

GE Oil & Gas

# Dresser\* Series B3-HPC Meter

High Pressure Cartridge (HPC) Meters

1M740/1480 | 3M740/1480 | 5M1480 | 7M1480 | 11M1480



Dresser High Pressure Cartridge Meters incorporate several design innovations in rotary meter measurement. Advancements to the time-tested and accepted Dresser Meter provide accurate and reliable measurement solutions compared to other obsolete positive displacement style meters, oversized inferential style meters, and other styles of insertion inferential meters.

## Description

Series B3-HPC Rotary Meters employ the same positive displacement operating principle as other Dresser rotary meters. Gas volumes are measured by two figure-8 impellers rotating in a chamber of known volume. Precision machining to exact tolerances ensures measurement accuracy, while materials of construction promote high quality measurement performance in the most severe conditions.

1M and 3M measurement cartridges are interchangeable between their common body casting, as are the 5M and 7M versions. This allows the operator to “right-size” the meter for a particular application. Also, accuracy certified cartridges are field replaceable for ease of



**Figure 1** - 11M1480 with Integral Micro Corrector, 7M1480 with ID mount, inset ICEX accessory unit.

maintenance. The new 11M1480 has a 4” ANSI 600# flanged connection and, the 11M cartridge is not interchangeable with other HPC meter sizes.

An **optional** full capacity internal bypass is available for the 1M, 3M, 5M and 7M Series B3-HPC cartridges. The bypass for the 11M1480 is currently under development. Since the bypass is self-resetting, an **optional** electronic/mechanical differential pressure sensor with a switched output is available to indicate if the meter has been in the bypass mode.

**NOTE:** The 11M1480 is capable of metric measurement by utilizing an IMC/W2 as an accessory unit.



## The Bypass Valve is an optional feature for our HPC meters

The optional BPV (Bypass Valve) is a robust design with self-rescaling edges. It is always closed unless the differential pressure exceeds the spring rate and lets the gas flow through the bypass, whether in a short burst or full flow – if the meter locks up. The valve opens due to high differential and allows gas to flow around the measuring chamber to keep the customer on line with gas supply.

An optional analog indicator with a follower needle visually displays that the bypass has opened. This indicator is useful to determine if the meter has gone into a bypass condition, as it has an integral reed switch and flying leads that can be wired into any pulse receiving device that can alert the end user of an alarm condition.

The bypass valve opens when meter differential reaches 6.5 psi (180 in. H<sub>2</sub>O), as tested with Natural Gas on the 1M and 3M, and 7.2 psi (200 in. H<sub>2</sub>O) for the 5M and 7M.

## Applications

The High Pressure Cartridge design meters are ideal for gas measurement of low volume applications at high pressures. Recommended applications include:

- Custody transfer (gas distribution, gathering, and transmission systems)
- Town border stations and city gate stations
- Direct wellhead production measurement
- Gas leg of production separators and test separators
- Compressor fuel gas measurement
- High pressure industrial gas measurement

## Standards

As with all Dresser meters, the High Pressure Cartridge meters are designed to ANSI B109.3 specifications for Rotary Type Gas Displacement Meters. Additionally, the HPC meters meet NACE Standard MR 111075 for corrosion resistant applications.

## Meter Advantages

- Operating differentials can be monitored while in service
- Positive displacement measurement is not sensitive to changes in density of the gas being measured
- Positive displacement meters (side or top inlet) do not require a complicated installation since they are not sensitive to velocity profiles
- Meter body and flanges are rated at 1480 psig (740 psig optional for 1M and 3M)
- Meters are designed to NACE corrosion resistance standards
- Meters are compatible with a wide assortment of pulsing devices and auxiliary instrumentation for Dresser products - see brochures TS:SSP, TS:RA100, TS:ICEX and TS:IMC/W2



