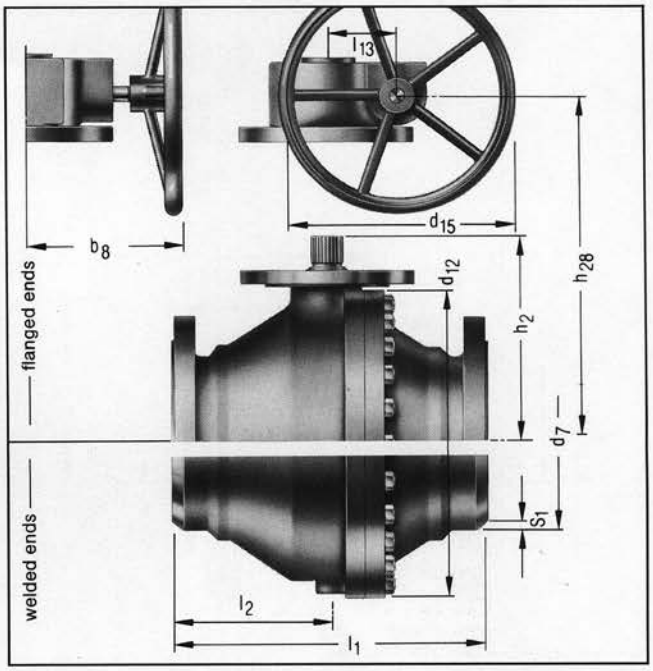
to be specified by purchaser

– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.
* Other end to end dimensions on request.

( ) Weight without wrench



Type FK/75 DN 80 – 200
Type description see page 44.



Type FK/78 DN 450 – 600
Type description see page 48.

Type FK/76 DN 250 – 400
Type description see page 46.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std. DN 15–400) CS SS[3]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[2] SS, Arguloy hardfaced[1]	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

Remarks:

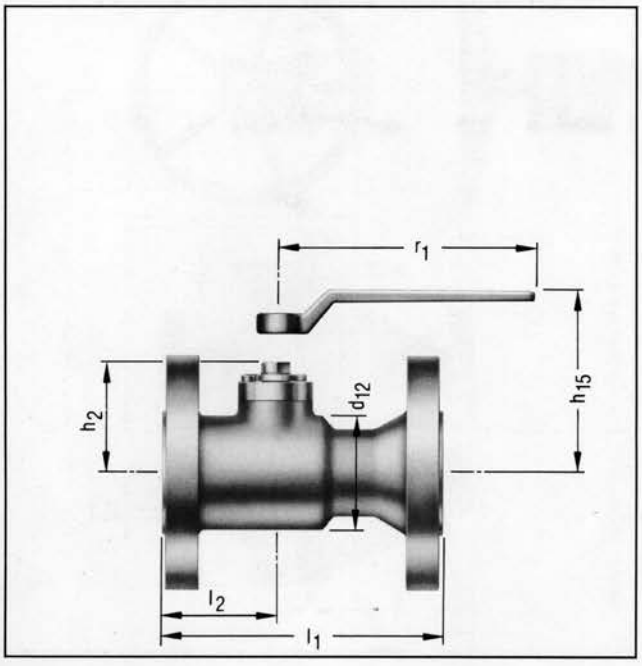
- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

Other materials on request.

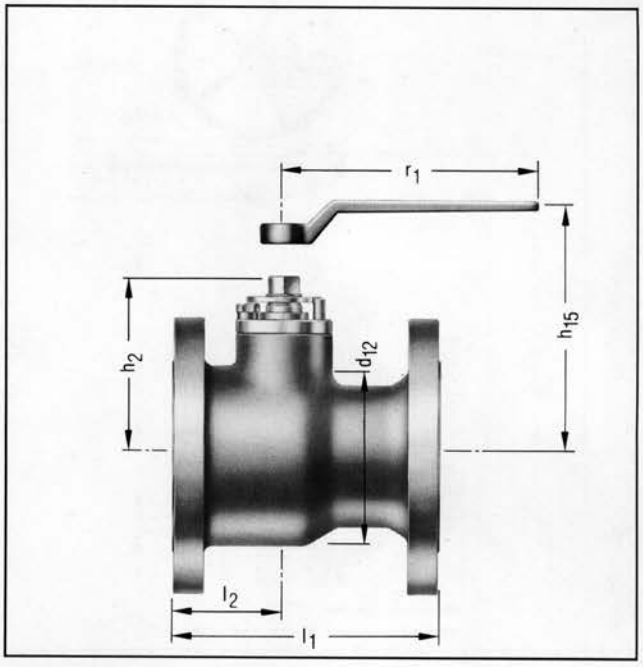
1) Type FK/79, FK/76, only
2) Type EK/71, FK/79, FK/76; ≤ DN 200 only
3) Except type EK/71

ANSI Class 150 (PN 20) reduced bore

Max. working pressure 19.3 bar (275 psi WOG). Hydr. test pressure 29.9 bar (425 psi).



Type EK/71 DN 20 – 50
Type description see page 38.



Type EK/74 DN 80 – 100
Type description see page 42.

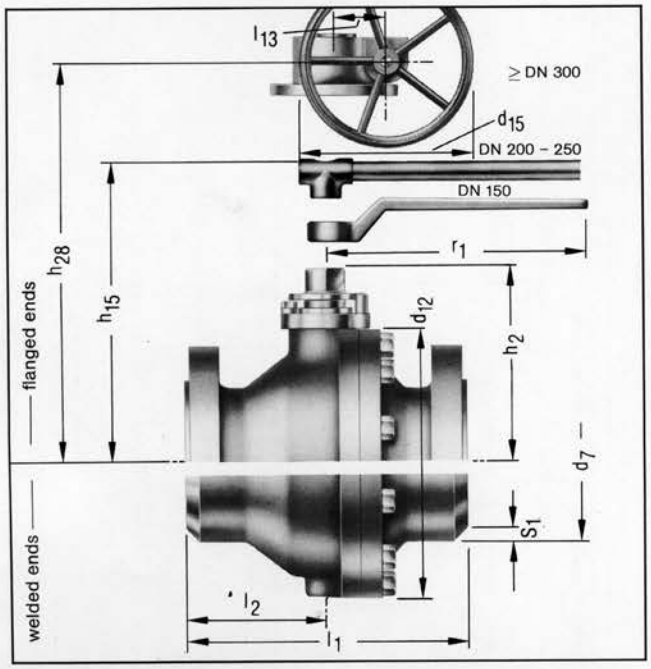
Nominal size			Flanged ends				Welding ends				Wrench operated				Wormgear operated					Weight/kg	
		Valve type	RF		RTJ															Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15 x 10 x 15	½ x ⅜ x ½	see full bore					see full bore														
20 x 15 x 20	¾ x ½ x ¾	EK/71	117	54							38	46.5	118	155						2.5	
25 x 20 x 25	1 x ¾ x 1	EK/71	127	55.5							48	54.5	126	173						3	
40 x 32 x 40	1½ x 1¼ x 1½	EK/71	165	57.5							65	76.5	147	220						5.5	
50 x 40 x 50	2 x 1½ x 2	EK/71	178	62							82	82	152.5	220						8.5	
80 x 65 x 80	3 x 2½ x 3	EK/74	203	90			on request				130	140	160	327						18.5	
100 x 80 x 100	4 x 3 x 4	EK/74	229	96							152	150	170	327						26.5	
150 x 100 x 150	6 x 4 x 6	FK/75	267	133.5			on request				214	166	187	387						40	
200 x 150 x 200	8 x 6 x 8	FK/75	292*	146							330	244	306	935	M 100M	256	86	610	378	100	119
250 x 200 x 250	10 x 8 x 10	FK/76	330*	165							410	301	363	935	M 100M	291	86	610	378	160	179
300 x 250 x 300	12 x 10 x 12	FK/76	610	305			on request				540	384			M 200M	360	137	610	338	(390)	425
350 x 300 x 350	14 x 12 x 14	FK/76	686	343							614	421			M 200M	398	137	610	338	(530)	565
400 x 300 x 400	16 x 12 x 16	FK/76	762	381							586	395			M 200M	398	137	610	338	(585)	620
450 x 400 x 450	18 x 16 x 18	FK/76	864	432							798	574			M 400M	575	60	610	437	(1128)	1175
500 x 400 x 500	20 x 16 x 20	FK/76	914	457							798	574			M 400M	575	60	610	437	(1155)	1202
500 x 450 x 500	20 x 18 x 20	FK/78	on request				on request				850	601			M 750M	575	68	610	454	(1160)	1241
600 x 500 x 600	24 x 20 x 24	FK/78	1067	481							950	637			M 750M	611	68	610	454	(1300)	1381

to be specified by purchaser

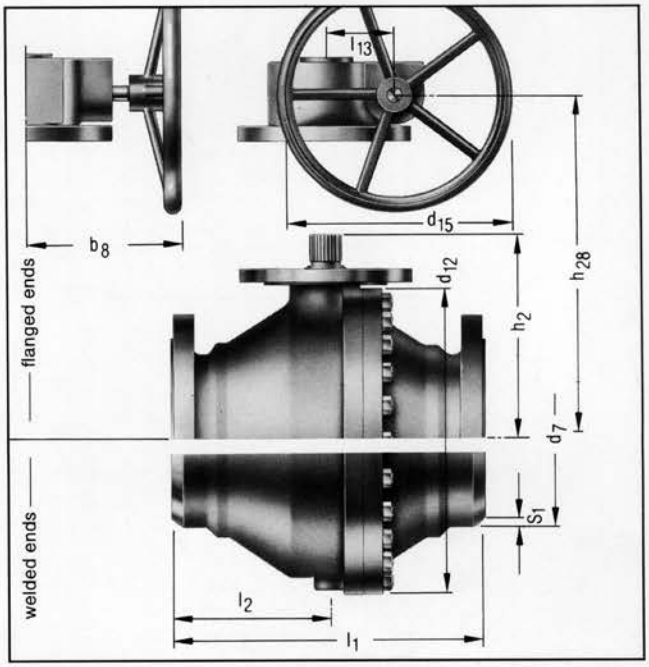
– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

( ) Weight without wrench

* short pattern



Type FK/75 DN 150 – 200
Type description see page 44.



Type FK/76 DN 250 – 500
Type description see page 46.

Type FK/78 DN 500 – 600
Type description see page 48.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std. DN 15–400) CS SS[3]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[2] SS, Arguloy hardfaced[1]	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

Remarks:

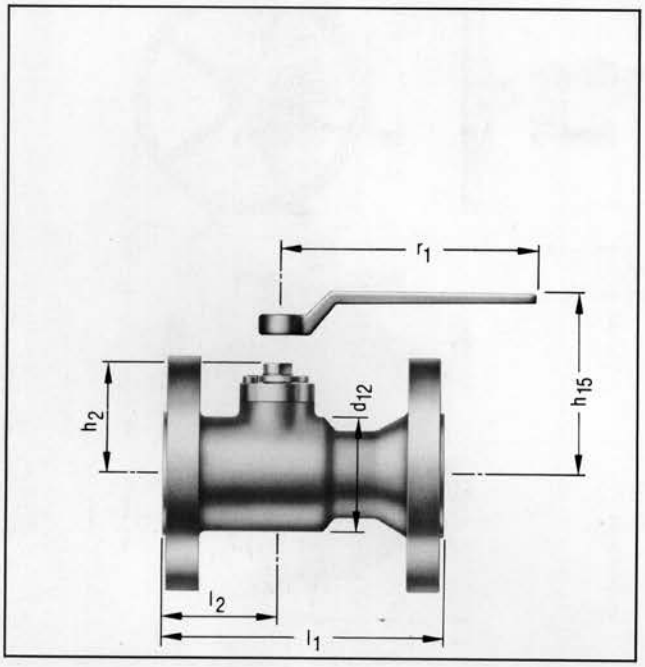
- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

Other materials on request.

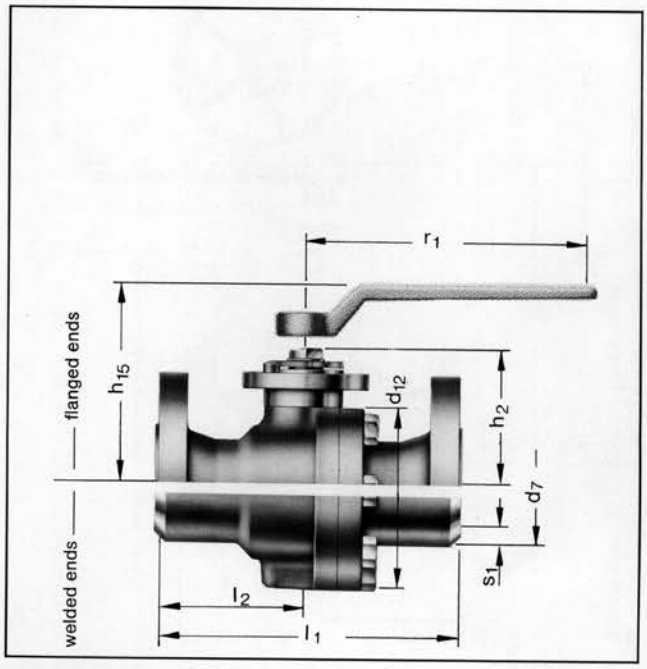
1) Type FK/79, FK/76, only
2) Type EK/71, FK/79, FK/76; ≤ DN 200 only
3) Except type EK/71

ANSI Class 300 (PN 50) full bore

Max. working pressure 50.6 bar (720 psi WOG). Hydr. test pressure 77 bar (1100 psi).



Type EK/71 DN 15 – 50
Type description see page 38.



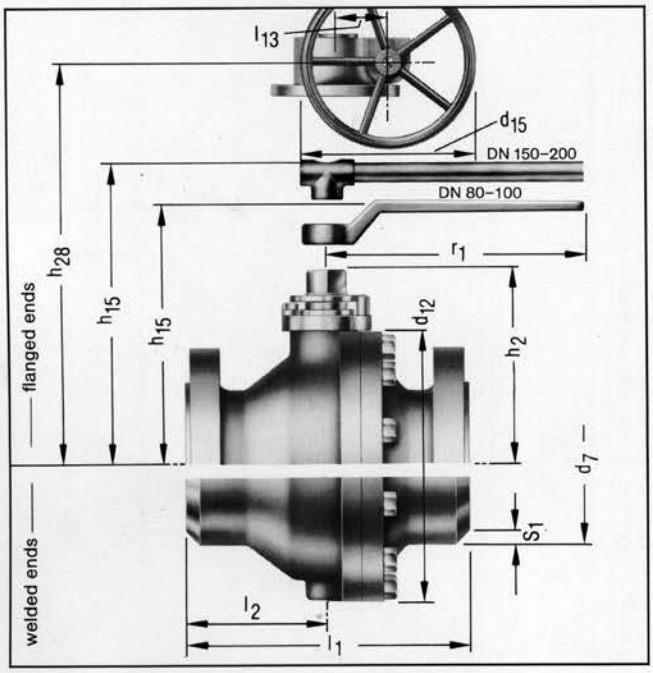
Type FK/79 DN 15 – 50
Type description see page 40.

Nominal size			Flanged ends				Welding ends				Wrench operated				Wormgear operated						Weight/kg	
		Valve type	RF		RTJ																Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1*	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15	½	EK/71	140	54			see type FK/79				38	46.5	118	155							2.6	
20	¾	EK/71	152	55.5							48	54.5	126	173							4.3	
25	1	EK/71	165	58							55	57	128.5	173							4.8	
40	1½	EK/71	190	68							82	82	152.5	220							9	
50	2	EK/71	216	75							100	89.5	160	220							12	
15	½	FK/79	139.7	65			270	135	21.3	to be specified by purchaser	82	47.5	120.5	155							5	
20	¾	FK/79	152.4	68			270	135	26.9		92	58.5	130	173							6	
25	1	FK/79	165.1	82.5			270	135	33.7		94	61	132.5	173							8	
40	1½	FK/79	190.5	95			270	135	48.3		120	94	164.5	220							12	
50	2	FK/79	215.9	105			300	150	60.3		140	101.5	172	220							15	
80	3	FK/75	283	141.5			450	225	88.9		190	150	171	327							30.8	
100	4	FK/75	305	152.5			520	260	114.3		214	166	187	327							45.8	
150	6	FK/76	403	201.5			700	350	168.3		330	266	328	935	M 100M	256	86	610	378	110	129	
200	8	FK/76	502	251			800	400	219.1		410	301	363	935	M 100M	291	86	610	378	170	189	
250	10	FK/76	568	284			900	450	273		540	384			M 200M	360	137	610	338	(400)	435	
300	12	FK/76	648	324			1050	525	323.9		614	421			M 400M	407	60	610	437	(480)	532	
350	14	FK/76	762	330.5			on request				650	507			M 400M	493	60	610	437	(975)	1027	
400	16	FK/76	838	419			762	381	406.4		798	574			M 750M	585	68	610	454	(1218)	1314	
450	18	FK/78	914	431			on request				850	601			M 750M	575	68	610	454	(1100)	1181	
500	20	FK/78	990	481							950	637			M1500M	622	237	610	618	(1400)	1582	
600	24	FK/78	1143	542							1100	715			M1500M	700	237	610	618	(1975)	2157	

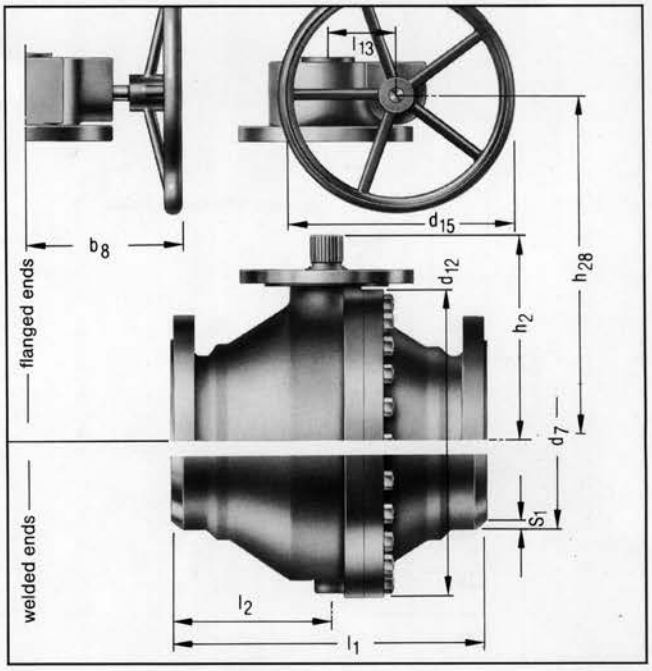
– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

* Other end to end dimensions on request.

( ) Weight without wrench



Type FK/75 DN 80 – 100
Type description see page 44.



Type FK/76 DN 150 – 400
Type description see page 46.

Type FK/78 DN 450 – 600
Type description see page 48.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std. DN 15–400) CS SS[3]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[2] SS, Arguloy hardfaced[1]	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

Remarks:

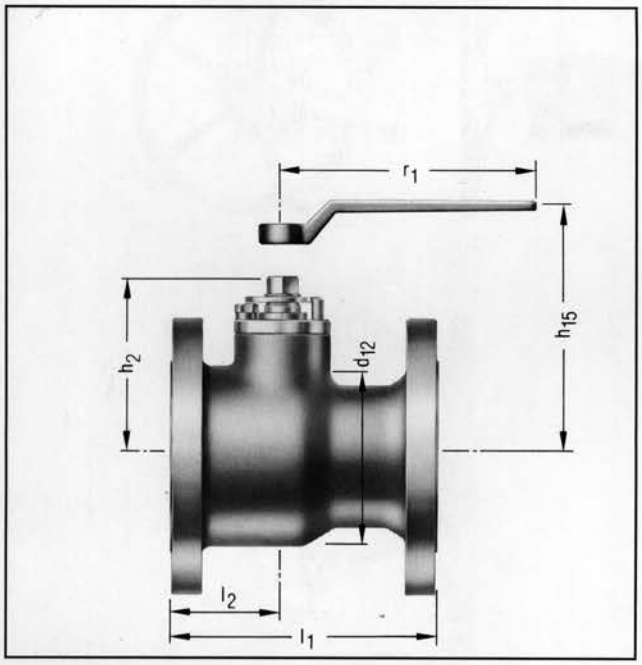
- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

Other materials on request.

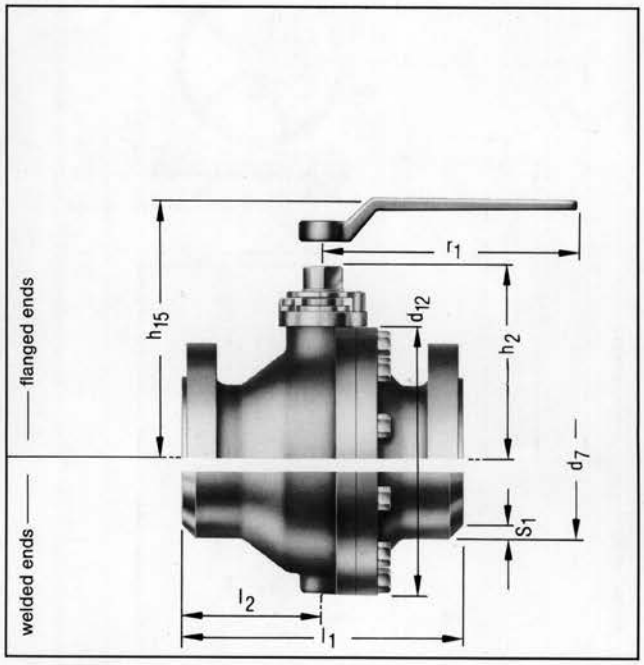
1) Type FK/76 only
2) Type EK/71 and FK/76; ≤ DN 200 only
3) Except type EK/71

ANSI Class 300 (PN 50) reduced bore

Max. working pressure 50.6 bar (720 psi WOG). Hydr. test pressure 77 bar (1100 psi).



Type EK/74 DN 80 – 100
Type description see page 42.



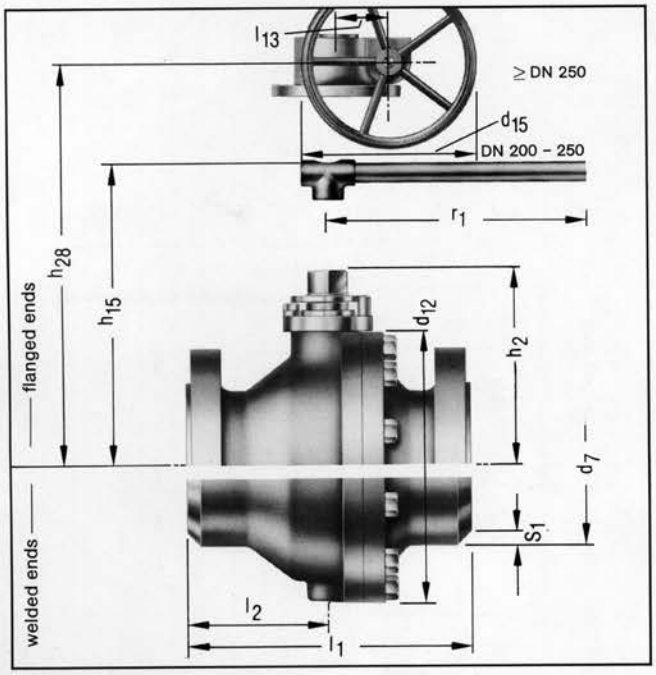
Type FK/75 DN 150
Type description see page 44.

