

DESCRIPTION

The RNG Series meter is an insertion-style vortex shedding flow meter designed for accurate measurements over an extremely large flow range. The meters have no moving parts and are virtually maintenance-free. The RNG Series is suitable for most gas types, including air, natural gas, digester gas and BioGas applications. All meters are loop-powered devices with standard HART® communications for ease of field programming and system integration.

APPLICATION

- Flare gas
- Stack gas
- Natural gas
- Digester gas (BioGas: CH₄ + CO₂)
- Air

FEATURES

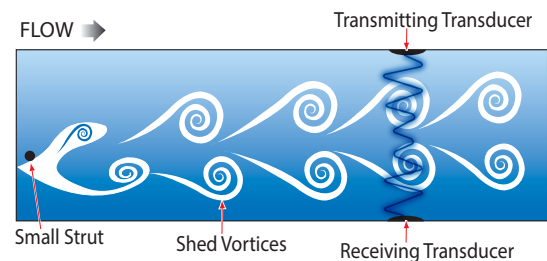
- Not sensitive to gas composition changes
- High accuracy in wet gas applications
- 70:1 turndown ratio
- HART communications protocol

OPERATION

An everyday example of a vortex shedding phenomenon is a flag waving in the breeze: the flag waves due to the vortices shed by air moving across the flagpole. Within the flow meter, as flowing gas moves across the tiny strut or “bluff bar”, vortices are shed on a smaller scale. The meter transmits an ultrasonic beam through the vortex pattern downstream of the strut. As vortices are shed, the carrier wave of the ultrasonic signal is modified. This change in the carrier wave is measurable and moves in proportion to the number of vortices shed. Digital processing enables the vortices to be counted, and this value is converted into a velocity. Software converts the velocity into a volumetric flow rate, in units of measure selected by the operator.

Vortex flow meters use the smallest strut in the industry, that allows for high sensitivity, superior performance at very low flow rates, large turndown ratios and low pressure drop.

Through the use of an internal RTD and an optional external pressure sensor, the flow meter software compensates for changes in pressure and temperature, to achieve an accurate mass flow measurement.



PRESSURE DROP

All pressure drop data is for air at 14.7 psig and 60° F (0 barg and 16° C).

Pipe Size	Inches H ₂ O	kPa
3 in. (76.2 mm)	1	0.25
4 in. (101.6 mm)	0.7	0.17
6 in. (152.4 mm)	0.6	0.15
8 in. (203.2 mm)	0.4	0.1
10 in. (254 mm)	0.2	0.05
12 in. (304.8 mm)	0.1	0.03

OPTIONS

- 2-line, 8-digit rate/totalizer display
- Integral RTD temperature compensation for mass flow measurement
- Remote mount electronics

