FLOWSERVE

Argus® PDS Ball Valves

FK76M PDS and FK79 PDS ball valves for high-speed, high-cycle polymer processing applications

Experience In Motion

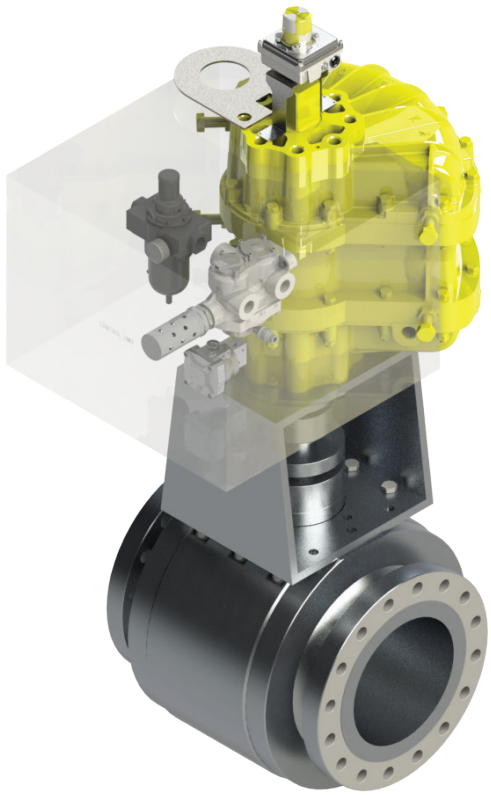
Extend maintenance intervals in extreme high-cycle polymer processing applications

Argus PDS soft or metal-seated ball valves from Flowserve deliver long-lasting, tight shut-off performance in product discharge systems. These valves are designed specifically for high-speed and high-cycle polymer processing applications, such as polyethylene and polypropylene. The upside is longer intervals between maintenance plant shutdowns.

Engineered to last

Frequent cycling, high temperatures and high-speed polymer particles (e.g., powders and fines) can damage valve seats and stem seals over time, resulting in increased fugitive emissions, reduced shut-off capability and shortened maintenance intervals. Argus PDS valves are engineered to overcome these abrasive conditions:

- Abrasion-resistant seats maintain tight shut-off performance to FCI 70-2 Class VI criteria.
- Integrated stuffing box provides an additional abrasion-resistant stem sealing package that can be easily retightened to avoid/reduce fugitive emissions.
- Optional reduced face-to-face dimension minimizes the valve cavity to avoid media build-up.
- Bi-directional sealing with optional uni-directional design
- Scraper design eliminates media build-up on metal seats and ball surfaces for smooth operation.



Argus FK76M PDS valve with Kinetrol pneumatic HC actuator

Built for the toughest polymer processing applications

Argus PDS valves are designed specifically for high-speed, high-cycle applications containing solids. In particular, they are ideal for the following applications and media:

Applications

- Polyethylene processing
- Polypropylene processing
- Powder discharge systems

Media

- Ethylene
- Hydrogen
- Catalyst
- Nitrogen
- $TiCl_4$
- TEAL
- Butene
- Propylene
- Naphtha

Operating parameters

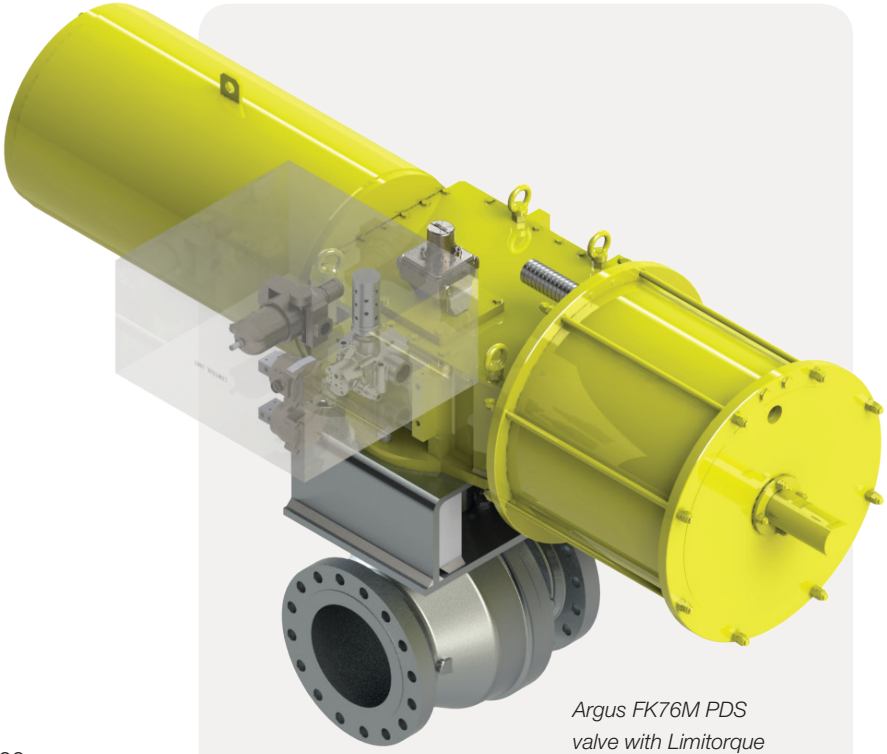
Sizes

- FK79 PDS: DN 15 to 50; NPS ½ to 2
- FK76M PDS: DN 80 to 500; NPS 3 to 20; other sizes available on demand

Pressure rating: PN 16 to 100; Class 150 to 600

Temperature: -46°C to 180°C (-54°F to 356°F)

Refer to page 7 for applicable specifications.

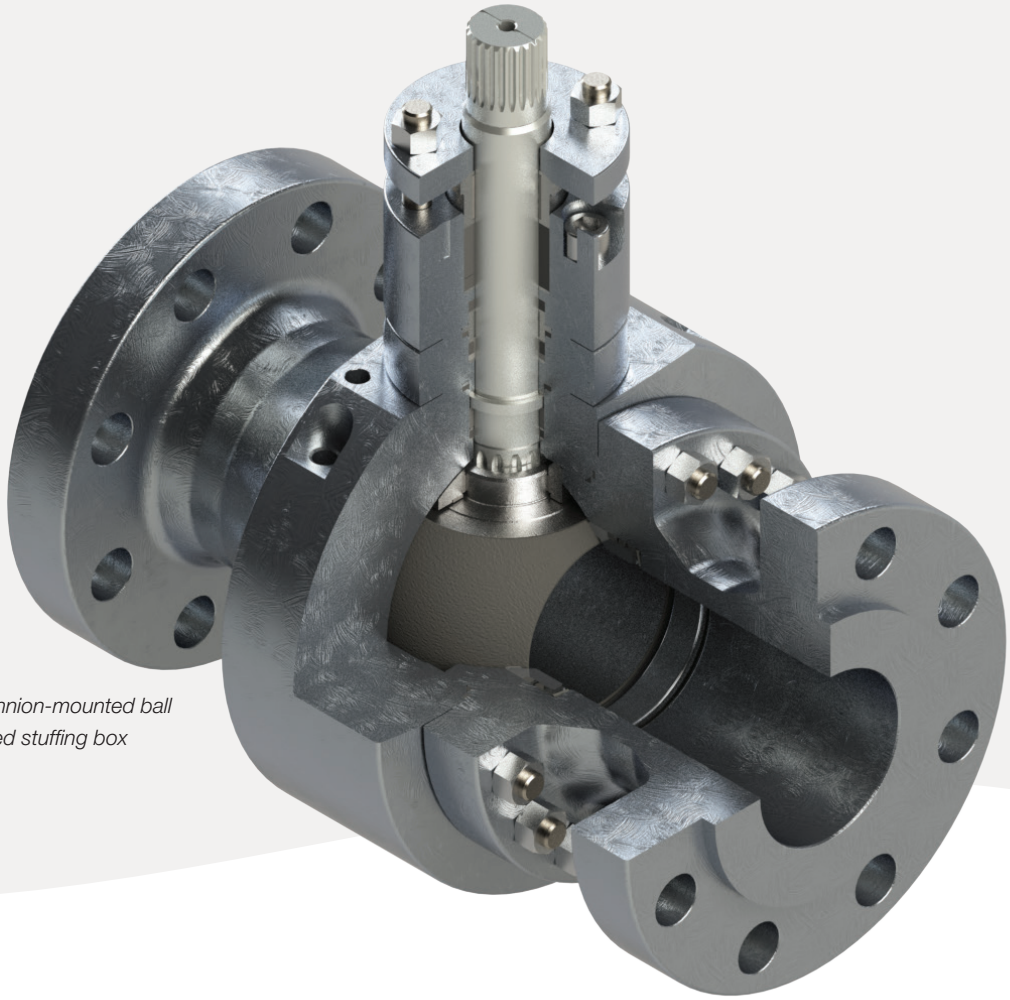


Argus FK76M PDS valve with Limitorque actuator, high cycle, spring return

Floating ball and trunnion-mounted configurations

Argus PDS ball valves are available in floating ball (FK79) or trunnion-mounted (FK76M) designs to suit application requirements. They also are available in the following configurations:

