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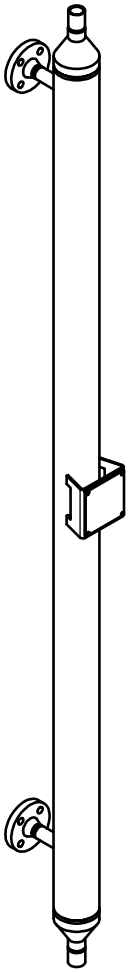


Measuring cylinder

MF

EN
English

Original Installation &
Operating Manual

850790-00

Contents

Foreword

This Installation & Operating Manual will help you to use the measuring cylinder MF safely and cost-efficiently. The measuring cylinder MF is referred to below simply as equipment.

This Installation & Operating Manual is intended for all persons bringing this equipment into service, and operating, using, servicing, cleaning or disposing of the equipment. In particular, the Installation & Operating Manual is aimed at service technicians, trained specialist personnel, and qualified and authorised operating personnel.

Each of the above must have read and understood the content of this Installation & Operating Manual.

Following the instructions in the Installation & Operating Manual helps to avoid danger and increases the reliability and service life of the equipment. In addition to the instructions in this Installation & Operating Manual, compliance with the applicable binding rules on accident prevention in the country and location of use, and with the generally recognised technical regulations for safe and proper working, is essential.

Availability

Always keep this Installation & Operating Manual together with the system documentation. Make sure that the Installation & Operating Manual is available to the operator.

The Installation & Operating Manual is part of the equipment package. Hand over this Installation & Operating Manual if you sell or pass on the equipment to a third party.

Formatting features in the document

Different types of information in the Installation & Operating Manual are formatted in different ways. This helps you to distinguish easily between the following types of information:

Normal text

Cross references

- Lists
  - Bullet points in lists

➢ Action to be taken

These tips contain additional information, e.g. about cost-efficient use of the equipment.

Security

Usage for the intended purpose

The measuring cylinder MF is used to mount a level electrode on equipment, on which direct installation of the level electrode is either not possible or not expedient with regard to the process.

The equipment may only be used within the admissible pressure and temperature limits, with due consideration of chemical and corrosive influences.

Usage for the intended purpose also includes reading and adhering to all instructions in this manual, particularly the safety notes.

Improper use also includes using equipment made of materials that are unsuitable for the medium used.

Basic safety notes

Risk of serious injury

- The equipment can become hot during operation. Only bring the equipment into service if protection against contact with the hot surface is provided through insulation or other protection.
- The equipment is under pressure and can get hot during operation. Only perform work on the equipment if the following conditions are satisfied:
  - The pipes and equipment must be shut off and depressurised.
  - All fluid must be completely removed from the equipment.
  - The pipes and equipment must have cooled to around 20 °C (lukewarm).
- 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 when 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 its material and seals. Otherwise, leaks may occur and hot or toxic fluid may escape.
- The equipment and its components may only be installed or removed by specialist personnel. Specialist personnel must be familiar with and have experience in the following areas:
  - Producing connections on pipes, boilers or vessels.
  - Selecting suitable lifting gear for the product and using it safely.
  - Working with hazardous (contaminated, hot or pressurised) media.
- If the admissible pressure and temperature ratings are exceeded, the equipment may be destroyed, causing hot or pressurised fluid to escape.

Make sure the equipment is always used within the admissible pressure and temperature ratings. You can find information on the pressure and temperature ratings on the name plate.

- Incorrect handling of lifting gear or the use of unsuitable lifting gear can lead to the equipment or parts thereof falling.
  - Only allow specialist personnel to lift the equipment or its components.
  - Make sure that no persons are ever standing below suspended loads.
  - Make sure that the lifting gear has sufficient load-bearing capacity for the load to be lifted, and that the load is sufficiently secured. Please consult the manufacturer for information about component weight and safe lifting points.
  - Ensure compliance with all locally applicable safety and accident prevention regulations.

Risk of minor injury

- There is a risk of cuts from sharp-edged internal parts of the equipment. Always wear protective gloves when working on the equipment.
- If the equipment is inadequately supported during installation, there is a risk of crushing if it falls. Secure the equipment during installation so it cannot fall. Wear sturdy safety boots.

