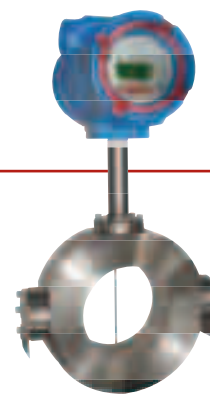


# RWG & RWBG Series Wafer-Style Gas Flow Meter

The RWG and RWBG Series meters are wafer-style in-line flow meters designed to offer high accuracy measurements with extremely low pressure drop. The meters have no moving parts and are virtually maintenance-free once installed. The RWG series is suitable for most gas types. The RWBG series is similar in construction but optimized for low-pressure “wet gas” or “BioGas” applications, typically CH<sub>4</sub> + CO<sub>2</sub> mixtures. All meters in these series are loop-powered devices with standard HART® communications for ease of field programming and system integration.

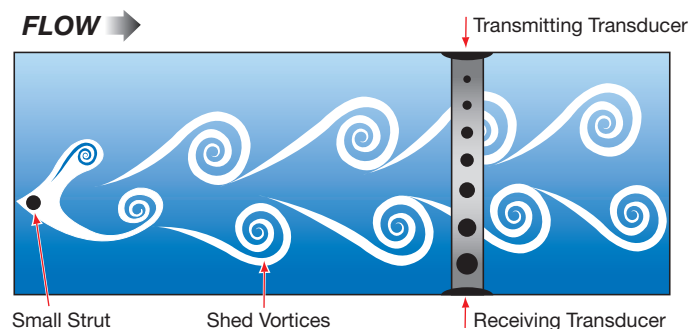


## Operating Principle

An everyday example of a vortex shedding phenomenon is a flag waving in the breeze: the flag waves due to the vortices shed by wind moving across the flagpole. Within the flow meter, as flowing gas moves across the tiny strut or “bluff bar”, vortices are also shed but 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 velocity into a volumetric flow rate, in units of measure selected by the operator.

Racine Vortex flow meters utilize the smallest strut in the industry, which allows for high levels of sensitivity; superior performance at very low flow rates; high turndown ratios; and low pressure drop.

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



## Specifications

<b>Measured:</b>	Gas/Air
<b>Flow Ranges:</b>	0.4 to 16 through 20-600 cfm
<b>Operating Temperature:</b>	-20 °F to 360° F (-28 °C to 182 °C)
<b>Ambient Temperature Limits:</b>	-20 °F to 155 °F (-28 °C to 68 °C)
<b>Operating Pressure:</b>	-5 to 250 PSIG
<b>Accuracy:</b>	1% of reading over dynamic range of meter
<b>Repeatability:</b>	0.5% of reading
<b>Response Time:</b>	150 milliseconds maximum
<b>Input Power:</b>	15-24 VDC
<b>Signal Output:</b>	2-wire, 4-20 mA loop
<b>Construction:</b>	Stainless steel wetted parts with ceramic transducers (Teflon® in RWBG Series), NEMA 7 enclosure standard
<b>Communications:</b>	HART Protocol
<b>Certifications:</b>	CE Optional ATEX (EEx ib IIB T4) Zone 1, Group IIB, T4 (Equiv. to N.A. Class 1, Div 1, Groups C & D, T4)
<b>Options:</b>	2 line, 8 digit rate/totalizer display Internal RTD with flange connections mass flow compensation

## Flow Ranges\*

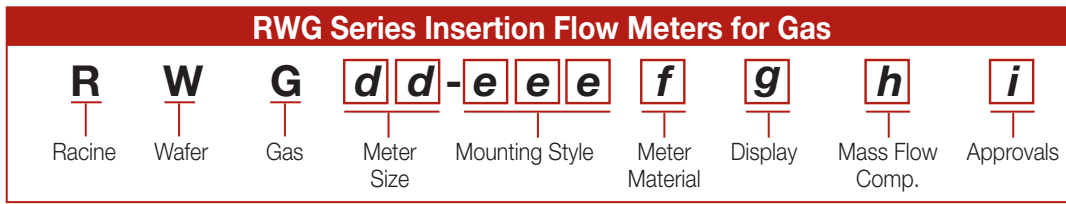
Flow Range in SCFM, 60 °F in AIR      Flow Range in Nm<sup>3</sup>/HR, 16 °C in AIR

