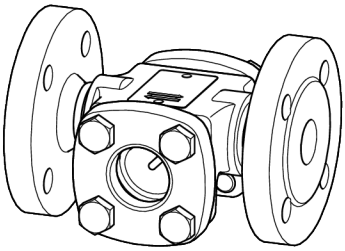
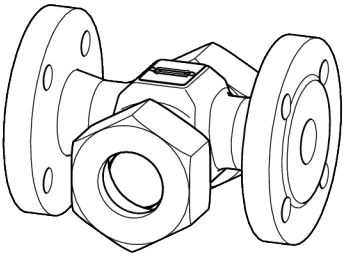
GESTRA®



Vaposcope Sight Glasses®

VK 14
VK 16



EN
English

Original Installation Instructions

818577-03

Contents

Foreword

This installation & operating manual will help you use the following types of equipment safely and efficiently for their intended purpose.

- VK 14, PN 16
- VK 16, PN 40

These types will be called equipment in this document.

This installation & operating manual is intended for anyone commissioning, using, operating, servicing, cleaning or disposing of this equipment and, in particular, for professional after-sales service technicians, qualified personnel and authorised and trained staff.

All of these persons must read and understand the content of this installation & operating manual.

Following the instructions given in this installation & operating manual helps avoiding danger and increases the reliability and service life of the equipment. Please note that in addition to the instructions given in this installation & operating manual you must also observe all locally applicable rules and regulations concerning the prevention of accidents as well as approved safety guidelines for good professional practice.

Availability

Keep this installation & operating manual together with the plant documentation for future reference. Make sure that this installation & operating manual is available to the operator.

The installation & operating manual is part of the equipment. Please hand over this installation & operating manual when selling the equipment or passing it on.

Formatting features in the document

Certain text elements of this installation & operating manual feature a specific typographic design. You can easily distinguish the following text elements:

Standard text

Cross-reference

- Listing
  - Sub-items in listings

➢ Steps for action.

Here you will find additional useful information and tips serving to assist you in using the equipment to its fullest potential.

Safety

Use for the intended purpose

Equipment types VK 14 and VK 16 enable you to see the flow of fluid in pipes and therefore recognise any loss of steam or banking-up of condensate in steam traps.

The equipment must only be used within the allowable pressure and temperature limits and only if the chemical and corrosive influences on the equipment are taken into account.

Correct use includes compliance with the instructions given in this installation & operating manual, in particular obedience to all safety instructions.

Any other use of the equipment is considered to be improper.

Note that the equipment is also used incorrectly if the materials of the equipment are not suitable for the fluid.

Basic safety notes

Risk of severe injuries

- The equipment is under pressure during operation and can be hot or very cold, depending on the fluid used. Only perform work on the equipment if the following conditions are satisfied:
  - The pipes must not be under pressure.
  - All fluid must be thoroughly removed from pipes and the equipment.
  - Before carrying out any work, the higher-level system must be switched off and secured so it cannot be switched back on by unauthorised persons.
  - Pipes and the equipment must have cooled to a lukewarm temperature, or around 20 °C.
- For equipment used in contaminated areas, there is a risk of serious or fatal injury from harmful substances on the equipment. Only perform work on the equipment after it has been thoroughly decontaminated. Wear the protective clothing specified for the contaminated zone during all work.
- The equipment may only be used with fluids that are not aggressive in contact with material and seals. Otherwise, leaks may occur and hot, cold or toxic fluid may escape.
- The equipment and its components may only be installed or removed by specialist personnel. Specialist personnel must have knowledge and experience in the following areas:
  - Producing pipe connections.
  - Selecting suitable lifting gear for the product and using it safely.
  - Working with hazardous (contaminated, hot, cold or pressurised) fluids.
- If the admissible pressure and temperature ratings are exceeded, the equipment may be destroyed and hot, cold or pressurised fluid may escape. Make sure that the equipment is always used within the admissible pressure and temperature ratings.
  You can find information about the pressure and temperature ratings on the name plate and in the "*Technical data*" section.
- The equipment is under pressure during operation and can become hot or cold, depending on the fluid used. Only bring the equipment into service if contact with surfaces is prevented by insulation or other protection. Always wear protective clothing when working on the equipment and on pipes carrying fluid. You will find information on suitable protective clothing in the safety data sheet for the fluid used.
- If unsuitable lifting gear is used or the gear is used improperly the equipment or parts of it could fall down.
  - Make sure that only qualified personnel lifts the equipment or parts of it.
  - Make sure that nobody is standing or working below the hoisted equipment.
  - Make sure that the lifting gear is of sufficient strength for the load to be hoisted and that the load is properly secured and attached to it. For more information on the nature and weight of the components and safe lifting points please contact the manufacturer.
  - Make sure that all locally applicable regulations on safety and the prevention of accidents are strictly adhered to.

Risk of minor injuries

- Sharp edges on internals present the danger of cuts to hands. Always wear industrial gloves when servicing the equipment.
- If the equipment is inadequately supported during installation, there is a risk of getting crushed if it falls. Use the eyebolt to secure lifting gear, if available. Secure the equipment during installation so it cannot fall. Use the eyebolt to do this, if available. Wear sturdy safety boots.

