KLINGER Fluid Control

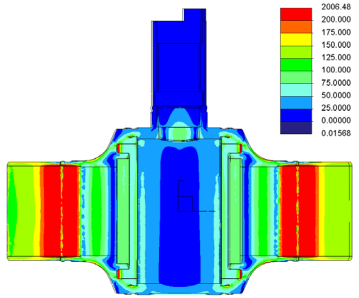
KLINGER FLUID CONTROL

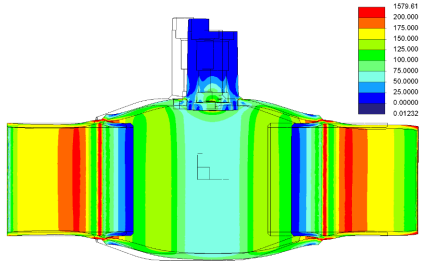
Ballostar KH(SV)I ball valve „Advanced“

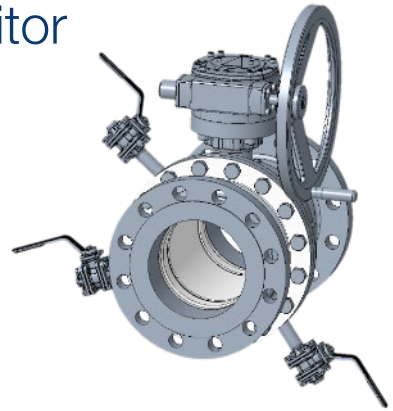
KH(SV)I ADVANCED

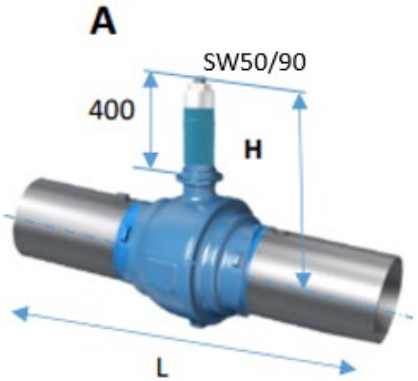
Agenda

- Construction
- Advantages
- Comparison to competitor sealing systems
- The ball - benefits
- Operating torques
- KH(SV)I and AUMA actuators
- KH(SV)I and AIR TORQUE actuators
- KHSVI VVS prepared for insulation
- KHSVI VVS comparison to competitor
- Applications

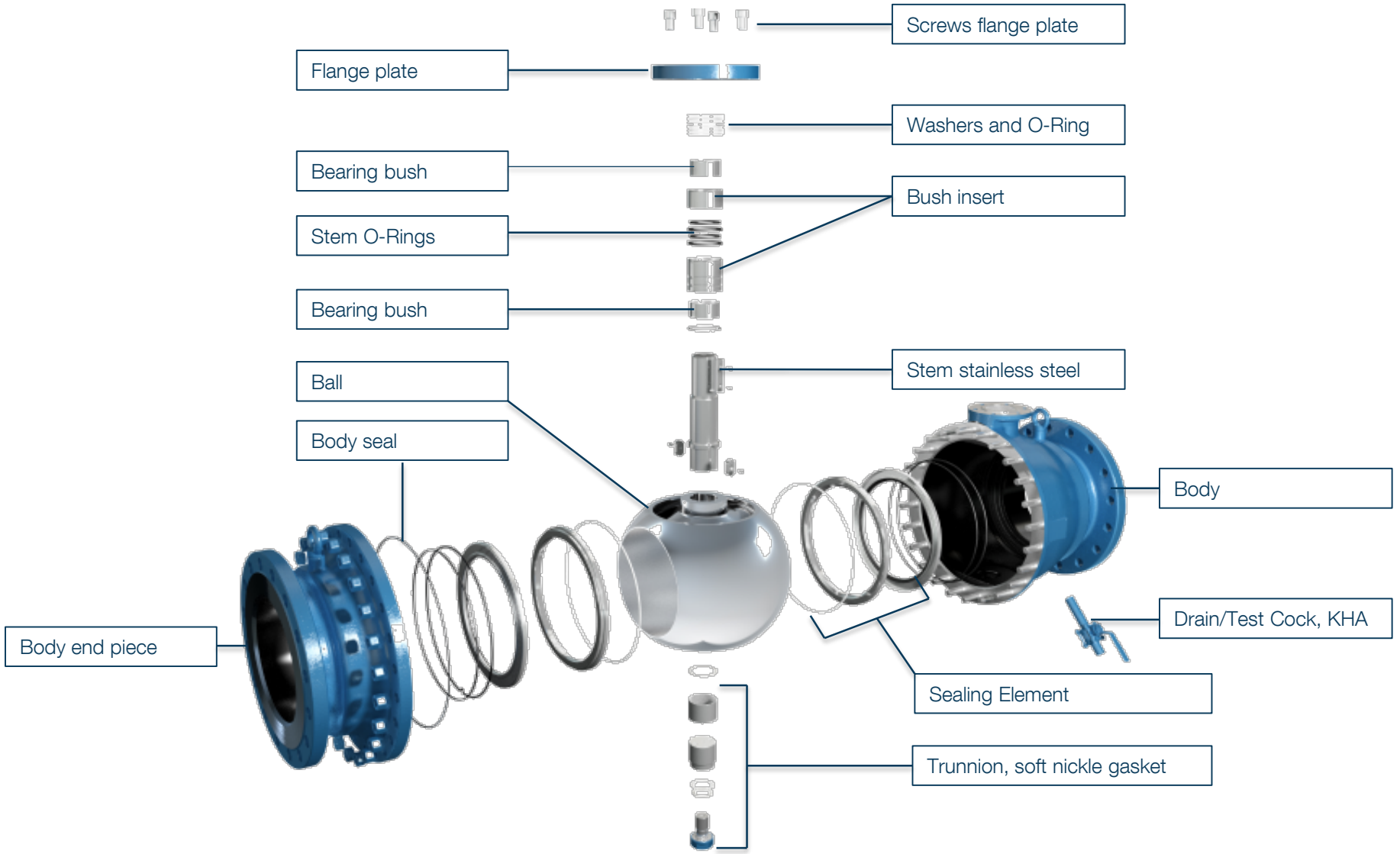








CONSTRUCTION KH(SV)I (VVS)



ADVANTAGES

Sealing system

Elastic Sealing System for high temperatures (→260°C)

Due to sealing system / trunnion mounted ball → low torque → bidirectional flow

Sealing construction → insensitive to imputiertes → metal seats available

Valid for abrasive medias

Ball

Ductile graphite iron ball with chrome coating (30µm)
Very corrosion resistant → Scratch proof
Chrome Layer harder than ANY stainless steel ball→ resistant against solids
No turbulences → cylindrical passage

Body

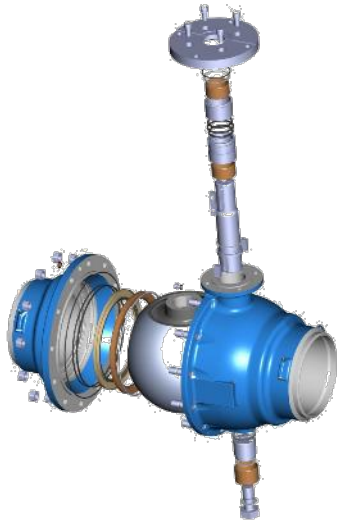
Compact casted construction → insensitive to pipe forces

Pneum. and electr. actuators possible to install → Connection acc. ISO 5211

Installation in any position possible →bidirectional flow

Fully Welded version available → no different weldings on housing

Drain/Test cock available



Quality

Maintenance free

Long service life (min. 20 -25 years)

Stem Sealing could be changed inline

Leakage rate A → tested acc. EN12266-1

DB&B → maximum safety → TÜV confirmed

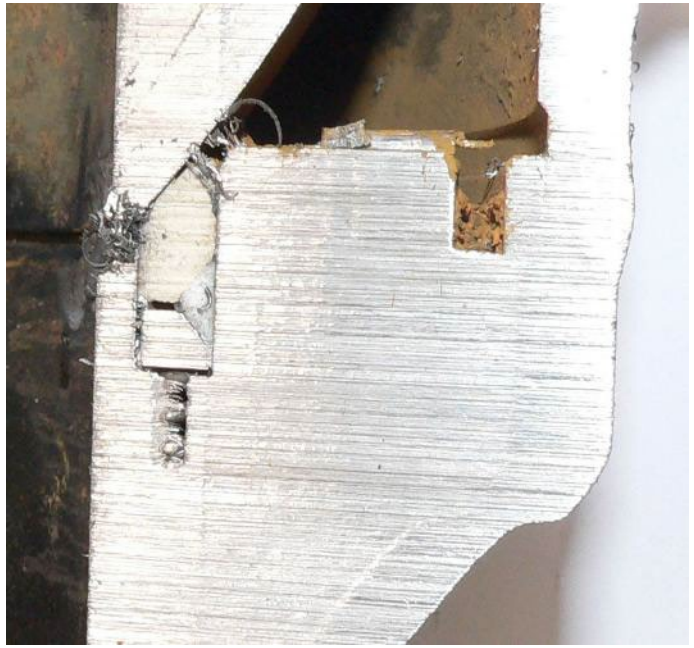
EN488

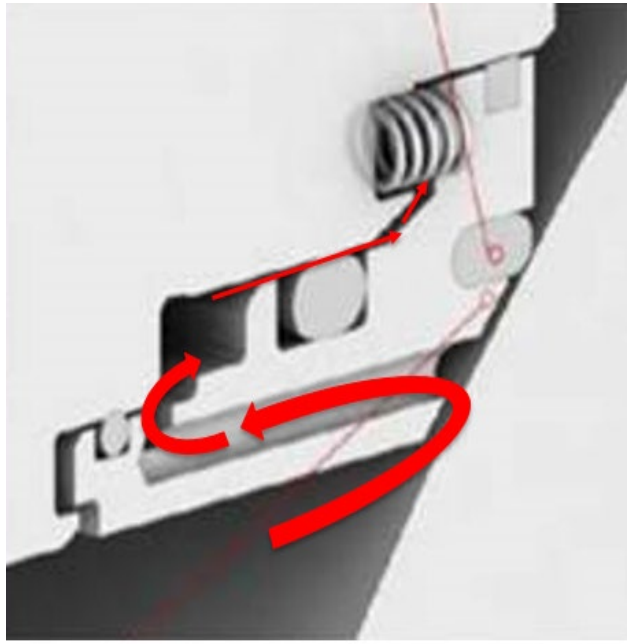
Fulfill the latest version acc. EN488:2019

Certification acc. EN488:2019

COMPARISON

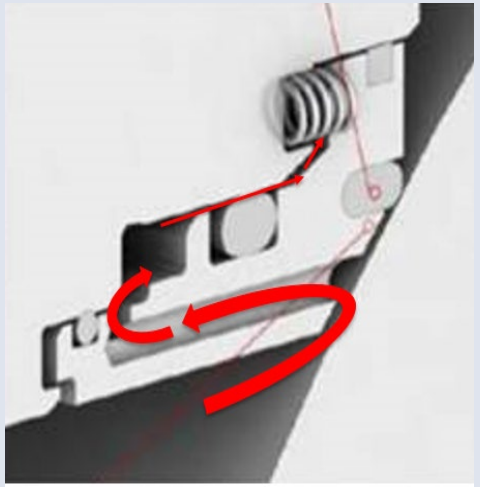
Sealing system KH(SV)I vs spring loaded system