Pipe Size	PRESSURE IN PSIG (BARg)												Pressure Drop (Ins. H <sub>2</sub> O) at 50% Max. Flow**				
	0 (0)		25 (1.7)		50 (3.4)		75 (5.2)		100 (6.9)		150 (10.3)			200 (13.8)		250 (17.2)	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		MIN.	MAX.	MIN.	MAX.
1/2" 13 mm	0.4	16	1	43	2	70	2	82	3	82	4	82	6	82	7	82	1.4
	1	25	2	69	3	113	4	133	5	133	7	133	9	133	12	133	
1" 25 mm	1	45	3	121	6	198	8	274	10	351	14	504	18	507	23	507	1
	2	72	5	195	9	318	12	441	16	564	23	810	29	816	37	815	
1-1/2" 38 mm	2	100	7	270	11	440	15	610	20	780	28	1120	37	1253	45	1253	0.65
	4	160	11	434	18	707	25	981	31	1254	45	1801	60	2014	72	2014	
2" 51 mm	5	200	14	540	22	880	31	1220	39	1560	56	2030	73	2030	90	2030	0.35
	8	321	22	868	35	1415	49	1962	63	2509	90	3763	117	3263	145	3263	
3" 76 mm	10	400	27	1080	44	1760	61	2441	78	3121	112	4247	146	4247	180	4247	0.25
	16	642	43	1736	71	2830	98	3924	125	5018	180	6827	235	6827	290	6827	
4" 102 mm	20	600	54	1620	88	2641	122	3662	156	4682	224	6724	292	7897	360	7897	0.25
	32	964	87	2605	142	4245	196	5886	251	7527	360	10808	470	12695	579	12695	

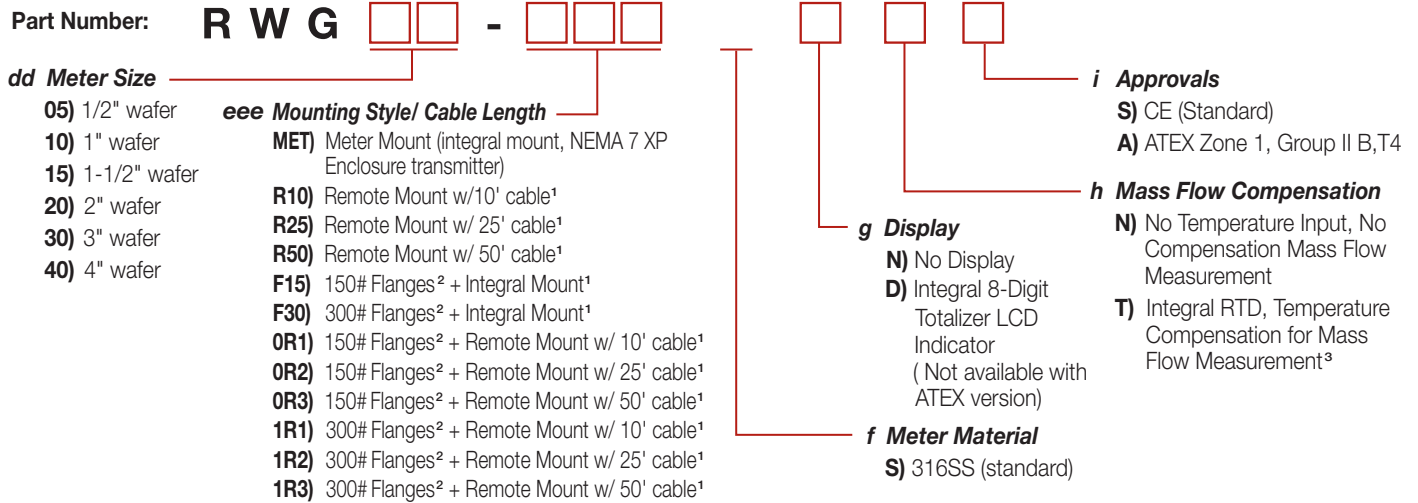
\*Consult RACINE Flowmeter Sizing Software for temperature and pressure conditions other than those listed here

\*\*Pressure drop data for air at 14.7 psi and 60 °F (0 BARg and 16 °C)

