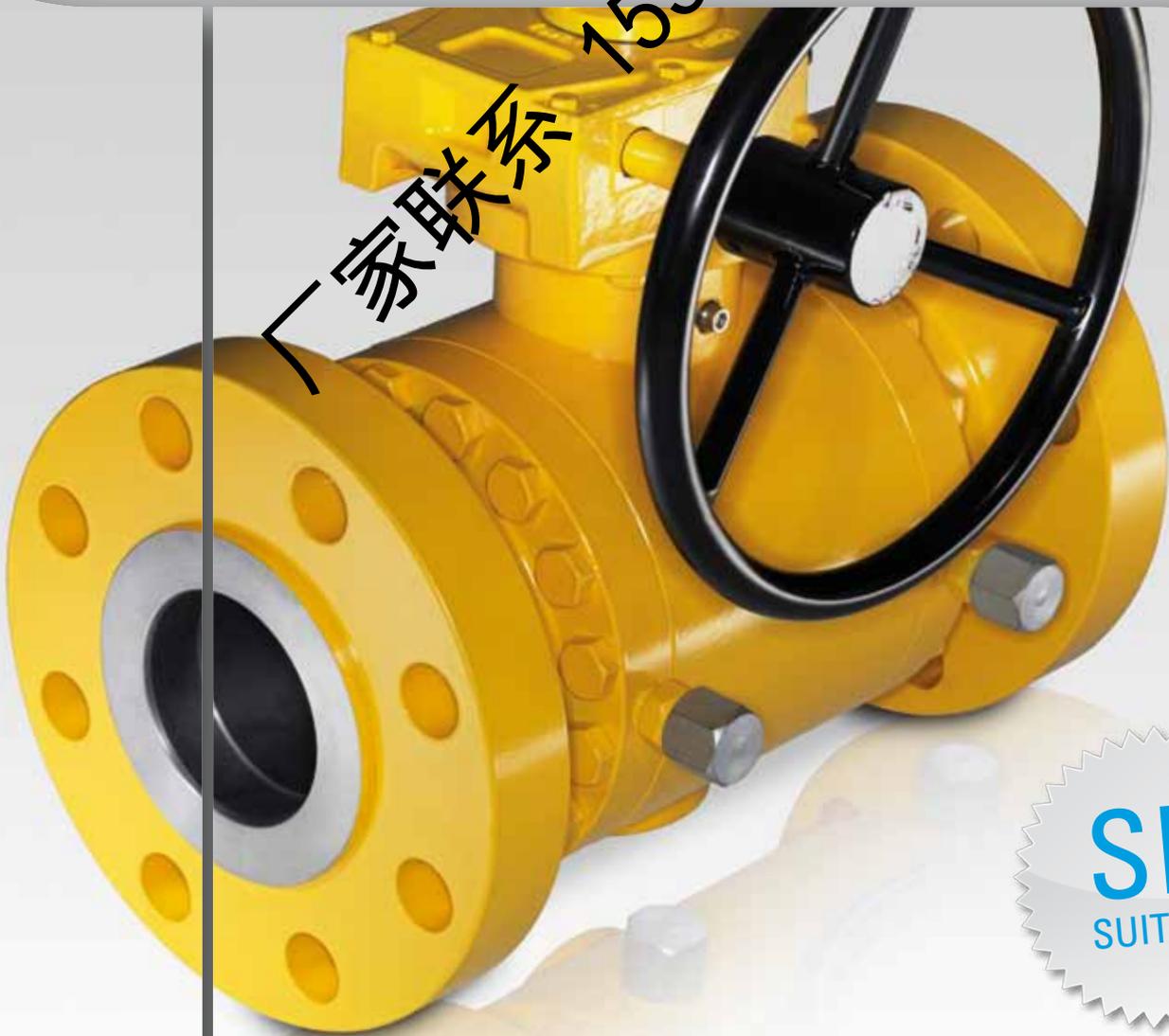


SCHUCK TYPE S BALL VALVE

The two- or three-piece shut-off valve for high-maintenance and demanding media.

厂家联系 15301891691



SCHUCK TYPE S BALL VALVE

The two- or three-piece shut-off valve for high-maintenance and demanding media.



APPLICATIONS

Isolating valve for above-ground applications in plants, on stations, platforms, pumping stations, etc.

Min. temp. range -60° C to +120° C

Standard temp. range -29° C to +120° C

Max. temp. range -29° C to +200° C

MANUFACTURING

Manufacturing, testing and design

standards EN 12266 -1 API 6D ISO 14313 / API 6D, ASME B16.34, ASME Sec. VIII Div.1

Leak, functioning and fire safety

ISO5208, DIN 3230 T5 PG3 for gas, ISO 10497 / API 607

For further information see the glossary.



PRODUCT FEATURES

- » Split body ball valve with 2- or 3-piece body design
- » Can be used for gases and liquids
- » Extensive maintenance options
- » Double-stem seal with fire-safe package
- » Trunnion-mounted
- » Design pressure up to CLASS 1500
- » Anti-static design
- » Piggable
- » With anti-blow-out stem
- » Available as a single or double piston
- » Available in PMSS, SO and MM design
- » Temperature ranges from -60° C to +160° C
- » Compatible to fugitive emissions standards

15307891691



DESIGN

Suitable for use with the following media: natural and acid gas, oil, oil with sulfur, hot and cold water.