FLOW RANGES

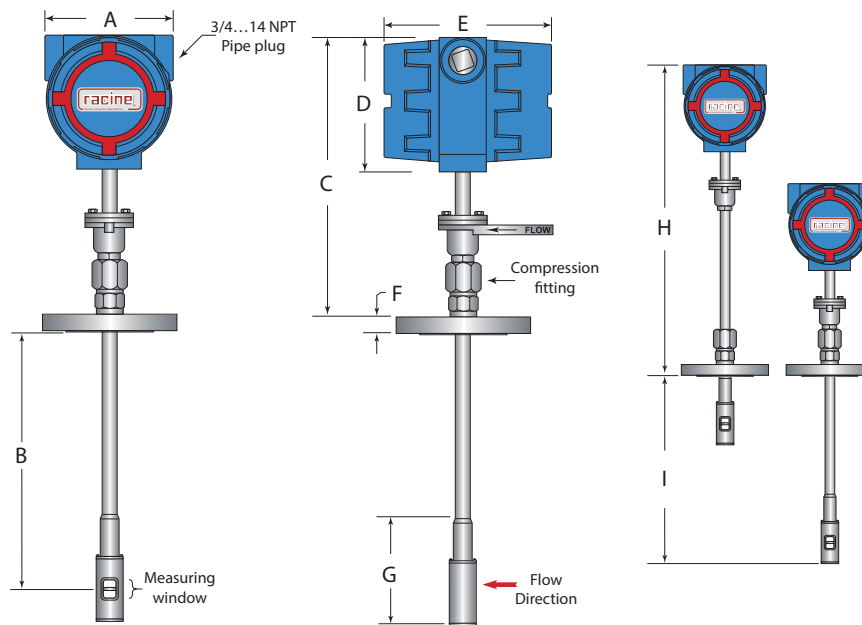
Pipe Size in. (mm)	0 psig (0 barg)		25 psig (1.7 barg)		50 psig (3.4 barg)		75 psig (5.2 barg)		100 psig (6.9 barg)		125 psig (8.6 barg)		150 psig (10.3 barg)		200 psig (13.8 barg)		250 psig (17.2 barg)	
	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)	Min. SCFM (Nm ³ /hr)	Max. SCFM (Nm ³ /hr)
3 (76.2)	6 (9)	412 (663)	15 (26)	1054 (1791)	25 (42)	1717 (2918)	34 (58)	2381 (4046)	44 (74)	3045 (5174)	53 (90)	3708 (6301)	62 (106)	4208 (7151)	81 (138)	4208 (7151)	100 (171)	4208 (7151)
4 (101.6)	10 (17)	694 (1178)	27 (45)	1873 (3183)	44 (74)	3053 (5188)	60 (103)	4233 (7193)	77 (131)	5413 (9197)	94 (160)	6593 (11202)	111 (189)	7482 (12713)	145 (246)	7482 (12713)	178 (303)	7482 (12713)
6 (152.4)	22 (38)	1560 (2652)	60 (102)	4215 (7162)	98 (167)	6870 (11673)	136 (231)	9524 (16184)	174 (296)	12179 (20694)	212 (360)	14833 (25205)	250 (425)	16834 (28604)	326 (553)	16834 (28604)	402 (682)	16834 (28604)
8 (203.2)	40 (67)	2774 (4714)	107 (182)	7493 (12733)	174 (296)	12213 (20752)	242 (411)	16932 (28771)	309 (526)	21651 (36790)	377 (640)	26370 (44809)	444 (755)	29927 (50851)	579 (984)	29927 (50851)	714 (1213)	29927 (50851)
10 (254)	62 (105)	4335 (7365)	167 (284)	11708 (19895)	273 (463)	19082 (32425)	378 (642)	26456 (44954)	483 (821)	33830 (57484)	589 (1000)	41204 (70014)	694 (1179)	46760 (79455)	905 (1537)	46760 (79455)	1115 (1895)	46760 (79455)
12 (304.8)	89 (152)	6242 (10606)	241 (409)	16860 (28649)	393 (667)	27479 (46692)	544 (925)	38097 (64734)	596 (1183)	48715 (82777)	848 (1440)	59334 (100820)	999 (1698)	67335 (114415)	1303 (2214)	67335 (114415)	1606 (2729)	67335 (114415)

Based on air, 60° F (16° C)

