Operating Instructions

for

Low Volume Variable Area Flow Meters

Model: KFS

Kobold does not 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.

1. Contents

Manufactured and sold by:

KOBOLD Instruments Inc.
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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.koboldusa.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available on-line 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@koboldusa.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 against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.koboldusa.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 measuring unit should be used only when the machines fulfill the EC machinery directive.

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. Regulation Use

Any use of the device, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk 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-2000 through KFS-4000 Series

The KFS-2000 through KFS-4000 acrylic block flowmeters are available in various ranges in both SAE and SI units for air and water (see technical data sheet). These direct reading meters are also available for other gases and liquids. If the meter will be used with fluids other that air or water, please consult chemical compatibility data for possible effects on the meter. When properly installed and maintained, these durable acrylic meters will provide years of trouble- free operation.

Achieving Accurate Flowrates
To obtain an accurate flowrate, the float must be read at the position indicated on the meter. If the meter uses a ball float, the flowrate is determined by reading the top edge of the float. Additionally, the flowmeter should be installed in a manner, which minimizes both external vibrations and internal flow variations. Special care should be taken so that the connections to the meter's inlet and outlet fittings do not overly restrict the liquid or gas flow being metered. This could result in a reduced flow volume, preventing the meter from reaching its maximum flowrate. Furthermore, internal pressures could be affected, which can cause inaccurate flow readings. On start- up, slowly purge any fluid trapped in the meter.

Installation
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 1/4-18 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.

6.2 KFS-5000 Series

The KFS-5000 acrylic block flowmeters are available in various ranges in both SAE and SI units for air and water (see technical data sheet). These direct reading meters are also available for other gases and liquids. If the meter will be used with fluids other that air or water, please consult chemical compatibility data for possible effects on the meter. When properly installed and maintained, these durable acrylic meters will provide years of trouble- free operation.

Achieving Accurate Flowrates
To obtain an accurate flowrate, the float must be read at the position indicated on the meter. If the meter uses a ball float, the flowrate is determined by reading the top edge of the float. Additionally, the flowmeter should be installed in a manner, which minimizes both external vibrations and internal flow variations. Special care should be taken so that the connections to the meter's inlet and outlet fittings do not overly restrict the liquid or gas flow being metered. This could result in a reduced flow volume, preventing the meter from reaching its maximum flowrate. Furthermore, internal pressures could be affected, which can cause inaccurate flow readings. On start-up, slowly purge any fluid trapped in the meter.

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.koboldusa.com

8. Order Codes

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

9. Dimensions

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

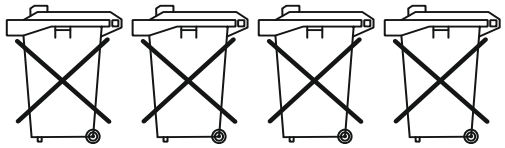
10. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment

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

H. Volz
General Manager

J. Burke
Compliance Manager