With flanged, welded or welded flange ends

Available from 2" to 36"

Design pressure up to CLASS 1500

Larger nominal diameters on request

MATERIALS

Body: P355NL1 bzw. A537 Cl.1 / A350 LF2

Ball: A350LF2 chromium-plated/nickel-plated

Flange: C21 bzw. A105, A350LF2

Trunnion: S420NL / A276 Type 420

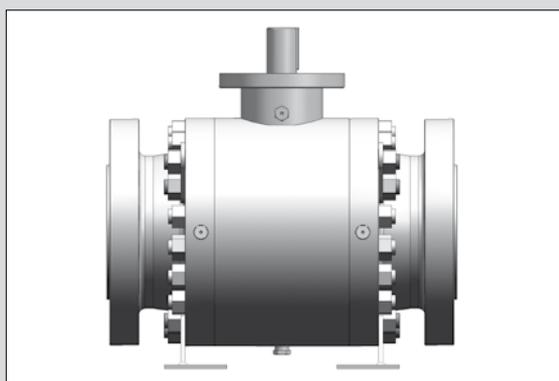
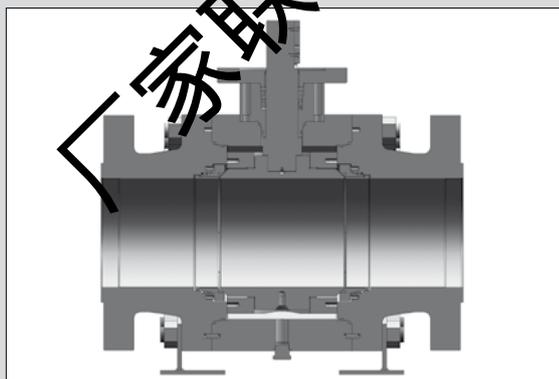
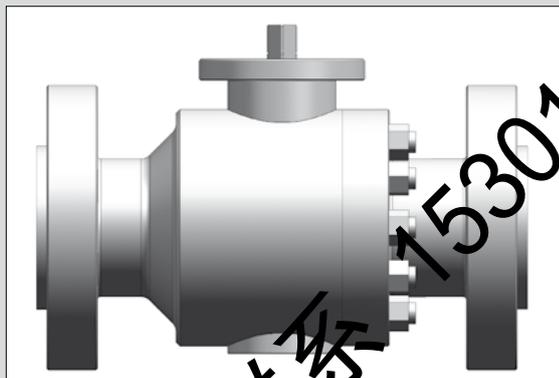
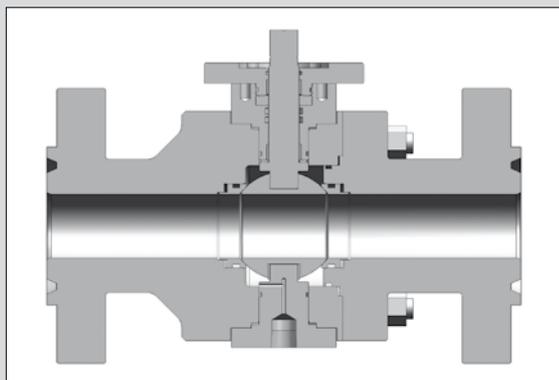
Seat ring: 1.4006 (X12Cr13) bzw. A182 F6a partially chromium-plated

For further information see the glossary.
Other materials on request.

SCHUCK TYPE S BALL VALVE

Typ S 2" to 3", Typ S 4" to 36"

Type overview and design



SERIES 2" TO 3"

2-part body with flanges or weld ends

Floating ball plug 2" above 100 bar

Trunnion-mounted (\geq NPS2) with self-centring seating ring system with pre-tensioned spring elements

Main seal: soft sealing (SO), primary metal secondary soft (PMSS) or metal to metal sealing (MM)

Operating stem protected against blow-outs

Double-trunnion seal with fire-safe seal

Swivel angle limited by stop washers (for design with actuating lever)



SERIES 4" TO 36"*

3-part body with flanges or weld ends

Secondary sealant injection for seats and operating stem

Draining and venting connections

Trunnion-mounted ball plug

Anti blow out stem

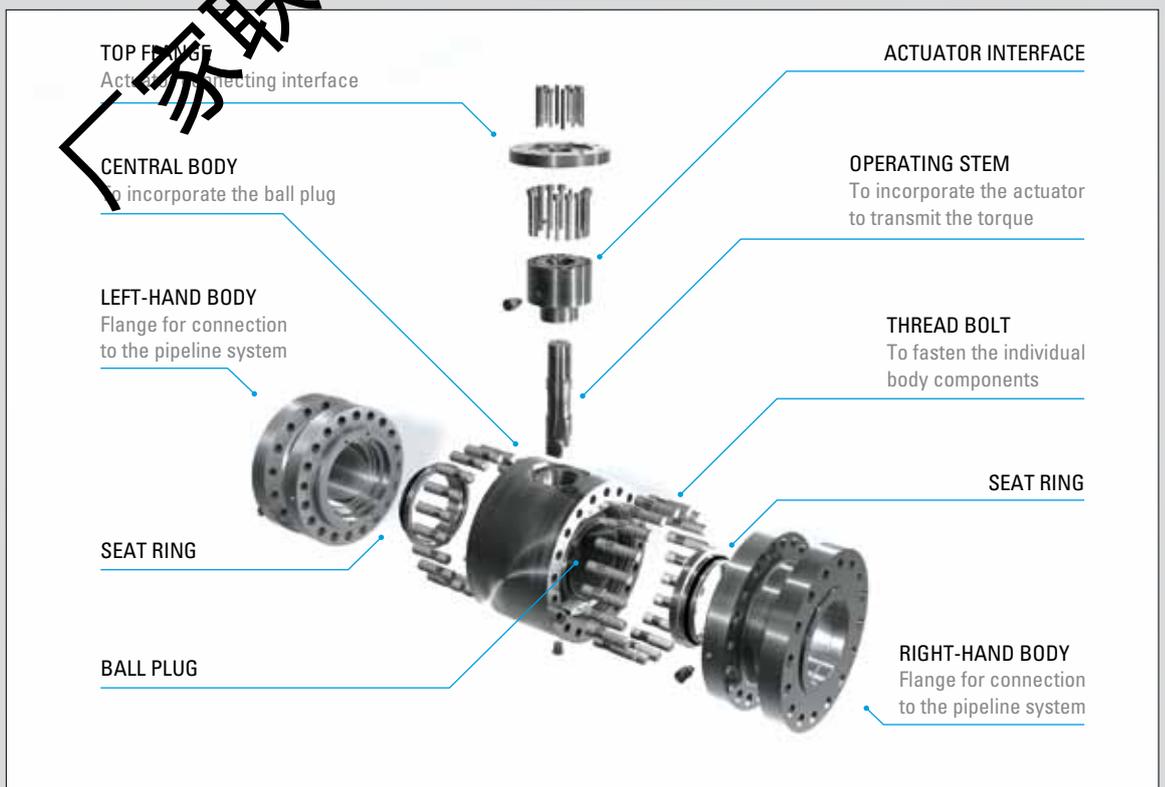
Triple trunnion seal with additional fire-safe package