Information on property damage or malfunctions

- Malfunctions will occur if the equipment is installed in a wrong position or with the flow arrow pointing in the opposite direction of the fluid flow. This may result in damage to the equipment or the installation. Make sure that the flow arrow on the equipment body matches the indicated direction of the fluid flow in the pipe.
- If the material is unsuitable for the fluid, increased wear may occur and fluid may escape. Make sure that the material is suitable for the fluid used in your installation.

Qualification of personnel

A qualified person must be acquainted with and experienced in the following:

- the pertinent on-site rules and regulations for preventing fire and explosions as well as industrial safety regulations
- working on pressure equipment
- making pipe connections
- working with dangerous (hot or pressurized) fluids
- lifting and transporting loads
- observing all notes and instructions in this installation & operating manual and the applicable documents

Protective gear

The operator must ensure that anyone working on the equipment must wear the required protective clothing and safety gear stipulated for the site of installation. The protective clothing must be suitable for the used media and must protect the wearer against safety and health hazards associated with a particular job to be carried out at the site of installation. Protective clothing & equipment must provide protection from potential hazards, in particular from injuries to:

- Head
- Eyes
- Body
- Hand
- Feet
- Hearing

Note that this list is not exhaustive. The operator must establish personal protective equipment guidelines and specify any additional protective gear that is required if the worker is exposed to a specific risk at the site of installation.

Typographic features of warning notes

DANGER

Notes with the heading DANGER warn against imminent dangerous situations that can lead to death or serious injuries.

WARNING

Notes with the heading WARNING warn against possibly dangerous situations that could lead to death or serious injuries.

CAUTION

Notes with the heading CAUTION warn against dangerous situations that could lead to minor or moderate injuries.

Formatting features for warnings of property damage

Attention!

This information warns of a situation leading to property damage.

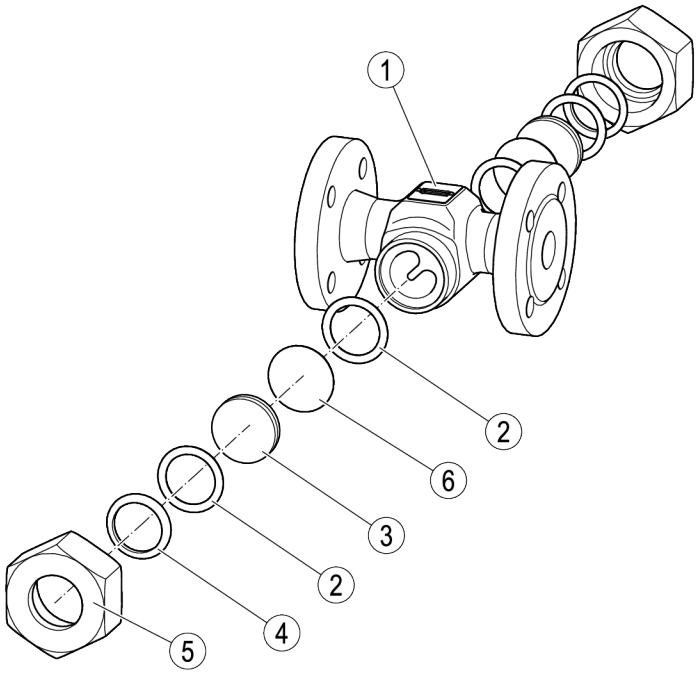
Scope of supply and equipment specification

Scope of supply

Our equipment is delivered packed and ready for assembly.

Component parts

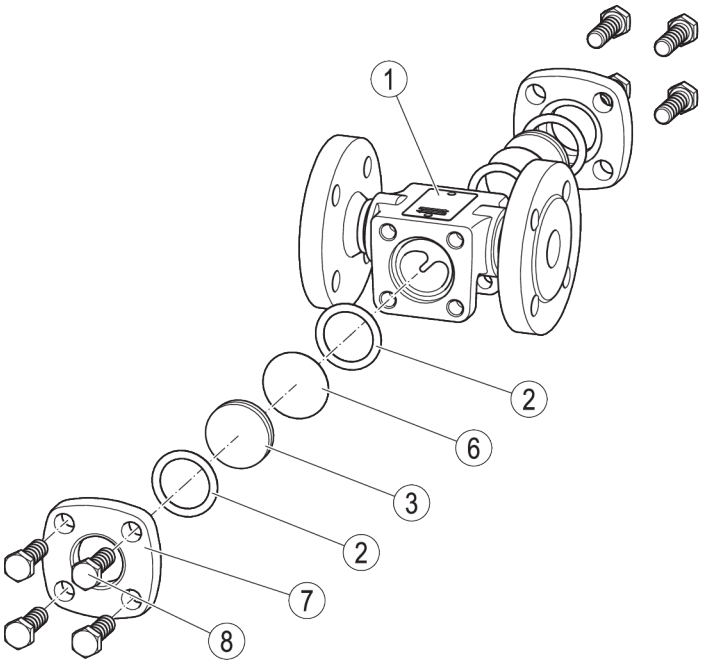
VK 14, DN 15–25



No.	Designation
1	Body with name plate
2	Gasket
3	MAXOS® sight glass

No.	Designation
4	Spherical washer
5	Union nut
6	Mica shield (optional)

VK 14, DN 40–50 and VK 16, DN 15–50



No.	Designation
1	Body with name plate
2	Gasket
3	MAXOS® sight glass

No.	Designation
6	Mica shield
7	Flange
8	Hexagon head bolt (4 ×)

Optional extras

The mica shield is available as an optional extra for VK 14, DN 15–25. In the other models, the mica shield comes as standard.

