


# Dresser\* Meters and Instruments Products and Services



imagination at work



In 2011, the Dresser meters and instruments product line became part of the GE Oil & Gas business, a world-leading provider of advanced equipment and services for all segments of the oil and gas industry, including drilling and production, liquefied natural gas (LNG), pipelines, storage, industrial power generation, refining and petrochemicals. GE Oil & Gas is headquartered in Florence, Italy, and employs more than 33,000 people working in more than 120 countries.

Dresser meters and instruments products include a comprehensive range of rotary, turbine, and diaphragm meters, metering instrumentation, and test equipment for the global natural gas distribution and transmission industry.

# The Dresser Meter Advantage

For almost a century, Dresser meters have been used for billing of commercial and industrial gas loads. Accuracy, dependability, and low maintenance are of key importance in custody transfer measurement applications. The time-proven Dresser meter is the preferred rotary positive displacement gas meter in distribution, transmission and production segments for accurate measurement of gas from the well to the burner.

To meet the evolving needs of our customers, our product line has expanded to include a large variety of control and measurement equipment.

## Proven Accuracy

- Volumetric accuracy is permanent and non-adjustable
- Measuring characteristics established by the precision machined contours of non-wearing fixed and rotating parts
- Durable components ensure a long life expectancy under normal operating conditions
- Increased rangeability due to closer tolerances improve performance regardless of pressure and flow

## Meters For Commercial & Industrial Applications

- Line mount meters
- Diaphragm replacement meters
- Foot mount meters
- High pressure meters

## Magnetically Coupled Accessory Units

- Large variety of readout and output options
- Non-pressurized and interchangeable modular design simplifies conversion between accessory types
- Permanently lubricated Series 3 Accessories combine a long life expectancy with a reduction in maintenance
- Commonality of Series 3 Accessory components reduces inventory requirements

## Full Line of Electronic Instrumentation

- Pressure (P), Temperature (T), and PTZ Correctors with Differential Pressure Monitoring options
- Solid state pulsers to interface with Automated Meter Reading (AMR) devices and for remote readings
- High frequency outputs to interface with flow computers
- Loggers with options for one or two pressures and a temperature probe

## Customer Service

Our trained and dedicated customer service is provided through the combined efforts of our customer service, technical support, and product services departments. Each department takes pride in their ability to deliver courteous and professional care to all customers in a timely manner. As described below, the departments are structured to efficiently support customer service requirements:

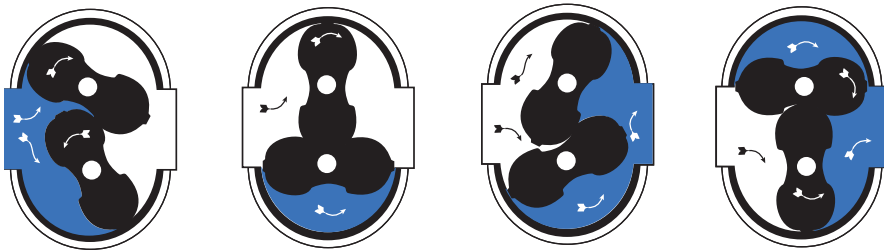
- Customer service representatives for inquiries and order placement
- Technical services staff for product application assistance and training
- Product services department for remanufacturing and testing services

## The Dresser Meter Operating Principle

The Dresser meter is designed to measure the volume of gases and gas mixtures with a high degree of accuracy. The industry accepted rotary type positive displacement operating principle supports permanent, non-adjustable accuracy by using precision machined two-lobe impellers encased within a rigid measuring chamber.

Unlike other meter types, measurement accuracy is not affected by changes in gas specific gravity, pressure, or fluctuating flow. Dresser meters may be used from a few ounces to full capacity up of the meter's maximum pressure rating with highly accurate measurement over a wide operating range. This equates to a lower total cost.

The condition of a Dresser rotary meter can be verified by performing a differential pressure test while the meter is still in service. This simple and cost-effective preventive maintenance procedure contributes to a significant reduction in the whole life cost of the meter.



### Precision machined for exceptional accuracy

As shown in the picture, two contra-rotating impellers of two-lobe or "figure 8" design are encased within a rigid measuring chamber, with inlet and outlet connections on opposite sides. Precision machined timing gears keep the impellers in correct relative position. Optimal operating clearances between the impellers, cylinder and headplates provide a continuous, non-contacting seal.

## Dresser Meter Product Line

A complete line of rotary meter sizes is available to measure a wide range of gas volumes for the majority of commercial and industrial applications in custody transfer applications. Refer to the Meter Sizing Chart in this brochure to determine the correct meter size for cost effectiveness and accurate measurement.

Dresser meters are suitable for handling most types of clean, common gases at either constant or varying flow rates and pressure. They are ideal for applications throughout the meter's operating range, from a few ounces to full maximum allowable operating pressure.

Our meters are widely recognized for their highly accurate measurement capabilities at both the low and high ends of their rated capacity. The meter's rangeability (ability to measure gas over a wide flow range within a specified accuracy) provides exceptional over-all measurement accuracy on a "day-after-day" basis.

## Dresser Series B3 Line Mount Meters



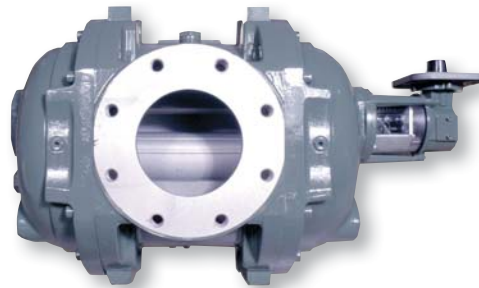
Series B3 8C/11C/15C Meter



Series B3 2M/3M/5M Meter



Series B3 7M/11M/16M Meter



Series B3 23M/36M/56M Meter

## Right Size the Meter to the Application

Series B3 meters are designed to provide accurate gas measurement over widely fluctuating flow, pressure, and temperature conditions. For further versatility, the five smallest meter sizes (8C through 3M) have 2" (50 mm) flanged connections, and a 6-3/4" (171 mm) flange-to-flange dimension.

If application requirements change, this cost-effective feature allows a quick and easy meter exchange without the need to re-pipe the meter set. Other key features include:

- Capacity ratings from 800 CFH to 56,000 CFH (22,6 m<sup>3</sup>/h to 1,585 m<sup>3</sup>/h)
- Maximum operating pressure rating of 175 psig (12 Bar)
- Models 8C through 5M are available with a 200 PSIG (13,8 Bar) rating upon request
- Models 8C through 2M are available with a 1-1/2" nipples connections upon request
- Operating temperature range from -40°F to +140°F (-40°C to +60°C)

For operating requirements beyond those listed, please contact your GE representative.

### 23M232 Meter with 4" Flanged Connection

Our 23M232 includes four inch flanged connections and a 232 PSIG (16 bar) maximum working pressure. This design complements our standard six inch 23M175. With a maximum capacity of 385 MSCFH (10,895 Nm<sup>3</sup> per hour) the 23M is an ideal measurement solution for a wide array of applications.



# Dresser D800/D1000 Meter

## Legacy of superior long-term rotary meter performance in a compact oil-free design

### Superior Meter Accuracy

Building upon the sustained long term accuracy of Dresser metering products, the Dresser D800/D1000 Meters set a new standard in rotary meter performance. With an exceptional average start rate of only 0.30 ACFH (stop rate of 0.15 ACFH) and a rapid ramp up to +/- 1% accuracy at only 8 ACFH, both the D800 and D1000 ensure a sustained, non-adjustable measurement accuracy from pilot loads up to 1700 ACFH.

### Replaces Commercial Diaphragm Meters

- Permanently lubricated bearings
- Fixed non-adjustable accuracy
- Excellent low flow capability
- Ferrule (spud) size and dimensions matching most 800/1000 Class diaphragm meters
- Reduced size and weight
- Mechanical flow indication (0.0074 cf/rev)
- PT1000 RTD Temperature compensation
- 20-year average battery life
- 25 psig MAOP

### Improving upon Existing Commercial Diaphragm Meters

- Bi-directional installation
- Theft prevention attributes
- Compatible with common meter shop proving systems
- Non-volatile memory retains 150 days of hourly time-stamped data
- User selectable/scrollable display screens
- Magnetic display scrolling

### Testing Flexibility

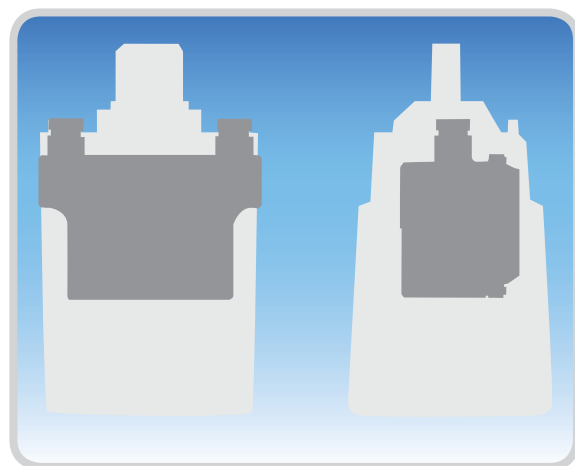
- Provides multiple testing capabilities to meet the needs of your organization and regulatory agency with a variety of testing options.
- Easily tested on common sonic nozzle provers, bell provers and transfer provers
- No special software or prover upgrades required



### Reduced Size and Weight for Ease of Installation and Handling

Designed for convenience, the D800 and D1000 mount directly to existing Class 800 and Class 1000 diaphragm meter sets using common connection sizes. Additionally, the 50% reduction in weight and 70% reduction in size allows for easier and safer handling whether in the shop, traveling to the job site, or actually installing the meter. Benefits are also derived from the reduced shipping size/weight and warehousing space.