Main seal: PMSS, SO, MM

Main seal: double piston / single piston

*Larger nominal diameters on request





SCHUCK TYPE S BALL VALVE

Design features

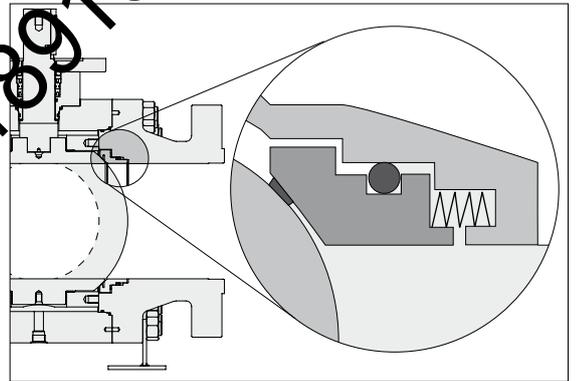
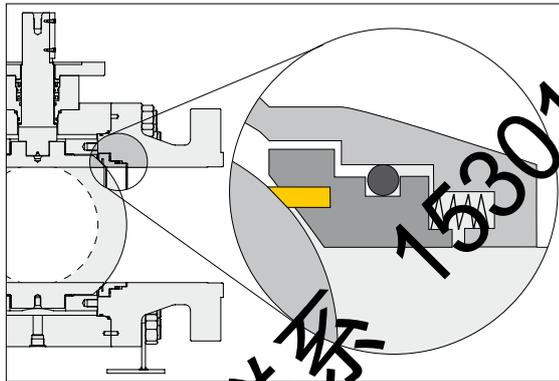
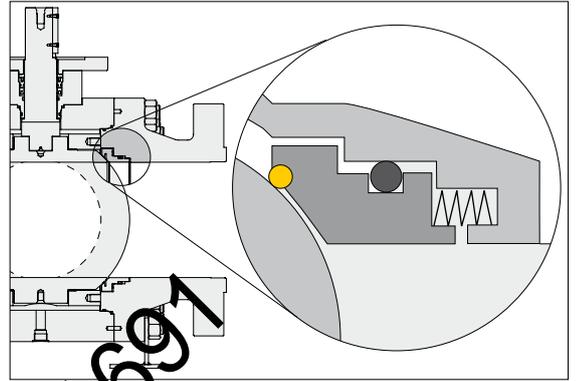
Sealing systems

Top left: Schuck seat ring

Top right: primary metallic secondary soft-sealing system

Bottom left: soft sealing system

Bottom right: metal to metal system



DESCRIPTION

Different sealing systems are available depending on applications. Our range of products offers soft-sealing and metallic-sealing systems as well as a primary metallic/secondary soft-sealing system with an integrated seal ring which we developed ourselves. This system is particularly resilient and reliable.

Soft sealing seating ring (SO)

A seal ring made of plastic is used for sealing
Larger variety of materials available (PTFE, PA, PEEK, etc.)

High temperatures

Low torque

For high pressures, special media

Variable sealing material and thus optimum for many types of media

Metal to metal sealing seating ring (MM)

A metallic contact is used for sealing

High resistance to wear and not sensitive to dirt and deposits

Suitable for high pressures

Wide temperature range

CONFIGURATIONS

Primary metallic/secondary soft-sealing seating ring (PMSS)

metallic seal plus elastomer seal

Wear-resistant and not sensitive to dirt

Schuck standard, broad range of applications

SCHUCK TYPE S BALL VALVE

Design features

Ball seats

Top left: Ball valve flow in open position

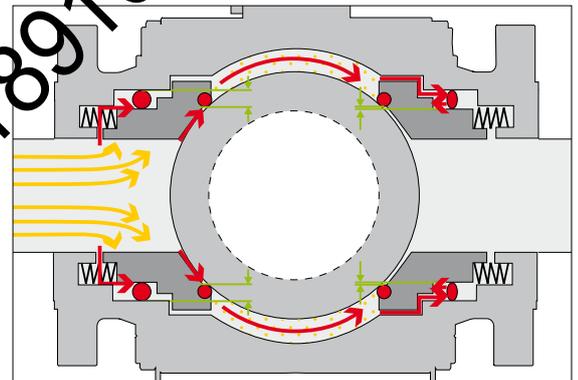
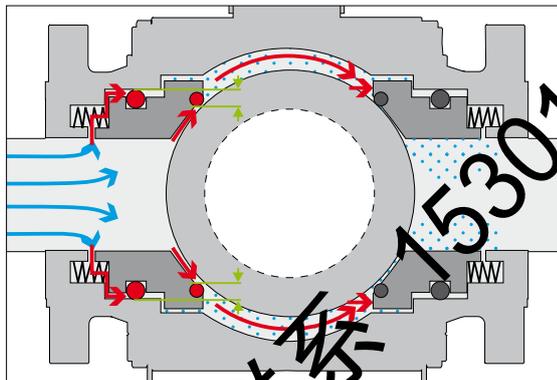
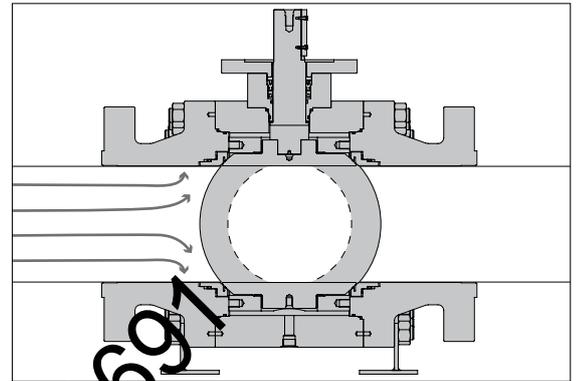
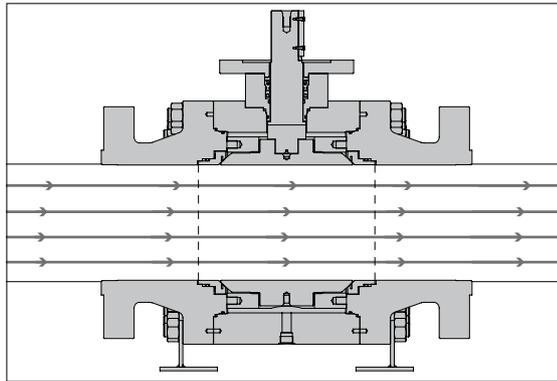
Top right: Ball valve in closed position