- Two-piece or three-piece body
- Metal or soft seats and seals
- Standard, moderate and ultimate high-cycle designs



Argus FK76M PDS trunnion-mounted ball valve with ISB integrated stuffing box

Designed for extended reliability

A valve is only as reliable as its weakest component, and high-cycle, high-wear applications can take their toll. Every part of Argus PDS valves has been designed to withstand the harsh effects of polymer processing. The result is a more reliable, longer-lasting valve that helps you extend unit maintenance intervals.

Shut-off to FCI 70-2 Class V or VI criteria

Argus PDS valves deliver reliable shut-off performance to the highest zero-tightness demands of FCI 70-2 Class V (metal-to-metal) or Class VI (soft) seat designs. The results are greater process control and efficiency.

Full-bore design improves performance

The full-bore design of Argus PDS valves ensures non-turbulent flow without pressure drops. It also minimizes the likelihood of solids build-up that can reduce medial flow. Reduced bore designs are available if needed for gaseous media.

Reliable bi-directional sealing

For maximum application flexibility and process control, Argus PDS valves provide bi-directional sealing. Available with soft- and metal-seated designs, they can be used in severe service applications in polyethylene, polypropylene and other powder discharge systems. Combined with tight shut-off performance, the bi-directional functionality improves plant safety and reliability. Uni-directional sealing is available.

Integrated stuffing box extends service life

The Argus ISB integrated stuffing box is anadjustable stem sealing system with an ISO 15848- certified graphite sealing package. Designed for applications that require exceptional emissions control, the ISB stuffing box provides a reliable secondary sealing system to extend a valve's service life. It ensures a reduced environmental impact and improves safety by compliance with TA-Luft, EPA (Method 21) and ISO 15848 fugitive emissions requirements.

Double stem seal and bearing system reduces emissions

To avoid operational side loads, Argus PDS valves employ a double stem bearing system using PEEK® or PBI stem bearings and bushings. Along with the ISO 15848 stem seal package, this alignment ensures a tight seal and provides a barrier against erosive or corrosive media from leaking into the stuffing box and out into the atmosphere.

Cost-saving modular design

Argus PDS valves are built on a modular platform that allows the inner components (e.g., ball, seats, seals and bearings) to be modified according to process conditions without changing the valve bodies. This modularity enables valves to be upgraded from a soft-seated to a metal-seated ball valve more economically than buying a completely new valve.

Blowout-proof, solid stem

To ensure personnel safety, Argus PDS valves have a solid, integral stem. Assembled either from inside or outside the valve body to suit application requirements, the stem is secured with an additional top plate to provide blowout-proof safety.

Ease of maintenance saves time

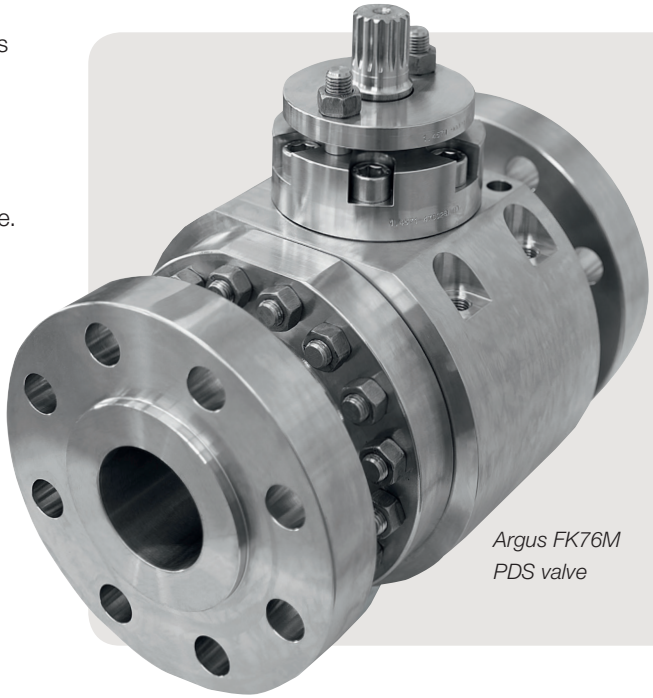
Maintenance of PDS valves is fast and easy. No specialized equipment or personnel is required, saving time and resources. Factory-tested spare parts kits can be ordered ahead of scheduled maintenance, minimizing downtime. And, because all trim kits are tested independently, seal-ability is assured.

Scraper design ensures smooth operation

Argus PDS valves feature a scraper that prevents media build-up on the ball and seat. This design ensures smooth cycling and proper sealing during operation.

Available reduced face-to-face dimension minimizes media build-up

For valves installed at the reactor, the face-to-face dimension of PDS valves may be reduced to minimize the space — and media build-up — between the reactor and the closed reactor valve.

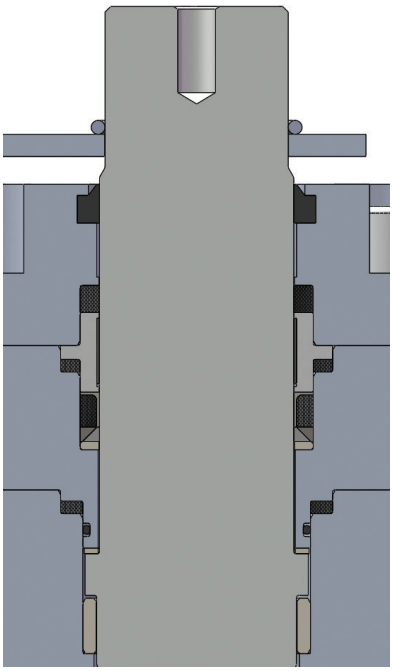


Argus FK76M PDS valve

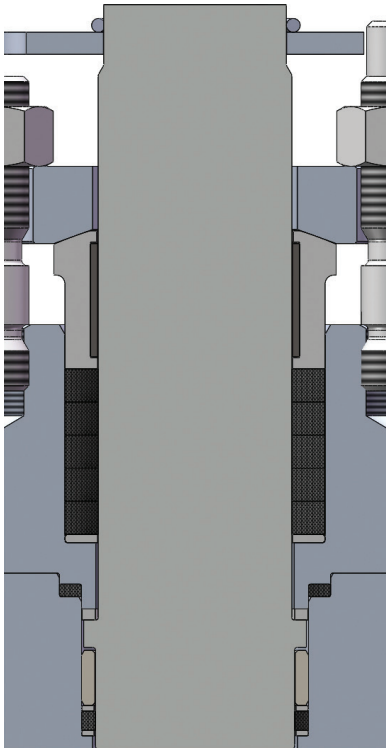
Technical details

Bonnet styles

Managing fugitive emissions is a major challenge within the chemical and petrochemical industries. Both Argus stem sealing systems are certified per ISO 15848. Besides reducing fugitive emissions, the upsides are improved plant efficiency and reduced energy costs.

