

**Operating Instruction
for
Rotating Vane Flow Indicator**

Model: DAF



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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.

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.

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:

- Rotating Vane Flow Indicator model: DAF

4. Regulation Use

Any use of the Rotating Vane Flow Indicator, model: DAF, 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 Rotating Vane Flow Indicator is applied where visual flow indication without flow measurement is required. A square housing with transparent windows front and back contains a rotating vane whose rotary motion, caused by the flowing medium, indicates presence of "flow".

Within the same housing dimensions, differing minimum and maximum flow ranges are obtained by changing the inlet port orifice. The instruments can be installed in any position. Flow, however, must be in the direction indicated by the arrow.

They are pivot-mounted, which enables the sight glass of the indicating unit to be turned to an optimum viewing direction even during operation (not with material combination DAF-14...).

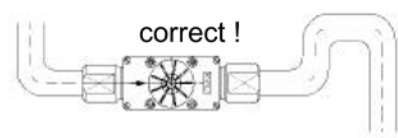
6. Mechanical Connection

Before installation

- Please ensure that the actual flow-volume is in agreement with the measuring range of the unit. The measuring range can be read from the model label.

Attention! On over-stepping of measuring range (more than 20 %), may cause damage to bearings and significant measurement errors may result.

- Make sure that the permitted max. operating pressure and temperature of the device are not violated.
- Remove all the transportation-safety locks etc. and ensure, that there exist no packing-material parts inside the unit.
- These units can be mounted without regard to position. Thereby, the flow must always be in the direction of arrow, and the front-side of the unit remains in the vertical plain.
- In particular, attention must be paid to flow from top to bottom, such that the flow chamber is completely filled with the liquid. Additional inlet and outlet lengths are not required.



- The sealing of connection screw joints is succeeded through PTFE tape or similar material.
- Sealing of units with flange connections succeeds by means of a suitable flat seal, provided by the customer.
During installation of the unit, attention must be paid to see that no high pressure or tensile loads exert on the connection screw joints. We recommend fastening an inlet and outlet pipe mechanically at a distance of approx. 50 mm from the connection screw joint.
- If possible, after mechanical installation, check whether the sealing of connection-joints/piping is adequate

Note! The union fittings (connection screw joints) of the device must be absolutely counteracted when screwing in by means of a suitable fork wrench. Otherwise voltages will be transferred to the transducer housing, which can lead to destruction of the device.

7. Commissioning

In order to avoid pressure peaks, the flow medium should flow slowly into the device.

Note! Pressure peaks by sudden flowing, caused by single solenoid valves, ball valves or the like, can lead to the destruction of the device (water hammer!). In the operating condition, it is to be made certain that the sensor is constantly filled with the medium.

Larger bubbles in the measuring chamber can lead to measurement errors or destruction of bearings.

8. Maintenance

In case, the medium to be measured is not contaminated, the unit is maintenance-free.

Should the cleaning of a device be deemed necessary, it can be done easily by removing housing cover and making the interior of housing accessible. After cleaning, the unit can be simply assembled together.

9. Technical Information

DAF-1...

Material combinations

DAF	11...	12...	13...	14...
Housing	PA 6-3-T	PSU	nickel plated brass	st. steel
Housing cover	PA 6-3-T	PSU	PSU	PSU
Connection	nickel plated brass	st. steel ¹⁾	nickel plated brass	st. steel ¹⁾
Locking pins	brass	brass	brass	--
O rings	NBR	FPM	NBR	FPM
Rotating vane	POM	PTFE	POM	PTFE
Axle	st. steel ¹⁾	st. steel ¹⁾	st. steel ¹⁾	st. steel ¹⁾
Axle bearing	PTFE	PTFE	PTFE	PTFE
max. operating pressure	10 bar	10 bar	16 bar	16 bar
max. operating temperature	60 °C	110 °C	110 °C	110 °C

¹⁾ Material code. 1.4571

DAF-2...