Nominal size		Valve type	Flanged ends RF		Flanged ends RTJ		Welding ends				Wrench operated				Wormgear operated					Weight/kg Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15	½	see full bore					see full bore														
20	¾																				
25	1																				
40	1½																				
50	2																				
80 x 65 x 80	3 x 2½ x 3	EK/74	283	90			on request			to be specified by purchaser	130	140	160	327						24.5	
100 x 80 x 100	4 x 3 x 4	EK/74	305	96							152	150	170	327						36.5	
150 x 100 x 150	6 x 4 x 6	FK/75	403	201.5			on request				214	166	187	327						61	
200 x 150 x 200	8 x 6 x 8	FK/75	419*	209.5			on request				330	244	306	935	M 100M	256	86	610	378	(135)	154
250 x 200 x 250	10 x 8 x 10	FK/76	457*	228.5							410	301	363	935	M 100M	291	86	610	378	(205)	224
300 x 250 x 300	12 x 10 x 12	FK/76	648	324							540	384			M 200M	360	137	610	338	(440)	475
350 x 300 x 350	14 x 12 x 14	FK/76	762	381							614	421			M 200M	398	137	610	338	(565)	600
400 x 300 x 400	16 x 12 x 16	FK/76	838	419							614	421			M 200M	398	136.5	610	338	(620)	665
450 x 400 x 450	18 x 16 x 18	FK/76	914	457							798	574			M 750M	585	68	610	454	(1282)	1378
500 x 400 x 500	20 x 16 x 20	FK/76	990	495							798	574			M 750M	585	68	610	454	(1354)	1450
500 x 450 x 500	20 x 18 x 20	FK/78	990	495			on request				850	601			M 750M	575	68	610	454	(1320)	1400
600 x 500 x 600	24 x 20 x 24	FK/78	1143	481							950	637			M1500M	622	237	610	454	(1500)	1682

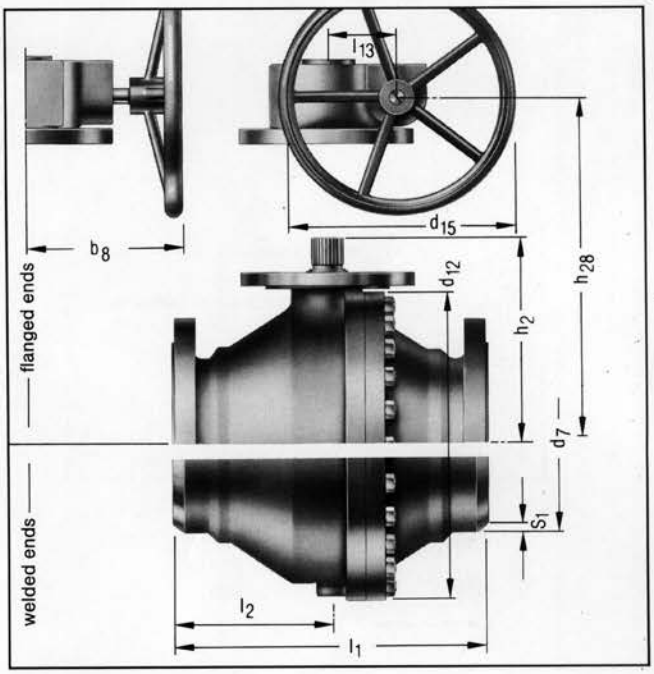
– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

( ) Weight without wrench

* short pattern



Type FK/76 DN 200 – 500
Type description see page 46.



Type FK/78 DN 500 – 600
Type description see page 48.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std. DN 15–400) CS SS[3)]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1)] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[2)] SS, Arguloy hardfaced[1)]	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

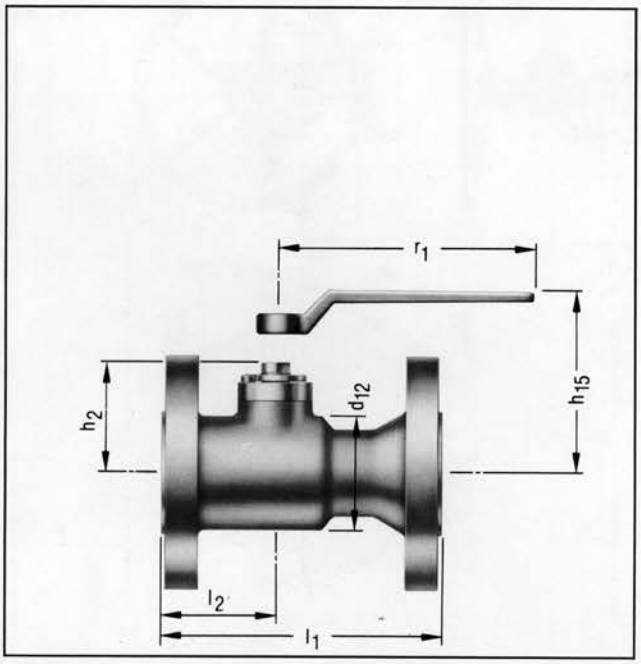
Remarks:

- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

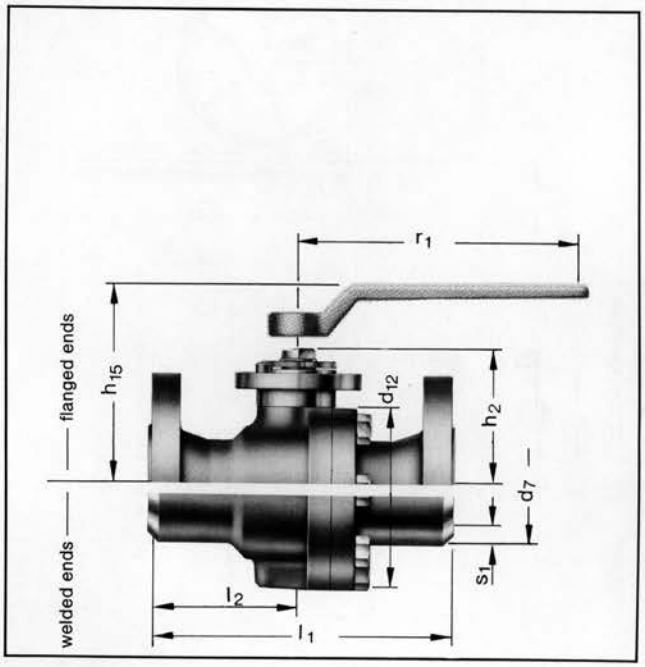
Other materials on request.
1) Type FK/76 only
2) Type EK/71 and FK/76; ≤ DN 200 only

ANSI Class 600 (PN 100) full bore

Max. working pressure 101.2 bar (1440 psi WOG). Hydr. test pressure 152 bar (2175 psi).



Type EK/71 DN 15 – 50
Type description see page 38.



Type FK/79 DN 15 – 50
Type description see page 40.

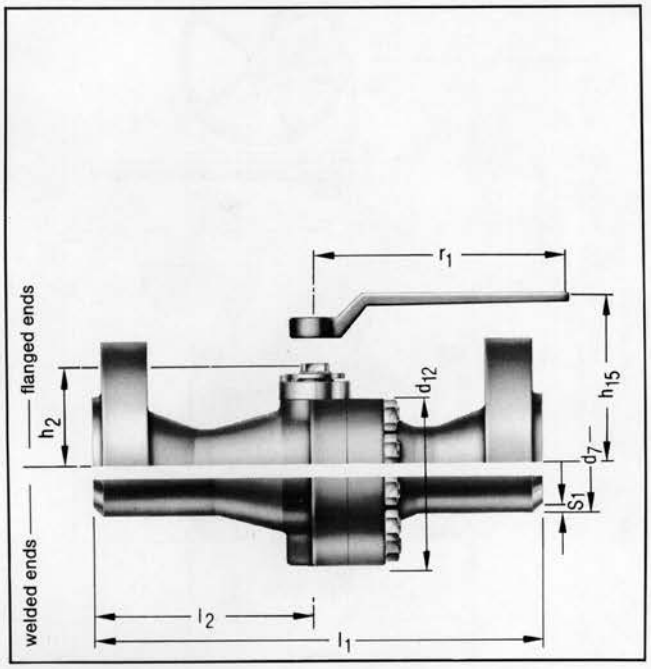
Nominal size			Flanged ends				Welding ends				Wrench operated				Wormgear operated						Weight/kg	
		Valve type	RF		RTJ																Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1*	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15	½	EK/71	165	59	163.5	58	see type FK/79				38	46.5	118	155						3	
20	¾	EK/71	190	63	190.5	63					48	54.5	126	173						4.5	
25	1	EK/71	216	63	216	63					55	57	128.5	173						5	
40	1½	EK/71	241	73	241	73					82	82	152.5	220						10	
50	2	EK/71	292	80	295.3	81.5					100	89.5	160	220						14.5	
15	½	FK/79	165.1	74	163.5	73.2	270	135	21.3		82	47.5	120.5	155						6	
20	¾	FK/79	190.5	95.5	190.5	95.5	270	135	26.9		92	58.5	130	173						7	
25	1	FK/79	215.9	108	215.9	108	270	135	33.7		94	61	132.5	173						9	
40	1½	FK/79	241.3	120.5	241.3	120.5	270	135	48.3		120	94	164.5	220						14	
50	2	FK/79	292.1	146	295.3	147.5	300	150	60.3		140	101.5	172	220						16	
50	2	HK/35	292	146	295.3	147.6	390	195	60.3		160	89.5	160	220						25	
80	3	FK/77	356	178	358.8	179.4	450	225	88.9		190	170	189	327	M 100M	178.5	86	610	378	34	53
100	4	FK/77	432	216	435	217.5	520	260	114.3		214	186	205	327	M 100M	194.5	86	610	378	50	69
150	6	FK/77	559	280	562	281	700	350	168.3		330	266			M 100M	256	86	610	378	140	159
200	8	FK/77	660	330	663.6	331.8	800	400	219.1		410	301			M 200M	294	137	610	338	200	235
250	10	FK/77	787	394	790.6	395.3	900	450	273		536	400			M 400M	369	60	610	437	(460)	512
300	12	FK/77	838	419	841.4	420.7	1050	525	323.5		612	437			M 750M	414	68	610	454	(570)	651
400	16	FK/77	991	496	993.8	497	on request				840	587			M1500M	639	237	610	555	(1593)	1814

to be specified by purchaser

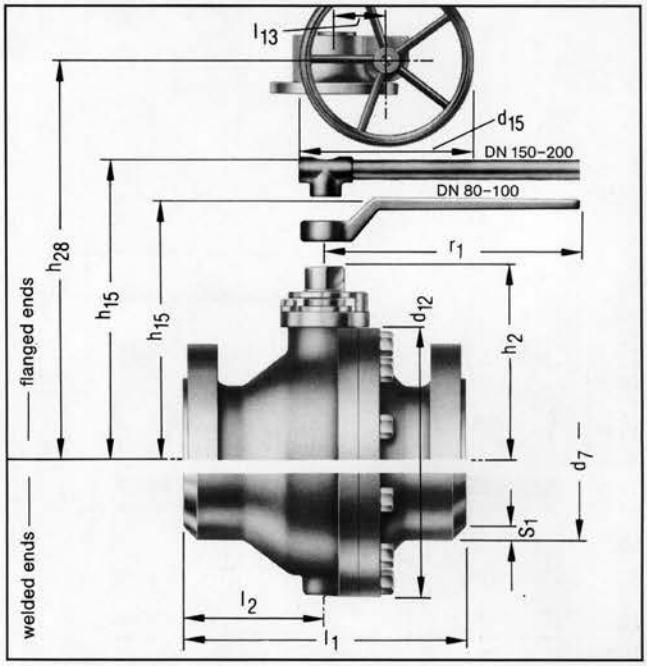
– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

* Other end to end dimensions on request.

( ) Weight without wrench



Type HK/35 DN 50
Type description see page 50.



Type FK/77 DN 80 – 400
Type description see page 46.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std.) CS SS[3]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[2] SS, Arguloy hardfaced[1]	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

Remarks:

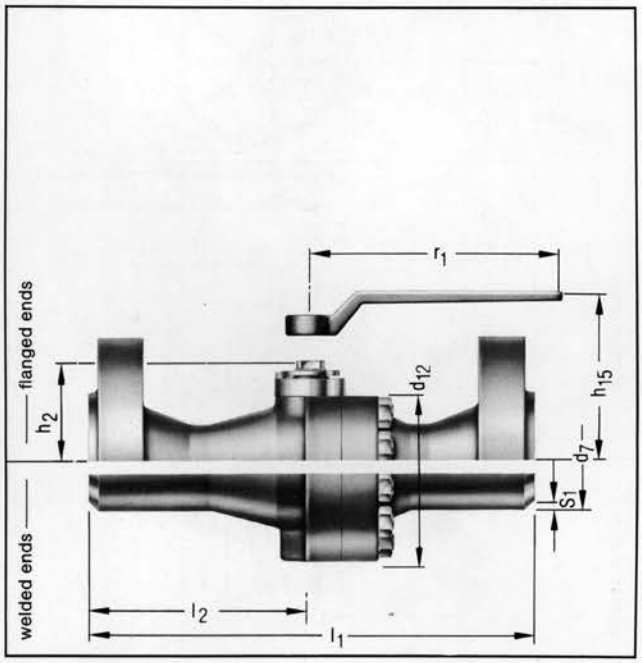
- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

Other materials on request.

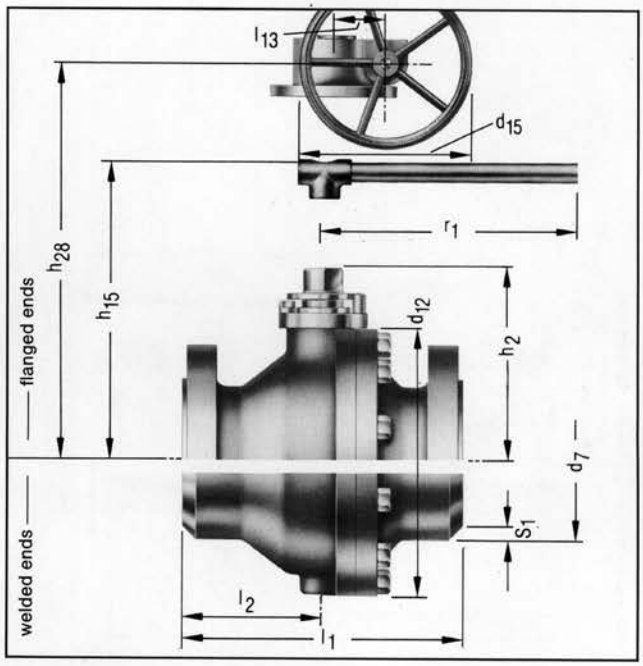
1) Type FK/76, FK/77 and HK/35 only
2) Type EK/71, HK/35 and FK/77; ≤ DN 200 only

ANSI Class 600 (PN 100) reduced bore

Max. working pressure 101.2 bar (1440 psi WOG). Hydr. test pressure 152 bar (2175 psi).



Type HK/35 DN 80
Type description see page 50.



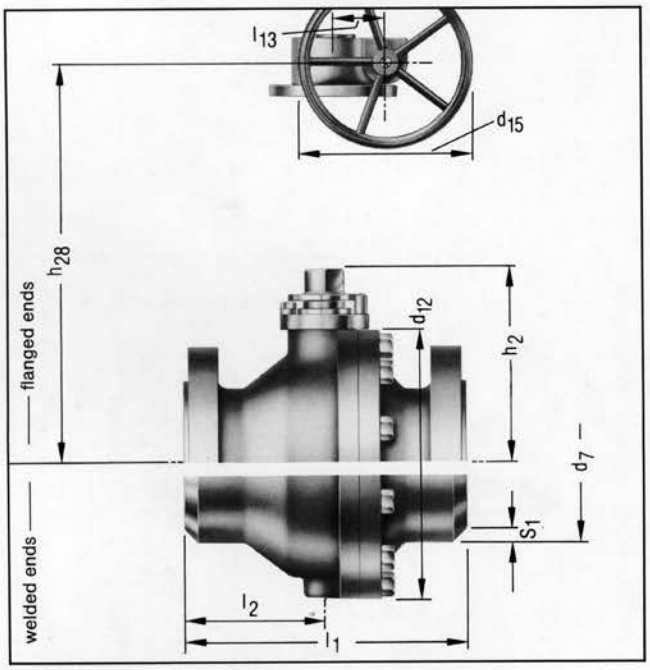
Type FK/77 DN 150 – 250
Type description see page 46.

Nominal Size		Valve type	Flanged ends RF		Flanged ends RTJ		Welding ends				Wrench operated				Wormgear operated					Weight/kg Flanged valve with	
mm	inch		l_1	l_2	l_1	l_2	l_1	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Type	h_{28}	l_{13}	d_{15}	b_8	Wrench	Gear
15	½	see full bore					see full bore														
20	¾																				
25	1																				
40	1½																				
50	2																				
80 x 50 x 80	3 x 2 x 3	HK/35	355.6	177.8	358.8	179.4	on request				160	89.5	160	220						31	
80 x 65 x 80	3 x 2½ x 3	on request					on request														
100 x 80 x 100	4 x 3 x 4																				
150 x 100 x 150	6 x 4 x 6	FK/77									214	186	205	327							
200 x 150 x 200	8 x 6 x 8	FK/77	660	330	663.6	331.8					330	266			M 100M	256	86	610	378	180	199
250 x 200 x 250	10 x 8 x 10	FK/77	787	393.5	790.6	395.3					410	301			M 200M	294	137	610	378	300	335
300 x 250 x 300	12 x 10 x 12	FK/77	838	419	841.4	420.7					536	400			M 400M	396	60	610	437	(330)	398
350 x 300 x 350	14 x 12 x 14	FK/77	889	445.5	892.2	446.1					612	437			M 750M	414	68	610	454	(375)	456
400 x 300 x 400	16 x 12 x 16	FK/77	991	495.5	993.8	497					612	437			M 750M	414	68	610	454	(420)	501
450 x 400 x 450	18 x 16 x 18	FK/77	1092	546	1095.4	547.7	on request				840	587			M1500M	639	237	610	555	(1669)	1890
500 x 400 x 500	20 x 16 x 20	FK/77	1194	597	1200.2	600									M1500M	639	237	610	555	(1775)	1996

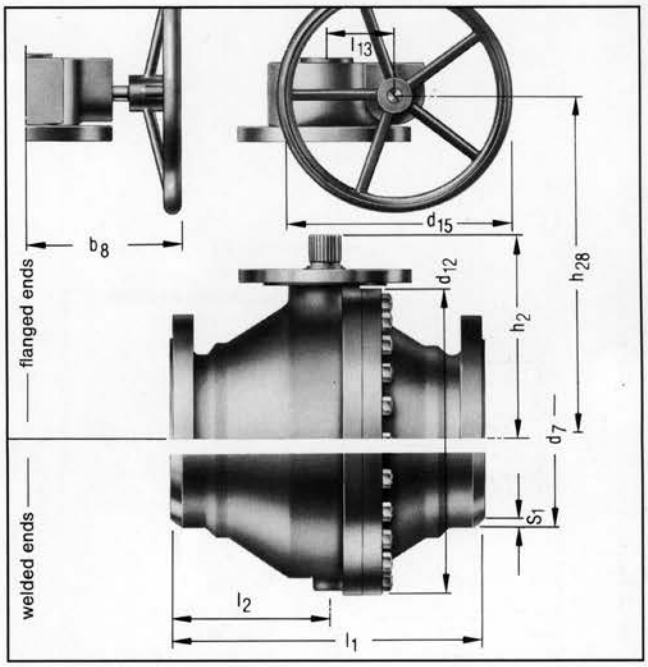
to be specified ba purchaser

– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

( ) Weight without wrench



Type FK/77 DN 300 – 400
Type description see page 46.



Type FK/77 DN 450 – 500
Type description see page 46.

Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std.) CS SS[3)]	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1)] SS, ENP	Duplex Monel Hasteloy
Stem	CR 13 Duplex SS CS 17–4 PH	Monel Hasteloy
Ball seats	Virgin PTFE POM Lyton[1)] SS, Arguloy hardfaced	PTFE/carbon filled
Seal	PTFE Buna-N FPM MFQ Celastic	

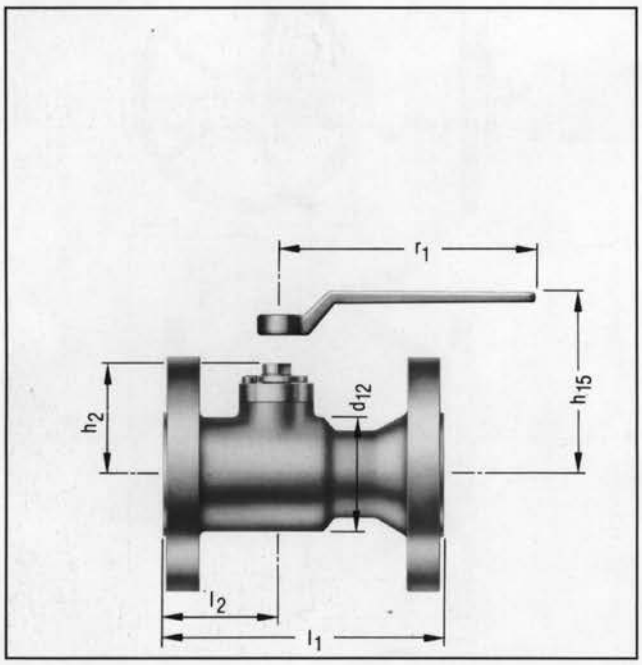
Remarks:

- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

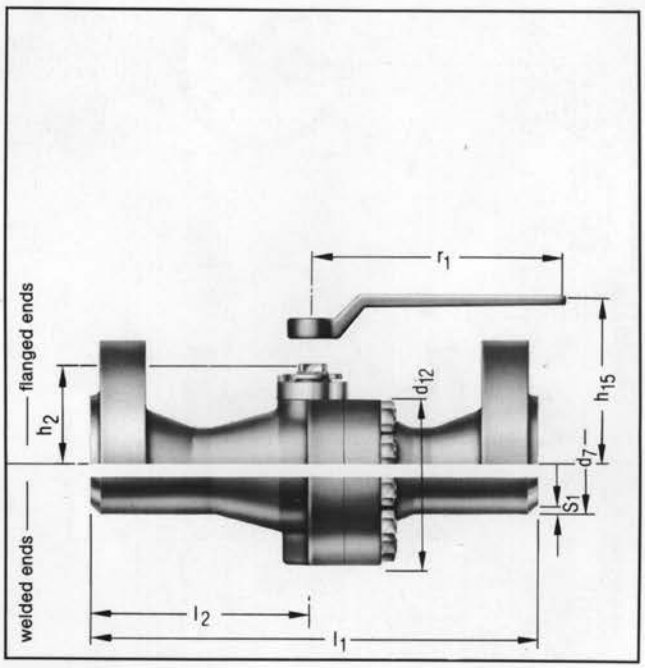
Other materials on request. 1) Type HK/35 and FK/77; ≤ DN 200 only

ANSI Class 900-1500 (PN 150–250) Full and Reduced bore

ANSI Class 900: Max. working pressure 151.8 bar (2160 psi WOG). Hydr. test pressure 228 bar (3250 psi).
ANSI Class 1500: Max. working pressure 253.1 bar (3600 psi WOG). Hydr. test pressure 378 bar (5400 psi).



