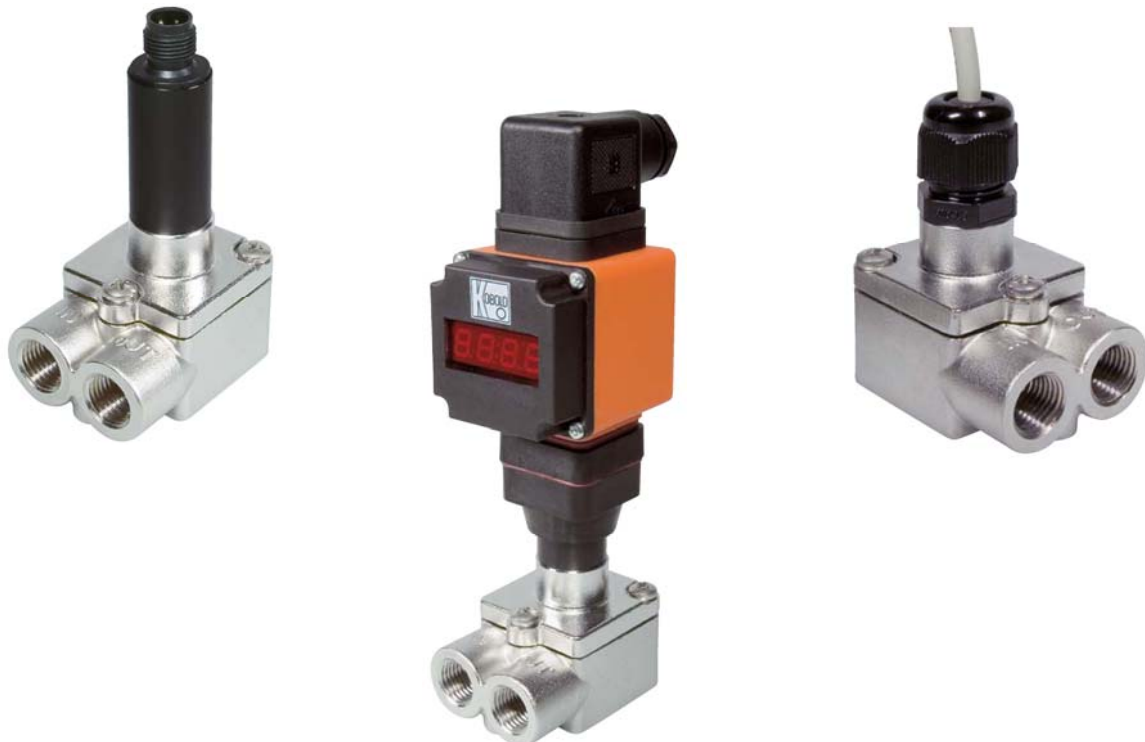


**Operating Instructions**  
**for**  
**Low Volume Rotating Vane**  
**Flow Meter**

**Model: DTK**



Order from: **C A Briggs Company**  
622 Mary Street; Suite 101; Warminster, PA 18974  
Phone: 267-673-8117 - Fax: 267-673-8118  
[Sales@cabriggs.com](mailto:Sales@cabriggs.com) - [www.cabriggs.com](http://www.cabriggs.com)

## 1. Contents

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### Manufactured and sold by:

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E-Mail: [info.de@kobold.com](mailto:info.de@kobold.com)  
Internet: [www.kobold.com](http://www.kobold.com)

## **2. Note**

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Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

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, Absatz (3), "Sound Engineering Practice", of the PED 2014/68/EU no CE mark.

Diagram 8, Pipe, Group 1 dangerous fluids

## **3. Instrument Inspection**

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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 Rotating Vane Flow Meter model: DTK
- Operating Instructions

## **4. Regulation Use**

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Any use of the Low volume rotating vane flowmeter, model: DTK", 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

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The medium flows through a specially shaped flow housing and causes a vane to rotate. The vane has imbedded permanent magnets. Which are detected by a Hall Effect sensor as they pass. The Hall Effect sensor generates a voltage pulse each time a magnet passes. The frequency of the pulses is directly proportional to the flow velocity.

## 6. Mechanical Connection

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### Before installation:

- Remove all transport packaging and ascertain that no packaging material is left in the instrument
- Please ascertain whether the allowable maximum operating pressure and operating temperature of the instruments will not be exceeded (see standard material combinations).
- Please ascertain after completing of mechanical installation, whether the connection between fitting and pipe is tight.



