Operating Instructions

for

Low Volume Variable Area Flow Meters

Model: KFS



We don’t accept warranty and liability claims neither upon this publication nor in case of improper treatment of the described products.

The document may contain technical inaccuracies and typographical errors. The content will be revised on a regular basis. These changes will be implemented in later versions. The described products can be improved and changed at any time without prior notice.
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2. Note

2.1 General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the device should be used only when the entire machine fulfils the EU machinery directive.

2.2 Validity and version of the operating instructions

Due to technical changes, the device documentation available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form.

2.3 Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

Symbol	Explanation	Symbol	Explanation
 Note	Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn.	 Caution	Means that minor personal injury or minor property damage may occur if proper precautions are not taken.

Symbol	Explanation	Symbol	Explanation
 Warning	Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken.	 Danger	Means that death can occur if proper precautions are not taken.
 Warning	Attention: Hot surface!	 Warning	Warning: Dangerous electrical voltage

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:

- Low Volume Variable Area Flow Meters model: KFS

4. Intended Use

Flawless operation of the device can only be guaranteed if all aspects in these operating instructions are adhered to.
The manufacturer assumes no responsibility for any damage resulting from improper use. The user assumes all responsibility for such usage.

5. Operating Principle

The flow meter model KFS operates on the proven suspended float system, that is, the installation position is vertical and the flow is from bottom to top.
The instrument is constructed as a single unit, that is, it has an acrylic housing with removable connections made of PVC or stainless steel.
The flow meter is thus very reasonably priced.

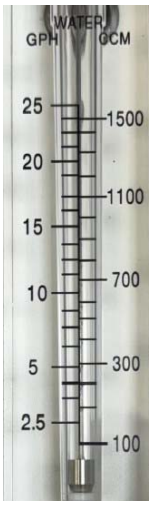
6. Installation and Operation Instructions

6.1 KFS measuring ranges

The KFS series acrylic variable area flow meters are available for different measuring ranges with either SAE or SI units for air or water (see technical data sheet). The devices can also be manufactured for other gases and liquids on request. If the meter is operated with other media, please check the resistance of the parts in contact with the media. When correctly installed and maintained, these durable acrylic meters offer years of trouble-free operation.

6.2 Determining the measured values

The measured value is read from the scale at the height of the top of the float. If the measuring device has a spherical float, the reading edge is the top of the ball. The device scale is divided into non-linear scale steps to achieve greater accuracy. The unlabeled scale marks have a value that results from the distance between the labeled scale marks and the number of spaces between them. Example CCM scale (see figure)



The distance between the value 700 and 300 has four spaces between them. The difference (400) is divided by the number of spaces (4). The result (100) is the value of the scale bar. The next higher scale line increases by this value.
The values 300, 400, 500, 600, 700 can then be read. In addition, the flow meter should be mounted in such a way that external vibrations, pulsations and sudden flow changes are avoided.

6.3 KFS-2000 up to KFS-4000

Mounting
These meters are supplied with a 5/8" or 7/8" hex nut on the inlet and outlet fittings. When installing 1/8- 27 MNPT or 1/8-18 MNPT fittings into the meter, **place the appropriate size wrench on the hex to prevent the inlet/outlet fitting from rotating. Torque only to 60 in-lbs.** Failure to do so will cause the fitting to rotate, and may damage the meter body, causing leaks and/or meter failure. Use pipe thread sealant or PTFE tape to ease installation and provide a better seal. This meter is supplied with #10-32 threaded inserts for mounting. When installing, use slotted screws and torque to a maximum of 35 in-lbs. For installation dimensions, please refer to product dimensional details.

Cleaning and Disassembly
Occasional cleaning may be required if dirt appears in the flow tube or if float movement becomes restricted. To clean, remove the top plug and remove the float. Wash the tapered hole and top plug with a mild liquid detergent and soft brush. Rinse all parts with clean water and dry thoroughly with clean air or nitrogen. Do not use solvents to clean this meter as they will attack the acrylic and destroy the meter.

Reassembly
Check to make sure that all parts are clean and dry. To lubricate the o-rings, apply a small amount of halocarbon grease prior to reassembly. If applicable, reinstall the rod guide assembly into the flowmeter body. Make sure the rod guide is seated firmly in the body of the meter. Reinstall the top plug, making sure that the rod guide is properly aligned. If you have any questions regarding the installation, maintenance or use of this flowmeter, please call KOBOLD.

6.4 KFS-5000 up to KFS-6000

Installation
These meters are supplied with round 1” FNPT PVC inlet and outlet fittings. When installing the meter, securely hold the meter’s fittings from rotating while connecting the flow lines. (Use pipe thread sealant or PTFE tape to achieve a positive seal when connecting the flowmeter.) **Failure to hold the meter fittings or over-tightening may cause damage to the fitting, flowmeter or both; which will result in leaks or meter failure.** The meter is supplied with #10-32 threaded inserts for mounting. When installing, use slotted screws and torque to a maximum of 35 in-lb. For installation dimensions, please refer to product dimensional details.

Cleaning and Disassembly
Occasional cleaning may be required if dirt appears in the flow tube or if float movement becomes restricted. To clean, remove the top plug (standard back) or the outlet fitting (inline) and remove the rod guide assembly. Wash the tapered hole; float stops and top plug with a mild liquid detergent and soft brush. Rinse all parts with clean water and dry thoroughly with clean air or nitrogen. **Do not use solvents to clean this meter** as they will attack the acrylic and destroy the meter.

Reassembly
Check to make sure that all parts are clean and dry. To lubricate the o-rings, apply a small amount of halocarbon grease prior to reassembly. Replace the float on the rod guide and reinstall the float stops. Reinstall the rod guide assembly into the flowmeter body. Make sure the rod guide is seated firmly in the body of the meter for a standard back meter or in the inlet fitting of the Inline meter. (For meters with valves, it will be necessary for the rod guide to pass through the slot in the valve tip.) Reinstall the top plug or the outlet fitting, making sure that the rod guide is properly aligned.
If you have any questions regarding the installation, maintenance or use of this flowmeter, please call KOBOLD.

7. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

8. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

9. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

10. Disposal

See “General Safety Instructions” - via the QR code on the device or via www.kobold.com

11. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Low Volume Variable Area Flow Meters **model: KFS**

to which this declaration relates is in conformity with the following EU directives stated below:

2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)

Also, the following standards are fulfilled:

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Hofheim, 18 July 2024

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