Bottom left: Single piston sealing system

Bottom right: Double piston sealing system

Drawing legend:

- Medium
- Pressure
- Differential pressure surface



DESCRIPTION

Different ball valve sealing systems are used depending on the type of media. Basically, there are different main seals for liquid media and main seals for gaseous media.

The different media require a special adapted sealing system. For the double piston, the seat ring also seals against a pressure load from the dead space (or alternatively for a pressure increase in the dead space), and is therefore used for gaseous (compressible) media. With the single piston design, the seat rings open and balance if there is pressure in the dead space. The single piston design is used for liquid (non-compressible) media.

CONFIGURATIONS

Single Piston

- Sealing force is increased by the line pressure
- Self-relieving due to increased dead space pressure
- Used for non-compressible liquid media

Double Piston

- Sealing force is increased by the line pressure and the dead space pressure
- Self-pressing seating ring
- Inlet and outlet side sealing
- Used for compressible gaseous media

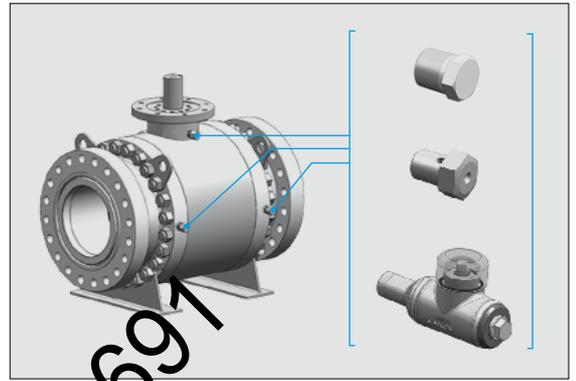
SCHUCK TYPE S BALL VALVE

Design features

Venting, draining

Top left: Venting ball valve of an above-ground ball valve

Top right: The different connectors for draining/venting for an above-ground ball valve



DESCRIPTION

Different attachments can be removed for emptying, venting and draining the dead space. Just the right attachment is available for any application and any customer request, from the lowest-cost plug variant, continuing with the bleeder plug, up to a ball valve.

Here, the connector on the bottom is for draining, and the connector on top is for venting.

Draining and venting are used, for example, for service work in order to free the dead space of pressure and condensate. These attachments are also used for pressure and leak testing, and are thus an indispensable instrument for a safe and reliable ball valve.

ABOVE-GROUND CONFIGURATION

venting and draining
plug, bleeder plug, ball valve

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SCHUCK TYPE S BALL VALVE

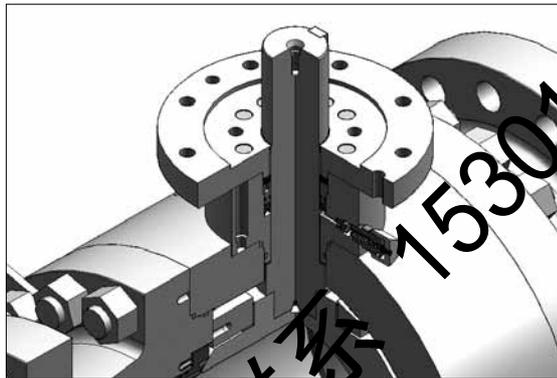
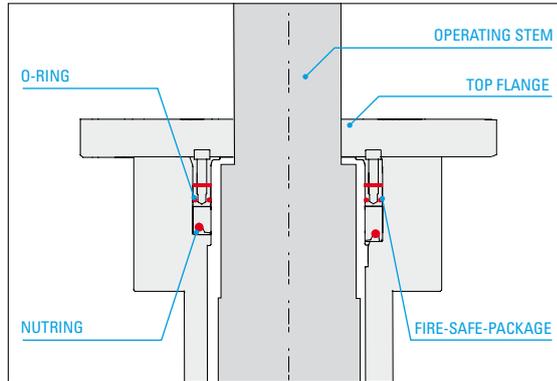
Design features

Operating stem

Top left: The triple trunnion seal of the operating stem.

Right: Type S ball valve as a sectional model.

Bottom left: Sectional view of the Type S ball valve with operating stem



DESCRIPTION

The operating stem is the connecting element of the ball valve. It is used to ultimately actuate and control the valve. Extremely high torque can be exerted on it (up to 600,000 Nm). For that reason, the operating stem, its installation, as well as the sealing codetermine the reliable operation of a fully-welded ball valve.

The operating stem found on the Schuck Type S ball valve is protected against blow-outs by a press-fit construction and additional welding-in.

Trunnion seals can also be replaced under full line pressure. This was tested for a Schuck Type G ball valve up to a nominal width of 60".

