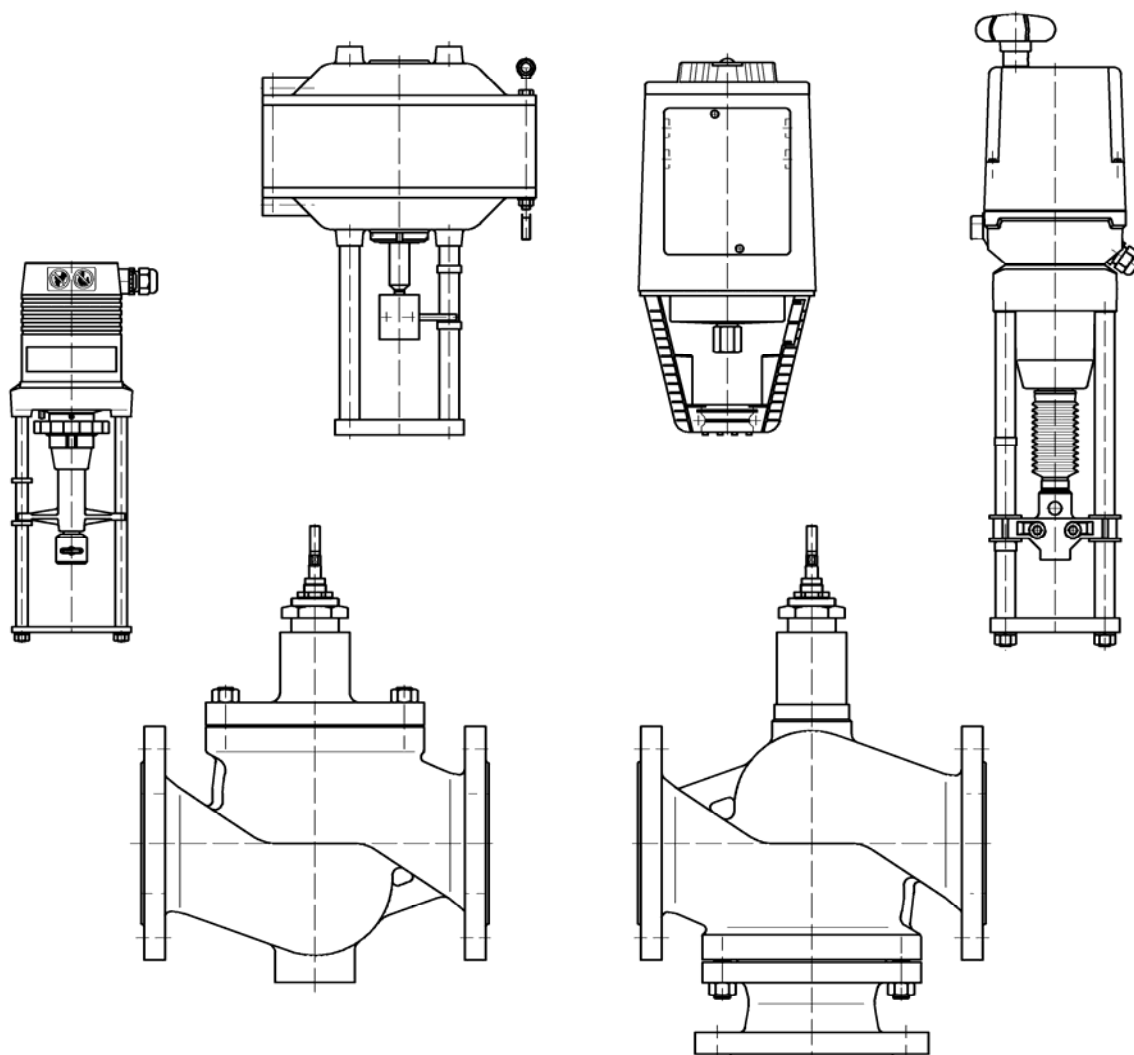


Operating Instructions

Type 216 / 225 / 240G / 240S / 240E

Type 316 / 325 / 340S / 340E



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1 General Information

1.1 Address of Manufacturer

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
D - 33758 Schloß Holte-Stukenbrock

Postfach 14 60
D – 33751 Schloß Holte-Stukenbrock

Phone: +49 – (0) – 5207 – 8903 – 0
FAX: +49 – (0) – 5207 – 88 037
e-Mail: mail@hora.de
Internet: <http://www.hora.de>

1.2 Right to alteration and copyright

Any regulations, guidelines, norms etc. stated in these operating instructions correspond to the state of information during preparation and are not subject to alteration services. It is the responsibility of the operator to ensure that the latest version is used at all times.

The company reserves the right to carry out technical alterations and improvements in connection with any technical data, statements and images in these operating instructions at any time. Claims for alterations or improvements on already delivered valves will be excluded.

Copyrights for these operating instructions as well as any rights referring to the possible grant of a patent, or utility-patented articles, shall remain the property of the manufacturer.

1.3 Validity of operating instructions

These operating instruction only apply with the delivery note. It is apply to the valve Type 216, 225, 240G, 240S, 240E, 316; 325, 340S and 340E.

The type-name consist of:

- 2 or 3 2 = globe valve; 3 = three way valve
- 16, 25 or 40 16 = PN 16, 25 = PN 25 or 40 = PN 40
- with PN 40: G, S G = Body-material EN-JS 1024, S = Body-material 1.0619+N,
or E E = Body-material 1.4408 (Cr-Ni Stahl)

Please check that type designation and nameplate of valves match **before** any measures are taken, especially when ordering any accessories or spare parts!

The regulations, guidelines and notes referred to in these operating instructions apply to the European Union. Operators outside the EU are responsible for the observation of the rules as a practical basis for the handling of the fittings and have to adapt these to the regional / national regulations applicable for the installation site.

For any additional information, or if you should encounter any special problems which are not dealt with sufficiently in these operating instructions, please contact the supplier / manufacturer directly.

1.4 Safety instructions and regulations

1.4.1 Meaning of notes



Hazard: Signifies that there is a danger of death, severe bodily injury or considerable damage to property if adequate measures are not taken.



Attention: Signifies that there is a threat of damage to property or the environment through non-compliance.



Note: Signifies the hint of a possible advantage when recommendations are followed.

1.4.2 General safety instructions

- It is the responsibility of the operator that current regulations for labour protection, the prevention of accidents and EU regulations are observed during the installation, operation and maintenance.
- Any persons put in charge of any measures described in these operating instructions must have read and comprehended these instructions.
- Installation, service and maintenance personnel have to practise safe working techniques during any measures taken and have to avoid any working practices which endanger the safety of persons or valves or would damage other property in any way.
- **Before** the start of any maintenance and / or repair work, any electric cables leading to any valve operating gear must be disconnected in accordance with EU regulations by competent personnel. Also ensure that the valves are free of pressure, cooled down and empty.
- It's allow to use the valve in hazardous areas only with agreement of the Manufacturer.



Hazard:

The valves are pressurized and hot during operation.

Non-compliance with warning signs could result in death, severe injury or damage to property.

Only competent personnel (see 1.4.3) must be allowed to work on the valves.

These persons must have thorough knowledge of all warnings, the installation and the repair measures pointed out in these operating instructions.

The faultless and safe operation of the valves requires professional shipping, storage, installation and mounting as well as careful, safety-conscious operation and maintenance.

- The notes above and the warnings below do not take into consideration any additional regional, local or in-house regulations of companies and might have to be supplemented by the operator at his own responsibility.

1.4.3 Qualified personnel

According to these operating instructions a person is qualified if he/she is familiar with the installation, mounting, commissioning and operation or maintenance of valves and possesses the recommended qualifications for the work. The necessary and stipulated qualifications include among other things:

- Training / instruction or authorization to close and open circuits and devices / systems in accordance with EN 60204 (DIN VDE 0100 / 0113 - German Industrial Standards, Ass. of Electrical Engineers) and accordance the Standards of Safety Engineering.
- Training or instruction in accordance with the Standards of Safety Engineering with respect to maintenance and use of adequate safety and the safety of labour equipment.
- First aid training.

1.5 Warranty

For the extent and duration of any warranties please see "terms and conditions of delivery" supplied by the manufacturer. At any time the latest version at the date of delivery will apply.