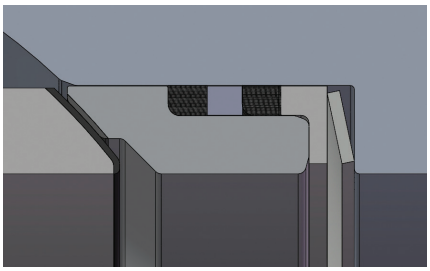


TA-Luft/ISO 15848/EPA

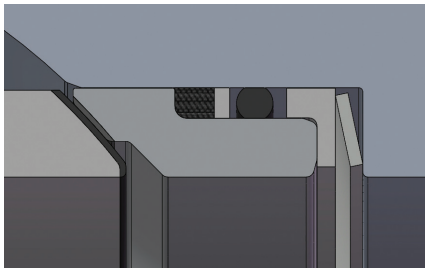


ISB integrated stuffing box

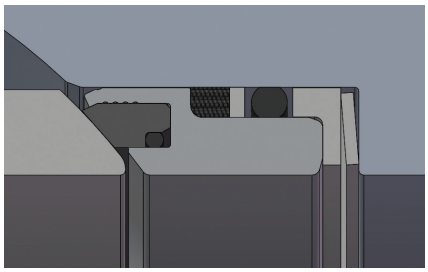
Ball seat options



Metal seated/Graphite



Metal seated/O-ring



PEEK seated/O-ring

Argus PDS valves are available with three ball seal designs to best suit the process conditions. Either a metal-to-metal seat design or a chambered soft seat design with various secondary seals cover the highest standards related to seat tightness in the media flow.

High-cycle design levels

Trunnion-mounted configuration

- Standard high cycle
  - Metallic seat: >15k; max. 200k cycles/year
  - Soft seat: >15k; max. 150k cycles/year
  - Standard cycle time (> 1 sec/in)
- Moderate high cycle
  - Metallic seat: >200k; max. 1000k cycles/year
  - Soft seat: >150k; max. 800k cycles/year
  - Fast cycle time (≤ 1 sec/in)
- Ultimate high cycle
  - Metallic seat: >1000k; max. 2000k cycles/year
  - Fast cycle time (≤ 1 sec/in)*

Floating ball configuration

- Standard high cycle
  - Metallic seat: >15k; max. 200k cycles/year
  - Soft seat: >15k; max. 150k cycles/year
  - Standard cycle time (> 1 sec/in)
- Ultimate high cycle
  - Metallic seat: >200k; max. 2000k cycles/year
  - Soft seat: >150k; max. 800k cycles/year
  - Fast cycle time (≤ 1 sec/in)*

Specifications

Sizes	DN 15 to 400; NPS ½ to 16
Pressure ratings	PN 16 to 100; Class 150 to 600
Valve design	API 6D, PED 97/23/EC, ASME B16.34 (on demand)
Design calculation	DIN EN 12516-1
Pressure/temp. rating	ASME B16.34 or DIN EN 1092
Shell wall thickness	ASME B16.34 or DIN EN 12516.1
Bore dimensions	API 6D or DIN EN 1983, DIN EN 17292 or DIN EN 13942
End connection	ASME B16.5 or DIN EN 1092
Face-to-face dimensions	ASME B16.10 or DIN 558
End connection	ASME B16.5
Bonnet style	Standard TA-Luft/ISO 15848; integrated stuffing box
Seat configuration	Bi-directional; uni-directional (on demand)
Leakage rates	API 598, ANSI FCI 70-2 Class V or VI, others
Fire-safe	ISO 10497 or API 607 (latest edition); API 641 (on demand)
Anti-static	DIN EN ISO 17292, chapter 5.2.7

* Dependent on valve size

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ARENBR0016 (E) March 2019

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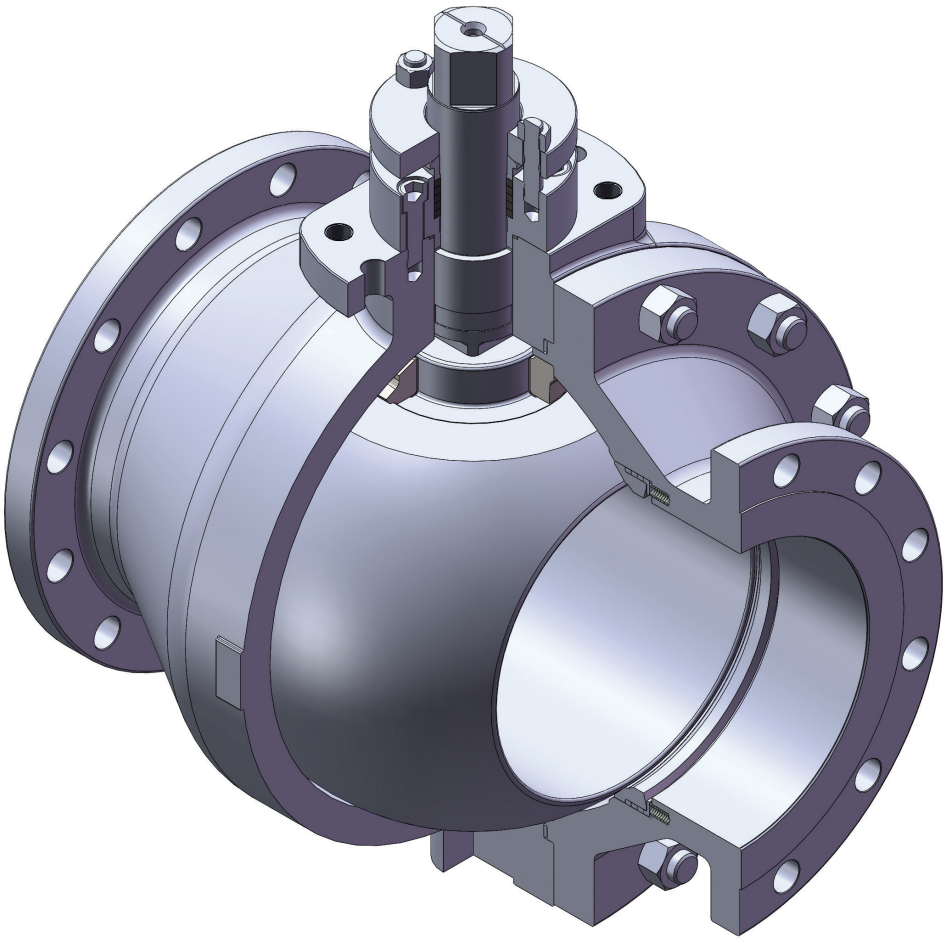
FLOWSERVE

TECHNICAL BULLETIN

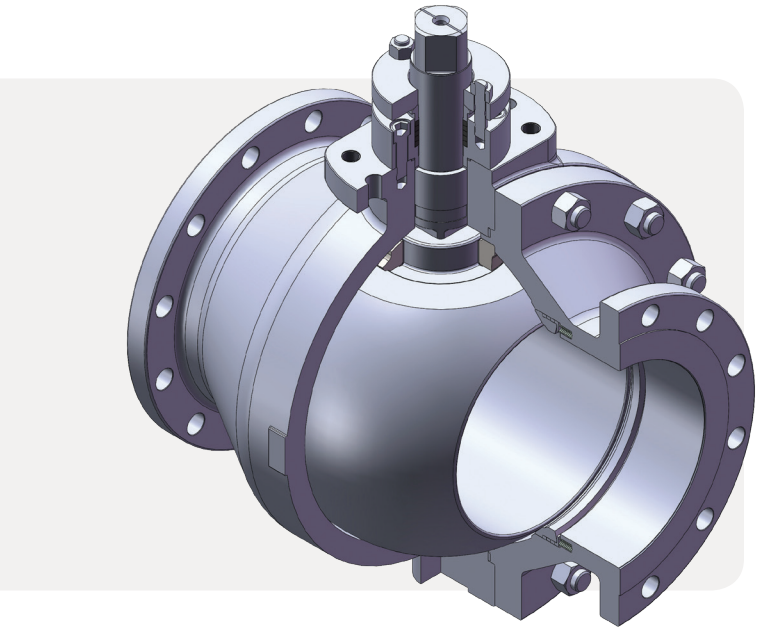
Argus™ FK76C Metal Seated, Trunnion-Mounted Ball Valve



Experience In Motion

Built to the highest standards

The FK76C split-body, full-bore, trunnion-mounted ball valve represents the highest standards in valve technology. Its superfine-finished, trunnion-mounted ball design is just one of its many important design features. Among them are an anti-blow out stem, long-life, double-stem seal system and stem supported in bearings to ensure seals are free from operation loads.



