

Globe Valve
ECOLINE-VA16

Operating Manual



Legal information

Operating Manual ECOLINE-VA16

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Glossary

Technical literature

Refer to the product catalogue for the technical literature on our products at www.ksb.it

1 General

1.1 Principles

This operating manual is supplied as an integral part of the type series and variants indicated on the front cover. The manual describes the proper and safe use of this equipment in all phases of operation.

In the event of damage, immediately contact the KSB sales organisation responsible in order to maintain the right to claim under warranty.

1.2 Target group

This operating manual is aimed at the target group of trained and qualified specialist technical personnel.

1.3 Other applicable documents


Table 1: Overview of other applicable documents

Document	Contents
Type series booklet	Description of the valve
General assembly drawing ²⁾	Sectional drawing of the valve
Sub-supplier product literature ³⁾	Operating manuals and other product literature for the accessories

Observe the relevant manufacturer's product literature for the accessories.

1.4 Symbols

Table 2: Symbols used in this manual

Symbol	Description
✓	Conditions which need to be fulfilled before proceeding with the step-by-step instructions
▷	Safety instructions
⇒	Result of an action
⇔	Cross-references
1. 2.	Step-by-step instructions
	Note Recommendations and important information on how to handle the product

1) If any
 2) If inclusion in the scope of supply has been agreed; otherwise refer to the type series booklet.
 3) If inclusion in the scope of supply has been agreed.







2 Safety



All the information contained in this section refers to hazardous situations.

2.1 Key to safety symbols/markings

Table 3: Definition of safety symbols/markings

	DANGER This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
	WARNING This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.
	CAUTION This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.
	General hazard In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.
	Electrical hazard In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.
	Machine damage In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.

2.2 General

This manual contains general installation, operating and maintenance instructions that must be observed to ensure safe valve operation and prevent personal injury and damage to property.

The safety information in all sections of this manual must be complied with.

The operating manual must be read and fully understood by the specialist personnel/operators responsible prior to installation and commissioning.

The contents of this operating manual must be available to the specialist personnel at the site at all times.

Instructions and information attached directly to the valve must always be complied with and kept in a perfectly legible condition at all times. This applies to, for example: flow direction arrow, manufacturer, type designation, nominal pressure, nominal size, year of construction and material.

The operator is responsible for ensuring compliance with all local regulations not taken into account in this operating manual.

The design, manufacture and testing of the valves are subject to a QM system to DIN EN ISO 9001. Compliance with these requirements, however, is based on normal, predominantly static loading.

Valves exposed to creep-rupture conditions have a limited service life and have to meet the applicable regulations stipulated in the technical codes.

In the case of customised special variants, further restrictions may apply with regard to the operating mode and service life. Please refer to the relevant sales literature for this information.

This operating manual does not take into account:

- Any eventualities or incidents which may occur during installation performed by the customer, operation and maintenance.
- Local regulations; the operator must ensure that such regulations are strictly observed by all, including the personnel called in for installation.

2.3 Intended use

- Only operate valves which are in perfect technical condition.
- Do not operate partially assembled valves.
- The valve must only be used for fluids specified in the product literature.
- Only operate the valve within the permissible operating range specified for pressure and temperature.
- The valve's design and rating are based on predominantly static loading in accordance with the codes applied. Consult the manufacturer if the valve is subjected to dynamic loads or any other additional influences.
- Consult the manufacturer about any other modes of operation not described in the product literature.

Prevention of foreseeable misuse

- Never exceed the permissible operating limits specified in the data sheet or product literature regarding pressure, temperature, etc.
- Observe all safety information and instructions in this operating manual.

2.4 Personnel qualification and training

All personnel involved must be fully qualified to transport, install, operate, maintain and inspect the product this manual refers to and be fully aware of the interaction between the valve and the system.

The responsibilities, competence and supervision of all personnel involved in transport, installation, operation, maintenance and inspection must be clearly defined by the operator.

Deficits in knowledge must be rectified by means of training and instruction provided by sufficiently trained specialist personnel. If required, the operator can commission the manufacturer/supplier to train the personnel.

Hands-on training at the valve must always be supervised by specialist technical personnel.

