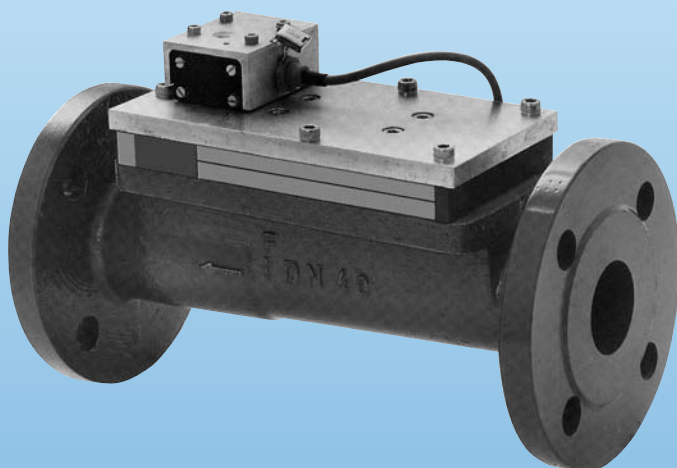




Oscillation Flow Meter for Liquids



measuring
•
monitoring
•
analysing



- Measuring ranges:
0.075-3.75 to 70-3500 m³/h water
- p_{max}: PN 40, t_{max}: 120 °C
- Connection: flange DN 25 to DN 400
- Material: Cast Iron,
steel or stainless steel
- Accuracy: ±0.5 % of measured value
- No moving parts
- Long-term stability



KOBOLD companies worldwide:

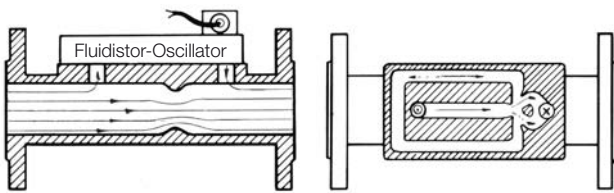
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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
☎ +49(0)6192 299-0
Fax +49(0)6192 23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

Model:
DOG-2

Description

The KOBOLD flow meter DOG-2 is used for non-contact flow measurement of low viscosity liquids. The medium flows through an orifice in a tube and side bypass bores. The dynamic pressure at the orifice causes part of the liquid to flow through the bypass. The division ratio remains constant over the whole measuring range.



The bypass channel contains the Fluidistor Oscillator - the measuring cell itself. When the medium flows through the measuring cell, a liquid column oscillates in a u-shaped channel mounted to the left and right. This oscillation frequency is proportional to the flow velocity

A chamber with a hollow ball is situated over this channel. It is connected with the lower channel by two bore holes. The oscillation of the liquid column is thus transferred to the ball, which in turn moves back and forth with the same frequency. The ball movement is sensed by an initiator. An electrical alternating signal is generated that is displayed in the series-connected electronics.

Application

The inner, connected flow channels are generously dimensioned. The constant changes of direction of the flow in the channels have a self-cleaning effect. The devices are therefore extremely dirt resistant and have no consumables. The mounting position can be chosen at will. When the liquid contains air bubbles, the vertical mounting position with the sensing element pointing upwards is recommended. To avoid air bubbles the device should not be mounted at the highest point in a plant. Pulsating flow must be avoided.

The recommended inlet pipe section is 10xDN and the outlet pipe section 5xDN

Areas of application

- Hot water in district heat supply
- Non-conductive liquid

Technical details

Measuring accuracy: $\pm 0.5\%$ of measured value (5-100%*)
 $\pm 2\%$ of measured value (at 2-5%)
**These values relate to viscosities of $\leq 1 \text{ mm}^2/\text{s}$*

Repeatability: $\pm 0.2\%$ of measured value

Temperature: max. 0 to +120°C

Ambient temperature: max. 60°C

Operating pressure: DOG-21...: PN 16
 DOG-22..., DOG-24...: PN 40

Span: 1 : 50 (1 mm²/s)
 1 : 70 (at 0.5 mm²/s)
 per 1 mm²/s halved by the span

Max. viscosity: 3 mm²/s sensor

Connection: cable, 2 m PVC, blue

Protection: IP 65

Materials

Case: DOG-21...: cast Iron GG25
 DOG-22...: steel St.35.8
 DOG-24...: stainless steel 1.4571