### Dresser D800/D1000 Meter Size Compared to 800/1000 Class Diaphragm Meter

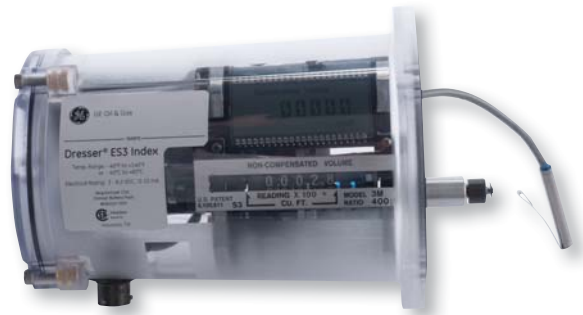


# Dresser ES3 Electronic TC index Delivers accurate temperature compensation

## With the security of a proven mechanical index

Accuracy and reliability are key requirements when selecting a temperature compensating (TC) index. The Dresser ES3 Electronic TC from GE Oil & Gas provides the accuracy and reliability you have come to trust from Dresser rotary meters, plus the added security of the established Dresser Series 3 non-compensated mechanical index.

Building upon our legacy of integrated metering solutions, the ES3 provides the consistency and dependability required for custody transfer applications. This full featured index provides an average battery life of 20 years, factory installation of the index and customized configuration and installation of Automated Meter Reading (AMR) endpoints.

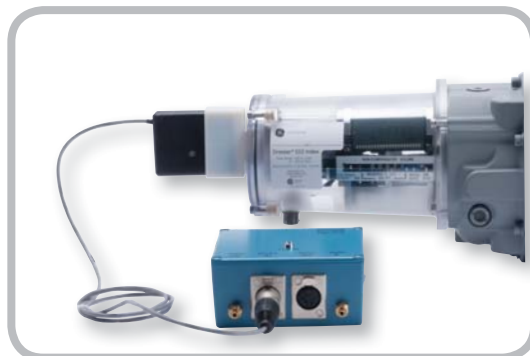


### Product Features and Benefits

- Non-compensated mechanical index
- Non-volatile memory retains the last 150 days of time stamped logged data
- Factory installed index on both new and refurbished Dresser meters
- Factory configured indexes for immediate on-site installation
- Compatible with commercially available AMR devices
- Simple field replacement of existing Dresser meter indexes
- Single point temperature recalibration
- Configurable fixed pressure factor
- Tamper-resistant magnetic scrolling of LCD display
- 20 user selectable, scrollable display screens
- Non-compensated counter masked to customer requirements
- Battery life displayable in both months and voltage
- Fits to Dresser Series B Meter sizes 8C-16M

### Testing is Fast and Simple

- Fast proving - two minute proving with Dresser Model 5 Transfer Prover
  - One communication cable to field junction box
  - Directly supported by factory
  - Preconfigured test files
  - Flow rate displayed for differential testing



ES3 Prover Cable to Model 5 Prover Field Junction Box

# Dresser Electronic Temperature Compensator (ETC)

## Simple and reliable electronic temperature compensation

The Dresser Electronic Temperature Compensator (ETC) is a direct replacement alternative for the existing Dresser mechanical Temperature Compensating (TC) indexes on Dresser Series B and Series A (LM-MA) meters.

The simple, easy to read ETC index provides accurate and reliable temperature and fixed factor pressure compensation. GE offers factory installation of the index, optional customization and configuration as well as installation of Automated Meter Reading (AMR) endpoints. The ETC is powered by a lithium battery with an average battery life of 20 years, and stores 150 days of hourly measurement data safely in the on-board non-volatile memory.



### Ease of Testing

Transfer proving time is also dramatically reduced by using the ETC index. The ETC utilizes a one cable system to reduce proving time to less than 5 minutes. Provided as a standard feature on the ETC index, no special software or computer programs are required.

- Reduced TC proving time (~95%) with simple infrared connection to ETC
  - One communication cable to field junction box
  - Directly supported by factory
  - Preconfigured test files

### AMR Compatibility

- Interfaces with common commercial AMR devices
- Optional tamper resistant AMR mounting platform
- Itron® AMR devices are factory installed and programmed upon request
- Two user configurable isolated pulse output channels (Form A)
- One isolated alarm output (Form B) provided on indexes with AMR mounting platform

### Power

- Sealed battery pack - Lithium Thionyl Chloride pack with CSA certified protective circuitry
- Average battery life of 20 years
- Flash memory for permanent information retention without power

### Installation Solutions

- Factory installed index on both new and refurbished Dresser meters
- Factory configured indexes for immediate on-site installation
- Simple field replacement of existing Dresser meter indexes
- Convenient access to mounting screws
- Fits to Dresser Series B Meter sizes 8C-16M and Series A Meter sizes 1.5M-6M



ETC with AMR device installed



# Dresser Series 3 Meter Accessory Units

## Designed for low maintenance and a long service life

- Interchangeability among Series B meter bodies of the same size
- Permanently lubricated for long life and virtually maintenance-free operation
- Modular design allows a quick-change to a different version at a lower overall cost
- Durable, weather resistant cover with improved sealing capability
- Versatile and configurable odometer masking
- Universal Instrument Drive (ID) assembly – one size fits all 8C-56M Series B Meters
- Quick and easy field installation of the low cost Solid State Pulser
- Available with factory pre-installed magnets for quick installation of the Solid State Pulser or Model 5 Prover Field Counter Pulser Module



### Counter (CTR)

An 8 digit non-compensated index registers displaced volume in Actual Cubic Feet (ACF) or in Actual Cubic Meters (m<sup>3</sup>).



### Solid State Pulser (ICPW/ITPW)

The Dresser solid state pulser mounts directly to a CTR/TC Unit, generating low frequency pulses representing volumetric information for remote reading. Mechanical switches have been eliminated for improved reliability. No battery or maintenance is required.



### Temperature Compensated (TC)

Temperature compensation, available in meter sizes 8C-16M, is accomplished by a mechanical computer with a spiral bi-metallic thermocouple (probe) located in a sealed temperature well at the meter inlet. Series 3 TC Units provide corrected gas volume readings to a 60°F (15°C) base temperature for readout in Standard Cubic Feet (SCF) or Normal meters cubed (Nm<sup>3</sup>) between flowing temperatures of -20°F and +120°F (-29°C and +49°C).

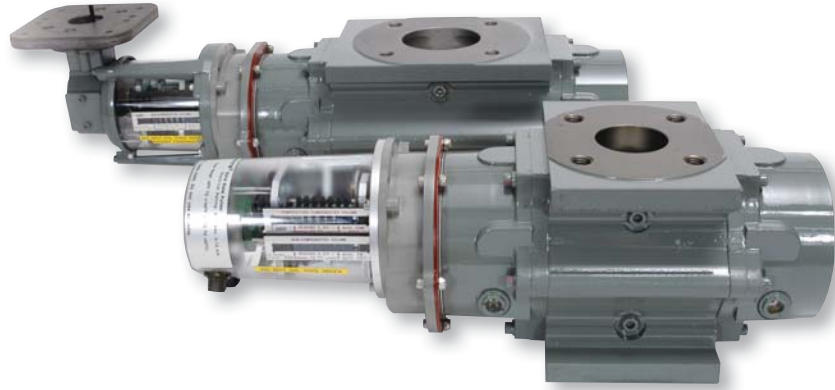


### Counter or Temperature Compensated with Instrument Drive (CD/TD)

The Universal Instrument Drive (ID) Assembly adapts to the CTR and TC Accessory for installation of a corrector, chart recorder, or other externally mounted, mechanically driven device. The ID Assembly is mechanically linked to the CTR/TC mechanical gear reduction unit. One revolution of the instrument drive dog represents a specific displaced volume measured by the meter.

# Dresser Series 3A Accessory Units for Series A LMMA Meters - Sizes 1.5M - 16M

The S3A Accessory unit mounts to your LMMA meter - features the same high quality and long-term reliability of the oil-free Series 3 Meter Accessory unit.