2.5 Consequences and risks caused by non-compliance with this manual

- Non-compliance with this operating manual will lead to forfeiture of warranty cover and of any and all rights to claims for damages.
- Non-compliance can, for example, have the following consequences:
 - Hazards to persons due to electrical, thermal, mechanical and chemical effects and explosions
 - Failure of important product functions
 - Failure of prescribed maintenance and servicing practices
 - Hazard to the environment due to leakage of hazardous substances

2.6 Safety awareness

In addition to the safety information contained in this manual and the intended use, the following safety regulations shall be complied with:

- Accident prevention, health and safety regulations
- Explosion protection regulations
- Safety regulations for handling hazardous substances
- Applicable standards, directives and laws

2.7 Safety information for the operator/user

Actuator-operated valves are intended for use in areas which cannot be accessed by unauthorised persons. Operation of these valves in areas which can be accessed by unauthorised persons is only permitted if appropriate protective devices are fitted at the site. This must be ensured by the operator.

- The operator shall fit contact guards for hot, cold and moving parts and check that the guards function properly.
- Do not remove any contact guards during operation.
- Provide the personnel with protective equipment and make sure it is used.
- Contain leakages (e.g. at the stem seal) of hazardous fluids (e.g. explosive, toxic, hot) so as to avoid any danger to persons and the environment. Adhere to all relevant laws.
- Eliminate all electrical hazards. (In this respect refer to the applicable national safety regulations and/or regulations issued by the local energy supply companies.)

2.8 Safety information for maintenance, inspection and installation

- Modifications or alterations of the valve require the manufacturer's prior consent.
- Use only original spare parts or parts authorised by the manufacturer. The use of other parts can invalidate any liability of the manufacturer for resulting damage.
- The operator ensures that maintenance, inspection and installation is performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual.
- Carry out work on the valve during standstill only.
- The valve body must have cooled down to ambient temperature.
- The pressure in the valve body must have been released and the valve must have been drained.
- When taking the valve out of service always adhere to the procedure described in the manual. (☞ Section 7.2.1, Page 22)
- Decontaminate valves which handle fluids posing a health hazard.
- As soon as the work has been completed, re-install and re-activate any safety-relevant and protective devices. Before returning the product to service, observe all instructions on commissioning.







2.9 Unauthorised modes of operation







Never operate the valve outside the limits stated in the data sheet and in this operating manual.

The warranty relating to the operating reliability and safety of the valve supplied is only valid if the valve is used in accordance with its intended use.

(☞ Section 2.3, Page 7)

3 General safety regulations

	<p style="text-align: center;">DANGER</p> <p>Handling actuated valves Danger to life!</p> <ul style="list-style-type: none"> ▷ If the valves are fitted with actuators, ensure that the actuator's operating manual is also observed.
	<p style="text-align: center;">DANGER</p> <p>Surge pressure/water hammer potentially occurring at high temperatures Danger to life caused by burns or scalds!</p> <ul style="list-style-type: none"> ▷ The max. permissible valve pressure must not be exceeded (☞ Section 5, Page 16). ▷ Use valves made of nodular cast iron or steel. ▷ Operator shall provide general safety measures for the system.
	<p style="text-align: center;">WARNING</p> <p>Fluids handled, consumables and supplies which are hot and/or pose a health hazard Hazard to persons and the environment!</p> <ul style="list-style-type: none"> ▷ Collect and properly dispose of flushing fluid and any fluid residues. ▷ Wear safety clothing and a protective mask if required. ▷ Observe all legal regulations on the disposal of fluids posing a health hazard.
	<p style="text-align: center;">WARNING</p> <p>Cold/hot piping and/or valve Risk of thermal injury!</p> <ul style="list-style-type: none"> ▷ Insulate the valve. ▷ <p>Attach warning signs.</p>
	<p style="text-align: center;">WARNING</p> <p>Impermissible piping forces Leakage from or rupture of the valve body!</p> <ul style="list-style-type: none"> ▷ Connect the pipes to the valve without transmitting any stresses or strains. ▷ Take constructional measures to prevent any piping forces from being transmitted to the valve.
	<p style="text-align: center;">WARNING</p> <p>Unqualified personnel performing work on the valve Risk of injury!</p> <ul style="list-style-type: none"> ▷ Always have repair and maintenance work performed by specially trained, qualified personnel.