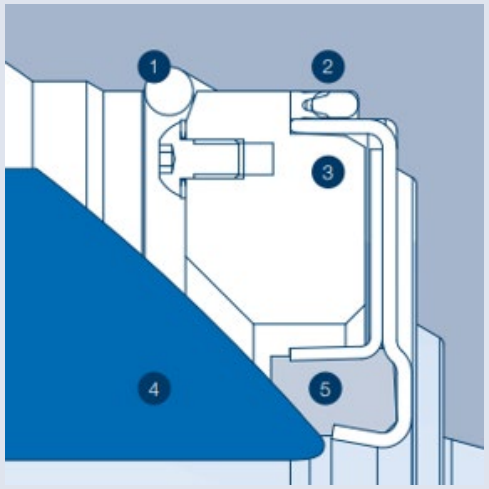
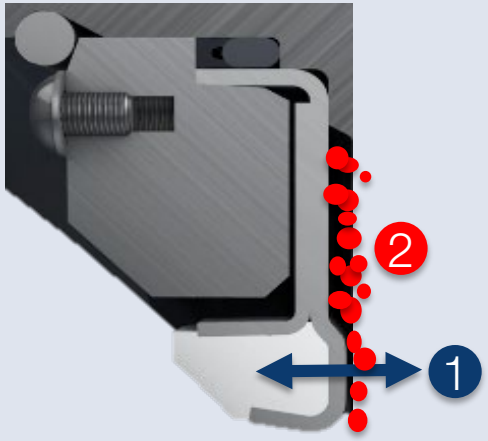
KH(SV)I VS SPRING LOADED SYSTEM

Overview

	Klinger sealing system	Spring loaded system	Spring loaded system PMSS (primary metal secondary soft)
Seat material	KFC (75% PTFE + 25% graphite)	PTFE + C	HNBR + metal
Type of seat	Elastic	Spring loaded	Spring loaded, media supported
Temperature range	-40°C to +260°C	-20°C to +200°C	-20°C to +200°C
Structure			

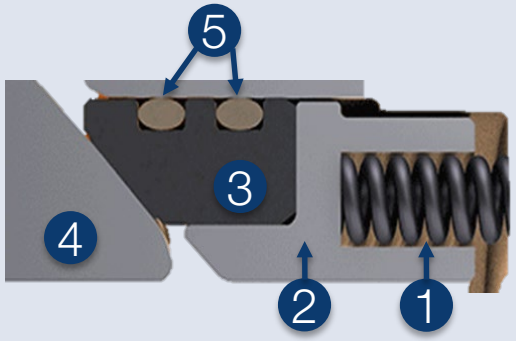
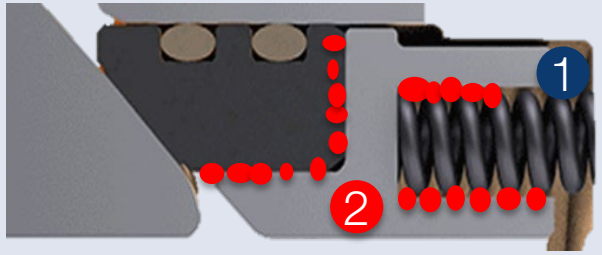
KH(SV)I VS SPRING LOADED SYSTEM

Properties KFC sealing system

	Klinger sealing system	Setup	Function
Seat material	KFC (75% PTFE + 25% graphite)	(1) Wire ring (2) U-sleeve + O-Ring AFLAS (3) Support ring (4) Ball nodular iron chrome coated (5) Sealing ring KFC	(1) The sealing system has elastic properties and the sealing ring is always in contact with the ball. Applied contact forces are distributed linear and axial. The media pressure additionally support the contact force of the seat on the ball. (2) Particles or solids can easily circulate behind the sealing element without clogging.
Type of seat	Elastic		
Temperature range	-40°C to +260°C		
Structure			

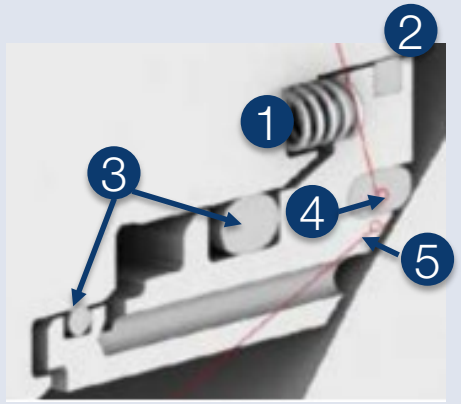
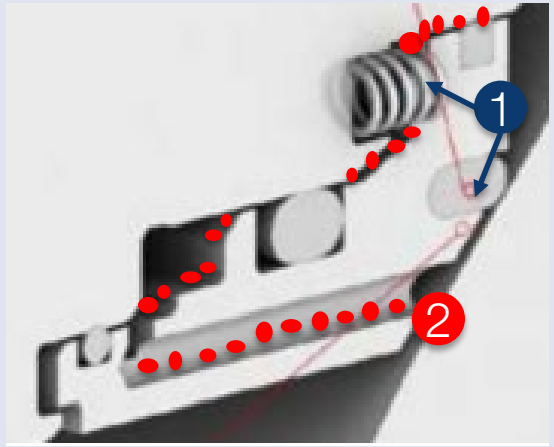
KH(SV)I VS SPRING LOADED SYSTEM

Properties spring loaded sealing system

	Spring loaded system	Setup	Function
Seat material	PTFE + C	(1) Spring (2) Seal ring support (3) Seal ring PTFE + C (4) Ball A350LF2 + ENP coating (5) Backup O-ring	(1) The sealing system has spring loaded properties . Applied contact forces are distributed only linear. (2) The system is susceptible to solids and can easily become clogged, which can lead to a blockage of the valve. Furthermore particles can come into the cavity which leads to corrosion.
Type of seat	Spring loaded		
Temperature range	-20°C to +200°C		
Structure			

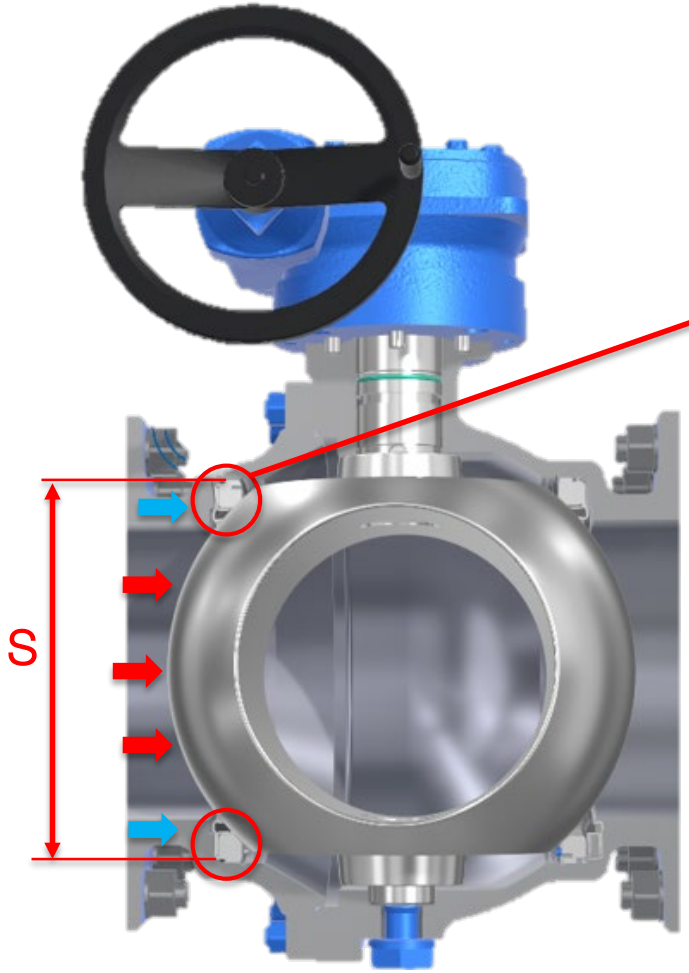
KH(SV)I VS SPRING LOADED SYSTEM

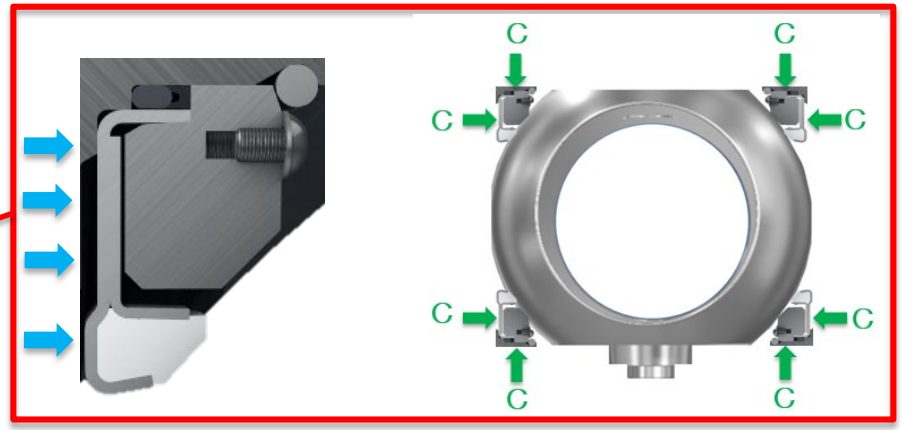
Properties spring loaded sealing system PMSS

	PMSS sealing system	Setup	Function
Seat material	HNBR + metal	(1) Spring (2) Gasket for spring protection (3) O-Ring (4) HNBR ring (5) Metal seat	(1) The sealing system is spring loaded with a HNBR O-ring and a metal seat. Applied contact forces are distributed only linear. (2) The system is susceptible to solids and can easily become clogged, which can lead to a blockage of the valve. Furthermore particles can come into the cavity which leads to corrosion.
Type of seat	Spring loaded, media supported		
Temperature range	-20°C to +200°C		
Structure			

KH(SV)I VS SPRING LOADED SYSTEM

KFC sealing system function

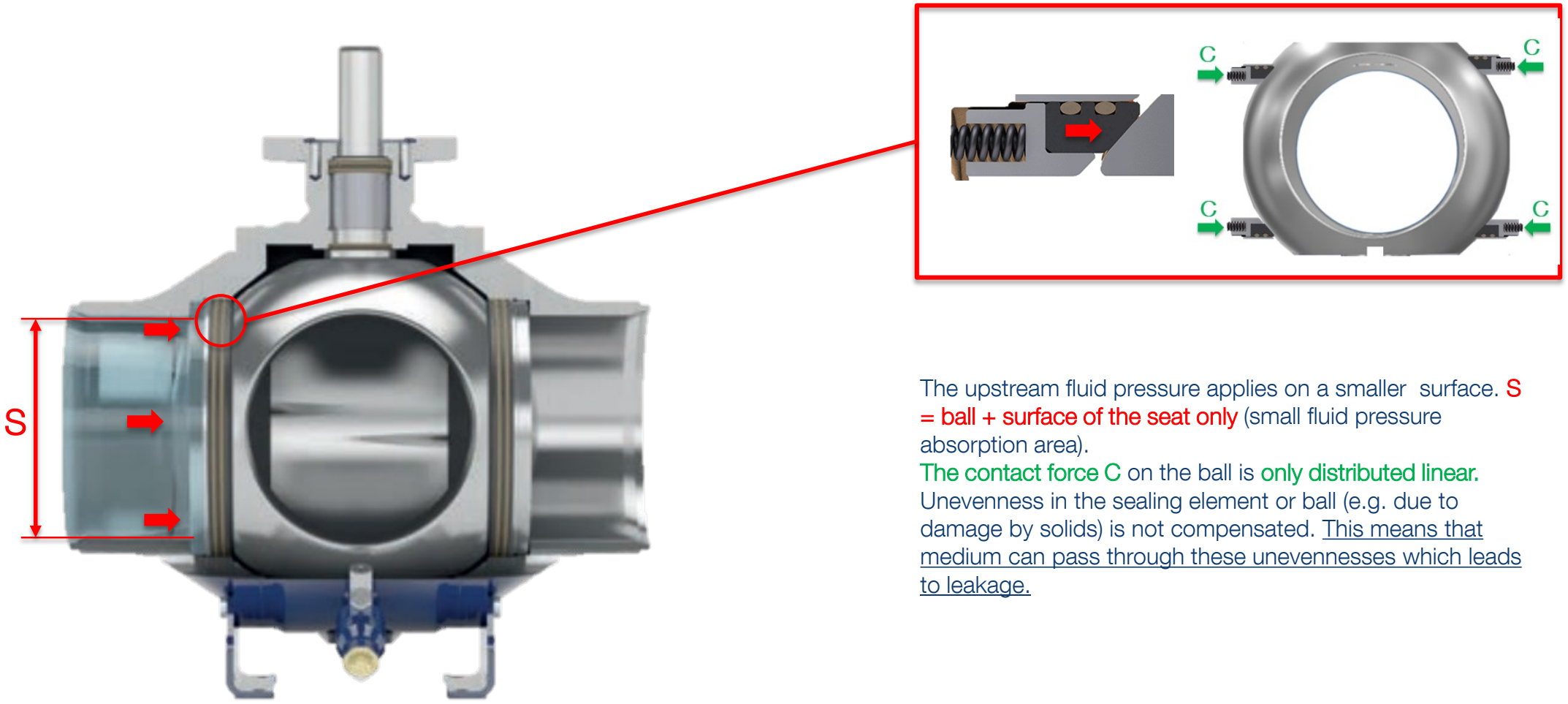




The upstream fluid pressure applies on a large surface. S = ball + diaphragm disc of the sealing element (large fluid pressure area). The contact force C of the sealing elements is distributed linear and axial. The advantage of the axial contact pressure is that unevenness in the sealing element or ball (e.g. due to damage from solids) is compensated.