Series A (LMMA) Meters with S3A CD and S3A ITPWD



Series S3A TC

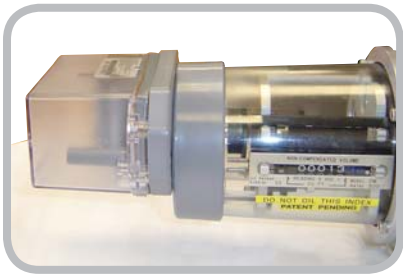


Series S3A CTR/AMR Adapter  
(shown with Itron ERT installed)

## Benefits

- **Maintenance-free.** Oil is not required for the polymer bushings and pre-lubricated, shielded ball bearings making the index environmentally friendly and easier to install and maintain.
- **Configurable Masking Options.** The S3A's versatile odometer masking design uses opaque or semi-transparent covers, offering configurable, trouble-free masking with no moving parts, hinges, flappers or magnets.
- **Easy-to-change ID Rotation.** Simply remove two bolts and invert the gear module so the pinion gear is driven at the bottom rather than the top of the horizontal bevel gear.
- **Conversion Kit Inventory Reduction.** The S3A uses the same #399 conversion kits as the B3 meters. Now you can stock the same Instrument Drive, Pulser or AMR Adapter #399 Kits for both Series Meters – LMMA and Series B3.
- **Proving Procedure Simplification.** With the S3A, you can prove your LMMA meters the same way you prove your B3 meters – off the odometer test wheel.
- **LM-MA Upgrade.** The S3A maintenance-free assembly is less expensive and easier-to-read and extending the life expectancy of your LMMA meter (LMMA meter line was obsolete in 1998) to provide many additional years of reliable service.

## Dresser AMR Adapters



Series B3 AMR Adapter for CTR and TC



Series A (LMMA) CTR AMR Adapter



Series A (LMMA) TC AMR Adapter



The Dresser AMR Adapters are available for mounting residential AMR devices of various manufacturers' directly onto a Dresser Series B3 or A (LMMA) meter. Adapters are available to mount either the American or Sensus footprint Itron 40G and 40GB ERTS, as well as the American footprint Itron 100G ERT and Itron 2.4 GZ Open Way devices. In addition to these Itron kits, Dresser also has adapter kits available to mount residential AMR devices manufactured by Cellnet, Sensus, TRACE, and Badger, directly to the Dresser meter.

The design utilizes a Series 3 polycarbonate cover on Series B Counter and TC meters, and for LMMA meters that have S3A units installed. There are also options for the older Series A (LMMA) accessory units – both TC and Counter versions. The covers have an opening designed to engage the AMR device in a direct drive link to the gear reduction assembly of the meter's accessory unit. The proven ID seal system between the adapter and the Series 3 cover provides a barrier against moisture intrusion into the oil free cover. The AMR Adapter is fastened to the Series 3 or Series A cover from the inside, providing a tamper proof design.

The direct drive AMR adapter offers a low cost, easy to install option for meters fitted with mechanical Counter and TC accessory units.

In addition, to the AMR adapter kits, GE also offers a remote AMR device mounting kit, for use in conjunction with the Dresser Micro Corrector, Model IMC/W2. This simple to install kit, allows the AMR device to be installed on the back of the corrector, which eliminates the need for long lengths of cabling between the corrector's pulse output connector and the AMR device. This mounting kit can be assembled to the IMC/W2 meter at the factory or at the customer location.

# Expanded Dresser Meter Line

## B3-VRM Vapor Recovery Meter

Rated for a maximum capacity of 3000 actual cubic feet per hour, the B3-VRM meters are specifically designed and tested for vapor recovery applications and conform to the California Air Resources Board specifications as applicable. The extremely low pressure drop associated with the Dresser positive displacement meter makes this meter ideal for the accurate measurement in low pressure recovery systems. Odometers on the vapor recovery meters are marked at 0.02 cubic foot increments, which allows accurately estimated readings in increments of 0.01 cubic feet. All B3-VRM meters are supplied with a 7 point certified accuracy curve for reference.



## Series Z Compact Meters

Ideal for small commercial loads at pressures up to 15 PSIG (1 Bar), the aesthetically pleasing 5C15 (500 ACFH) and 8C15 (800 ACFH) meters are easy to install and conceal. Series Z meters provide excellent measurement accuracy starting at “pilot loads” and continuing throughout the range of the meter. To match the meter configuration to the application, the user selects the following parameters when ordering:

- Imperial Dial Wheel Index
- Sealed Index Cover
- Standard (Atmospheric) or 2 psig Compensated Index
- Top or Bottom Inlet
- Sprague 4 (male), 45 Light (male), or 1-1/2 inch NPT (female) Connections
- Optional Inlet Strainer/Screen



## Series A (LM-MA) Meters

The 8C175 compact meter, like the Series Z, is also ideal for small commercial applications, but with a higher pressure rating. This meter is rated for a 175 PSIG (12 Bar) working pressure. Also available as a Vapor Recovery Meter that is C.A.R.B. approved and available with a High Frequency transmitter (PX).

## Series A1 Foot Mount Meter

The 102M125 Foot Mount meter is used for the measurement of high volume industrial gas loads for capacities up to 965.3 MSCFH at 125 PSIG (27,334 Nm<sup>3</sup>/h at 8,6 Bar).

# Dresser High Pressure Meters

## Series B3-HPC (High Pressure Cartridge) Meters

This meter line features a common cast-steel housing for the 1M (1000 ACFH) and 3M (3000 ACFH) sizes as well as the 5M 1480 (5000 ACFH) and 7M 1480 (7000 ACFH) sizes of aluminum cartridges. The 11M1480 meter is the largest of this series.

The 1M and 3M meters are available with either an ANSI Class 300# flange rated at 740 psig. MAOP or an ANSI Class 600# flange rated 1480 psig MAOP.

The 5M(5000 ACFH), 7M (7,000 ACFH), and 11M (11,000 ACFH) meters are designed for higher capacity applications with a maximum allowable operating pressure of 1480 psig. The housing is cast steel to meet the demands of the higher flow rates and pressures.

The cartridges are field replaceable and are interchangeable between housings for quick repair and less down-time, regardless of the pressure rating on the housing. As an option, a self-resetting full flow internal bypass is available on new meters and on replacement cartridges for the 1M through 7M sizes. These meters utilize the Series 3 Accessory Unit or with an Integral Micro Corrector, Model IMC/W2. See page 14 for further details on the corrector.



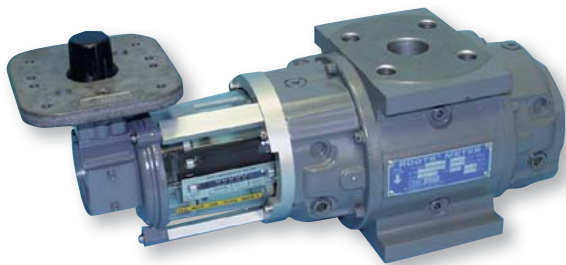
Removable B3-HPC Cartridge



Series B3-HPC



Series B3-HPC with Integral Micro Corrector



## Series B3-HP (High Pressure) Meters

The 1M300 (1000 ACFH) and 3M300 (3000 ACFH) are viable alternatives for pressures up to 300 PSIG. B3-HP meters offer extremely low start and stop rates, compact design with a 6-3/4" flange-to-flange dimension, and a much lower weight than traditional high pressure meters. This is achieved by using aluminum for all major meter components. The Series B3-HP meters mate with ANSI Class 300# FF flanges and are easily installed by one person without the need for a lift or hoist.

# Dresser Optional Electronic Products

## Dresser ICEX

- Provides a non-compensated, high frequency pulse output
- Mounts on all Series B meter bodies and Series A (LMMA) meters fitted with the S3A Accessory unit
- Available factory installed or as a field installable conversion kit
- Achieves greater reliability by using Solid State components to eliminate mechanical switches
- Reduces maintenance
- Available in three connections styles: MS-style circular connector, 1/2 inch liquid tight type conduit fitting, or cable gland with 4-ft. cable.



Cable Gland Connector



Conduit Connector



Circular Connector

## Solid State Transmitter (XMTR)

- High frequency pulse output
- 100 pulses per input shaft revolution
- Solid State circuitry provides a long life expectancy
- Mounts on any standard Instrument Drive
- 10 to 15 VDC



# Dresser Electronic Instrumentation

The Dresser Micro Corrector line of products offer both the latest technology in electronic volume correction and the best value that is available in the gas market today.



## Dresser Micro Corrector

The Micro Corrector is available in two models – the Instrument Drive/Wall mount version, and the IMC/W2 which can be mounted integrally to the meter. The IMC/W2 is available for mounting on the Series A (LMMA) and Series B Dresser meter line, as well as Romet meters. Both the IMC/W2 and the MC2 are available in PTZ+Log, P+Log, and T+Log versions.

### Both models feature:

- Intuitive User Terminal software
- 3 separate logged data reports, which can be imported into commercially available software platforms such as MS Excel™
- 3 user programmable pulse outputs included at no additional charge: corrected volume, uncorrected volume, and fault/alarm condition
- Extremely reliable and accurate volume correction with unprecedented nominal five year battery life – data and configuration stored in E2PROM

## Micro Generator

The Micro Generator uses cutting edge technology to convert the rotation of the meter impellers into electrical energy, while simultaneously providing volume pulses to the Micro Corrector and increasing the life of the main battery.



