

# ROOTS Meters & Instruments



## ROOTS® Vapor Recovery Meters



Series A-8C175 VRM MEX ROOTS® meter

Since 1975, ROOTS® Vapor Recover Meters have set the standard for California Air Resources Board (CARB) approved Gas Volume Meters. The ROOTS® VRM is designed for, tested and approved by CARB. As Air Resources Board specifications change, we quickly respond with product enhancements to maintain our approval to Executive Order G-070, Source Test Procedure ST-39 – Regulation 8-7-302, and other associated Test Procedures such as TP-201.1, TP-201.1A, TP-201.2, TP-201.3, TP-205 and TP-201.5.

Our 8C175 ROOTS® PX has a non-compensated, high frequency pulse transmitter using Solid State construction to eliminate mechanical switches for maximum reliability and minimized maintenance. A mechanical odometer is not included. The meter maximum base rated capacity is 800 CFH.

The 3M175 ROOTS® Vapor Recovery Meter has a direct reading odometer-type index with minimum increments of 0.02 cubic feet for minimum readability of 0.01 cubic feet. Precision is  $\pm 2$  percent of the gas volume reading, or better. It is available with a low frequency (TPWS) or high frequency pulse output (CEX). The meter maximum base rated capacity is 3,000 CFH.

### Features

- Provides a non-compensated, high frequency pulse output
- Designed for accurate measurement in low pressure recovery systems
- Electrical output signal ensures maximum reliability by using Solid State construction to eliminate mechanical switches
- Available in two models: 8C175 and 3M175



Series B3-3M VRM CEX ROOTS® meter

GDF Apparatus requires a low pressure drop across the Gas Volume Meter. The extremely low pressure drop characteristic of the ROOTS® rotary positive displacement meter makes it the most suitable for these specialized applications. Our 3M175 VRM does not exceed 1.10 inches H<sub>2</sub>O at 3,000 CFH or 0.05 inches H<sub>2</sub>O at a flowrate of 30 CFH. The 8C175 VRM does not exceed 0.70 inches H<sub>2</sub>O at 800 CFH or 0.04 inches H<sub>2</sub>O at a flow rate of 16 CFH.

All ROOTS® Vapor Recovery Meters are supplied with a 7-point certified accuracy curve resulting from tests on a bell prover certified by NMI and dimensionally traceable to the National Institute of Standards and Technology (NIST) and NMI.

