Operating Instructions

for

Differential Pressure

Flow Meter / Monitor

Model: RCD-...

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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.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals 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 against an applicable postage fee.

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 measuring unit should be used only when the machines fulfil the EC-machine guidelines.

as per PED 2014/68/EU
In acc. with Article 4 Paragraph (3), "Sound Engineering Practice", of the PED 2014/68/EU no CE mark.

	Pipe	
	Diagram 7 group 2 no dangerous fluids	Diagram 6 group 1 dangerous fluids
RCD-..00 – RCD-..30	Art. 4, § 3	Art. 4, § 3
RCD-..90 – RCD- 95	Art. 4, § 3	Art. 4, § 3
RCD-1135 - RCD-1139	Art. 4, § 3	Cat. II
RCD-1235 - RCD-1239	Art. 4, § 3	Cat. II
RCD-1145	Art. 4, § 3	Cat. I
RCD-1150 - RCD-1165	Cat. I	not deliverable
RCD-1245 - RCD-1265	Cat. I	Cat. II

This table indicates the classification of pipelines when using substances and mixtures in gaseous form. When using substances and mixtures in liquid form, diagrams 8 and 9 must be consulted.

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:

- Differential Pressure Flow Meter / Monitor model: RCD

4. Regulation Use

Any use of the Differential Pressure Flow Meter / Monitor, model: RCD, 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 Kobold Flow Meter is used for measuring and monitoring the flow velocity of liquids and gases. The device works in accordance with the well-known principle of the Venturi nozzle. A small pressure difference proportional to the flow is produced by the flowing medium at a cross-sectional constriction (nozzle) in the device housing. The shape of the nozzle is based on the particular flow value whereby flow characteristic remains constant over the entire measuring range. Pressure sensing ports are located in the flow body to measure the resulting differential pressure and send it to a differential-pressure measuring cell fitted in the display case. If the flow is exceeded, the differential-pressure measuring cell is protected by mechanical stops. In the case of mechanical displays the flow rate measured by the differential pressure measuring cell is indicated on a pointer element which is calibrated in l/min water or Nm3/h air. On electronic displays the mechanical motion is converted to an electrical signal by a Hall sensor. The electronics serves to display and monitor the volumetric flow.

6. Mechanical Connection

6.1. Check Service Conditions

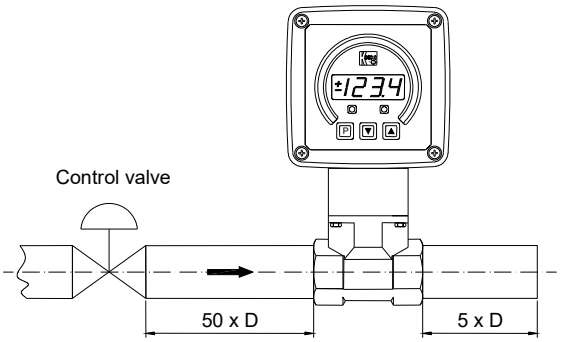
- Flow
- Max. operating pressures
- Max. operating temperature
- Medium
- Mounting position

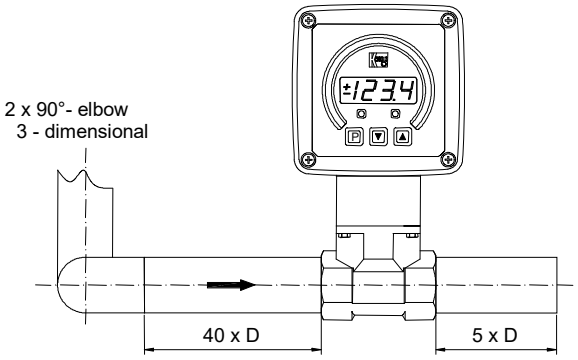
When the medium is not in our substance database:

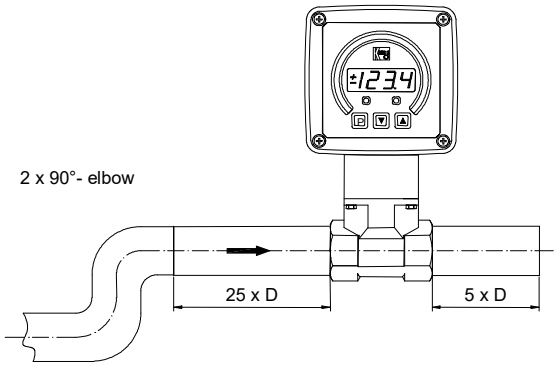
- operating density
- operating viscosity