	<p style="background-color: yellow;">CAUTION</p> <p>Condensation water forming in air-conditioning, cooling and refrigerating systems Ice forming! Blockage of actuating element! Damage due to corrosion!</p> <ul style="list-style-type: none"> ▷ Insulate the valve to prevent diffusion.
	<p style="background-color: yellow;">CAUTION</p> <p>Improper installation Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Remove the caps prior to installation. ▷ Clean the mating flange faces. ▷ Protect the body and bonnet/cover from any impacts.
	<p style="background-color: yellow;">CAUTION</p> <p>Outdoor installation Damage due to corrosion!</p> <ul style="list-style-type: none"> ▷ Protect the valve appropriately against moisture.
	<p style="background-color: yellow;">CAUTION</p> <p>Painting of pipes Impairment of the valve's function and loss of information!</p> <ul style="list-style-type: none"> ▷ Protect stem and plastic components prior to applying paint. ▷ Protect printed name plates prior to applying paint.
	<p style="background-color: yellow;">CAUTION</p> <p>Impermissible load Damage to the actuating element!</p> <ul style="list-style-type: none"> ▷ Do not use the valve as a foothold.
	<p style="background-color: yellow;">CAUTION</p> <p>Improper reassembly Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Reassemble the valve in accordance with the general rules of sound engineering practice. ▷ Use original spare parts only.



4 Transport/Temporary Storage/Disposal

4.1 Checking the condition upon delivery

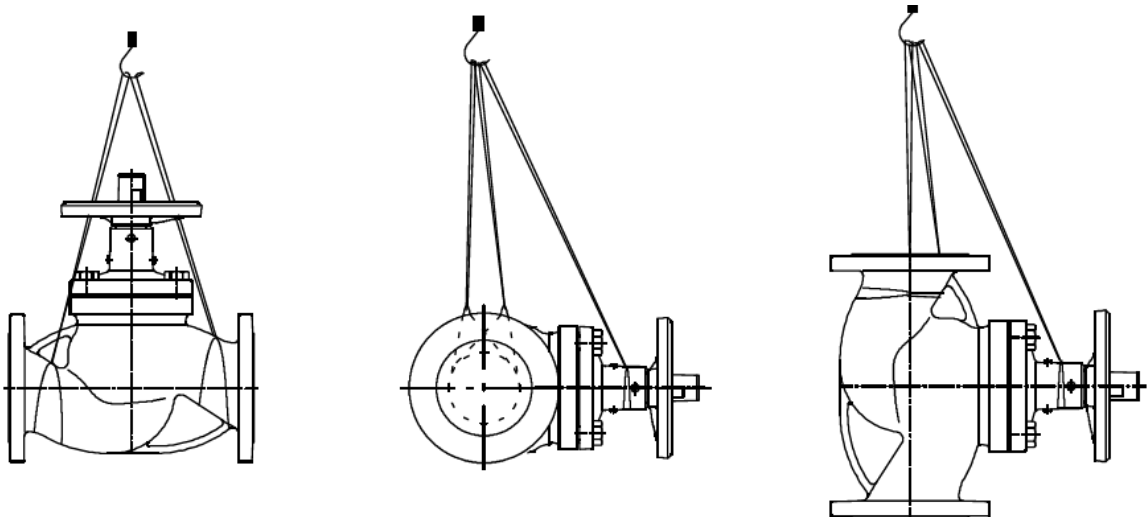
1. On transfer of goods, check each packaging unit for damage.
2. In the event of in-transit damage, assess the exact damage, document it and notify KSB or the supplying dealer and the insurer about the damage in writing immediately.

4.2 Transport

Always close the valve manually before transporting it. The valve is delivered ready for operation and its line connection ports may still be closed with caps, if applicable. Original spare parts are only ready for operation following assembly/installation and subsequent shell and leak testing of the valve.

	 DANGER
<p>The valve could slip out of the suspension arrangement</p> <p>Danger to life from falling parts!</p> <ul style="list-style-type: none"> ▷ Only transport the valve in the specified position ▷ Never suspend the valve from its handwheel ▷ Pay attention to the weight data and the centre of gravity ▷ Observe the applicable local accident prevention regulation ▷ Use suitable, permitted lifting accessories. ▷ Transport devices (if any) on the actuator may not be suitable for being attached to a suspension arrangement in order to transport the valve/actuator assembly. Refer to the actuator operating manual for the permissible loads 	

To transport the valve, suspend it from lifting tackle as illustrated.