Type EK/71 DN 15 – 40
Type description see page 38.

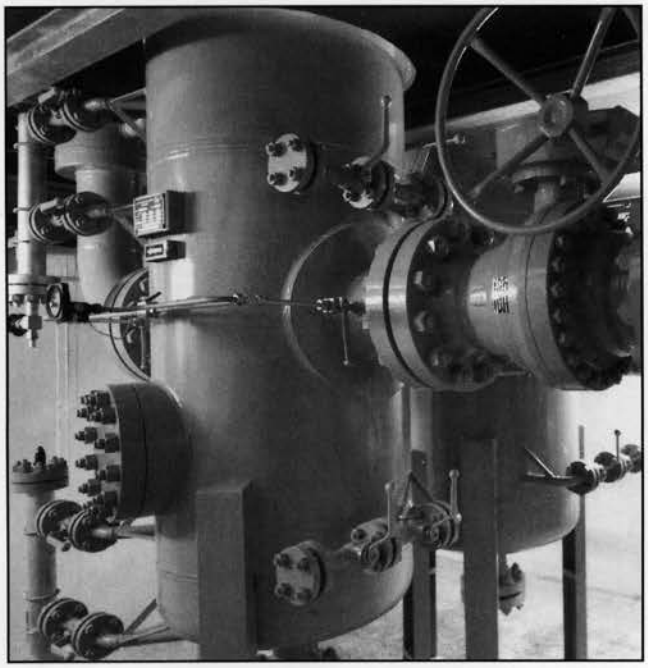


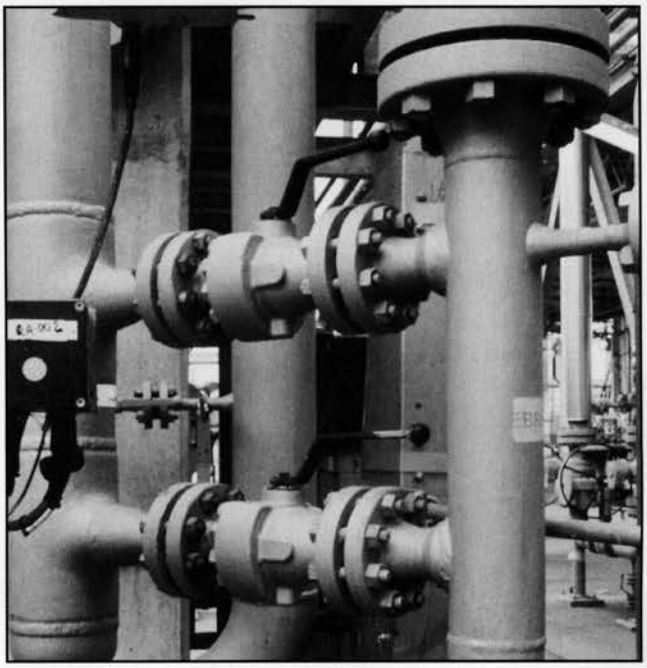
Type HK/35 DN 50 – 80
Type description see page 50.

Nominal size		Class	Valve type	Flanged ends				Welding ends				Wrench operated				Weight/kg	
				RF		RTJ										Flanged valve with	
mm	inch			l_1	l_2	l_1	l_2	l_{1*}	l_2	d_7	S_1	d_{12}	h_2	h_{15}	r_1	Wrench	Gear
15	½	900–1500	EK/71	216	80	216	80					48	46.5	118	155	5.3	
20	¾	900–1500	EK/71	229	90	229	90					50	54.5	126	173	9.9	
25	1"	900–1500	EK/71	254	80.5	254	80.5					58	57	128	173	12.5	
40	1½	900–1500	EK/71	305	90.5	305	90.5					87	82	152.5	220	28.5	
50	2"	900–1500	HK/35	368	184	371.5	185.8	390	195	60.3	to be specified by purchaser	160	89.5	160	220	40	
80 x 50 x 80	3" x 2" x 3"	900	HK/35	381	150.5	384.2	192.1	on request				160	89.5	160	220	48	
80 x 50 x 80	3" x 2" x 3"	1500	HK/35	469.9	248.4	473.1	236.5					160	89.5	160	220	60	

– Face to face dimensions of flanged valves to ANSI B 16.10 – Flanges drilled to ANSI B 16.5.

* Other end to end dimensions on request.





Description	Standard materials	Semi-standard materials
Body	CS – Low temp. (Std.) SS	Duplex
Ball	CR 13 SS CS, ENP SS, Arguloy hardfaced[1)]	Duplex Monel Hasteloy
Stem	CR 13 SS CS 17–4 PH	Duplex Monel Hasteloy
Ball seats	POM Lyton[2)] SS, Arguloy hardfaced[1)]	
Seals	Buna-N FPM MFQ Celastic	

Remarks:

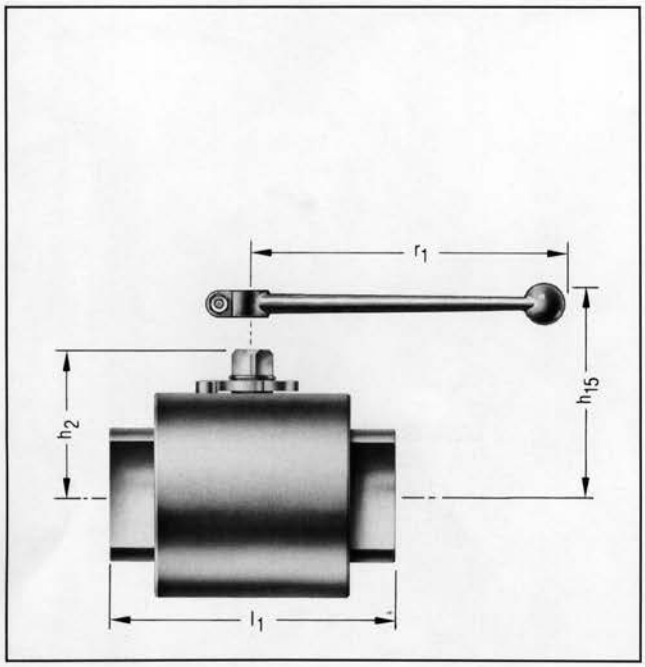
- For pressure-temperature ratings we refer to page 68
- For Kv and Cv valves we refer to page 69
- To make sure you have chosen a ball valve with a short delivery-time on a serial price basis, please select from our standard material combinations (mat.-order code) as stated in the ball valve type description on pages 39–59.

Other materials on request.

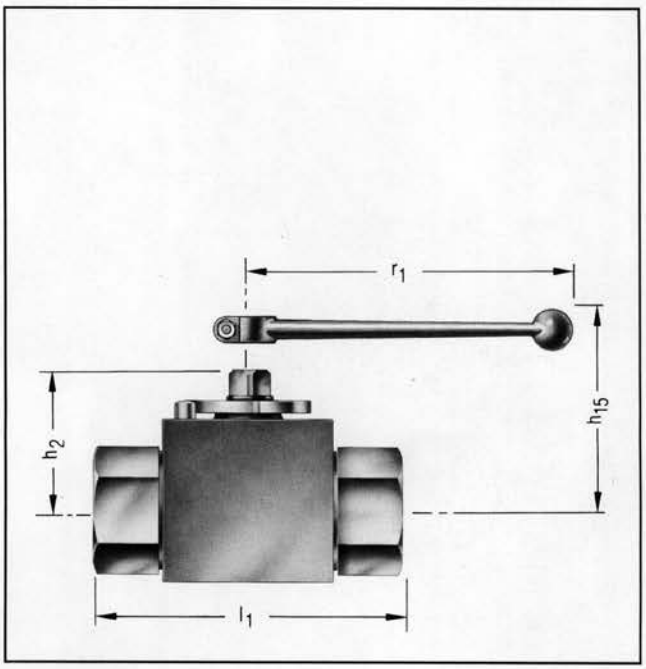
1) Type HK/35 only
2) Type EK/71 and HK/35

Ball valves, full bore, screwed female and socket weld with pipe pups

Max. working pressures up to PN 800 (10.000 psi WOG) – see max. working pressure table.



Type BK/9 DN 12 – 25
Type description see page 52.



Type BK/8 BK/10 DN 6 – 25
Type description see page 54.

Dimensions

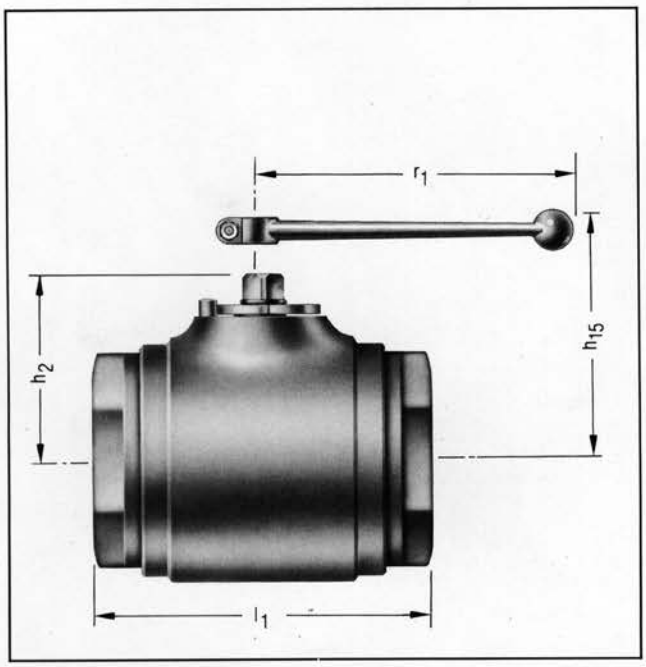
Nom.	Size	Type	h_{15}			h_2 with stem seal:				screwed female ends				socket weld ends with pipe pups				weight/kg of screwed end valves
						NBR	FPM	PTFE		NPT		BSP						
mm	inch		BK/9	BK/8 MK/8	BK/10 MK/10	BK/9	BK/8 MK/8	BK/10 MK/10	r_1	l_1	** t_1	l_1	** t_1	l_1	l_9	d_7	s_2	
12	1/2"	BK/9	50			44			150	90	16.5							1.5
20	3/4"	BK/9	64.5			57.5			200	110	17							3.2
25	1"	BK/9	71.5			66.5			200	130	20.5							5.4
6	1/4"	BK/8/10		43.5	47		38	41.5	150	78	12.5	72	14	272	100	13.5		0.5
10	3/8"	BK/8/10		43.5	47		38	41.5	150	78	13	72	14	272	100	17.2		0.5
12	1/2"	BK/8/10		49	55.5		43.5	50	175	89	16.5	83	16	283	100	21.3		0.75
20	3/4"	BK/8/10		57.5	63		51.5	57.5	200	102	17	95	18	295	100	26.9		1.3
25	1"	BK/8/10		60	65.5		54	60	200	119	20.5	113	20	313	100	33.7		2.1
32	1 1/4"	MK/8/10		76.5	84		67	74,5	240			110	22	310	100	42.4		2
40	1 1/2"	MK/8/10		82	89.5		72.5	80 0	240	130	21	130	24	330	100	48.3		3.9
50	2"	MK/8/10		89.5	97		80	87,5	240	140	21.5	140	26	340	100	60.3		5.7

to be specified

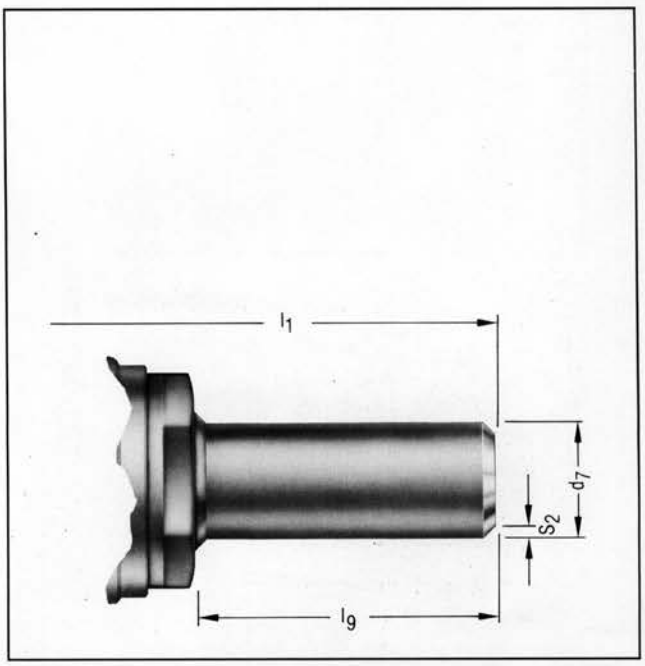
Max. working pressure table

Materials			Type BK/9	Types BK/8 and BK/10			Types MK/8 and MK/10
Body	Ball seats	Stem seal	DN 12–25	DN 6–10	DN 12	DN 20–25	DN 32–50
CS	POM	NBR/FPM	PN 800/10000 psi WOG	PN 500/7000 psi WOG	PN 400/5500 psi WOG	PN 315/4500 psi WOG	PN 315/4500 psi WOG
CS	PTFE	PTFE		PN 100/2000 psi WOG*	PN 100/2000 psi WOG*	PN 100/2000 psi WOG*	PN 100/2000 psi WOG*
SS	POM	NBR/FPM		PN 400/5500 psi WOG	PN 315/4500 psi WOG	PN 250/3500 psi WOG	PN 315/4500 psi WOG
SS	PTFE	PTFE		PN 100/2000 psi WOG*	PN 100/2000 psi WOG*	PN 100/2000 psi WOG*	PN 100/2000 psi WOG*

* PN 100 is DIN rating, however, valves can be used up to 2000 psi WOG.
** Depth of thread.



Type MK/8 MK/10 DN 32 – 50
Type description see page 56.

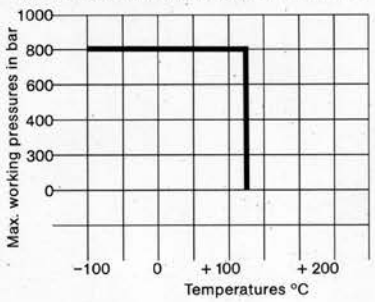


Socket weld with pipe pups available for BK 8/10 and MK 8/10

Description	Standard materials
Body	CS SS
Ball	CR 13 SS
Stem	Cr 13 SS
Ball seats	Virgin PTFE POM Lyton
Seals	Buna – N FPM Virgin PTFE MFQ

Seat ratings

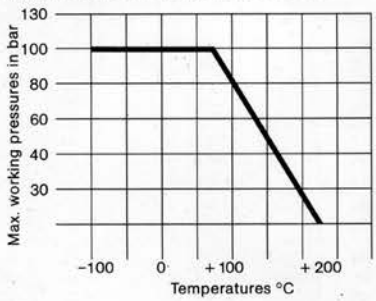
Working pressures and temperatures for POM.



Note: See max. working pressure table.

Seat ratings

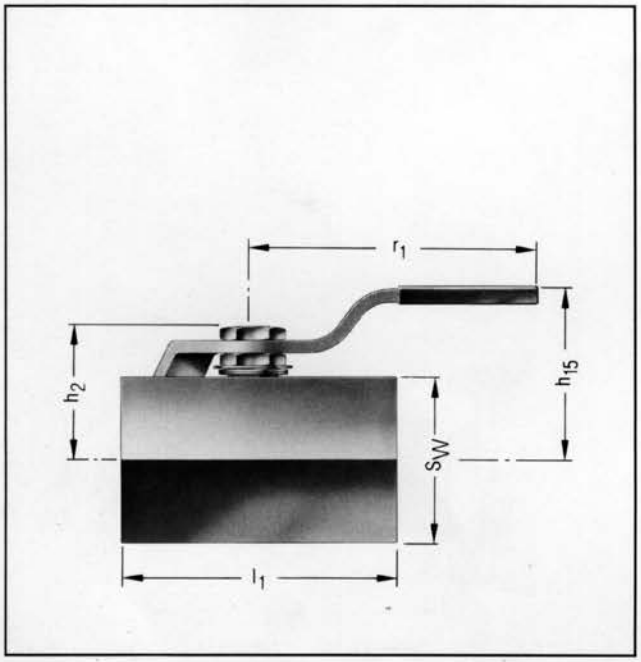
Working pressures and temperatures for PTFE.



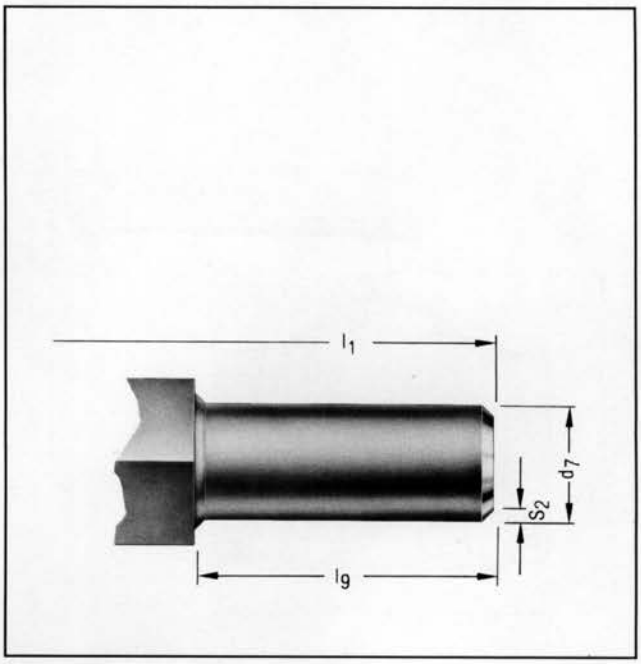
Other materials on request. **For shortest deliverytime, please use the standard material combinations asindicated on the type description pages.**

Class 800
Ball valves reduced bore screwed NPT – female and socket weld with pipe pups

Max. working pressure 56 bar (800 psi WOG) Hydr. test pressure 168 bar (1200 psi)



Type SK/8 DN 6 – 25
Type description see page 58.



Socket weld with pipe pups

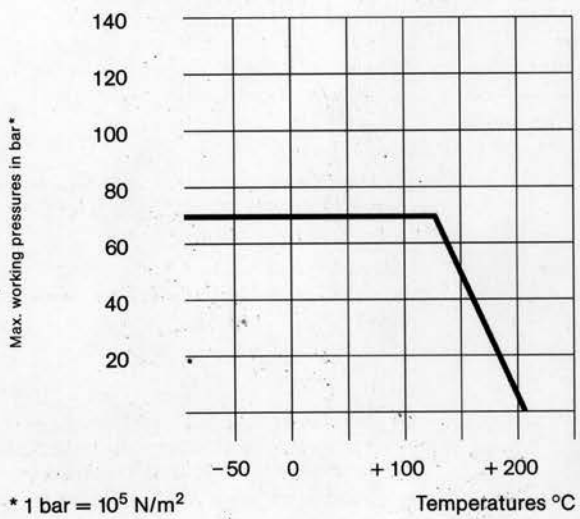
Dimensions							screwed ends			socket weld ends + pipe pups				weight/kg of screwed end valves
mm	inch	Type	h_{15}	SW	h_2	r_1	NPT	l_1	t_1*	l_1	l_9	d_7	S_2	
12	1/2"	SK/8	48.5	30	25.5	120	1/2–14	60	14.5	260	100	21.3	to be specified	0.41
20	3/4"	SK/8	51.5	36	29	120	3/4–14	70	16.5	270	100	26.9		0.50
25	1"	SK/8	55	41	33.5	120	1–11½	80	18.5	280	100	33.7		0.61

*depth of thread

Description	Standard materials
Body	CS
Ball	SS
Stem	SS
Ball seats	Virgin PTFE
Seals	FPM MFQ Celastic

Seat ratings

Working pressures and temperatures for PTFE.



* 1 bar = 10^5 N/m^2

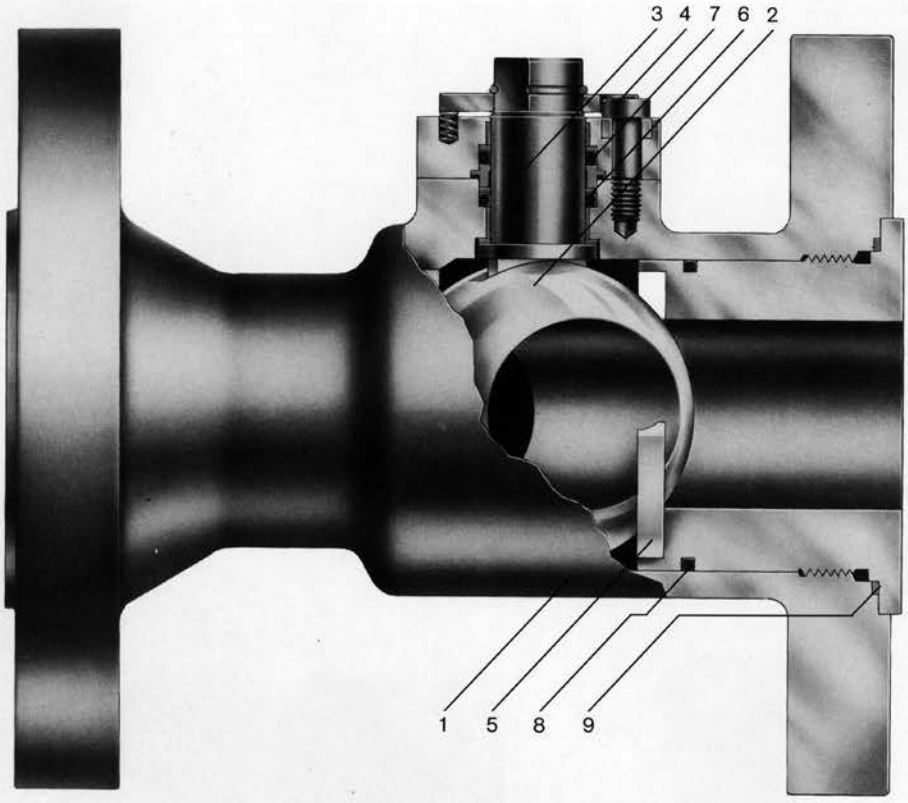
For shortest deliverytime, please use the standard material combinations as indicated on the type description pages.

ARGUS ball valves, the valve with extra built-in quality

The speciality of the ARGUS ball valves EK/71

DN 15 ANSI Cl. 150 full bore
DN 20–50 ANSI Cl. 150 red bore
DN 15–50 ANSI Cl. 300–600 full bore

DN 15–40 ANSI Cl. 900–1500 full bore



Description:

The EK/71 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D, ANSI B16.34 and BS5351 requirements.

Long lifetime and low operating torques due to the clear separation between the sealing and bearing functions.

Design:

One piece body design with superfine finished seat supported ball, anti-blow-out stem, compact ball seats and anti-static device.
Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

Fire safe to BS 6755 and API 607.

Accessories and optional executions.

(See page 60–62).
Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 (to be ordered separately)

Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Steam jackets for indirect process heating.

Round, gull wing and spring return "deadman" handles,
Drain connections.

