

## Flow measurement

### Flowmeter MDH 500

#### description

- industrial inductive flow meter with display unit for food industry
- innovative and compact connection head design
- measurement of different liquids in a variety of sectors
- various process connections
- high measurement accuracy and repeatability
- very simple and intuitive operation with control keys
- possibility of flow monitoring function
- 350° swivel display for comfortable reading
- a wide range of outputs for different control systems



MDH 500...

#### technical specifications

power supply	230 VAC (50/60 Hz), 24 VAC/VDC with polarity reversal protection, 110VAC (60Hz) on request
input power	4,6 VA
technical versions	compact design , remote version with cable maximum cable length 20m with separate execution (other lengths on request)
temperature medium	compact design                      rubber (hard) max. 80°C continuously PTFE max. 90°C continuously, CIP cleaning process possible separate execution                    rubber (hard) max. 80°C continuously PTFE max. 150°C continuously PFA max. 130°C continuously (DN300...DN400) on request
diameter	DN 10 ...DN 400 (other diameters on request)
lining material	rubber (hard), rubber approved for potable water or PTFE or PFA (see Table 3)
electrode material	CrNi-stainless steel DIN 1.4571, Hastelloy C4, titanium, tantalum
sensor housing material	stainless steel
housing material	steel painted or stainless steel
process connections	flange stainless steel 1.4306/304 L, 1.4404/316 L food process connections dairy pipe, clamp: stainless steel
pressure	PN10, PN16, PN25, PN40
min. conductivity of the measured fluid	20 µS (at a lower conductivity, upon agreement with promesstec GmbH)
measuring range (Qmin/Qmax)	bidirectionally for 0,2 to 12 m/s (1/60); 0,12 to 12 m/s (1/100); 0,06 to 12 m/s (1/200)
accuracy	accuracy up to 0,5%, repeatability up to 0,2%
pressure loss	negligible
additional electrodes	grounding and detection electrodes for empty piping (DN 15 ÷ DN 400)
empty piping detection	DN 15 ÷ DN 400
display unit	LCD 2 x 16 characters
control	2 x external button (viewing values) 3 x internal button (viewing+parameter changing)
outputs	impulse/flow switch (max. 400 Hz), 4 ÷ 20 mA, RS485 (M-BUS/Mod-Bus protocol) (impulse and current outputs are passive with a possibility of being powered from internal power supply of the meter)
ambient temperature	0 ° C ... + 55 ° C (connection head, electronics), others on request
flow sensor protection	IP65, IP67, IP68
electronics (connection head)	IP67, stainless steel version IP68 with M12-connector

#### typical application areas

- water and wastewater industry,
- agriculture, biogas plants
- food industry, dairies, breweries
- pharmaceutical industry

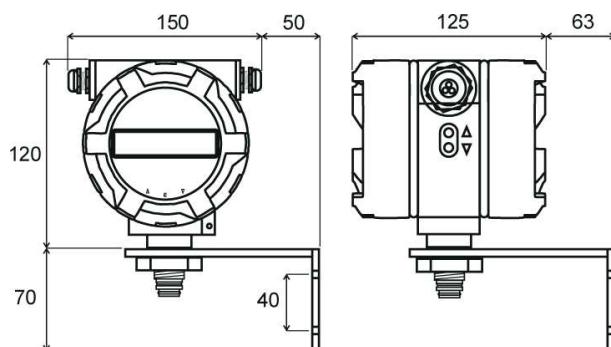
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instantaneous flow rate corresponding to flow velocity (table 1)

diameter nominal (mm)	Qmin (m3/h) Qmin /Qmax			Qmax(m3/h) – (12 m/s)
	1/60 (0.2 m/s)	1/100 (0.12 m/s)	1/200 (0.06 m/s)	
DN 6	upon request			
DN 8	upon request			
DN 10	0,06	0,034	-	3,4
DN 15	0,13	0,076	-	7,6
DN 20	0,24	0,142	-	14,2
DN 25	0,35	0,21	0,105	21
DN 32	0,6	0,34	0,17	34
DN 40	0,9	0,54	0,27	54
DN 50	1,4	0,84	0,42	84
DN 65	2,4	1,44	0,72	144
DN 80	3,6	2,2	1,1	220
DN 100	5,6	3,4	1,7	340
DN 125	8,9	5,34	2,67	534
DN 150	13	7,6	3,8	760
DN 200	23	13,5	6,75	1350
DN 250	35	21,1	-	2115
DN 300	51	30	-	3050
DN 350	70	41	-	4150
DN 400	90	54	-	5426

dimensions connection head (mm)