CONFIGURATIONS

Trunnion seal

Triple trunnion seal and fire safe package

German Clean Air Act approved

SCHUCK TYPE S BALL VALVE

Design features

Outside coating

Left: The Schuck standard coating in yellow

Right: Schuck Type S ball valve with outer coat in any RAL tone requested by the customer



DESCRIPTION

Even a robust component like the fully-welded Schuck Type S ball valve must be protected against the effects of weather and mechanical damage above ground and also for below-ground installation. The coating is decisively responsible for this important protection. It is applied to the ball valve at the end of the production chain using a predetermined minimum layer thickness.

The coating standards of our Schuck ball valves meet all demands.

All coatings are inspected and approved by an in-house expert or by an expert hired by the customer.

Through these measures, we can guarantee the highest degree of protection against corrosion for your ball valve.

The outer coating can be implemented in any RAL color at your request.

CONFIGURATIONS

Coatings for moderate corrosiveness > 200µm
Außenbeschichtung Outer coating "C3"
ISO 12944-2

Temperature range: up to 120°C

Fields of application: above ground, urban and industrial atmospheres, moderate pollution from sulfur dioxide. Coastal regions with low salt load

Coatings for high corrosiveness > 240µm
Outer coating "C4" ISO 12944-2

Temperature range: up to 120°C

Fields of application: above ground, industrial areas and coastal regions with moderate salt load

Coatings for very high corrosiveness > 300µm
Outer coating "C5" ISO 12944-2

Temperature range: up to 120°C

Fields of application: above ground, coastal and offshore areas with high salt load

COATING SYSTEMS

Sigmadur

Dimensions: 50µm + 80 µm

Temperature range: -30°C to +160°C

Fields of application: above-ground and high temperatures

PROTEGOL UR 32-55 (Polyurethan) > 1,5 mm

Temperature range: -30°C to +80°C (briefly up to 110 °C)

Fields of application: below-ground, resistance to water, acids, alkaline solutions, and oil

SCHUCK TYPE S BALL VALVE

Accessories

Inner coating



Left: Inner coating in a Schuck Type S ball valve

Right: Inner coating in a Schuck Type S ball valve with view of the ball



DESCRIPTION

The medium-compatible inner coating gives the ball valve the perfect inner skin that protects it against damage caused by the medium and prevents any possible contamination of the medium (e.g. for drinking water).

The possibility of armoring through cladding is particularly important for the Type S ball valve, mainly for special applications like sour gas, for example. Depending on the application and customer requirements, the lining applied through cladding protects the inside of the ball valve against aggressive and corrosive media and wear due to its material, thickness and the clear area.

All coatings are inspected and approved by an in-house expert or by third party.

Through these measures, we can guarantee the highest degree of protection against corrosion for your ball valve.

CONFIGURATIONS

Cladding e.g. Inconel, AISI 316, tungsten carbide, nickel, chrome, others on request

For gas standard without inner coating

Other inner coatings for the respective media on request

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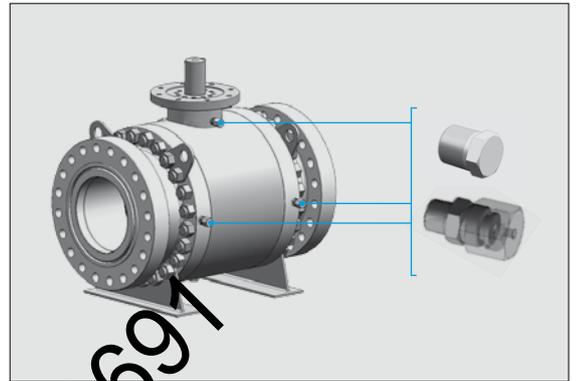
SCHUCK TYPE S BALL VALVE

Design features

Secondary injection of sealant

Left: Injection heads for a above-ground ball valve type S for injection.

Right: The different connectors for the secondary sealant injection for an above-ground ball valve.

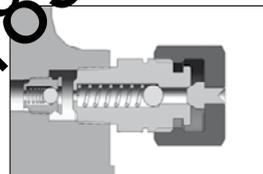


DESCRIPTION

Split Body Type S ball valves up to NPS4 are by default equipped with injection heads for injecting a secondary sealant. In an emergency, a suitable secondary sealant can be injected if there is a leak at the seating rings or the actuator trunnions.

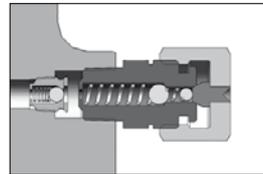
The choice of sealant is based on the medium, temperature and pressure. Very high pressures may be needed for injection depending on the sealant. The sealant press and all the lines must be designed for that pressure (up to 1000 bar).

CONFIGURATIONS



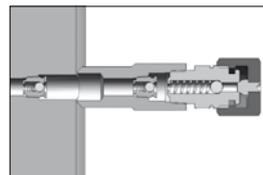
Secondary sealant injection (standard)

Injection head
Check valve



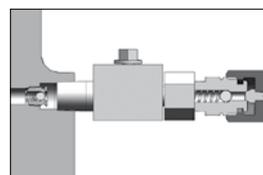
Secondary sealant injection

Double injection head
Check valve



Secondary sealant injection

Injection head
Two check valves



Secondary sealant injection

Injection head
Block ball valve
Check valve

SCHUCK TYPE S BALL VALVE

Design features

Support feet

Left: Standard support foot 01 with 2 welded-on flat steel bars

Right: Special foot

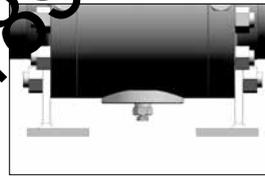


DESCRIPTION

Regardless of whether it is for above or below-ground installation, the Schuck Type S ball valve needs a firm footing for transport, installation or mounting. Especially for large nominal diameters, it is important to guarantee safety and prevent injuries and/or damage.

Special solutions such as the variation shown above with a plate welded onto transport eyebolts, for example, are of course possible at any time at the customer's request.