SPECIFICATIONS

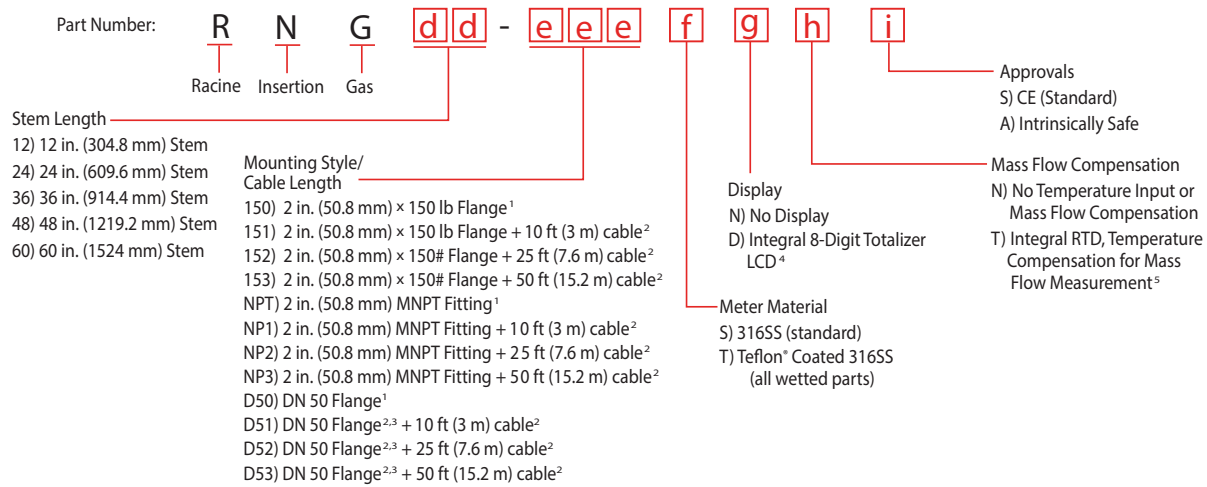
Measured Fluids	Gas/Air	
Velocity Range	2...140 FPS (0.6...43 MPS)	
Accuracy	±1% of reading over the upper 90% of the flow range	
Repeatability	0.5% of reading	
Construction	Stainless steel wetted parts with Teflon® transducers, Viton® O-rings	
	Standard	2 in. (50.8 mm) 150 lb ANSI flange
		2 in. (50.8 mm) MNPT coupling
		DN 50 metric flange
Environment	Operating Temp.	-20...300° F (-28...150° C)
	Ambient Temp.	-20...155° F (-28...68° C)
	Operating Pressure	-5...250 psig (-0.34...17.2 barg)
	Humidity	Up to 95%, non-condensing
Input Power	24V DC	
Signal Output	2-wire, 4...20 mA loop	
Communications	HART® Protocol (via PC with HART modem)	
Certifications	CE: EN61326-1:2002 Optional Intrinsically Safe conforms to: Class I, Zone 1, Group IIB; AEx ib IIB T4 (USA); Ex ib IIB T4 (Canada); ATEX II 2 G Ex ib IIB T4 Gb (Ta -40...80° C)	

DIMENSIONS



Model	A	B	C (at max. insertion)	D	E	F	G	H (fully retracted)	I (fully inserted)
RNG12	4.5 in. (114.3 mm)	12 in. (304.8 mm)	13.3 in. (337.8 mm)	4.8 in. (121.9 mm)	5.5 in. (139.7 mm)	0.75 in. (19.1 mm)	4.5 in. (114.3 mm)	22.2 in. (563.9 mm)	13.2 in. (335.3 mm)
RNG24	4.5 in. (114.3 mm)	24 in. (609.6 mm)	13.3 in. (337.8 mm)	4.8 in. (121.9 mm)	5.5 in. (139.7 mm)	0.75 in. (19.1 mm)	4.5 in. (114.3 mm)	34.2 in. (868.7 mm)	25.2 in. (640.1 mm)
RNG36	4.5 in. (114.3 mm)	36 in. (914.4 mm)	13.3 in. (337.8 mm)	4.8 in. (121.9 mm)	5.5 in. (139.7 mm)	0.75 in. (19.1 mm)	4.5 in. (114.3 mm)	46.2 in. (1173.5 mm)	37.2 in. (944.9 mm)
RNG48	4.5 in. (114.3 mm)	48 in. (1219.2 mm)	13.3 in. (337.8 mm)	4.8 in. (121.9 mm)	5.5 in. (139.7 mm)	0.75 in. (19.1 mm)	4.5 in. (114.3 mm)	58.2 in. (1478.3 mm)	49.2 in. (1249.7 mm)
RNG60	4.5 in. (114.3 mm)	60 in. (1524 mm)	13.3 in. (337.8 mm)	4.8 in. (121.9 mm)	5.5 in. (139.7 mm)	0.75 in. (19.1 mm)	4.5 in. (114.3 mm)	70.2 in. (1783.1 mm)	61.2 in. (1554.5 mm)

PART NUMBER CONSTRUCTION



¹ Integral mount transmitter

² Remote mount transmitter (Not available with Intrinsically Safe version)

³ Flange to DIN 2527 specifications

⁴ Not available with Intrinsically Safe version

⁵ Pressure compensation requires external pressure sensor

All meters include 4...20 mA output and HART[®] Communication Protocol.

Control. Manage. Optimize.

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