## IMC/W2 dp

The Differential Pressure (DP) Micro Corrector now offers an integrated solution monitor's the health of the rotary meter by constantly measuring the differential pressure drop across the meter. The DP Micro adds diagnostic features to the proven capabilities of the Integral Micro Corrector.

The DP Micro retains the last valid average differential pressure measurement on the LCD of the corrector along with the date when this occurred. It also displays the average line pressure, average line temperature and meter flow rate for that same date. The differential pressure test information required to be in compliance with state PUC requirements is available with the push of a button! This is a significant cost savings as the number of return trips to the meter set is greatly reduced, and is environmentally friendly as it eliminates the need for venting gas during periods of low consumption.

Developed from the proven IMC/W platform, the Dresser Micro Corrector continues to provide industry-leading volume correction through a simple-to-use interface. Features such as improved low flow accuracy, greatly enhanced data logging capability, and significantly reduced accuracy test times combine to offer a complete solution with major customer benefits. Differential pressure transducers available on PTZ, P only and T only versions of the IMC/W2.

# Dresser Communication Devices



## Model GSM/GPRS Micro Modem

The Dresser Micro Modem, Model GSM/GPRS embeds a wireless quad band GPRS modem. Opto-isolators provide an intrinsically safe unit specifically designed to work with the Dresser range of Micro Series products including volume correctors & data loggers. The Dresser GSM/GPRS Modem is designed to work directly with the MCNet SQL Database software, and allows for simple mechanical and electrical installation.



## Dresser Micro Power

The Dresser Micro Power is designed specifically for use with the Dresser Micro Series range of products when an intrinsically safe low power supply is required in the hazardous area. This includes the MC2 and Micro Logger2 products. The Micro Power reduces the need for battery changes in applications where the unit is being interrogated frequently.



## Dresser Micro Logger2

Dresser Micro Logger2 is an extension of the successful Micro Series product line. It utilizes the same user friendly Micro Corrector User Terminal Software and communication cables and, is designed to be installed on any part of the distribution or transmission system requiring accurate, safe, and reliable data logging and network status monitoring. The Micro Logger is available with single or dual pressure transducers and a temperature probe.



## Chatterbox-e Isolation Unit

The Chatterbox-e provides safety isolation between equipment generating pulses in the hazardous area and non intrinsically safe equipment located in the safe area. Chatterbox-e operates from a self contained power supply and is suitable for installation in remote and environments without the need for an external power supply.



# Dresser Communication Software



## Micro Series Corrector User Terminal Software

The Micro Series Corrector User Terminal software allows you to configure, calibrate, log data, download data and monitor alarms via the unique Live Data Screen feature. The data logs can be downloaded serially using a laptop or remotely using the Telephone Line Micro Modem Model 108.



## Dresser Automatic Meter Reading and Automatic Data Acquisition Software MCNet SQL

Dresser MCNet SQL receives data log emails from the MC2, IMC/W2 or ML2. This process is fully automatic; 1, 2 or 3 emails are generated from site each day, via the GPRS network, and are forwarded to two email addresses (To: & Cc:). No limit to the number of sites that can use this system. An internet connection is all that is required.



## Dresser MeterWare Software

MeterWare allows you to communicate with configure, calibrate and download data and audit logs from the D800/D1000 meter, ES3 Electronic Temperature Compensator with mechanical backup, and the ETC fully Electronic Temperature Compensator. This user-friendly software builds upon the Micro Corrector User Terminal Software for ease of use and familiarity.

# Dresser Model 5 Provers

Model 5 Transfer Provers feature an integrated computer controlled system for verification and testing of rotary, diaphragm, and turbine\*\* gas meters. After the field meter is connected to the Prover and the test sequence is selected, the remainder of the operation is “hands-off.” Test sequencing is automatically controlled by the software settings and the test results are displayed on the computer screen.

For ease of testing and recording, the Model 5 Prover system will:

- Store virtually unlimited predetermined field meter test configurations
- Perform and display all calculations at the end of each test and allow for saving to disk
- Provide user-friendly menu prompts
- Allow easy access to extensive Help Files

The primary components for all Model 5 Prover systems include highly accurate Dresser master meters as measurement standards, easy-to-use Windows®-based software, and a blower system to provide a stable air flow through the system.

\*\* Refer to Acoustic filter on page 19.



## 10M or 2M/10M Prover

- 10M or 2M/10M master meters  
Capacities:  
2M: 35 to 2,300 ACFH (1.0 to 65,1 m<sup>3</sup>/h)  
10M: 100 to 10,000 ACFH (2,83 to 283 m<sup>3</sup>/h)
- Suitable for both field and shop use
- Easily transported in a van or truck



## 5M/20M Prover

The cart-mounted prover gives you the increased capability to prove rotary, turbine and diaphragm meters up to 20,000 acfh, while occupying minimal floor space.

Capacities:

- 5M: 35 to 5,650 ACFH (1,0 to 160 m<sup>3</sup>/h)
- 20M: 160 to 20,000 ACFH (4,5 to 566 m<sup>3</sup>/h)



## 10M/80M Proving System

- 10M and 80M master meters  
Capacities:  
10M: 100 to 10,000 ACFH (2,83 to 283 m<sup>3</sup>/h)  
80M: 1,600 to 80,000 ACFH (45,3 to 2265,3 m<sup>3</sup>/h)
- Skid Mounted Shop System
- Ideal for testing large capacity rotary and turbine type gas meters

# Dresser Model 5 Prover Accessories



## Windows®-based Software

Easy-to-use software with icons and menus typical of Windows-based programs allow you to increase your productivity and work more intuitively with the computer. The software is designed for all Model 5 Prover Systems and is compatible with Windows® 95, 98, 2000, ME, XP, NT 4.0 and VISTA.



## USB to Serial Port Converter Cable

This converter will allow users with existing Windows® - based Model 5 Software and computers without a serial port to connect to their Model 5 Provers. The Converter Kit consists of a converter cable and Model 5 Upgrade CD. Minimum System requirements are a computer with 500MHz processor, 128MB RAM, 400MB hard disk space, Windows® 98, XP professional, an open USB port, and the Windows® - based Model 5 Software.



## RS Optical Scanner

The optional RS Optical Scanner is used to facilitate meter testing using an automatic testing sequence. This reduces the potential for human error associated with a manual test. The Scanner can be used on dial indexes and odometers with black and white graduated marks.



## Acoustic Filter

When testing turbine-type gas meters with a transfer prover, an Acoustic Filter should be installed between the Field Meter (meter under test) and the Dresser master meter. The Acoustic Filter reduces or eliminates the resonance phenomena induced by pulsation from the master meter at most flow rates. An Acoustic Filter is ideal for shop use with a 2M/10M Model 5 Dresser prover.



## D800/D1000, ES3/ETC IR Prover Interface

IR comms for quick proving of ES3, ETC and D800/D1000. Reduces test time of TC meters by 90%.



## SmartProve\*

The Dresser SmartProve Interface is a user friendly approach to testing the Dresser Micro Corrector, Models IMC/W2, and MC2, when using the Dresser Model 5 Transfer Prover. The specially designed cable and software allow for a combined accuracy test of the corrector and the meter. The SmartProve package consists of a Model 5 Prover software upgrade CD, the SmartProve Interface Cable, and instructions for use.

# Dresser Test Equipment



## Smart Manometer

The Smart Manometer is a pressure measuring instrument with an accuracy of  $\pm 0.025\%$  of full scale at a truly low cost. As a replacement for glass manometers, this microprocessor based system, manufactured by Meriam Instrument, is suitable for the measurement of differential pressures across a rotary meter.



## Differential Testing Acceptance Calculator Software

The new DTA Calculator lets you quickly verify the operational condition of your Dresser Series A (LMMA) and Series B Meters rated to 175 MAOP. Print or Save data for future comparisons. Just "clock" your meter, take your differential pressure reading, plug in your value, and the software does the rest.



# Dresser Meter Sets & Piping Accessories

A full line of meter set components are available for a one-stop-shopping approach to meter set design and installation. Reduce your installation cost with a professionally designed and tested Dresser meter set.



Pre-Fabricated Sets

## Pre Fabricated Meter Sets

GE offers both Standard and Customer Specified designs. These modular meter sets are packaged for economical shipping and storage. Benefits include design standardization, reduced inventories, and lower overhead costs.



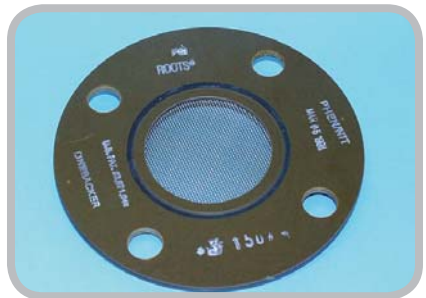
## Ultraseal® Gas Meter Valves

Ultraseal® valves are permanently lubricated and bi-directional. They meet NPFA standards and continue to maintain a bubble-tight seal after qualification testing to over 10,000 cycles. Torque values remain low even at subzero temperatures. Locking plates are also available.