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**Warning! Overflows of more than 20 % might damage the bearings and cause larger measuring errors or malfunction.**

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## 7. Electrical Connection

### 7.1 General

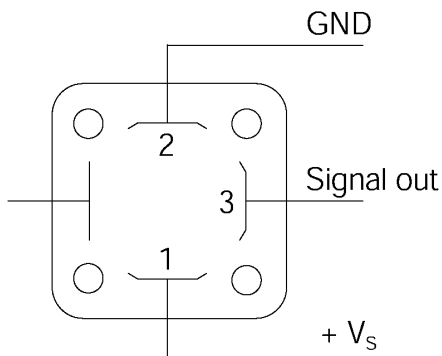
- Make sure that the power supply wires are de-energized.
- Connect the power supply and output signal wires according to the wiring diagrams under 7.2



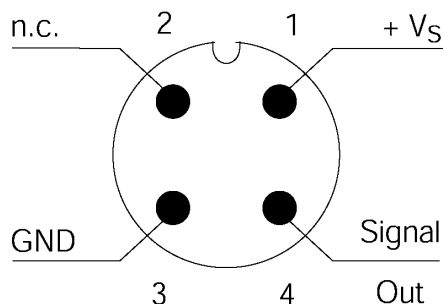
**Caution! Incorrect connection will destroy the electronics. Make sure that the power supply values of your system are matching the power supply values of this instrument.**

### 7.2 Plug Connection

DTK-...0400  
NPN open collector



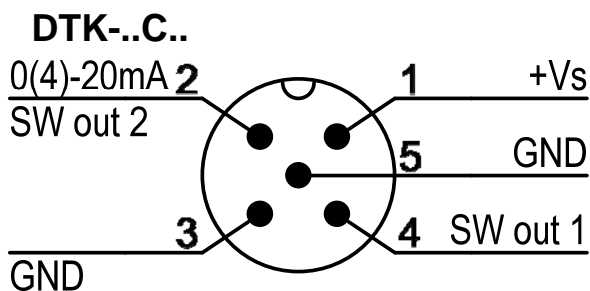
DTK-...F3; DTK-...L3  
PNP open collector



### 7.3 Cable Connection

DTK-...0P00; DTK-...0S00

white: +Vs  
brown: GND  
green: signal NPN open collector



### 7.4 Compact Electronics: (..C30R, ..C30M, ..C34P, ..C34N)

see  
Instruction Manual-Supplement  
for Compact Electronics

## 8. Technical Information

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|                      |   |
|----------------------|---|
| Measuring accuracy:  | ± 2 % f. s.<br>± 5 % f. s. OEM-version              |
| Linearity:           | ± 1 % v. ME   |
| Repeatability:       | ± 0.25 %  |
| Medium temperature:  | -15 °C to +80 °C<br>-15 °C to +140 °C (DTK-...0S00) |
| Ambient temperature: | -15 °C to +60 °C                                    |
| Max. pressure:       | 30 bar  |

### Materials

|                        |  |
|------------------------|--|
| Housing:               | Stainless steel 1.3955                   |
| Orifice:               | Stainless steel 1.4404                   |
| Axle:                  | Stainless steel 1.4404                   |
| Rotating vane:         | PVDF                                     |
| Gasket:                | FPM (FPM)                                |
| Connection:            | G ¼ female thread<br>¼ NPT female thread |
| Installation position: | horizontal                               |
| Protection type:       | IP 65                                    |

### Electrical Data

#### OEM frequency output (DTK-...0\*00) without CE-sign

|                        |   |
|------------------------|---|
| Power supply:          | 4 – 24 V <sub>DC</sub>  |
| Current input:         | typ. 5 mA   |
| Pulse output:          | NPN, max. 20 mA, open collector                                     |
| Electrical connection: | 1,5 m PVC cable<br>1,5 m silicone cable<br>plug connector DIN 43650 |

#### AUF-4000 (option for DIN plug connector connection)

|                    |  |
|--------------------|--|
| Display:           | 4-segment red LED                      |
| Temperature range: | -20 to +80 °C                          |
| Power supply:      | 24 V <sub>DC</sub> ± 20 %              |
| Input:             | Pulses of DTK (NPN-Hall effect sensor) |
| Output:            | 4 – 20 mA, 3-wire                      |
| Load:              | 250 Ω                                  |

