

Industrial Micro Oval Gear Model: MDGM2

Applications

- Universal measuring principle for liquids
- Hydraulic and high viscosity liquid
- The Oval gear measuring principle is used in a wide range of different branches of industry, chemicals, petrochemicals, oil and gas, food, and – no less importantly – in custody transfer applications. It can measure virtually all fluids: cleaning agents, latex, fuels, crude oil, vegetable oils, animal fats, solvents, silicon oils, fruit solutions, toothpaste, vinegar, alcohol, ketchup, mayonnaise



Special features

- Large indicator with totalizer and batch control
- Flow measurement up to 1000 L/h
- Process pressures up to 1000 bar
- Fluid temperature up to 250 °C
- Communication MODBUS RS485
- Gear material, aluminium, 316 L, Hastelloy C, hastelloy B, Titanium, Tantalum



Description

- | | |
|---|--|
| ■ Accuracy class | 0.5% - 0.2% of rate |
| ■ Flow unit | liter, m ³ , metric Ton or USG per second, minute or hour (the user must specify the required flow unit while ordering); also percent of the measurement range may be displayed |
| ■ Ambient Temperature | Sensor: -40 ~ 80°C, Converter: -15 ~ 50°C |
| ■ Gear materials | Aluminium, 316L, Hastelloy C, Hastelloy B, Ti, Ta, Pt/Iridium alloy, Stainless steel, painting tungsten carbide |
| ■ Chamber material | Aluminium, 316L, Hastelloy C, Hastelloy B, Ti, Ta, Pt/Iridium alloy, Stainless steel, painting tungsten carbide |
| ■ Shaft material (medium pressure) | Stainless steel 316 |
| ■ High pressure | Bear, ball - PEEK Bears |
| ■ Nominal diameter | 1/8 female to 2 inch |
| ■ Communication | Rs485 |
| ■ Output signal | 4 - 20 mA, Pulse or alarm (option) |
| ■ Frequency output | 1...5000 Hz, 36 VDC max. & 250 mA max. |
| ■ Pulse Output Eq. Wt. | 0.001~1.000 m ³ /p, 0.001~1.000 l/p, 0.001~1.000 US gal/p, 0.001~1.000 Ton/p |
| ■ Max. Pulse Output | 40000 P/L |
| ■ Pulse Output Width | Can be set by the user |
| ■ Alarm Outputs | High & Low limits, Transistor output, maximum 250 mA @ 36 VDC
When high and low limits are reached a bell-like icon will be displayed on the |
| ■ LCD display | Large LED with batch control, Alarm display |

MDGM2 Series

Designed from DN 1/2 inch to 2 inch in size with a flow range of 150ml/min to 1000 L/min, these meters are factory-configured and calibrated to international standards to provide the user with assurance of both quality and performance of the meter. A calibration certificate is included with each flowmeter shipped to the users.

Pressure Class Selection

Code	Pressure Class	Code	Pressure Class	Code	Pressure Class
P2	2 MPa	P8	10 MPa	P14	60 MPa
P4	3 MPa	P10	16 MPa	P16	100 MPa
P6	6 MPa	P12	25 MPa	Cu	Customer

Diameter selection

Model	Connection	Rated Pressure (Bar)	Minimum / Maximum (Flow)
M1	G 1/8	32	1...200ml/min
M2	G 1/8	32	3...300, 1...400 ml/min
M3	G 1/8	32	2...800, 5...800ml/min
M4	G 1/8-1/4	32	0.5...100L/h
M5	G 1/4	32	6...600L/h
M6	G 1/2	32	0.3...30L/min
M7	G 1	32	0.5...100L/min
M8	G 1 1/2	32	1...250L/min
M9	G 2	32	1...500L/min
M10	G 2 1/2	32	2...1000L/min