# Part Number Construction



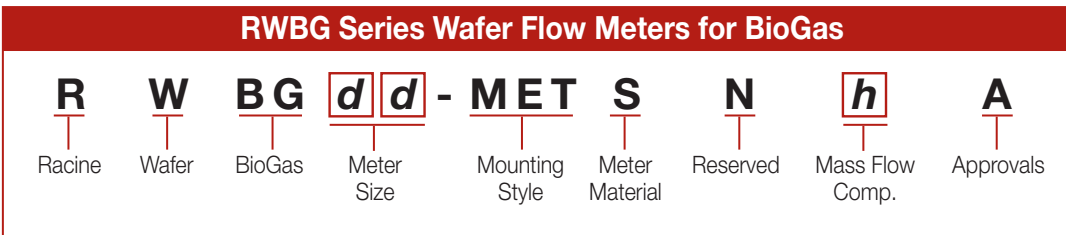
All meters include 4-20 mA output, HART communications protocol and NEMA 7 XP Transmitter Enclosure



<sup>1</sup> NEMA 7 XP transmitter enclosure (Not available with ATEX version)

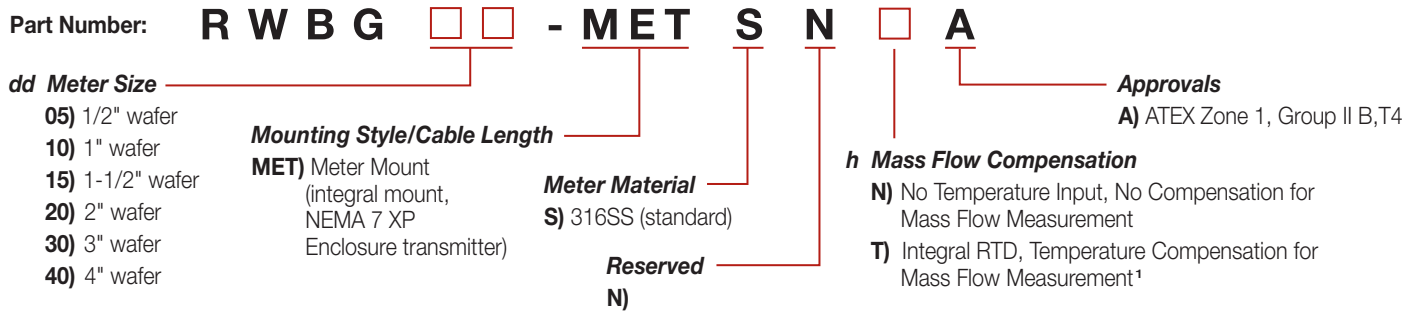
<sup>2</sup> Includes 1/4" NPT port (plugged) for external pressure sensor

<sup>3</sup> Also required when external pressure sensor will be used



Optimized for BioGas (CH<sub>4</sub> + CO<sub>2</sub>) Applications

All meters include ATEX approval, 4-20 mA output and HART communications protocol

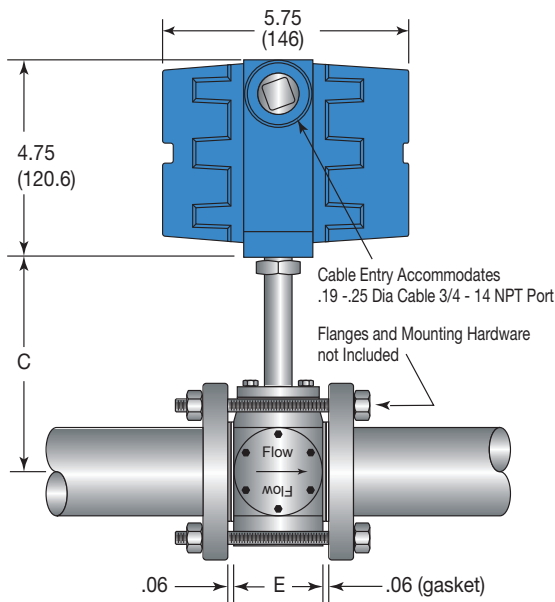
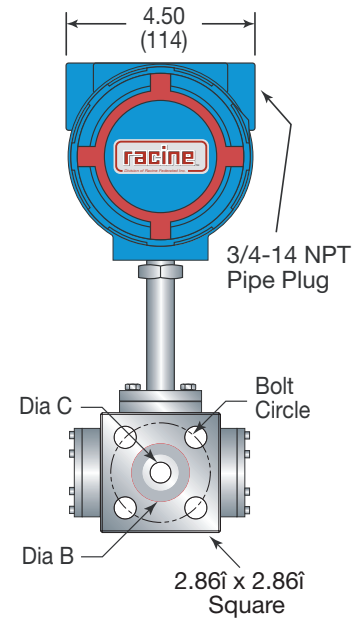
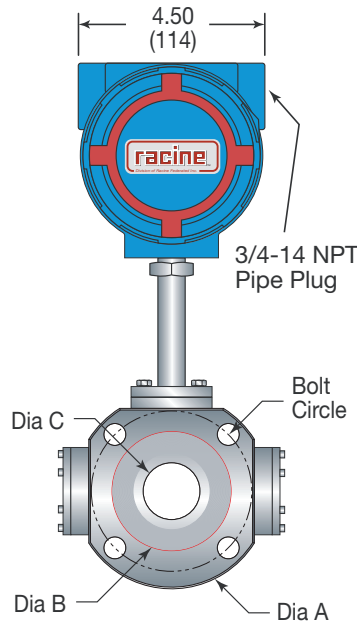
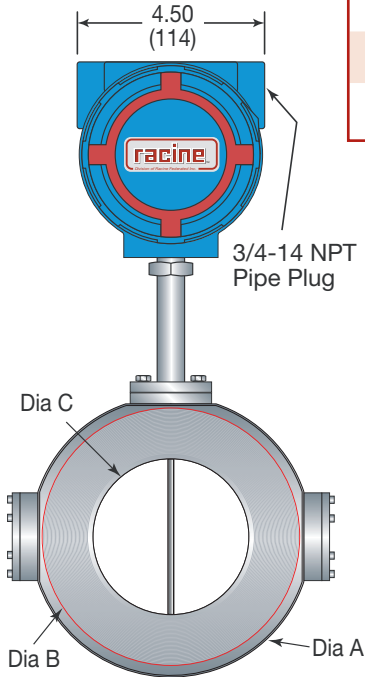