## Pipeline Strainers

These strainers are designed to protect meters and other precision devices from the damaging effects of entrained system debris. A low pressure drop is achieved through a large element area and venturi port design. The debris bowl is tapped for cleaning.



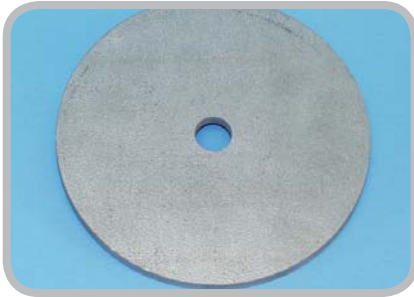
## Gasket Strainers

Using a 20 mesh stainless steel screen, the Gasket Strainer helps protect against potential damage to precision pipeline measurement and regulation equipment caused by occasional introduction of weld slag, plastic pipe shavings, or other debris.

# Dresser Accessories

## Restricting Flow Orifice Plates

Critical flow orifice plates provide low cost protection against meter overspeed. Plates are installed 2 to 4 pipe diameters downstream for maximum effectiveness.



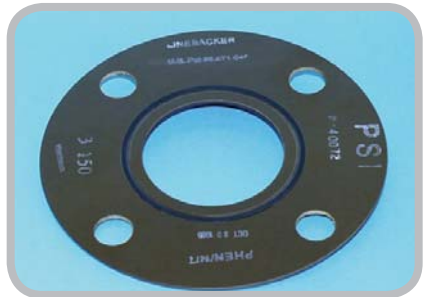
## Companion Flange Assemblies

These kits include all the equipment necessary for mounting a meter in a pipeline. The kit consists of flanges, coated flange bolts, and gaskets.



## Flange Gaskets

LineBacker™ gaskets, with their unique sealing element, use the lowest possible clamp and compressive load to eliminate flange leaks.



## Coated Flange Bolts

These bolts have a lubricious, polymer-based coating to help prevent galling of the threads in the meter body.



## Dresser Meter Oil

Approved for use in all Dresser meters. The oil is packaged in quantities from 4 ounces to 55 gallons.



## Differential Test Plugs

Allows user to take pressure and temperature readings quickly while eliminating the cost of leaving gauges or temperature indicators in line.

# Dresser Product Repair Services

Our Product Services Department offers repair, remanufacturing, testing and calibration service for all Dresser meters, provers, and instrumentation. At GE Oil & Gas, our focus is on customer satisfaction. Let the experts handle your Dresser products repair and calibration needs.

The overall cost effectiveness of factory service is enhanced by:

- Standardized and competitive service levels
- Specialization in contract services
- Inspection for warranty and upgrades
- Line Mount Meters returned freight prepaid to the first point of delivery within the United States



# Imperial Sizing Charts

Line Mounted														
Model	8C175 <sup>1</sup>	11C175 <sup>1</sup>	15C175 <sup>1</sup>	2M175 <sup>1</sup>	3M175 <sup>1</sup>	5M175 <sup>1</sup>	7M175	11M175	16M175	23M175	23M232	38M175	56M175	102M125
<sup>1</sup> Also available in 200 PSIG Rating														
Rating	800	1100	1500	2000	3000	5000	7000	11000	16000	23000	23000	38000	56000	102000
PSIG	Corrected Capacity at Metering Pressure - in MSCFH													
1	0.84	1.15	1.57	2.09	3.1	5.2	7.3	11.5	16.7	24.0	24.0	39.7	58.5	106.6
3	0.95	1.30	1.77	2.36	3.5	5.9	8.3	13.0	18.9	27.2	27.2	44.9	66.2	120.5
5	1.05	1.45	1.98	2.63	4.0	6.6	9.2	14.5	21.1	30.3	30.3	50.0	73.8	134.3
10	1.33	1.82	2.48	3.31	5.0	8.3	11.6	18.2	26.5	38.1	38.1	62.9	92.8	168.9
15	1.60	2.20	2.99	3.99	6.0	10.0	14.0	22.0	31.9	45.9	45.9	75.8	111.8	203.6
20	1.87	2.57	3.50	4.67	7.0	11.7	16.3	25.7	37.4	53.7	53.7	88.7	130.8	238.2
25	2.14	2.94	4.01	5.35	8.0	13.4	18.7	29.4	42.8	61.5	61.5	101.6	149.8	272.9
30	2.41	3.32	4.52	6.03	9.0	15.1	21.1	33.2	48.2	69.3	69.3	114.5	168.8	307.4
40	2.95	4.06	5.54	7.39	11.1	18.5	25.9	40.6	59.1	84.9	84.9	140.3	206.8	376.7
50	3.50	4.81	6.56	8.74	13.1	21.9	30.6	48.1	70.0	100.6	100.6	166.1	244.8	445.9
60	4.04	5.56	7.58	10.10	15.2	25.3	35.4	55.6	80.8	116.2	116.2	191.9	282.9	515.2
70	4.58	6.30	8.59	11.46	17.2	28.6	40.1	63.0	91.7	131.8	131.8	217.7	320.9	584.5
80	5.13	7.05	9.61	12.82	19.2	32.0	44.9	70.5	102.5	147.4	147.4	243.5	358.9	653.7
90	5.67	7.80	10.63	14.18	21.3	35.4	49.6	78.0	113.4	163.0	163.0	269.3	396.9	723.0
100	6.21	8.54	11.65	15.53	23.3	38.8	54.4	85.4	124.3	178.6	178.6	295.1	434.9	792.1
110	6.76	9.29	12.67	16.89	25.3	42.2	59.1	92.9	135.1	194.2	194.2	320.9	472.9	861.4
120	7.30	10.04	13.69	18.25	27.4	45.6	63.9	100.4	146.0	209.9	209.9	346.7	511.0	930.6
125	7.57	10.41	14.2	18.93	28.4	47.3	66.2	104.1	151.4	217.7	217.7	359.6	530.0	965.3
135	8.11	11.16	15.21	20.29	30.4	50.7	71.0	111.6	162.3	233.3	233.3	385.4	568.0	
150	8.93	12.28	16.74	22.32	33.5	55.8	78.1	122.8	178.6	256.7	256.7	424.1	625.0	
175	10.29	14.14	19.29	25.72	38.6	64.3	90.0	141.4	205.7	295.7	295.7	488.6	720.1	
200	11.64	16.01	21.83	29.11	43.7	72.8						334.8		
232												384.7		

175 PSIG Standard MAOP on sizes 8C175-56M175

<sup>1</sup> 200 PSIG MAOP Rating Optional. Contact Factory.

High Pressure Meters									
Model	1M300	1M740	1M1480	3M300	3M740	3M1480	5M1480	7M1480	11M480
Rating	1000	1000	1000	3000	3000	3000	5000	7000	11000
PSIG	Corrected Capacity at Metering Pressure - MSCFH								
125	9.5	9.5	9.5	28.4	28.4	28.4	47.3	66.2	104.1
150	11.2	11.2	11.2	33.5	33.5	33.5	55.8	78.1	122.8
175	12.9	12.9	12.9	38.6	38.6	38.6	64.3	90.0	141.4
200	14.6	14.6	14.6	43.7	43.7	43.7	72.8	102	160.1
250	18.0	18.0	18.0	53.9	53.9	53.9	89.8	126	197.4
300	21.3	21.3	21.3	64.0	64.0	64.0	107	149	234.8
350		24.7	24.7		74.2	74.2	124	173	272.1
500		34.9	34.9		105	105	175	244	384.1
600		41.7	41.7		125	125	209	292	458.8
740		51.2	51.2		154	154	256	359	563.4
800			55.3			166	276	387	608.2
900			62.1			186	310	435	682.9
1200			82.4			247	412	577	906.9
1480			102			305	508	711	1116.0

**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.

## SIZING INSTRUCTIONS

To select the proper meter size, use the Minimum Operating Pressure and the Maximum Instantaneous Hourly Flow Rate. Do not exceed meter's maximum allowable operating pressure.

To prevent oversizing of a meter, sizing should be based upon the total connected load giving consideration to the load diversity. When using this method to size a meter, a selected diversity factor times the total connected load will be used as the Maximum Instantaneous Flow Rate for sizing purposes.

A diversity factor of 0.85 is commonly used for a single application where two or more major appliances are in use (i.e. boilers, furnaces, space heaters, etc.).

As the number of appliances considered when determining a connected load increases, the diversity factor will typically decrease. For applications such as multiple ranges and water heaters, some examples of commonly used diversity factors are:

Qty	Factor	Qty	Factor <sup>2</sup>
0-5	1	6	0.9
7	0.85	8	0.83

<sup>2</sup>The diversity factors listed above are estimates. For proper sizing, consult your company or industry standards for determining accepted values.