Technical design features

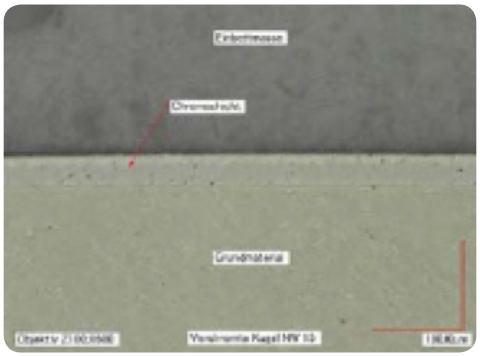
- Sizes: NPS 6 – 12 in; DN 150 – 300
- ASME pressure classes: Class 150 – 300
- Valve maximum temperature: 300°C (572°F)
- Designed to: ASME B16.34 (PED 97/23/EC optional) trunnion
- Materials: ASME Section II
- Pressure/temperature rating: ASME B16.34/B16.5
- Wall thickness: ASME B16.34
- Face-to-face dimensions: ASME B16.10
- Flange connection/end type: ASME B16.5 raised face
- Fire-safe: ISO 10497
- Bi-directional, metal-to-metal sealing: ANSI B16.104, FCI 70-2 class V
- Stem sealing system: ISO 15848-1
- Anti-static design: DIN EN ISO 17292, chapter 5.2.7

Materials

Description	NPS 6–8 in ASTM Material	DN 150–200 Material DIN EN	NPS 10–12 in ASTM Material
Body	A352 Gr. LCB	LCS casting DIN EN 1.6220	A352 Gr. LCB
	A351 Gr. CF8M	SS DIN EN 1.4408	A351 Gr. CF8M
Ball	A351 CF8M chrome plated	SS DIN 1.4408 chrome plated	A351 CF8M Crabide HVOF
Stem	A182 F51	Duplex DIN EN 1.4462	A182 F51
Stem seals	Graphite		
Seats	ASTM A182 F51 Crabide HVOF	Duplex DIN 1.4462 Crabide HVOF	ASTM A182 F51 Crabide HVOF
Body seals	Spiral-wound gasket A316L/graphite		
Bolts	A193 B7; A193 B8M CL2		
Nuts	A194 Grs. 4, 7 or 8M		

Metal coatings

Chrome hardplated (ball)

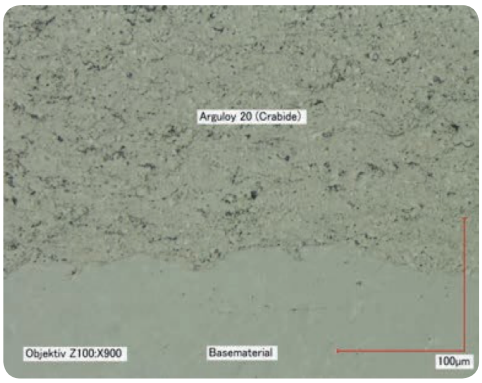


Basis	Chromium
Hardness	900 – 1100 HV0,3 (>67 HRC)
Temperature limit	Max. 350°C (662°F) (depending on base material and process conditions)
Thickness	>30 – 50 µm (average)
Chemical properties	High chemical resistance as well as under high temperature
Mechanical properties	High resistance against abraision and adhesive wear

- Einbettmasse = embedding compound
- Chromschichi = chromium coating
- Grundmaterial = base material

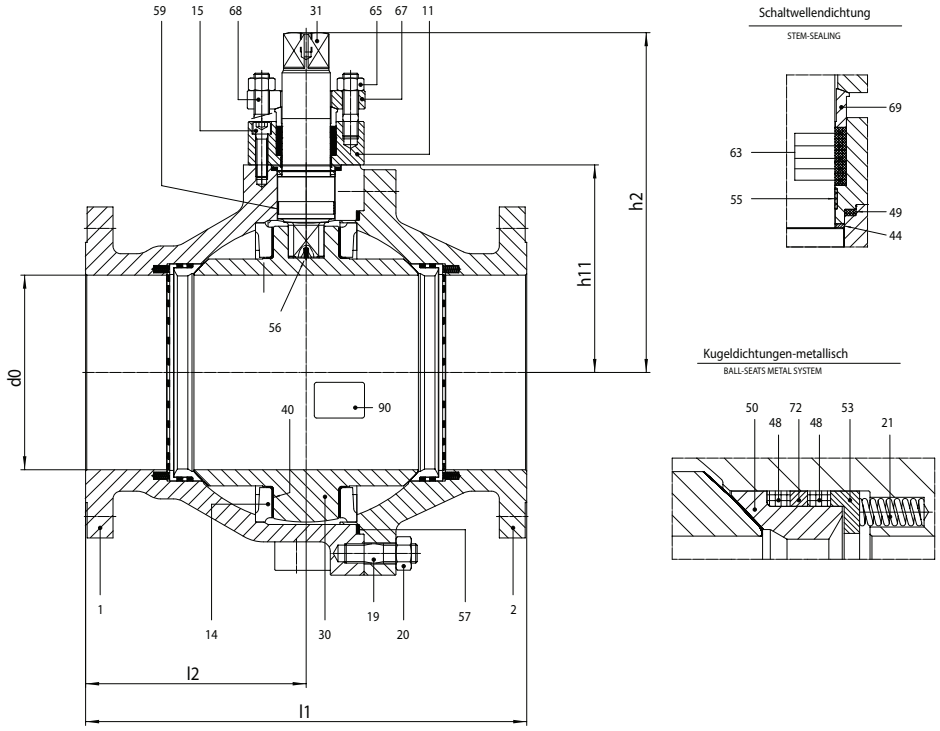
Crabide (ball and/or seats)

Crabide is a hard metal alloy based on chromium-carbide and nickel/chromium.



Composition	Cr_2C_2/Ni-Cr 75/25
Hardness	900 – 1100 HV0,3 (>67 HRC)
Temperature limit	Max. 660°C (1112°F) (depending on base material and process conditions)
Thickness	200 – 300 µm (usual)
Chemical properties	Resistance versus media in the range of pH 5 to pH 12, as well under high-temperature conditions
Mechanical properties	High resistance, especially against abrasion and adhesive wear and sliding abrasion

Sectional drawing



Dimensions

ASME Class 150
mm (in)

DN (NPS)	Flange/ End Type	l1	l2	h2	h11	d0	Topwork DIN/ ISO 5211
150 (6)	RF	394 (15.51)	197 (7.76)	317 (12.48)	180 (7.09)	150 (5.91)	Note 1
200 (8)	RF	457 (17.99)	228.5 (9.00)	352 (13.86)	215 (8.46)	201.6 (7.94)	
250 (10)	RF	533 (20.98)	266.5 (10.49)	446.5 (17.58)	290 (11.42)	254 (10.00)	
300 (12)	RF	610 (24.02)	305 (12.01)	483.5 (19.04)	327 (12.87)	305 (12.01)	

ASME Class 300
mm (in)

DN (NPS)	Flange/ End Type	l1	l2	h2	h11	d0	Topwork DIN/ ISO 5211
150 (6)	RF	403 (15.87)	201.5 (7.93)	317 (12.48)	180 (7.09)	150 (5.91)	Note 1
200 (8)	RF	502 (19.76)	251 (9.88)	352 (13.86)	215 (8.46)	201 (7.91)	
250 (10)	RF	568 (22.36)	284 (11.18)	446.5 (17.58)	290 (11.42)	254 (10.00)	
300 (12)	RF	648 (25.51)	324 (12.76)	483.5 (19.04)	327 (12.87)	305 (12.01)	