Topwork dimensions ▶

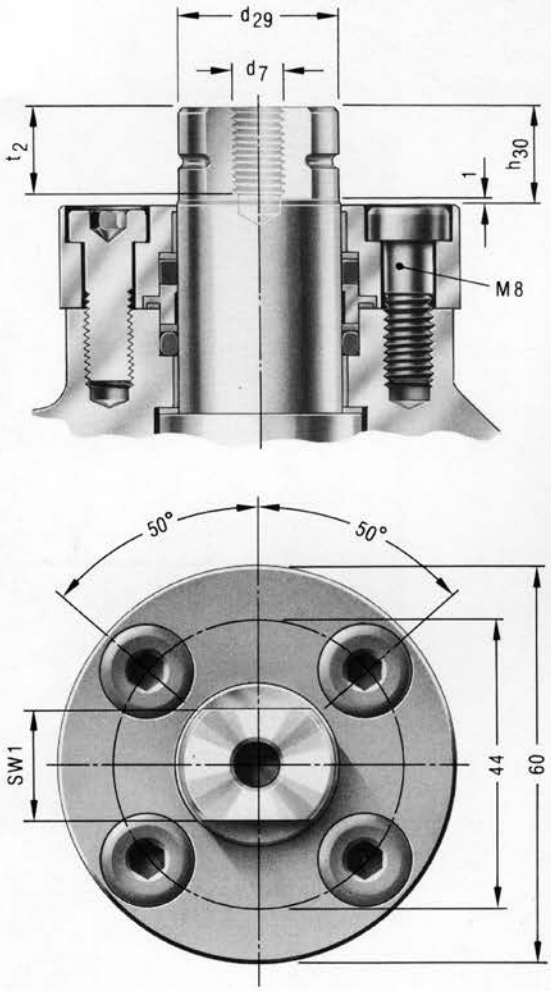
DN full	DN red	d_7	d_{29}	t_2	h_{30}	SW_1
15	20 x 15 x 20	M 6	16,5	10	11,5	10
20 25	25 x 20 x 25		18,5		12	12
32 40 50	40 x 32 x 40 50 x 40 x 50	M 8	24,5	14	14,5	17

◀ **Materiallist of main parts**

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.) SS (only Class 600) Duplex SS	A350-LF 2 A351-CF8M
2	Ball	CR13 SS Duplex SS Monel	AISI 410 A182-F316
3	Stem	CR13 SS Duplex SS Monel 17-4PH	AISI 410 A182-F316
4	Gland bolts	8.8 A4-70	A193-B8M
5	Ball seats	Virgin PTFE; POM; Lyton	
6	Primary stem seal	PTFE; FPM; MFQ	
7	Secondary stem seal	Celastic	
8	Primary insert seal	PTFE; FPM; MFQ	
9	Second. insert seal	Celastic	

Standard material combinations (Preferably to order – short deliverytime)

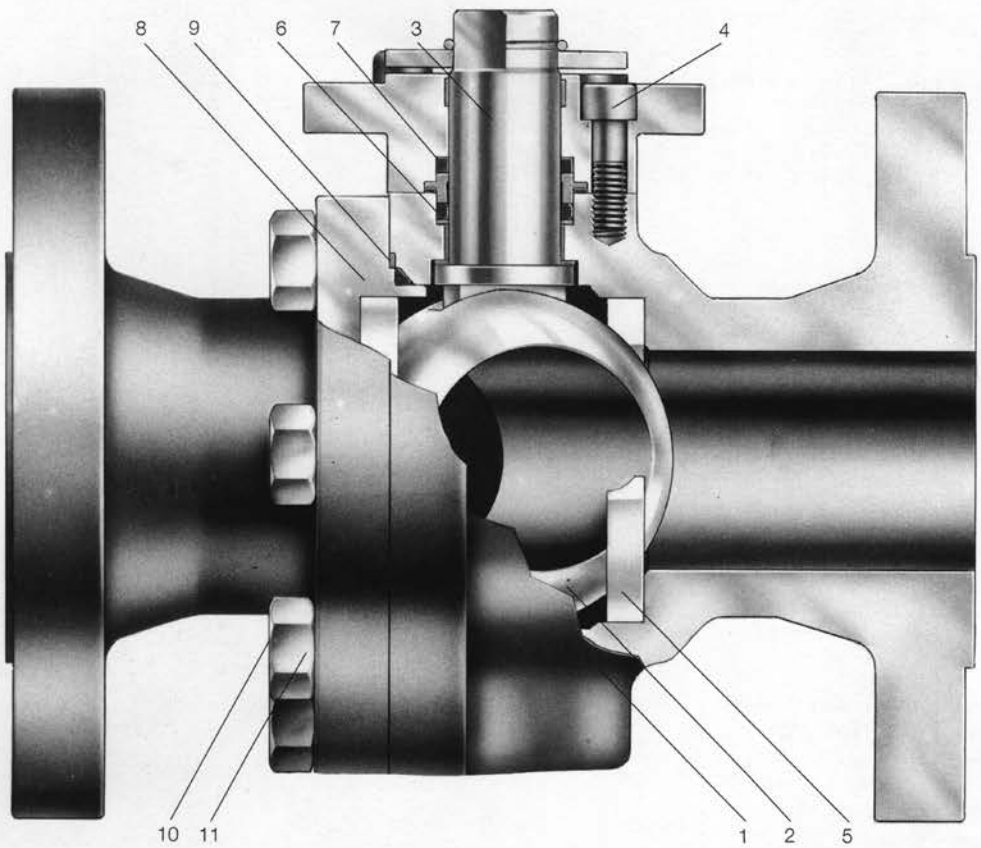
ANSI	Cl. 150–600	Cl. 150–600	Cl. 600	Cl. 900–1500
	Mat.-Order Code 1850844	Mat.-Order Code 1450455	Mat.-Order Code 4450455	Mat.-Order Code 1470844
Body	CS-Low temp.	CS-Low temp.	SS	CS-Low temp.
Ball/ Stem	CR 13	SS	SS	SS CR 13
Ball seats	PTFE	PTFE	PTFE	POM
Stem seals	FPM/Celastic	PTFE/Celastic	PTFE/Celastic	FPM/Celastic
Insert seals	FPM/Celastic	PTFE/Celastic	PTFE/Celastic	FPM/Celastic



Available with mounting plate in accordance with DIN/ISO 5211.

The speciality of the ARGUS ball valves FK/79

DN 15–50 ANSI cl. 150 Full bore
DN 15–50 ANSI cl. 300 Full bore
DN 15–50 ANSI cl. 600 Full bore



Description:

The FK/79 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D, ANSI B16.34 and BS 5351 requirements.

Long lifetime and low operating torques due to the clear separation between the sealing and bearing functions.

Design:

Split body design with superfine finished seat supported ball, anti-blow-out stem, compact ball seats and anti-static device.
Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
With mounting plate to DIN/ISO 5211.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

Fire safe to BS 6755 and API 607

Accessories and optional executions.

(See page 60–62).
Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Steam jackets for indirect process heating.

Round, gull wing and spring return "deadman" handles, metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium combinations (see page 64). Drain connections.

Topwork dimensions ▶

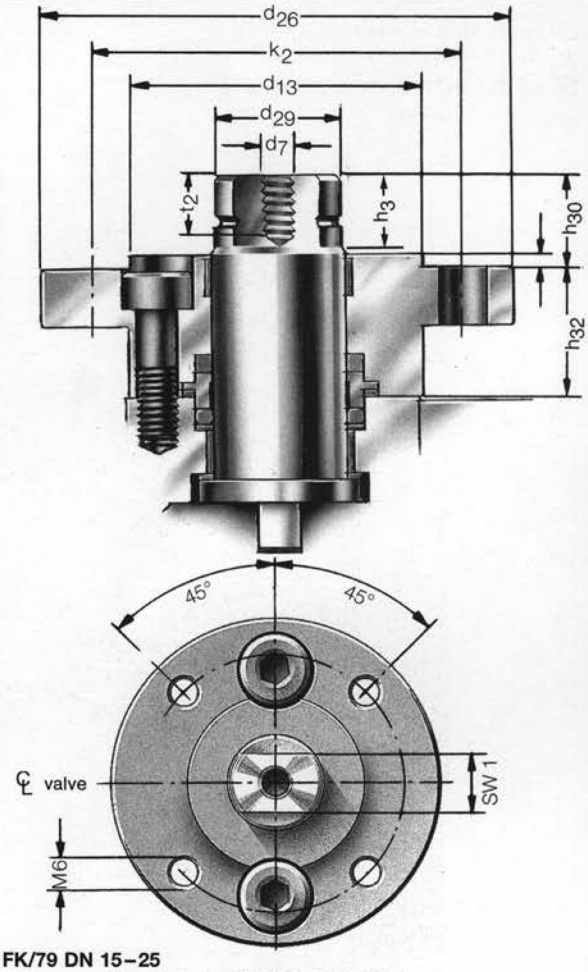
DN full	d_7	d_{13}	d_{26}	k_2	d_{29}	t_2	h_3	h_{30}	h_{32}	SW_1
15	M 6	35	65	50	16,5	10	9,5	12,5	8	10
20					18,5		11	14	12	12
25										
40	M 8	55	90	70	24,5	14	13,5	17,5	24,5	17
50										

◀ Materiallist of main parts

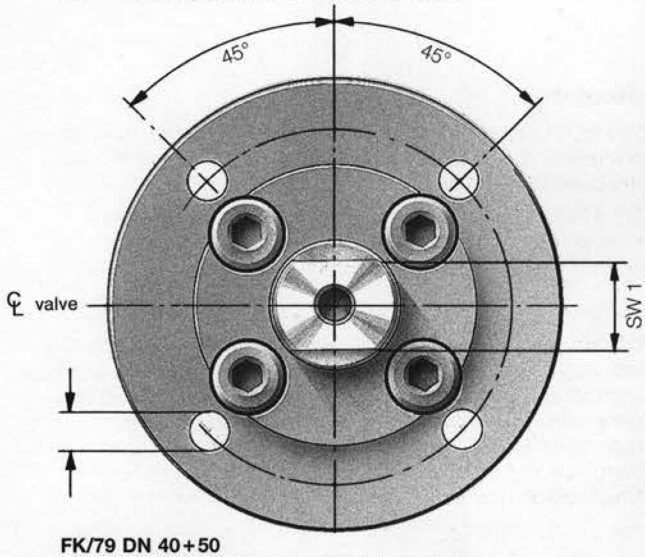
Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.) SS Duplex SS	A350-LF2 A182-F316
2	Ball	CR13 SS Duplex SS Monel SS, Arguloy 1 hardfaced	AISI 410 A182-F316
3	Stem	CR13 SS Duplex SS Monel 17-4PH	AISI 410 A182-F316
4	Gland bolts	8.8 A4-70	A193-B8M
5	Ball seats	Virgin PTFE; POM; Lyton SS, Arguloy 1 hardfaced	
6	Primary stem seal	PTFE; FPM; MFQ	
7	Second. stem seal	Celastic	
8	Body seal	PTFE; FPM; MFQ	
9	Second. body seal	Celastic	
10	Bolts	B7 L7M	A193-B7 A320-L7M
11	Nuts	Gr.4 A4-70	A194-Gr.4 A194-8M

Standard material combinations (Preferably to order – short deliverytime)

ANSI	Cl. 150–600	Cl. 150–600	Cl. 150–300
	Mat.-Order Code 1850844	Mat.-Order Code 1450455	Mat.-Order Code 4450455
Body	CS-Low temp.	CS-Low temp.	SS
Ball/ Stem	CR 13	SS	SS
Ball seats	PTFE	PTFE	PTFE
Stem seals	FPM/Celastic	PTFE/Celastic	PTFE/Celastic
Body seals	FPM	PTFE/Celastic	PTFE/Celastic



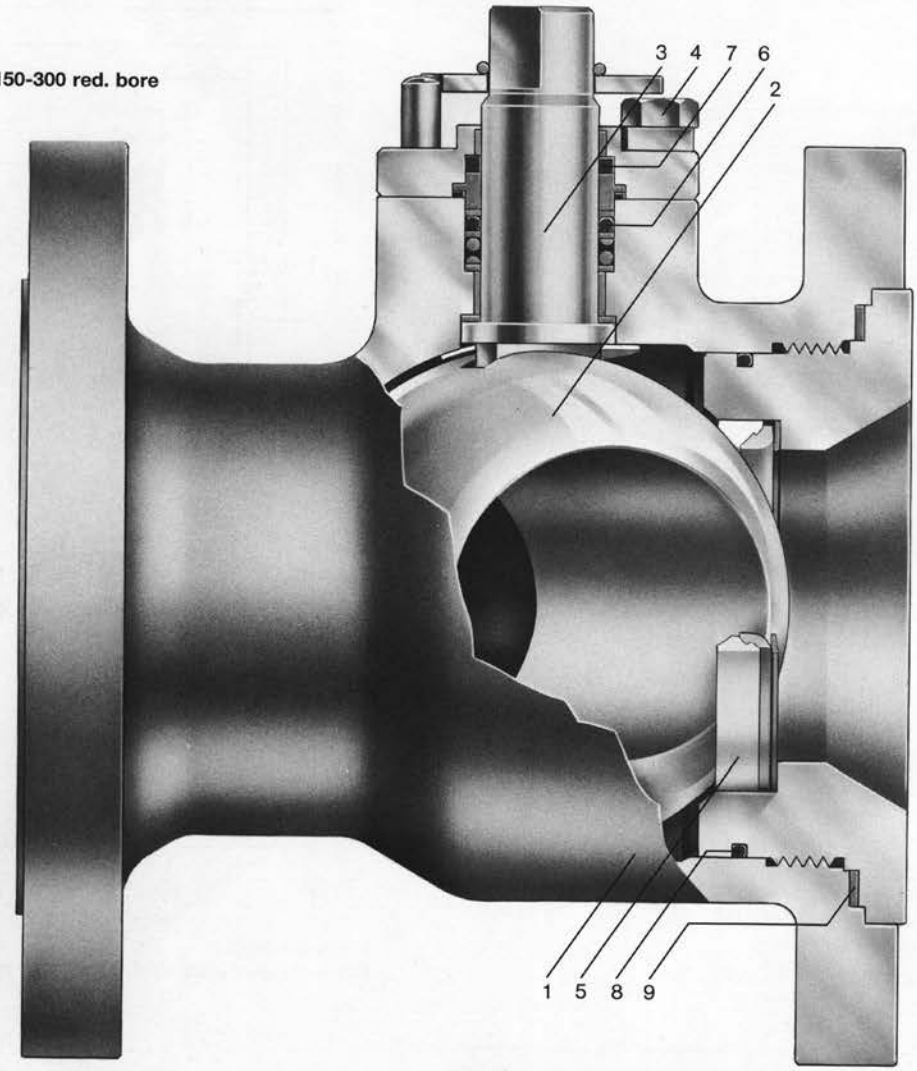
FK/79 DN 15–25
ISO–mounting plate to DIN/ISO 5211 F05



FK/79 DN 40+50
ISO–mounting plate to DIN/ISO 5211 F07

The speciality of the ARGUS ball valves EK/74

DN 80-100 ANSI Cl. 150-300 red. bore



Description:

The EK/74 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the BS 5351 requirements.

Long lifetime and low operating torques due to the clear separation between the sealing and bearing functions.

Design:

One piece body design with superfine finished seat supported ball, anti-blow-out stem, spring loaded ball seats with cavity relief and anti-static device. Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

Fire safe to BS 6755.

Accessories and optional executions.

(See page 60–62).
Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 (to be ordered separately).

Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Drain connections.

Topwork dimensions ▶

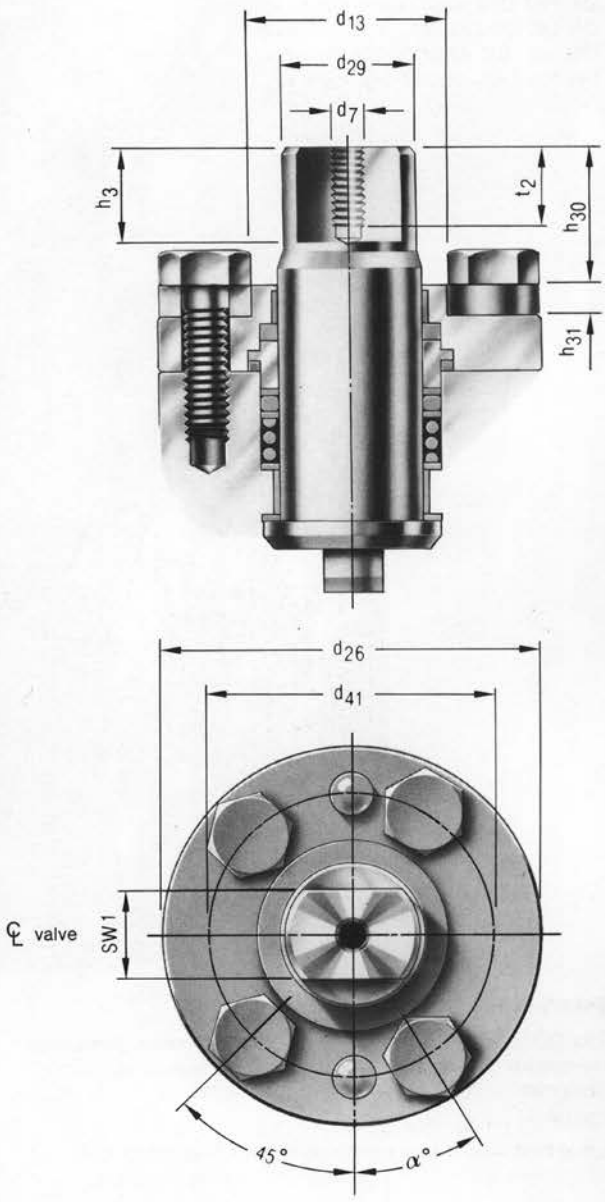
DN red	d_7	d_{13}	d_{26}	d_{29}	d_{41}	t_2	h_3	h_{30}	h_{31}	SW_1	α	bolt	stoppin
80x 65x 80	M8	42	80	27	60	16	21	30	6	19	31°	M10x30	10x40
100x 80x100	M8	42	80	27	60	16	21	30	6	19	31°	M10x30	10x40

◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.)	A350-LF2
2	Ball	CR13 SS Monel	AISI 410 A182-F316
3	Stem	CR 13 SS Monel 17-4PH Duplex	AISI 410 A182-F316
4	Gland bolts	5.6 A4-70	A193-Gr.2 A193-B8M
5	Ball seats	Virgin PTFE	
6	Primary stem seal	PTFE; FPM; MFQ	
7	Secondary stem seal	Celastic	
8	Primary insert seal	PTFE; FPM; MFQ	
9	Second. insert seal	Celastic	

Standard material combinations (Preferably to order – short deliverytime)

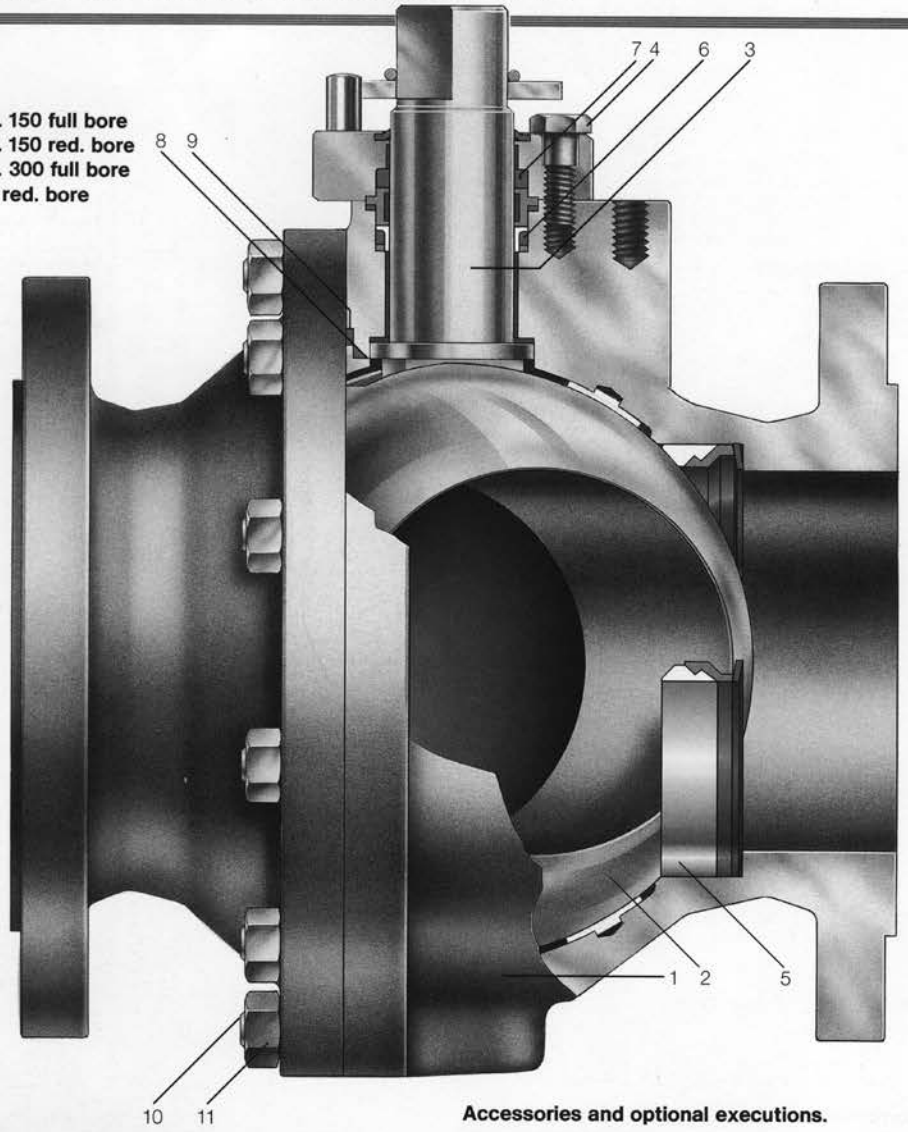
ANSI	Cl. 150–300	Cl. 150–300
	Mat.-Order Code 1854855	Mat.-Order Code 1454 D 55
Body	CS-Low temp.	CS-Low temp.
Ball/ Stem	CR 13	SS/Duplex
Ball seats	PTFE	PTFE
Stem seals	PTFE/Celastic	PTFE/Celastic
Insert seals	PTFE/Celastic	PTFE/Celastic



Available with mounting plate in accordance with DIN/ISO 5211.

The speciality of the ARGUS ball valves FK/75

DN 80–200 ANSI Cl. 150 full bore
DN 150–250 ANSI Cl. 150 red. bore
DN 80–100 ANSI Cl. 300 full bore
DN 150 ANSI Cl. 300 red. bore



Description:

The FK/75 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D, ANSI B16.34 and BS 5351 requirements.

Long lifetime and low operating torques due to the clear separation between the sealing and bearing functions.

Design:

Split body design with superfine finished padmounted ball, anti-blow-out stem, spring loaded ball seats with cavity relief and anti-static device. Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

Fire safe to BS 6755 and API 607.

Accessories and optional executions.