Energy Value	
Gas	BTU/Cu. Ft.
Acetylene	1498
Butane	3200
Ethane	1758
Ethylene	1606
Methane	997
Natural	965/1055
Propane	2550



# Metric Sizing Charts

Line Mounted - Metric																
Model			8C175 <sup>1</sup>	11C175 <sup>1</sup>	15C175 <sup>1</sup>	2M175 <sup>1</sup>	3M175 <sup>1</sup>	5M175 <sup>1</sup>	7M175	11M175	16M175	23M232	23M175	38M175	56M175	102M125
<sup>1</sup> Also available in 200 PSIG Rating																
Rating			22,7	31,2	42,5	56,6	85,0	141,6	198,2	311,5	453,1	651,3	651,3	1076,0	1585,7	2888,3
PSIG	kPa	Bar	Corrected Capacity at Metering Pressure - in Nm <sup>3</sup> /h													
1	6,9	0,1	23,7	32,6	44,4	59,2	88,8	148,0	207,2	325,7	473,7	680,9	680,9	1125,0	1657,9	3019,7
3	20,7	0,2	26,8	36,8	50,2	66,9	100,3	167,2	234,1	368,0	535,2	769,3	769,3	1271,1	1873,2	3411,9
5	34,5	0,3	29,8	41,0	55,9	74,6	111,9	186,5	261,1	410,2	596,7	857,8	857,8	1417,2	2088,5	3804,0
10	68,9	0,7	37,5	51,6	70,4	93,8	140,7	234,5	328,3	516,0	750,5	1078,9	1078,9	1782,4	2626,8	4784,5
15	103,4	1,0	45,2	62,2	84,8	113,0	169,6	282,6	395,6	621,7	904,3	1299,9	1299,9	2147,7	3165,0	5764,9
20	137,9	1,4	52,9	72,7	99,2	132,3	198,4	330,6	462,9	727,4	1058,1	1521,0	1521,0	2513,0	3703,3	6745,3
30	206,8	2,1	68,3	93,9	128,0	170,7	256,1	426,8	597,5	938,9	1365,7	1963,2	1963,2	3243,5	4779,8	8706,1
40	275,8	2,8	83,6	115,0	156,8	209,1	313,7	522,9	732,1	1150,4	1673,3	2405,3	2405,3	3974,0	5856,4	10667,0
50	344,7	3,4	99,0	136,2	185,7	247,6	371,4	619,0	866,6	1361,8	1980,8	2847,5	2847,5	4704,5	6932,9	12627,8
60	413,7	4,1	114,4	157,3	214,5	286,0	429,1	715,1	1001,2	1573,3	2288,4	3289,6	3289,6	5435,0	8009,4	14588,7
70	482,6	4,8	129,8	178,5	243,3	324,5	486,7	811,2	1135,8	1784,8	2596,0	3731,8	3731,8	6165,5	9086,0	16549,5
80	551,6	5,5	145,2	199,6	272,2	362,9	544,4	907,3	1270,3	1996,2	2903,6	4173,9	4173,9	6896,0	10162,5	18510,3
90	620,5	6,2	160,5	220,8	301,0	401,4	602,1	1003,5	1404,9	2207,7	3211,2	4616,1	4616,1	7626,5	11239,1	20471,2
100	689,5	6,9	175,9	241,9	329,8	439,8	659,8	1099,6	1539,5	2419,2	3518,8	5058,2	5058,2	8357,0	12315,6	22432,0
125	861,8	8,6	214,4	294,8	401,9	535,9	803,9	1339,9	1875,9	2947,8	4287,7	6163,6	6163,6	10183,3	15006,9	27334,1
150	1034,2	10,3	252,8	347,7	474,0	632,0	948,1	1580,2	2212,3	3476,5	5056,7	7269,0	7269,0	12009,6	17698,3	
175	1206,6	12,1	291,2	400,5	546,1	728,2	1092,3	1820,5	2548,7	4005,2	5825,6	8374,4	8374,4	13835,8	20389,6	
200	1379,0	13,8	329,7	453,4	618,2	824,3	1236,5	2060,7				9479,7				
232	1599,6	16,0														10894,6

175 PSIG Standard MAOP on sizes 8C175-56M175. 23M232 is rated at 232 psig MAOP.  
<sup>1</sup> 200 PSIG MAOP Rating Optional. Contact Factory.

High Pressure Meters - Metric											
Model			1M300	1M740	1M1480	3M300	3M740	3M1480	5M1480	7M1480	11M1480
Rating			28,3	28,3	28,3	85,0	85,0	85,0	141,6	198,2	311,5
PSIG	kPa	Bar	Corrected Capacity at Metering Pressure - in Nm <sup>3</sup> /h								
125	861,8	8,6	268,0	268,0	268,0	803,9	803,9	803,9	1339,9	1875,9	2943,2
150	1034,2	10,3	316,1	316,1	316,1	948,1	948,1	948,1	1580,2	2212,3	3471,0
175	1206,6	12,1	364,1	364,1	364,1	1092,3	1092,3	1092,3	1820,5	2548,7	3998,9
200	1379,0	13,8	412,2	412,2	412,2	1236,5	1236,5	1236,5	2060,7	2885,2	4526,7
250	1723,7	17,2	508,3	508,3	508,3	1524,8	1524,8	1524,8	2541,3	3558,0	5582,4
300	2068,4	20,7	604,5	604,5	604,5	1813,2	1813,2	1813,2	3021,9	4230,8	6638,1
350	2413,2	24,1		700,6	700,6		2101,5	2101,5	3502,5	4903,7	7693,7
400	2757,9	27,6		796,7	796,7		2389,9	2389,9	3983,1	5576,5	8749,4
500	3447,4	34,5		989,0	989,0		2966,6	2966,6	4944,2	6922,2	10860,7
600	4136,9	41,4		1181,2	1181,2		3543,3	3543,3	5905,4	8267,9	12972,1
700	4826,3	48,3		1373,5	1373,5		4120,0	4120,0	6866,6	9613,6	15083,4
740	5102,1	51,0		1450,4	1450,4		4350,7	4350,7	7251,0	10151,9	15928,0
800	5515,8	55,2			1565,8			4696,8	7827,7	10959,3	17194,8
900	6205,3	62,1			1758,0			5273,5	8788,9	12305,0	19306,1
1000	6894,8	68,9			1950,3			5850,2	9750,1	13650,7	21417,4
1200	8273,7	82,7				2334,8			7003,6	11672,4	25640,1
1300	8963,0	90,0				2527,1			7580,3	12635,4	27751,5
1480	10204,2	102,0				2873,1			8618,4	14363,7	31551,9

# G-Rating Sizing Charts

Line Mounted														
Model			G16	G25	G40	G65	G100	G160 3"	G160 4"	G250	G400 4"	G400 6"	G650	G1000
Base Rating (m <sup>3</sup> /h)			25	40	65	100	160	250	250	400	650	650	1000	1600
Meter Oper. Press.			Corrected Capacity at Metering Pressure in Nm <sup>3</sup> /h											
PSIG	kPa	Bar												
3	21	0,2	29,5	47,3	76,8	118,1	189,0	295,3	295,3	472,5	767,8	767,8	1181,3	1890,0
5	34	0,3	32,9	52,7	85,6	131,7	210,7	329,3	329,3	526,8	856,1	856,1	1317,0	2107,3
10	69	0,7	41,4	66,3	107,7	165,6	265,0	414,1	414,1	662,6	1076,7	1076,7	1656,5	2650,4
15	103	1,0	49,9	79,8	129,7	199,6	319,3	499,0	499,0	798,4	1297,4	1297,4	1995,9	3193,5
20	138	1,4	58,4	93,4	151,8	233,5	373,7	583,8	583,8	934,1	1518,0	1518,0	2335,4	3736,6
30	207	2,1	75,4	120,6	195,9	301,4	482,3	753,6	753,6	1205,7	1959,3	1959,3	3014,3	4822,8
40	276	2,8	92,3	147,7	240,1	369,3	590,9	923,3	923,3	1477,3	2400,5	2400,5	3693,1	5909,0
50	345	3,4	109,3	174,9	284,2	437,2	699,5	1093,0	1093,0	1748,8	2841,8	2841,8	4372,0	6995,2
60	414	4,1	126,3	202,0	328,3	505,1	808,1	1262,7	1262,7	2020,4	3283,1	3283,1	5050,9	8081,5
70	483	4,8	143,2	229,2	372,4	573,0	916,8	1432,5	1432,5	2291,9	3724,4	3724,4	5729,8	9167,7
80	552	5,5	160,2	256,3	416,6	640,9	1025,4	1602,2	1602,2	2563,5	4165,6	4165,6	6408,7	10253,9
90	621	6,2	177,2	283,5	460,7	708,8	1134,0	1771,9	1771,9	2835,0	4606,9	4606,9	7087,6	11340,1
100	689	6,9	194,2	310,7	504,8	776,6	1242,6	1941,6	1941,6	3106,6	5048,2	5048,2	7766,5	12426,3
125	862	8,6	236,6	378,5	615,1	946,4	1514,2	2365,9	2365,9	3785,5	6151,4	6151,4	9463,7	15141,9
150	1034	10,3	279,0	446,4	725,5	1116,1	1785,7	2790,2	2790,2	4464,4	7254,6	7254,6	11160,9	17857,4
175	1207	12,1	321,5	514,3	835,8	1285,8	2057,3	3214,5	3214,5	5143,2	8357,8	8357,8	12858,1	20573,0
200	1379	13,8			946,1 <sup>1</sup>	1455,5 <sup>1</sup>	2328,9 <sup>1</sup>	3638,8 <sup>1</sup>	3638,8 <sup>1</sup>	5822,1 <sup>1</sup>	9461,0 <sup>1</sup>			
232	1600	16,0			1087,3 <sup>1</sup>	1672,8 <sup>1</sup>	2676,4 <sup>1</sup>	4181,9 <sup>1</sup>	4181,9 <sup>1</sup>	6691,1 <sup>1</sup>	10873,0 <sup>1</sup>			

12 bar MAOP Standard <sup>1</sup>16 bar MAOP optional on sizes G40-G400 4". Contact Factory.