CONFIGURATIONS



Support foot 01
Two flat Steel bars

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SCHUCK TYPE S BALL VALVE

Accessories Bypass lines



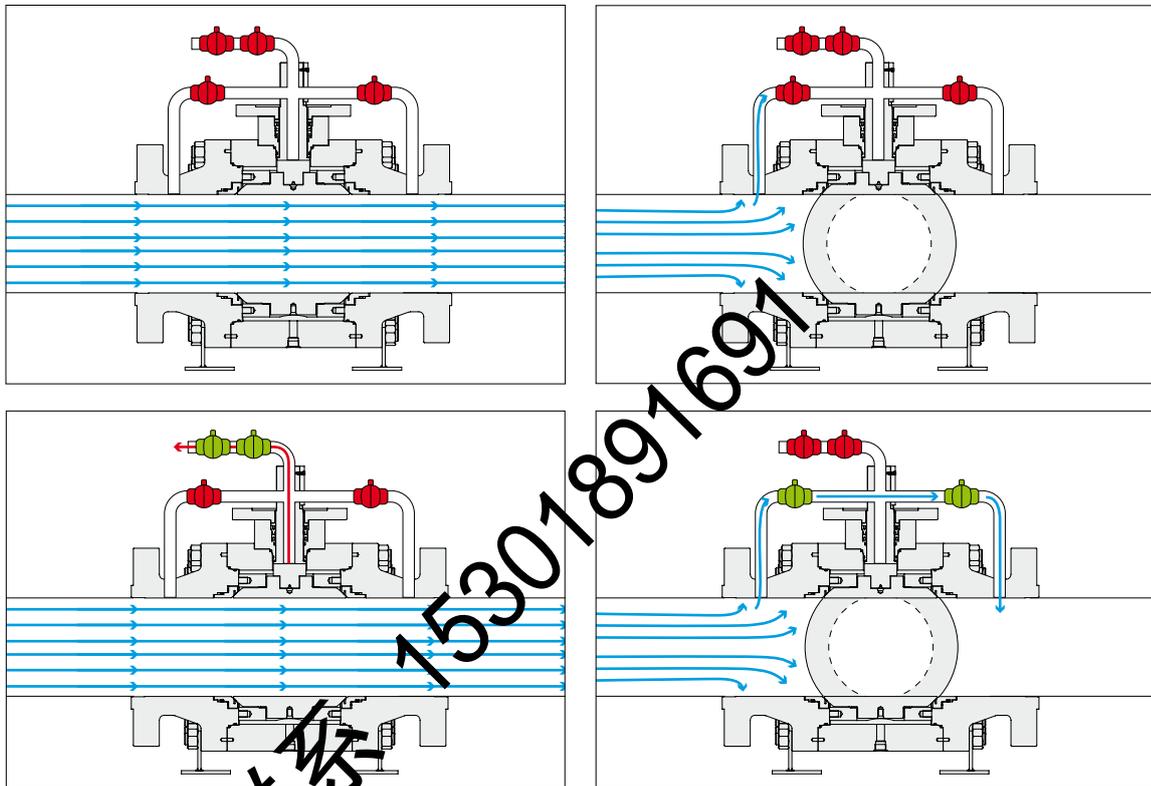
Top left: Bypass lines with an open ball valve in the open position.

Top right: Bypass lines with closed ball valve in the closed position.

Bottom left: Venting the dead space through the bypass line with an open ball valve.

Bottom right: Pressure compensation through the bypass lines before actuation of the ball. As a result, the ball seats are noticeably offloaded and the valve operates more gently and with less wear.

All illustrations are given as examples



DESCRIPTION

High-pressure ball valves are often equipped with a by-pass so that, as a rule, pressure equalization of both sides and the dead space can take place before actuating the valve.

This makes switching the valve gentler on the seals and minimizes wear.

Through this simple but effective accessory, the Schuck Type S ball valve can be used more effectively for a longer time.

CONFIGURATIONS

Connection lines between the two pipe connections of the ball valve

Connection lines to the dead space

Possible shut-off devices via high-pressure ball valves for all line components

SCHUCK TYPE S BALL VALVE

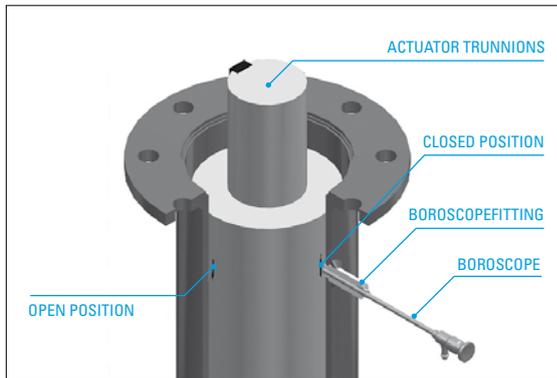
Accessories

Boroscope with boroscope opening and markings



Left: Setup of the boroscope opening with the position markings and an inserted boroscope.

Right: Boroscope with opening for battery operated handheld light source



DESCRIPTION

The positioning of the ball plays a decisive role in guaranteeing safe operation of the Schuck Type S ball valve. After installation of the valve, the boroscope opening makes it possible to accurately check the ball position in the end position. Independent of the actuator, both the open position as well as the closed position of the shut-off valve can be set and checked.

There are markings on the actuator trunnion for the open and closed position. With the help of the boroscope opening and the boroscope, the marking and hence the exact position of the ball in the open and closed position can be determined optically. If the ball valve is used in an above ground variation, then the boroscope opening is on the gear plate. If the valve is used below-ground, then the boroscope opening is on the pipe stands.

Generally, adjusting the open and closed position using the boroscope opening is a more exact setting than using the end position display on the top side of the gear unit.

The associated boroscope has cross hairs that guarantee exact setting and checking of the end position of the ball. In addition, the boroscope has a lighting option, so that the markings on the actuator trunnion are clearly visible.