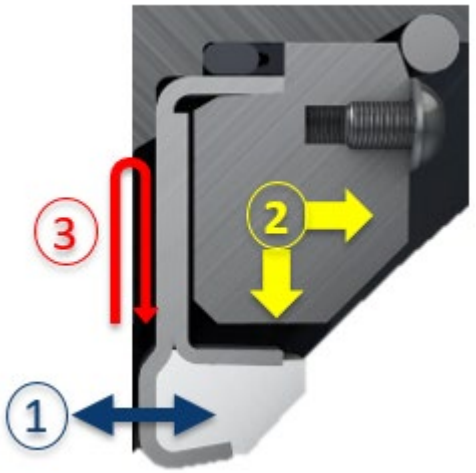
KH(SV)I VS SPRING LOADED SYSTEM

Spring loaded sealing system function

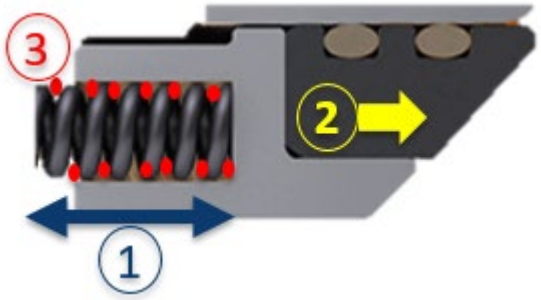


The upstream fluid pressure applies on a smaller surface. S = ball + surface of the seat only (small fluid pressure absorption area).
The contact force C on the ball is only distributed linear. Unevenness in the sealing element or ball (e.g. due to damage by solids) is not compensated. This means that medium can pass through these unevennesses which leads to leakage.

SUMMARY



(1) The sealing system has elastic properties and the sealing ring is always in contact with the ball.
(2) Applied contact forces are distributed linear and axial. The media pressure additionally support the contact force of the seat on the ball.
(3) Particles or solids can easily circulate behind the sealing element without clogging (no blocking).

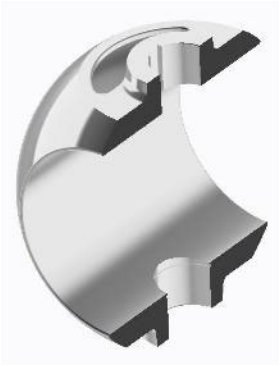


(1) The sealing system has spring loaded properties.
(2) Applied contact forces are distributed only linear. Unevenness in the sealing element or ball (e.g. due to damage by solids) is not compensated.
(3) The system is susceptible to solids and can easily become clogged, which can lead to a blockage of the valve. Furthermore particles can penetrate into the cavity of the valve which leads to corrosion.

KH(SV)I BALL

Benefits

Benefits of the KHI : The ball hardness and surface roughness



The KHI standard ball is made of ductile iron chrome coated. Chrome layer is harder than ANY stainless steel ball.
Advantages of chrome coating:

- The high hardness of chrome makes the ball insensitive to mechanical impact, e.g. solids in the medium, and is therefore scratch-resistant and resistant to damage to the ball surface.
- The chrome layer also makes the ball resistant to pressure shocks and temperature changes during operation.
- **The low surface roughness prevents media particles from sticking to the surface of the ball (stuck particles on the ball can damage the sealing seat of the valve during the switching process).**
- The high wear resistance of the chrome layer considerably increases the service life of the valve and the seal seats and is therefore particularly suitable for many switching cycles.
- Lubricants are distributed on the smooth surface due to the high non-stick properties, which contributes to the better running characteristics of the ball. The extremely smooth ball surface is also achieved by the good polishability of chrome.
- Chrome also offers the greatest possible protection when using chemical and abrasive media and is therefore acid and rust resistant.

	Execution	Hardness	Surface roughness (RZ)
KLINGER	Hard chrome plated	800 – 1000 HV	0,6 µm
Competitor	Nickel plated	500 – 650 HV	5,6 µm
	Stainless steel	300 – 350 HV	3,5 µm

BALL VALVE KH(SV)I

Torques

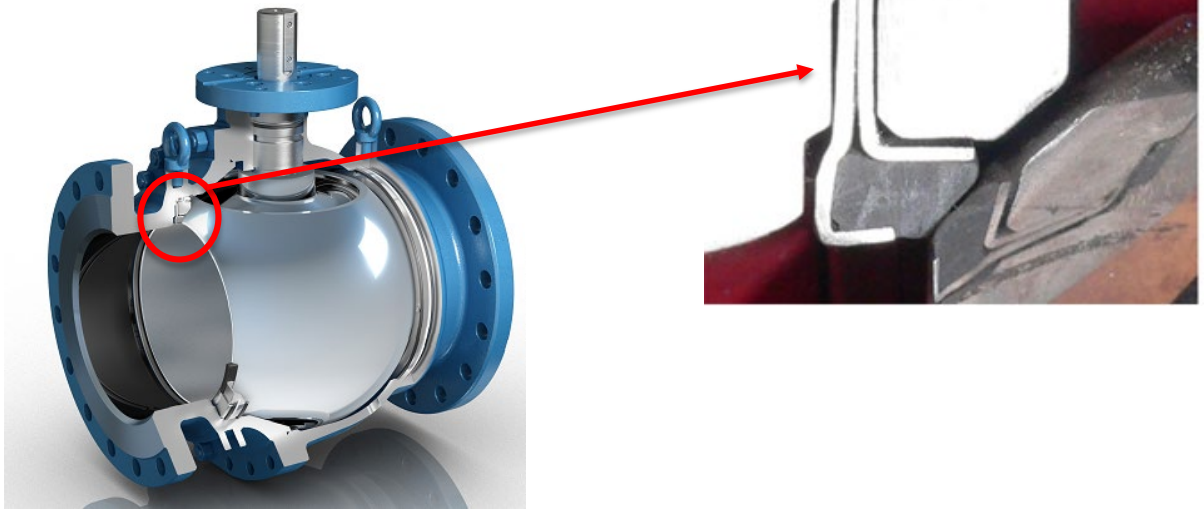
KFC SEAT RING

Nominal diameter DN	Differential pressure (bar)	
	25	40
mm	Torque (Nm)	
150	651	1,260
200	1,069	1,757
250	2,083	2,905
300	3,710	5,733
350	5,068	7,063
400	6,251	7,987
500	8,701	11,655
600	13,020	15,540
700	19,320	27,510
800	31,395	36,960
1000	45,000	60,000

METAL SEAT

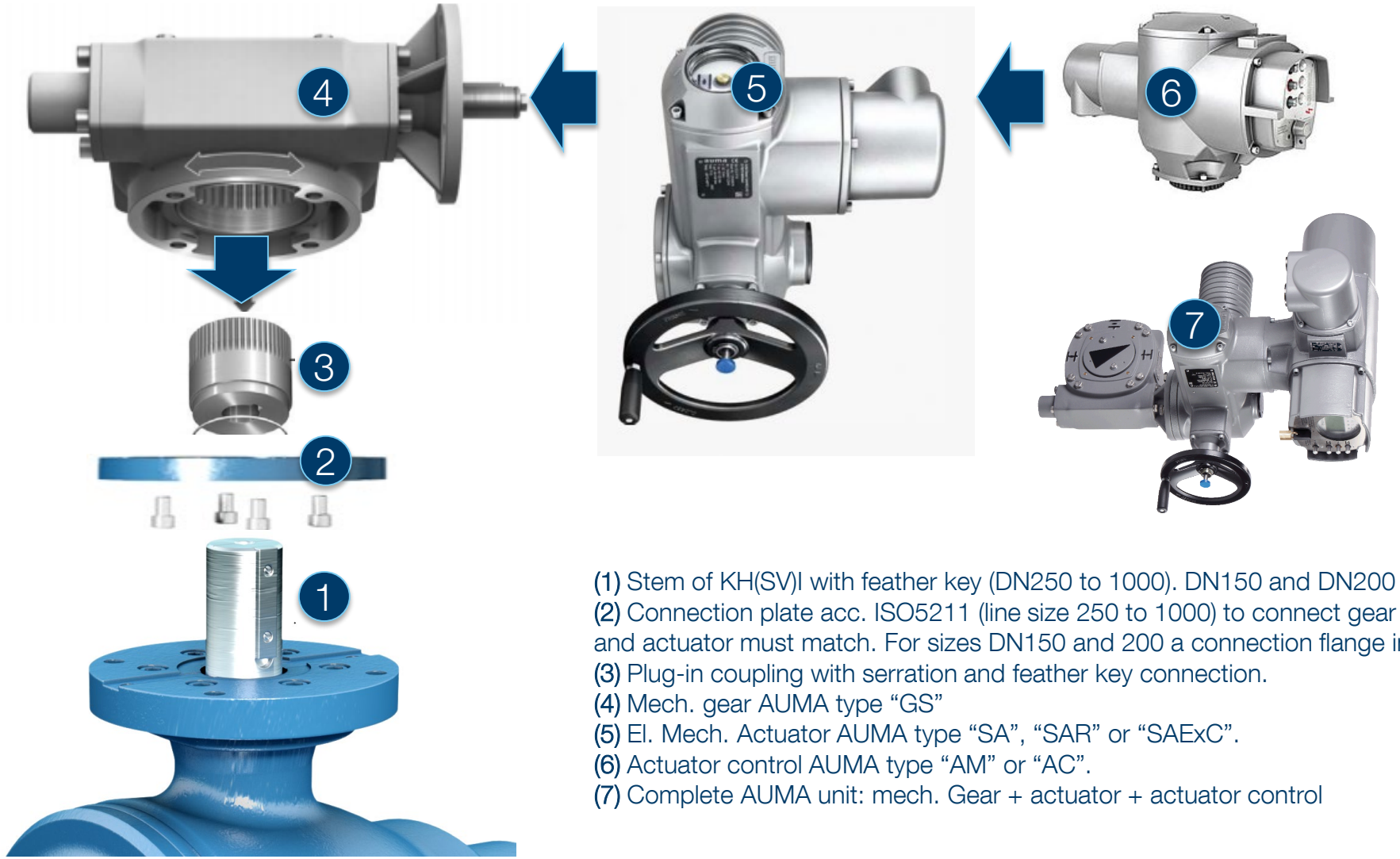
Nominal diameter DN	Differential pressure (bar)	
	16	25
mm	Torque (Nm)	
150	882	1,176
200	1,372	1,764
250	2,646	3,528
300	4,998	6,272
350	6,958	8,624
400	8,526	10,192
500	10,668	14,063

The tables shows the operating torques (break to open) for PN25 and PN40 of KFC seats and also metal seats for PN16 and PN25. Usually metal seats have a higher torque compared to soft seated KFC.