End connections

The equipment is available with the following end connections:

VK 14

- Flanges

VK 16

- Flanges
- Screwed sockets
- Socket-weld ends

Name plate/identification

The following items are indicated on the body:

- Manufacturer
- Type designation
- Pressure rating
- Design pressure
- Max. service temperature
- Material
- Date of manufacturing
- Direction of flow
- Mark (if required), e. g. CE, UKCA, EAC

Application of European Directives

Fluids

The equipment is designed for the following fluids (in accordance with the EU Pressure Equipment Directive or Pressure Equipment (Safety) Regulations in the UK):

- Fluids of group 2

Due consideration must be given to chemical and corrosive influences.

Potentially explosive atmospheres

The equipment does not have its own potential source of ignition (as per ATEX Directive). Please pay attention to the following information:

The high temperature of the fluid can cause the system to heat up to the point of ignition.
If using in potentially explosive atmospheres, the plant manufacturer or plant operator is responsible for preventing temperatures on the surfaces of the equipment that could lead to ignition.

When installed, static electricity may arise between the equipment and the connected system.
When used in potentially explosive atmospheres, the plant manufacturer or plant operator is responsible for discharging or preventing possible static charge.

Task and function

Purpose

Equipment types VK 14 and VK 16 enable you to see the flow of fluid in pipes and therefore recognise any loss of steam or banking-up of condensate in steam traps.

Function

The behaviour of the flow of fluid in the sight glass provides information about the function of the steam trap behind the equipment.

If no condensate is visible in the sight glass, it is banking up.
If only a little condensate is visible, live steam is flowing through the steam trap regulator. In this case, the steam trap is probably faulty or cleaning valves are open.

Storing and transporting the equipment

Attention!

Equipment can be damaged if stored or transported improperly.

- ➢ Close all openings with the sealing plugs or covers supplied with the equipment or use similar sealing covers.
- ➢ Protect the equipment against moisture and corrosive atmospheres.
- ➢ Please contact the manufacturer if the specified transport and/or storage requirements cannot be met.

Storing the equipment

➢ Please observe the following items when storing the equipment:

- ◗ Do not store the equipment for more than 12 months.
- ◗ Use the supplied sealing plugs or other suitable seal caps in order to seal off all openings of the equipment.
- ◗ Protect the sealing surfaces and contact areas against mechanical damage.
- ◗ Protect the equipment and all components against hard shocks and impacts.
- ◗ Store the equipment only in closed rooms that meet the following environmental conditions:
  - ◗ Air humidity below 50 %, not condensing
  - ◗ Indoor air: clean, salt-free and non-corrosive
  - ◗ Temperature 5–40 °C.

➢ Make sure that all these requirements are always met when storing the equipment.

➢ Please contact the manufacturer if you cannot comply with the recommended storage conditions.

Transporting the equipment

DANGER

Risk of crushing from falling equipment or components.

- ➢ Wear protective clothing during all work.
- ➢ Use suitable lifting gear to lift and move the equipment during all work.
- ➢ Make sure that the equipment cannot tip over.
- ➢ Always lift the equipment by the body only.
- ➢ Make sure that there are never any persons below the suspended equipment.

Protective clothing must include the following items, as a minimum:

- ◗ Safety helmet to EN 397
- ◗ Safety footwear to EN ISO 20345
- ◗ Mechanical leather gloves to EN 388.

You will find information on suitable protective clothing and personal protective equipment (PPE) in the safety data sheet for the fluid used.

The lifting gear must have sufficient load-bearing capacity for the equipment.
You can find information on the weight of the equipment in the supplied documentation.

➢ Meet the requirements for storage also when transporting the equipment.

➢ Prior to transport seal off connections with sealing plugs.

If you do not have the sealing plugs supplied with the equipment use appropriate seal caps to seal off the connections.

➢ For short distances (only a few metres) you can transport the equipment unpacked.

➢ When transporting the equipment over larger distances use the original packaging.

➢ If you do not have the original packaging use a box that protects the equipment adequately against corrosion and physical damage.

For a short period of time the equipment may be transported even if the temperature is below 0 °C, provided that the equipment is completely empty and dry.

Mounting and connecting the equipment

DANGER

Risk of extremely severe injury or death due to burns, freezing or intoxication during work on pipes.

- ➢ Make sure that there is no hot or cold fluid in the equipment or pipes.
- ➢ Make sure that the equipment pipes are not under pressure.
- ➢ Make sure that the system is switched off and secured so it cannot be turned on by unauthorised persons.
- ➢ Make sure that the equipment and pipes are lukewarm.
- ➢ Wear protective clothing that is suitable for the fluid, and use suitable personal protective equipment if necessary.