#### DTK-...F300

|                        |                                 |
|------------------------|---------------------------------|
| Power supply:          | 12 – 28 V <sub>DC</sub>         |
| Current input:         | 10 mA                           |
| Pulse output:          | PNP, open collector, max. 20 mA |
| Electrical connection: | plug connector M12x1            |

**DTK-...F390**

Power supply: 24 V<sub>DC</sub> ± 20 %  
Current input: 15 mA  
Pulse output: PNP; open collector, max. 20 mA  
Frequency divider: 1...1/128, factory setting  
Electrical connection: plug connector M12x1

**DTK-...L303; DTK-...L343**

Power supply: 24 V<sub>DC</sub> ± 20 %  
Output: 0(4) – 20 mA, 3-wire  
Max. load: 500 Ω  
Electrical connection: plug connector M12x1

**Compactelectronics**

Display: 3-segment LED  
Analogue Output: (0) 4...20 mA adjustable, max. 500 Ω  
Switching Outputs: 1 (2) Semiconductor PNP or NPN, factory-set  
Contact-function: N/C, N/O programmable  
Adjustment: via 2 buttons  
Power-Supply: 24 V<sub>DC</sub> ± 20 %, 3-wire technology,  
approx. 100mA  
Electrical Connection: Plug M12x1

## 9. Order Codes

Example: DTK-1206 G2 0000

| Meas. range [L/min] | Orifice Ø [mm] | Frequency at ME | Pressure loss at ME | Model      | Connection                             | Evaluating electronics  |
|---------------------|----------------|-----------------|---------------------|------------|--|---|
| 0.05 - 0.6          | 1.0            | 21 Hz           | 1.0 bar             | DTK-1210.. | ..G2.. = G 1/4<br><br>..N2.. = 1/4 NPT | <b>OEM frequency output without CE</b><br>..0P00= NPN, 1.5 m PVC cable<br>..0S00= NPN, 1.5 m silicone cable<br>..0400= NPN, plug connector DIN 43650<br><br><b>Frequency output</b><br>..F300= plug connector M12x1, PNP<br>..F320= plug con. M12x1, PNP, divider 1:2<br>..F340= plug con. M12x1, PNP, divider 1:4<br>..F390= plug con. M12x1, PNP, divider 1... <sup>1</sup> /128<br><br><b>Analogue output</b><br>..L303= plug con. M12x1, 0 - 20 mA, 3-wire<br>..L343= plug con. M12x1, 4 - 20 mA, 3-wire<br><br><b>Compact electronic</b><br>..C30R= Compact electronics, 2xPNP, plug M12x1<br>..C30M= Compact electronics, 2xNPN, plug M12x1<br>..C34P= Compact electronics, 4-20mA, 1xPNP<br>..C34N= Compact electronics, 4-20mA, 1xNPN |
| 0.1 - 1.3           | 1.5            | 30 Hz           | 1.0 bar             | DTK-1215.. |  |   |
| 0.2 - 2.0           | 1.8            | 36 Hz           | 1.1 bar             | DTK-1218.. |  |   |
| 0.3 - 3.5           | 2.5            | 41 Hz           | 0.9 bar             | DTK-1225.. |  |   |
| 0.3 - 5.0           | 3.0            | 47 Hz           | 0.9 bar             | DTK-1230.. |  |   |
| 0.5 - 7.0           | 3.5            | 51 Hz           | 1.0 bar             | DTK-1233.. |  |   |
| 0.5 - 10.0          | 5.0            | 50 Hz           | 1.0 bar             | DTK-1250.. |  |   |
| 1.0 - 12.0          | 6.0            | 44 Hz           | 0.9 bar             | DTK-1260.. |  |   |

### Plug-on display

for model DTK-...0400 (with DIN plug connector)

| Description  | Order number    |
|--|-----------------|
| 4-segment red LED display<br>Input: pulses of DTK (NPN-Hall effect sensor),<br>Power supply: 24 V <sub>DC</sub><br>Output: 4-20 mA 2-wire (max. 250 Ω)<br>Plug connector DIN 43650 | <b>AUF-4000</b> |