BALL VALVE KH(SV)I

AUMA basic configuration

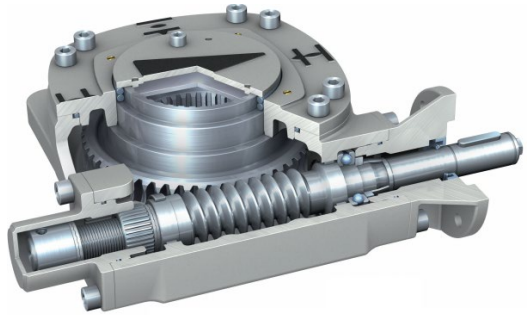


(1) Stem of KH(SV)I with feather key (DN250 to 1000). DN150 and DN200 with square end.
(2) Connection plate acc. ISO5211 (line size 250 to 1000) to connect gear with valve. F size of connection plate and actuator must match. For sizes DN150 and 200 a connection flange in different F Sizes will be used.
(3) Plug-in coupling with serration and feather key connection.
(4) Mech. gear AUMA type “GS”
(5) El. Mech. Actuator AUMA type “SA”, “SAR” or “SAExC”.
(6) Actuator control AUMA type “AM” or “AC”.
(7) Complete AUMA unit: mech. Gear + actuator + actuator control

BALL VALVE KH(SV)I

AUMA gear sizing PN25

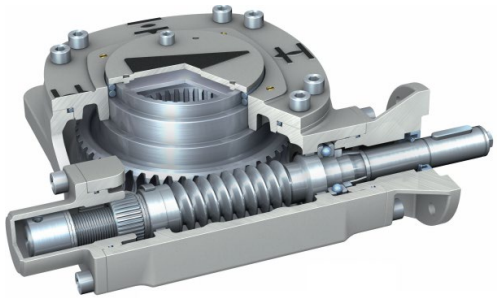
AUMA gear sizing hand operation KH(SV)I PN25-KFC					
Size	Nm valve	Nm gear	Gear type	ISO5211	Hand wheel (dm)
DN150	651	1000	GS 63.3-51:1/H	F12	315
DN200	1069	2000	GS 80.3-53:1/H	F14	400
DN250	2083	4000	GS 100.3-208:1/H	F16	315
DN300	3710	4000	GS 100.3-208:1/H	F16	315
DN350	5068	8000	GS 125.3-208:1/H	F25	400
DN400	6251	8000	GS 125.3-208:1/H	F25	400
DN500	8701	14000	GS 160.3-442:1/H	F25	400
DN600	13020	28000	GS 200.3-434:1/H	F30	630
DN700	19320	28000	GS 200.3-434:1/H	F35	630
DN800	31395	56000	GS 250.3-411:1/H	F35	630
DN1000	45000	90000	GS 315/GZ30.1-16	F40	630



BALL VALVE KH(SV)I

AUMA gear sizing PN40

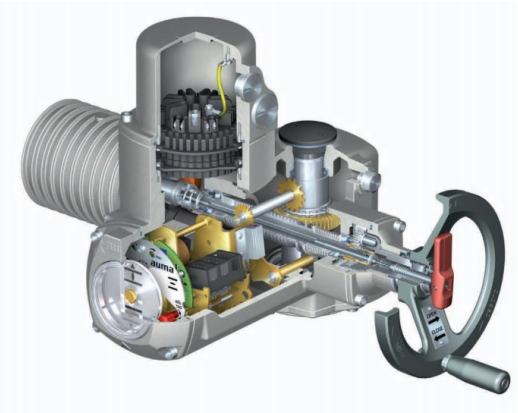
AUMA gear sizing hand operation KH(SV)I PN40-KFC					
Size	Nm valve	Nm gear	Gear type	ISO5211	Hand wheel (dm)
DN150	1260	2000	GS 80.3-53:1/H	F14	400
DN200	1757	2000	GS 80.3-53:1/H	F14	400
DN250	2905	4000	GS 100.3-208:1/H	F16	315
DN300	5733	8000	GS 125.3-208:1/H	F25	400
DN350	7063	8000	GS 125.3-208:1/H	F25	400
DN400	7987	14000	GS 160.3-442:1/H	F25	400
DN500	11655	28000	GS 200.3-434:1/H	F30	630
DN600	15540	28000	GS 200.3-434:1/H	F30	630
DN700	27510	56000	GS 250.3-411:1/H	F35	630
DN800	36960	56000	GS 250.3-411:1/H	F35	630
DN1000	60000	90000	GS 315/GZ30.1-16	F40	630



BALL VALVE KH(SV)I

AUMA actuator sizing PN25

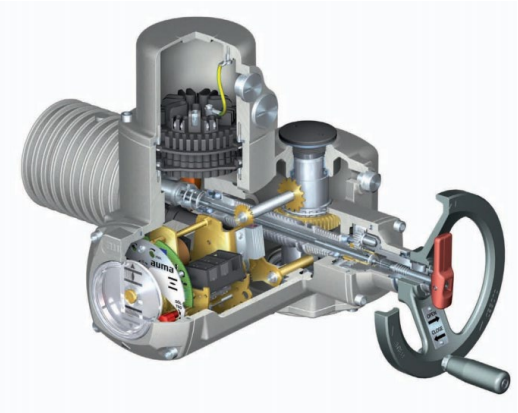
AUMA gear & actuator sizing motor operation KH(SV)I PN25-KFC							
Size	Nm valve	Nm gear	Gear type	ISO5211	Actuator type	Closing time (sec.)	RPM
DN150	651	800	GS 63.3-51:1/H	F12	SA 07.6	35	22
DN200	1069	1600	GS 80.3-53:1/H	F14	SA 10.2	50	16
DN250	2083	3200	GS 100.3-208:1/H	F16	SA 07.6	69	45
DN300	3710	6400	GS 125.3-208:1/H	F25	SA 07.6	98	32
DN350	5068	6400	GS 125.3-208:1/H	F25	SA 10.2	98	32
DN400	6251	11200	GS 160.3-442:1/H	F25	SA07.6	147	45
DN500	8701	11200	GS 160.3-442:1/H	F25	SA 10.2	147	45
DN600	13020	22400	GS 200.3-864:1/H	F30	SA 10.2	206	63
DN700	19320	22400	GS 200.3-864:1/H	F35	SA 10.2	288	45
DN800	31395	44800	GS 250.3-848:1/H	F35	SA 14.2	283	45
DN1000	45000	63000	GS 315/GZ30.1-16	F40	SA14.2	283	45



BALL VALVE KH(SV)I

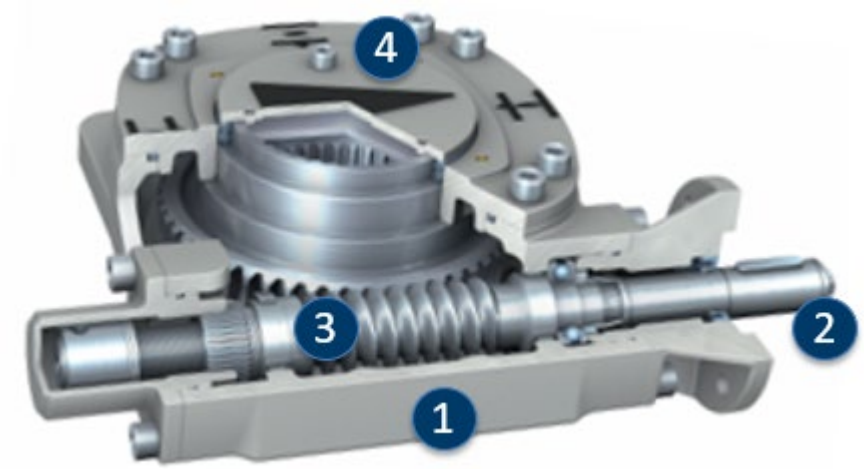
AUMA actuator sizing PN40

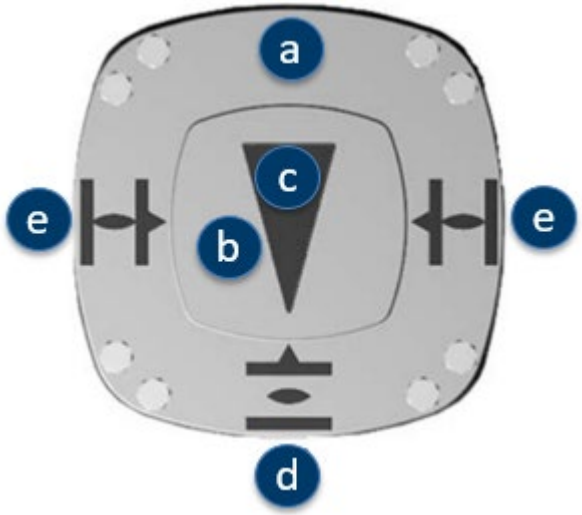
AUMA gear & actuator sizing motor operation KH(SV)I PN40-KFC							
Size	Nm valve	Nm gear	Gear type	ISO5211	Actuator type	Closing time (sec.)	RPM
DN150	1260	1600	GS 80.3-53:1/H	F14	SA 10.2	36	22
DN200	1757	3200	GS 100.3-208:1/H	F16	SA 07.6	50	63
DN250	2905	6400	GS 125.3-208:1/H	F25	SA07.6	69	45
DN300	5733	11200	GS 160.3-442:1/H	F25	SA07.6	105	63
DN350	7063	11200	GS 160.3-442:1/H	F25	SA07.6	105	63
DN400	7987	11200	GS 160.3-442:1/H	F25	SA 10.2	147	45
DN500	11655	22400	GS 200.3-864:1/H	F30	SA07.6	144	90
DN600	15540	22400	GS 200.3-864:1/H	F30	SA 10.2	206	63
DN700	27510	44800	GS 250.3-848:1/H	F35	SA10.2	283	45
DN800	36960	44800	GS 250.3-848:1/H	F35	SA 14.2	283	45
DN1000	60000	125000	GS 400/GZ35.1-16	F48	SA14.6	288	45