Material combination

Housing	st. steel 1.4571/1.3955
Housing cover	PSU
Connection	st. steel 1.4571
O rings	FPM
Rotating vane	PTFE
Axle	st. steel 1.4571
Axle bearing	PTFE
max. operating pressure	16 bar
max. operating temperature	110 °C

10. Order codes

Example: **DAF-1101H R06**

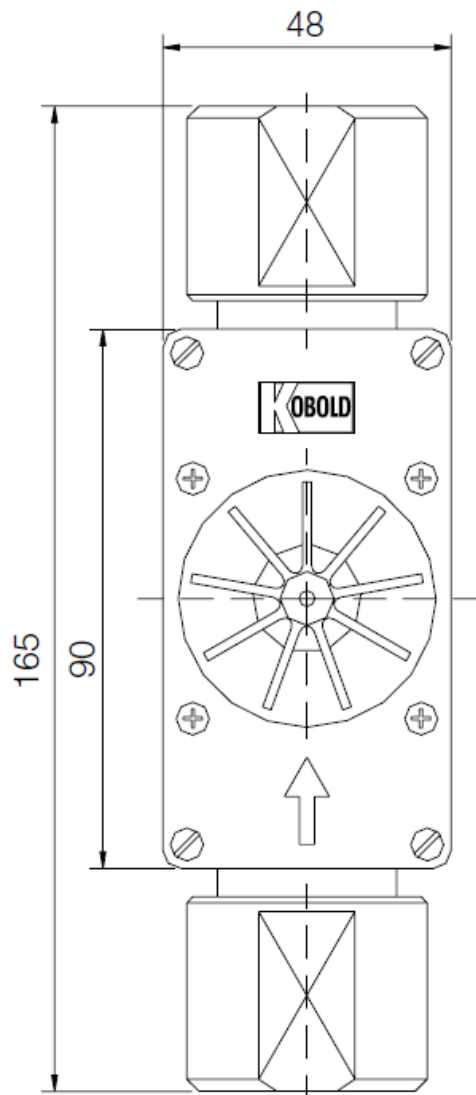
Indication range		Model				Connection			
Water [l/min]	ΔP [bar]	DAF-11..	DAF-12..	DAF-13..	DAF-14..	G-thread		NPT-thread	
0.03...0.1	0.25	DAF-1101H..	DAF-1201H..	DAF-1301H..	DAF-1401H..	R06	R08	N06	N08
0.03...0.5	0.8	DAF-1102H..	DAF-1202H..	DAF-1302H..	DAF-1402H..	R06	R08	N06	N08
0.2...3	0.85	DAF-1103H..	DAF-1203H..	DAF-1303H..	DAF-1403H..	R06	R08	N06	N08
0.5...12	0.55	DAF-1104H..	DAF-1204H..	DAF-1304H..	DAF-1404H..	R08	R15	N08	N15
1...25	0.35	DAF-1105H..	DAF-1205H..	DAF-1305H..	DAF-1405H..	R15	R20	N15	N20
2...50	0.35	DAF-1106H..	DAF-1206H..	DAF-1306H..	DAF-1406H..	R20	R25	N20	N25
5...150	1.25	DAF-1107H..	DAF-1207H..	DAF-1307H..	DAF-1407H..	R32	R40	N32	N40

Example: **DAF-2401H F15**

Indication range		Model	Connection DIN flange				Connection ANSI flange			
Water [l/min]	ΔP [bar]	DAF-24...	DN15 PN16	DN25 PN16	DN40 PN16	DN50 PN16	½" 150 lbs	1" 150 lbs	1½" 150 lbs	2" 150 lbs
0.03...0.1	0.25	DAF-2401H..	F15	-	-	-	A15	-	-	-
0.03...0.5	0.8	DAF-2402H..	F15	-	-	-	A15	-	-	-
0.2...3	0.85	DAF-2403H..	F15	-	-	-	A15	-	-	-
0.5...12	0.55	DAF-2404H..	F15	F25	-	-	A15	A25	-	-
1...25	0.35	DAF-2405H..	F15	F25	F40	-	A15	A25	A40	-
2...50	0.35	DAF-2406H..	-	F25	F40	-	-	A25	A40	-
5...150	1.25	DAF-2407H..	-	F25	F40	F50	-	A25	A40	A50