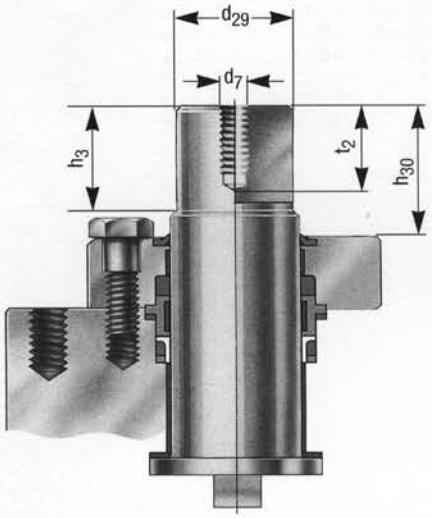
(See page 60–62).
Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 (to be ordered separately).

Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Steam jackets for indirect process heating (max. DN 100).

Metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium combinations (see page 64).
Drain and vent/bleed connections.

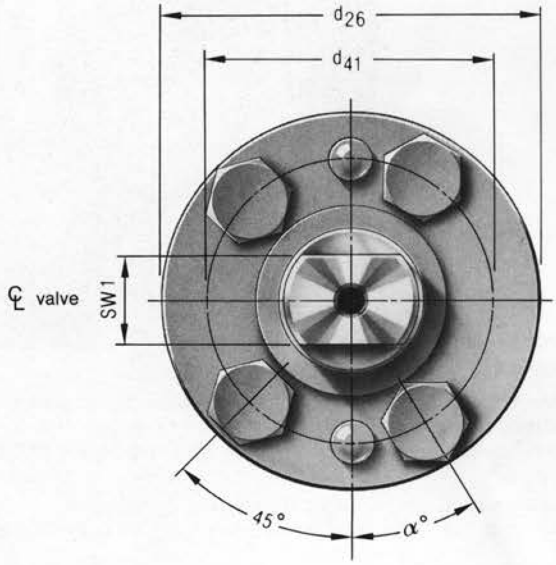
Topwork dimensions ▶

DN full	DN red.	d7	d26	d29	d41	t2	h3	h30	SW1	α	bolt	stoppin
80	80 x 65 x 80	M 8	80	27	60	16	21	30	19	31°	M 10 x 30	10 x 40
100	100 x 80 x 100	M 8	80	27	60	16	21	30	19	31°	M 10 x 30	10 x 40
	150 x 100 x 150	M 8	80	27	60	16	21	30	19	31°	M 10 x 30	10 x 40
150	150 x 125 x 150	M 12	110	47	86	14	37	47	36	45°	M 12 x 40	14 x 55
200	200 x 150 x 200	M 12	110	47	86	14	37	47	36	45°	M 12 x 40	14 x 55
	250 x 200 x 250	M 12	110	47	86	14	37	47	36	45°	M 12 x 40	14 x 55



◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.) SS Duplex SS	A350-LF2 A182-F316/A351 CF8M
2	Ball	CR13 SS Duplex SS Monel SS, Arguloy 1, hardfaced*	AISI 410 A182-F316
3	Stem	CR13 SS Duplex SS Monel 17-4PH	AISI 410 A182-F316
4	Gland bolts	5.6 A4-70	A193-Gr.2 A193-B8M
5	Ball seats	Virgin PTFE; Lyton* SS, Arguloy 2, hardfaced*	
6	Primary stem seal	PTFE; FPM; MFQ	
7	Second. stem seal	Celastic	
8	Primary body seal	PTFE; FPM; MFQ	
9	Second. body seal	Celastic	
10	Bolts	B7 L7M A4-70	A193-B7 A320-L7M A193-B8M
11	Nuts	Gr.4 A4-70	A194-Gr.4 A194-8M



Standard material combinations (Preferably to order – short deliverytime)

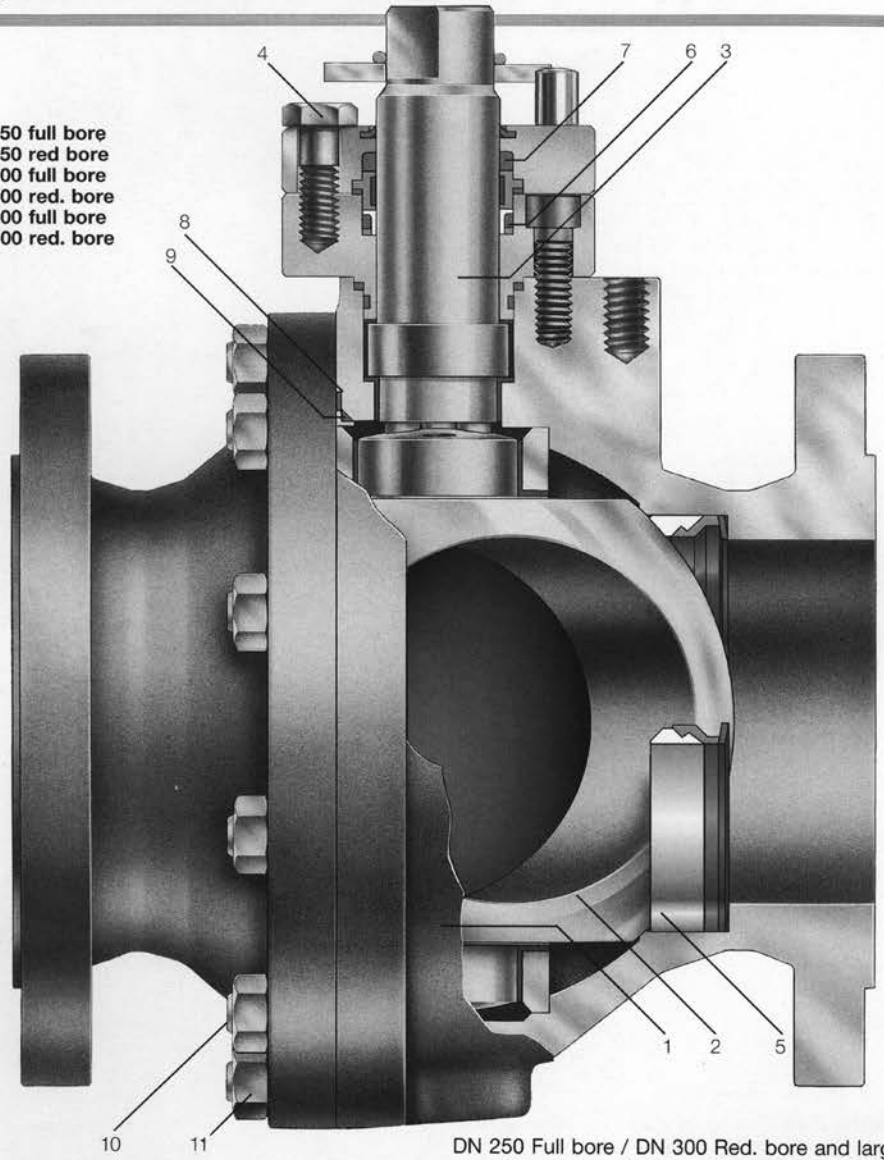
ANSI	Cl. 150–300	Cl. 150–300	Cl. 150–300	Cl. 150–300
	Mat.-Order Code 18548442	Mat.-Order Code 1454 D 552	Mat.-Order Code 4454 D 552	Mat.-Order Code 18548542
Body	CS-Low temp.	CS-Low temp.	SS	CS-Low temp.
Ball/ Stem	CR 13	SS/Duplex	SS/Duplex	Cr 13
Ball seats	PTFE	PTFE	PTFE	PTFE
Stem seals	FPM/Celastic	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic
Body seals	FPM	PTFE/Celastic	PTFE/Celastic	FPM

Available with mounting plate in accordance with DIN/ISO 5211.

* In case of lyton or metal seats, ball will be trunnion mounted. (See Type FK/76).

The speciality of the ARGUS ball valves FK/76/77

DN 250–400 ANSI Cl. 150 full bore
DN 300–500 ANSI Cl. 150 red bore
DN 150–400 ANSI Cl. 300 full bore
DN 200–500 ANSI Cl. 300 red. bore
DN 80–400 ANSI Cl. 600 full bore
DN 150–500 ANSI Cl. 600 red. bore



Description:

The FK/76/77 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D and ANSI B16.34 and BS5351 requirements.

Long lifetime and low operating torques due to the clear separation of the sealing and bearing functions, on both stem and ball.

Design:

Split body design with superfine finished trunnion mounted ball, anti-blow-out stem, spring loaded ball seats, cavity relief and anti static device. Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.

Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

DN 250 Full bore / DN 300 Red. bore and larger with basic mounting plate, suitable to fit on this plate a mounting plate to DIN/ISO 5211 F14–F35 (to be ordered separately).

Fire safe to BS 6755 and API 607.

Accessories and optional executions.

(See page 60–62).

DN 80 – DN 200 F.B./DN 250 R.B.

Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 (to be ordered separately).

Limit switches; Locking devices;
Extended wrenches; Stem extensions.

Steam jacket for indirect process heating (max. DN 100).

Secondary sealing system (see page 63).

Metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium combinations (see page 64).

Drain and vent/bleed connections.

Topwork dimensions

DN full	DN red.	Type	d_{26}	d_{28}	d_{29}	d_{41}	k_2	h_3	h_{30}	SW_1	SV_1	bolt	stoppin
80	80 x 65 x 80	FK 77	80		27	60		21	30	19		M 10 x 30	10 x 40
100	100 x 80 x 100	FK 77	80		27	60		21	30	19		M 10 x 30	10 x 40
150	150 x 125 x 150	FK 76.77	110		47	86		37	47	36		M 12 x 40	14 x 55
200	200 x 150 x 200	FK 76.77	110		47	86		37	47	36		M 12 x 40	14 x 55
	250 x 200 x 250	FK 76.77	110		47	86		37	47	36		M 12 x 40	14 x 55
250	300 x 250 x 300	FK 76.77	220	17,5	65		190	47	66	**		**ANSI Cl 150 ⌀36	
300	350 x 300 x 350	FK 76.77	220	17,5	65		190	47	66	**		ANSI Cl 300 ⌀55	
	400 x 300 x 400	FK 76.77	220	17,5	65		190	47	66	**		ANSI Cl 600 ⌀55	
400	450 x 400 x 450 500 x 400 x 500	FK 76	300	22	70		254	55	77,5	55			
400	450 x 400 x 450 500 x 400 x 500	FK 77	300	22	80		254	70	90,5	W80 x 3 x 25 x 8F			

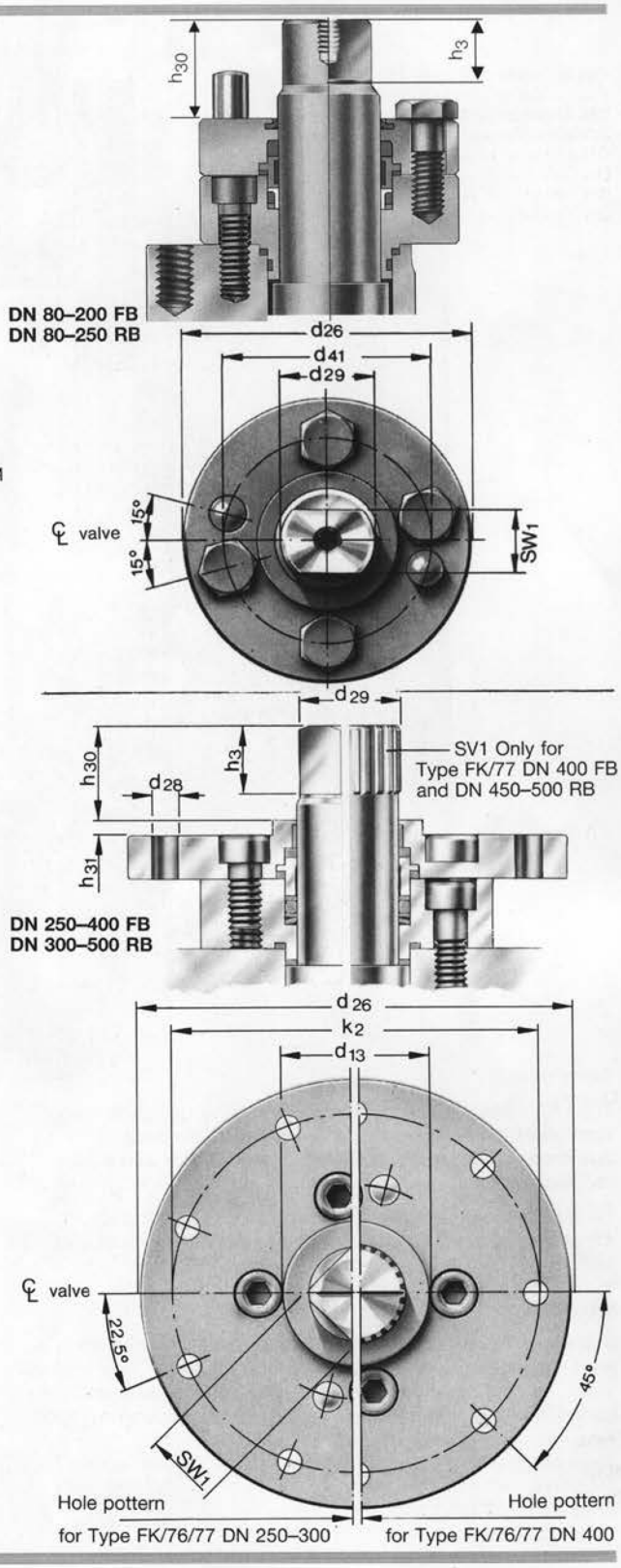
◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.) SS Duplex SS	A350-LF2 A182-F316/A351 CF8M
2	Ball	CR13 (≤ DN 200) SS Duplex SS SS, Arguloy 1, hardfaced CS, ENP (≥ DN 250)	AISI 410 A351-CF8M
3	Stem	CR13 SS Duplex SS 17-4PH	AISI 410 A182-F316
4	Gland bolts	5.6 A4-70	193-Gr.2 A193-B8M
5	Ball seats	PTFE; POM; Lyton SS, Arguloy 2, hardfaced	
6	Primary stem seal	FPM; PTFE; MFQ	
7	Second. stem seal	Celastic	
8	Primary body seal	FPM; PTFE; MFQ	
9	Second. body seal	Celastic	
10	Bolts	B7 L7M A4-70	A193 B7 A320-L7M A193-B8M
11	Nuts	Gr.4 A4-70	A194 Gr.4 A194-8M

Standard material combinations (Preferably to order – short deliverytime)

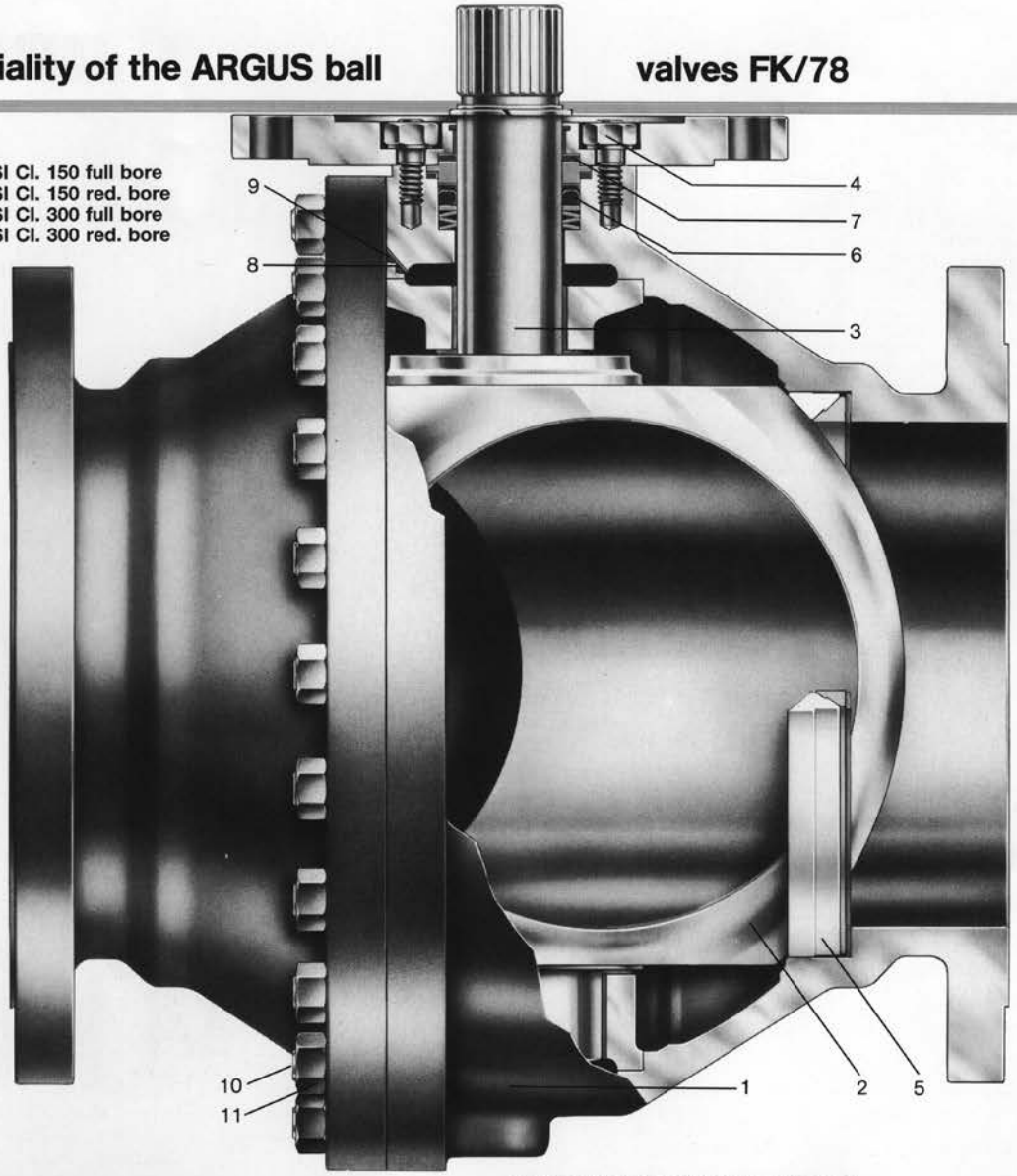
ANSI	Cl. 150–300	Cl. 600	Cl. 150–300	Cl. 600
	Mat.-Order Code 18548442	Mat.-Order Code 18748442	Mat.-Order Code 1454 D 442	Mat.-Order Code 14744442
Body	CS-Low temp.	CS-Low temp.	CS-Low temp.	CS-Low temp.
Ball/ Stem	Cr 13*	Cr 13*	SS / Duplex	SS
Ball seats	PTFE	POM	PTFE	POM
Stem seals	FPM/Celastic	FPM/Celastic	PTFE/Celastic	FPM/Celastic
Body seals	FPM	FPM	PTFE/Celastic	FPM/Celastic

*DN 250–400 Ball CS – ENP



The speciality of the ARGUS ball valves FK/78

DN 450–600 ANSI Cl. 150 full bore
DN 500–600 ANSI Cl. 150 red. bore
DN 450–500 ANSI Cl. 300 full bore
DN 500–600 ANSI Cl. 300 red. bore



Description:

The FK/78 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D, ANSI B16.34 and BS5351 requirements.

Long lifetime and low operating torques due to the clear separation of the sealing and bearing functions, on both stem and ball.

Design:

Split body design with superfine finished trunnion mounted ball, anti-blow-out stem, spring loaded ball seats, cavity relief and anti-static device. Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
With mounting plate to DIN/ISO 5211.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.
Fire safe to BS 6755 and API 607.
Drain connection.

Accessories and optional executions.

(See page 60–62).
Limit switches; Locking devices;
Stem extensions.

Secondary sealing system (see page 63).

Metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium combinations (see page 64).

Vent connections.

Topwork dimensions ▶

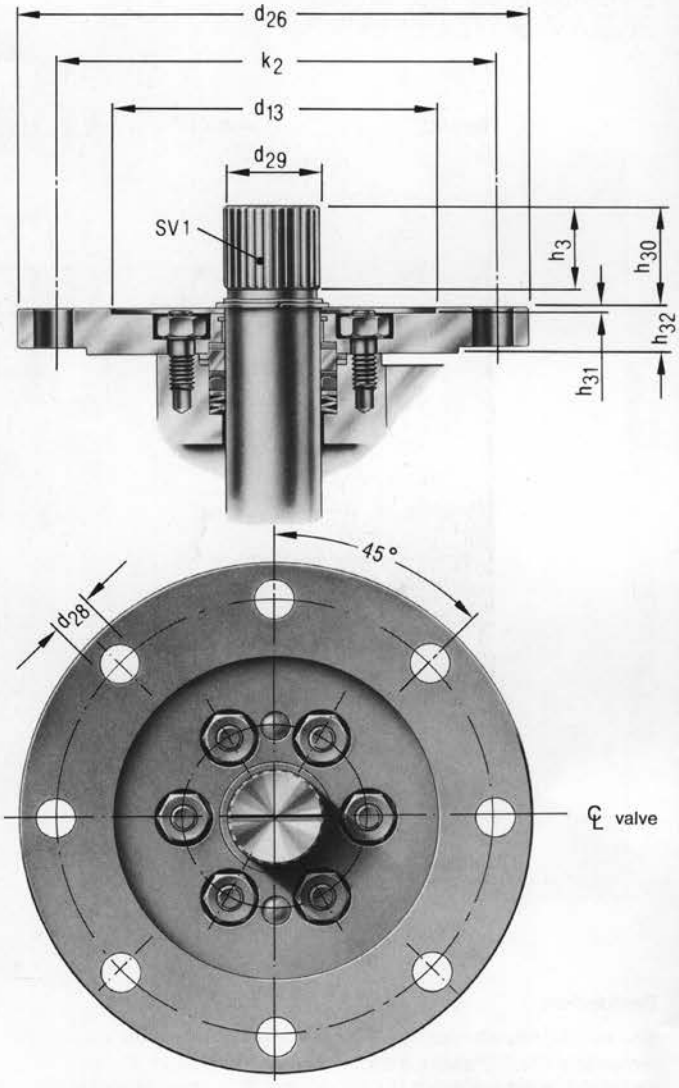
DN full	DN red.	d_{13}	d_{26}	d_{28}	d_{29}	k_2	h_3	h_{30}	h_{31}	h_{32}	SV1
450	500x450x500	200	300	18	80	254	80	119	6	38	W 80x3x25x8F
500	600x500x600	200	300	18	80	254	80	119	6	38	W 80x3x25x8F
600		230	350	21	105	298	80	95	6	41	W 105x3x34x8F

◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS CS-Low temp. SS Duplex SS	A216-WCB A352-LCB A351-CF8M
2	Ball	CS-ENP SS Duplex SS	A381-Y52 (ENP) A351-CF8M
3	Stem	CS-LT SS Duplex SS 17-4PH	A350-LF2 A182-F316
4	Gland bolts	5.6 A4-70	A193-B7 A193-B8M
5	Ball seats	Virgin PTFE	
6	Primary stem seal	NBR; FPM; MFQ	
7	Second. stem seal	Celastic	
8	Primary body seal	NBR; FPM; MFQ	
9	Second. body seal	Celastic	
10	Bolts	B7 A4-70	A193 Gr. B7 A193-B8M
11	Nuts	Gr.4 A4-70	A194-Gr. 4 A194-8M

Standard material combinations (Preferably to order – short deliverytime)