### Accessory

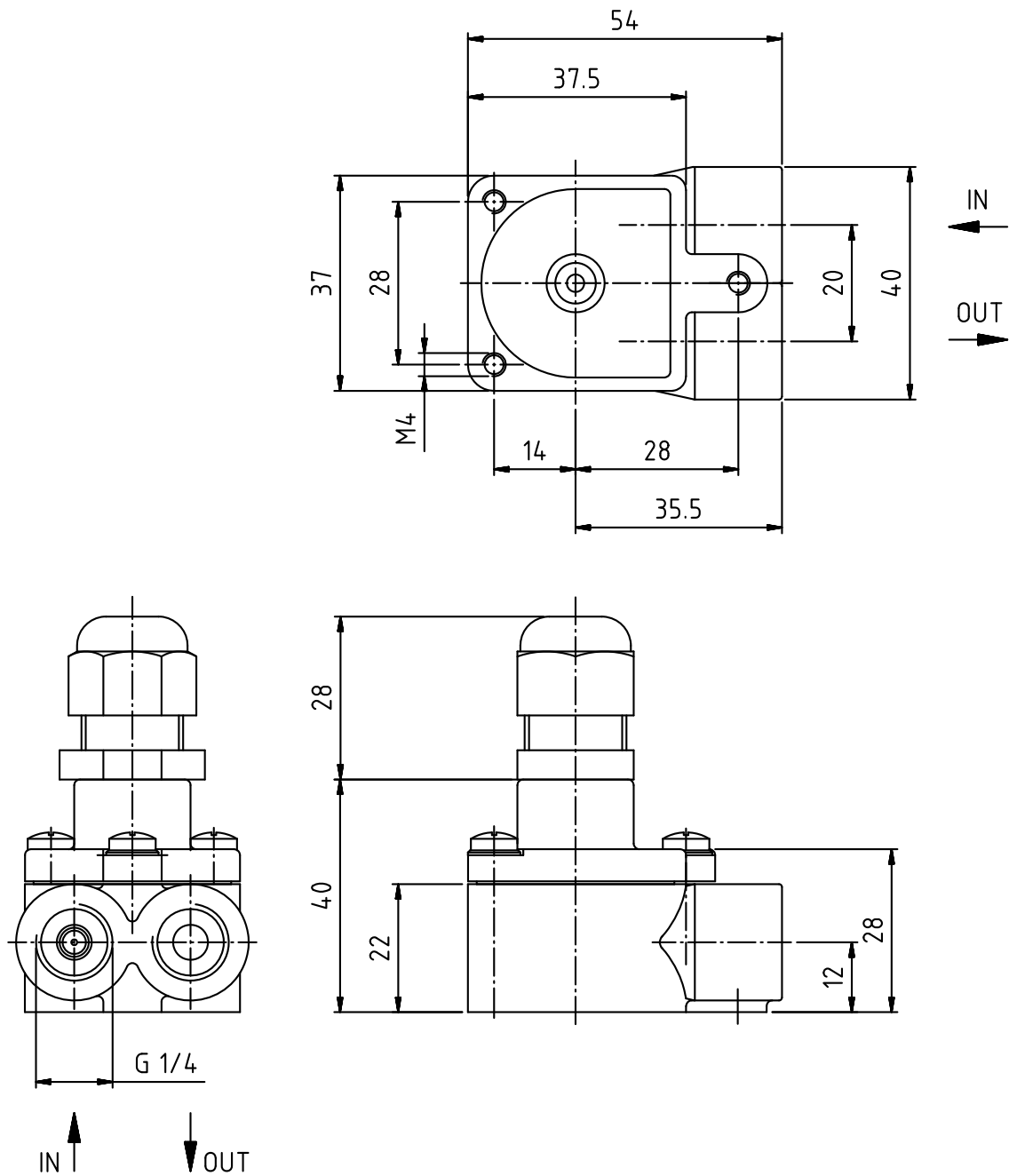
Round connector

| Typ            | Description  |
|----------------|--|
| ZUB-KAB-12D500 | Round connector M12 x 1 Dose with terminal, 5-pol  |
| ZUB-KAB-12K002 | Round connector M12 x 1 Dose with 2 m cable, 4-pol |
| ZUB-KAB-12Q000 | Round connector M12 x 1 Dose with Quick-on, 4-pol  |