4.3 Storage/preservation


If properly stored indoors, the equipment is protected for a maximum of 12 months. This allows commissioning to take place some time after delivery. We recommend that the following measures be taken:

- Store the valve in a dust-free and vibration-free, frost-proof room where the atmospheric humidity is as constant as possible (use suitable caps or film for protection).
- Close the valve using little force and store in the closed position.
- Protect the valve from contact with solvents, lubricants, fuels or other chemicals.

4.4 Return to supplier

1. Drain the valve as described in the manual.
2. Always flush and clean the valve, particularly if it has been used for handling noxious, explosive, hot or other hazardous fluids.
3. If the fluids handled by the system leave residues which might lead to corrosion damage when coming into contact with atmospheric humidity, or which might ignite when coming into contact with oxygen, the valve must also be neutralised and blown through with anhydrous inert gas for drying purposes.

4.5 Disposal

	WARNING
	<p>Fluids handled, consumables and supplies which are hot and/or pose a health hazard</p> <p>Hazard to persons and the environment!</p> <ul style="list-style-type: none">▷ Collect and properly dispose of flushing fluid and any fluid residues.▷ Wear safety clothing and a protective mask if required.▷ Observe all legal regulations on the disposal of fluids posing a health hazard.

1. Dismantle the valve.
Collect greases and other lubricants during dismantling.
2. Separate and sort the valve materials, e.g. by:
 - Metals
 - Plastics
 - Electronic waste
 - Greases and other lubricants
3. Dispose of materials in accordance with current regulations or in another controlled manner.

5 Valve Description

5.1 General description

The sectional drawings below provide examples of the general design/configuration of the valve. For additional and more detailed information, refer to the respective type series booklet.

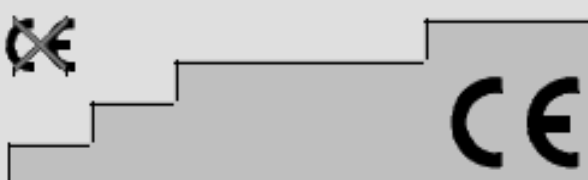
5.2 Marking

Table 4: General marking

Nominal size	DN ...
Nominal pressure class	PN ...
Manufacturer	KSB
Type series/model	ECOLINE-VA16
Year of construction	20..
Material	JL 1040
Flow direction arrow	->
Traceability of the material
CE marking	CE
Identification number of the notified body	0036

In accordance with the current Pressure Equipment Directive the valves are marked as shown in the following table

Fluids group 2

PN	DN							
	≤32	40	50	65	80	100	125	150
6								
10								
16								
25								
≥40								

According to the current Pressure Equipment Directive, Group 1 fluid comprises all fluids posing physical or health hazards, e.g. fluid defined as

- Explosive
- Extremely flammable
- Highly flammable
- Flammable: the maximum allowable temperature is above flashpoint
- Very toxic
- Toxic
- Oxidising

Group 2 comprises all other fluids not referred to in Group 1

5.3 Operating data

Table 5: Operating properties

Characteristic ECOLINE-VA16	Value
Nominal pressure	PN 16
Nominal size	DN 15-250
Nominal size	
Max. permissible pressure [bar]	16
Min . permissible temperature [°C]	-10
Max. permissible temperature [°C]	+300 *

5.4 Fluids handled

- Water, Water/glycol mixtures
- Oil & Gas
- Other fluids on request.

* max temperature depending on working pressure, please check technical documentation

5.5 Design details

Design

Valves to type series booklet ECOLINE-VA16

- Straight-way pattern with horizontal seat
- Rising handwheel
- Flanges to DIN EN 1092-2 type 21
- Exterior coating: blue, RAL 5002
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Group 2
- The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU

Variants

- Position Indicator
- PTFE disc seat

5.6 Pressure/temperature ratings

Table 6: Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure [bar]						
		With water								
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1	[°C]						
		[bar]	[bar]	-10 to 120	150	180	200	230	250	300
16	15 - 250	24	17,6	16	14,4	13,4	12,8	11,8	11,2	9,6