## Cartridge Advantages

- Cartridge design simplifies repair and maintenance
- Calibrated cartridges can be installed in the field - reducing downtime
- Cartridges can be replaced in the field without removing the meter housing
- Cartridges are interchangeable as measurement needs change

## Optional Bypass Valve Features

- Full capacity and internal
- Simple design
- Optional Indicator with switched output
- Spring-loaded valve
- Fits onto any standard housing - Interchangeable
- Self-resetting
- Passes full flow at any pressure

## Technical Specifications

|                                              | 1M740/1480                                  | 3M740/1480                                  | 5M1480                            | 7M1480                            | 11M1480              |
|----------------------------------------------|---------------------------------------------|---------------------------------------------|-----------------------------------|-----------------------------------|----------------------|
| Maximum Capacity                             | 1000 cfh                                    | 3000 cfh                                    | 5000 cfh                          | 7000 cfh                          | 11000 cfh            |
| Oil Capacity                                 |                                             |                                             |                                   |                                   |                      |
| Side Inlet                                   | 4.2 oz (124 ml)                             | 2.8 oz (83 ml)                              | 17.5 oz (518 ml)                  | 13.5 oz (399 ml)                  | 14 oz (414 ml)       |
| Top Inlet                                    | 11 oz (325 ml)                              | 7.2 oz (213 ml)                             | 37 oz (1094 ml)                   | 29 oz (858 ml)                    | 34 oz (1006 ml)      |
| Maximum Allowable Pressure Rating (Optional) | 1480 psig (ANSI 600)<br>740 psig (ANSI 300) | 1480 psig (ANSI 600)<br>740 psig (ANSI 300) | 1480 psig (ANSI 600)              | 1480 psig (ANSI 600)              | 1480 psig (ANSI 600) |
| Connection Size                              | 2" (50 mm) RF                               | 2" (50 mm) RF                               | 3" (80 mm) RF                     | 3" (80 mm) RF                     | 4" (100 mm) RF       |
| Temperature Rating                           | -40°F to +140° F                            | -40°F to +140° F                            | -40°F to +140° F                  | -40°F to +140° F                  | -40°F to +140° F     |
| Piping Configuration                         | Top or Side Inlet                           | Top or Side Inlet                           | Top or Side Inlet                 | Top or Side Inlet                 | Top or Side Inlet    |
| Drive Rate                                   | 10 cf/rev (0,1 m <sup>3</sup> /rev)         | 10 cf/rev (0,1 m <sup>3</sup> /rev)         | 10 cf/rev (1 m <sup>3</sup> /rev) | 10 cf/rev (1 m <sup>3</sup> /rev) | 10 cf/rev (NA)       |

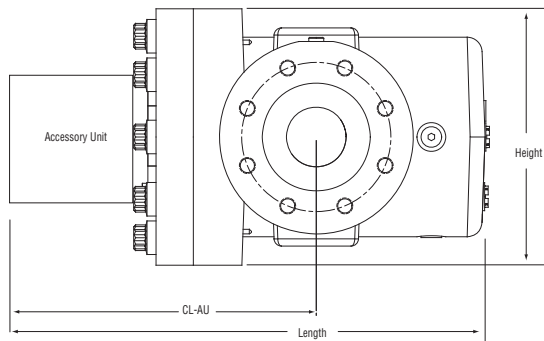
## Sizing Table

| Meter Size            | 1M                                | 3M      | 5M      | 7M      | 11M       |
|-----------------------|-----------------------------------|---------|---------|---------|-----------|
| Meter Capacity (acfh) | 1000                              | 3000    | 5000    | 7000    | 11000     |
| Pressure (psig)       | Meter Capacity at Pressure (scfh) |         |         |         |           |
| 0.25                  | 995                               | 2,984   | 4,973   | 6,962   | 10,940    |
| 100                   | 7,766                             | 23,299  | 38,832  | 54,365  | 85,426    |
| 600                   | 41,711                            | 125,132 | 208,554 | 291,976 | 458,810   |
| 800                   | 55,289                            | 165,866 | 276,443 | 387,020 | 608,190   |
| 1000                  | 68,866                            | 206,599 | 344,331 | 482,064 | 757,570   |
| 1200                  | 82,444                            | 247,332 | 412,220 | 577,108 | 906,840   |
| 1400                  | 96,022                            | 288,065 | 480,109 | 672,152 | 1,056,220 |
| 1480                  | 101,453                           | 304,358 | 507,264 | 710,170 | 1,115,980 |