Pressure/temperature rating per ASME B16.34

Temperature, °F	A352 Gr. LCB		A351 Gr. CF8M	
	Working Pressures by Class, psig		Working Pressures by Class, psig	
	Class 150	Class 300	Class 150	Class 300
-20 to 100	265	695	275	720
200	255	660	235	620
300	230	640	215	560
400	200	615	195	515
500	170	585	170	480
600	140	550	140	450

Temperature, °C	A352 Gr. LCB		A351 Gr. CF8M	
	Working Pressures by Class, bar		Working Pressures by Class, bar	
	Class 150	Class 300	Class 150	Class 300
-29 to 38	18.4	48.0	19.0	49.6
50	18.2	4705	18.4	48.1
100	17.4	45.3	16.2	42.2
150	15.8	43.9	14.8	38.5
200	13.8	42.5	13.7	35.7
250	12.1	40.8	12.1	33.4
300	10.2	38.7	10.2	31.6

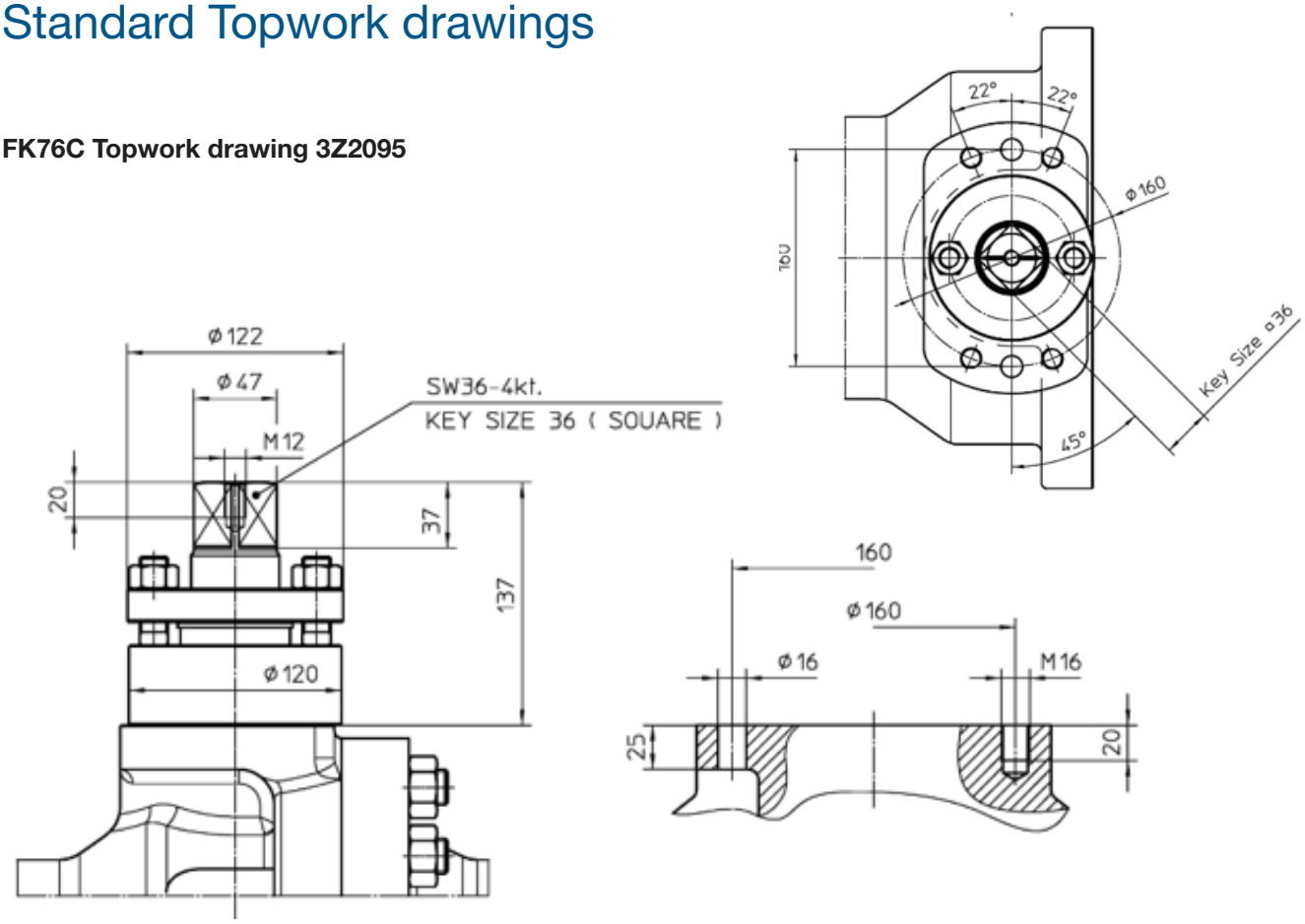
Part numbers

ASME Class 150

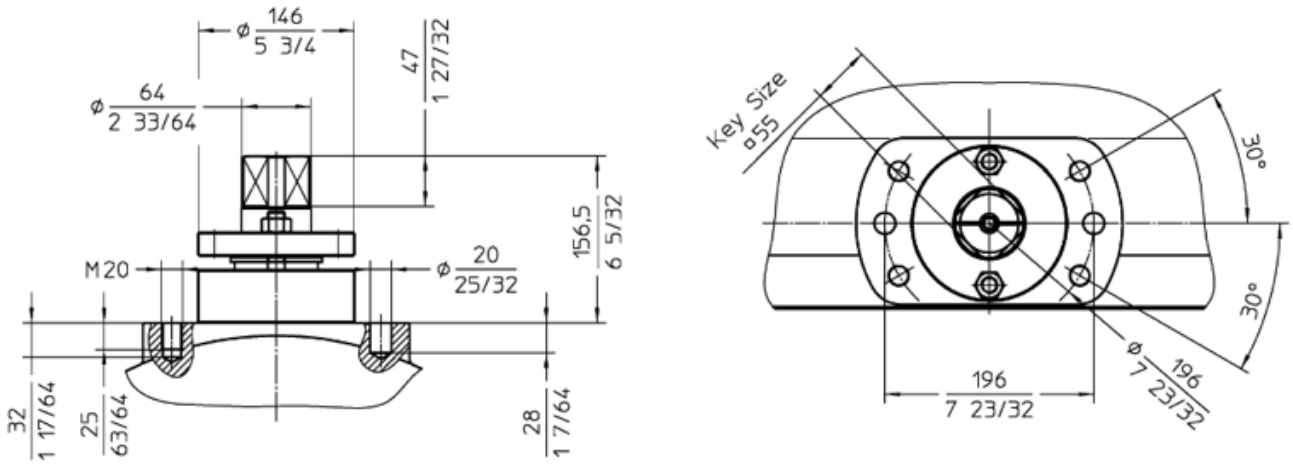
NPS	Class	Ends	Body	Sectional	Assembly	Topwork	Valve number
6	150	RF	CS	4M0985	4M4839	3Z2095	765617-ETG
8	150			4M0986	4M4841	3Z2095	765621-ETG
10	150			4M1022	4M4904	3Z2102	765625-ETG
12	150			4M1023	4M4906	3Z2102	765629-ETG
6	300			4M0985	4M0840	3Z2095	765618-ETG
8	300			4M0986	4M4842	3Z2095	765622-ETG
10	300			4M1022	4M4905	3Z2102	765626-ETG
12	300			4M1023	4M4907	3Z2102	795630-ETG
6	150		SS	4M0985	4M4839	3Z2095	765455-ETG
8	150			4M0986	4M4841	3Z2095	765459-ETG
10	150			4M1022	4M4904	3Z2102	765627-ETG
12	150			4M1023	4M4906	3Z2102	765631-ETG
6	300			4M0985	4M0840	3Z2095	765456-ETG
8	300			4M0986	4M4842	3Z2095	765460-ETG
10	300			4M1022	4M4905	3Z2102	765628-ETG
12	300			4M1023	4M4907	3Z2102	765632-ETG

Standard Topwork drawings

FK76C Topwork drawing 3Z2095



FK76C Topwork drawing 3Z2102



Torque tables

Pressure Class: Class 150 and Class 300
Seat System: bidirectional “N”