Information on suitable protective clothing and PPE can be found in the safety data sheet of the fluid used.

Preparing installation

- ➢ Take the equipment out of the transport packaging.
- ➢ Check the equipment for transport damage.
- ➢ Contact the manufacturer if you detect any kind of shipping damage.

When supplied by the factory, the connections may be sealed off with sealing plugs.

- ➢ Remove sealing plugs before mounting the equipment.
- ➢ Keep the sealing plugs and the packing for further use.
- ➢ Drain pipes until they are empty.
- ➢ Make sure that all pipelines upstream and downstream of the equipment are depressurised.
- ➢ Switch the installation off and protect it against unauthorised or unintended re-activation.
- ➢ Ensure complete safety when draining the equipment and surrounding pipes.

Connecting the equipment

DANGER

Incorrectly connected equipment can result in accidents with extremely severe injuries or death.

- ➢ Make sure that only specialist personnel connect the equipment to the pipe.
- ➢ Make sure that the direction of flow in the pipe matches the flow direction arrow on the equipment.
- ➢ Make sure that the connected pipe does not subject the body to any stress (forces or torques) during installation and operation.

Specialist personnel must have knowledge and experience of the type of pipe connection used.

Attention!

Equipment will be damaged if the end connections are undersized.

- ➢ Make sure that the connections are strong and rigid enough to support the weight of the equipment and to withstand the forces that occur during operation.

➢ Maintain the necessary service dimensions from neighbouring plant parts to ensure sufficient space when replacing components.

You can find information on the service dimensions of the various equipment types on page 24 ff.

➢ Make sure that the pipe system of the plant is clean.

➢ Make sure that the equipment is free from foreign matter.

Attention!

The incorrect installation position will lead to malfunctions.

- ➢ Install the equipment upstream of the steam trap in the direction of the flow of fluid, with the tip of the deflector facing up.

Attention!

Sight glasses can be damaged if welded in place incorrectly.

- ➢ Always have sight glasses welded in place by welders certified to EN 287 or with equivalent qualifications.

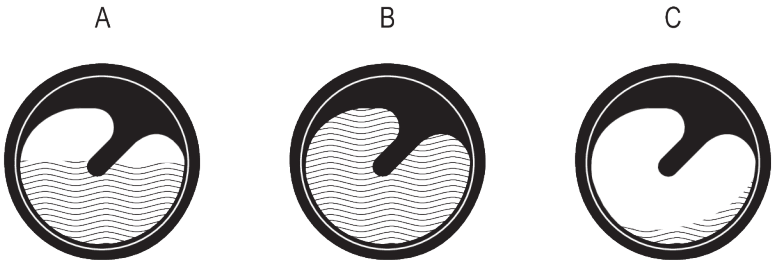
➢ Make sure that the equipment is safely mounted and that all connections are made correctly.

Operation

Do not work on the equipment while it is operating.

The plant must be at operating temperature for adjusting the steam trap.

Adjust the steam trap so that the display in the sight glass matches the image on the left below.



Normal condensate level (A)	Banked-up condensate (B)	Penetration of live steam due to leaks or other major disruptions (C)
–	Condensate covers the entire sight glass. No flow is visible.	The sight glass is nearly opaque.
The downstream steam trap is working correctly. Do not change the settings.	Open the equipment until a normal condensate level is displayed.	Close the equipment until a normal condensate level is displayed. Check that the plant part and equipment are not leaking and are in perfect condition. Remedy leaks and damages.

You can find information on what to do in the event of problems in section "*Troubleshooting*" on page 19.

After operation

DANGER

If fluid escapes personnel may suffer severe injuries, poisoning or even loss of life.

- ➢ After working on the equipment make sure that all connections and valves are tight.
- ➢ Make sure that the gaskets of the body are leakproof.

DANGER

Risk of extremely severe injury or death due to burns, freezing or intoxication during work on pipes.

- ➢ Make sure that there is no hot or cold fluid in the equipment or pipes.
- ➢ Make sure that the equipment pipes are not under pressure.
- ➢ Make sure that the system is switched off and secured so it cannot be turned on by unauthorised persons.
- ➢ Make sure that the equipment and pipes are lukewarm.
- ➢ Wear protective clothing that is suitable for the fluid, and use suitable personal protective equipment if necessary.

Information on suitable protective clothing and PPE can be found in the safety data sheet of the fluid used.

➢ Drain the equipment and pipes via the on-site drainage system.

DANGER

If the equipment is used in contaminated areas there is a risk of severe injuries or death caused by harmful substances in or on the equipment.

- ➢ Only qualified personnel are allowed to perform work on contaminated equipment.
- ➢ Always wear the protective clothing prescribed for contaminated areas when working on the equipment.
- ➢ Make sure that the equipment is completely decontaminated before carrying out any service work.
- ➢ Follow the pertinent instructions for handling the hazardous substances in question.

Attention!

Frost damage may occur when the installation is shut down.

- ➢ Drain the equipment if ambient temperatures below 0 °C (frost) are to be expected.