MDGM2 Oval Gear Flow Meter

ORDERING CODE	Example:	MDGM 2	M6	F	D	L	B1	L	A	U	N	D	I	T1	P8	N
Nominal Diameter	please see the diameter selection table															
Please specify	M6															
Process Connection																
F - Flange	F															
S - Sanitary																
W - Screw																
O - Other																
Flang Type																
D - DIN Please specify PN	40															
A - ASME Please specify class																
C - Customer																
Converter - Indicator																
L - Local indication	L															
W - Wall - Mounting box converter - Indicator																
Body Material																
B1 - Aluminium	B1															
B2 - 316 Stainless steel																
C - Customer																
Gear Material																
A - Aluminium																
L - 316L Stainless steel																
H - Hastelloy C																
B - Hastelloy B																
T - Titanium	L															
M - Monel																
P - Pt / Iridium alloy																
O - Other																
Accuracy																
A - 0.5%	A															
B - 0.3%																
C - 0.2%																
Out Put																
N - Not required																
U - 4 ~ 20 mA. Frequency / pulse	U															
M - Modbus RS485																
Shaft material																
A - Aluminium	N															
S - Stainless Steel 304																
T - Stainless Steel 316																
H - Hastaloy																
B - Bear, ball																
P - PEEK Bears																
Power Supply																
A - 85 ~ 250 VAC																
D - 20 ~ 36 VDC	D															
B - Battery power																
Z - Dual power (battery and 24 VDC)																
Protection Grade																
I - IP 54	I															
P - IP 65																
E - IP 68 Explosion - proof																
Temperature Rating																
T1 - (-20...80°C)	T1															
T2 - (-20...120°C)																
T3 - (-20...150°C)																
T4 - (-50...250°C)																
Pressure Rating please see the Pressure Class Selection																
Please specify	P8															
Infrared Remote Control																
N - Not required	N															
R - Required																



■ PLEASE SUPPLY THE FOLLOWING INFORMATION WHEN YOU INQUIRE.

(Fill in the form below to the extent possible. Further details will be finalized in later consultation.)

- Fill in the blanks. Tick the boxes ☐ that apply.

1. Sensor unit			
2. Process fluid (※1)	Name: _____	SP. gr : _____	Viscosity : _____ Concentration : _____ %
3. Flow range	Maximum _____	Normal _____	Full scale _____ ☐ kg/h ☐ Others _____
4. Fluid temperature	Maximum _____ °C	Normal _____ °C	Min. _____ °C
5. Operating pressure	Maximum _____ MPa	Normal _____ MPa	Min. _____ MPa
6. Ambient temperature	Maximum _____ °C	Min. _____ °C	
7. Fluid flow direction	☐ Left→Right ☐ Right→Left ☐ Bottom→Top (☐ Top →Bottom) Orientation: See sketch on page 23.		
8. Nominal size	_____ mm or _____ inch		
9. Required accuracy	± _____ % of reading ± _____ % of full scale		
10. Process connection	☐ Flanged connection (Flange rating) ☐ Ferrule connection ☐ Screw connection		
11. Explosionproof	☐ Not required ☐ TIIS ☐ ATEX ☐ IECEx ☐ KCs ☐ CSA ☐ EAC ☐ NEPSI ☐ ITRI		
12. Power supply	☐ V ☐ AC ☐ DC		
13. Output specifications	Pulse output	☐ Volt. pulse: [0]: 1.5V [1]: 13VDC min. Out. impedance: 2.2kΩ ☐ Open drain output (equivalent to open collector output) [Min.10V to Maximum 30V, 50mADC, ON resistance 0.6Ω or less] ☐ Output frequency: Any point from 0.1 to 10000Hz at full scale Two outputs from flow rate (mass or volume).	
		Analog output 4 to 20mADC Maximum load: 500Ω 2 outputs from instant. flow rate (mass, volume), temp. or density (option)	
		Additional damping 0 to 200s. (variable)	
		Alarm output Slug flow High _____ g/mL Low _____ g/mL	
	14. Communication protocol	☐ HART ☐ FOUNDATION fieldbus ☐ PROFIBUS ☐ Modbus (Address: _____)	
		15. Transmission length Sensor unit (_____) m Transmitter (_____) m Receiving instrument	
16. Receiver	☐ Totalizer ☐ Indicator ☐ Recorder ☐ Flow controller ☐ Batch controller ☐ Density computer ☐ Computer ☐ Others		
17. Dedicated cable length	In case of Remote-mount type _____ m		
18. In case of separate type transmitter	☐ Stanchion type w/bracket and 2" U bolt		
19. No. of units required			
20. Application			
21. Other considerations			
22. Cable gland	☐ Standard ☐ ATEX directive compliant ☐ ATEX directive compliant for earthed cable		
23. Maritime certification			



Address: 7191 Yonge street, Toronto, Canada

Tel: +16472221281(5 line)

Web: www.madecotech.com

Email: Info@madecotech.com