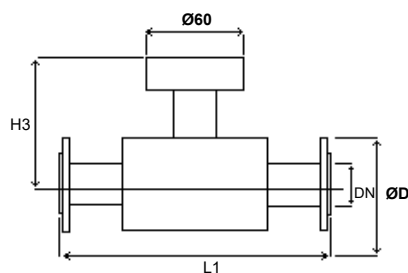
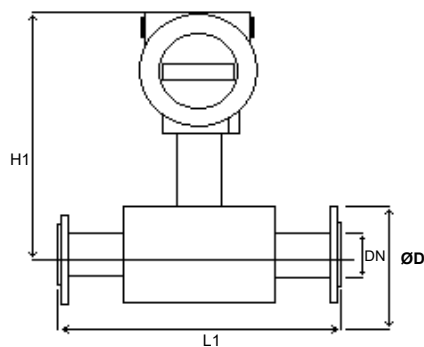
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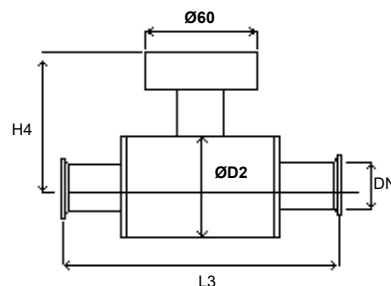
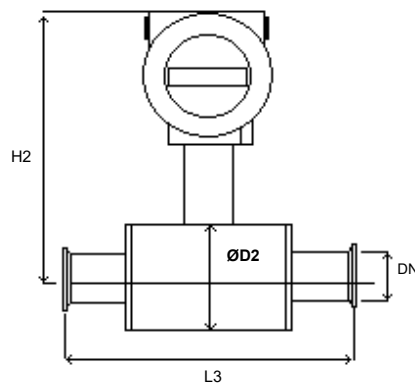
### dimensions (table 2)

connection (mm)	constructional length (mm)			outside diameter (mm)		total height (mm)			
	flange	milk pipe	clamp	flange	sensor body	compact design		separated design	
				flange	milk pipe/ clamp	flange	milk pipe/ clamp	flange	milk pipe/ clamp
DN	L1	L3	L3	D	D2	H1	H2	H3	H4
6	u. r.								
8	u. r.								
10	-	179	189	-	-	173	-	86	-
15	200	172	182	95	70	173	177	86	90
20	200	176	182	105	80	173	182	86	95
25	200	186	182	115	90	178	187	91	100
32	200	197	189	135	100	183	192	96	105
40	200	220	210	145	116	188	200	101	113
50	200	231	217	160	136	196	210	109	123
65	200	u. r.	u. r.	180	151	206	218	119	131
80	200	u. r.	u. r.	195	177	213	231	126	144
100	250	-	-	215	-	226	-	139	-
125	250	-	-	245	-	239	-	152	-
150	300	-	-	280	-	254	-	167	-
200	350	-	-	335	-	284	-	197	-
250	450	-	-	405	-	327/-	-	240/-	-
300	500	-	-	440	-	352/-	-	265/-	-
350	550	-	-	500	-	382/-	-	295/-	-
400	600	-	-	565	-	412/-	-	325/-	-

flange version



dairy coupling DIN11851/ clamp DIN32676



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#### diameter and linings (others on request) (table 3)

connection (mm)	flange		milk pipe DIN11851		clamp DIN32676	
	rubber (hard)	PTFE	rubber (hard)	PTFE	rubber (hard)	PTFE
<b>DN</b>						
6	upon request					
8	upon request					
10	-	-	-	-	-	-
15	-	X	-	X	-	X
20	-	X	-	X	-	X
25	X	X	-	X	-	X
32	X	X	-	X	-	X
40	X	X	-	X	-	X
50	X	X	-	X	-	x
65	X	X	-	X	-	x
80	X	X	-	X	-	x
100	X	X	-	-	-	-
125	X	X	-	-	-	-
150	X	X	-	-	-	-
200	X	X	-	-	-	-
250	X	-	-	-	-	-
300	X	-	-	-	-	-
350	X	-	-	-	-	-
400	X	-	-	-	-	-

#### explanation

.....: the standard is not possible, please inquire  
 X .....: design possible

#### pressure levels and diameters (table 4)

pressure level	diameter
PN10	DN350....DN400, others on request
PN16	DN250...DN300, others on request
PN25	DN10...DN200, others on request
PN40	on request
special solutions	on request

## Flow measurement

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order code MDH 500...

order example: MDH 500-80-DN25-B11-C3-D4-E1-F1-G2-H1-I1

### connection heads

- 80 compact design, electronic and display panel in the head
- 8503 decentralised version with 3 m cable between evaluation and transducer
- 8505 decentralised version with 5 m cable between evaluation and transducer
- 8510 decentralised version with 10 m cable between evaluation and transducer
- 8515 decentralised version with 15 m cable between evaluation and transducer
- 8520 decentralised version with 20 m cable between evaluation and transducer

### diameter

-DN XX DN10...400 possible for example DN25 = diameter 25 mm = 1" (possibilities see table 2)

### process connection

- B11 flange stainless steel 1.4306/304 L
- B12 flange stainless steel 1.4404/316 L
- B40 dairy coupling DIN 11851
- B50 clamp DIN32676

### transducer pressure area

- C1 PN10
- C2 PN16
- C3 PN25
- C4 PN40

### sensor lining (table 3)

- D1 hard rubber
- D3 rubber potable water approved (material)
- D4 PTFE
- D5 PFA

### material electrodes

- E1 stainless steel 316Ti
- E2 hastelloy C4
- E3 titan
- E4 tantalum

### sensor protection category

- F1 protection category IP65
- F2 protection category IP67
- F3 protection category IP68
- F30 protection category IP68 with stainless steel head

### output signal

- G2 4...20 mA, pulse, switching contact
- G4 4...20 mA, pulse, switching contact, RS485 MOD-Bus RTU and M-Bus protocol can be parameterized

### power supply

- H1 230 VAC (not possible with stainless steel head)
- H2 24 VAC/VDC

### measuring range (information see table)

- I1 1/60 (standard version)
- I2 1/100
- I3 1/200