Maintaining the equipment

- ◗ Combination spanner to DIN 3113, type B (size 18, 24 or 60, depending on equipment type)
- ◗ Torque wrench 25–130 Nm to DIN ISO 6789

- ➢ Visually inspect the equipment quarterly for leaks and dirt deposits.
- ➢ Replace leaking, worn and damaged components.
- ➢ Remove dirt deposits.

In normal circumstances, you do not need to clean the components inside the equipment.

To clean the equipment in its entirety, you will have to remove the sight glasses.

Removing external dirt deposits

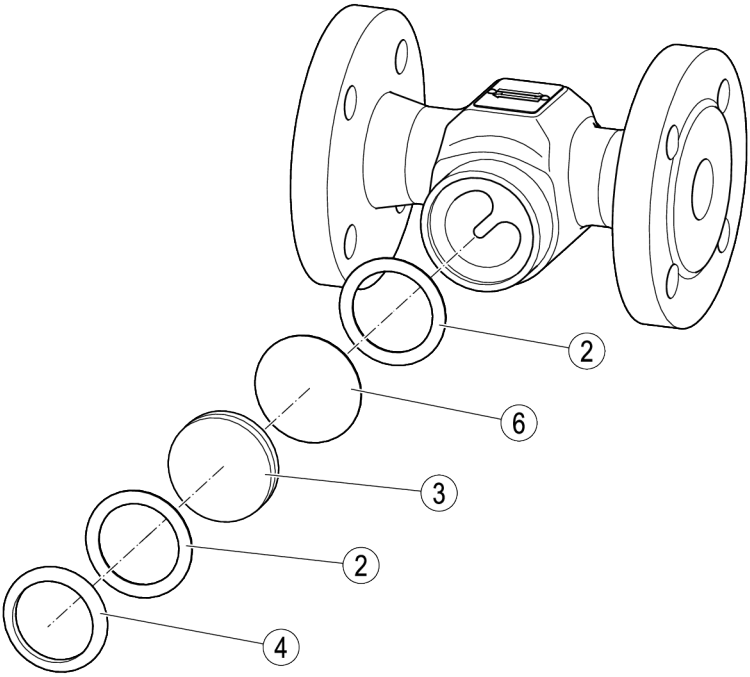
- To remove dirt deposits rinse the equipment with fresh water and wipe it with a clean, lint-free cloth.
- To remove any persistent residues use a cleaning agent that is suitable for the material and carefully wipe the equipment with a clean, lint-free cloth.

Servicing the equipment and installing spare parts

You may exchange the following component parts in case of wear or damage:

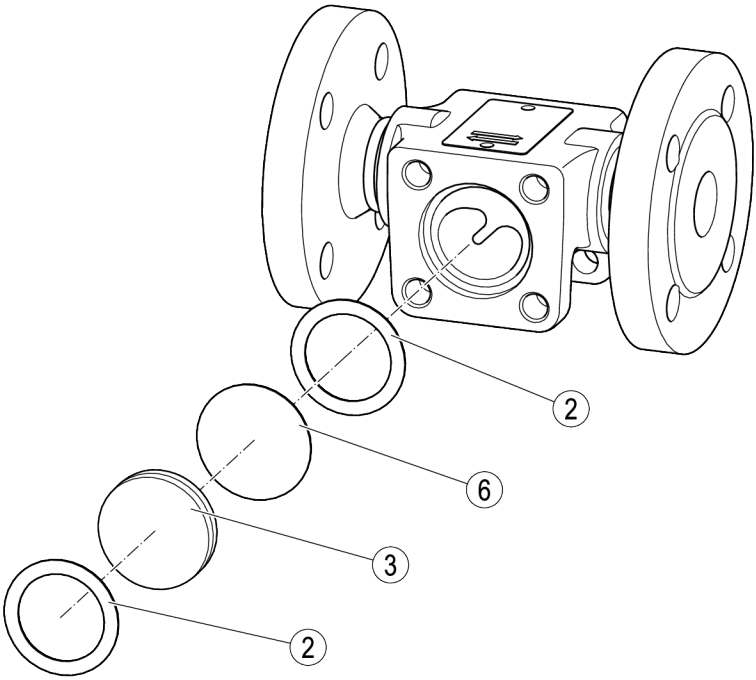
- Replace components only with genuine spare parts from the manufacturer.

Spare parts for the VK 14



No.	Designation	Stock code	
		DN 15–25	DN 40–50
2, 3, 6	Sight glass, complete, with gasket and mica shield	703489	–
2, 3	Sight glass, complete, with gasket	–	703488
4	Spherical washer	703109	–

Spare parts for the VK 16



No.	Designation	Stock code	
		DN 15–25	DN 40–50
2, 3, 6	Sight glass, complete, with gasket and mica shield	703489	703490

Replacing the sight glass

DANGER

Personnel working on pipes are exposed to safety risks and may suffer severe injuries, poisoning or even loss of life.

- ➢ Make sure that no hot or hazardous fluid is in the equipment or the pipes.
- ➢ Make sure that the pipes upstream and downstream of the equipment are depressurised.
- ➢ Make sure that the installation is switched off and protected against unauthorised or unintended activation.
- ➢ Make sure that the equipment and the pipes have cooled down to room temperatures.
- ➢ Wear protective clothing that is suitable for the fluid and, if necessary, wear protective gear.