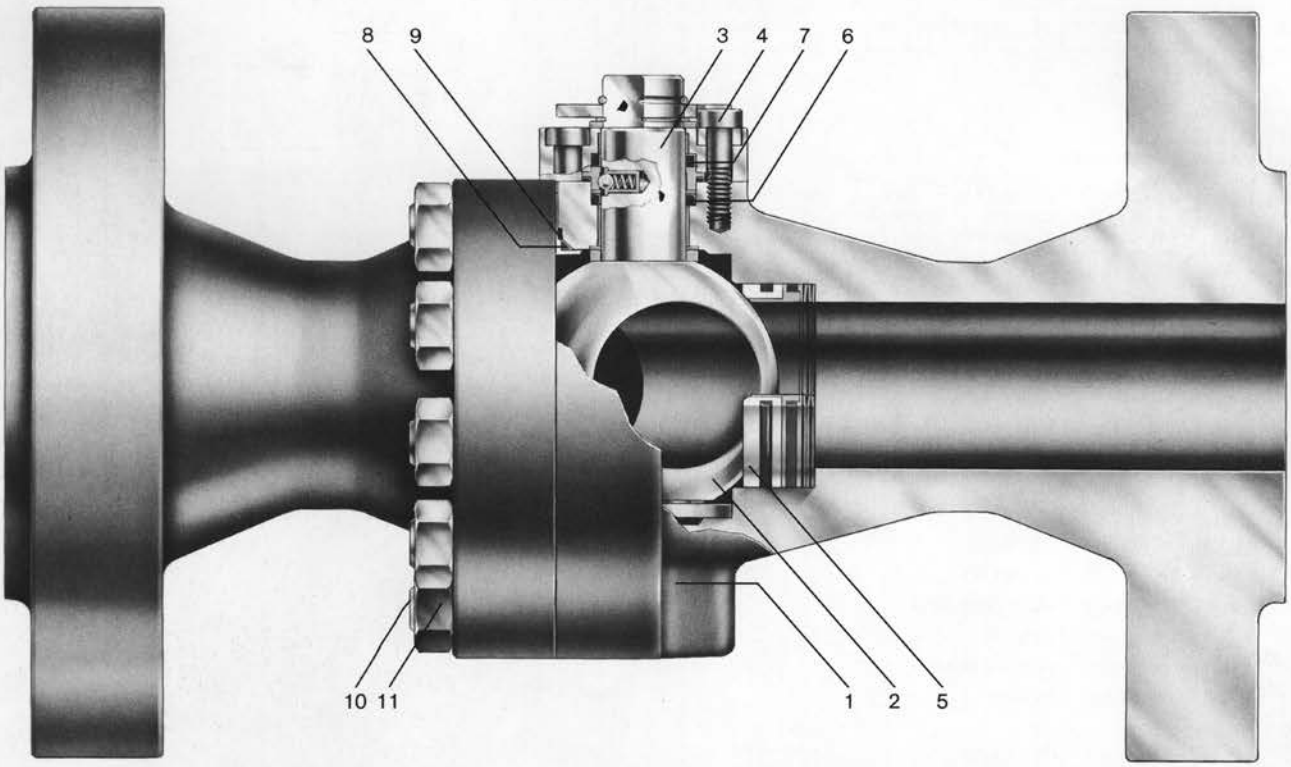
ANSI	Cl. 150–300	Cl. 150–300
Des-crip-tion	Mat.-Order Code 11511112	Mat.-Order Code 14544442
Body	CS	CS
Ball/ Stem	CS-ENP	SS
Ball seats	PTFE	PTFE
Stem seals	NBR/Celastic	FPM/Celastic
Body seals	NBR	FPM



ISO mounting plate to DIN/ISO 5211.

The speciality of the ARGUS ball valves HK/35 (DN 50)

DN 50 ANSI Cl. 600–1500 full bore
DN 80 ANSI Cl. 600–1500 red. bore



Description:

The HK/35 ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D and ANSI B16.34 requirements.

Long lifetime and low operating torques due to the clear separation of the sealing and bearing functions, on both stem and ball.

Design:

Split body design with superfine finished trunnion mounted ball, anti-blow-out stem, spring loaded ball seats, cavity relief and anti-static device. Long life double stem seal system and stem supported in bearings to ensure seals are free from operating loads.
Stem sealing construction complies with the TA-Luft fugitive emissions requirements.

Fire safe to BS 6755 and API 607.

Accessories and optional executions.

(See page 60–62).
Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 (to be ordered separately).

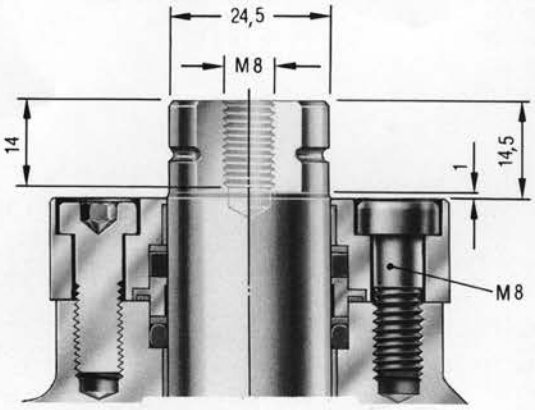
Limit switches; Locking devices;
Extended wrenches; Stem extensions.

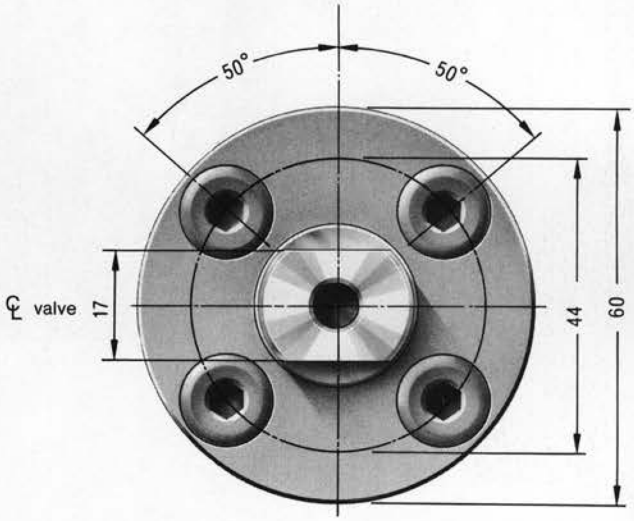
Secondary sealing system (see page 63).

Metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium combinations (see page 64).

Drain connections.

Topwork dimensions ▶





◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS-Low temp. (Std.) SS	A350-LF2 A182-F316
2	Ball	Cr13 SS	AISI 410 A182-F316
3	Stem	Cr13 SS 17-4PH	AISI 410 A182-F316
4	Gland bolts	8.8 A4-70	A193-B8M
5	Ball seats	Lyton, POM	
6	Primary stem seal	FPM; MFQ	
7	Second. stem seal	Celastic	
8	Primary body seal	FPM; MFQ	
9	Second. body seal	Celastic	
10	Bolts A4-70	B7 A4-70 L7M	A193 Gr. B7 A193-B8M A320 L7M
11	Nuts	Gr.4 A4-70	A194-Gr.4 A194-8M

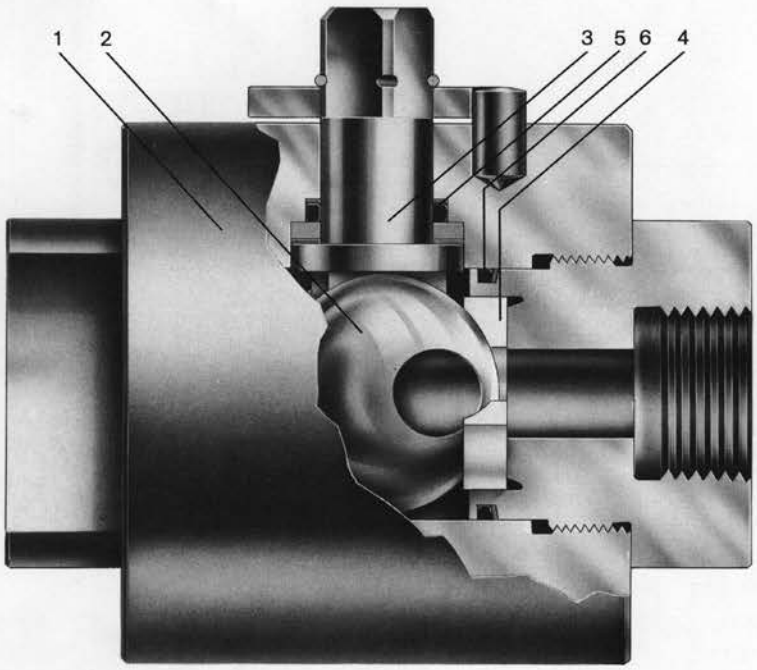
Standard material combinations (Preferably to order – short deliverytime)

ANSI	Cl. 600–1500	Cl. 600–1500
Description	Mat.-Order Code 14244442	Mat.-Order Code 14744442
Body	CS-Low temp.	CS-Low temp.
Ball/Stem	SS	SS
Ball seats	Lyton	POM
Stem seals	FPM/Celastic	FPM/Celastic
Body seals	FPM/Celastic	FPM/Celastic

Available with mounting plate in accordance with DIN/ISO 5211.

The speciality of the ARGUS ball valves BK/9

BK/9 DN 12–25 up to 10.000 psi WOG (PN 800)



Description:

The BK/9 ball valve with its many innovative design features represents the highest standards in valve technology. It is designed to meet individual requirements and offers process line quality and features for water, oil, gas and other flow lines up to 10.000 psi.

Design:

Rugged one piece body construction offering safe, sure pressure containment with a superfine finished seat supported ball, and compact ball seats. Anti-blow-out stem with high shear-strength shoulder to retain stem. Threaded heavy duty inserts with NPT-female end connections. The valve can also be installed in either flow direction.

Accessories and optional executions.

(See page 60–61).
Limit switches; Locking devices.

◀ Materiallist of main parts

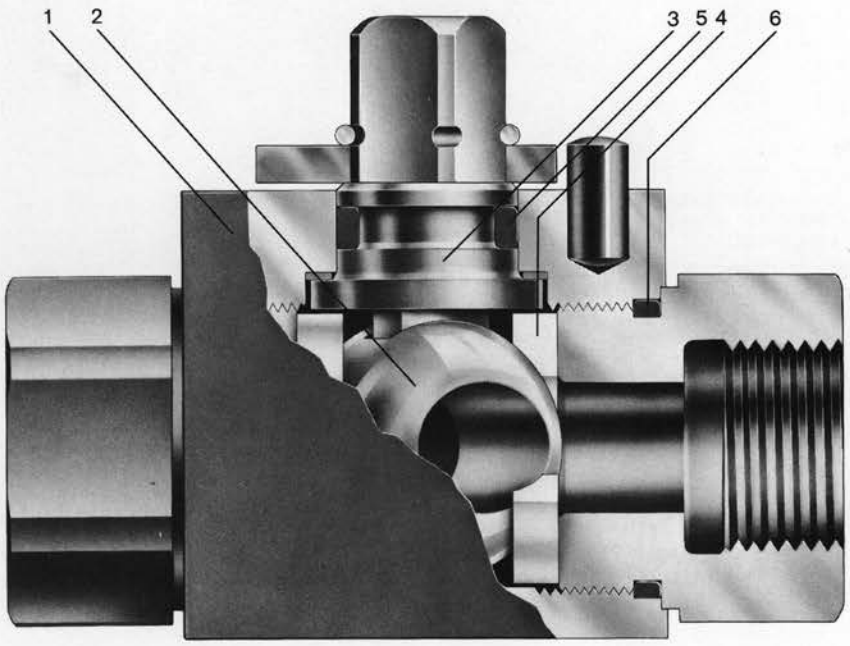
Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS	A381-Y52
2	Ball	Cr 13	AISI 410
3	Stem	Cr 13	AISI 410
4	Ball seats	POM	
5	Stem seal	NBR; FPM	
6	Body seals	NBR; FPM	

Standard material combinations (Preferably to order – short deliverytime)

Description	Mat.-Order Code 6870811
Body	CS
Ball	Cr 13
Stem	Cr 13
Ball seats	POM
Stem seal	NBR
Body seals	NBR

The speciality of the ARGUS ball valves BK/8 and BK/10

BK/ 8 DN 6–10 up to 7000 psi WOG (PN 500) full bore
BK/ 8 DN 12 up to 5500 psi WOG (PN 400) full bore
BK/ 8 DN 20–25 up to 4500 psi WOG (PN 315) full bore
BK/10 DN 6–25 up to 2000 psi WOG (PN 100) full bore



Description:

The BK/8 and BK/10 ball valve with its many innovative design features represents the highest standards in valve technology. It is designed to meet individual requirements and offers process line quality and features for water, oil, gas and other flow lines up to 7000 psi.

Design:

Rugged one piece body construction offering safe, sure pressure containment with a superfine finished seat supported ball, and compact ball seats. Anti-blow-out stem, supported in bearings, with high shear-strength shoulder to retain stem. The threaded heavy duty inserts include socket weld ends with pipe pups. The valve can also be installed in either flow direction.

Accessories and optional executions.

(See page 60–61).
Mounting pad holes for actuator brackets.

Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Round, gull wing and spring return "deadman" handles.

Topwork dimensions (only for CS valves) ▶

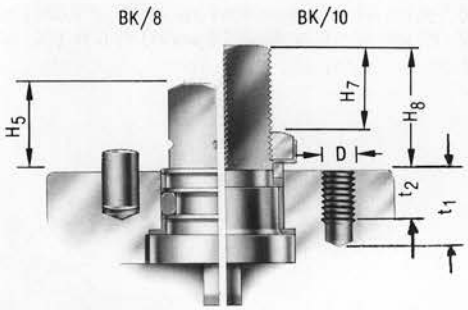
DN full	D	t_1	t_2	H_5	H_7	H_8	A	B	L	b	SW_1
8	M5	9	7	15,5	13,5	19	32	43	34	20	9
10	M5	9	7	15,5	13,5	19	32	43	34	20	9
12	M5	9	7	17,5	16,5	24	38	48	34	20	12
16	M5	9	7	17,5	16,5	24	38	48	34	20	12
20	M6	11	9	19	17,5	25	48	60,5	45	28	14
25	M6	11	9	19	17,5	25	57	65,5	45	28	14

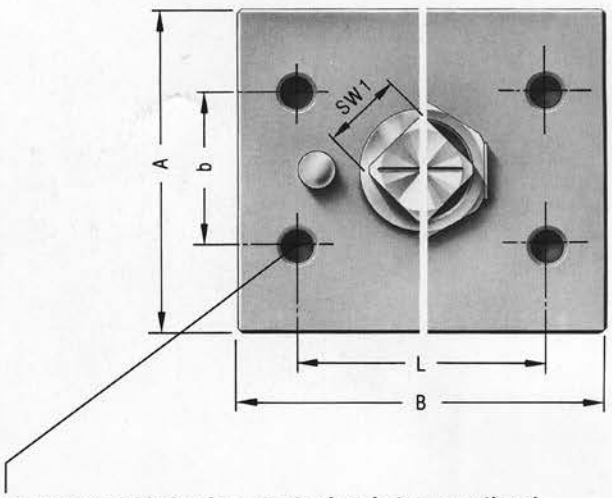
◀ **Materiallist of main parts**

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS SS	A381-Y52 A182-F316
2	Ball	Cr 13 SS	A182-F316
3	Stem	CS SS	A182-F316
4	Ball seats	NBR; POM; PTFE	
5	Stem seal	NBR; FPM; PTFE	
6	Body seals	NBR; FPM	

Standard material combinations (Preferably to order – short deliverytime)

Des-crip-tion	Mat.-Order Code 6811111 (BK/8)	Mat.-Order Code 6850154 (BK/10)	Mat.-Order Code 4450454 (BK/10)
Body	CS	CS	SS
Ball	Cr 13	Cr 13	SS
Stem	CS	CS	SS
Ball seats	NBR	PTFE	PTFE
Stem seals	NBR	PTFE	PTFE
Insert seals	NBR	FPM	FPM

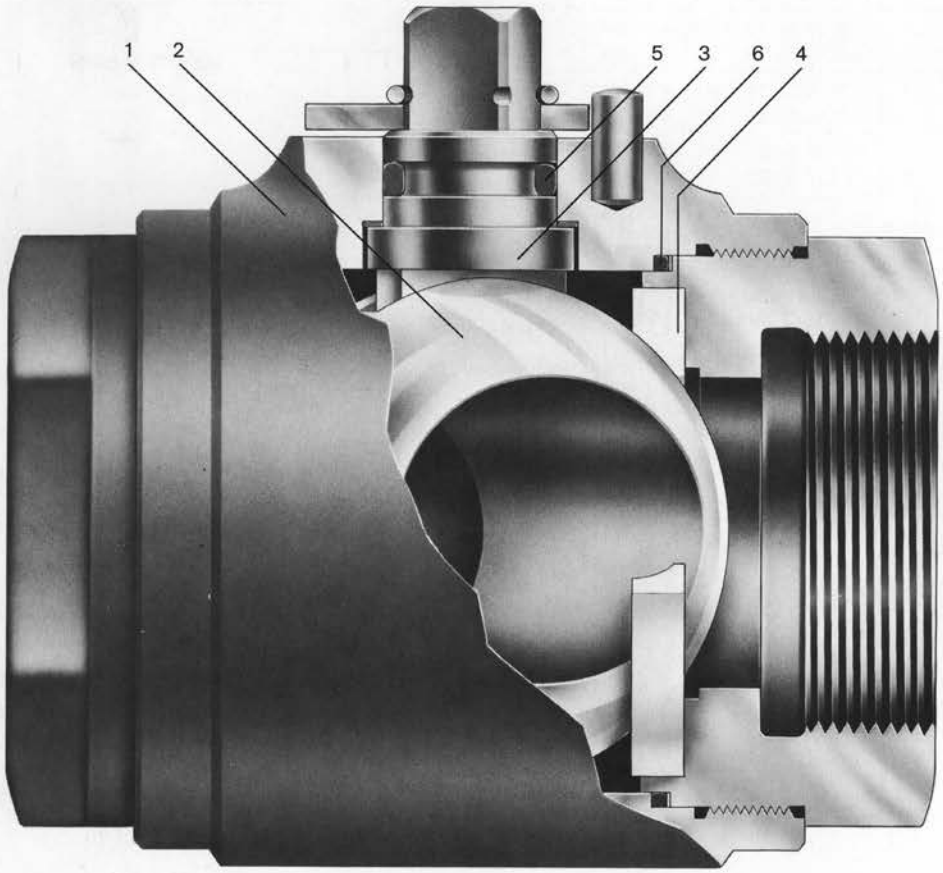




Mounting pad holes for actuator brackets are optional.

The speciality of the ARGUS ball valves MK/8 and MK/10

MK/ 8 DN 32–50 up to 4500 psi WOG (PN 320) full bore
MK/10 DN 32–50 up to 2000 psi WOG (PN 100) full bore



Description:

The MK/8 and MK/10 ball valve with its many innovative design features represents the highest standards in valve technology. It is designed to meet individual requirements and offers process line quality and features for water, oil, gas and other flow lines up to 4500 psi.

Design:

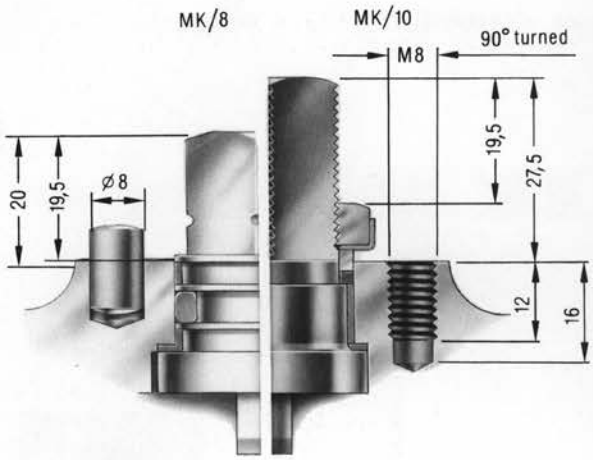
Rugged one piece body construction offering safe, sure pressure containment with a superfine finished seat supported ball, and compact ball seats. Anti-blow-out stem, supported in bearings, with high shear-strength shoulder to retain stem. Threaded heavy duty inserts include socket weld ends with pipe pups. The valve can also be installed in either flow direction. With mounting pad holes.

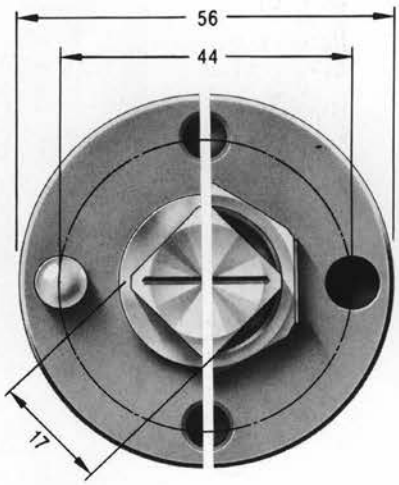
Accessories and optional executions.

(See page 60–61).
Adaptable to all types of actuators with mounting plate to DIN/ISO 5211 or to customers specifications.

Limit switches; Locking devices;
Extended wrenches; Stem extensions.
Round handles.

Topwork dimensions ▶





◀ Materiallist of main parts

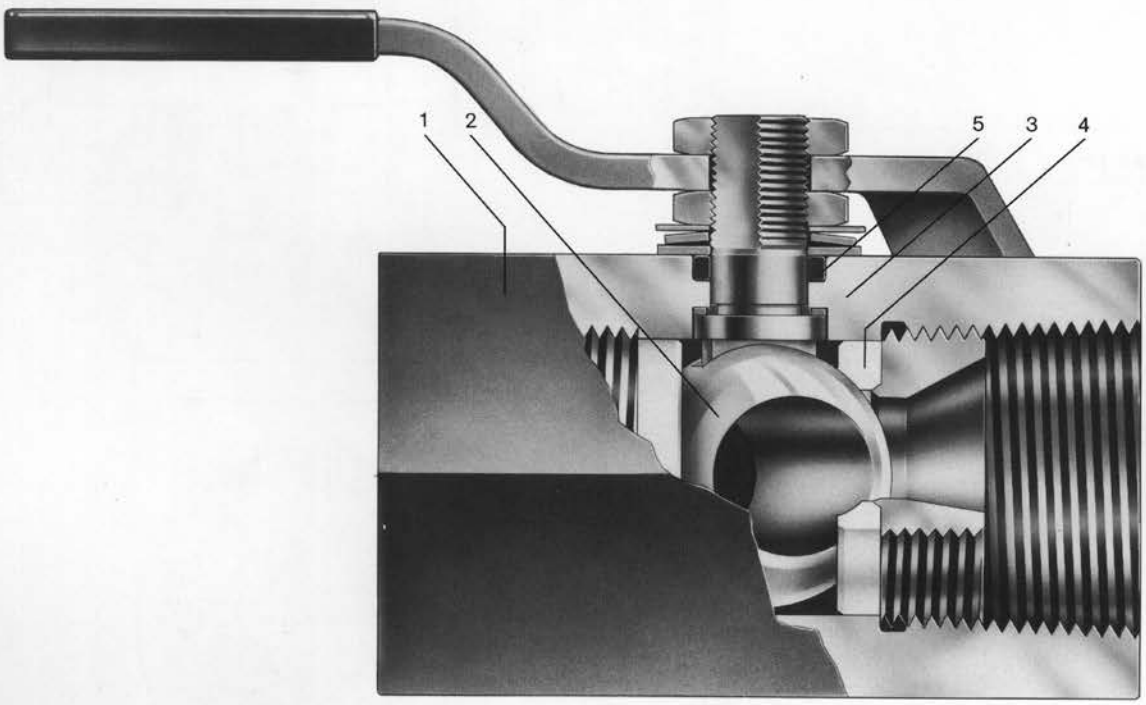
Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS SS	A105 A182-F316
2	Ball	CR 13 SS	AISI 410 A182-F316
3	Stem	CS SS	 A182-F316
4	Ball seats	PTFE, POM	
5	Stem seal	NBR; FPM; PTFE	
6	Body seals	NBR; FPM	

Standard material combinations (Preferably to order – short deliverytime)

Des-crip-tion	Mat.-Order Code 1850154 (MK/8)	Mat.-Order Code 4450454 (MK/10)
Body	CS	SS
Ball	CR 13	SS
Stem	CS	SS
Ball seats	PTFE	PTFE
Stem seals	PTFE	PTFE
Insert seals	FPM	FPM

The speciality of the ARGUS ball valves SK/8

DN 12–25 BS Class 800 (986 psi WOG) red. bore



Description:

The SK/8 ball valve with its many innovative design features represents the highest standards in valve technology.
It is designed to meet BS 5351 requirements and offers process line quality and features for water, oil, gas and other flow lines up to 986 psi.