5.7 Materials

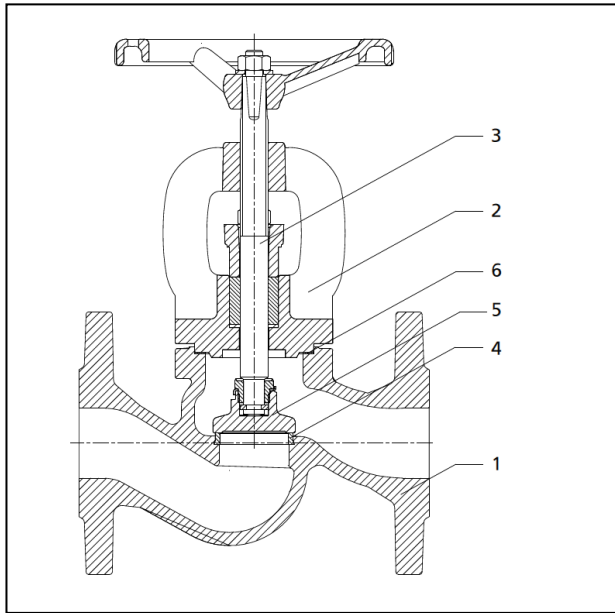


Fig. 2: ECOLINE-VA16

Table 7: Overview of available materials

Part No	Description	Material	Note
1	Body	EN-GJL-250	
2	Bonnet	EN-GJL-250	
3	Shaft	Stainlesss steel 2 Cr13	
4	Body seat	Stainless steel 2 Cr13	
5	Valve disc	EN-GJL-250	
6	Body/bonnet gasket	Graphite	

5.8 Function

The valve consists of the pressure retaining parts, i.e. body (1) and bonnet (2).

The functional unit consists of valve disc (5), stem (3) and handwheel. Body (1) and bonnet (2) are joined by means of hexagon head bolts, and hexagon nuts. The joint is sealed to atmosphere by joint ring (6) and gland packing.

The functional unit basically consists of valve disc (5) and stem (3) and handwheel.

When delivered the gland packing is not fully tightened. The gland packing tightness should be performed on site, applying a torque depending on the working conditions of the plant.

Periodically, depending on opening and closing cycles, the gland packing should be checked and in case it should be tightened again.

The seat disc interface of body and disc is made of rust-proof materials or PTFE rings (valve disc/PTFE variant)

5.9 Scope of supply

- Valve
- Operating manual for each packaging unit

5.10 Dimensions and weights

For dimensions and weights please refer to the type series booklet.

6 Installation at Site

6.1 General information/Safety regulations

Responsibility for positioning and installing the valve lies with the consultant, construction company or operator/user. Planning and installation errors may impair the reliable function of the valve and pose a substantial safety hazard.

6.2 Installation

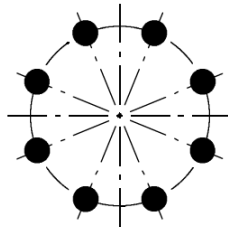
	CAUTION
	<p>Welding in close proximity to soft-seated valves Damage to the seat/disc interface!</p> <ul style="list-style-type: none"> ▷ Ensure that the valve is not heated beyond the temperature limits specified in the type series booklet.

Responsibility for welding the valves into the piping and for any heat treatment required lies with the commissioned company or the plant operator.

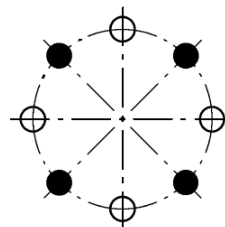
Only use fasteners (e.g. to DIN EN 1515-4) and flange gaskets (e.g. to DIN EN 1514) made of materials approved for the respective valve size. Always use all flange bolt holes provided when connecting the valve to the pipe. Refer to the type series booklet for details on flange connections.