Orifice: stainless steel 1.4436

Sensing element: polyphenylene sulfide (PPS)

Sensor: hollow ball
 proximity, high temperature

Gaskets: standard: EPDM and silicone
 option: FPM, nitrile

Without electronics with pulse output

Initiator, 5-8 V_{DC}, 3 mA,
 high 5 V_{DC}, low 3 V_{DC}

Electronics

Electr. connection: conduit thread

Protection: IP 65

Display: 4-digit LCD and counter

Power supply: 230 V_{AC} -10%, +12% / 48-62 Hz

Input: sensor system DOG

Pulse outputs 1: 12 V_{DC}, max. 100 mA,
 Open Collector

Pulse outputs 2: floating contact decadic
 250 V_{AC}, max. 3 A

Analogue output: 0-20 mA or 4-20 mA,
 max. 500 Ω

Case: for surface mounting

Ambient temperature: -15 to +50°C

Permissible distance: max. 100 m to the DOG-1
 max. 1000 m to the DOG-2

Connection cable: minimum 0.5 mm²,
 screening recommended



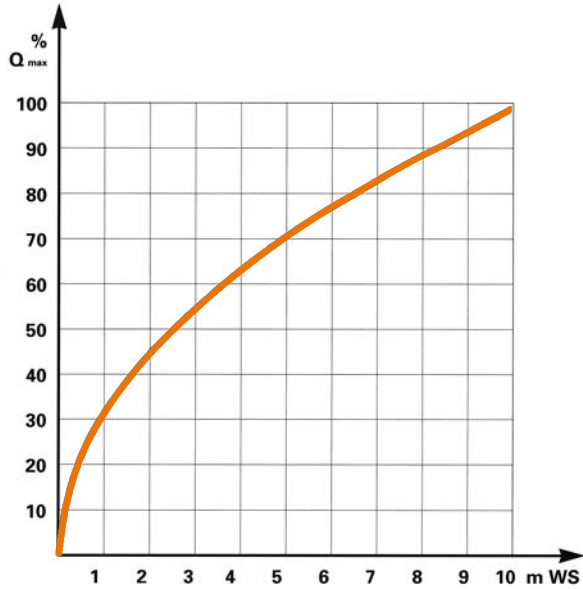
Order details (example: DOG-2101H F25N N F)

Meas. range m³/h Water	Model			Connection flange		Gasket	Evaluating electronics
	Material cast Iron	Material steel	Material st. steel	Standard PN 16 only GG, st. st.	Special PN 40 only st., st. st.		
0.075...3.75 0.13...6.6 0.2...10	DOG-2101H.. DOG-2102H.. DOG-2103H..	- - -	DOG-2201H.. DOG-2202H.. DOG-2203H..	F25N=DN25	F25S=DN25	N = Nitrile V = FPM E = EPDM (standard)	Frequency output without electronics ...F Initiator, 5-8 V _{DC} , 3 mA, high 5 V _{DC} , low 3 V _{DC}
0.08...4 0.16...8 0.3...15	- - -	DOG-2304H.. DOG-2305H.. DOG-2306H..	DOG-2204H.. DOG-2205H.. DOG-2206H..	F32N=DN32	F32S=DN32		
0.12...6 0.28...14 0.6...30	DOG-2107H.. DOG-2108H.. DOG-2109H..	- - -	DOG-2207H.. DOG-2208H.. DOG-2209H..	F40N=DN40	F40S=DN40		
0.26...13 0.56...28 0.96...48	DOG-2110H.. DOG-2111H.. DOG-2112H..	- - -	DOG-2210H.. DOG-2211H.. DOG-2212H..	F50N=DN50	F50S=DN50		
0.39...19.6 0.76...38 1.5...75	- - -	DOG-2313H.. DOG-2314H.. DOG-2315H..	DOG-2213H.. DOG-2214H.. DOG-2215H..	F65N=DN65	F65S=DN65		
0.46...23 1.32...66 2.6...130	DOG-2116H.. DOG-2117H.. DOG-2118H..	- - -	DOG-2216H.. DOG-2217H.. DOG-2218H..	F80N=DN80	F80S=DN80		
1.2...60 2...100 3.2...160	DOG-2119H.. DOG-2120H.. DOG-2121H..	- - -	DOG-2219H.. DOG-2220H.. DOG-2221H..	F1HN=DN100	F1HS=DN100		
1.4...70 2.6...130 5...250	- - -	DOG-2322H.. DOG-2323H.. DOG-2324H..	DOG-2222H.. DOG-2223H.. DOG-2224H..	F1ZN=DN125	F1ZS=DN125		
1.9...94 4...200 10...500	- - -	DOG-2325H.. DOG-2326H.. DOG-2327H..	DOG-2225H.. DOG-2226H.. DOG-2227H..	F1FN=DN150	F1FS=DN150		
3.4...170 6.8...340 19.6...980	- - -	DOG-2328H.. DOG-2329H.. DOG-2330H..	DOG-2228H.. DOG-2229H.. DOG-2230H..	F2HN=DN200	F2HS=DN200*		
5.2...260 11...550 25...1255	- - -	DOG-2331H.. DOG-2332H.. DOG-2333H..	- - -	F2FN=DN250	F2FS=DN250		
6...300 16...800 40...2000	- - -	DOG-2334H.. DOG-2335H.. DOG-2336H..	- - -	F3HN=DN300	F3HS=DN300		
8...420 19...970 50...2700	- - -	DOG-2337H.. DOG-2338H.. DOG-2339H..	- - -	F3FN=DN350	F3FS=DN350		
13...650 26...1300 70...3500	- - -	DOG-2340H.. DOG-2341H.. DOG-2342H..	- - -	F4HN=DN400	F4HS=DN400		