Pressure (psi)	NPS 6 (lb-in)	NPS 8 (lb-in)	NPS 10 (lb-in)	NPS 12 (lb-in)
116	3018	5062	10 036	13 700
145	3310	5558	10 355	15 134
181	3664	6186	11788	16 727
232	4168	7071	13063	18 320
290	4744	8071	15134	20 390
363	5452	9328	17 523	23 576
464	6461	11 089	19 913	27 081
580	7602	13 098	24 214	31 541
725	9036	15 611	27 878	38 232

Pressure Class: Class 150 and Class 300
Seat System: bidirectional “N”

Pressure bar	DN 150 (Nm)	DN 200 (Nm)	DN 250 (Nm)	DN 300 (Nm)
8	341	572	1134	1548
10	374	628	1170	1710
12,5	414	699	1332	1890
16	471	799	1476	2070
20	536	912	1710	2304
25	616	1054	1980	2664
32	730	1253	2250	3060
40	859	1480	2736	3564
50	1021	1764	3150	4320

Values included

- Metal seated: Chrome/Crabide and Crabide/Crabide
- Stem sealing system: ISO 15848

Additional multiplication factors

Application

- Daily operation: 1.0
- Operation after longer periods of disuse (≥ 2 days): 1.1
- Operation after longer periods of disuse (≥ 5 days): 1.2

Media

- Lubricating: 1.0
- Non-lubricating: 1.3

Example

DN100/differential pressure 32 bar/operation every 3 days/lubricating media

Md = 501 Nm x 1.1 x 1.0 = 551 Nm

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ARENTB0011-01 (AQ) January 2019

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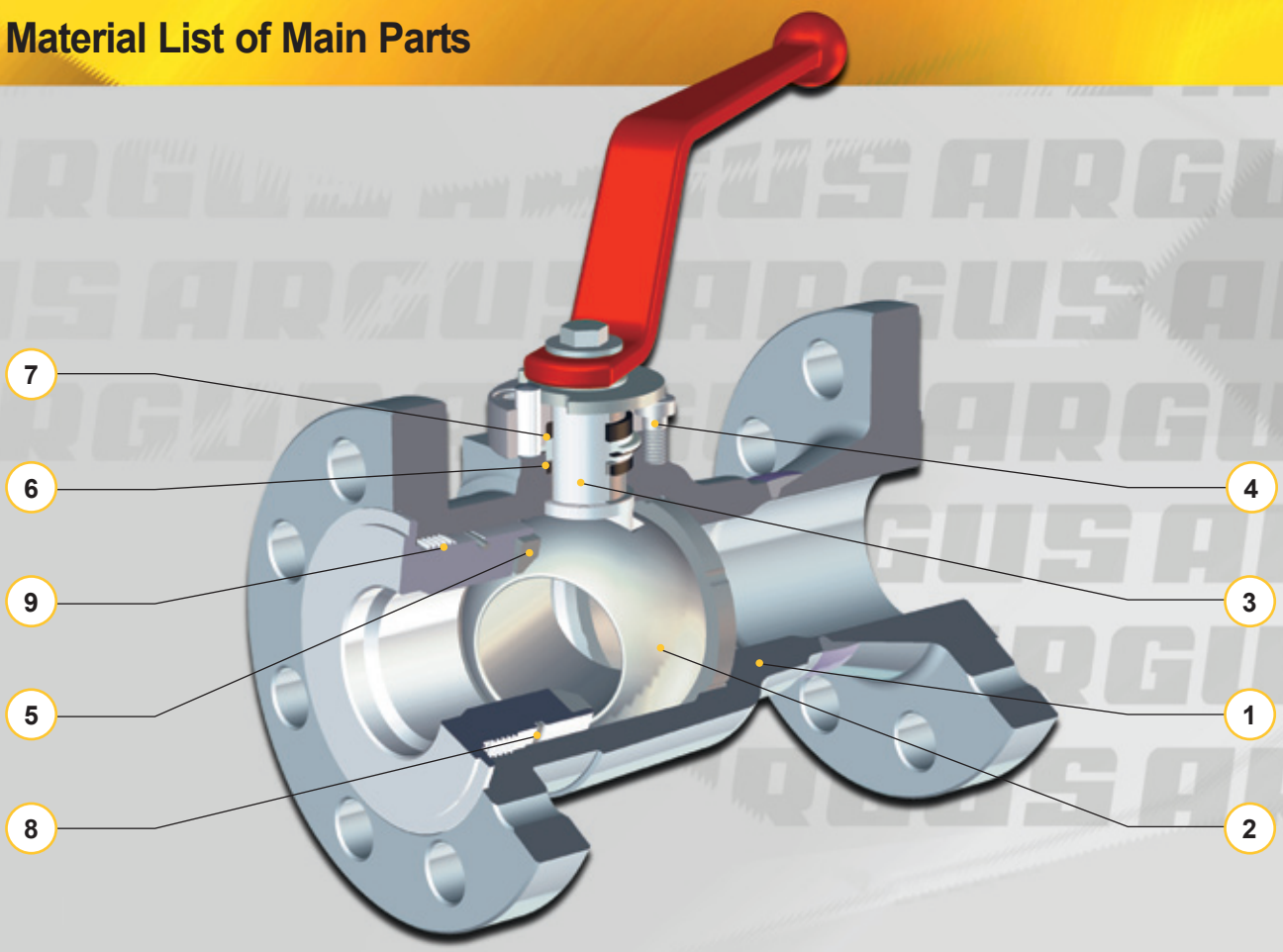
Material List of Main Parts



Item	Description	Material Specification	Nearest Typical ASTM-Equivalent
1	Body / Flange	CS Low Temp.1.0566 CS Low Temp.	A350 LF2 A350 LF2
2	Ball	CR13 1.4006 Duplex SS	Type 410 A182 F51
3	Stem	CR13 1.4104 SS 1.4571	AISI 430 A182 F316Ti
4	Gland Bolts	8.8 A4-70	
5	Ball Seats	PTFE; POM	
6	Primary Stem Seal	PTFE; FPM	
7	Secondary Stem Seal	Celastic	
8	Primary Insert Seal	PTFE; FPM	
9	Secondary Insert Seal	Celastic	

FLOWSERVE®

Argus

EK 71

DN 15 ANSI Cl. 150 Full Bore
DN 20-50 ANSI Cl. 150 Reduced 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 16.34 and BS 5351 requirements.

Design:

One piece low temperature forged Carbon Steel body design (end entry) with superfine finished seat supported ball, anti-blowout 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 latest TA-Luft and EPA (method 21) fugitive emissions requirements.

Accessories and Options:

- Limit switches
- Locking devices
- Extended wrenches
- Stem extensions
- Round, gull wing and spring return “deadman” handles

Standard Material Combinations (preferably to order – short delivery time):

ANSI	Cl. 150-600	Cl. 150-600	Cl. 600
Mat.-Code	1805008552	1D05004552	1807008442
Body	CS-Low Temp.	CS-Low Temp.	CS-Low Temp.
Ball/Stem	CR13	Duplex SS / SS	CR13
Seats	PTFE	PTFE	POM
Stem Seals	PTFE/Celastic	PTFE/Celastic	FPM/Celastic
Body Seals	PTFE/Celastic	PTFE/Celastic	FPM/Celastic