No liabilities will be accepted for damages to valves which are the result of one or more of the following causes:

- **Ignorance of or non-compliance with these operating instructions.**
- Insufficiently qualified installation, operating or maintenance personnel.
- Common wear and tear.
- Faulty or careless treatment of the valves.
- Chemical, electrochemical and / or electrical influences.

In addition to this the manufacturer will not accept any liability for:

- Non-compliance with regulations for the safety of labour, prevention of accidents, EU and any other safety regulations.
- Improper changes or reconstructions of the valves without prior consent by the manufacturer.
- Faulty mounting, faulty commissioning or improper operation.
- Unsuitable or improper application, any other use than the use intended as well as the use under other than the agreed application conditions.

Any violations against the restrictions above are, in the case of injury to persons or damage to property, entirely at the operator's risk.

1.6 Identification of valves

On the body or upper part of the valves you will find the following identifications:

- nominal width
- PN / class identification with or without the permissible maximum temperature (TS) or permissible maximum temperature and permissible maximum pressure as a pair of variates
- material of body
- name of manufacturer (HORA)
- cast number
- product name (Series and/or manufacturer-no.)
- flow direction arrow, if required
- ring joint number, if required
- CE identification (for valves from category I in accordance with 97/23/EU onwards only)

The PN / Class identification in accordance with EN 1092 / EN 1759 / EN 12516-1 / ASME B16.34 sets the minimum and maximum pressure/temperature limits for the body material.

If the valve has no definite PN or class identification the permissible maximum temperature (TS) and maximum pressure (PS) are stated as a pair of variates.



Hazard

Increasing the limits is not permissible!

The identifications are supplied:

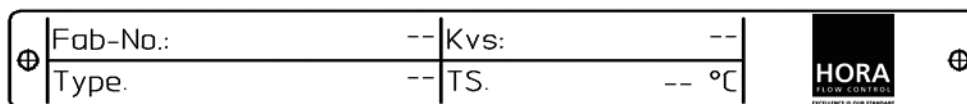
- in integrated form (cast, engraved or stamped on the body or upper part of the valves)
- on a nameplate that is fitted to the body with grooved drive studs
- on note plates (flow arrow, safety notes which definitely have to be observed) which are connected to the valves in a way that prevents their accidental loss.

The body of the valve become a continuous number (beginning with 1) if the position of the confirmation have more than one pieces. The stamp is made before the nominal size (.. DN).

1.6.1 Notes on the nameplate

The nameplates provided are made of CrNi steel. The print (shown in image 1) and the additional details (according to the delivery note) are made with a laser.

Standard nameplate, acc. Art.3 (3):



Standard nameplate, Category I, II, III, IV:

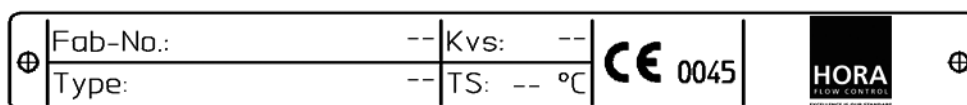


Image 1: Nameplate without and with CE identification

The terms have the following meaning:

- Fab-No.: Shows the allocation to a certain order. The laserd number consist of a number with 16 digits. The first 8 digits shows the number of confirmation. /xx/ shows the position on the delivery note and the last 4 digits shows the month and the year of manufacturing.
Example: 03208389/01/1003 is meaning, No. of confirmation 03208389 Position 1 and date of manufacture October 2003.
- Kvs: Kv_s value (as on delivery note)
- Type: Shows the model of valve. (Example: 240G)
- TS: Shows the allowable temperature
- CE₀₀₄₅: CE identification wirh code of the stated place 0045 (TÜV Hannover/Sachsen-Anhalt)



Note: More details are apparent from the order-delivery.

1.7 Test pressure

The test pressure PT is based on the permissible pressure at room temperature PS_{RT}.

The permissible pressure at room temperature PS_{RT} take out of EN 1092, EN 1759, ASME B16.34 or EN 12516 (dependent of the body material) if the valve have a nominal pressure size. The pressure is round up to the next 25 psi, if it come out of the ASME B16.34. Than the psi is convert in bar (1 bar = 14,5 psi).

If the customer has stated outlay values for pressure and temperature, the formula below would be relevant to get the permissible pressure at room temperature PS_{RT}:

$$PS_{RT} = PS_t \times \frac{R_{p0,2min/RT}}{R_{p0,2min/t}} \quad [\text{prEN 12266-1:2002, A.1.6}]$$

For this applies:

PS _t	permissible maximum pressure at temperature t (outlay pressure supplied by customer)
R _{p0,2min/RT}	0,2% expansion limit at room temperature
R _{p0,2min/t}	0,2% expansion limit at temperature TS (outlay temperature supplied by customer)

The test pressure PT would therefore be the 1.5-fold of the permissible pressure at room temperature. It is round up to the next full bar.

If the generated test pressure deviates from the previously stated, the body will additionally show the generated test pressure (PT).

1.8 Annex parts

Possible annex parts to the valve might be:

- Electrical linear actuator
- Electrical-hydraulic linear actuator
- Pneumatic linear actuator
- Multiturn actuator with yoke fitting (threaded bush A or tip jack B1)
- Manual adjustment
- Positioner
- Positioner feedback
- Limit switch
- Filter regulator
- 3/2-directional solinoid valve
- 3/2-directional pneumatic valve
- Interlock valve
- Booster

For instructions on installation and control please refer to the respective operating instructions of the annex parts.

2 Transport, Storage and Handling

Please observe the following rules when transporting or storing the valves:

- Store the valves in a dry place until installation.
- The transport and storage temperature should be kept between $-20\text{ }^{\circ}\text{C}$ und $+65\text{ }^{\circ}\text{C}$.
- Protect the valves against force (impact, shock, vibrations etc.), especially around the valve spindle.
- Any damages to corrosion protection (paintwork, oiled surfaces etc.) are to be remedied immediately.
- Do not store more than 6 months.
- The drain plugs fitted in the interior of the valves for the protection of the flanges must not be removed before reaching the installation site.

For valves over 25 kg make sure that mounting rings for chain hoists are fitted at an adequate height above the installation site. It would be even better if sliding rails or swivel arms with a hoist were available at the installation site.

Image 2 shows examples of handling methods during the fitting of valves.

In image 2a the straps have to be wound round the body. To keep the valves in the position shown and to prevent vertical tipping, the straps have to run along the left and right hand side of the actuator.

In image 2b and c the straps have to be wound round the body. Strap 3 is used to keep the valves horizontal. For this, it is important that strap 3 is not fastened to the valve stem.

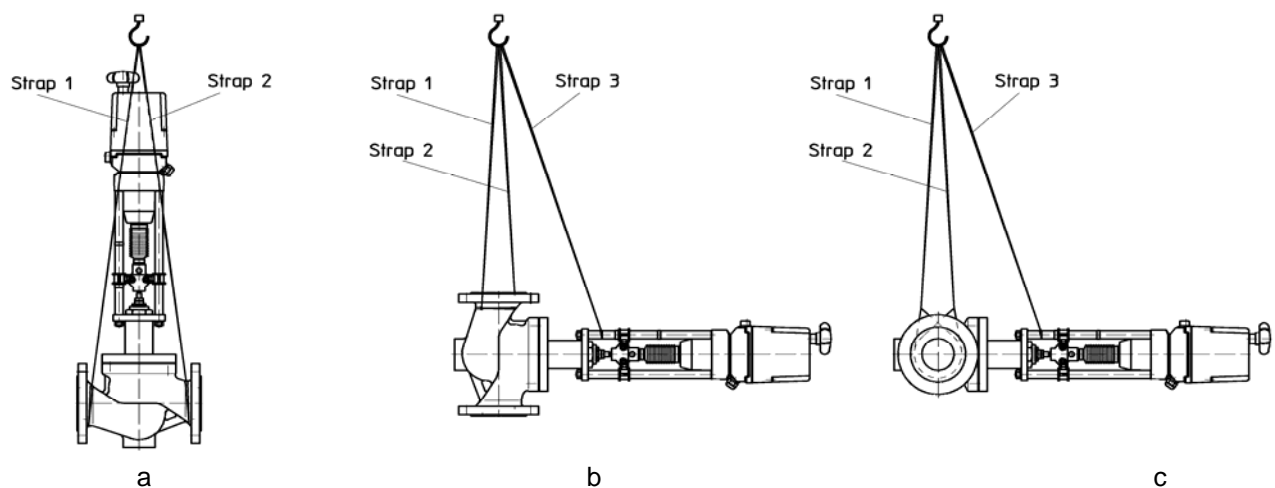


Image 2: Hoisting of valves for installation in pipeline



Hazard:

The eyes at the actuator attachment should only be used for lifting the actuator off the valve. They must not be used as hoisting eyes for the entire valves.