Information on property damages or malfunctions

- Installing the equipment against the specified direction or in the wrong location will result in malfunctions. This could cause damage to the equipment or the higher-level system. Connect the equipment to the boiler/vessel in the direction specified in this Installation & Operating Manual.
- Equipment made from materials unsuitable for the fluid used wear faster. This can cause the fluid to escape. Make sure the material is suitable for the fluid used.

Personnel qualifications

Specialist personnel must be familiar with and have experience in the following areas:

- Explosion and fire protection provisions applicable at the site of installation
- Work on pressure equipment
- Producing connections on boilers/vessels
- Work with hazardous (hot or pressurised) fluids
- Lifting and transporting loads
- All information in this Installation & Operating Manual and other applicable documentation

Protective clothing

The required protective clothing depends on the regulations at the place of work and the media used. You will find information on suitable protective clothing and personal protective equipment in the safety data sheet for the fluid used.

The protective clothing basically consists of the following items:

- Safety helmet as per EN 397
- Safety boots as per EN ISO 20345
- Sturdy leather gloves as per EN 388
- Safety goggles as per DIN EN 166

Formatting features for warnings in the document

⚠ DANGER

Instructions with the word DANGER warn of a dangerous situation that result in death or serious injury.

⚠ CAUTION

Instructions with the word CAUTION warn of a situation that may result in minor or moderate injury.

Formatting features for warnings of property damages

⚠ ATTENTION

This information warns of a situation resulting in property damage.

Description

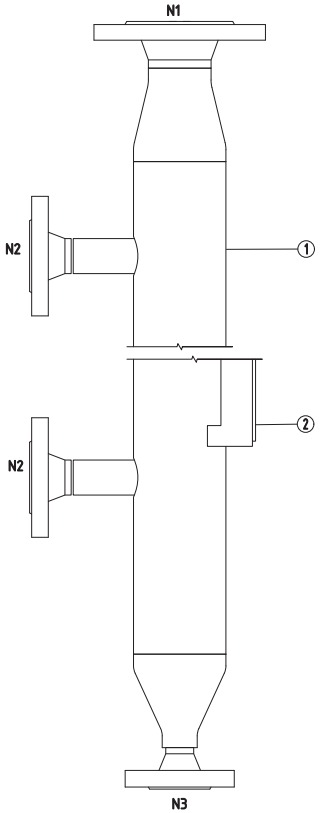
Scope of supply

The equipment is packaged ready for installation.

Equipment specification

The equipment features the following connections:

- Connection N1 for level electrode
- Connection N2 for boiler/vessel
- Connection N3 for drainage



No.	Designation
1	Measuring cylinder MF
2	Name plate

Connections

The equipment can be supplied with the following connections:

- Flange
- Screwed socket (connection N1 / N3)

Name plate

On the rating plate, you will find the following information:

- Manufacturer
- Type designation
- Minimum operating temperature
- Maximum operating temperature
- Maximum operating pressure
- Mark e.g. CE, UKCA (if required)
- Year of manufacture
- Serial number
- Vessel type
- Weight
- Regulations
- Test pressure
- Date of test
- Volume

Task and function

The measuring cylinder MF is connected to the boiler/vessel.
The cylinder is used to mount a level electrode.

Application of European Directives

Pressure Equipment Directive
The equipment must conform to the requirements of the Pressure Equipment Directive (see Manufacturer's Declaration) and can be used for the following media:

- Fluid group 2

ATEX
The equipment does not have its own potential ignition source and is not subject to the Explosion Protection Directive (see Manufacturer's Declaration).
Static electricity: Static electricity can be produced in the system if the equipment is installed between pipe flanges.
If the equipment is used in potentially explosive atmospheres, the discharge or prevention of possible electrostatic charging is the responsibility of the manufacturer or operator of the system.
Observe explosion protection/the Ex category of the equipment when installing level electrodes.

Storing and transporting the equipment

⚠ ATTENTION

Storing or transporting the equipment incorrectly can damage it.

➢ Seal off all openings with the supplied – or comparable – covers.

➢ Make sure the equipment remains dry and is protected against a corrosive atmosphere.

➢ Please contact the manufacturer if you wish to transport or store the equipment in different conditions.

Storing the equipment

➢ Store the equipment solely in the following conditions:

- Store the equipment for no more than 12 months.
- Seal off all openings on the equipment with the supplied plugs or comparable covers.
- Connecting and sealing surfaces must be protected against mechanical damage.
- The equipment and all components must be protected against jolts and impacts.

