

January 2020

CS400 Series Commercial / Industrial Pressure Reducing Regulators

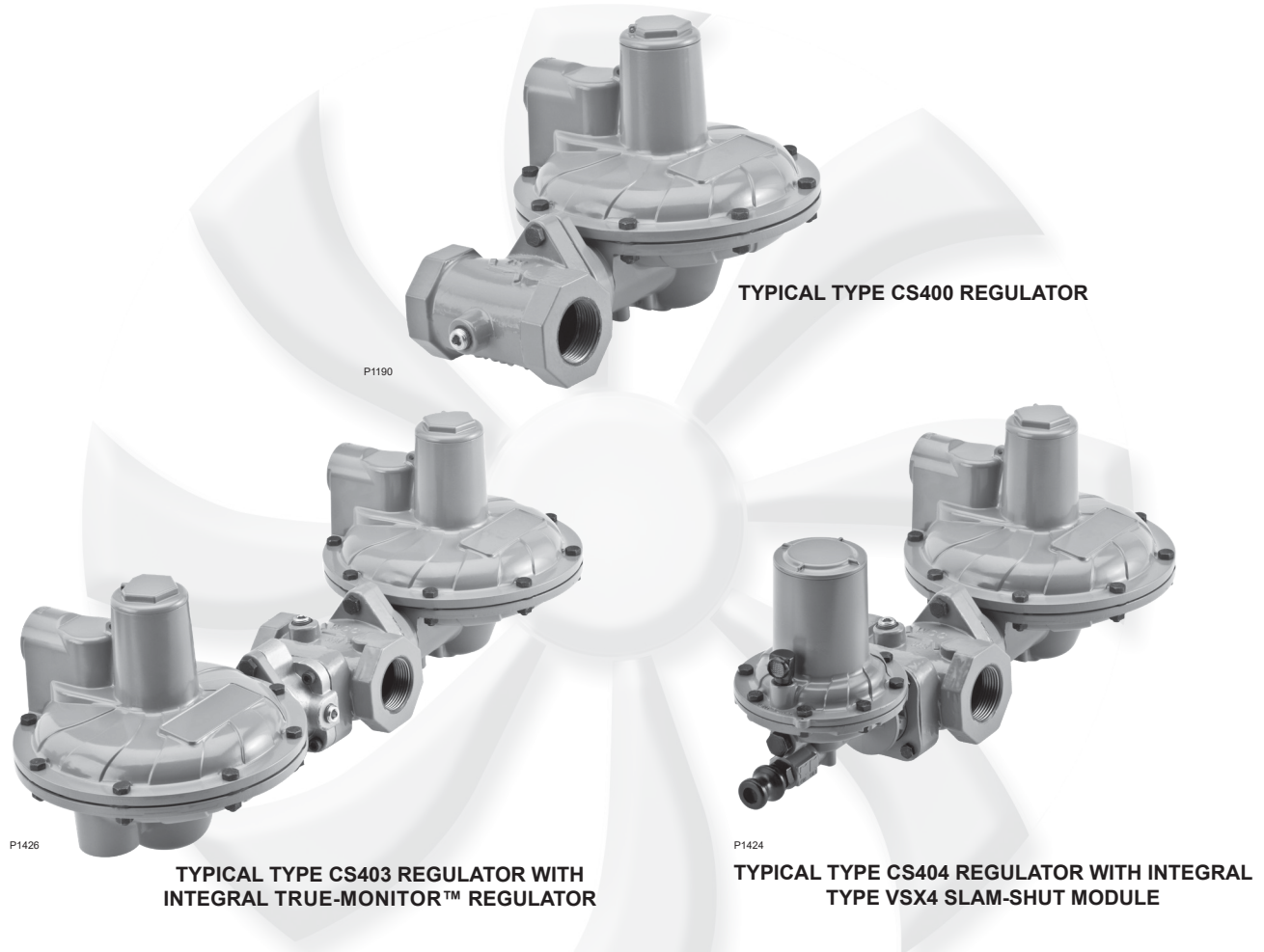
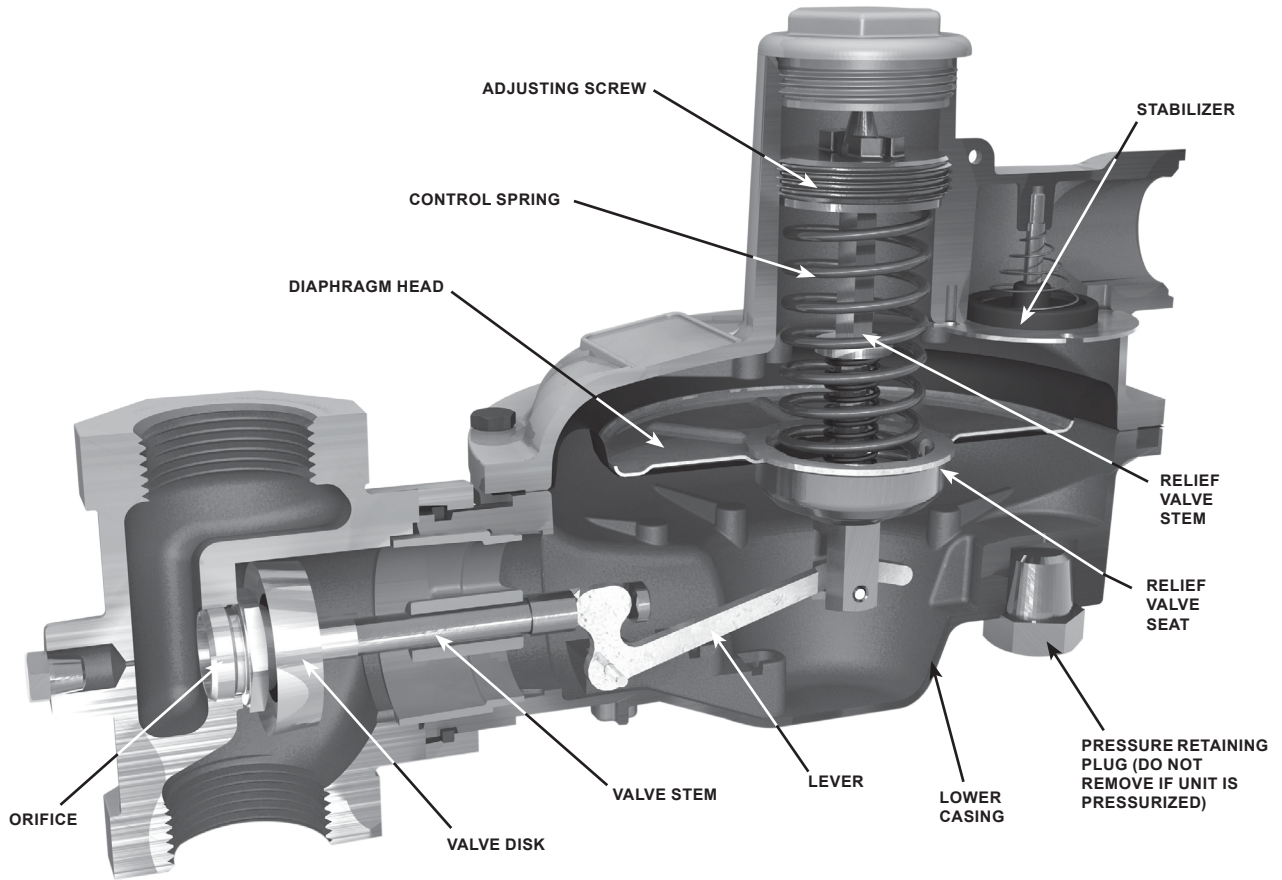