3 Description, Technical Data

3.1 Function and mode of working

Valves of the line of products described here are used for the regulation, shut up or controlling of substance currents consisting of gas, steam or liquids.

The valves consist of the valve itself and the valve operating gear which changes the position of the flow restrictor (plug) to the seat in accordance with the control unit.

Possible means of actuation are pneumatic, electric-hydraulic linear activator and electric linear activator attachments which cause an axial shift of the cone. Also suitable are multiturn actuators which transform the slewing motion into axial motion and manual adjustments.

3.2 Intended use



Hazard: The delivery note is part of these operating instructions. If it is not enclosed please apply for it before commissioning and compare it with the system identifications. Deviations from the system and specification identification need to be clarified with the manufacturer before commissioning.

The valves must only be used within the prestated pressure and temperature range (see also chapter 1.6 and chapter 3.3).

Any other use than the intended use described above as well as the operation outside than the permissible pressure or temperature conditions, will be classified as different to the intended use. The risk for persons and devices as well as other property will be the sole responsibility of the operator.



Hazard: The use intended also includes the compliance with regulations for the prevention of accidents and EU regulations as well as safety-conscious working practices during any measures described in these operating instructions while observing generally accepted rules of engineering.

3.3 Limitations



Hazard

These state-of-the-art valves will be operative for the use intended and for operation in accordance with the agreed, and the data stated on the nameplate. Operability might be impaired and result in hazards to persons and property if:

- installation, setting and / or commissioning is not professionally carried out in accordance with these operating instructions.
- the valve is operated at pressures and temperatures outside the values shown on the nameplate.
- the ambient temperature conditions (atmospheric temperature, humidity, wetness etc.) are extremely higher / lower than common values of Middle Europe.
- unsuitable or faulty accessories or spare parts are used.

Only use original accessories and spare parts!

The body materials can use to following temperatures:

- EN-JL 1040 - 10 °C ... + 300 °C
- EN-JS 1024 - 10 °C ... + 350 °C
- 1.0619+N - 10 °C ... + 450 °C
- 1.4408 - 200 °C ... + 400 °C

The stem seal can use to following temperatures and medias:

- O-ring seal with EPDM - 50 °C ... + 180 °C Water and steam, not to use in merial oil
- O-ring seal with FKM - 20 °C ... + 150 °C Oxygen, hydrogen , animal- and vegetable oil, natural gas or media appropriate compatibility list
- O-ring-seal with Fluoraz® - 15 °C ... + 200 °C Water and steam, acid, animal- and vegetable-oil, base, ozone, heater liquide, brake liquide or media appropriate compatibility list
- Graphite sealing - 200 °C ... + 450 °C Water and steam, animal- and vegetable-oil, heater liquide or media appropriate compatibility list
- PTFE lip rings - 20 °C ... + 200 °C Water and steam, acid, animal- and vegetable-oil, base, ozone, heater liquide or media appropriate compatibility list
- Sainless steel bellow - 200 °C ... + 400 °C Heater liquide, natural gas and other explosive, inflammable, toxic and fire hazard media appropriate compatibility list



Attention: Do not exceed the normal flow speeds at permanent operation in the duct system. Operational conditions such as vibrations, pressure shocks, cavitation and portions of solid material in the medium – especially the abrasive ones – must be cleared with the manufacturer.

3.4 Sectional drawings

The type 2xx is possible in:

- Single step
- Relieve and not relieve
- Normal type (Valve close with retracted spindle) and reverse type (Valve close with extended spindle)
- Split, parabolic or perforated plug

The type 3xx is possible in:

- Split plug in both stream direction
- Split plug in one stream direction and parabolic plug in the other stream direction

Note about switching valve:

Switching valves DN > 50 exclusively used with electromotor actuation, hydraulic actuation or membrane actuation with hydraulic damping.

The next five sectional drawings below show examples of the basic construction of valves. The next two sectional drawings show possible the stem packings.

Dimensions, see the catalog under www.hora.de

3.4.1 Type 2xx normal type not relieve

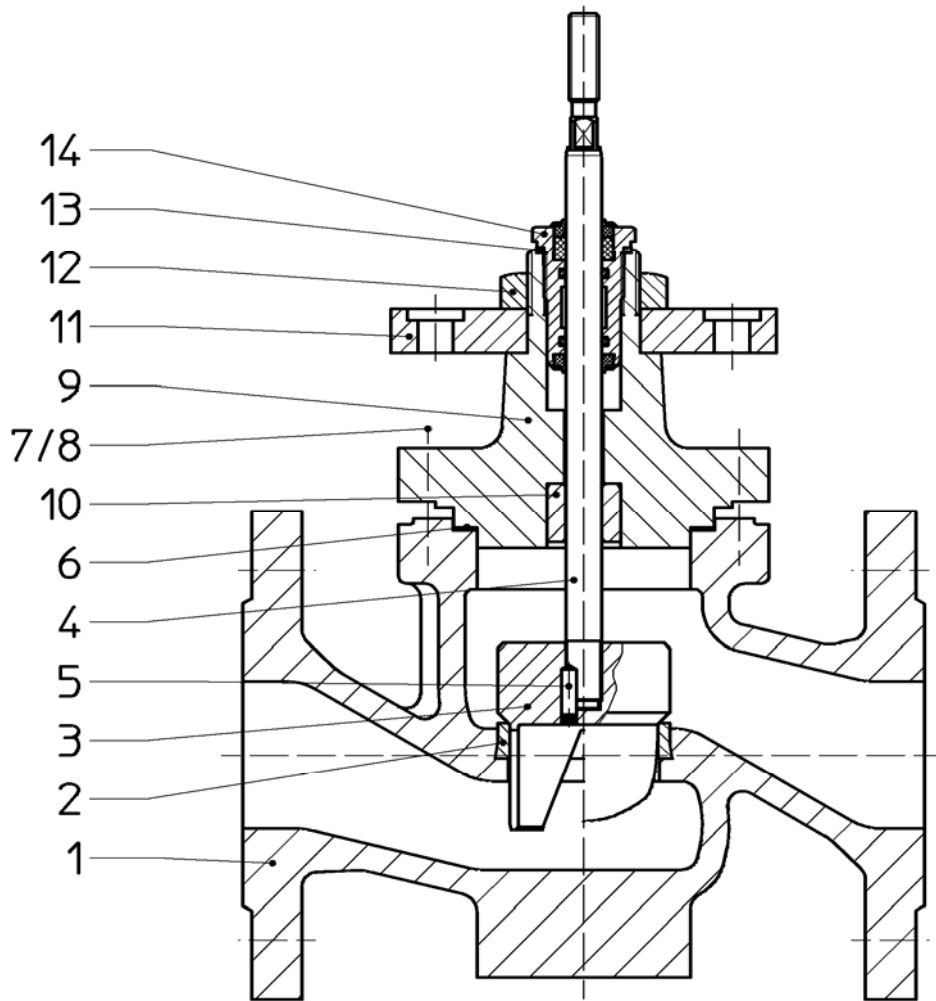


Image 3

Position	Designation	Material					Spare parts
		Type 216	Type 225	Type 240G	Type 240S	Type 240E	
1	Body	EN-JL 1040	EN-JS 1024	EN-JS 1024	1.0619+N	1.4408	
2	Seat ring	1.4021	1.4021	1.4021	1.4021	1.4571	
3	Plug	1.4057	1.4057	1.4057	1.4057	1.4571	X
4	Valve stem	1.4122	1.4122	1.4122	1.4122	1.4571	
5	Cylindrical pin	A2	A2	A2	A2	A2	
6	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	X
7	Stud bolt	1.1181	1.1181	1.1181	1.1181	A4-70	
8	Hexagon nut	1.1181	1.1181	1.1181	1.1181	A2-70	
9	Bonnet	EN-JS 1024	EN-JS 1024	EN-JS 1024	1.0460	1.4571	
10	Guide bush	1.4057	1.4057	1.4057	1.4057	1.4571/ PTFE	
11	Cross bar	---	---	---	---	---	
12	Grooved nut or Lock nut	---	---	---	---	---	
13	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	X
14	Stem packing	According to delivery note	According to delivery note	According to delivery note	According to delivery note	According to delivery note	X