For more information on suitable protective clothing and safety gear refer to the safety data sheet of the fluid in question.

You require the following tools to replace the sight glass:

- ◗ Combination spanner to DIN 3113, type B (size 18, 24 or 60, depending on equipment type)
- ◗ Torque wrench 25–130 Nm to DIN ISO 6789

The individual equipment types have different fastenings.

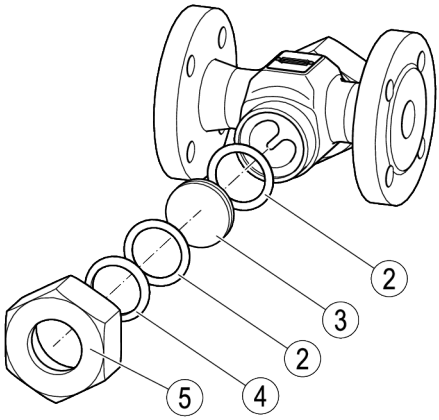
- ◗ In equipment types VK 14, DN 15–25, the sight glass is fastened with a union nut.
- ◗ In equipment types VK 14, DN 40–50 and VK 16, the flange is fastened with four hexagon head bolts.

Otherwise, the same procedure is used for the different equipment types.

Removing the sight glass of the VK 14, DN 15–25

Proceed as follows to remove the sight glass of the VK 14, DN 15–25:

- ➢ Undo the union nut (5).
- ➢ Remove the spherical washer (4).
- ➢ Remove the gasket (2).
- ➢ Remove the sight glass (3).
- ➢ Remove the optional mica shield, if present.
- ➢ Remove the gasket (2).

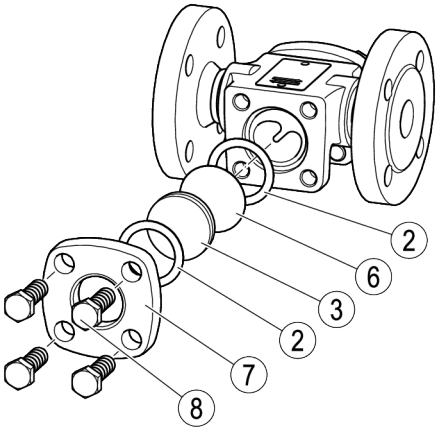


- ➢ Remove the second sight glass in the same way, if applicable.

Removing the sight glass of the VK 14, DN 40–50 and VK 16, DN 15–50

Proceed as follows to remove the sight glass of the VK 14, DN 40–50 and VK 16:

- ➢ Undo the four hexagon head bolts (8) in the flange.
- ➢ Remove the flange (7).
- ➢ Remove the gasket (2).
- ➢ Remove the sight glass (3).
- ➢ Remove the mica shield (6, optional in the VK 14).
- ➢ Remove the gasket (2).



- ➢ Remove the second sight glass in the same way, if applicable.

Installing a new sight glass

DANGER

Burns or intoxication from escaping medium may cause extremely severe or even fatal injuries.

- ➢ Only use new sight glasses and gaskets that are in perfect condition.
- ➢ Do not install sight glasses that have already been in operation.
- ➢ Clean all components of the equipment before installation.
- ➢ Remove foreign matter.
- ➢ Tighten the fastenings of the equipment uniformly to the specified torque.

- ➢ Check all removed parts for signs of damage.
- ➢ Replace all worn or damaged parts.
- ➢ Clean all dirty parts.
- ➢ Coat the thread and contact surfaces with temperature-resistant lubricant.

The lubricant must have the same properties as OKS 217.

- ➢ Insert the new internal sight glass gasket.
- ➢ Insert the new mica shield, if applicable.
- ➢ Insert the new sight glass.
- ➢ Insert the new external sight glass gasket.
- ➢ For the VK 14, DN 15–25, insert the spherical washer.
- ➢ For the VK 14, DN 40–50 and VK 16, fit the flange and insert the hexagon head bolts.

The torque required for fastening varies depending on the equipment:

	VK 14 DN15–25	VK 14 DN40–50	VK 16 DN15–25	VK 16 DN40–50
Union nut (5)	130 Nm	–	–	–
Hexagon head bolt (8)	–	60 Nm	30 Nm	60 Nm

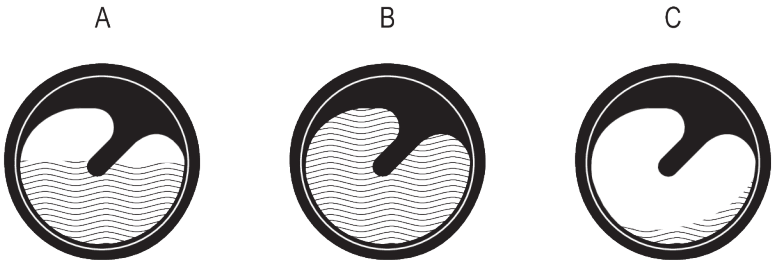
➢ Tighten the union nuts or hexagon head bolts to the specified torque.

➢ Fit the second sight glass in the same way, if applicable.

