ROOTS® Meter Series B3

Featuring Series 3 Accessory Units

Series B3 version ROOTS® meters are designed to provide accurate gas measurement over a wide range of flow, pressure and temperature conditions.

Available Types Include:

- CTR – Non-Compensated Counter
- CD – Non-Compensated Counter with Instrument Drive
- TC – Temperature Compensated Counter
- TD – Temperature Compensated Counter with Instrument Drive
- CTR or TC with Solid State Pulser – Low Frequency pulse output
- CTR or TC with AMR Adapter
- CEX – Counter (CTR) with High Frequency Transmitter/Pulser

Series B meter bodies are also available with the integral electronic ROOTS® IMC/C2 or IMC/W2 volume, pressure and temperature corrector, or the ROOTS® IMC/W2-T for a “temperature only” corrected reading.

Full Range of Sizes:

13 meter sizes offer a competitive range of rotary meters for commercial and industrial metering applications. Select the correct meter size for cost effectiveness and accurate measurement.

Standardized Flanges:

Sizes 8C through 3M have a 6-3/4" (171mm) flange-to-flange dimension for standardization in the meter set design. As loads change, meter sizes are easily interchanged, saving the cost of re-piping.

Accurate Low Flow Performance:

Low start/stop rates extend the rangeability (gas measured) over a wider range of flow conditions.

Low Pressure Differentials:

Reducing the maximum operating speed provides lower pressure differentials for low pressure applications, as well as extending the meter's life-expectancy.

SERIES 3 ACCESSORY UNITS

Oil-free Design:

Series 3 accessories feature high quality and long-term reliability with an oil-free permanently lubricated design. Oil is not required for the Polymer bushings and pre-lubricated, shielded ball bearings. Permanent lubrication equates to easier installation and less maintenance.

Durable, Weather Resistant Cover:

Optical Quality Lexan® covers on Series 3 accessories offer exceptional Ultraviolet protection while the cylindrical design allows the unit to easily shed rain, snow, ice and dirt. The single piece cover design provides added protection against leakage under extreme conditions.

High and Low Frequency Pulser Options:

The Counter with Electronic Transmitter (ICEX) provides a high frequency non-compensated pulse output for applications requiring information on the gas flow rate while the low frequency solid state pulsers are a lower cost option for both non-compensated (ICPWX) and temperature compensated (ITPWX) volume accumulation applications.

Non-Moving Odometer Masking System:

A unique and versatile odometer masking design using opaque or semi-transparent covers offers configurable, trouble-free masking.

Universal Instrument Drive (ID) Assembly:

One size fits all with the Series 3 Instrument Drive Assembly. Inventory costs are reduced by stocking one IDAssembly.

AMR Adapter:

The new direct drive AMR Adapter offers you a low cost solution for Series B3 CTR or TC meters in applications that require the adaptation of a Residential ERT or Cellnet AMR. The AMR Adapter is available as a conversion kit for field installation or factory installed on new meters.

General Information

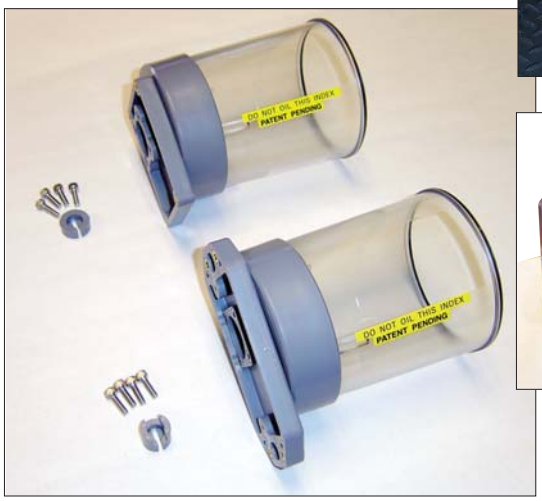
The Series B3 ROOTS® meter is a positive displacement, rotary type gas meter designed for continuously measuring and indicating the accurate measurement of gas. ROOTS® meters are suitable for handling most types of clean, dry, common gases at either constant or varying flow rates. Meters of standard construction are not directly suitable for handling acetylene, biogas or sewage gas. Contact the factory for information on specially constructed meters made of materials more compatible with these and other gases.

Volumetric accuracy of the ROOTS® meter is permanent, non-adjustable, and is not affected by low or varying line pressure. Series B3 meters may be used satisfactorily for pressures ranging from a few ounces to full Maximum Allowable Operating Pressure (MAOP). Displaced volume measurement is completely independent of the gas specific gravity, temperature, and pressure.

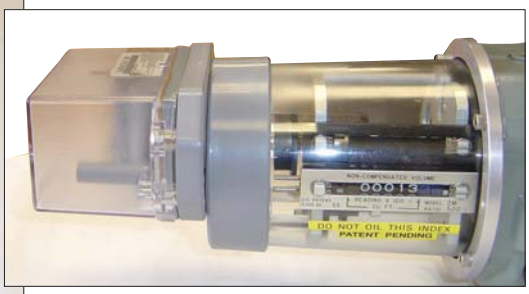
Series B ROOTS® meters have a MAOP rating of 175 psig (1200kPa). Every meter is static pressure tested at the factory at twice its MAOP and leak tested at 125 percent of MAOP in accordance with ASME Boiler Pressure Vessel Codes. Other pressure ratings are available. Consult Factory.