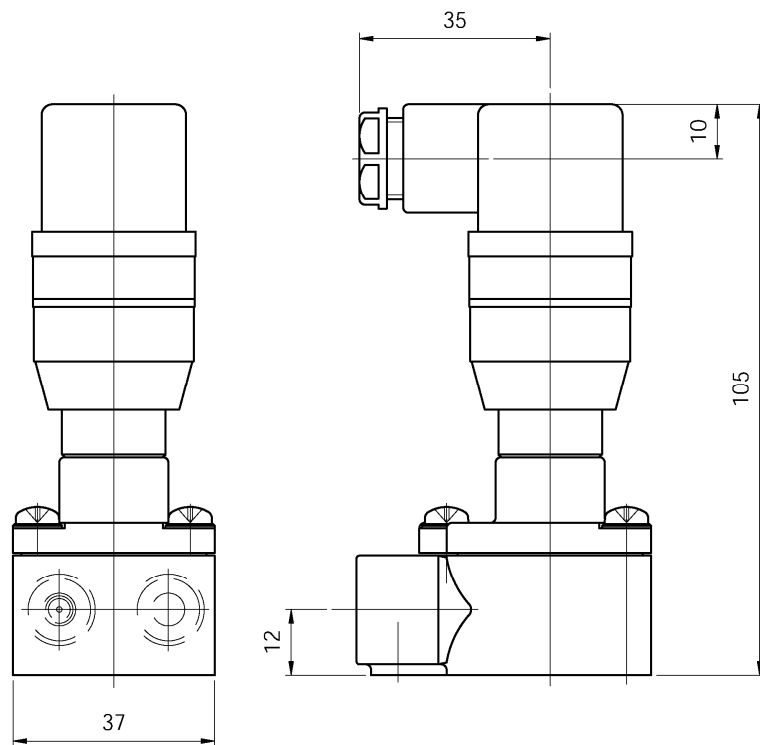


## 10. Dimensions

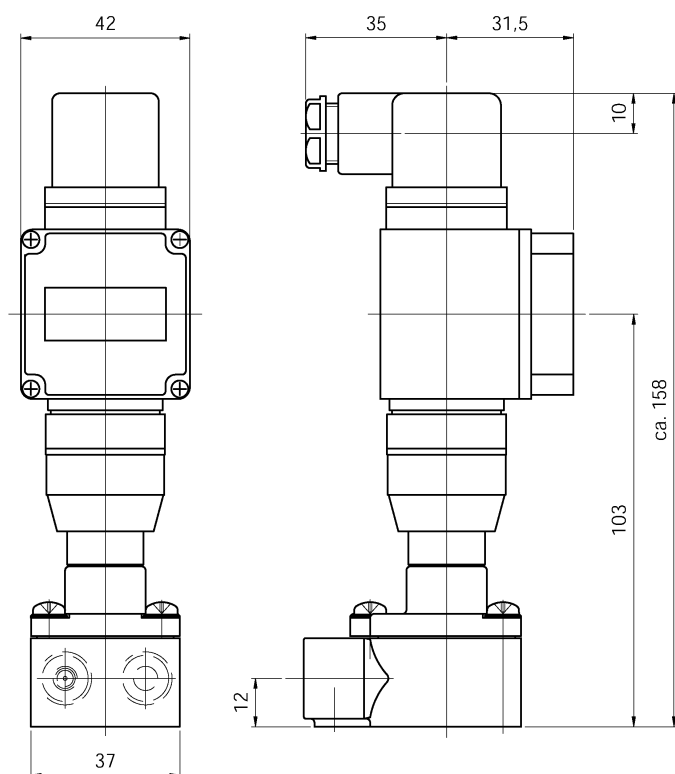
DTK-...0P00; DTK-...0S00



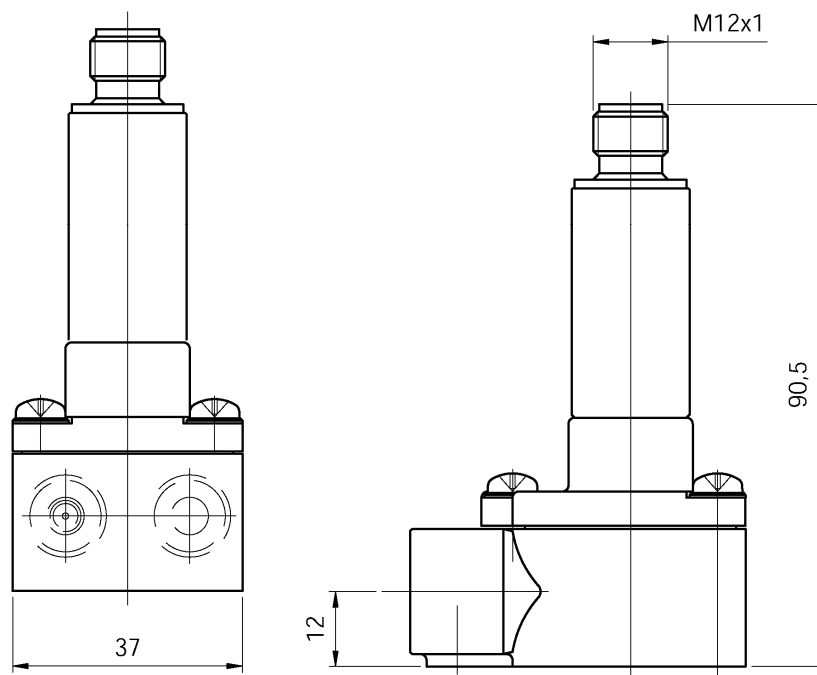
DTK-...0400



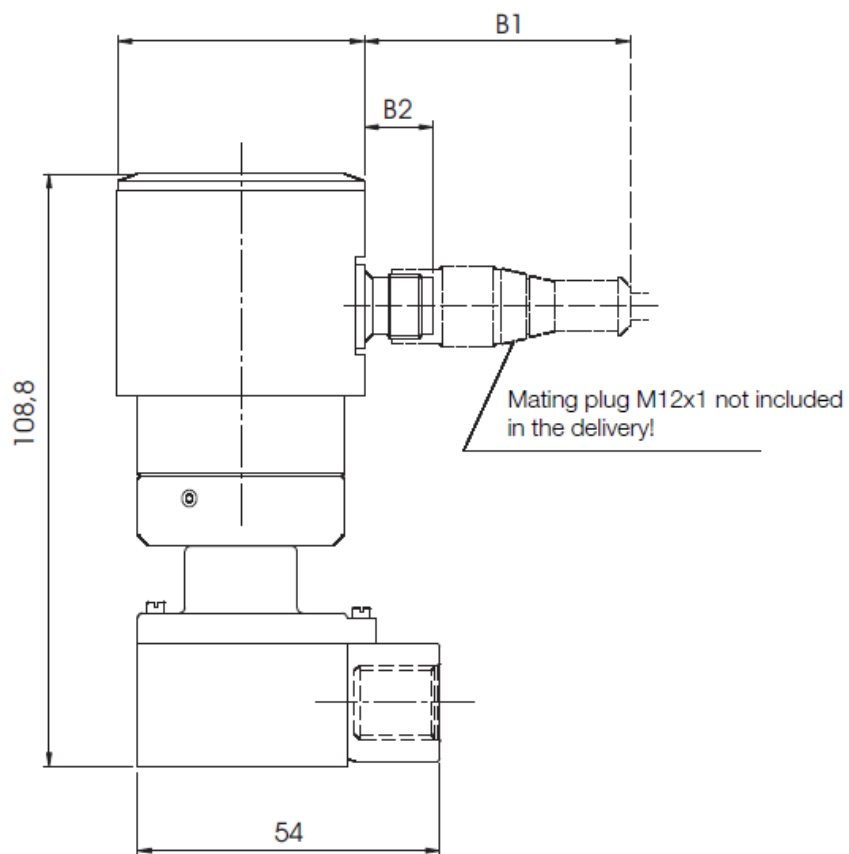
DTK-...0400 with AUF-4000



DTK-...F3...; DTK-...L3...



DTK...with compact electronic



## 11. EU Declaration of Conformance

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We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

**Low Volume Rotating Vane Flow Meter                      Model: DTK-...**

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

**EN 61000-6-4:2011**

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

**EN 61000-6-2:2006**

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

**EN 61010-1:2010**

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 50581:2012**

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:

**2014/30/EU**

**EMC Directive**

**2014/35/EU**


**Low Voltage Directive**

**2011/65/EU**

**RoHS (category 9)**

Hofheim, 11. Jan. 2018

  
H. Peters  
General Manager

  
M. Wenzel  
Proxy Holder