CONFIGURATIONS

Boroscope opening
Open position marking

Closed position marking

Boroscope sleeve for insertion of the boroscope

Boroscope

Long version D8 x 465 mm

Short version D8 x 200 mm

Accessory: battery operated handheld light source for the boroscope

SCHUCK TYPE S BALL VALVE

Maintenance and service

Top left: Schuck Service assignment – flight of Schuck service specialists into Novy Urengoy, Russia for maintenance work



Top right: Schuck Servicecar – always ready for action on-site



DESCRIPTION

Our job isn't finished when our products have been dispatched. Safety-critical components such as our shut-off valves or Schuck actuator systems need to be properly installed, initialized and maintained.

Maintenance is particularly critical in the calculation and adherence to probabilities of failure (SIL values). It is not only the process itself that is critical, but particularly the quality of the maintenance work performed.

The Schuck Service division assumes these duties. Internationally. Reliably. Expertly. Our range of services covers everything from maintenance to repair, from renovation to replacement, from new parts to consulting and training. This applies not only to Schuck's own products, but also to many third-party manufacturers.

The team also performs all repair and maintenance work, including procurement of spare parts, for ball valves manufactured by Borsig – in accordance with company tradition. If the necessary spare parts are no longer available, we specially produce these on the basis of available documentation ourselves.

Our international team, with service offices in India, China, Kazakhstan, Uzbekistan and Germany, is always up-to-date, and works both on and off-shore.

SERVICE

Maintenance and servicing
 Condition analysis
 Maintenance plans
 Maintenance

Repairs
 Project planning
 Logistics planning
 Spare parts supply
 Spare parts processing
 Spare parts production
 Repairs
 Recommissioning

Conversions
 Project planning
 Logistics planning
 Parts provision
 Part production
 Part reconstruction
 Conversion work
 Initial operation

Spare and new parts
 Spare parts
 New parts
 Processing

Counseling and Training
 Modification consulting
 Realisation consulting
 Product trainings
 Startup procedure trainings
 Service trainings



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SCHUCK TYPE S BALL VALVE

Accessories Actuators



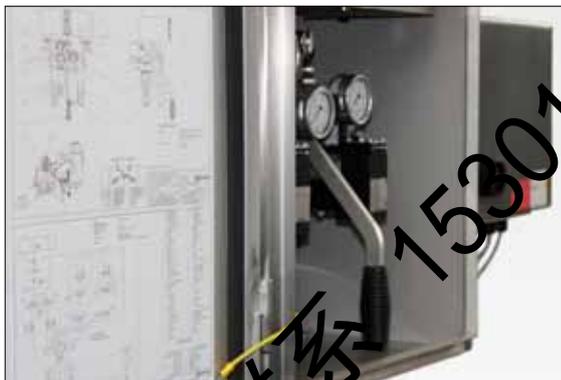
Top left: Schuck gas over oil Type G actuator with solar package including emergency power supply



Top right: Schuck Type C electro-hydraulic actuator on a Schuck ball valve

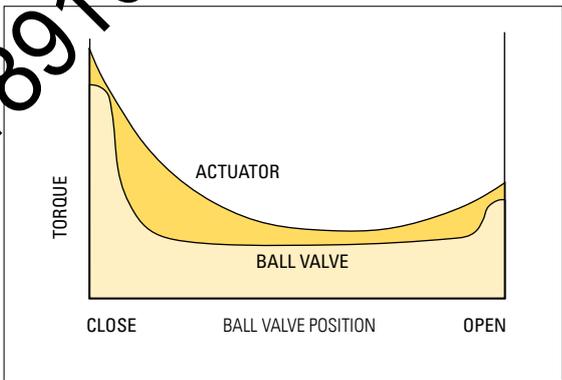


Bottom left: Schuck control cabinet for the hydraulic actuator control



Bottom right: Torque behavior of ball valve and Schuck basic actuators

Right page: Schuck Type S ball valve with the new Schuck Type SHC hydraulic compact control



DESCRIPTION

A working shut-off valve inevitably also includes a reliable and powerful actuator suitable for the application. The Schuck Group has successfully delivered, developed, manufactured and installed actuator components with modern controllers for almost any application for years.

Schuck actuators are in use worldwide, from the Kazakhstan steppe and the Indian highlands up to Chinese cities with millions of inhabitants.

The Schuck Type S ball valve harmonizes especially well with the company's own actuator systems. A complete solution from a single source guarantees an optimum and effective design of the actuator systems. Of course, we also deliver ball valves with third party actuators.

You can find more information on Schuck actuators in the actuator catalogues or in the Internet at www.schuck-actuator.com.

CONFIGURATIONS

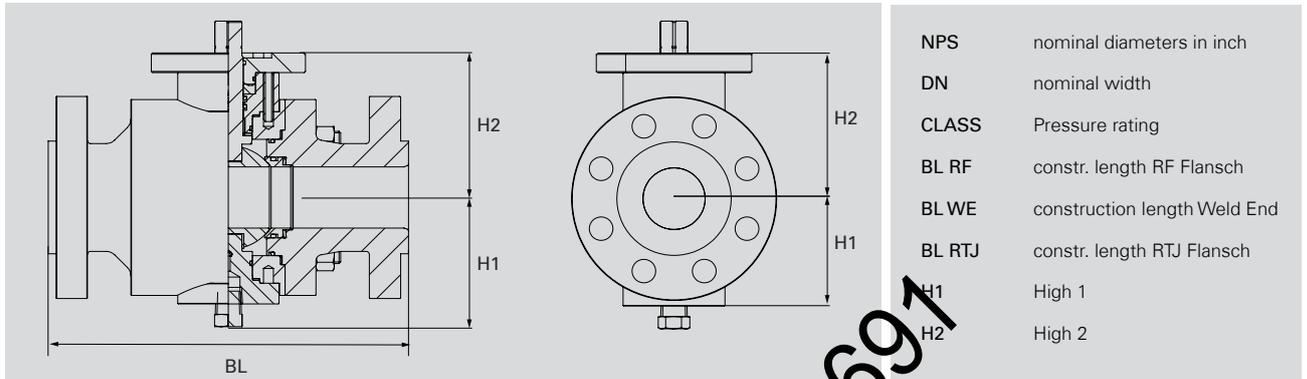
- Gas over oil actuator system - Type G
- Pneumatic actuators systems -Type K
- Electro-hydraulic actuator system - Type C
- Electro-hydraulic compact control - Type SHC
- Direct gas system -Type KY
- Electro-hydraulic actuator system -Type X
- Manual actuator
- Electric actuator systems
- Electro-hydraulic spring return - Type C7/C8
- Pneumatic spring-return - Type K7/K8