Troubleshooting

Problem	Cause	Remedy
Fluid escapes (equipment is leaking).	The body has been damaged by corrosion or erosion.	Replace the equipment with a new one. Use equipment made of material that is suitable for the application.
Fluid escapes (equipment is leaking).	The equipment has been damaged by frost.	Replace the equipment with a new one. When shutting down the installation make sure that all lines and the equipment are completely drained.
Fluid escapes (equipment is leaking).	The equipment or the body is damaged.	Replace the equipment with a new one.
Fluid escapes (equipment is leaking).	A gasket is damaged.	Replace the gasket with a new one. Clean gasket seating surfaces.
Fluid escapes (equipment is leaking).	The connections are not tight.	Provide the connections with leakproof seals.
The flowrate is too low. The equipment is cold or only lukewarm. Insufficient heat output of consumers.	Contamination in the inflow, outflow or equipment.	Clean the pipe. Clean all inner parts. Replace inner parts or equipment if damaged.
The sightglass or water level gauge does not offer an unambiguous evaluation of the operating condition.	The sightglass or water level gauge is dirty, worn or scratched.	Replace the sightglass or water level gauge.

You can recognise and remedy faults due to incorrect settings as follows:



Normal condensate level (A)	Banked-up condensate (B)	Penetration of live steam due to leaks or other major disruptions (C)
–	Condensate covers the entire sight glass. No flow is visible.	The sight glass is nearly opaque.
The downstream steam trap is working correctly. Do not change the settings.	Open the equipment until a normal condensate level is displayed.	Close the equipment until a normal condensate level is displayed. Check that the plant part and equipment are not leaking and are in perfect condition. Remedy leaks and damages.

➢ If faults occur that are not listed above or cannot be corrected, please contact our Technical Service or authorized agency in your country.

Putting the equipment out of operation

Removing harmful substances

DANGER

If the equipment is used in contaminated areas there is a risk of severe injuries or death caused by harmful substances in or on the equipment.

- ➢ Only qualified personnel are allowed to perform work on contaminated equipment.
- ➢ Always wear the protective clothing prescribed for contaminated areas when working on the equipment.
- ➢ Make sure that the equipment is completely decontaminated before carrying out any service work.
- ➢ Follow the pertinent instructions for handling the hazardous substances in question.

Qualified personnel must have extensive experience with and a working knowledge of:

- ◗ pertinent rules and regulations concerning handling hazardous substances
- ◗ special regulations for handling the hazardous substances encountered on site
- ◗ using the required personal protective equipment (PPE) and clothing

CAUTION

Environmental damage may be caused by poisonous fluid residues.

- ➢ Before disposing of the equipment make sure that it is clean and free of fluid residues.
- ➢ For the disposal of all materials observe the pertinent legal regulations concerning waste disposal.

➢ Remove all residues from the equipment.

➢ For the disposal of all residues observe the pertinent legal regulations concerning waste disposal.

Removing the equipment

DANGER

Risk of extremely severe injury or death due to burns, freezing or intoxication during work on pipes.

- ➢ Make sure that there is no hot or cold fluid in the equipment or pipes.
- ➢ Make sure that the equipment pipes are not under pressure.
- ➢ Make sure that the system is switched off and secured so it cannot be turned on by unauthorised persons.
- ➢ Make sure that the equipment and pipes are lukewarm.
- ➢ Wear protective clothing that is suitable for the fluid, and use suitable personal protective equipment if necessary.

Information on suitable protective clothing and PPE can be found in the safety data sheet of the fluid used.

➢ Make sure that all pipelines upstream and downstream of the equipment are depressurised.

DANGER

Risk of crushing from falling equipment or components.

- ➢ Wear protective clothing during all work.
- ➢ Use suitable lifting gear to lift and move the equipment during all work.
- ➢ Make sure that the equipment cannot tip over.
- ➢ Always lift the equipment by the body only.
- ➢ Make sure that there are never any persons below the suspended equipment.

Protective clothing must include the following items, as a minimum:

- ◗ Safety helmet to EN 397
- ◗ Safety footwear to EN ISO 20345
- ◗ Mechanical leather gloves to EN 388.

You will find information on suitable protective clothing and personal protective equipment (PPE) in the safety data sheet for the fluid used.

The lifting gear must have sufficient load-bearing capacity for the equipment.
You can find information on the weight of the equipment in the supplied documentation.

- ➢ Detach the end connections of the equipment from the pipes.
- ➢ Put the equipment onto a suitable base.
- ➢ Store the equipment as described on page 9.

Re-using equipment after storage

Observe the following instructions if you want to remove the equipment and use it again somewhere else:

- ◗ Make sure that the equipment is free of any fluid residues.
- ◗ Make sure that all connections are in good condition and leak-free.
- ➢ Use the equipment only for its intended purpose and the service conditions for which it was specified.

Returning the equipment

You can return the valve to your contractual partner.

- ➢ Make sure that all harmful substances are removed from the valve.
- ➢ Insert the stoppers in the connections.
- ➢ Observe the instructions in section "Transporting the equipment" from page 9.
- ➢ Pack the valve in its original packaging or in a suitable transport packaging.

The transport packaging must protect the valve from damage in the same way as the original packaging.