<sup>1</sup> Also required when external pressure sensor will be used

# Dimensional Drawings

Inches (mm)

Model	Meter Size	Inches (mm)					
		Dia. A	Dia. B	Dia. C	Dim. C	Dim. E	Bolt Circle
RWG05	1/2" (12.7)	2.86 x 2.86 (Square) (72.6) x (72.6)	1.375 (34.9)	0.5 (12.7)	2.38 (60.4)	2.25 (57.1)	—
RWG10	1" (25.4)	3.97 (100.8)	2.0 (50.8)	0.875 (22.2)	3.12 (79.1)	2.12 (53.8)	—
RWG15	1-1/2" (38.09)	4.72 (119.8)	2.875 (73.0)	1.375 (34.9)	3.88 (98.4)	2.12 (53.8)	—
RWG20	2" (50.8)	4.0 (101.6)	3.15 (80)	1.75 (44.4)	5.92 (150.2)	—	2.375 (60.32)
RWG30	3" (76.19)	5.25 (133.3)	4.55 (115.5)	2.75 (68.8)	6.62 (168.0)	—	3.125 (79.37)
RWG40	4" (101.6)	6.75 (171.4)	6.19 (157.2)	3.75 (95.2)	7.52 (190.8)	—	3.875 (98.42)

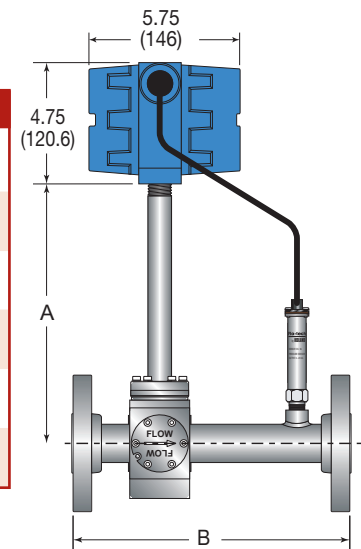


## Flanged Series Meters\*

Inches (mm)

SIZE	DIM A	DIM B
1/2" (13 mm)	RWG05-F15 5.60 (142.1)	9.88 - 10.0 (250 - 254)
1" (25 mm)	RWG10-F15 5.78 (146.7)	9.88 - 10.0 (250 - 254)
1-1/2" (38 mm)	RWG15-F15 6.34 (160.9)	9.88 - 10.0 (250 - 254)
2" (51 mm)	RWG20-F15 5.92 (150.2)	9.88 - 10.0 (250 - 254)
3" (76 mm)	RWG30-F15 6.62 (168.0)	11.88 - 12.0 (301 - 304)
4" (102 mm)	RWG40-F15 7.52 (190.8)	11.88 - 12.0 (301 - 304)

\*150 lb RF ANSI Flange - standard  
300 lb RF ANSI Flange optional



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