



Küppers Elektromechanik GmbH
Flow Meters

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HM ... RV Turbine Flow Meters

HM...RV turbines are suitable for the precise flow measurement of fluid food and pharmaceutical products in filling systems.

Special features are dairy connections as per DIN 11851 and a construction which excludes dead spots facilitating complete sterilisation.



with local display type VTM

with VTEK/P pickup

Design and Principle

A light-weight turbinewheel is carried concentrically in the tube body. The fluid laminated by flow rectifiers rotates the wheel streaming against its axial direction. The r.p.m. of the turbinewheel is in proportion to the average flow velocity within the tube diameter and corresponds to the volume flow over a wide range.

The flow meters are equipped with pickups which will detect the r.p.m. of the turbinewheel without coming into contact with the measuring medium. The output signal of the pickup is amplified and converted to a flow-proportional pulse- or analogue signal (please also refer to separate pickup and amplifier datasheets). As an advantage over other measuring methods, turbine flow meters excel in short response times of 5–50 msec and providing an output signal with high resolution.

Technical Data

Type	Meas. range ltr./min	K-factor pulses/litre ¹⁾	Frequency 0–max. Hz
HM 3/15 RV	0.3 bis 1.5	32,000	1,000
	0.5 bis 4	24,000 19,000 ²⁾	1,250
HM 5/15 RV	0.8 bis 6	17,800 17,800	1,740
	1.2 bis 10	11,000 11,000	1,750
HM 7/15 RV	2 bis 20	5,200 5,200	1,800
HM 9/15 RV	3.3 bis 33	1,900 4,200	1,080
HM 9/25 RV	3.3 bis 33	1,900 4,200	1,080
HM 11/25 RV	6 bis 60	1,300 2,750	1,350
HM 13/25 RV	8.5 bis 85	900 1,900	1,300
HM 17/25 RV	12 bis 120	380 840	800
HM 19/25 RV	15 bis 150	310 650	925
HM 24/40 RV	25 bis 250	170 362	800
HM 30/40 RV	35 bis 400	130 270	860
HM 36/50 RV	40 bis 500	60 135	600
HM 40/65 RV	50 bis 750	105 110	1,400
HM 50/65 RV	70 bis 1,200	65	1,400
HM 65/80 RV	100 bis 2,000	25	850

1) average values

2) different wheel construction for higher viscosities will double pulse rates.

linearity: ±0.3% to ±1% of actual flow

repeatability: 0.1% up to 0.2%

calibration viscosity: 0.1 up to 75 mm²/s according to nominal diameter

fluid temperature: -55 up to +350 °C (cf. »Pickups and Amplifiers«, page 3)

max. operating pressure: PN 40 for dia 15 to 40 mm

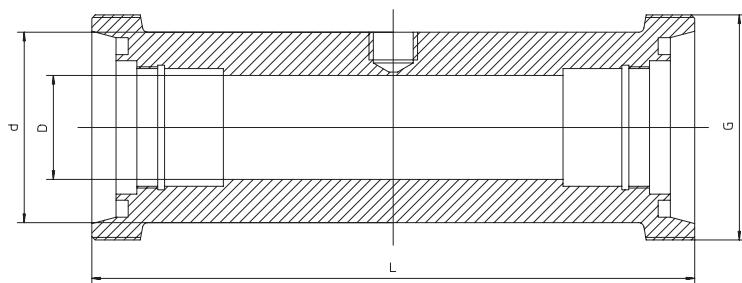
PN 25 for dia 50 to 80 mm

Materials (stainless steel as per DIN)

	<i>standard versions</i>	<i>special versions</i>
housing:	1.4571 = AISI 316 Ti	1.4571 = AISI 316 Ti
internal parts:	1.4305 = AISI 303	1.4571 = AISI 316 Ti
wheel:	1.4122 ≈ AISI 303	1.4460 = AISI 329
shaft:	1.4310 = AISI 301 or tungsten carbide	1.4310 = AISI 301 or tungsten carbide
bearing bushes*:	tungsten carbide or teflon	tungsten carbide or teflon, lateral bores in bearing mounts

* ceramic bearings available for special requirements

Dimensions (mm)



Type	Tube	L	D	d	G
HM 3/15 RV	15	90	4	28	Rd 34 x 1/8"
HM 5/15 RV	15	90	5	28	Rd 34 x 1/8"
HM 7/15 RV	15	90	7	28	Rd 34 x 1/8"
HM 9/15 RV	15	90	9	28	Rd 34 x 1/8"
HM 9/25 RV	25	150	9	45	Rd 52 x 1/6"
HM 11/25 RV	25	150	11	45	Rd 52 x 1/6"
HM 13/25 RV	25	150	13	45	Rd 52 x 1/6"
HM 17/25 RV	25	150	17	45	Rd 52 x 1/6"
HM 19/25 RV	25	150	19	45	Rd 52 x 1/6"
HM 24/40 RV	40	174	24	55	Rd 65 x 1/6"
HM 30/40 RV	40	174	30	55	Rd 65 x 1/6"
HM 36/50 RV	50	195	36	68	Rd 78 x 1/6"
HM 40/65 RV	65	227	40	79	Rd 95 x 1/6"
HM 50/65 RV	65	227	50	79	Rd 95 x 1/6"
HM 65/80 RV	80	294	65	95	Rd 110x 1/4"

Further models on request.

Pickups and Amplifiers

- VTE*/P Carrier-frequency pickup and amplifier
for fluid temperatures up to +150°C and ambient temperatures up to +50°C
- VTM* Local display unit with integral pickup and amplifier as well as analogue output
for fluid temperatures up to +150°C and ambient temperatures up to +50°C
- IF* and VIEG separated inductive pickup and amplifier
for fluid temperatures up to +350°C

* For details please refer to separate datasheets.