ROOTS® meters are manufactured in accordance with ANSI B109.3 for Rotary Type Gas Displacement Meters. Series B3 ROOTS® meter sizes 8C through 56M, have flanged inlet and outlet connections conforming dimensionally with ANSI/ASME standards. Sizes 8C through 2M are available with 1-1/2" NPT connections, upon special request. The meter operating temperature range is from -40°F to +140°F (-40°C to +60°C) while the temperature compensating mechanism of the TC accessory provides a corrected reading for temperatures ranging from -20°F to +120°F (-29°C to +49°C).

Series B ROOTS® meter bodies accept a wide range of Series 3 accessories for all metering applications.



AMR Adapters for Series B3 ROOTS Meter.



AMR Adapter and ERT installed on a ROOTS Meter (top inlet meter installation shown)

Meter Specifications

SERIES B3	Units	8C175	11C175	15C175	2M175	3M175	5M175	7M175	11M175	16M175	23M175	23M232	38M175	56M175
Base Rating	acfh	800	1100	1500	2000	3000	5000	7000	11000	16000	23000	23000	38000	56000
Max. Operating Pressure	psig	175*	175*	175*	175	175	175	175	175	175	175	175	175	175
Rangeability +/-1%	ratio	26:1	31:1	40:1	100:1	76:1	120:1	67:1	124:1	116:1	40:1	169:1	90:1	53:1
Rangeability +/-2%	ratio	46:1	58:1	78:1	200:1	139:1	215:1	115:1	227:1	223:1	60:1	278:1	110:1	109:1
Start Rate	acfh	2.79	2.30	1.94	1.01	2.1	1.2	5.3	3.9	3.2	23	10.33	27	40
Stop Rate	acfh	2.03	1.74	1.57	0.82	1.8	0.8	3.4	3.2	1.9	18	5.75	20	29
Flow Rate, 0.5" w.c.,Gas	acfh	800	1100	1500	2000	2580	3975	5400	7300	9950	14800	10948	20600	23000
Differential, 100% Flow	in.w.c.	0.45	0.6	0.75	0.65	1.1	1.1	1.6	1.06	2.1	1.3	2.08	1.9	2.2
Drive Rate, CD/TD	cf/rev	10/100	10/100	10/100	10/100	10/100	10/100	10/100	10/100	100/1000	100/NA	100/NA	100/NA	100/NA
Min. CTR Reading	cf	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	2	2	2	2
Nominal Pipe Size	in.	2	2	2	2	2	3	3	4	4	6	4	6	8
Flange/Flange Dim.	in.	6-3/4	6-3/4	6-3/4	6-3/4	6-3/4	6-3/4	9-1/2	9-1/2	9-1/2	16	15/16	18	21
Oil Capacity: Side Inlet	oz.	0.8	0.8	0.8	1.3	1.3	1.3	3	3	3	40	3.4	40	40
Oil Capacity: Top Inlet	oz.	3	3	3	7.6	7.6	7.6	21.9	21.9	21.9	154	21.8	154	154

Meter Sizing

Model	8C175*	11C175*	15C175*	2M175*	3M175*	5M175*	7M175	11M175	16M175	23M175	23M232	38M175	56M175
Base Rating (acfh)	**800**	**1100**	**1500**	**2000**	**3000**	**5000**	**7000**	**11000**	**16000**	**23000**	**23000**	**38000**	**56000**
Meter Pressure (psig)	Corrected Capacity at Metering Pressure - MSCFH												
1	0.84	1.2	1.6	2.1	3.1	5.2	7.3	11.5	16.7	24	24	39.7	58.5
5	1.1	1.5	2	2.6	4	6.6	9.2	14.5	21.1	30.3	30.3	50	73.8
25	2.1	2.9	4	5.4	8	13.4	18.7	29.4	42.8	61.5	61.5	101.7	149.8
60	4	5.6	7.6	10.1	15.2	25.3	35.4	55.6	80.8	116.2	116.2	191.9	282.9
100	6.2	8.5	11.7	15.5	23.3	38.8	54.4	85.4	124.3	178.6	178.6	295.1	434.9
150	8.9	12.3	17	22.3	33	56	78	123	179	256.7	256.7	424.1	625
175	10.3	14.1	19	25.7	39	64	90	141	206	295.7	295.7	488.6	721.5
200	11.7	16	21.9	29.1	43.7	72.8					334.8		
232											384.7		

*Available with 200 psig Rating.

To select proper meter size, use Minimum Operating Pressure and Maximum Instantaneous Hourly Flow Rate.
Complete Data Sheets are available for each meter size. Request Data Sheet by meter model.

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