11. Dimensions

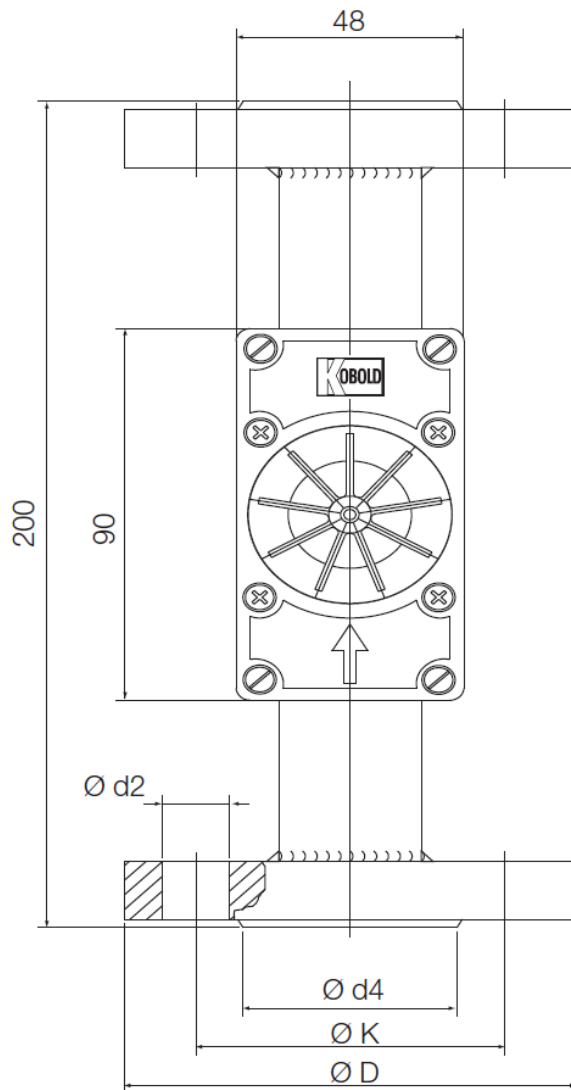
DAF-1...



Connections

G $\frac{1}{8}$ R06	G $\frac{1}{4}$ R08	G $\frac{1}{2}$ R15	G $\frac{3}{4}$ R20	G1 R25	G $\frac{1}{4}$ R32	G $\frac{1}{2}$ R40
$\frac{1}{8}$ " NPT N06	$\frac{1}{4}$ " NPT N08	$\frac{1}{2}$ " NPT N15	$\frac{3}{4}$ " NPT N20	1" NPT N25	$1\frac{1}{4}$ " NPT N32	$1\frac{1}{2}$ " NPT N40

DAF-2...



Connections

DN	D (mm)	K (mm)	d4 (mm)	d2 (mm)	No. of screws
15	95	65	45	14	4
25	115	85	68	14	4
40	150	110	88	18	4
50	165	125	102	18	4

12. Recommended Spare-parts

- 1.1) Rotating vane: PTFE
- 1.2) Rotating vane: POM
- 2.1) St. Steel axle with PTFE bearing
- 2.2) Ceramic axle with PTFE bearing
- 3.1) Transducer chamber cover: PA 6-3-T
- 3.2) Transducer chamber cover: PSU
- 4.1) O-Rings (NBR)
- 4.2) O-Rings (FKM)

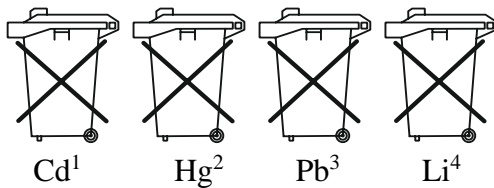
13. Disposal

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.

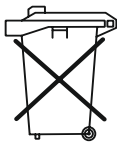
Batteries

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:



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, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Rotating Vane Flow Indicator

Model: DAF

to which this declaration relates is in conformity with the standards noted below:

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

Also, the following EC guidelines are fulfilled:

2011/65/EU
2015/863/EU

RoHS (category 9)
Delegated Directive (RoHS III)

Hofheim, 30 March 2022



H. Volz
General Manager



M. Wenzel
Proxy Holder