Table 1

3.4.2 Type 2xx normal type relieve

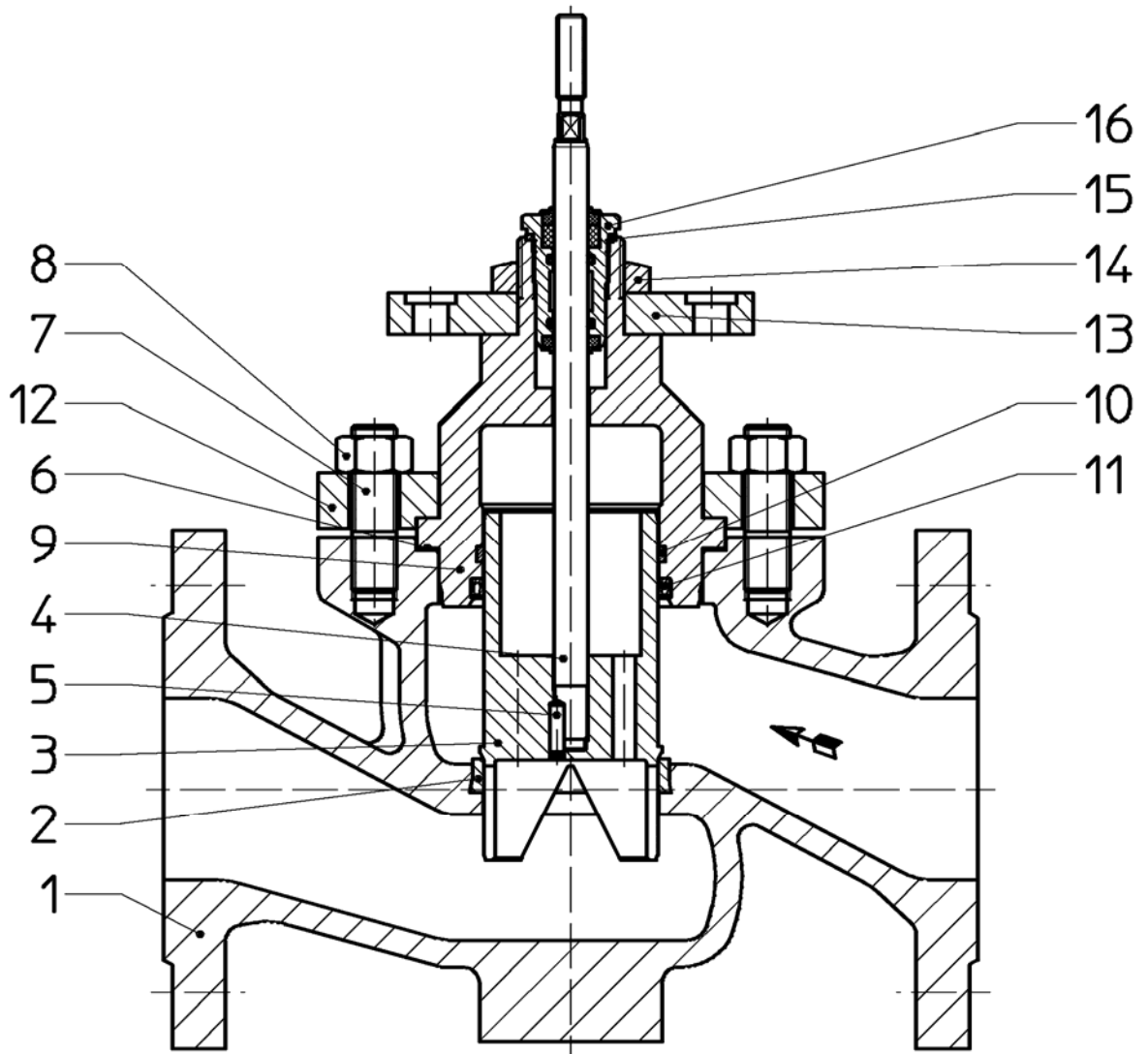


Image 4

Position	Designation	Material					Spare parts
		Type 216	Type 225	Type 240G	Type 240S	Type 240E	
1	Body	EN-JL 1040	EN-JS 1024	EN-JS 1024	1.0619+N	1.4408	
2	Seat ring	1.4021	1.4021	1.4021	1.4021	1.4571	
3	Plug	1.4057	1.4057	1.4057	1.4057	1.4571	X
4	Valve stem	1.4122	1.4122	1.4122	1.4122	1.4571	
5	Cylindrical pin	A2	A2	A2	A2	A2	
6	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	X
7	Stud bolt	1.1181	1.1181	1.1181	1.1181	A4-70	
8	Hexagon nut	1.1181	1.1181	1.1181	1.1181	A2-70	
9	Bonnet	1.0460	1.0460	1.0460	1.0460	1.4571	
10	Guide	PTFE	PTFE	PTFE	PTFE	PTFE	X
11	Rod gasket	PTFE	PTFE	PTFE	PTFE	PTFE	X
12	Flange	1.0460	1.0460	1.0460	1.0460	1.4571	
13	Cross bar	---	---	---	---	---	
14	Grooved nut or Lock nut	---	---	---	---	---	
15	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	X
16	Stem packing	According to delivery note	According to delivery note	According to delivery note	According to delivery note	According to delivery note	X