- ➢ Add the completed and signed decontamination declaration to the valve. The decontamination declaration must be attached to the packaging so that it is accessible from outside.
- ➢ Register the return delivery with your contractual partner before returning the valve.

Disposing of the equipment

CAUTION

Environmental damage may be caused by poisonous fluid residues.

- ➢ Before disposing of the equipment make sure that it is clean and free of fluid residues.
- ➢ For the disposal of all materials observe the pertinent legal regulations concerning waste disposal.

The equipment is made from the following materials:

VK 14

Component	**EN**	**ASTM[1]/ASME**
Body of VK 14	5.1301	A 126 Class B
Union nut[2]	1.1181	A 194-2H
Flange[3]	1.0460	SA 105
Bolts for body[4]	5.6	–
Sight glass	MAXOS® borosilicate glass, DIN 7080	
Sight glass gasket	Graphite/CrNi	

1 ASTM material is comparable to EN material. Pay attention to differences in chemical and physical properties. For more information, contact the manufacturer.

2 For fastening the sight glass of the DN 15–25, to ISO 8434-1, type N, series S

3 For fastening the sight glass of the DN 40–50

4 Hexagon head bolt M16 x 40, EN 24017, for fastening the sight glass

VK 16

Component	**EN**	**ASTM[1]/ASME**
Body of VK 16	1.0460	SA 105
Insert	1.0619	SA 216 WCB
Flange[2]	1.0460	SA 105
Bolts for body[3]	5.6	–
Sight glass	MAXOS® borosilicate glass, DIN 7080	
Sight glass gasket	Graphite/CrNi	

1 ASTM material is comparable to EN material. Pay attention to differences in chemical and physical properties. For more information, contact the manufacturer.

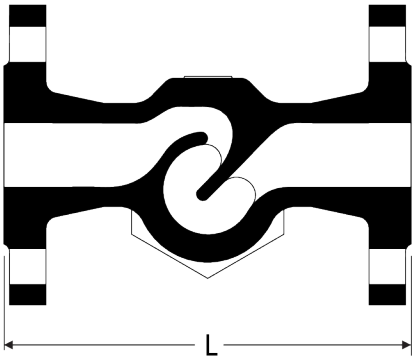
2 For fastening the sight glass of the DN 40–50

3 Hexagon head bolt M16 x 40, EN 24017, for fastening the sight glass

Technical data

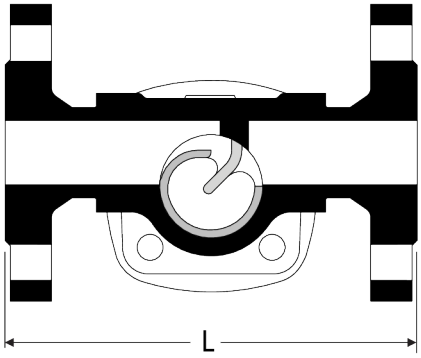
Dimensions and weights

VK 14



		Flanges				
Nominal size DN	mm	15	20	25	40	50
	inches	½	¾	1	1½	2
Length L	mm	130	150	160	200	230
Weight	kg	3.4	4.0	4.5	14.6	16.2

VK 16



		Flanges				
Nominal size DN	mm	15	20	25	40	50
	inches	½	¾	1	1½	2
Length L	mm	150	150	160	230	230
Weight	kg	4.0	5.0	5.5	13.0	15.5

		Screwed sockets/socket-weld ends				
Nominal size DN	mm	15	20	25	40	50
	inches	½	¾	1	1½	2
Length L	mm	95	95	95	130	230
Weight	kg	2.9	3.1	3.0	8.5	9.0

Pressure & temperature ratings

VK 14, flanges EN 1092-2, PN 16

Pressure[1] p	bar	16.0	14.4	12.8	11.2	9.6
Temperature [1] T	°C	–10–120	150	200	250	280[2]
pH value		≤ 9				

1 Ratings for strength of body to EN 1092-2

2 With retrofitted mica shields (optional), the temperature increases to 300 °C.

VK 16, flanges EN 1092-1, PN 40

Pressure[1] p	bar	40.0	37.1	33.3	30.4	27.6
Temperature [1] T	°C	20	100	200	250	300
pH value		≤ 10				

1 Ratings for strength of body to EN 1092-1

VK 16, flanges ASME B16.5, CL 150

Pressure[1] p	bar	19.6	17.7	13.8	12.1	10.2
Temperature [1] T	°C	20	100	200	250	300
Pressure[1] p	psi	285.0	260.0	230.0	200.0	140.0
Temperature [1] T	°F	–20–100	200	300	400	600
pH value		≤ 10				

1 Ratings for strength of body to ASME B16.34

Declaration of Conformity – Standards and Directives

You can find details on the conformity of the equipment and the applicable standards and directives in the Declaration of Conformity and the relevant certificates.

You can download the latest Declaration of Conformity at www.gestra.com. You can request the relevant certificates by writing to the following address:

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Fax +49 421 3503-393
e-mail info@de.gestra.com
Web www.gestra.com

Modifications to the equipment not approved by us will invalidate the Declaration of Conformity and the certificates.

You can find our authorized agents around the world at: **www.gestra.com**

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