Dresser High Pressure Meters															
Model			G16-300	G25-300	G40-300	G65-300	G16-740	G25-740	G40-740	G65-740	G16-1480	G25-1480	G40-1480	G65-1480	G100-1480
Base Rating (m <sup>3</sup> /h)			25	40	65	100	25	40	65	100	25	40	65	100	160
Meter Oper. Press.			Corrected Capacity at Meter Pressure -in Nm <sup>3</sup> /h												
PSIG	kPa	Bar													
125	862	9	236,6	378,5	615,1	946,4	236,6	378,5	615,1	946,4	236,6	378,5	615,1	946,4	1514,2
150	1034	10	279,0	446,4	725,5	1116,1	279,0	446,4	725,5	1116,1	279,0	446,4	725,5	1116,1	1785,7
175	1207	12	321,5	514,3	835,8	1285,8	321,5	514,3	835,8	1285,8	321,5	514,3	835,8	1285,8	2057,3
200	1379	14	363,9	582,2	946,1	1455,5	363,9	583,2	946,1	1455,5	363,9	582,2	946,1	1455,5	2328,9
250	1724	17	448,7	718,0	1166,7	1795,0	448,7	718,0	1166,7	1795,0	448,7	718,0	1166,7	1795,0	2872,0
300	2068	21	533,6	853,8	1387,4	2134,4	533,6	853,8	1387,4	2134,4	533,6	853,8	1387,4	2134,4	3415,1
350	2413	24					618,5	989,5	1608,0	2473,9	618,5	989,5	1608,0	2473,9	3958,2
400	2758	28					703,3	1125,3	1828,6	2813,3	703,3	1125,3	1828,6	2813,3	4501,3
500	3447	34					873,0	1396,9	2269,9	3492,2	873,0	1396,9	2269,9	3492,2	5587,5
600	4137	41					1042,8	1668,4	2711,2	4171,1	1042,8	1668,4	2711,2	4171,1	6673,7
700	4826	48					1212,5	1940,0	3152,5	4850,0	1212,5	1940,0	3152,5	4850,0	7759,9
740	5102	51					1280,4	2048,6	3329,0	5121,5	1280,4	2048,6	3329,0	5121,5	8194,4
800	5516	55									1382,2	2211,5	3593,8	5528,9	8846,2
900	6205	62									1551,9	2483,1	4035,0	6207,7	9932,4
1000	6895	69									1721,7	2754,7	4476,3	6886,6	11018,6
1200	8274	83									2061,1	3297,8	5358,9	8244,4	13191,0
1300	8963	90									2230,8	3569,3	5800,1	8923,3	14277,3
1480	10204	102									2536,3	4058,1	6594,4	10145,3	16232,5

# Imperial and Metric Technical Data

Technical Data	Units	8C175*	11C175*	15C175*	2M175*	3M175*	5M175*	7M175	8.8M175	11M175	16M175	23M175	23M232
Base Rating (Q Max.)	acfh	800	1100	1500	2000	3000	5000	7000	N/A	11000	16000	23000	23000
	m <sup>3</sup> /h	22.6	31.0	42.5	56.6	85.0	141.5	200.0	250.0	310.0	450.0	650.0	650.0
Max. Operating Pressure (MAOP) <sup>1</sup>	psig	175	175	175	175	175	175	175	N/A	175	175	175	232
	kPa	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1600
Rangeability +/- 1%	ratio	26:1	31:1	40:1	68:1	76:1	120:1	67:1	70:1	124:1	116:1	40:1	169:1
Start Rate	cfh	2.8	2.3	1.9	1.01	2.1	1.2	5.3	N/A	3.9	3.2	23	10.33
	m <sup>3</sup> /h	0.0790	0.0651	0.0549	0.0538	0.0595	0.0340	0.1509	0.1510	0.1099	0.0917	0.6513	0.2926
Stop Rate	cfh	2	1.7	1.6	0.82	1.8	0.8	3.4	N/A	3.2	1.9	18	5.75
	m <sup>3</sup> /h	0.0575	0.0493	0.0445	0.0311	0.0510	0.0227	0.096	0.0960	0.0915	0.0535	0.5097	0.1628
Avg. Differential, 100% Flow	in. w.c.	0.5	0.6	0.8	0.7	1.1	1.1	1.6	N/A	1.6	2.1	1.3	2.08
	mbar	1.1	1.5	1.9	1.6	2.6	2.6	4.0	2.8	4.0	5.2	3.1	5.18
Drive Rate CTR, CD	cf/rev	10	10	10	10	10	10	10	N/A	10	100	100	100
	m <sup>3</sup> /rev	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1
Drive Rate TC, TD	cf/rev	100	100	100	100	100	100	100	N/A	100	1000	N/A	N/A
	m <sup>3</sup> /rev	1	1	1	1	1	1	10	10	10	10	N/A	N/A
Nominal Pipe Size	in.	2	2	2	2	2	3	3	N/A	4	4	6	4
	mm	50	50	50	50	50	80	80	80 or 100	100	100	150	100
Flange-to-Flange	in.	6-3/4	6-3/4	6-3/4	6-3/4	6-3/4	6-3/4	9/1-1/2	N/A	9-1/2	9-1/2	16	9-1/2
	mm	172	172	172	172	172	172	241	241	241	241	406.4	241
Flange Connection	ANSI	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150#FF	150FF
	lbs.	18	22	24	26	29	35	52	N/A	60	85	202	100
Net Weight - CTR Version	kg	8.2	10.0	10.9	11.8	13.2	15.9	23.6	29.0 or 31.0	27.2	38.6	91.6	45.4
	Units	38M175	56M175	102M125	1W300	1M740	1M1480	3M300	3M740	3M1480	5M1480	7M1480	11M1480
Base Rating (Q Max.)	acfh	38000	56000	102000	1000	1000	1000	3000	3000	3000	5000	7000	11000
	m <sup>3</sup> /h	1050.0	1575.0	2875.0	28.3	65.0	65.0	85.0	85.0	85.0	141.5	200.0	310
Max. Operating Pressure (MAOP) <sup>1</sup>	psig	175	175	125	300	740	1480	300	740	1480	1480	1480	1480
	kPa	1200	1200	860	2065	5100	10200	2065	5100	10200	10200	10200	10204
Start Rate	cfh	27	40	120	1.9	2.5	2.5	2.1	3	3	7.6	5.8	12.83
	m <sup>3</sup> /h	0.7646	11.327	33.980	0.0538	0.0708	0.0708	0.0595	0.0850	0.0850	0.133	0.1642	0.363
Stop Rate	cfh	20	29	110	1.1	2	2	1.8	2.5	2.5	4.6	4.6	4.65
	m <sup>3</sup> /h	0.5663	0.0283	31.149	0.0311	0.0566	0.0566	0.0510	0.0708	0.0708	0.057	0.1303	0.132
Avg. Differential, 100% Flow	in. w.c.	1.9	2.2	2	0.2	0.4	0.3	1	1.3	1.35	0.9	2	1.04
	mbar	4.7	5.5	5.0	0.5	1.0	0.7	2.5	3.2	3.4	2.24	4.26	0.029
Drive Rate CTR, CD	cf/rev	100	100	100	10	10	10	10	10	10	10	10	10
	m <sup>3</sup> /rev	1	10	10	0.1	0.1	0.1	0.1	0.1	0.1	1	1	N/A
Drive Rate TC, TD	cf/rev	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	m <sup>3</sup> /rev	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nominal Pipe Size	in.	6	8	10	1-1/2	2	2	2	2	2	3	3	4
	mm	150	200	250	40	50	50	50	50	50	80	80	100
Flange-to-Flange	in.	18	21	28	6-3/4	10-3/4	10-3/4	6-3/4	10-3/4	10-3/4	14-3/4	14-3/4	14-3/4
	mm	457.2	533.4	711.2	172	273	273	172	273	273	374.65	374.65	374.65
Flange Connection	ANSI	150#FF	150#FF	125#FF	300#FF	300#FF	600#FF	300#FF	300#FF	600#FF	600#FF	600#FF	600#FF
	lbs.	244	284	2390	26.5	107	107	29	107	107	215	220	277
Net Weight - CTR Version	kg	110.7	128.8	1084.1	12.0	48.5	48.5	13.2	48.5	48.5	97.52	99.79	125.65

<sup>1</sup> Available with 200 PSIG Rating.