AUMA GEAR

Construction



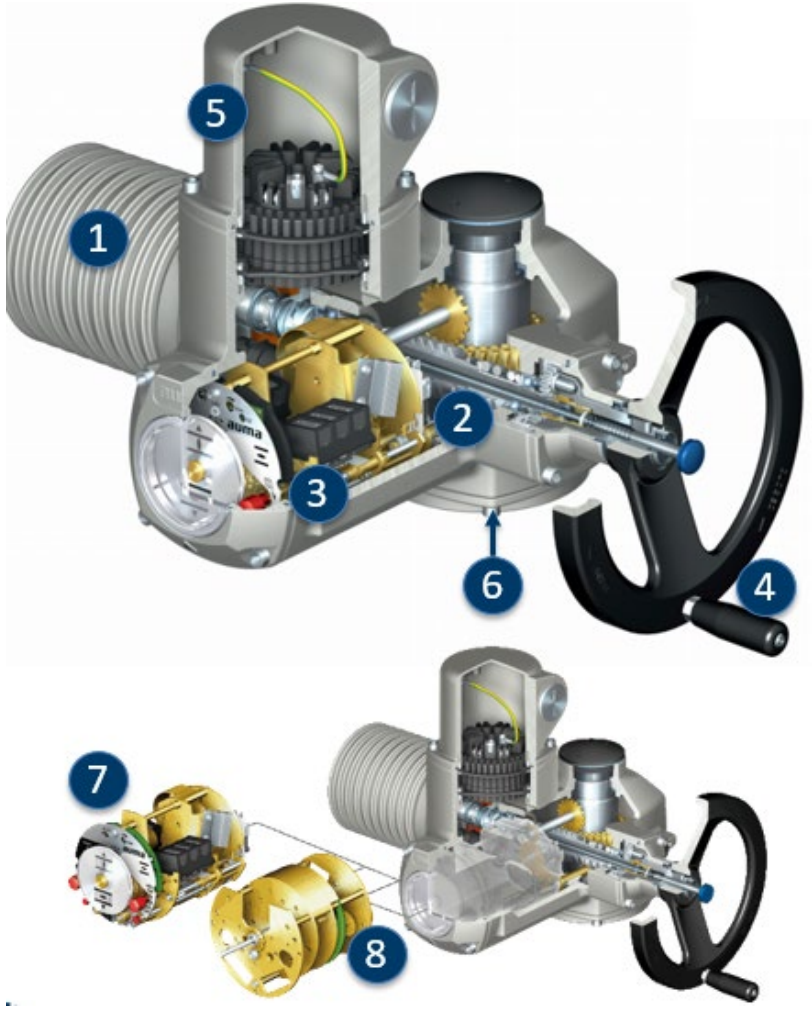


Standard construction:
Operation: Clockwise RR, optionally counterclockwise LL.
(1) Body material grey cast iron GJL-250.
(2) Input shaft corrosion-protected, cylindrical with feather key according to DIN 6885-1 .
(3) Worm wheel material nodular cast iron.
(4) Arrow cover for continuous position indication.
Handwheel made of aluminium with KTL coating.
Valve connection acc. EN ISO 5211.
Ambient temperature –40 °C bis +80 °C.
Protection class according to EN 60529 IP68, dust and waterproof up to max. 8 m water column.
Corrosion protection “KS”: suitable for use in areas of high salt load, almost constant condensation and heavy
contamination.
Coating: Two-layer powder coating.
Color: AUMA silver-grey (similar to RAL 7037).
Explosion protection ATEX II 2G Ex h IIC T4 Gb, II 2D Ex h IIIC T130°C Db.

Mechanical position indication:
(a) Body cover
(b) Arrow cover
(c) Display mark
(d) Symbol for OPEN position
(e) Symbol for CLOSE position

AUMA SA ACTUATOR

Construction

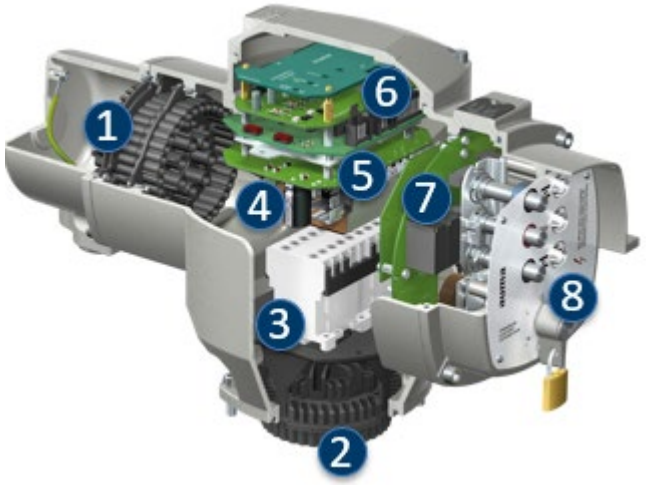


Standard configuration:
For OPEN/CLOSE applications – type SAR for regulating applications and type SAE for ATEX on demand.
Standard voltage 400V and 230V.
Heater in the switch compartment - Self-regulating PTC heater, 5 - 20 W, 110 - 250 V AC/DC.
Operation mode: Short-time duty S2 - 15 min, class A and B according to EN 15714-2.
Travel switches: Single switch (1 NC and 1 NO) per end position, not galvanically isolated.
Torque switches: Single switch (1 NC and 1 NO) per direction, not galvanically isolated.
Ambient temperature –30 °C bis +70 °C.
Protection class IP68 with AUMA three-phase motor.
Corrosion protection “KS” suitable for use in areas of high salt load, almost constant condensation and heavy contamination.
Color: AUMA silver-grey (similar to RAL 7037).
(1) Motor
(2) Worm gear
(3) Signalling and control unit
(4) Handwheel for emergency operation
(5) Electrical connection
(6) Valve connection
(7) Electro-mechanical signalling and control unit (RWG) for actuator control type “AM” and 4-20mA signal
(8) Electronic signalling and control unit (MWG) for actuator control type “AC” for demanding applications and bus-systems

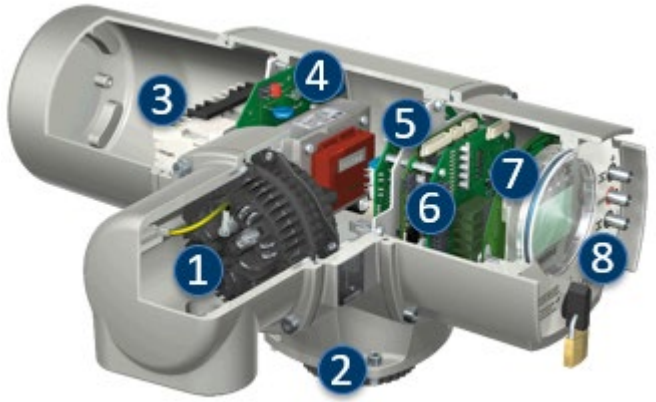
AUMA ACTUATOR CONTROLS

Construction

[1] Actuator control type „AM“ for OPEN/CLOSE applications. An electronic signalling and control unit “RWG“ (EWG) must be used.
[2] Actuator control type „AC“ for demanding applications and bus-systems. An electronic signalling and control unit “MWG“ must be used.

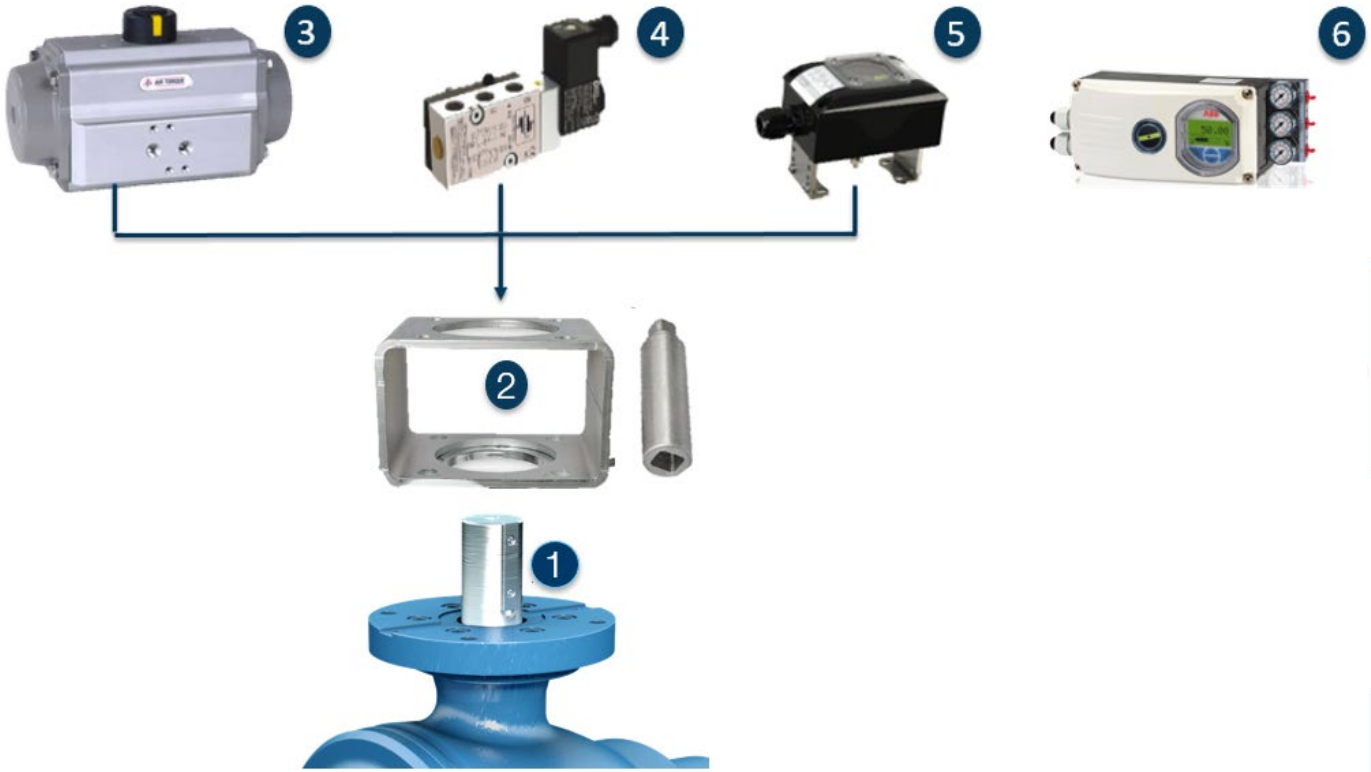


[1] Plug-in electrical connection
[2] Plug-in connector to the actuator
[3] Reversing contactors or thyristors
[4] Power supply unit for 24 V DC supply
[5] Logic board
[6] Interface
[7] Local controls board
[8] Local controls unit

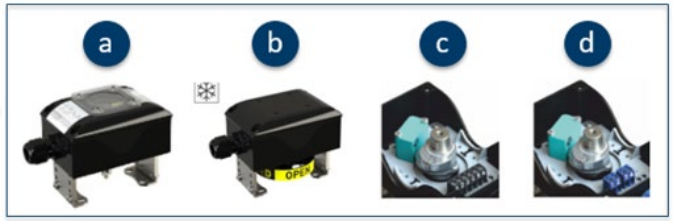


[1] Plug-in electrical connection
[2] Plug-in connector to the actuator
[3] Reversing contactors or thyristors
[4] Power supply unit for 24 V DC supply
[5] Logic board
[6] Interface
[7] Local controls board
[8] Local controls unit

PNEUM. ACTUATOR AIR TORQUE



- (1) KH(SV)I ball valve bare stem
- (2) Bracket and coupling
- (3) Pneumatic actuator: „AIR TORQUE“, single or double acting for different air supplies
- (4) Solenoid valve: 24V / 230V, atex version on demand
- (5) Limit switch box: mechanical or inductive limit switches, atex version on demand
- (6) Positioner for control applications on demand

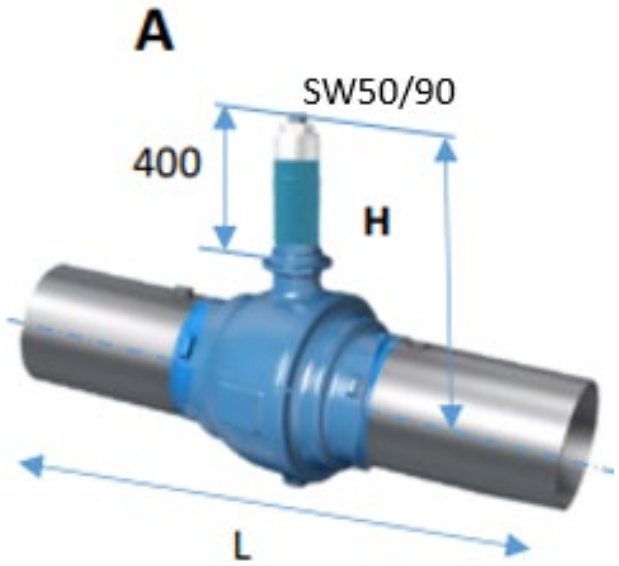


- (a) Standard limit switch box 24V or 230V with mechanical switches
- (b) Ex limit switch box (EEx d IIC T6) with mechanical switches
- (c) Limit switch box with inductive limit switches
- (d) Ex limit switch box (EEx ia IIC T6) with inductive switches