Design:

Compact one piece body construction from hexagonal bar stock with superfine finished seat supported ball and compact ball seats. Anti blow-out stem with high shear-strength shoulder to retain stem. The internally threaded heavy duty inserts include socket weld ends with pipe pups. Valve can be installed in either flow direction. Fire safe to BS 6755 and API 607.

Accessories and optional executions.

(See page 60–61).
Limit switches; Locking devices;
Round and gull wing handles.

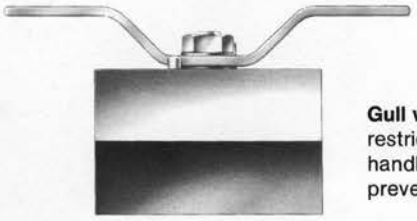
◀ Materiallist of main parts

Item No.	Description	Material specification (for detailed information see page 66)	Nearest typical ASTM-equivalent
1	Body	CS	A252 Gr.3
2	Ball	SS	A182-F316
3	Stem	SS	A182-F316
4	Ball seats	Virgin PTFE	
5	Stem seal	Celastic	

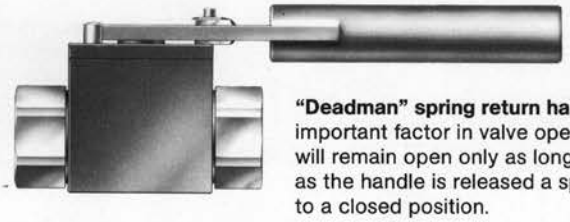
Standard material combinations (Preferably to order – short deliverytime)

Description	Mat.-Order Code 6450440
Body	CS
Ball	SS
Stem	SS
Ball seats	PTFE
Stem seals	Celastic/FPM

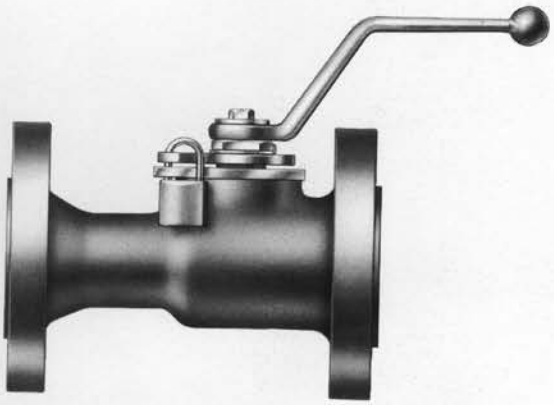
Accessories and optional executions



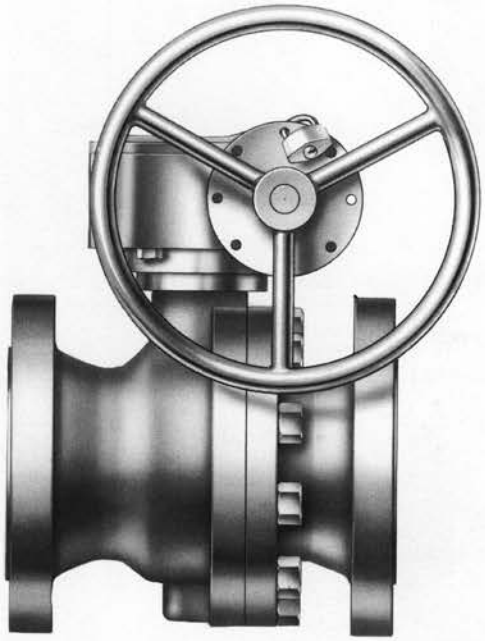
Gull wing handles are specified for installation where space is restricted or obstructions limit the operation of wrench-type handles. Its symmetrical design produces a balanced torque and prevents side loading of the stem.



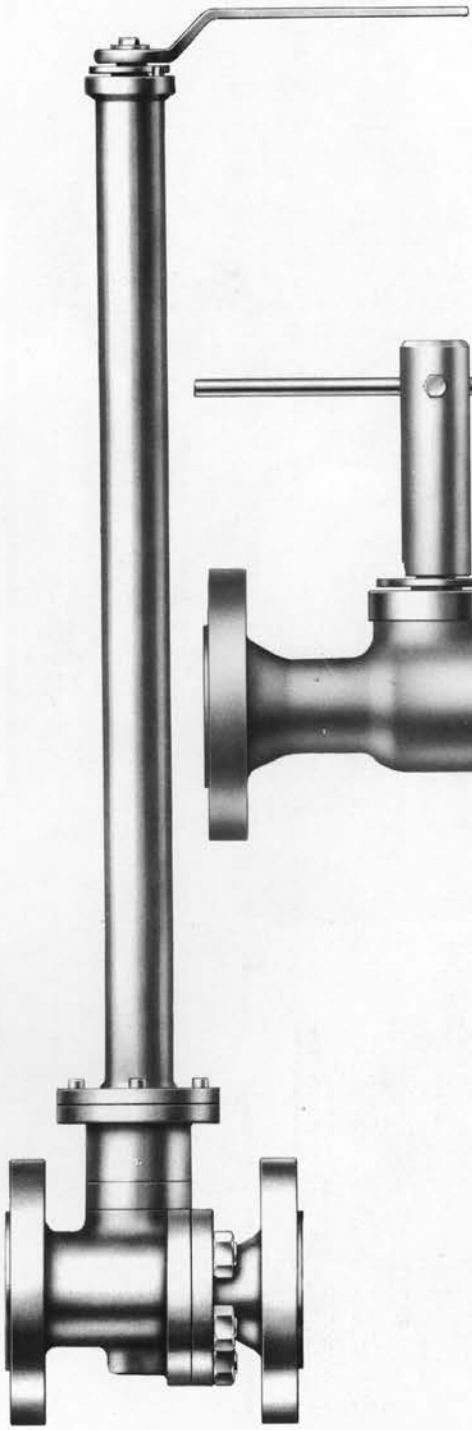
"Deadman" spring return handles, are specified when safety is an important factor in valve operation. When the valve is opened it will remain open only as long as the handle is held firmly. As soon as the handle is released a spring immediately returns the valve in to a closed position.



Locking device and padlock provides a positive locking in open and/or closed position and ensures that the operation of the valves is restricted to authorized personnel.



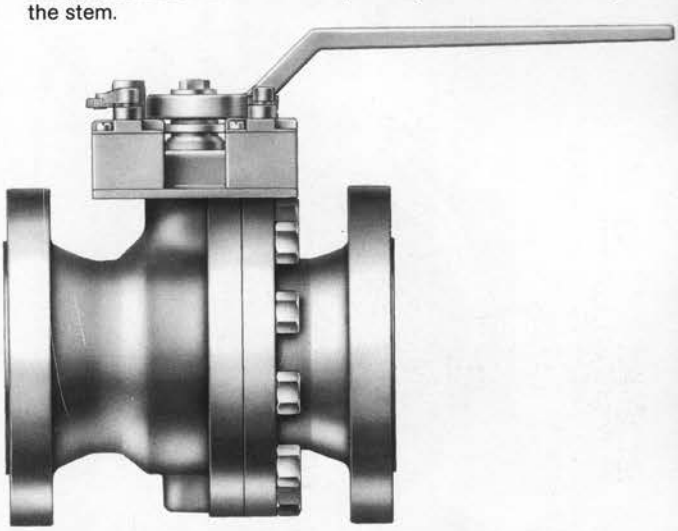
Worm gear operators (with or without padlocks) are specified for larger sizes to provide an easy operation or to increase the cycle time of valve operation in order to prevent pipe line hammer.



Stem extensions are specified for buried service, beneath flooring or inaccessible positions. Extended stem-shaft is supported in bearings in outer shaft to prevent side loading of the stem.

Round handles provide a positive gripping surface and reduce heat transfer while minimizing the possibility of accidental valve operation where space is a important.

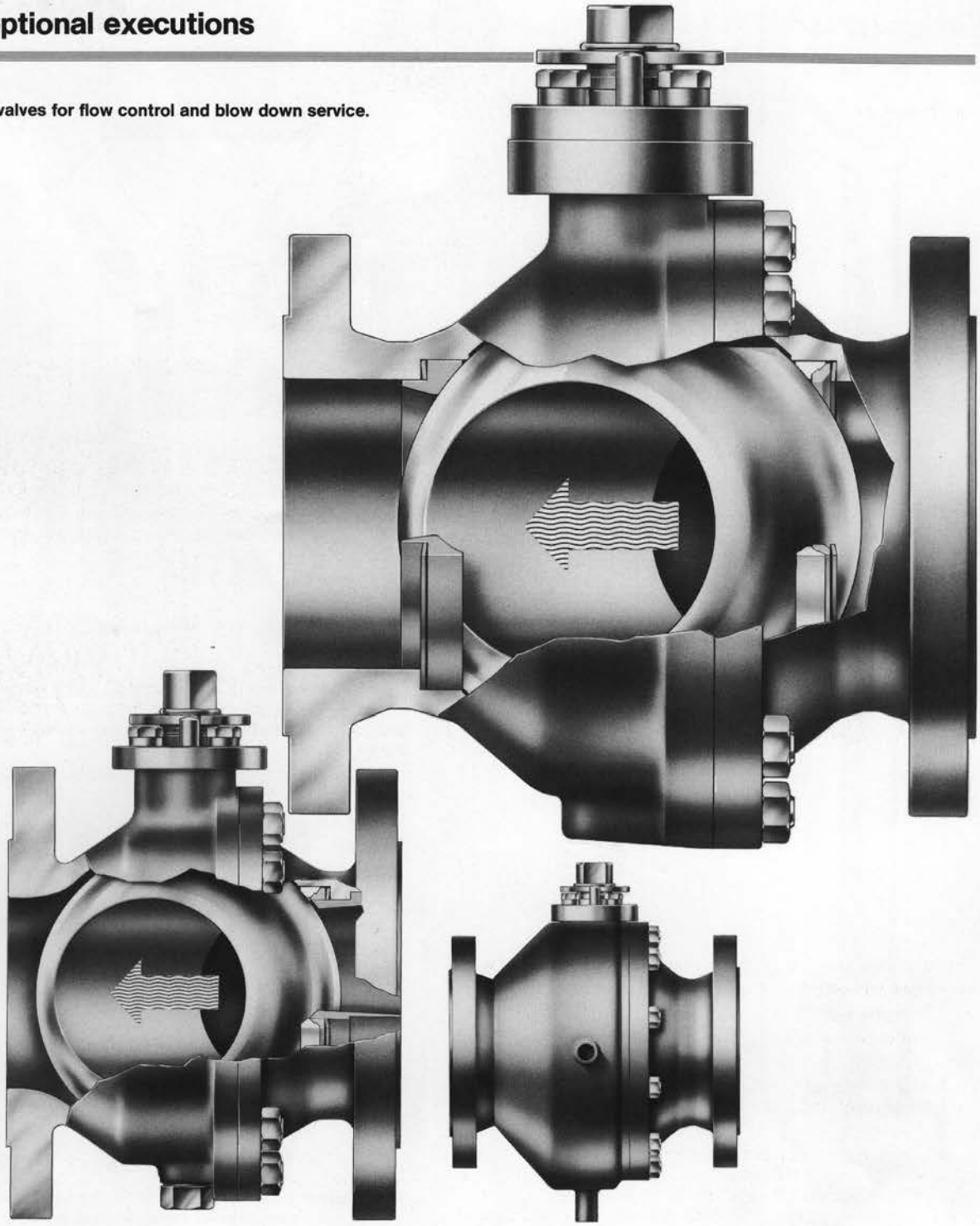
Extended wrenches provide operation of the valves through pipe insulation, bulkheads or inaccessible positions. Its symmetrical design produces a balanced torque and prevents side loading of the stem.



Limit switches are specified to indicate the fully open and/or closed position of the valves. Limit switches are in accordance with customers' requirements.

Other optional executions

ARGUS ball valves for flow control and blow down service.

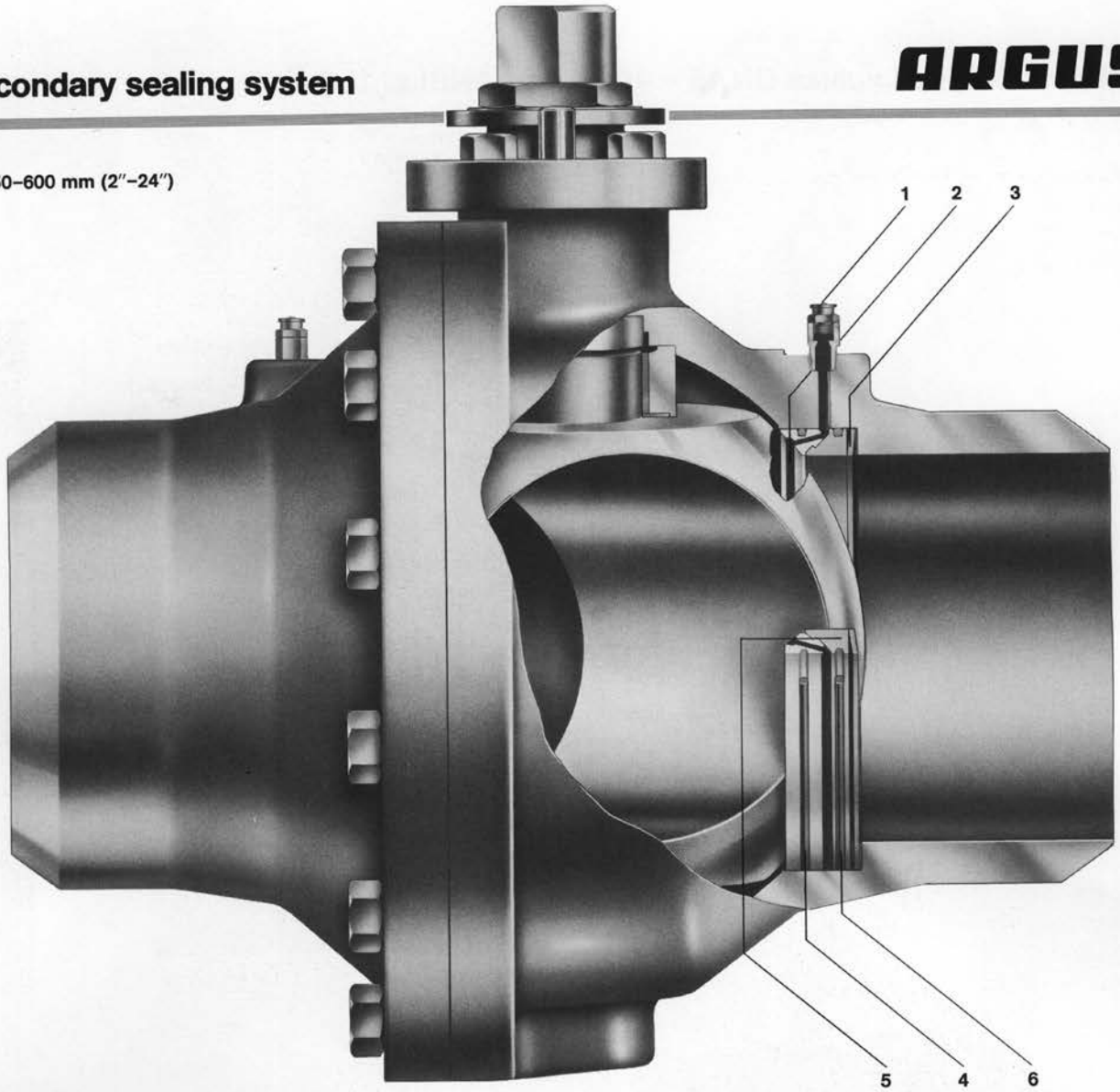


ARGUS ball valves for granulated media (plastics industry).

ARGUS ball valves with steam jacket.

Secondary sealing system

DN 50–600 mm (2″–24″)



ARGUS secondary sealing system for ball valves with butt weld or flanged end connections

For all ARGUS ball valves in the size range 50–600 mm (2″–24″) an emergency sealing system is available as an optional extra.

This system is for use only when damage has been caused to the main soft seat rings by hard particles or dirt in the process media, and a temporary tight shut off is required for maintenance or other purposes.

The system works by injecting a self curing semiliquid from a hand gun via an injection nipple, through a capillary gallery, to an annular groove in the ball seat. This liquid sealant then cures to a plastic state and provides a process media tight seal while the ball is left in the closed position.

1
High pressure sealant injection nipple with non return valve feeds capillary gallery to seat ring.

2
Annular groove in seat for sealant between ball and damaged seat.

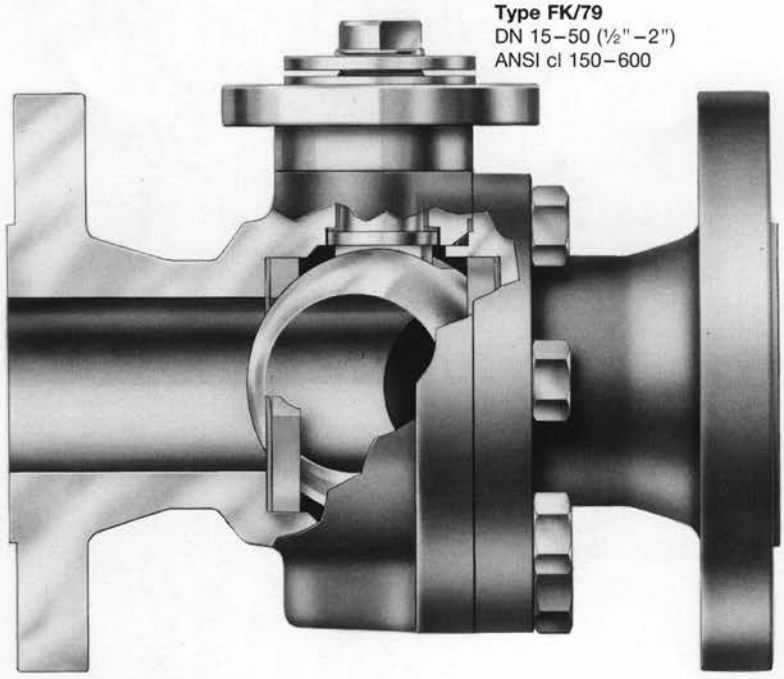
3
Belleville spring maintaining seat pressure on the ball and compensating seat wear.

4
"O" ring between soft seat ring and valve body to contain sealant and prevent bypass leakage.

5
Metal support ring to maintain ball seat profile.

6
"O" ring between support ring and valve body to contain sealant and prevent bypass leakage.

Metal seated ball valves DN 15 – 400 up to ANSI cl 1500



Type FK/79
DN 15–50 (½"–2")
ANSI cl 150–600

These metal seated ball valves are designed to overcome seat-damage problems encountered in

– handling fluids containing solids (abrasive media)

– flow control

– handling fluids with temperatures from –200 °C to +400 °C

In the past the performance of ball valves, with their soft seats, was restricted to gas and liquids containing only small solid particles and where temperatures did not exceed 230 °C.

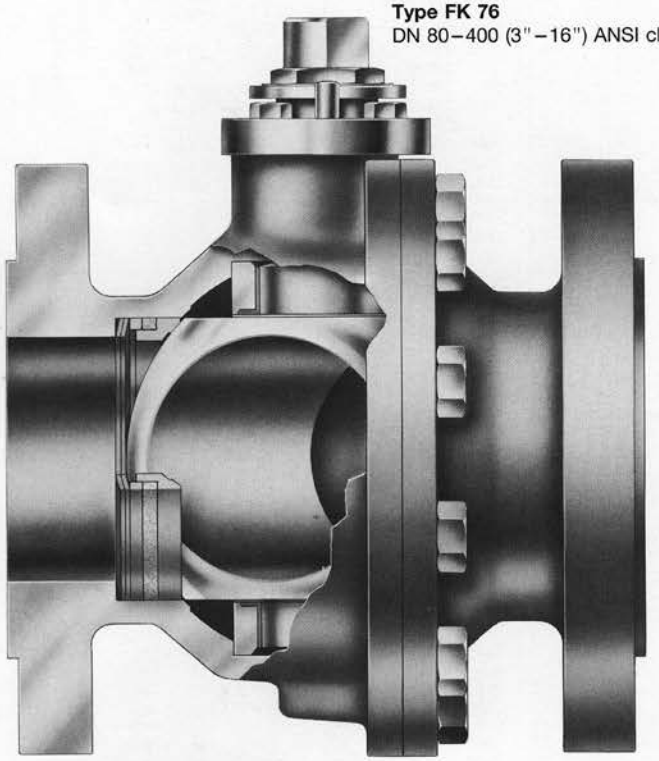
Following several years of concentrated research and development ARGUS now introduces metal seated ball valves with a number of significant design features. These features include the proven spring loaded seats with cavity relief, a bubble-tight and long life seat sealing system, an anti-blow-out stem and low operating torques.

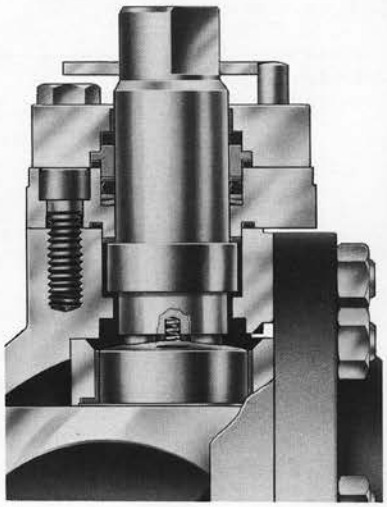
The Arguloy hardlayer on the ball surface and the seats is a nickel-based alloy which is welded on the base metal and is fused by a special heat treatment. The layers are homogeneous, free of cracks and are corrosion and wear resistant. Hardness of the layers exceeds the hardness of Stellite.