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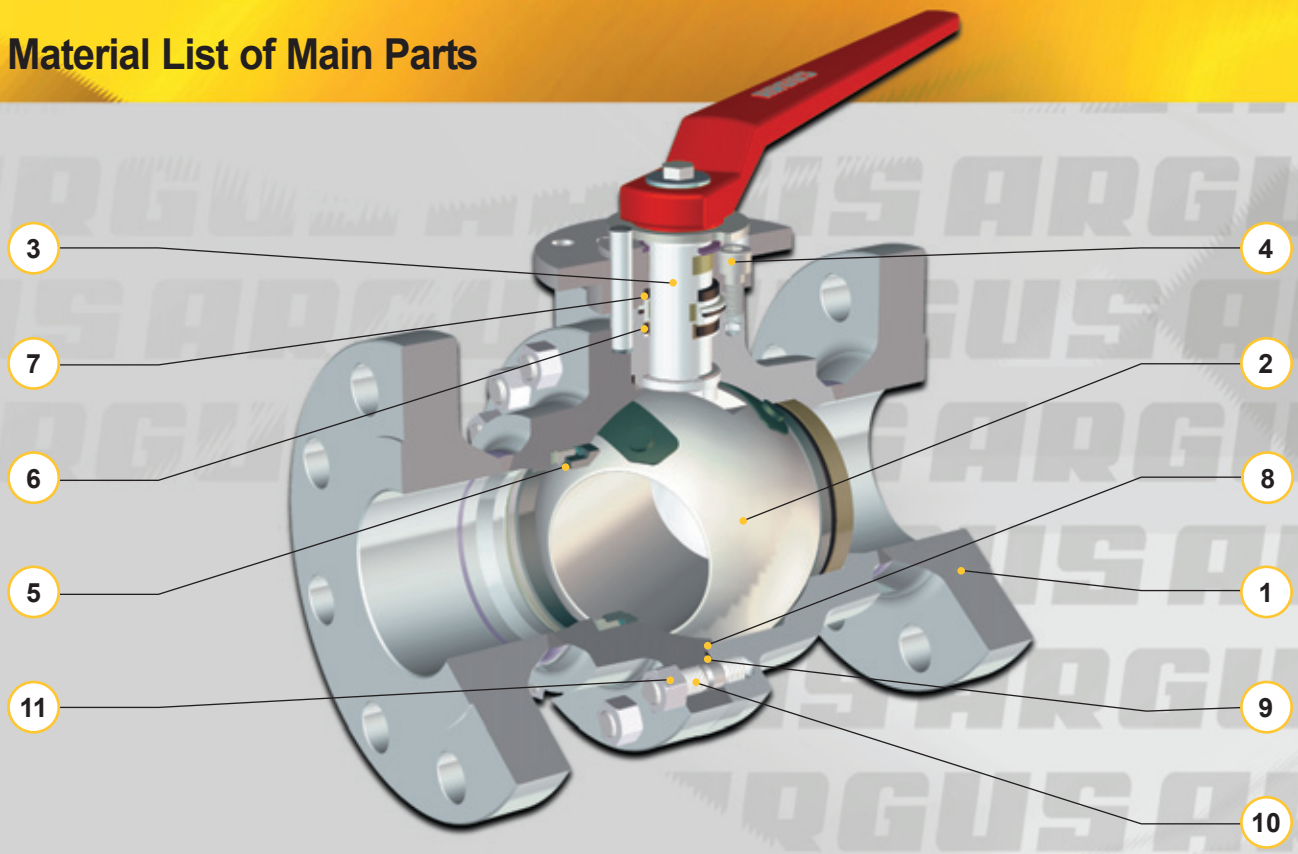
Material List of Main Parts



Item	Description	Material Specification	Nearest Typical ASTM-Equivalent
1	Body / Flange	CS Low Temp. 1.0566 CS Low Temp. A350 LF2 SS 1.4571 SS 1.4581	A350 LF2 A182 F316Ti
2	Ball	CR13 1.4027 SS 1.4408 SS Duplex hardfaced	A217 Gr. CA15 A351 CF8M A182 F51
3	Stem	CR13 1.4104 Duplex SS	Type 430 A182 F51
4	Gland Bolts	5.6 A4-70	
5	Ball Seats	PTFE SS hardfaced	
6	Primary Stem Seal	PTFE; FPM; MFQ	
7	Secondary Stem Seal	Celastic	
8	Primary Body Seal	PTFE; FPM; MFQ	
9	Secondary Body Seal	Celastic	
10	Bolts	A193 B7 (ASTM) A193 B8MN (ASTM)	
11	Nuts	A194 Gr.4 (ASTM) A194 8M (ASTM)	

FLOWSERVE®

Argus

FK 75M

DN 80-200 ANSI Cl. 150 Full Bore
DN 150-250 ANSI Cl. 150 Reduced Bore
DN 80-100 ANSI Cl. 300 Full Bore
DN 150 ANSI Cl. 300 Reduced Bore

Description:

The FK 75M ball valve with its many innovative design features represents the highest standards in valve technology and is designed to meet the API-6D, ANSI 16.34 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 latest TA-Luft and EPA (method 21) fugitive emissions requirements.

Fire safe to BS 6755 and API 607.

DIN/ISO 5211 mounting plate for easy assembly with actuators included.

Accessories and Options:

- Limit switches
- Locking devices
- Extended wrenches
- Stem extensions
- Steam jackets for indirect process heating
- Metal to metal seats
- Drain and vent/bleed connections

Standard Material Combinations (preferably to order – short delivery time):

ANSI	Cl. 150-300	Cl. 150-300	Cl. 150-300	Cl. 150-300
Mat.-Code	1805408552	140540D552	440540D552	1E8N8F8552
Body	CS Low Temp.	CS Low Temp.	SS	CS Low Temp.
Ball/Stem	CR13	SS/Duplex SS	SS/Duplex SS	CR13 hardfaced/CR13
Ball Seats	PTFE	PTFE	PTFE	CR13 hardfaced
Stem Seals	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic
Body Seals	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic
Seat Springs	SS	SS	SS	SS

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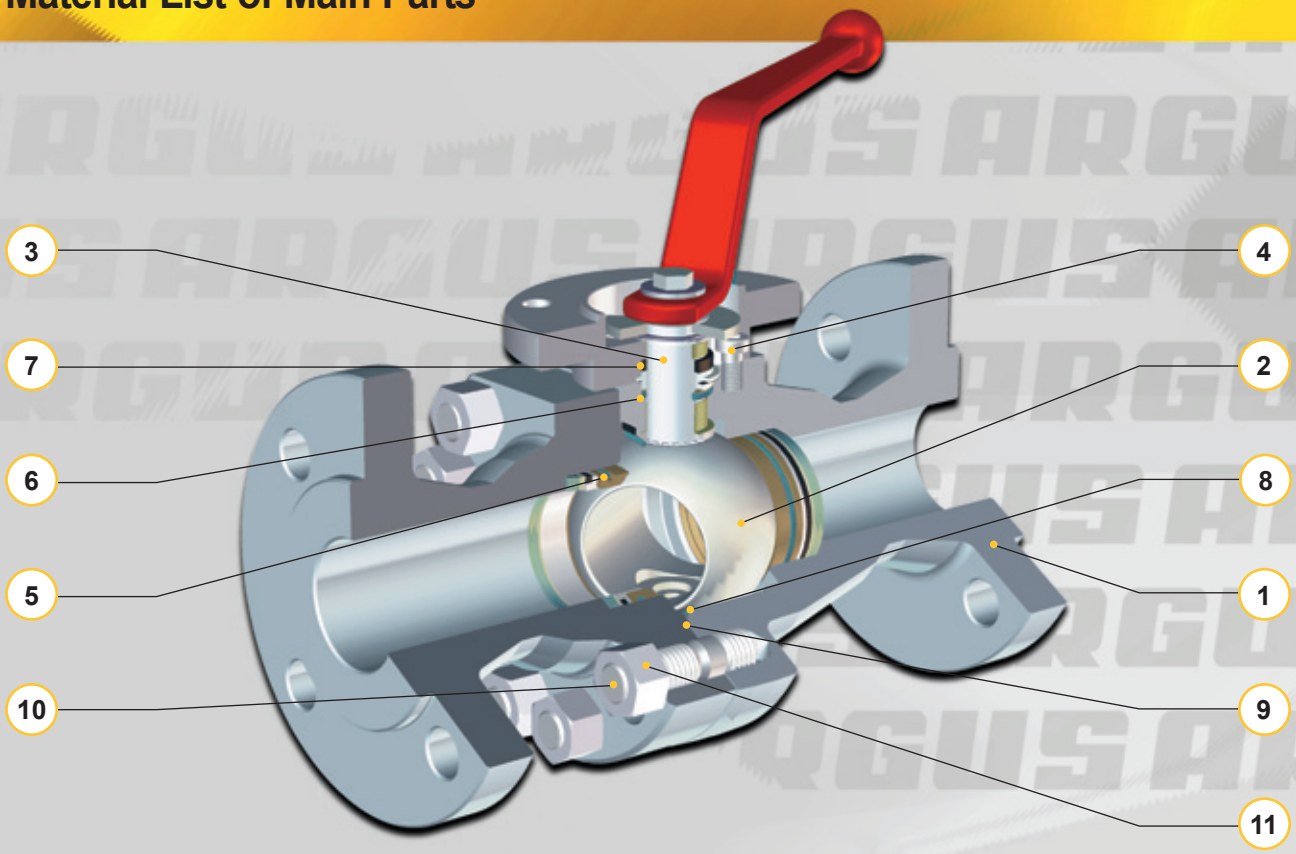
Material List of Main Parts