SCHUCK TYPE S BALL VALVE

CLASS 300

With flange or weld end



Schuck ball valve type S / CLASS 300

NPS	DN	CLASS	BL RF	BL WE	BL RTJ	H1	H2
2	50	300	216	216	232	90	130
3	80	300	283	283	298	110	170
4	100	300	305	305	321	190	185
6	150	300	403	457	419	230	280
8	200	300	502	521	518	275	330
10	250	300	568	559	584	315	370
12	300	300	640	635	664	355	415
14	350	300	702	762	778	400	460
16	400	300	838	838	854	450	490
18	450	300	914	914	930	490	550
20	500	300	991	991	1010	540	605
22	550	300	1092	1092	1114	590	670
24	600	300	1143	1143	1165	650	725
26	650	300	1245	1245	1270	690	750
28	700	300	1346	1346	1372	740	800
30	750	300	1397	1397	1422	770	820
32	800	300	1524	1524	1553	825	850
34	850	300	1626	1626	1654	850	870
36	900	300	1727	1727	1756	870	900
40	1000	300	By manufacturer's standard resp. on request.				
42	1050	300					
44	1100	300					
48	1200	300					
56	1500	300					

SCHUCK GLOSSARY

Important technical information and definitions

DOUBLE BLOCK AND BLEED

Checking a ball valve that is in operation for leaks

Testing can take place in an open or closed position by monitoring the pressure in the dead space via the drainage or venting connection

Apply pressure to the ball valve passageway (or to both sides in a closed position)

Leak testing of the seat rings by venting or draining

It might also be possible to determine the quantity of the leak

During testing, the specified maximum operating pressure must not be exceeded

SIL

Safety Integrity Level

International standard in compliance with IEC 61508/IEC61511

SIL 1 to SIL 4

Reliability of safety functions

Based on the level, there are design principles that must be complied with to minimize the risk of malfunctions.

All ball valves must be evaluated according to SIL.

A SIL manufacturer's declaration can be issued.

MANUFACTURING AND TESTING

DIN ISO 9001 Quality management systems – requirements

PED 97/23/EC Pressure Equipment Directive

AD2000 – HP0 General principles for design, manufacture, and thus the associated tests

AD2000 - W0 General principles for materials

DVGW, ÖVGW, SVGW - German/Austrian/Swiss Gas and Water Industry Association

API Q1 Specification for Quality Programs for the Petroleum, Petrochemical and Natural Gas Industry

API 6D Specification for Pipeline Valves

DIN EN 14141 Valves for the transport of natural gas in pipelines – requirements of usability and testing

VdTÜV Merkblatt Valve 100 EC – Prototype testing

ISO 14313/ API 6D Oil and gas industry – transport pipeline systems – pipeline valves

EN 12266-1, EN 12266-2 Industrial valves – Testing valves made of metal - Part 1: Pressure testing, test methods and acceptance criteria – binding requirements Part 2: Tests, test methods, and acceptance criteria

DIN 30690-1 Components in gas supply systems – Part 1: Requirements of components in gas supply systems

DIN 3230 T5 Technical delivery conditions for isolating valves

EN 12516 Industrial valves – body strength – table methods for the pressure-bearing body of valves

EN 12516-2 Industrial valves – body strength – table methods for the pressure-bearing body of valves

EN 13355 Unfired pressure vessel

ASME sec. VIII div. 1 Boiler and pressure vessel code

ASME b16.34 Valves – flanged, threaded, and welding end

EN 10497 Testing of valves – requirements of product certification for fire safety

ISO 15156/ NACE MR 0175 Materials for use in environments containing H₂S in oil and gas production

STANDARD MATERIALS

Body A350 LF2, A105, P355 (TSTE355)

Bolts, nuts A193 B7/A194 2H, A193 B7M/A194 2HM, A320 L7, A320 L7M

Ball plugs A350 LF2 + ENP, A182 F6A, F51 (duplex)

Seat ring A350 LF2 + ENP, A182 F6A, F51 (duplex)

Seal ring soft PA, PTFE, PEEK, PEEK

Seal ring PMSS FKM

Operating stem A276 TYPE 420, A182 F6A, A276 TYP 410, A564 630 (17-4PH), F51 (duplex)

Any others on request

LIST OF ABBREVIATIONS

DN	Nominal diameter
SW	Spanner width
PN	Nom. pressure
PT	Test pressure
CL	Pressure rating based on American standard
PS/MOP	Maximum operating pressure
FB	Floating mounted ball
TM	Trunnion-mounted ball
RF	Raced face flange
RTJ	Ring type joint flange
SP	Single piston
DP	Double piston
PMSS	Primary metallic/secondary soft sealing
MM	Metallic sealing
SO	Soft sealing
PUR	Polyurethane
SI	Secondary sealant complete (standard as of 6")
SIS	Secondary sealant only on seating ring
SIT	Secondary sealant only on actuator trunnion
oSI	Without sealant
DIN	Deutsches Institut für Normung (German Standardization Institute)
EN	European Norm (Standard)
ISO	International Standards Organization
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
Mgmt	Guide Line
ANSI	American National Standards Institute
DGRL/ PED	Pressure Equipment Directive
DVGW	Deutsche Vereinigung des Gas- und Wasserfaches e.V. (German Gas and Water Industry Association)

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