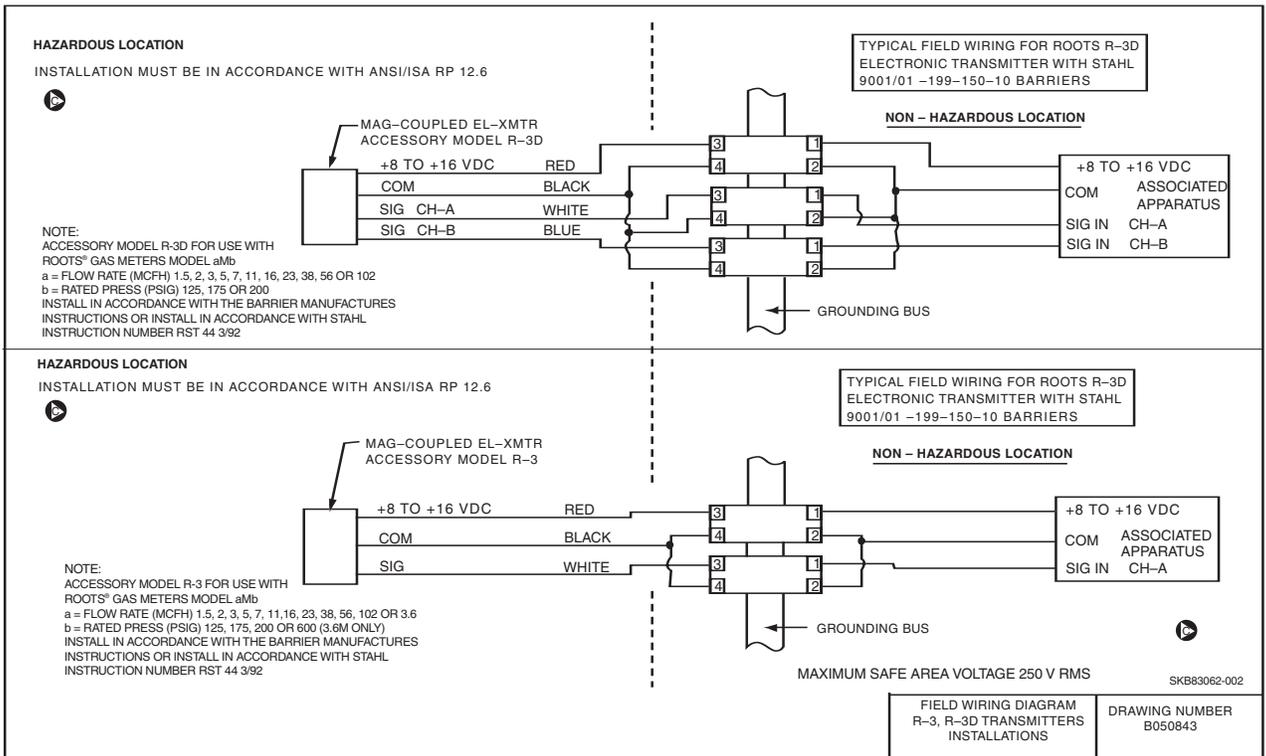
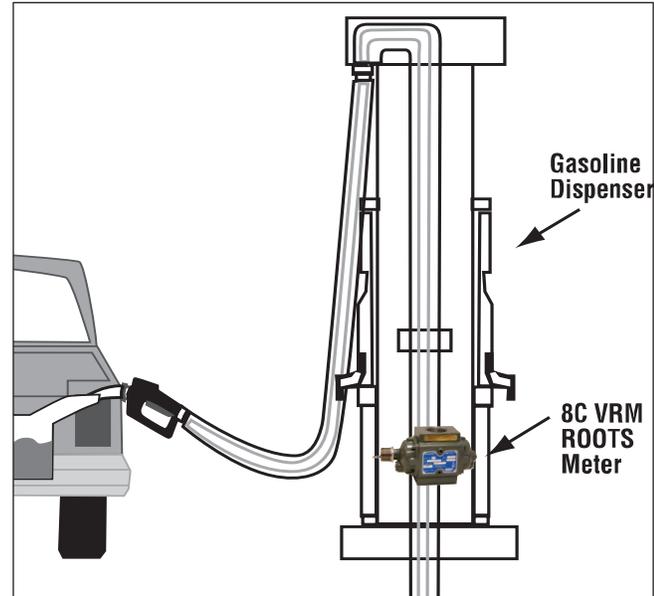
PRODUCT  
DATA

# ROOTS Meters & Instruments

## Specifications: 8C VRM ROOTS® meter

	Units	Imperial
Temperature Range	deg. F	-40° to +140°
Base Rating (Q max)	acfh	800
Max. Operating Pressure (MAOP)	psig	175
Leak Test (125%) (MAOP)	psig	219
Static Test ( 2 x MAOP)	psig	350
Rangeability (+/- 1%)	ratio	22 : 1
Rangeability (+/- 2%)	ratio	67 : 1
Start Rate	cfh	1.13
Stop Rate	cfh	0.92
Flow Rate @ 0.5" w.c., Gas	cfh	696
Differential, 100% Flow	in. w.c.	0.64
Max. Pressurization Rate(*)	psig/sec	5
Max. Operating Speed	rpm	3600
Gear Ratio	ratio	No counter
Displaced Volume / Rev.	cf	0.003703
Pulse per Unit	1 cf =	270 pulses
Oil - Not required		
Nominal Pipe Size	in.	1-1/2 NPT
Net Weight	lbs.	6