- The equipment may only be stored in closed rooms in the following ambient conditions:
  - Air humidity below 50%, non-condensing
  - Clean room air, not salty or corrosive in other ways
  - Temperature 5 – 40 °C

➢ Make sure that these conditions are constantly maintained throughout storage.

➢ Please contact the manufacturer if you wish to store the equipment in different conditions.

Transporting the equipment

⚠ DANGER

Risk of crushing from falling equipment or components.

➢ Always use suitable lifting gear when lifting, moving and working on the equipment and its components.

➢ Make sure that the equipment cannot tip over.

➢ Make sure that no persons are ever standing below suspended loads.

Lighter equipment can be transported and installed without lifting gear.

Equipment with a weight greater than around 25 kg requires support from another person or suitable lifting gear.

The precise equipment weight from which support is necessary depends on your physical capability and the local regulations and conditions.

➢ Maintain the same conditions during transport that were in place during storage.

➢ Insert the sealing plugs into the connections before transport.

If you do not have the supplied sealing plugs, seal the connections with comparable covers.

➢ You can transport the equipment unpacked over distances of a few metres.

➢ If transporting the equipment over longer distances, use the original packaging.

➢ If the original packaging is not available, pack the equipment so that it is protected against corrosion or mechanical damage.

The equipment can be transported for short periods at temperatures below 0 °C, providing that it has been completely drained and dried.

Installing and connecting the equipment

Preparations for installation

⚠ DANGER

Risk of crushing from falling equipment or components.

➢ Always use suitable lifting gear when lifting, moving and working on the equipment and its components.

➢ Make sure that the equipment cannot tip over.

➢ Make sure that no persons are ever standing below suspended loads.

➢ Remove the equipment from the transport package.

➢ Inspect the equipment for transport damage.

➢ If you discover transport damage, please contact the manufacturer.

Connections may be sealed with plugs on delivery.

➢ Remove sealing plugs before installation.

➢ Store the sealing plugs and packaging for later use.

⚠ DANGER

Risk of severe injury or death due to burns or intoxication during work on pipes, boilers and vessels.

➢ Make sure there are no hot or hazardous fluids in the equipment or the boilers/vessels.

➢ Make sure the connections to the equipment are not under pressure.

➢ Make sure the equipment has cooled down to a lukewarm temperature.

➢ Wear suitable protective clothing for the fluid, and use suitable personal protective equipment if necessary.

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

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 boiler/vessel.

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

➢ Connect the equipment only as described in this Installation & Operating Manual.

⚠ CAUTION

Escaped fluid due to damaged seals can harm the environment!

➢ Make sure that sealing surfaces are undamaged.

➢ Clean sealing surfaces before installing a new seal.

➢ Replace every seal after disassembly.

➢ Tighten threaded joints to the specified torque.

⚠ ATTENTION

The equipment can be damaged if connections are too weak.

➢ Make sure that the connected equipment is not subjected to any forces or torques.

The plant operator is responsible for making sure that the equipment and sealing material are suitable for the fluid used.

➢ Make sure that the materials of all equipment components are suitable for the fluid used.

➢ Contact the manufacturer for more information.

➢ Inspect all seals before installation to ensure they are in perfect condition.

➢ Make sure the equipment is free of foreign bodies.

➢ Install the equipment in the pipe.

➢ Install the measuring cylinder with two stop valves and a drainage valve.

➢ Make sure the level electrode is connected to connection N1.

➢ Fit the equipment so that the drainage connection faces down.

➢ Make sure the boiler/vessel is connected to connection N2.

➢ Make sure that the equipment is fastened so that its full weight is supported.

➢ Make sure the equipment is securely installed and all connections are correct and secure.

➢ At operating temperature, check that flange connections are tight.

➢ Re-tighten the threaded connections if necessary. The surface of the equipment becomes hot during operation. There is a risk of burns.

➢ Insulate the surface of the equipment with suitable material.

Bringing into service

- ➢ Please pay careful attention to the installation and operating instructions for the individual units/assemblies.
- ➢ Check all connections before bringing into service.
- ➢ Close the drainage valve.
- ➢ Slowly open the stop valve to the boiler/vessel.
- ➢ Check all flange connections at operating temperature. Re-tighten the flange connections if necessary.
- ➢ Briefly rinse the measuring cylinder via the drainage valve.