	NOTE
	<p>Exception: DN 65 PN 16</p> <p>When using steel flanges to DIN EN 1092-1 in conjunction with cast iron valves with flanges machined to DIN EN 1092-2, ensure that for nominal size DN 65 classed PN 16 the mating flanges are fitted offset by 22.5°.</p>

Table 8: Valve bolting DN 65 PN 16




DN 65 PN 10/16 (steel/steel):
 DIN EN 1092-1 with DIN EN 1092-1:
 bolts through 8 holes




DN 65 PN 10/16 (steel/cast iron):
 DIN EN 1092-1 with DIN EN 1092-2: bolt
 hole circle to DIN EN 1092-1 rotated by
 22.5°, bolts through 4 holes, 4 holes
 free

	NOTE
	<p>For the valves to reach the documented Kv values, the flow direction must correspond to the flow direction arrow</p>

	NOTE
	<p>An alternating direction of flow is permitted unless restrictions apply to specific products.</p>

	CAUTION
	<p>Installation of the valve with the stem pointing downwards</p> <p>Dirt collecting between the folds and the gland packing! Valve blockage!</p> <p>▷ Install the valve with the stem pointing upwards or to the side.</p>


	WARNING
	<p>Installation of the valve with the stem pointing downwards in steam application</p> <p>Damage of the valve through steam hammer!</p> <p>▷ Install the valve with the stem pointing upwards or to the side.</p>

To avoid warping of the valve during or following installation, open the valve by approximately two handwheel turns in anti-clockwise direction
If the following differential pressures are exceeded from DN 200 upwards, a balanced plug design is required.

	DN	200	250	300/350
PN 16	Δp bar	12	9	6

6.3 Insulation

For handling hot fluids, the valve should be insulated in accordance with the German energy-saving regulations

	CAUTION
	<p>Condensation water forming in air-conditioning, cooling and refrigerating system Ice forming! Blockage of actuating element! Damage due to corrosion!</p> <p>▷ Insulate the valve to prevent diffusion</p>


7 Commissioning/Start-up/Shutdown

7.1 Commissioning/Start-up

7.1.1 Prerequisites for commissioning/start-up

Before commissioning/start-up of the valve, ensure that the following requirements are met:

- The material, pressure and temperature data shown on the valve is in compliance with the operating conditions of the piping. (☞ Section 5, Page 16)
- The material's chemical resistance and stability under load have been checked.

	CAUTION
	<p>Welding beads, scale and other impurities in the piping Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Remove any impurities from the piping. ▷ If necessary, install a strainer.


1. Thoroughly clean, flush and blow through all vessels, pipelines and connections (especially of new installations).
2. Remove the valve's flange covers before installing it in the piping.
3. Check that the inside of the valve is free from any foreign objects. Remove any foreign objects.
4. If required, install a strainer in the piping

Functional testing prior to commissioning/start-up

Check the shut-off function of the installed valve by opening and closing it several times.

Visual inspection after/during commissioning/start-up


Check bonnet/cover bolting with joint ring for tightness after the valve has been subjected to load conditions, or heated up for the first time. If leakage occurs or bonnet/cover bolting is loose, evenly re-tighten it crosswise.


	DANGER
	<p>Failure to re-tighten bonnet/cover bolting after first loading Leakage of hot and/or toxic fluids!</p> <ul style="list-style-type: none"> ▷ Re-tighten bonnet/cover bolting, particularly of valves operated at temperatures exceeding 200°C


7.1.2 Actuation

Viewed from above, the valve is closed by turning the handwheel in clockwise direction, and opened by turning the handwheel in counter-clockwise direction. Direction symbols are shown on the top of the handwheel.

Globe valves are normally used in either "fully open" or "fully closed" position. For control duties, valves should be fitted with throttling plugs.

	CAUTION
	<p>Excessively long idle periods Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Check the function by opening and closing the valve at least once or twice a year.

	CAUTION
	<p>Vibration Excessive wear and/or damage to the valve!</p> <ul style="list-style-type: none"> ▷ Change the system parameters ▷ Use throttling plugs or V-port plugs in throttling applications to minimize vibration.

	CAUTION
	<p>Use of levers Damage to the valve as a result of excessive forces!</p> <ul style="list-style-type: none"> ▷ Only actuate handwheel-operated valves by hand ▷ Levers may only be used in exceptional cases and in compliance with the following tables. ▷ Do not use lever in the area of the position indicator

7.2 Shutdown



7.2.1 Measures to be taken for shutdown

During prolonged shutdown periods, ensure that the following conditions are met:

1. Drain fluids which change their physical condition due to changes in concentration, polymerisation, crystallisation, solidification, etc. from the piping.
2. If required, flush the piping with the valves fully opened.