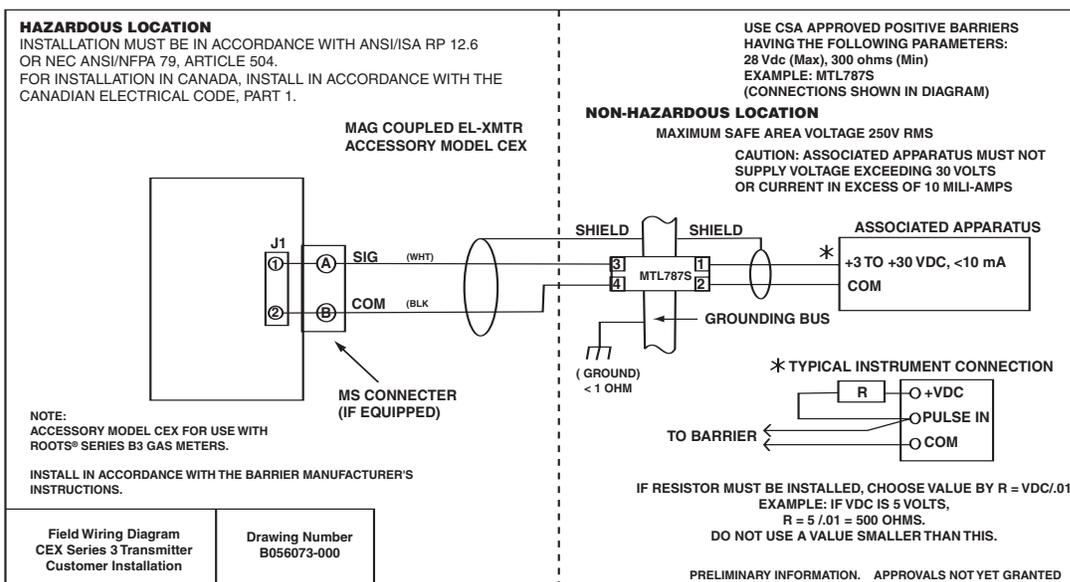
For years, Dresser ROOTS® Meters have been the preferred Vapor Recovery Meter to measure the volumetric flowrate through the A/L adapter.



## Specifications: 3M VRM ROOTS® meter

	UNITS	Imperial
Temperature Range	deg. F	-40 to +140
Base Rating (Q Max.)	acfh	3000
Max. Operating Pressure (MAOP)	psig	175
Leak Test (125% MAOP)	psig	219
Static Test (2 x MAOP)	psig	350
Rangeability +/- 1%	ratio	76:1
Rangeability +/- 2%	ratio	139:1
Start Rate	cfh	2.1
Stop Rate	cfh	1.8
Flow Rate @ 0.5" w.c., Gas	cfh	2580
Avg. Differential, 100% Flow	in. w.c.	1.05
Max. Pressurization Rate	psig/sec	5
Max. Operating Speed	rpm	2000
Gear Ratio	ratio	400:1
Displaced Volume/Revolution	cf	0.025
Nominal Pipe Size	in.	2
Flange-to-Flange	in.	6-3/4
Flange Connection	ANSI	150#FF
Bolts per Flange	qty.	4
Bolt Size <sup>1</sup>	in.	5/8 - 11
Flange Bolt Hole Depth	in.	15/16
Bolt Torque: Lubricated/Non-Lub.	ft.-lb.	55/60
Oil Capacity – Side Inlet	oz.	1.25
Oil Capacity – Top Inlet	oz.	7.65

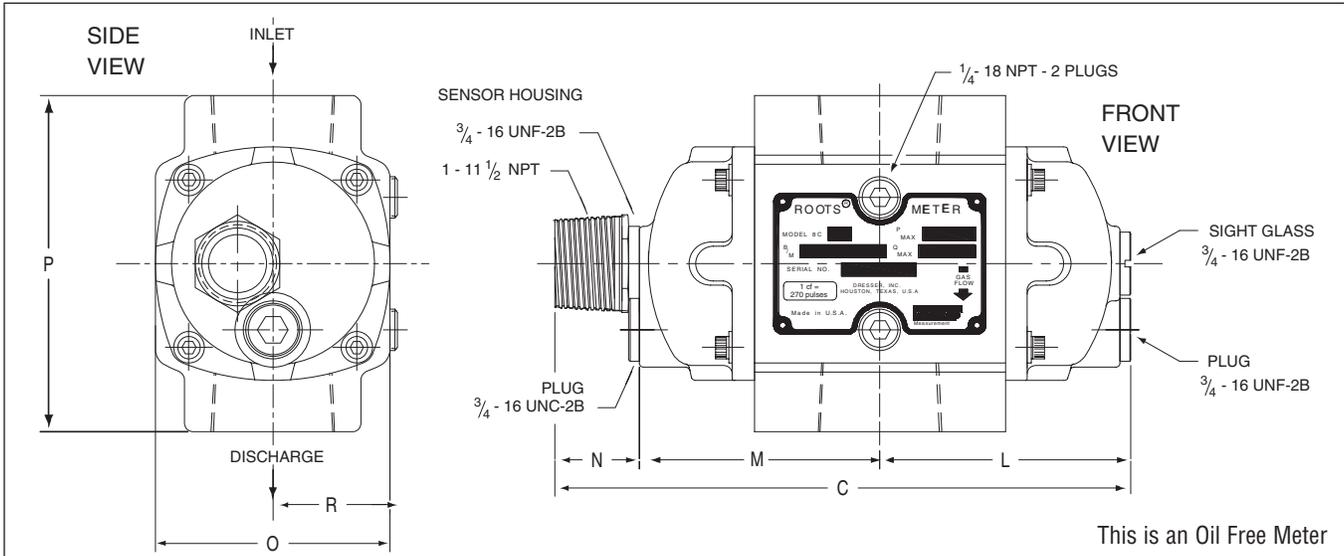
<sup>1</sup> Bolt Length varies by application.