# D800/D1000 Imperial and Metric Technical Data

	Units	Imperial	Units	Metric
Base Rating (Q Max) @ 0.5" w.c., Gas	acfh	800 1000	m <sup>3</sup> /h	22,6 28,3
Base Rating (Q Max) @ 2" w.c., Gas	acfh	1700	m <sup>3</sup> /h	48
Maximum Operating Pressure (MAOP)	psig	25	kPa	172,4
Rangeability +/- 1% at Qmax = 800 acfh	ratio	100:1	ratio	100:1
Rangeability +/- 1% at Qmax = 1000 acfh	ratio	125:1	ratio	125:1
Rangeability +/- 1% at Qmax = 1700 acfh	ratio	212:1	ratio	212:1
Start Rate	cfh	0.30	m <sup>3</sup> /h	0,0085
Stop Rate	cfh	0.15	m <sup>3</sup> /h	0,0042
Displaced Volume/Revolution	cf	0.007407	m <sup>3</sup>	0,000210
Temperature Compensation Range	deg F	-40°F to +140°F	deg C	-40°C to +60°C
Odometer Configuration		5-8 digits		5-8 digits with 0-2 decimals
Ferrule (Spud) Connection		30 LT/45LT/ #3 Sprague/#4 Sprague		same
Spud to Spud	in.	11	mm	279,4
Net Weight	lbs.	24	kg	10,8

Low Flow Performance		Rangeability			
Accuracy		Range	800 cfh 22,6 m <sup>3</sup> /h	1000 cfh 28,3 m <sup>3</sup> /h	1700 cfh 48,0 m <sup>3</sup> /h
0.30 cfh (start rate)					
1 cfh	90%	1%	100:1	125:1	212:1
2 cfh	95%	2%	160:1	200:1	340:1
5 cfh	98%	3%	266:1	333:1	566:1
8 cfh	99%				
12 cfh	100%				

## D800/D1000 Sizing Chart

Operating Pressure			Base Rating (cfh)			Base Rating (m <sup>3</sup> /h)		
			800	1000	1700	22,7	28,3	48,1
psig	kpa	bar	Corrected Capacity (scfh)			Corrected Capacity (Nm <sup>3</sup> /h)		
0.25	1.7	0.02	800	1000	1700	22,7	28,3	48,1
1	6.9	0.07	836	1045	1777	23,7	29,6	50,3
3	20.7	0.21	945	1181	2008	26,8	33,4	56,8
5	34.5	0.34	1054	1317	2239	29,9	37,3	63,3
10	68.9	0.69	1325	1656	2816	37,6	46,9	79,7
15	103.4	1.03	1597	1996	3393	45,3	56,5	96,0
20	137.9	1.38	1868	2335	3970	53,0	66,1	112,3
25	172.4	1.72	2140	2675	4547	60,7	75,7	128,7

Note: All performance data is averaged and indicative of meter performance. Individual meter characteristics may vary.

## G-Rating Technical Data

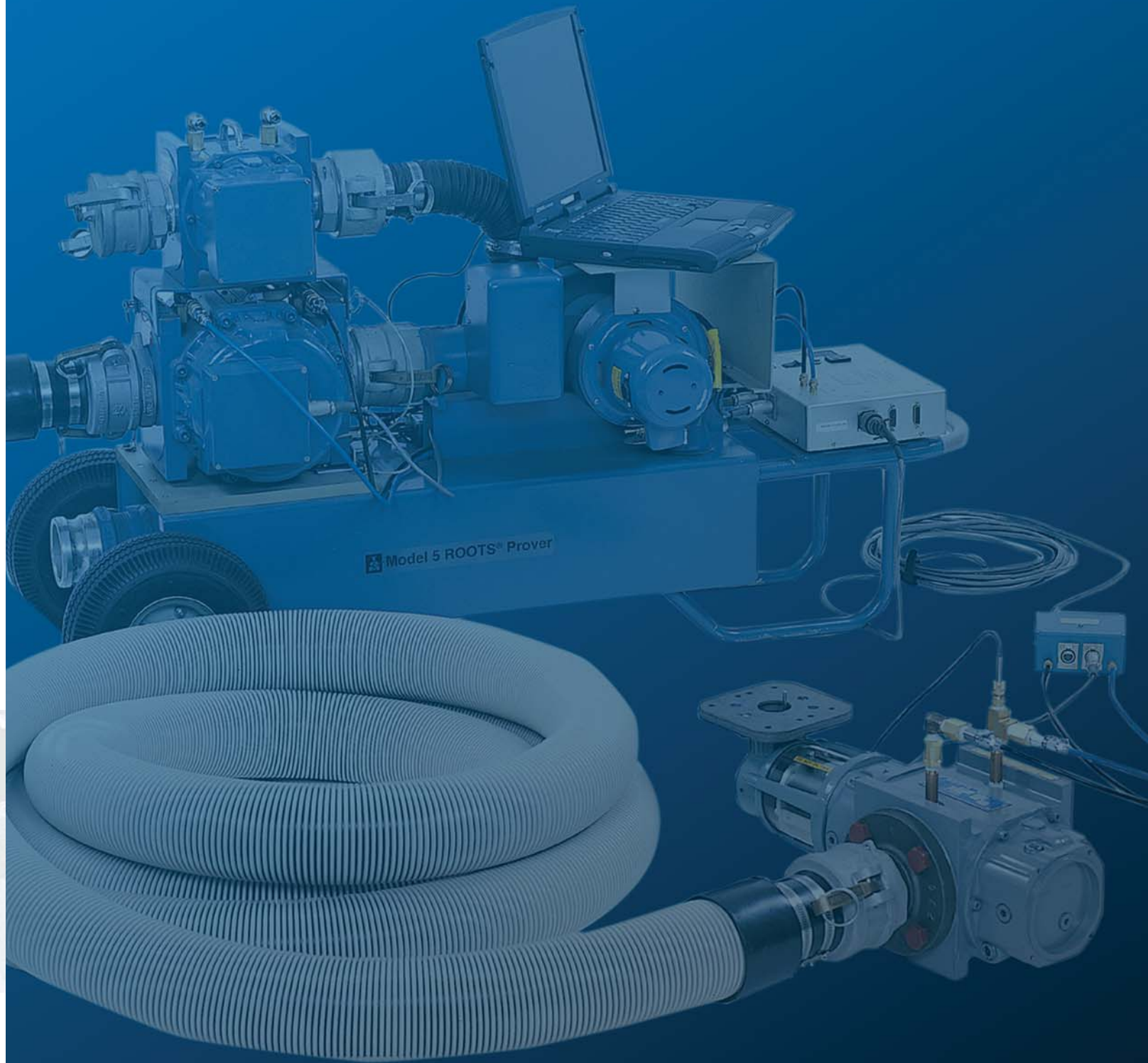
Technical Data	Units	G16	G25	G40	G65	G100	G160-3"	G160-4"	G250
Base Rating (QMax.)	m <sup>3</sup> /h	25,0	40,0	65,0	100,0	160,0	250,0	250,0	400,0
Max Operating Pressure (MAOP) <sup>1</sup>	bar	12	12	12	12	12	12	12	12
Rangeability +/- 1%	ratio	28:1	37:1	78:1	89:1	135:1	70:1	70:1	103:1
Start Rate	m <sup>3</sup> /h	0,0790	0,0549	0,0538	0,0595	0,0340	0,1510	0,1510	0,0917
Stop Rate	m <sup>3</sup> /h	0,0575	0,0445	0,0311	0,0510	0,0227	0,0960	0,0960	0,0535
Avg. Differential, 100% Flow	mbar	1,6	1,9	2,2	3,2	3,7	2,8	2,8	3,9
Drive Rate CTR, CD	m <sup>3</sup> /rev	0,1	0,1	0,1	0,1	1,0	1,0	1,0	1,0
Nominal Pipe Size	mm	50	50	50	50	80	80	100	100
Flange-to-Flange	mm	172	172	172	172	172	241	241	241
Flange Connection	ANSI	150# FF	150# FF	150# FF	150# FF	150# FF	150# FF	150# FF	150# FF
Net Weight - CTR Version	kg	8	11	12	13	16	29	31	39

<sup>1</sup> 16 bar optional on sizes G40-G160 upon request.

Technical Data	Units	G400	G650	G1000
Base Rating (QMax.)	m <sup>3</sup> /h	650,0	1000,0	1600,0
Max Operating Pressure (MAOP)	bar	12	12	12
Rangeability +/- 1%	ratio	40:1	85:1	53:1
Start Rate	m <sup>3</sup> /h	0,6513	0,7646	1,1327
Stop Rate	m <sup>3</sup> /h	0,5097	0,5663	0,8212
Avg. Differential, 100% Flow	mbar	3,1	4,7	5,5
Drive Rate CTR, CD	m <sup>3</sup> /rev	1,0	1,0	10,0
Nominal Pipe Size	mm	150	150	200
Flange-to-Flange	mm	406,4	457,2	533,4
Flange Connection	ANSI	150# FF	150# FF	150# FF
Net Weight - CTR Version	kg	92	111	129

# ISO9001





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