NOTE: All capacities listed are Standard Cubic Feet per Hour (SCFH) and based upon Average Atmospheric Pressure (14.4 PSIA), Base Pressure (14.73 PSIA), and Base Temperature (60°F). Tables do not take into account Supercompressibility. Please refer to RM-135 for further information on the Application of Temperature and/or Pressure Correction Factors in Gas Measurement.

## Dimensions

| Version      | Overall Length |     | Overall Height |     | Width (flange/flange) |     | Centerline to Accessory End (CL-AU) |     | Drawing Number |
|--------------|----------------|-----|----------------|-----|-----------------------|-----|-------------------------------------|-----|----------------|
|              | in             | mm  | in             | mm  | in                    | mm  | in                                  | mm  |                |
| <b>1M/3M</b> |                |     |                |     |                       |     |                                     |     |                |
| CTR          | 16-1/32        | 407 |                |     |                       |     | 10-1/4                              | 260 | D054757-000    |
| CD           | 19-27/32       | 504 |                |     |                       |     | 14-1/16                             | 358 | D054434-000    |
| ICPW/ICEX    | 17-19/32       | 447 | 8-5/8          | 218 | 10-3/4                | 273 | 11-3/16                             | 300 | D057373-000    |
| IMC/W2       | 19-21/32       | 499 |                |     |                       |     | 13-7/8                              | 352 | D059145-000    |
| <b>5M/7M</b> |                |     |                |     |                       |     |                                     |     |                |
| CTR          | 19-9/32        | 490 |                |     |                       |     | 12-13/32                            | 315 | D056135-000    |
| CD           | 23-3/32        | 587 |                |     |                       |     | 16-13/16                            | 412 | D056136-000    |
| ICPW/ICEX    | 21-7/32        | 539 | 13-1/16        | 332 | 14-3/4                | 375 | 14-5/16                             | 364 | D057442-000    |
| IMC/W2       | 22-29/32       | 582 |                |     |                       |     | 16-1/32                             | 407 | D059146-000    |
| <b>11M</b>   |                |     |                |     |                       |     |                                     |     |                |
| CTR          | 23-7/8         | 606 |                |     |                       |     | 14-11/16                            | 373 | D059633-000    |
| CD           | 27-11/16       | 703 |                |     |                       |     | 18-1/2                              | 470 | D059329-000    |
| ICPW/ICEX    | 25-13/16       | 655 | 14-9/32        | 363 | 14-3/4                | 375 | 16-5/8                              | 422 | D059535-000    |
| IMC/W2       | 27-1/2         | 699 |                |     |                       |     | 18-5/16                             | 465 | D059374-000    |



**How to Order:** Specify Dresser Series B3-HPC Meter, 1M1480 or 3M1480 (optional: 1M740 or 3M740), 5M1480, 7M1480 or 11M1480 plus the Accessory Type.

**Accessory Types:** Series 3 Counter (CTR), Counter with Instrument Drive (CD), or Counter with Solid State Pulsar (CPWS - Single Connector, CPWD - Dual Connector available with MS Circular Connector(s) or Cable Gland Connection, or Conduit Connection). For the CD option, specify Top or Side Inlet and Clockwise (B) or Counterclockwise (A) rotation.

For compatible Accessories, see brochures TS:RA-100, TS:SSP, TS:ICEX and TS: IMC/W2.



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