## Technical Data: 8C VRM ROOTS® Meter

### DIMENSIONS

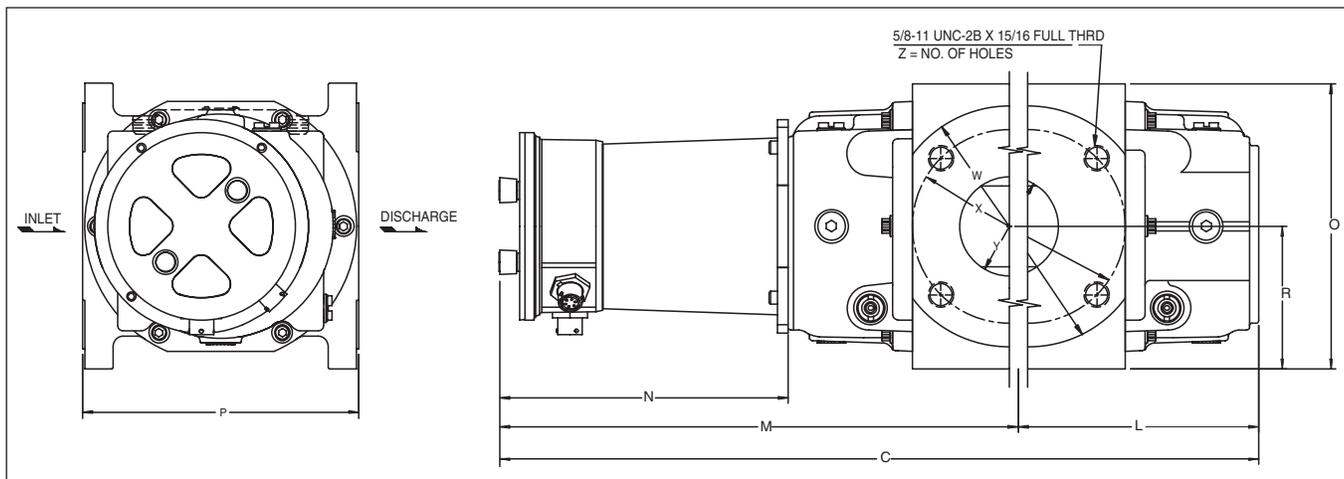
8C VRM	C	L	M	N	O	P	R	Approx. Weight
VRCPX	8.18	3.55	3.40	1.23	3.31	4.75	1.66	5.2 lb



Drawing B057797-000

### DIMENSIONS

3M VRM	C	L	M	N	O	P	R	Approx. Weight
VRCPX	18.03	5.66	12.375	7	6.97	6.75	3.48	26.5 lbs



Drawing D054670-000

### To order:

Specify meter Series, Size and Type (i.e. 3M175 VRM Series B3 ROOTS® meter).

8C175PX, 8C175CTR, 3M175CTR, 3M175 CPWS\*, 3M175CEX.

\*Specify Single or Dual Connectors and Connector Type (MS Circular, Conduit or Cable Gland).

8C15CTR VRM is available but is not currently CARB approved.

Contact the Factory for other available information, options, or special requests.



## Dresser Roots Meters & Instruments

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