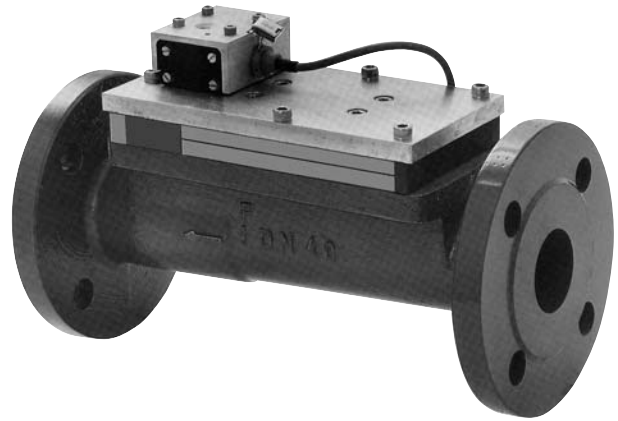
*not for DOG-22 (stainless steel)

Please state the exact operating conditions (media, flow volume, pressure, temperature, installation position etc.) when ordering.

Pressure loss/flow



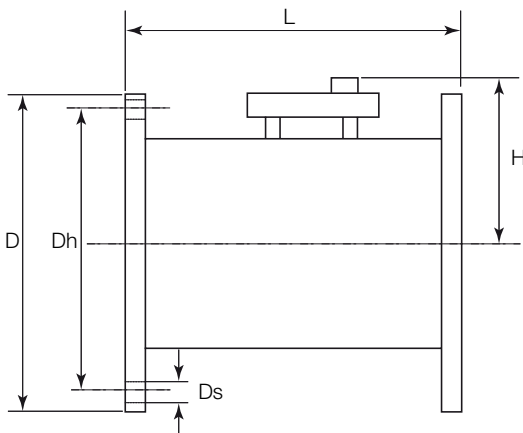
Flow meter DOG-2



Signal converter



Dimensions and weight



DN [mm]	L [mm]	D [mm]	Dh [mm]	Ds [mm]	Number of holes	H [mm]	H with AVF [mm]	Weight [kg]
25	260	115	85	14	4	110	145	10
32	260	140	100	18	4	115	150	11
40	300	150	110	18	4	120	155	12
50	270	165	125	18	4	125	160	13
65	300	185	145	18	4	135	170	14
80	300	200	160	18	8	140	175	20
100	360	220	180	18	8	180	215	23
125	300	250	210	18	8	215	250	20
150	350 or 500	285	240	22	8	235	270	26, 28
200	350	340	295	22	12	260	295	36
250	450	405	355	26	12	285	315	53
300	500	460	410	26	12	310	345	70
350	500	520	470	26	16	340	375	83
400	500	580	525	30	16	360	395	90