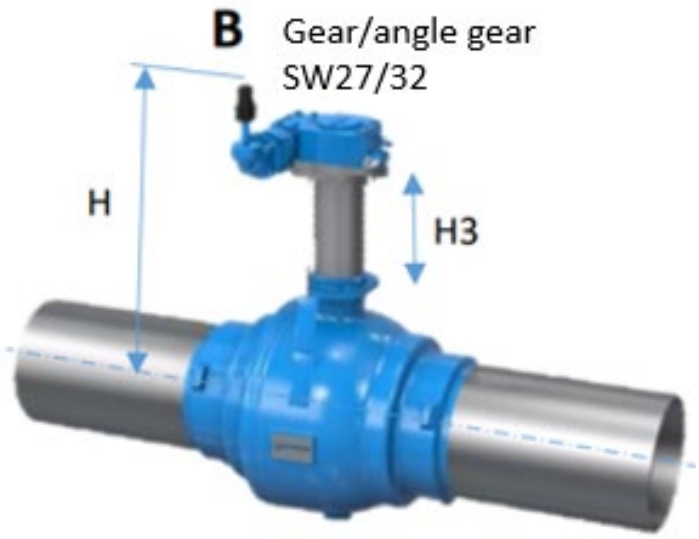
- (a) Standard solenoid valve 24V or 230V
- (b) Ex solenoid valve (EEx ia IIC T6) 24V

VALVE MODEL KHSVI-VVS

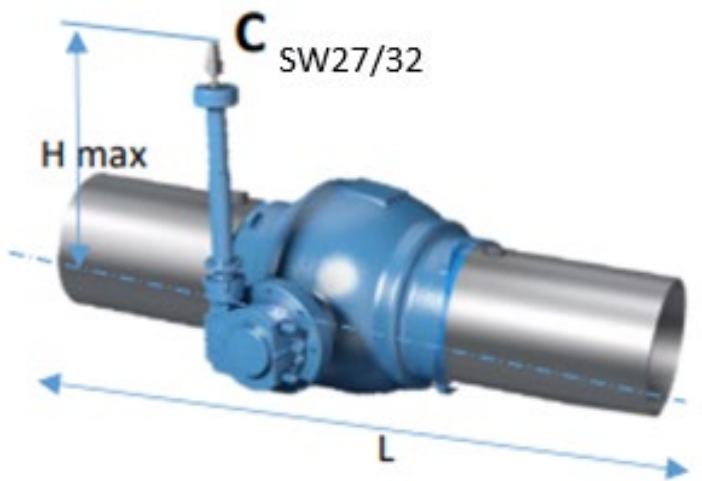
DN150 – 600 prepared for insulation



DN	PN	Length L	Height H
150	25	2000mm	618mm
200	25	2000mm	677mm
250	25	2000mm	700mm



DN	PN	Length L	H3	Height H
150	25	2000mm	375	837mm
200		2000mm		894mm
250		2000mm		989mm
300		On demand		1014mm
350		On demand		1088mm
400		On demand		1107mm
500		On demand	425	-
600		On demand		-

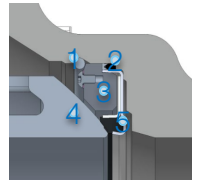


DN	PN	Length L	Height H	Gear
150	25	2000mm	2122mm	E550G
200		2000mm	2132mm	E880G
250		2000mm	2148mm	E1250G
300		On demand	2182mm	E2000G
350		On demand	2252mm	E1950G/PR4
400		On demand	2252mm	E1950G/PR4
500		On demand	2304mm	E6800G/PR6
600		On demand	2304mm	E6800G/PR6

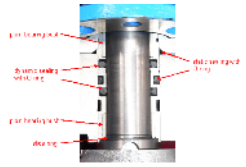
COMPARISON

KHSVI VVS ball valve vs competitor

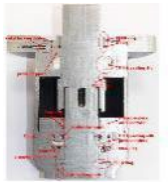
KHSVI VVS	Competitor
(1) Pre-stressed sealing system: Elastic sealing system → compensation of thermal expansions 2 independent working sealing elements → bidirectional flow Insensitive to solids/impurities → no clogging/blocking → higher lifetime	(1) Spring loaded sealing system: Surface pressure with springs → vulnerable to thermal expansion Pocket holes for springs are vulnerable to solids/impurities Possibility of clogging/blocking → limited lifetime
(2) Stem sealing: Simple construction consists of splitted bearing bush with 3 O-rings → exchangeable inline Stem is continuously one piece	(2) Stem sealing: Complex stem and sealing construction Maintenance complicated Stem construction not continously
(3) Solid valve body design Body parts made of robust castings → tension optimised Full penetration body welding no media or dirt can enter the cracks – no crack corrosion possible	(3) Valve body design The weak stem construction at sheet metal ball valves lead to high forces where the welding's are placed -> risk of cracks No full penetration welding Critical welding seam at shaft area
(4) Easy operation 100% operational availability - 365 days Valve must be ready even with limited actuations Tested forces not only according to EN488, but as well according to the higher demand of the FW401	(4) Operation 100% availability not given due to weak sealing system At limited operations tend to block Partially fulfill EN488 Construction shows leakage after pressure and temperature tests
(5) Ball Robust one piece casting construction Chrome coated surface → high hardness, low surface roughness Media cannot stick on the ball → higher lifetime of sealing system Insensitive to solids → high hardness of the ball surface	(5) Ball Welded construction → possibility of crack corrosion Soft ball surface → vulnerable to solids Media can stick on the ball due to high surface roughness → damage of sealing system

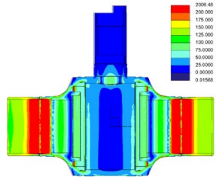


1

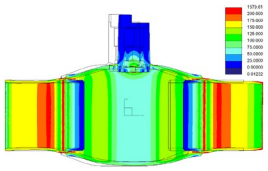


2





3

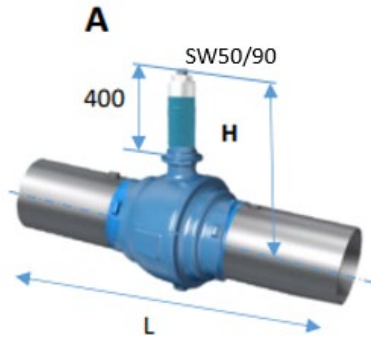


4

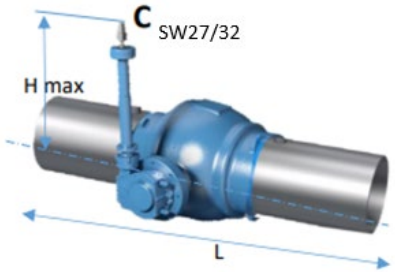
5

EN488.2019 TEST

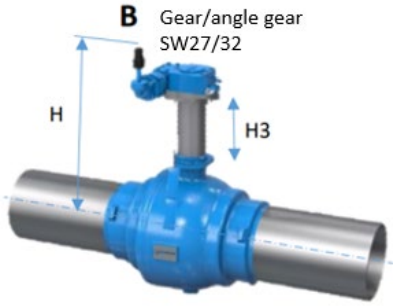
KHSVI-VVS



Test with compressive forces	EN488:2019	Applied test forces
Water temperature	90+-5°C	Depend on line size. Range 41kN to 4761 kN
Water pressure	PN of valve	
Test duration	48h	
Actuations	24x in 48h	



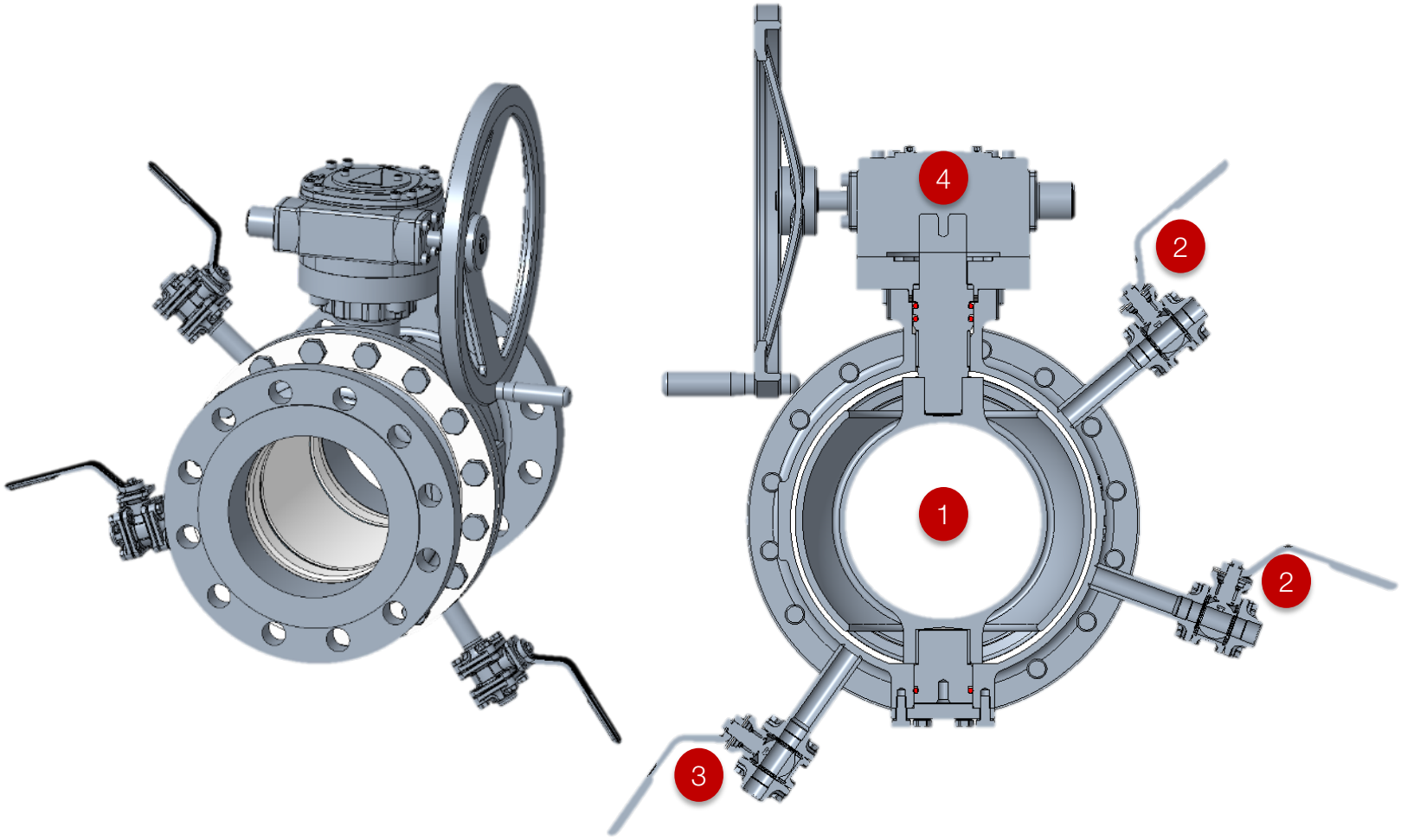
Test with tensile forces	EN488:2019	Applied test forces
Water temperature	25+-10°C	Depend on line size. Range 26kN to 3624 kN
Water pressure	PN of valve	
Test duration	48h	
Actuations	16x in 48h	



Test with bending forces	EN488:2019	Applied bending moments
Water temperature	25+-10°C	Depend on line size. Range 350Nm to 476400 Nm
Water pressure	PN of valve	
Test duration	2x8h	
Actuations	16x in 16h	