8 Servicing/Maintenance

8.1 Safety regulations

	<p style="text-align: center;">WARNING</p> <p>Fluids, consumables and supplies which are hot and/or pose a health hazard Risk of injury!</p> <ul style="list-style-type: none"> ▷ Observe all relevant laws. ▷ When draining the fluid take appropriate measures to protect persons and the environment. ▷ Decontaminate valves used for handling fluids posing a health hazard.
	<p style="text-align: center;">WARNING</p> <p>Valve under pressure High-pressure hazard! Leakage of hot and/or toxic fluids! Risk of burns!</p> <ul style="list-style-type: none"> ▷ Never open the valve while it is pressurised. ▷ If there is fluid leakage, depressurise the valve. ▷ Ensure the valve is depressurised before removing any drain, opening or vent plugs. ▷ Ensure the valve is depressurised before removing it from the pipeline or before maintenance work. ▷ Allow the valve to cool down so that the temperature is below the fluid's vaporisation temperature in all areas in contact with the fluid in order to effectively prevent any risk of scalding.

Before removing the valve, ensure that the pipe has been shut off and released for repair/maintenance work.

A regular maintenance schedule will help avoid expensive repairs and contribute to trouble-free, reliable operation of the valve with a minimum of servicing/maintenance expenditure and work.


	<p style="text-align: center;">NOTE</p> <p>All maintenance, service and installation work can be carried out by KSB Service or authorised workshops. For contact details please refer to the enclosed "Addresses" booklet or visit "www.ksb.it" on the Internet.</p>
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Never use force when dismantling and reassembling the valve.

8.2 Maintenance

The valve has been designed to be largely maintenance-free. The materials of the sliding parts have been selected to ensure minimum wear.

All elastomers are organic substances and as such subject to natural ageing. Continuous operation at high operating temperatures may reduce their service lives.


	<p style="text-align: center;">NOTE</p> <p>The operator/user is responsible for fixing appropriate inspection and servicing intervals as required by the service conditions of the valve.</p>
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The service life can be extended by taking the following measures:

- Checking the function by opening and closing the valve at least once or twice a year
- Lubricating the moving parts such as stem 3 and using standardised lubricants to DIN 51825.
- Re-tightening or replacing the bonnet/cover gasket 6 in good time.

8.2.1 (Re-)tightening the bonnet bolting


It is possible and permitted to replace the bonnet gasket . After maintenance work or repair work has been completed, all bolting in the bonnet area must be re-tightened so as to restore full functionality of the valve.

	WARNING
	<p>Failure to test overhauled valves Hazard to persons and the environment!</p> <p>▷ After reassembly and prior to commissioning/start-up, the valves must be subjected to shell testing and leak testing to DIN EN 12266-1</p>


	NOTE
	<p>Do not apply additional sealing agents to asbestos-free gaskets. In the case of valves with anti-adhesive coatings, only use agents explicitly recommended by the sealing element manufacturer</p>

8.2.2 (Re-)tightening the gland packing

When delivered the gland packing is not fully tightened, prior to commissioning/start-up the gland packing should be tightened according the working condition in the plant.

	DANGER
	<p>Failure to tight the gland packing Leakage of hot fluids! Risk of burns!</p> <p>▷ Tighten the stuffing box screw until no leakage can be seen</p>

9 Trouble-shooting

	WARNING
	<p>Improper remedial work on the valve</p> <p>Risk of injury!</p> <ul style="list-style-type: none"> ▷ For any work performed in order to remedy faults on the valve observe the relevant information given in this operating manual and/or the product literature provided by the accessories manufacturers.

If problems occur that are not described in the following table, consultation with the KSB customer service is required.

Table 9: Trouble-shooting

Problem	Remedy
Leakage at the bonnet/cover gasket	Re-tighten the screwed bonnet and/or fit a new joint ring.
Leakage at stem seal	Re-tighten the stuffing box bolts. If leakage goes on, the packing should be replaced.
Leakage at the seat/disc interface	Dismantle bonnet bolting, rework the seating faces of valve disc and body using a suitable reseating tool Continue reseating until the seating faces exhibit a consistently smooth and even ring
Leakage at the seat/disc interface with PTFE disc	Dismantle bonnet bolting, replace the seal ring at valve disc.

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KSB Italia SpA

Via M. D'Azeglio 32 • 20863 Concorezzo MB (Italy)

Tel. +39 039 60481

www.ksb.com

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