Table 2

Type 2xx reverse type not relieve

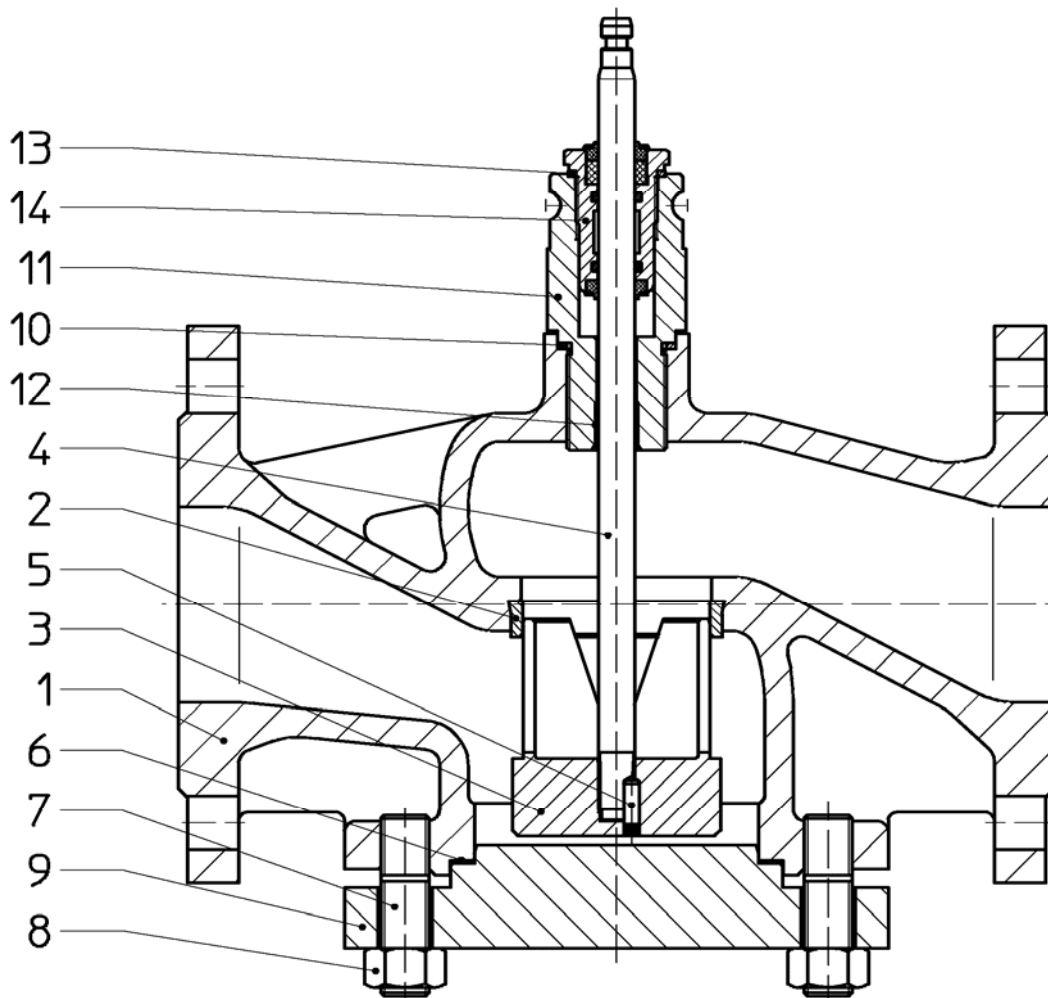


Image 5

Position	Designation	Material					Spare parts
		Type 216	Type 225	Type 240G	Type 240S	Type 240E	
1	Body	EN-JL 1040	EN-JS 1024	EN-JS 1024	1.0619+N	1.4408	
2	Seat ring	1.4021	1.4021	1.4021	1.4021	1.4571	
3	Plug	1.4057	1.4057	1.4057	1.4057	1.4571	X
4	Valve stem	1.4122	1.4122	1.4122	1.4122	1.4571	
5	Cylindrical pin	A2	A2	A2	A2	A2	
6	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	X
7	Stud bolt	1.1181	1.1181	1.1181	1.1181	A4-70	
8	Hexagona nut	1.1181	1.1181	1.1181	1.1181	A2-70	
9	Bonnet	1.0460	1.0460	1.0460	1.0460	1.4571	
10	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	
11	Bonnet	1.0460	1.0460	1.0460	1.0460	1.4571	
12	Guide bush	DUB-bearing or 1.4057	DUB-bearing or 1.4057	DUB-bearing or 1.4057	DUB-bearing or 1.4057	PTFE	
13	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	X
14	Stem packing	According to delivery note	According to delivery note	According to delivery note	According to delivery note	According to delivery note	X

Table 3

3.4.3 Type 2xx reverse type relieve

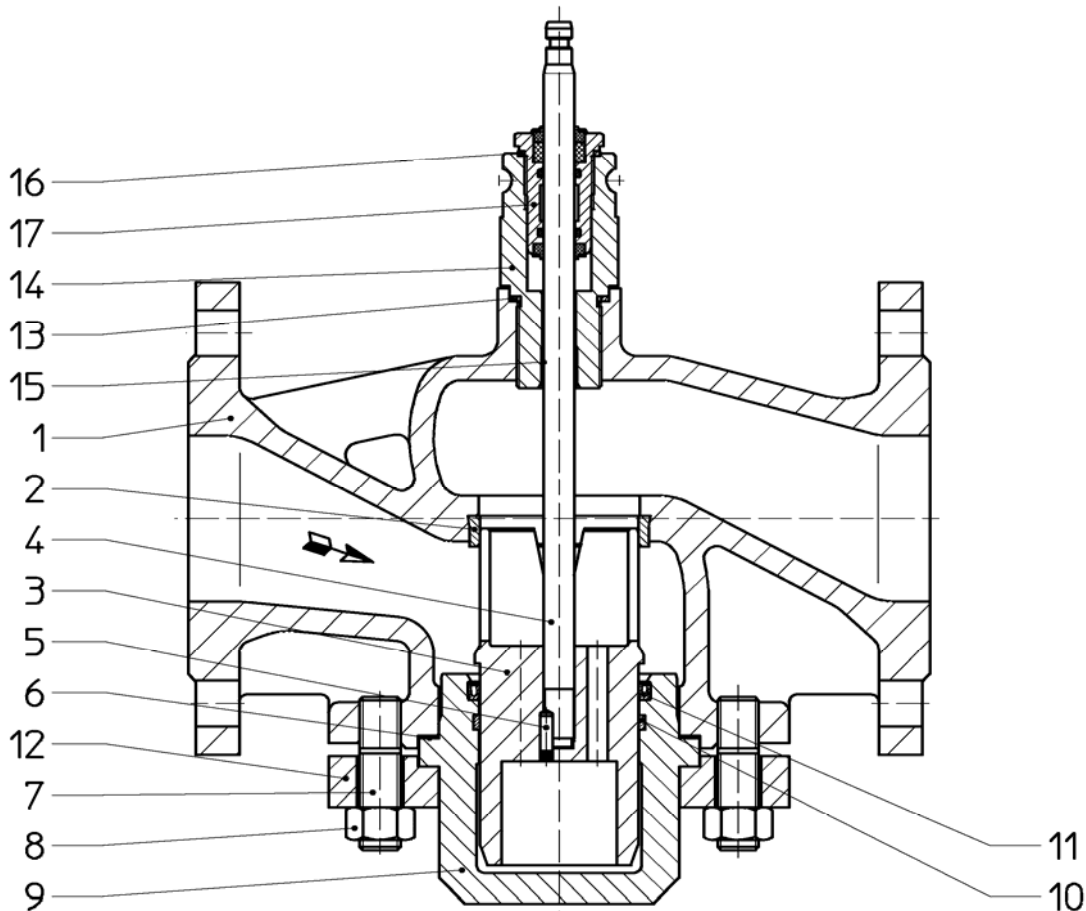


Image 6

Position	Designation	Material					Spare parts
		Type 216	Type 225	Type 240G	Type 240S	Type 240E	
1	Body	EN-JL 1040	EN-JS 1024	EN-JS 1024	1.0619+N	1.4408	
2	Seat ring	1.4021	1.4021	1.4021	1.4021	1.4571	
3	Plug	1.4057	1.4057	1.4057	1.4057	1.4571	
4	Valve stem	1.4122	1.4122	1.4122	1.4122	1.4571	X
5	Cylindrical pin	A2	A2	A2	A2	A2	
6	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	X
7	Stud bolt	1.1181	1.1181	1.1181	1.1181	A4-70	
8	Hexagon nut	1.1181	1.1181	1.1181	1.1181	A2-70	
9	Bonnet	1.0460	1.0460	1.0460	1.0460	1.4571	
10	Guide	PTFE	PTFE	PTFE	PTFE	PTFE	X
11	Rod gasket	PTFE	PTFE	PTFE	PTFE	PTFE	X
12	Flange	1.0460	1.0460	1.0460	1.0460	1.4571	
13	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	
14	Bonnet	1.0460	1.0460	1.0460	1.0460	1.4571	
15	Guide bush	DUB-bearing or 1.4057	DUB-bearing or 1.4057	DUB-bearing or 1.4057	DUB-bearing or 1.4057	PTFE	
16	Gasket	Soft iron	Soft iron	Soft iron	Soft iron	1.4571	X
17	Stem packing	According to delivery note	According to delivery note	According to delivery note	According to delivery note	According to delivery note	X