APPLICATION MODEL KHI

For geothermal water DN15 - DN400

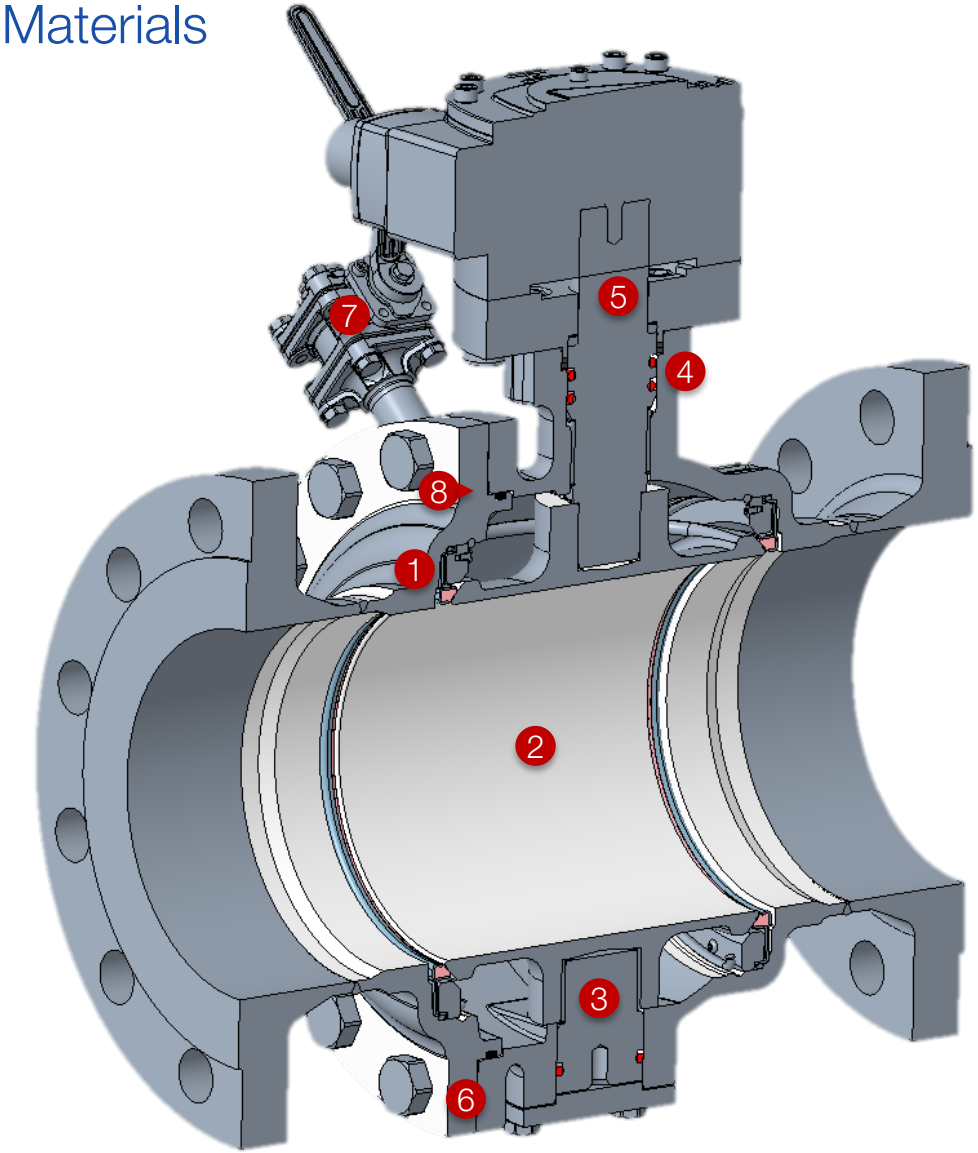


Ball valve design model KHI:

- (1) Full, cylindrical bore.
- (2) Two flushing valves model KHA-S for seat cleaning and flushing.
- (3) One test/ drain valve model KHA-S for cavity draining.
- (4) Actuation with mechanical gear from AUMA.
- 2- piece body design Gehäuse screwed.
- Trunnion mounted ball.
- Line size range DN150 to DN400.
- Pressure stage PN25 and PN40.
- Temperature range -10°C to +200°C.
- Flange version: Flanges EN1092-1, Form B1.
- Body length flange version acc. EN558 GR12.
- Bidirectional flow.
- Installation in any position possible (horizontal, vertically etc.).

APPLICATION MODEL KHI

Materials

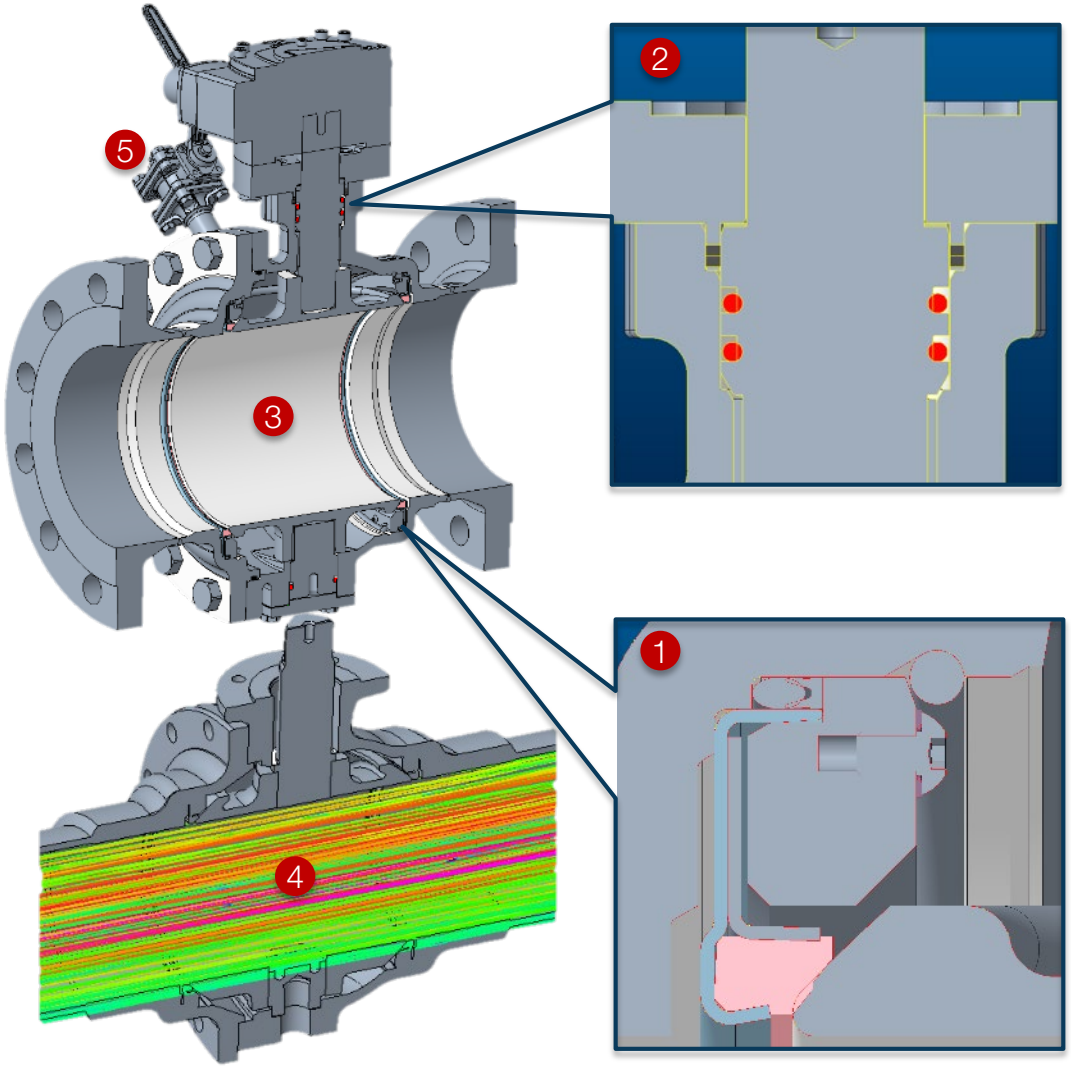


- (1) Material sealing elements (seats): stainless steel 1.4436 or duplex (soft seated also available).
- (2) Ball material EN-JS1030 Fe / Cr30f, mt (spheroidal steel chrome coated) ,1.4408 chromed or duplex.
- (3) Trunnion stainless steel or duplex with additional AFLAS (FEPM) O-ring.
- (4) 4-fold stem sealing: two AFLAS (FEPM) O-rings and 2 graphite rings.
- (5) Stem 1.4104 or duplex.
- (6) Body material 1.0619, stainless steel or duplex.
- (7) Material drain/test and flushing valves: 1.0619, 1.4408 or Duplex.
- (8) Material seal housing pitch : One AFLAS (FEPM) O-ring and one C4430 gasket.

In general, the choice of material for housings, wetted parts and usage of flushing valves depends mainly on the water composition. Previous geothermal applications were supplied with steel housings, flushing fittings and metallic seal seats.

APPLICATION MODEL KHI

Advantages



» (1) The metallic seat is insensitive to solids in the water. This minimises wear on the sealing seat and increases the service life of the valve. The rear milling behind the sealing element allows solids to circulate, which prevents clogging or blocking. The 2-piece housing makes it possible to replace the sealing seats.

» (2) The 4-fold seal on the stem can be replaced while the valve is installed.

» (3) The ball is cast in one piece and therefore very robust and insensitive to pressure shocks. The chrome layer on the ball has the greatest possible surface hardness and the lowest roughness. →Scratch resistant to solids. Medium particles cannot adhere to the ball. The ball passage is cylindrical without obstacles, which prevents turbulence in the medium.

» (4) Straight internal geometry (no sharp corners/edges/reductions) of the valve avoids "scaling" and allows laminar flow. The housing is made of cast material and is insensitive to pressure-temperature fluctuations and pipeline forces.

» (5) Additional flushing connections allow cleaning of the sealing seats. Flushing is usually done with acid. The cavity of the valve can be emptied regularly via the test/drain valve.

APPLICATION FOR DH

1 Robust body:

Plant operators are concerned of high tension / compression & torsion forces under the effect of heat.To ensure that the valves remain operable over time, they are tested acc. EN488.2019. Advantages of casted material: tension free, no cpmplex weldings.

2 Trunnion mounted ball:

In order to avoid any deformation of the sealing elements and a risk of blocking of the ball, the sealing and guiding functions must be disassociated and trunnion mounted ball valves must be installed.

3 Full bore:

There is no obstacle or reduced flow of the passage of the fluid. The flow is laminar. The pressure losses are minimal and the energy cost for handling the fluid is reduced. Also smaller pumps can be used.

4 Reliable sealing system (leakage rate A):

The pre-stressed diaphragm springs ensure contact of seat with the ball.Seat is fully enclosed and fixed in the housing. Impurities can circulate easily behind the diaphrgm springs – there is no retention zone.

5 Double Block & Bleed:

Safest solution for maintenance and smallest installation space.

After pressure relieve → the test valve allows to check the seat tightness.