By using the most modern computer controlled machinery and engineering methods together with an extensive quality program ARGUS are able to produce the metal seats and the balls with spherical accuracies and superfine surface with a roughness of 1 micron.

The ARGUS metal seated ball valves are available in the sizes DN 15–400 (½"–16") and in both ANSI classes 150, 300, 600 and DN 50 in ANSI classes 900 – 1500 lbs and DIN classes PN 10 – 250. To satisfy service requirements a wide range of end configurations is also available including butt-weld, flanged RF and RTJ, Graylock and combinations of these connections.

Type FK 76
DN 80–400 (3"–16") ANSI cl 150–600

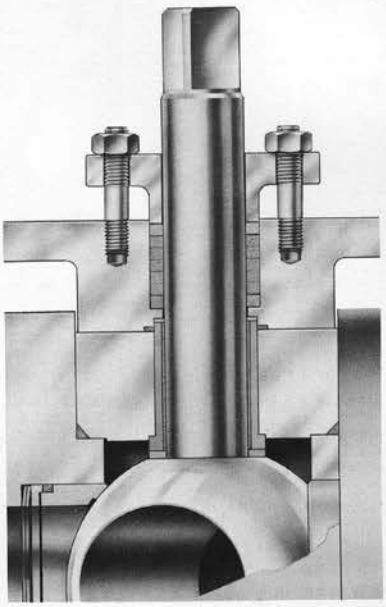




Temperatures:

From **–40 ° up to +230 °C** ball valves are fitted with the reliable ARGUS double stem sealing system.

The stem seals can be replaced without removing the valve from the pipe (in line serviceable).



Adaptable to all types of actuators with mounting plate to DIN/ISO 5211

Please contact ARGUS for detailed information.

Temperatures:

From **+230 °C up to +400 °C** the ball valves are fitted with a stem extension and a special stuffing box.

The stem seals can be replaced without removing the valve from the pipe (in line serviceable).

Other stem extension types are planned for temperatures below –40 °C.

Materials for standard-constructions

Materials

	Material spec.	DIN/ISO standard	Material designation	ASTM standard, or nearest typical equivalent
Body materials	CS – Low temp.	1.0566	TStE 355 N	A 350 Gr. LF2
	CS	1.0619	GS – C 25 N	A 216 Gr. WCB
	CS – Low temp.	1.1138	GS 21 Mn 5 V	A 352 Gr. LCB
	CS	1.0570	St 52.3	A 381 cl Y52
	CS	1.0460	C 22.8	A 105
	SS	1.4408	G-X6 CrNiMoNb 18.10	A 351 Gr. CF 8 M
	SS	1.4581	G-X7 CrNiMoNb 18.10	A 351 Gr. CF 10 C
	SS	1.4571	X6 CrNiMoTi 17.12.2	A 182 Gr. F 316
Flanges (if welded on)	CS – LT	–	ASTM A 350 LF 2	
	CS – LT	1.0560	TStE 355 N	A 350 Gr. LF2
	SS	1.4571	X6 CrNiMoTi 17.12.2	A 182 Gr. F 316 LN
Ball materials	CS	1.0570	St 52.3	A 381 cl. Y52
	Cr 13	1.4006	X10 Cr 13	AISI 420
	Cr 13	1.4027	G-X 20 Cr 14	AISI 420
	SS	1.4408	G-X6 CrNiMo 18.10	A 351 Gr. CF 8 M
	SS	1.4401	X5 CrNiMo 17.12.2	A 182 Gr. F 316
	SS	1.4571	X6 CrNiMoTi 17.12.2	A 182 Gr. F 316
Steam material	CS – LT	1.0566	TStE 355 N	A 350 Gr. LF2
	Cr 13	1.4104	X 12 CrNiMo S17	A 276 type 430
	Cr 13	1.4006	X 10 Cr 13	A 182 Gr. F 6
	SS	1.4429	X 2 CrNiMoN 17133	A 182 Gr. F 316 LN
	SS	1.4571	X 6 CrNiMoTi 17.12.2	A 182 Gr. F 316
	CS	1.0570	St 52.3	A 381 cl. Y52
	CS	1.0601	C 60 N	
	17 – 4PH	1.4548.4	X 5 CrNiCuNb 17.4.4.	17 – 4PH
	Duplex	1.4462	X 2 CiNiMoN 2252	AISI 2205
Bolts			B 7	A 193 – B 7
			L 7 M	A 320 – L 7 M
			B 7 M	A 193 – B 7 M
			A 4 – 70	A 193 – B 8 M
			B 8 M	A 193 – B 8 M
			Grade 660	A 453 – Gr. 660
Nuts			Gr. 2 HM	A 194 – Gr. 2 HM
			Gr. 4	A 194 – Gr. 4
			Gr. 8 M	A 194 – Gr. 8 M
			A 4 – 70	A 194 – 8 M
Bolts for gland		267/13	5.6	–
			8.8	–
			A 4 – 70	A 194 – B 8 M

NBR

Resistant to oil and leaches with low concentration as well as media containing solids. High sealing abilities, e. g. for gazeous media.

Resistant to temperatures –25 °C to +100 °C, depending on medium.

FPM

The main advantage of FPM is its resistance to many agressive fluids only surpassed by PTFE. Not suitable for hot water and steam.

Temperatures – 15 °C to +200 °C, depending on medium.

MFQ

A fluorine-silicone – caoutchouc with excellent properties in low temperature service down to –60 °C. Resistant to fuels as well as mineral and synthetic oils.

Not suitable for aromatic and chlorinated hydrocarbons.

PTFE

With few exceptions PTFE is resistant to acids, leaches, solvents, aliphatic and aromatic as well as chlorinated hydrocarbons and many other liquids. Suitable for a wide range of temperatures –200 °C to +200 °C, in special applications to +250 °C.

Chemical properties									Physical properties		
% C	% Si	% Mn	% P	% S	% Cr	% Ni	% Mo	Misc.	Tensile strength [N/mm²]	Yield strength [N/mm²]	Elongation %
max. 0.16	max. 0.45	0.7–1.50	max. 0.03	max. 0.03					440 – 560	315	23
max. 0.18	0.1–0.5	0.9–1.60	max. 0.03	max. 0.03					490 – 630	355	22
0.18–0.23	0.3–0.6	0.5–0.8	max. 0.03	max. 0.03	max. 0.3				440 – 590	245	22
0.17–0.23	max. 0.65	1.0–1.30	max. 0.025	max. 0.02	max. 0.3				450 – 600	280	20
max. 0.2	max. 0.55	max. 1.6	max. 0.045	max. 0.045				N+AL 0.009	490 – 630	335	19
0.18–0.25	0.15–0.35	0.3–0.6	max. 0.045	max. 0.045	max. 0.3				410 – 630	240	l = 25 q = 20
max. 0.03	max. 1.00	max. 2.00	max. 0.045	max. 0.045	16.5–18.5	10.5–13.5	2.00–2.50		580 – 800	280	l = 40 t = 35
max. 0.07	max. 2.00	max. 1.50	max. 0.045	max. 0.030	18 –20.0	10.0–12.0	2.00–2.50		440 – 640	185	min. 20
max. 0.06	max. 1.50	max. 1.50	max. 0.045	max. 0.030	18 –20.0	10.5–12.5	2.00–2.50	max. 0.48 N 6	440 – 640	185	20
max. 0.08	max. 1.00	max. 2.00	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.00–2.50	max. 0.8 Ti	500 – 700	215	l = 35 q = 30
max. 0.22	max. 0.35	max. 1.4	max. 0.035	max. 0.04					480 – 650	248	l = 20 q = 20
max. 0.16	max. 0.45	0.7–1.50	max. 0.03	max. 0.03					440 – 560	315	23
max. 0.03	max. 1.0	max. 2.0	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.0 –2.5		580 – 800	280	l = 40 t = 30
max. 0.08	max. 1.0	max. 2.0	max. 0.045	max. 0.03	16.5–18.5	10.5–13.5	2.0 –2.5		500 – 730	215	l = 35 q = 30
max. 0.2	max. 0.55	max. 1.50	max. 0.045	max. 0.045				N+AL max 0.009	490 – 630	335	19
0.08–0.12	max. 0.2	max. 1.00	max. 0.045	max. 0.030	12.0–14.0				600 – 750	450	13
0.16–0.25	max. 1.00	max. 1.00	max. 0.045	max. 0.030	12.5–14.5				590 – 790	440	min. 12
max. 0.07	max. 2.00	max. 1.50	max. 0.045	max. 0.030	17.0–19.5	10.0–12.0	2.00–2.50		440 – 640	185	min. 20
max. 0.07	max. 1.00	max. 2.00	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.00–2.50		500 – 700	205	l = 40 q = 30
max. 0.08	max. 1.00	max. 2.00	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.00–2.50	max. 0.5 Ti	500 – 750	225	l = 35 q = 30
max. 0.16	max. 0.45	0.7–1.50	max. 0.03	max. 0.03					440 – 560	315	23
0.1–0.17	max. 1.00	max. 1.50	max. 0.045	0.15–0.35	15.5–17.5	0.2 –0.3			700 – 850	450	12
0.08–0.12	max. 0.1	max. 1.00	max. 0.045	max. 0.030	12.0–14.0				600 – 750	450	l = 40 t = 35
max. 0.03	max. 1.00	max. 2.00	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.00–2.50		600 – 800	280	l = 35 q = 30
max. 0.08	max. 1.00	max. 2.00	max. 0.045	max. 0.030	16.5–18.5	10.5–13.5	2.00–2.50	max. 0.5 Ti	500 – 750	225	19
max. 0.2	max. 0.55	max. 1.50	max. 0.045	max. 0.045				N+AL max 0.009	490 – 630	335	14
0.57–0.55	0.15–0.35	0.6–0.9	max. 0.045	max. 0.045					740 – 880	450	
max. 0.07	max. 1.00	max. 1.00	max. 0.025	max. 0.025	15.5–17.5	3.0 –5.0		Cu 3.0–0.15 Nb 0.15–0.45	min. 1070	min. 1000	l = min. 10
max. 0.03	max. 1.00	max. 2.00	max. 0.03	max. 0.02	21.0–23.0	4.5 –6.5	2.5 –3.5	N 0.08–0.20	640 – 880	450	22
0.37–0.49	0.15–0.35	0.65–1.10	max. 0.04	max. 0.04	0.75–1.20		0.15–0.25		680 – 860	515 – 720	min. 16
0.38–0.48	0.15–0.35	0.75–1.0	max. 0.04	max. 0.04	0.8 –1.10		0.15–0.25		min. 860	min. 725	min. 16
min. 0.28	0.15–0.35	0.65–4.10	max. 0.035	max. 0.04	0.75–1.2		0.15–0.25	1.0–2.35 Ti	min. 690	min. 550	
max. 0.08	max. 1.0	max. 2.0	max. 0.05	max. 0.03	16.0–18.5	10.0–14.0	2.0 –3.0	max. 0.35 AL	min. 700	min. 450	
max. 0.08	max. 1.0	max. 2.0	max. 0.045	max. 0.03	16.0–18.5	10.0–14.0	2.0 –3.0	0.1–0.5 V	min. 700	min. 450	
max. 0.08	max. 1.00	max. 2.0	max. 0.040	max. 0.03	13.5–16.0	24.0–27.0	1.0 –1.5	0.001–0.101 B	min. 895	min. 585	0.6 x d
min. 0.4			max. 0.04	max. 0.05							
0.4–0.5	0.15–0.35	0.7–0.9	max. 0.04	max. 0.05							
max. 0.08	max. 1.0	max. 2.0	max. 0.045	max. 0.03	16.0–18.0	10.0–14.0	2.0 –3.0		min. 700	min. 450	0.4 x d
max. 0.08	max. 1.0	max. 2.0	max. 0.05	max. 0.03	16.0–18.0	10.0–14.0	2.0 –3.0		min. 700	min. 450	0.4 x d
max. 0.55			max. 0.11	max. 0.15					min. 500	min. 300	20
max. 0.58		min. 0.25	max. 0.6	max. 0.15					min. 800	min. 640	12
max. 0.08		max. 2.0	max. 0.5	max. 0.03	16.0–18.5	10.0–14.0	2.0 –3.0		min. 700	min. 450	

POM

Especially suitable for high pressures up to 800 bar at normal temperature range –20°C to +100°C, in special applications –60°C to +121°C.

Arguloy

A nickel-based alloy which is welded to the base metal and is fused by means of a special heat treatment, with excellent wear resistance and exceeds the hardness of stellite.

Celastic

A composition on pure graphite basis.
Especially suitable for high temperatures up to +550 °C and cases of emergency (fire safe).

Lyton

A linear polymer with lubricant; presents an excellent resistance at high pressures with temperatures up to + 250 °C.

Lyton is resistant to solvents, alcohol, oil, grease, fuels, leaches, acids (limited) and water.

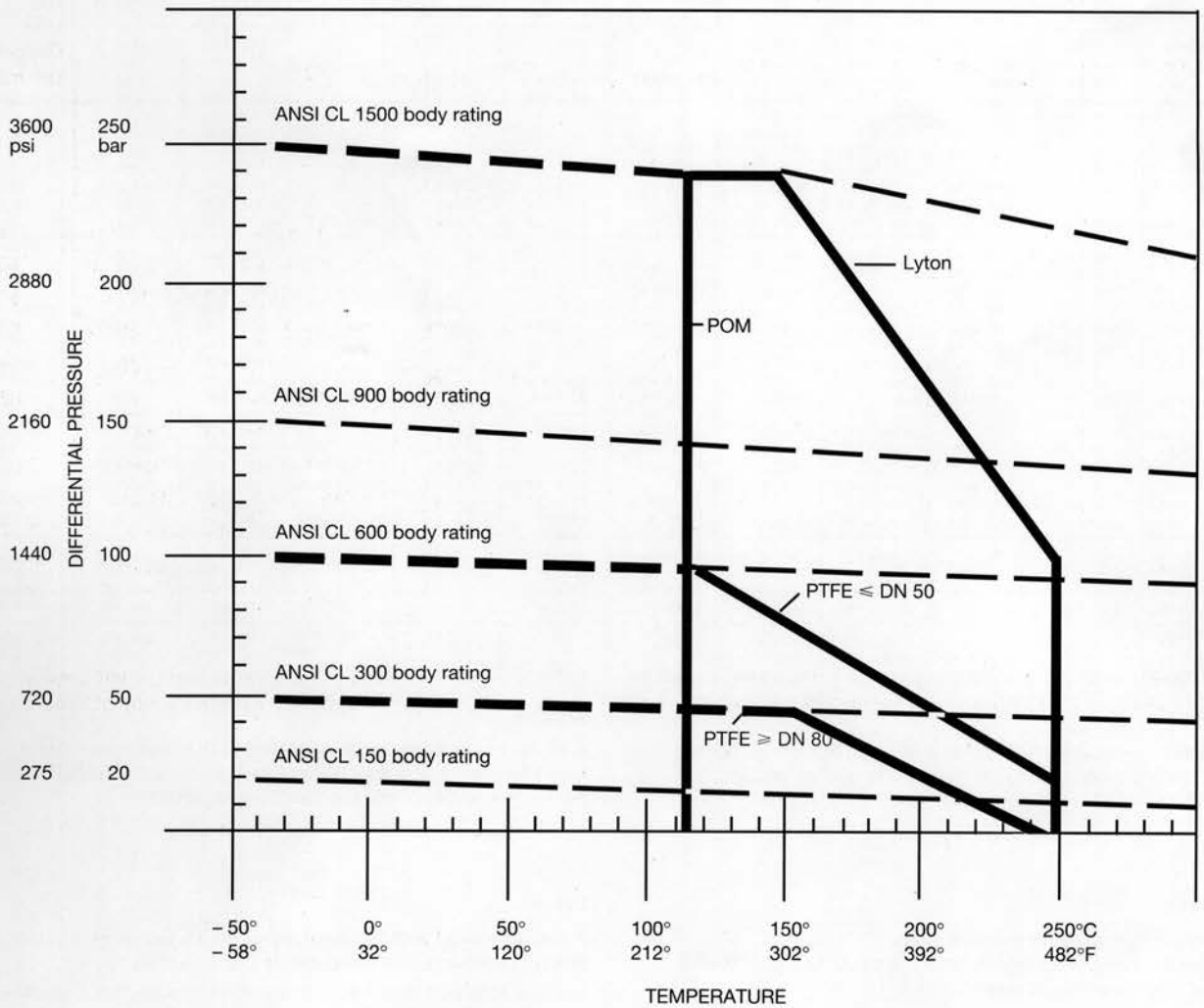
Pressure-Temperature ratings

The pressure-temperature ratings of soft-seated ball valves are determined not only by the valve body materials, but also by the sealing material used for ball seats. Sealing materials for seats may be PTFE, POM, Lyton or steel.

As it is very difficult to pre-determine the exact pressure-temperature ratings for all kinds of medium under all imaginable conditions, we have prepared a general pressure-temperature chart based upon our experiences both in the field and in our laboratory.

Pressure-temperature seat ratings, indicated by the solid lines on the charts, are based on differential pressure with the ball in fully closed position and refer to seats only. The dotted lines indicate the maximum working pressures for carbon steel valve bodies, made from TStE 355 N / 315 N (equal to ASTM A350 LF2).
For ratings of other body materials we refer to ANSI B 16.34.

Pressure-temperature seat ratings for metal seated valves are the same as the body ratings.



Flow data

The following flow rates were determined for ball valves in fully open position and a water temperature of 60 °F (15 °C).

Full bore

Nominal flow rate

nom Size		Kv m^3/h	Cv US-Gallons per min
in mm	inch		
15 x 15 x 15	1/2" x 1/2" x 1/2"	19.4	22.6
20 x 20 x 20	3/4" x 3/4" x 3/4"	45.6	53.2
25 x 25 x 25	1" x 1" x 1"	71.5	83.4
40 x 40 x 40	1 1/2" x 1 1/2" x 1 1/2"	170	198
50 x 50 x 50	2" x 2" x 2"	275	321
80 x 80 x 80	3" x 3" x 3"	905	1 056
100 x 100 x 100	4" x 4" x 4"	1 414	1 650
150 x 150 x 150	6" x 6" x 6"	3 674	4 288
200 x 200 x 200	8" x 8" x 8"	7 155	8 350
250 x 250 x 250	10" x 10" x 10"	12 500	14 590
300 x 300 x 300	12" x 12" x 12"	20 780	24 250
400 x 400 x 400	16" x 16" x 16"	37 000	43 100
500 x 500 x 500	20" x 20" x 20"	70 700	82 500

Kv value is the full capacity flow rate through the ball valve in cubic metres per hour (m^3/h) with a pressure drop of 1 bar.

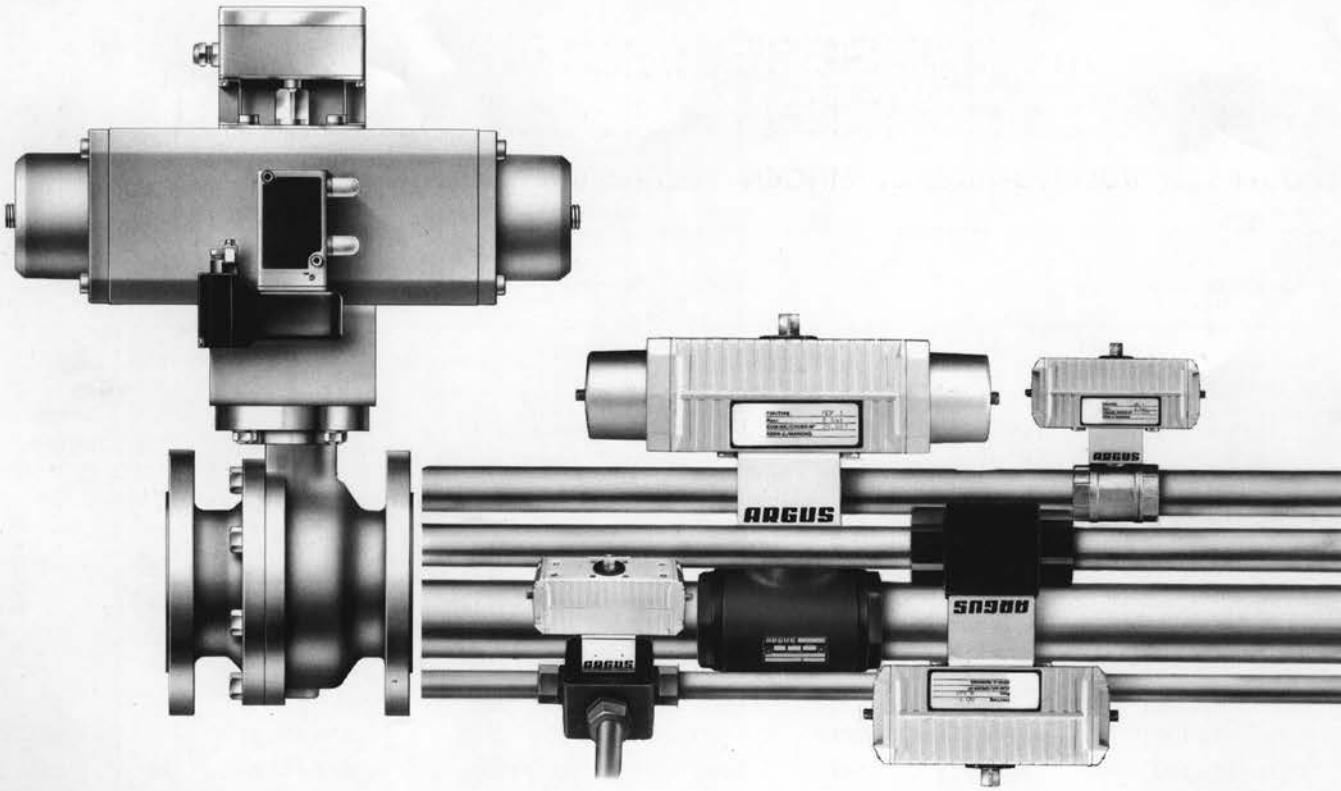
Reduced bore

Nominal flow rate

nom Size		Kv m^3/h	Cv US-Gallons per min
in mm	inch		
–	–	–	–
20 x 15 x 20	3/4" x 1/2" x 3/4"	14.3	16.7
25 x 20 x 25	1" x 3/4" x 1"	40.1	46.8
40 x 32 x 40	1 1/2" x 1 1/4" x 1 1/2"	89.8	105
50 x 40 x 50	2" x 1 1/2" x 2"	146	170
80 x 65 x 80	3" x 2 1/2" x 3"	484	564
100 x 80 x 100	4" x 3" x 4"	800	934
150 x 100 x 150	6" x 4" x 6"	728	850
200 x 150 x 200	8" x 6" x 8"	3 577	4 175
250 x 200 x 250	10" x 8" x 10"	6 933	8 090
300 x 250 x 300	12" x 10" x 12"	11 392	13 294
400 x 300 x 400	16" x 12" x 16"	16 000	18 672
500 x 400 x 500	20" x 16" x 20"	33 333	38 900

Cv value is the full capacity flow rate through the ball valve in gallons/min. of water at 60 °F with a pressure drop of 1 psi.

ARGUS quarter-turn actuators Rotadisk



ARGUS Actuators
Electric or pneumatic –
also explosion proof –
for the actuation of ARGUS
ball valves.

ARGUS

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ARGUS

Technology for you

Flow Control