Table 4

3.4.4 Type 3xx

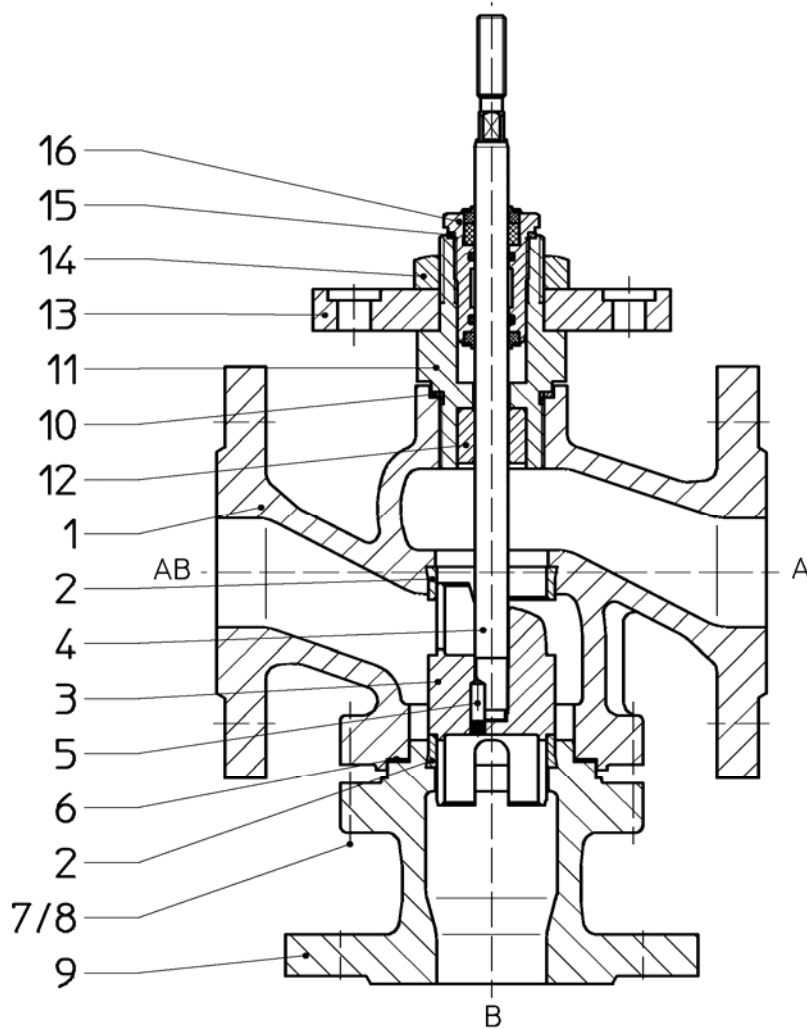


Image 7

Position	Designation	Material				Spare parts
		Type 316	Type 325	Type 340S	Type 340E	
1	Body	EN-JL 1040	EN-JS 1024	1.0619+N	1.4408	
2	Seat ring	1.4021	1.4021	1.4021	1.4571	
3	Plug	1.4057	1.4057	1.4057	1.4571	X
4	Valve stem	1.4122	1.4122	1.4122	1.4571	
5	Cylindrical pin	A2	A2	A2	A2	
6	Gasket	Graphite	Graphite	Graphite	Graphite	X
7	Stud bolt	1.1181	1.1181	1.1181	A4-70	
8	Hexagon nut	1.1181	1.1181	1.1181	A2-70	
9	Connection	EN-JS 1024	EN-JS 1024	1.0619+N	1.4571	
10	Gasket	Soft iron	Soft iron	Soft iron	1.4571	
11	Bonnet	1.0460	1.0460	1.0460	1.4571	
12	Guide bush	DUB-bearing or 1.4057	DUB-bearing or 1.4057	DUB-bearing or 1.4057	1.4571/PTFE	
13	Cross bar	---	---	---	---	
14	Grooved nut or Lock nut	---	---	---	---	
15	Gasket	Soft iron	Soft iron	Soft iron	1.4571	X
16	Stem packing	According to delivery note	According to delivery note	According to delivery note	According to delivery note	X

Table 5

Stem seal

It is possible to use the following stem seals:

- Stem seal with double O-ring (Standard)
- Stem seal with pure graphite packing (screwed and flanged)
- Stem seal with PTFE lip rings
- Stem seal with stainless steel bellows

The image 8a show a stem seal with O-ring, image 8b show the stem seal with PTFE lip rings, image 8c show the stem seal with pure graphite packing screwed and image 8d show the stem seal with pure graphite packing flanged. The stem seal with O-ring and PTFE lip rings can only complete change. In the pure graphite packing can change the graphite rings seperatly.

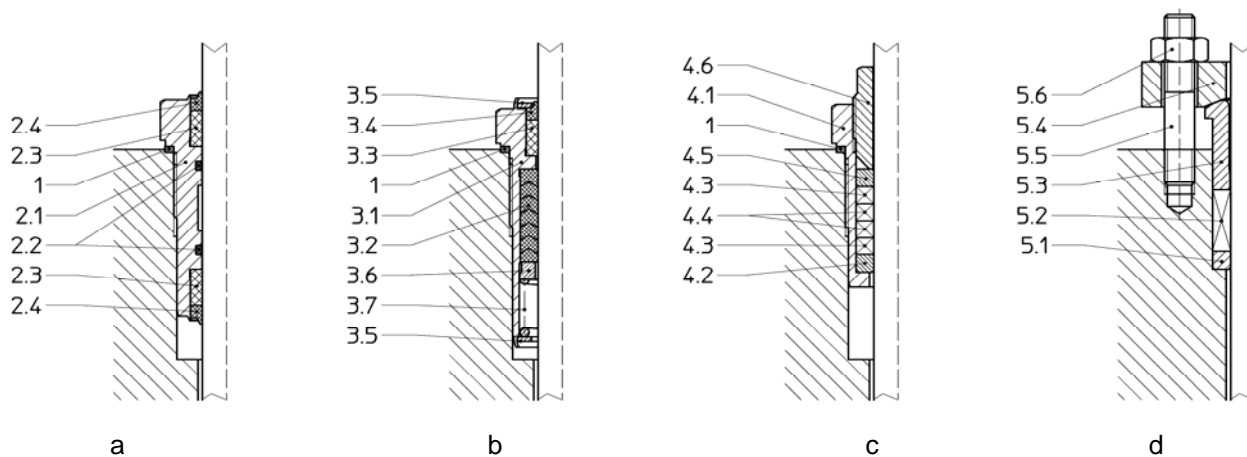


Image 8: Stem seals

Pos.	Designation	Material	Spare parts	Pos.	Designation	Material	Spare parts
1	Gasket	Soft iron / 1.4571		4	Graphite seal	Consist. of:	
2	O-ring seal	Consist. of:	X	4.1	Screwing	1.4301	
2.1	O-ring-bush	1.4305		4.2	Ring	1.4112	
2.2	O-ring	According to delivery note		4.3	Stem packing	Gr. / K80S	X
2.3	Guide bush	PTFE		4.4	Stem packing	Graphite	X
2.4	Stripper	PTFE		4.5	Ring	1.4112	
3	PTFE lip ring seal	Consist. Of:	X	4.6	Pressure bush	1.4301	
3.1	Screwing	1.4305		5	Graphite seal	Consist. of:	
3.2	PTFE lip rings	PTFE		5.1	Ring	1.4112	
3.3	Guide bush	PTFE		5.2	Stem packing	Graphite and Gr. / K80S	X
3.4	Stripper	PTFE		5.3	Suffing box	1.4057	
3.5	Ring	1.4301		5.4	Gland flange	1.7383	
3.6	Clamping	1.4305		5.5	Stud bolt	1.1181	
3.7	Compression spring	1.4310		5.6	Hexagon nut	1.1181	

Table 6

Image 9 show the stem seal with stainless steel bellow. The stem seal consist of the seal with bellow and a second seal (O-ring, PTFE lip rings or pure graphite seal). The second stem seal is to hold the valve tighten if the bellow is damage. At the screwed sealing plug (11 in image 9) can check if the bellow is tighten.

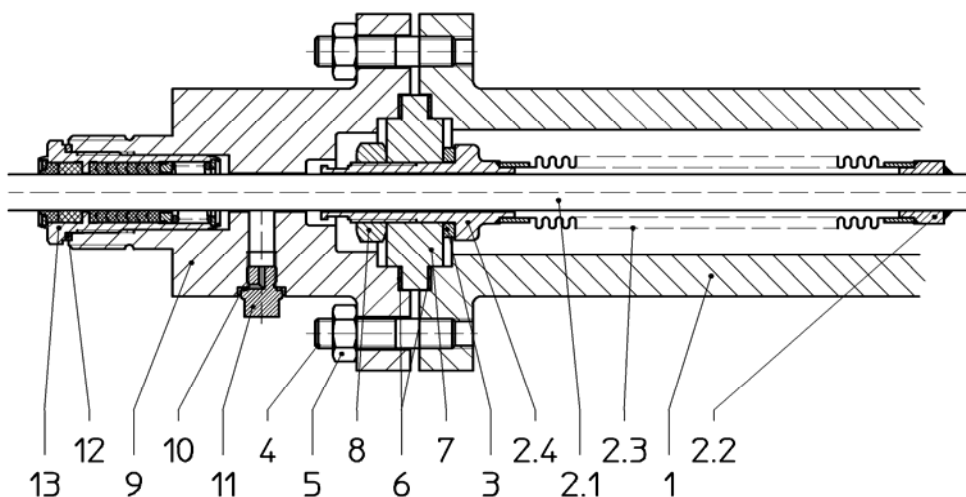


Image 9: Stem seal with stainless steel bellows

Pos.	Designation	Material	Spare parts	Pos.	Designation	Material	Spare parts
1	Bellow column	1.0460 o. 1.4571		6	Gasket	Graphite	X
2	Bellow with stem	Consist. of:	X	7	Flange	1.0460 or 1.4571	
2.1	Stem	1.4571		8	Hexagon nut	A2	
2.2	Bellow fastening	1.4571		9	Bonnet	1.0460 or 1.4571	
2.3	Bellow	1.4541		10	Gasket	1.4571	
2.4	Bellow fastening	1.4571		11	Screwed sealing plug	A4	
3	Gasket	1.4571/Gr.	X	12	Gasket	Soft iron or 1.4571	
4	Stud bolt	1.1181 or A4-70		13	Stem packing	According to delivery note	X
5	Hexagon nut	1.1181 or A2-70					

Table 7

4 Installing the valve in the system

Hazard

Safe operation of the valve requires proper installation and commissioning by competent persons in accordance with the warnings of these operating instructions.