6 Easy handling:

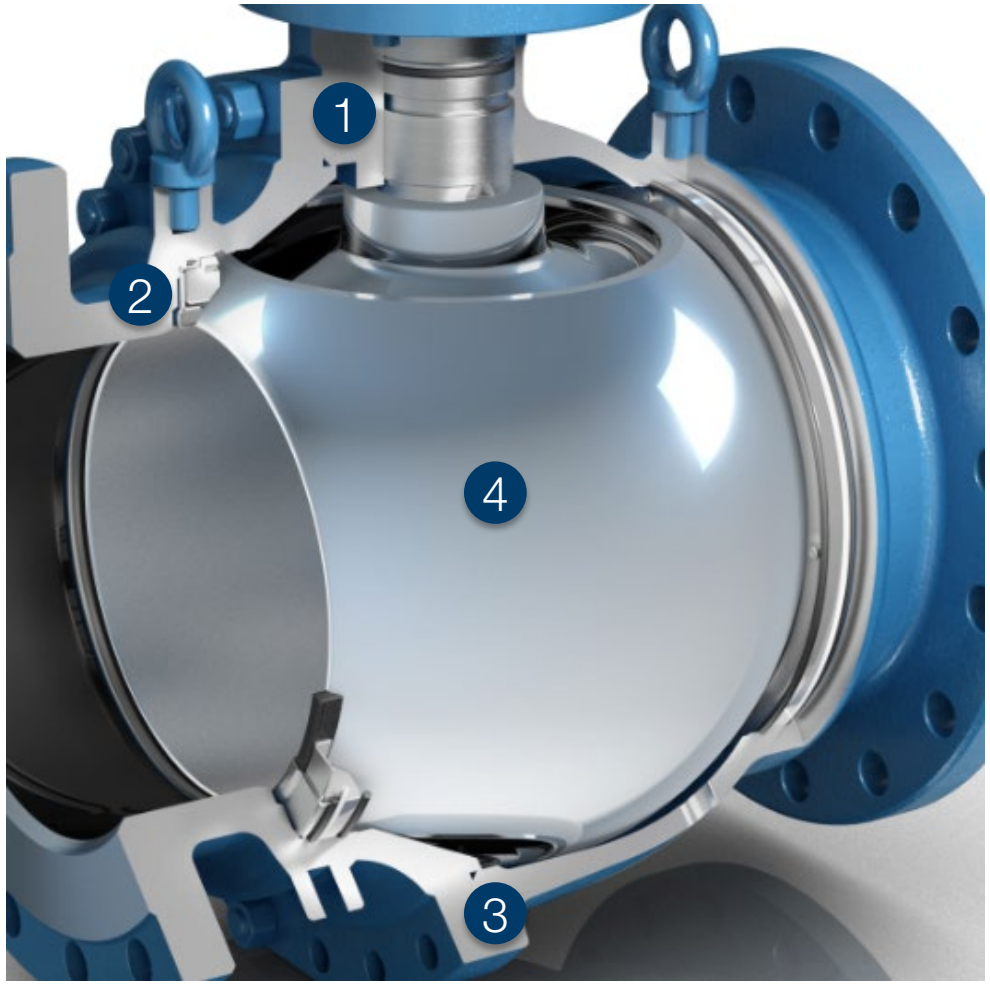
The mounting direction is irrelevant for ball valves (bi- directional sealing) and any position (vertical, horizontal, oblique…).Extensions, gear boxes, actuators can be fitted for all valves equipped with an ISO top flange.

7 Maintenance free:

KLINGER BALLOSTAR ball valves are basically maintenance free → estimated life time 25 to 30 years based on experience. If necessary, stem o-rings can be changed inline.

APPLICATION

KH(SV)I ball valve in the STEEL industry



For media:
Oxygen
Hydrochloric acid
Natural/ coke oven gas
Blue acid gas
Saturated steam
Hydraulic oil (clean)

(1) Stem sealing:
Aflas O-Rings (200°C)
FPM only for natural gas
(2) Sealing elements:
Soft seated KFC
(3) Body:
Carbon or stainless steel
Weld or flanged ends
(4) Ball:
Nodular iron, chrome coated 30µm

For oxygen use:
Valve is oil and grease free

Drain / test cock on demand for double block & bleed

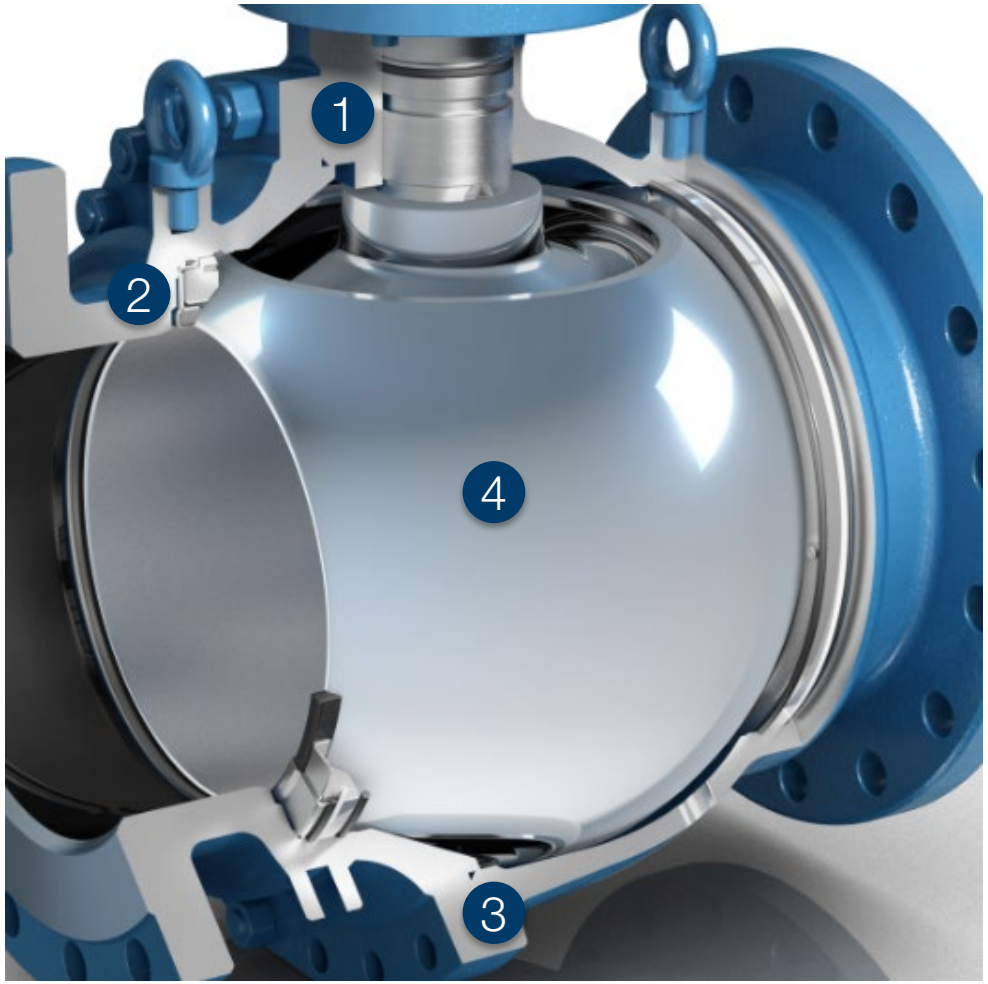
For media:
Blast furnace gas
Muddy water
Water with solids
Dirty oil with solids

(1) Stem sealing:
Aflas O-Rings (200°C)

(2) Sealing elements:
Metal seated stainless steel
(3) Body:
Carbon or stainless steel
Weld or flanged ends
(4) Ball:
Nodular iron, chrome coated 30µm

APPLICATION

KH(SV)I ball valve in the Pulp & Paper industry



For media:
Black – green & white liquor
Waste water
Wood chips

(1) Stem sealing:
Aflas O-Rings (200°C)
(2) Sealing elements:
Metal seated stainless steel
(3) Body:
Stainless steel
Weld or flanged ends
(4) Ball:
Nodular iron, chrome coated 30µm

APPLICATION

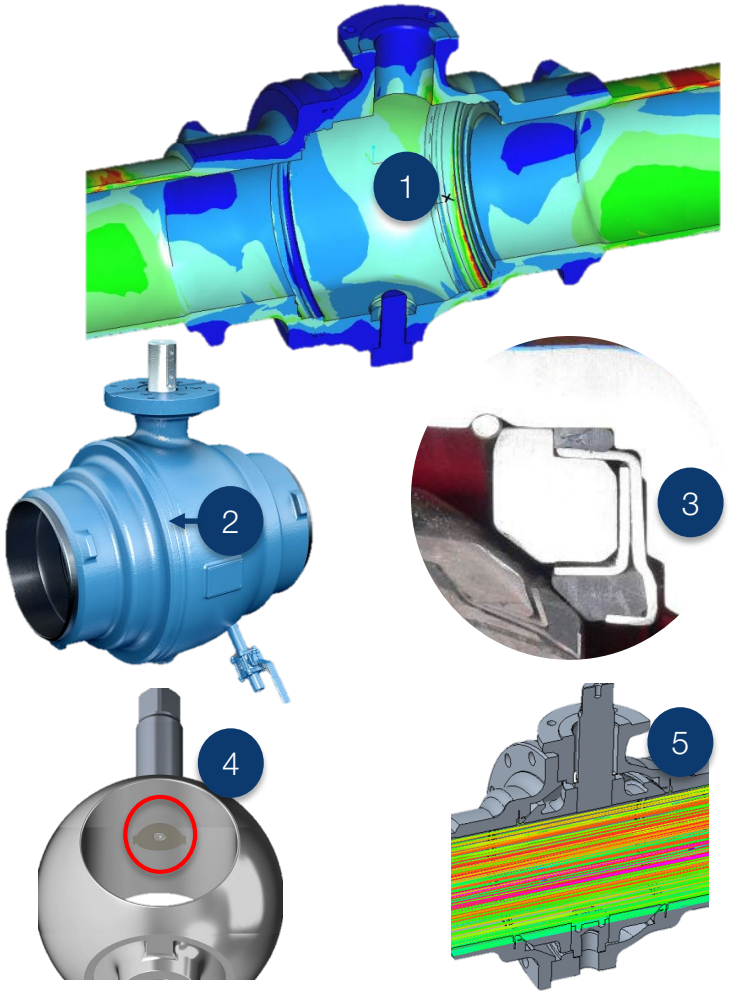
KHSVI-VVS for H2 electrolysis & infrastructure

Product details KHSVI - VVS

- Line size range DN150 – 800
- Pressure stage PN40
- Body 1.0619 casted
- Ball chrome plated and trunnion mounted
- Bidirectional flow
- Face to face dimensions acc. EN12982, GR63/ANSI B16.10
- Process connection: weld ends, optional with weld on flanges
- Seat sealing KFC (PTFE based)
- Leakage rate A acc. EN12266-1
- Stem sealing 4-fold, AFLAS, FLUARAZ, V71C or FPM O-rings
- AFLAS O-rings are TA Luft – VDI2440 compliant
- Temperature range depend on O-rings; standard range with AFLAS O-rings: 0°C to + 200°C
- Stem sealing AFLAS, TA Luft compliant
- Fully welded (one welding seam in flow direction), 2 piece construction, EN488:2019 compliant
- Maintenance free (proven life time 30 years)
- Option: Gas design acc. EN13774 & EN14141,
- Option: Drain / test cock for double block & bleed
- Subsequent automation possible; ISO TOP connection acc. EN ISO5211
- Testing acc. EN12266-1, P10, P11 and P12

KLINGER BALLOSTAR KH(SV)I

Advantages



Product advantages

Body and welding seam:

» Robust casted housing material (one piece body parts → no different or complex weldings) is insensitive to pressure shocks

» (1) Tension free construction → Pipeline forces can be absorbed without any damage

» No sharp body edges → limitates the possibility of H2 penetration and embrittlement

» (2) Only one welding seam in flow direction, completely welded through to lower the possibility of crack corrosion due to H2 penetration. The welding seam can be additionnaly proofed with an liquid penetrant test

» Long service life – maintenance free

Sealing system:

» (3) The flexible sealing system compensates temperature fluctuations and pressure shocks – no coil spring loaded system. The media pressure supports the sealing system and is insensitive to contamination. Sealing ring KFC is covered from 3 sides to prevent moving or flowing. PTFE based sealing material (KFC) to lower H2 penetration.

Stem sealing:

» One piece stem made of stainless steel

» Stem sealing consists of 4-fold O-ring system → Replacement of the O-rings inline possible

» AFLAS O-rings are TA Luft – VDI2440 compliant

Ball:

» Ball material casted (one piece), trunnion mounted; Crack-corrosion & H2 penetration resistant → no weldings

» Ball surface is chrome coated → no scratches, highest hardness, lowest surface roughness, high mech. stability; Insensitive to pressure shocks

» (4) No sharp inner edges due to stem cover in the ball

» (5) No turbulences because of full cylindrical passage; No obstacles – low pressure loss & pumping energy and therefore valve is piggable

THANKS FOR YOUR ATTENTION!

KLINGER Fluid Control GmbH
Am Kanal 8-10 » A-2352 Gumpoldskirchen
T +43 2252 600 100
office@klinger.kfc.at