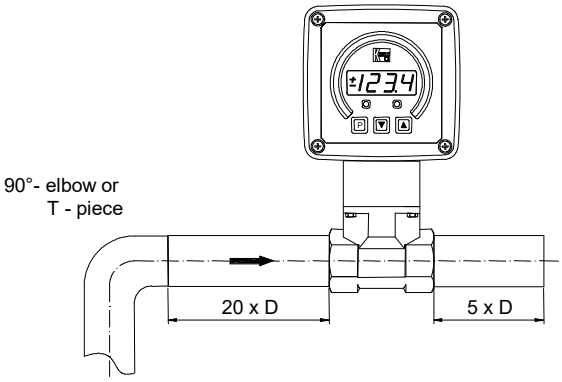
6.2. Installation

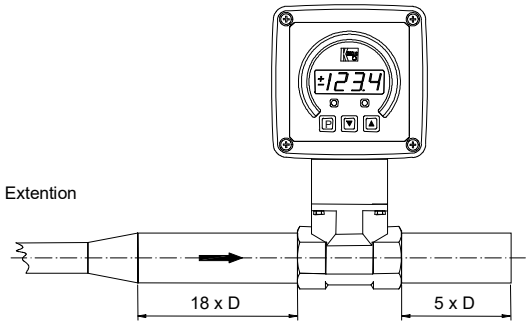
- Flow in direction of arrow (universal)
- Avoid pressure and tensile loads
  mount inlet and outlet piping at distances of 50 mm from the connections
- Check connections for leaks
- Pay attention to the inlet and outlet path (see drawings below)

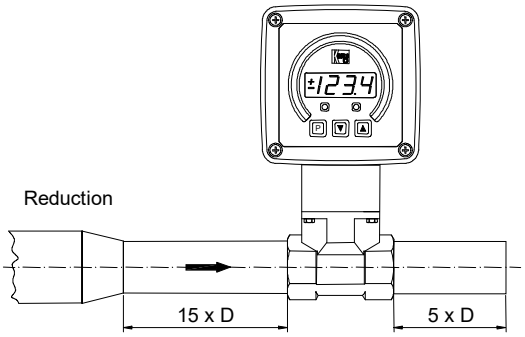












7. Electrical Connection

7.1. Mechanical Pointer Indication (..Z...)

without electrical connection

7.2. Compact Electronics: (..C30R, ..C30M, ..C34P, ..C34N)

see
Operating instructions supplement
for compact electronics with frequency output

7.3. ADI Electronic

see
Operating instructions supplement
for ADI electronic display

8. Commissioning

8.1. Mechanical Pointer Indication (..Z...)

Attention! Remove transportation safety screw and screw in the sealing screw from the bag into the thread M3.

8.2. Setting Compact Electronics

see
Operating instructions supplement
for compact electronics with frequency output

8.3. Setting ADI Electronic

see
Operating instructions supplement
for ADI electronic display

9. Maintenance

The measuring instrument requires no maintenance when the measured medium leaves no deposits. To prevent fouling the flow meter pressure sensing ports, we recommend that a filter is installed, for example the magnetic filter, model MFR. Work on the sensor and electronics should only be carried out by the supplier, otherwise the warranty is void.

10. Technical Information

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

11. Order Codes

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

12. Dimensions

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

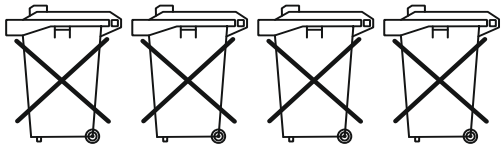
13. Disposal

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:



Cd[1] Hg[2] Pb[3] Li[4]

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

Electrical and electronic equipment

14. EU Declaration of Conformance

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

Differential Pressure Flow Meter / Monitor model: RCD -...

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

2014/35/EU	**Low Voltage Directive**
2014/30/EU	**EMC Directive**
2011/65/EU	**RoHS** (category 9)
2015/863/EU	Delegated Directive (RoHS III)
2014/68/EU	**PED**

Also, the following standards are fulfilled:

EN IEC 61000-6-4:2019 Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

EN IEC 61000-6-2:2019 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

EN 60529:2014 Degrees of protection provided by enclosures (IP Code)

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

Hofheim, 23 April 2024

H. Volz
General Manager

J. Burke
Compliance Manager

15. UK Declaration of Conformity

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

Differential Pressure Flow Meter / Monitor model: RCD -...

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

S.I. 2016/1091	**Electromagnetic Compatibility Regulations 2016**
S.I. 2016/1101	**Electrical Equipment (Safety) Regulations 2016**
S.I. 2012/3032	**The Restriction of the Use of Certain Hazardous** Substances in Electrical and Electronic Equipment Regulations 2012
S.I. 2016/1105	**The Pressure Equipment (Safety) Regulations 2016**

Also, the following standards are fulfilled:

BS EN IEC 61000-6-4:2019 Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments

BS EN IEC 61000-6-2:2019 Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments

BS EN 61010-1:2010+A1:2019 Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

BS EN 60529:1992+A2:2013 Degrees of protection provided by enclosures (IP-Code)

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

Hofheim, 23 April 2024

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General Manager

J. Burke
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