Operation

It is not possible to carry out work on the equipment during operation.

After operation

⚠ DANGER

For equipment used in contaminated areas, there is a risk of serious or fatal injury from harmful substances on the equipment.

- ➢ Only allow specialist personnel to perform work on contaminated equipment.
- ➢ Wear the protective clothing specified for the contaminated zone during all work.
- ➢ Make sure that the equipment is fully decontaminated before any work.
- ➢ Follow the instructions for handling the relevant harmful substances here.

The operator must ensure that the equipment can be safely drained on site.

⚠ ATTENTION

Frost damage can occur when the system is not in operation.

- ➢ Drain the equipment if there is a risk of frost.

- ➢ Drain the equipment via the drainage valve.

Removing external dirt

- ➢ Remove dirt from the equipment with clean water and a lint-free cloth.
- ➢ Remove stubborn dirt with a cleaning agent suitable for the material and a lint-free cloth.

Servicing the equipment

The equipment does not require any particular maintenance work.

- ➢ Check the function and condition of the equipment at regular intervals.
- ➢ Clean the equipment when necessary.

Installing spare parts

No spare parts are available for the equipment.

- ➢ Replace damaged equipment.

Taking out of service

Removing harmful substances

⚠ DANGER

For equipment used in contaminated areas, there is a risk of serious or fatal injury from harmful substances on the equipment.

- ➢ Only allow specialist personnel to perform work on contaminated equipment.
- ➢ Wear the protective clothing specified for the contaminated zone during all work.
- ➢ Make sure that the equipment is fully decontaminated before any work.
- ➢ Follow the instructions for handling the relevant harmful substances here.

Specialist personnel must have knowledge and experience in the following areas:

- ◗ The applicable local regulations for handling harmful substances
- ◗ Special regulations for handling the harmful substances present
- ◗ The use of the prescribed protective clothing

⚠ CAUTION

Risk of environmental damage due to poisonous fluid residues.

- ➢ Prior to disposal, make sure the equipment is cleaned and free of any fluid residues.
- ➢ Dispose of all materials in accordance with the regulations at the location of use.

- ➢ Remove all residues from the equipment.
- ➢ Dispose of all residues in accordance with the regulations at the location of use.

Dismantling the equipment

⚠ DANGER

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

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

Dismantling the equipment

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

⚠ DANGER

Risk of crushing from falling equipment or components

- ➢ Always use suitable lifting gear when lifting, moving and working on the equipment and its components.
- ➢ Make sure that the equipment cannot tip over.
- ➢ Make sure that no persons are ever standing below suspended loads.

- ➢ Detach the equipment connections from the boiler/vessel.
- ➢ Place the equipment on a suitable surface.
- ➢ Store the equipment as described under “Storing the equipment”.

Reusing the equipment after storage

Observe the following conditions when dismantling the equipment and using it at a different location:

- ◗ Make sure that all fluid residues have been removed from the equipment.
- ◗ Make sure that the connections are in perfect condition.
- ➢ Only use the equipment according to the operating conditions for new equipment.

Disposal of the equipment

⚠ CAUTION

Risk of environmental damage due to poisonous fluid residues.

- ➢ Prior to disposal, make sure the equipment is cleaned and free of any fluid residues.
- ➢ Dispose of all materials in accordance with the regulations at the location of use.

The equipment is made of welded sheet steel/ stainless steel.

You can return the equipment to your contractual partner.

- ➢ Make sure that all harmful substances are removed from the equipment.
- ➢ Follow the instructions under “Transporting the equipment”.
- ➢ Pack the equipment in its original packaging or in a suitable transport package.

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

- ➢ Send the completed and signed decontamination declaration with the equipment. 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 equipment.

Technical data

Pressure and temperature ratings

You can find the values for your equipment on the name plate.

Weights

You can find the values for your equipment on the name plate.

Manufacturer's Declaration

You can find details on the conformity of the equipment in our Declaration of Conformity or Manufacturer's Declaration.

You can download the latest Declaration of Conformity or Manufacturer's Declaration at www.gestra.com or request it from the address below:

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Modifications to the equipment not approved by us will cause this Declaration to lose its validity.

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

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