Special attention needs to be paid to general installation and safety regulations for heating, ventilation, air condition and pipe systems as well as the proper use of tools, welding devices and personal as well as other safety equipment.

Non-compliance might result in death, severe physical injury or substantial damage to property!

4.1 Steps to take before installing the valve in the system!

To remove scale, welding residue and other impurities, the system is usually rinsed before running a service trial.

Before taking these measures pay attention to the following points:

- If possible, the valve should be replaced by a matching piece during rinsing and use of the caustic agent.
- If this is not possible, the valve has to be kept in 100% on-position during cleaning. Do not use it for control purposes until rinsing.
- Rinsing might result in danger to the interior of the valve through foreign matter and excessive differential pressures.



We recommend for this reason to take the following steps after completing the service trail (to ensure uninterrupted operation in the interest of the operator). All valves:

- a) Open and check for damage
- b) Repair and part renew, as necessary
- c) Properly install



Hazard! Valves are pressurized! Open actuator and/or valve only in pressureless conditions of the pipe!

In addition to this check the following before installing the valve:

- Do nominal and operating data shown on the nameplate match the operating data of the system? The manufacturer will not be liable to the substantial damage to the valve that can result from differing data.
- Is there enough space for installation or disassembly (chain hoists for installation etc.) at the installation site?
- Has the pipeline been rinsed and cleaned before installation? If this is not the case the manufacturer will not be liable for any resulting damages.
- Does the distance between the pipe ends correspond to the valve construction length?
- Is the pipeline set up in a way that mechanical stresses (e. g. forces and torques from pipeline expansion during operation, vibrations etc.) during installation and operation will not affect the valve body? (possible availability of compensators).
- Does the steam piping allow the continuous draining of condensate to avoid water hammer.
-  Note: A straight pipe or damping section with length approx. 10 x DN before and after the valve will warranty control performance.
-  Note: To carry out installations during operation of the valve, fit leak proof fittings and a bypass at an appropriate distance before and after the valve. The valved-off section of pipe must be drained.

4.2 Installing the valve

Please pay attention to the following details during installation:

- Remove the safety flaps directly before installation.
- Ensure that the flow arrow on the body matches the flow direction of the pipeline. Reversed flow direction will impair the function!
- Ensure that the pipelines are connected free of stress, without offset, mismatch or longitudinal shifting.
- Ensure that only matching seals, screws and nuts (not included in delivery) are used for the flange fittings.
- For welded-in valves, ensure that any work is carried out in accordance with the current regulations for welding work. Do not attach polarization to the valve as the flow of current might damage important sliding pieces. After welding is completed the pipeline will once again require cleaning. The valve will have to be opened and any foreign matter removed. (see separate installation instructions)
- Ensure that the draining muff, if supplied, is properly connected and that the condensate is continuously drained off
- The actuator has to support if the valve stem is oblique or horizontal. Mount the actuator in such a way that a max. section modulus is achieved by the ribs or columns (see Image 10).
- Ensure the proper attachment of any other connections to the valve.

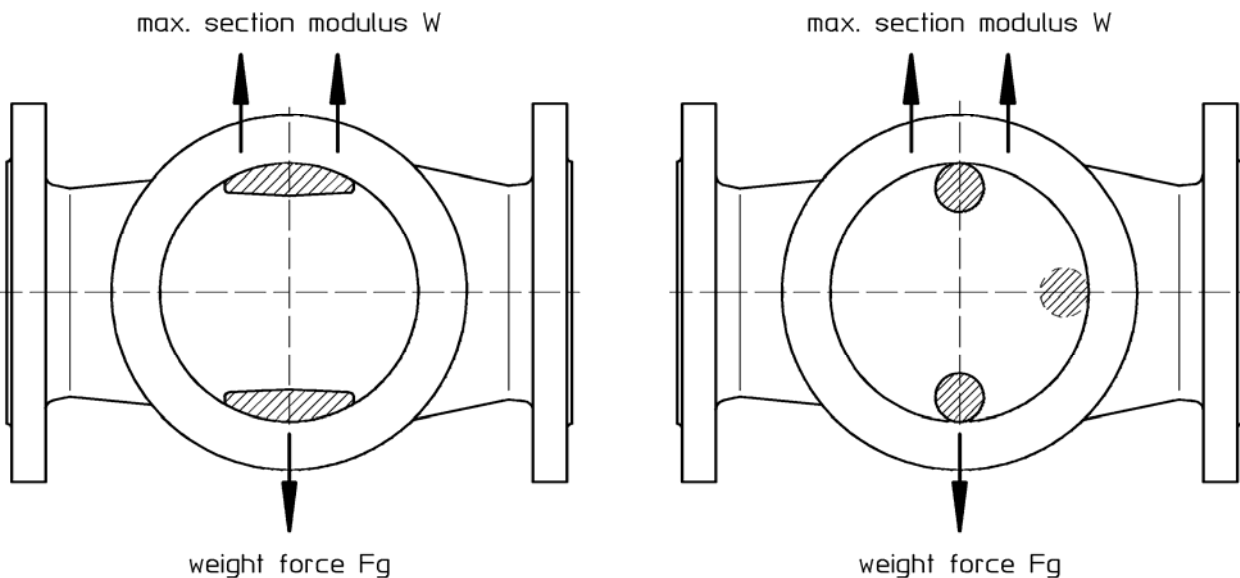


Image 10: Position from rib or column

Once the valve has been installed in the pipeline, this will be followed by the installation and connection of the actuator and annex parts (if supplied separately). For this, please see operating instructions of actuator or annex parts.

If the fitting is welded on, the weld joints must be checked by using a spot check method, as these joints are designed with a welding joint factor of 0.85. If it is not possible to check these, consult the manufacturer / supplier.



Temperature: Valves and pipelines operated at high ($> 50\text{ }^{\circ}\text{C}$) or low ($< 0^{\circ}\text{C}$) temperatures must be safeguarded against touch with insulation, and appropriate warnings have to be attached to point out the hazards caused by touch. The insulation will also absorb sounds and temperature.

5 Commissioning



Hazard! Before commissioning a new system, after alterations and repairs check that:

- all installation and mounting work has been finished properly!
- safe operation of the valve without hazards to persons or devices or the system is ensured!
- additional warnings stated in the operating instructions of the driving mechanism and the accessories are observed!



Hazard! Any handling between the Valve and Actuator is prohibited during operation due to health hazard.

The system is exposed to extreme stresses during commissioning. The pipeline and valve will be exposed to varying pressures and temperatures.

Make sure that the valve interior is neither exposed to excess differential pressure nor to any medium rendered impure by scale, welding residue, sand etc.

Depending on the period of storage, the stem packing will have lost elasticity and might be sticking to the gliding surfaces.

Please note the following:

- Move the piston several times at commissioning (when product flow starts going through valve).
- Observe the valve.
Possible leaks around the stem packing have to be repaired as described in "7 Error search list". Should this prove insufficient, please contact the supplier / manufacturer.

Leaking gaskets have to be replaced with new gaskets.

6 Maintenance

HORA valves are almost maintenance-free. A condition for reliable operation is proper commissioning.

To ensure faultless operation we recommend the inspection of all bolted connections for tight fit, followed by tightening, as necessary, approximately after commissioning, followed by annual inspections thereafter.

The stem packing needs to be checked regularly and replaced - as necessary.

For topping up and changing of lubricants see details in the operating instructions of the yoke fitting or the actuator. Both are available from the supplier / manufacturer.

7 Error search list





Hazard!

Before starting any work take the following steps:

- Disconnect the lift drive and other electrical components and safeguard against unintentional reclosing!
- Work properly in accordance with EU safety regulations as well as the warnings and notes shown in these operating instructions.
- Lock the pipeline on both sides of the valve.
- Depressurize the pipe section (even if only dismantling the actuator).
- Allow the valve to cool down to room temperature.
- Seek information e. g. on the safety data sheet (EU directive 91/155/EWG) about the pipe content and in all cases of hazardous material (EU directive 67/548/EWG) empty the pipe section. Observe regulations on personal safety equipment stated on the safety data sheet.
- Wipe up leakages, e. g. on the valve stem immediately and / or collect substantial amounts or residue of medium in a suitable container.
- Dispose of medium residue in accordance with EU directive 75/442/EWG.