Item	Description	Material Specification	Nearest Typical ASTM-Equivalent
1	Body / Flange	1.0566 (TstE355N) 1.0460 (C22G2) SS 1.4571	A350 LF2 A 105 A182 F316Ti
2	Ball	SS Duplex SS Duplex hardfaced	A182 F51 A182 F51 hardfaced
3	Stem	1.4462 (Duplex)	A182 F51
4	Gland Bolts	8.8 A4-70	
5	Ball Seats	POM SS Duplex hardfaced	
6	Primary Stem Seal	FPM	
7	Secondary Stem Seal	Celastic	
8	Body Seal	FPM	
9	Secondary Body Seal	Celastic	
10	Bolts	A193 B7 (ASTM) A4-70	
11	Nuts	A194-Gr.4 (ASTM) A4-70	

DN 50 ANSI Cl. 600-1500 Full Bore
DN 80 ANSI Cl. 600-1500 Reduced 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, ANSI 16.34 and BS 5351 requirements.
Long lifetime and low operating torques due to the clear separation of the sealing and bearing functions, on both ball and stem.

Design:

Split body design with superfine finished trunnion mounted ball, anti-blowout 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 latest TA-Luft and EPA (method 21) fugitive emissions requirements.

Firesafe to BS 6755 and API 607.

DIN/ISO 5211 mounting plate for easy assembly with actuators included.

Accessories and Options:

- Limit switches
- Locking devices
- Extended wrenches
- Stem extensions
- Metal to metal seats and/or extended bonnets with stuffing box for high/low temperatures and abrasive medium and high cycle applications
- Drain and vent/bleed connections

Standard Material Combinations (preferably to order – short delivery time):

ANSI	Cl. 600 -1500	Cl. 600 -1500	Cl. 600 -1500	Cl. 600 -1500
Mat.-Code	1D07D4D442	4D07D4D442	1ADAD4D442	4ADAD4D442
Body	CS-Low Temp.	SS	CS-Low Temp.	SS
Ball/Stem	SS	SS	SS	SS
Ball Seats	POM/ SS	POM/ SS	SS	SS
Stem Seals	FPM/Celastic	FPM/Celastic	FPM/Celastic	FPM/Celastic
Body Seals	FPM/Celastic	FPM/Celastic	FPM/Celastic	FPM/Celastic
Seat Springs	SS	SS	SS	SS

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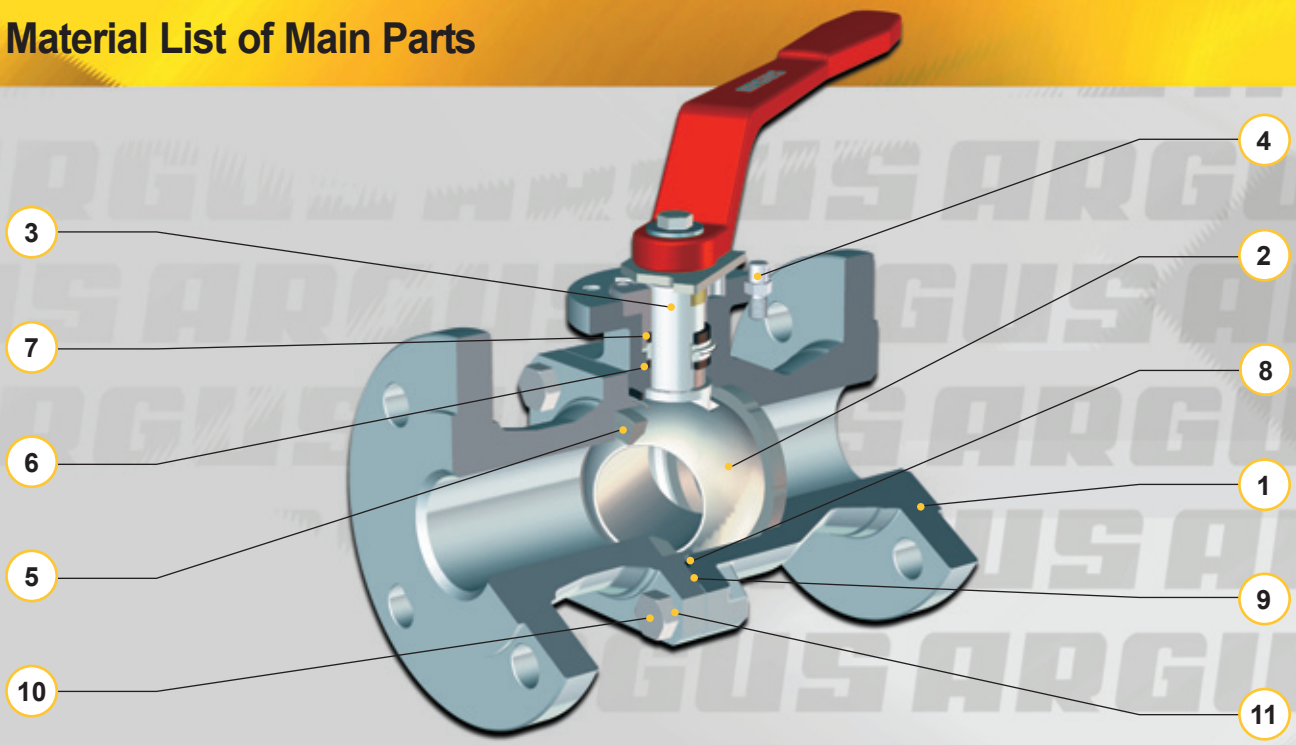
Material List of Main Parts



Item	Description	Material Specification	Nearest Typical ASTM-Equivalent
1	Body / Flange	CS Casting 1.0619 CS Low Temp. CS Low Temp. A350 LF2 (ASTM) SS 1.4571 Duplex SS; Monel etc. optional	A216WCB A350 LF2 A182 F51
2	Ball	Duplex SS Monel Duplex SS hardfaced	A182 F51
3	Stem	Duplex SS Monel 17-4PH	A182 F51
4	Gland Bolts	8.8 A4-70	A194-B8M
5	Ball Seats	PTFE; POM; Lyton Duplex SS hardfaced	
6	Primary Stem Seal	PTFE	
7	Secondary Stem Seal	Celastic	
8	Body Seal	PTFE	
9	Secondary Body Seal	Celastic	
10	Bolts	A193 B7 (ASTM) A193 B8MN (ASTM) A4-70	
11	Nuts	A194 Gr.4 (ASTM) A194 8M (ASTM) A4-70	

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 standard in valve technology and is designed to meet the API-6D, ANSI 16.34 and BS 5351 requirements.

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 latest TA-Luft and EPA (method 21) fugitive emissions requirements.

Firesafe to BS 6755 and API 607.

DIN/ISO 5211 mounting plate for easy assembly with actuators included.

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.

Accessories and Options:

- 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 and high cycle applications
- Drain connections

Standard Material Combinations (preferably to order – short delivery time):

ANSI	Cl. 150-600	Cl. 150-600	Cl. 150-600	Cl. 150-600
Mat.-Code	1D0500D552	1ADAD2D552	4D0500D552	4ADAD2D552
Body	CS	CS	SS	SS
Ball/Stem	Duplex SS	Duplex SS hardmetal coated	Duplex SS	Duplex SS hardmetal coated
Ball Seats	PTFE	Duplex SS hardmetal coated	PTFE	Duplex SS hardmetal coated
Stem Seals	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic
Body Seals	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic	PTFE/Celastic

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