

## Vortex Flow Meter Model: MDVF1

### Applications

- Universal measuring principle for liquids and gases
- Measurement of (non-)conductive liquids, gases, saturated and superheated steam Gross/net heat metering of steam and hot water
- Measurement of consumption of industrial gases (natural gas, nitrogen etc.)  
Measurement of consumption in compressed air systems  
Chemical and other process industries  
Food and beverage industry  
Cooling circuits, Compressed air, Inert gases, Oxygen  
Natural gas, Steam  
Hydrocarbons, thermal oils etc. Solvents, Desalinated water, Gases, welding gases, steam, Petrochemical products (benzene, ethylene, etc.)

### Special features

- Flow measurement up to 11000 m<sup>3</sup>/h gas, 2000m<sup>3</sup>/h liquid
- Process pressures up to 350 bar
- Fluid temperature up to 350°C
- Communication HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, MODBUS RS485
- Sensor materials, 316 L, Hastelloy C  
hastelloy B, Titanium, Tantalum

### Description

- |                               |  |
|-------------------------------|--|
| ■ <b>Accuracy class</b>       | 1.5% or 1% of rate   |
| ■ <b>Flow unite</b>           | liter, m <sup>3</sup> , 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 could be displayed |
| ■ <b>Ambient Temperature</b>  | Sensor: -20 ~ 80°C, Converter: -15 ~ 50°C  |
| ■ <b>Electrode materials</b>  | 316L, Hastelloy C, Hastelloy B, Ti, Ta, Pt/Iridium alloy,<br>Stainless steel, painting tungsten carbide  |
| ■ <b>Nominal diameter</b>     | DN 15 mm to DN 300 mm  |
| ■ <b>Communication</b>        | Rs485 (Modbus protocol), HART, PROFIBUS DP/PA,<br>FOUNDATION Fieldbus, MODBUS Rs485  |
| ■ <b>Output signal</b>        | 4 - 20 mA, Pulse or alarm (option)   |
| ■ <b>Frequency output</b>     | 1...5000 Hz, 36 VDC max. & 250 mA max.   |
| ■ <b>Pulse Output Eq. Wt.</b> | 0.001~1.000 m <sup>3</sup> /p, 0.001~1.000 l/p, 0.001~1.000 US gal/p, 0.001~1.000 Ton/p  |
| ■ <b>Pulse Output</b>         | 100 p/s max., 36 VDC & 250 mA max.   |
| ■ <b>Pulse Output Width</b>   | Can be set by the user   |
| ■ <b>Alarm Outputs</b>        | High & Low limits, Transistor output, maximum 250 mA @ 36 VDC<br>When high and low limits are reached a bell-like icon will be displayed on the display                                      |
| ■ <b>Load resistance</b>      | 4 - 20 mA, 0 - 500Ω  |



## MDVF1 Series

Designed from DN 15 mm to 300 mm in size with a flow range of 5 m<sup>3</sup>/h to 11000m<sup>3</sup>/h gas and 1.2m<sup>3</sup>/h to 2000 m<sup>3</sup>/h liquid 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	16 MPa	P14	30 MPa
P4	4 MPa	P10	20 MPa	P16	35 MPa
P6	6 MPa	P12	25 MPa	Cu	Customer

## Diameter selection

Model	Connection		Rated Pressure (Bar)	Minimum / Maximum (Flow)	
	(mm)	(inch)		Liquid (m <sup>3</sup> /h)	Gas (m <sup>3</sup> /h)
M1	15	1/2	1	1.2...6.2	5...25
M2	20	3/4	1	1.5...10	8...50
M3	25	1	1	1.6...16	10...70
M4	40	1 1/2	1	2.5...26	22...220
M5	50	2	1	3.5...38	36...320
M6	65	2 1/2	1	6.2...65	50...480
M7	80	3	1	10...100	70...640
M8	100	4	1	15...150	130...1100
M9	125	5	1	25...250	200...1700
M10	150	6	1	36...380	280...2200
M11	200	8	1	62...650	580...5000
M12	250	10	1	140...1400	970...8000
M13	300	12	1	200...2000	1380...11000
C	Customer range consult the factory if you have special requirement				



## MDVF 1 Vortex Flow meter

ORDERING CODE	Example: MDVF 1	M6	S	F	150	L	B2	A	B	N	M	D	I
Nominal Diameter please see the diameter selection table													
Please specify		M6											
Flow Range													
S - Standard			S										
E - Extended													
C - Customer													
Process Connection													
F - Flange				F									
S - Sanitary													
T - Thread													
W - Wafer													
O - Other													
Flang Type													
D - DIN Please specify PN													
A - ASME Please specify class					150								
C - Customer													
Converter - Indicator													
L - Local indication						L							
W - Wall - Mounting box converter - Indicator													
Body Material													
B1 - Carbon steel													
B2 - 304 Stainless steel							B2						
B3 - 316 Stainless steel													
Wet Part Material													
L - 316L Stainless steel													
H - Hastelloy C								L					
B - Hastelloy B													
T - Titanium													
L - Tantalum													
M - Monel													
P - Pt / Iridium alloy													
O - Other													
Accuracy													
A - 1% for liquid													
B - 1.5% for liquid									B				
C - 1.5% for gas and steam													
Out Put													
N - Not required only totalizer										N			
U - 4 ~ 20 mA. Frequency / pulse													
I - 4 ~ 20 mA, pulse, EXIICT4													
M - Modbus RS485													
P - Pulse with EX case													
C - Customer													
Digital Communication													
N - No Communication													
M - Modbus RS485											M		
H - Hart													
F - Foundation fieldbus													
P - Profibus DP/PA													
G - GPRS													
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 65													I
P - IP 68													
E - IP 68 Explosion - proof													





ORDERING CODE	Example: MDVF1	T1	N	L
<b>Temperature Rating</b>				
T1 - (-20...100°C)		T1		
T2 - (-20...250°C)				
T3 - (-20...350°C)				
<b>Temperature &amp; Pressure Compensation</b>				
N - Non			N	
W - with				
<b>Fluid</b>				
L - Liquid				L
G - Gas				
S - Steam				

### ■ 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.

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





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