Error	No.	Possible causes	Measures
Stem not moving	1.1	<ul style="list-style-type: none"> • No auxiliary energy (pressurized air or electrical power) for actuator and accessories available. 	<ul style="list-style-type: none"> • Pneumatic drive: check for leaks and pressure (normally 6 bar) • Electric drive: Check power supply (connections, fuses, voltage)
	1.2	<ul style="list-style-type: none"> • Mounted accessories not working. 	<ul style="list-style-type: none"> • See maintenance and operating instructions of accessories.
	1.3	<ul style="list-style-type: none"> • Actuator not working. 	<ul style="list-style-type: none"> • See maintenance and operating instructions of actuators.
	1.4	<ul style="list-style-type: none"> • Stem packing screwed on too tightly. 	<ul style="list-style-type: none"> • Loosen stem packing until valve can be used again. <div style="display: flex; align-items: center;"> <p>Attention: Leakages must not occur!</p> </div>
	1.5	<ul style="list-style-type: none"> • Interior stuck. 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.

Error	No.	Possible causes	Measures
Stem moving jerkily	2.1	<ul style="list-style-type: none"> • Stem is dirty 	<ul style="list-style-type: none"> • Clean stem using appropriate cleaning agent
	2.2	<ul style="list-style-type: none"> • Stem is damaged 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.
	2.3	<ul style="list-style-type: none"> • Driving force too small 	<ul style="list-style-type: none"> • Compare actuation data of nameplate with operating data of system - inform supplier / manufacturer about deviations
	2.4	<ul style="list-style-type: none"> • Stem packing screwed on too tightly 	<ul style="list-style-type: none"> • See 1.4
Stem does not move across entire lifting area (0 to 100% lifting)	3.1	<ul style="list-style-type: none"> • Pneumatic drive: Air inlet pressure too low 	<ul style="list-style-type: none"> • Read required air inlet pressure on nameplate and adjust
	3.2	<ul style="list-style-type: none"> • Pneumatic drive with manual adjustment: Hand wheel wrongly set 	<ul style="list-style-type: none"> • Put hand wheel to off-position (see operating instructions: Actuator)
	3.3	<ul style="list-style-type: none"> • Electric drive: Displaced Limit switch 	<ul style="list-style-type: none"> • Re-adjust limit switch according settings stated by driving-mechanism manufacturer
	3.4	<ul style="list-style-type: none"> • Displaced or defect positioner 	<ul style="list-style-type: none"> • Re-adjust positioner according to settings stated by positioner manufacturer
	3.5	<ul style="list-style-type: none"> • Foreign matter in valve seat, damaged interior parts 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.
Leakage of valve seat too great	4.1	<ul style="list-style-type: none"> • Damaged seal edges of valve seat or control cone 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.
	4.2	<ul style="list-style-type: none"> • Foreign matter in seat area 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.
	4.3	<ul style="list-style-type: none"> • Cone does not close completely 	<ul style="list-style-type: none"> • See 3.1 to 3.5
	4.4	<ul style="list-style-type: none"> • Driving force too small 	<ul style="list-style-type: none"> • Disassembly valve and send in resp. order support.

Error	No.	Possible causes	Measures
Leakage of stem packing system	5.1	<ul style="list-style-type: none"> Packing is worn 	<ul style="list-style-type: none"> Replace o-ring-packing or PTFE lip rings. Tighten graphite-packing slightly (inform supplier / manufacturer if replacing)  Attention: The valve stem must remain movable!
	5.2	<ul style="list-style-type: none"> Pressure force on graphite-packing too low 	<ul style="list-style-type: none"> Tighten stem packing slightly or replace (inform supplier / manufacturer if replacing)  Attention: The valve stem must remain movable!
	5.3	<ul style="list-style-type: none"> Stem is dirty 	<ul style="list-style-type: none"> Clean stem using appropriate cleaning agent.
	5.4	<ul style="list-style-type: none"> Stem is damaged 	<ul style="list-style-type: none"> Disassembly valve and send in resp. order support.
Leaking gasket	6.1	<ul style="list-style-type: none"> Pressure force on gasket(s) too low 	<ul style="list-style-type: none"> Tighten nuts of cover crosswise
	6.2	<ul style="list-style-type: none"> Gasket(s) defective 	<ul style="list-style-type: none"> Disassembly valve and send in resp. order support.
	6.3	<ul style="list-style-type: none"> Pressure force on gasket(s) unequal 	<ul style="list-style-type: none"> Adjust equal split.
Leaking body	7.1	<ul style="list-style-type: none"> Medium/flow-related damage 	<ul style="list-style-type: none"> Disassembly valve and send in resp. order support.
No signal from limit switch	8.1	<ul style="list-style-type: none"> Power supply from limit switch interrupted 	<ul style="list-style-type: none"> Check power supply (connection, fuses, voltage)
Positioner vibrating	9.1	<ul style="list-style-type: none"> Defective positioner 	<ul style="list-style-type: none"> See maintenance and operating instructions of positioner manufacturer
	9.2	<ul style="list-style-type: none"> Control of system too sluggish or too fast 	<ul style="list-style-type: none"> Check system control

Should the above stated measures fail to produce a satisfactory solution inform the supplier / manufacturer.

8 Certificate



ANLAGENTECHNIK

CERTIFICATE

Quality- Assurance System
according to directive 97/23/EC

Certificate No.: 07 202 5635 Z 0019/2/H

Name and address of bearer: **Holter Regelarmaturen GmbH & Co. KG**
Helleforthstraße 58 - 60
33758 Schloß Holte - Stukenbrock

We hereby certify, that the manufacturer has established a quality system for the manufacturing of pressure equipment according to directive 97/23/EC. The manufacturer is entitled to mark the pressure equipment produced within the range of the quality system with the following mark:

CE 0045

Tested according to 97/23/EC: **full quality assurance with design examination and special surveillance of the final assessment (modul H1)**

Test report No.: **5635P0019/2/H**

Range of products: **valves**

Place of manufacture: **Holter Regelarmaturen GmbH & Co. KG**
Helleforthstraße 58 - 60
33758 Schloß Holte - Stukenbrock

Osnabrück, 23 May 2002

TÜV CERT-Certification Body for
Pressure Equipment
of TÜV NORD GRUPPE

Böwer

Certification Body EC-Reg.No. 0045

TÜV Nord Anlagentechnik
Rheinische Str. 15
D-49084 Osnabrück

Tel. +49-(0) 541/5823-260
Fax +49-(0) 541/5823-269
e-mail hboewer@tuev-nord.de

Member of



CONFÉDÉRATION EUROPÉENNE D'ORGANISMES DE CONTRÔLE

9 Declaration of conformity



Excellence is our standard

DECLARATION OF CONFORMITY

according to Annex VII of Directive 97/23/EC

We, Holter Regelarmaturen GmbH & Co. KG
Helleforthstrasse 58 - 60
33758 Schloß Holte - Stukenbrock

declare, that the control valves
globe body type: BR216 / 225 / 240
and
three-way body type: BR316 / 325 / 340


to which this declaration is referring to, is in compliance with the european
pressure equipment directive 97/23/EC
and was subjected to the conformity assessment procedure

full quality assurance (modul H)

Standards:	EN 19	Marking of metallic valves
	EN 558	Industrial valves – Face-to-face and centre-to-face dimensions of metal valves
	EN 764-5	Pressure Equipment – Part 5: Compliance and inspection Documentation of Materials
	EN 1092	Flanges and their joints – circular flanges for pipes, valves, fittings and accessories
	EN 1349	Industrial process control valves
	EN 1503	Materials for bodies, bonnets and covers
	EN 1515-1	Flanges and their joints – Bolting
	EN 10213	Technical delivery conditions for steel castings for pressure
	EN 12266	Industrial valves – Testing of valves
	EN 12516-2	Industrial valves – Shell design strength – Calculation method for steel valve shells
	DIN 3840	Industrial valves – Shell design strength – Calculation method for valve shells

The type-examination was performed by TÜV Rheinland / Berlin-Brandenburg (0035),
the monitoring by TÜV Nord Gruppe, TÜV Hannover / Sachsen-Anhalt (0045)

Schloß Holte, 20. September 2004


Lothar Brakhage
Design director