Figure 1. Typical Type CS400 Pressure Reducing Regulator

Features and Benefits

- Wide Variety of Body Sizes and End Connections
- Fixed Factor/PFM Accuracy Capabilities
- Field Convertible from Internal Sensing to External Sensing for Wide-Open Monitor Construction
- Available in Gray Cast Iron, Ductile Iron and Steel Body Materials
- Only Standard Tools Required for Pressure Adjustment and Orifice Removal
- Easy to Maintain



P1003

Figure 2. Typical Type CS400 Internal View

Introduction

The CS400 Series direct-operated, spring-loaded regulators have been engineered to fit a multitude of pressure-reducing applications including commercial and industrial installations. This flexibility is provided by the numerous body sizes and end connections, outlet pressure settings, orifice sizes, as well as the option for internal or external pressure registration.

In addition to application flexibility, the CS400 Series offers multiple overpressure protection options to meet your demands on application requirements.

Overpressure Protection Options Available:

- **Internal Relief** – Relieves gas across the main diaphragm assembly to minimize downstream pressure buildup.

- **True-Monitor™ Protection** – Combines the operation of a conventional two-regulator wide-open monitor set into one body. Provides a second monitoring regulator to control downstream pressure. In event of loss of downstream pressure control by the primary regulator due to damage to the lever, downstream sense line, orifice, disk, diaphragm, etc., the monitoring regulator will assume control of the downstream pressure and regulator flow.
- **Slam-Shut Protection** – Discontinues gas service by shutting the gas off if there is an overpressure or underpressure condition.
- **Token Relief** – Provides a small capacity or token relief that relieves minor overpressure caused by thermal expansion or minor nicks in the orifice or disk.

Specifications

The Specifications section lists the specifications for the CS400 Series Regulators. The following information is stamped on the nameplate of CS400 Series: Type and Class, Maximum Outlet Pressure and Spring Range.

Available Configurations

See Figure 3

Body Sizes, Material, End Connections and Pressure Rating⁽¹⁾

See Table 1

Inlet Pressures⁽¹⁾

Emergency: 175 psig / 12.1 bar

Operating: See Table 2

Maximum Outlet Pressure⁽¹⁾

Casing: 25 psig / 1.7 bar

To Avoid Internal Parts Damage: 5 psig / 0.34 bar over set pressure

Operating: 5.5 psig / 380 mbar

Outlet Pressure Ranges⁽¹⁾

3.5 in. w.c. to 5.5 psig / 9 to 380 mbar

Internal Relief Performance

Approximate Internal Relief Start-to-Discharge:

See Table 4

Relief Performance: See Figures 10 to 14 and Tables 10, 13, 18, 23 and 28

Token Relief

$C_g = 67$

Flow Capacities

Type CS400;

See Tables 9, 11, 12, 14, 15, 16, 17, 19, 20, 21, 22, 24, 25, 26, 27, 29 through 43

Types CS403 and CS404;

See Tables 44 through 69

Type CS400 for Pressure Factor Measurement (PFM) Applications;

See Tables 70 and 71

Flow and IEC Sizing Coefficients

See Table 2

Orifice Sizes

See Table 2

Operating Temperature (TS)⁽¹⁾⁽²⁾

According to PED Standards:

All Types: -4 to 150°F / -20 to 66°C

Non-PED:

All Types: -20 to 150°F / -29 to 66°C

Spring Case Vent Connection

1 NPT

Spring Case Vent and Body Orientation

See Figures 15 and 16

External Registration Connection

3/4 NPT

Inlet Pressure Tap

1/4 NPT restricted to 0.054 in. / 1.37 mm

TM600 Series True-Monitor™ Performance⁽¹⁾

Inlet Pressure Ratings

Maximum Operating: Up to 125 psig / 8.6 bar

Maximum Emergency: 175 psig / 12.1 bar

Outlet Pressure Range:

11 in. w.c. to 7.5 psig / 27 mbar to 0.52 bar

Type VSX4 Slam-Shut Device

Maximum Inlet Pressure: 290 psig / 20.0 bar

Maximum Operating Inlet Pressure:

232 psig / 16.0 bar

Construction Materials

CS400 Series Main Valve and Actuator

Body: Gray Cast Iron, Ductile Iron and Steel

Body O-ring: Nitrile (NBR)

Closing Cap: Aluminum

Adjusting Screw: Aluminum

Diaphragm Case and Spring Case: Aluminum

Diaphragm Plate: Zinc-plated Steel

Valve Stem: Aluminum

Orifice: Aluminum

Pusher Post: Aluminum

Diaphragm and Disk: Nitrile (NBR)

Control Spring: Music Wire or Stainless steel

Relief Valve Spring: Stainless steel

Relief Valve Spring Retainer: Aluminum

Vent Screen: Stainless steel

Vent Retaining Ring: Zinc-plated steel

Lever Pin: Stainless steel

Spring Seat, Lever, Other Metal Parts: Steel

Type TM600 True-Monitor Actuator

Diaphragm Case, Spring Case, Disk Housing,

Diaphragm Upper Retainer and

Valve Stem: Aluminum

Diaphragm Head: Zinc-plated steel

Diaphragm: Nitrile (NBR)

Disk holder and Disk Retainer: Brass

Disk/Seat Contact: Nitrile (NBR)

1. The pressure/temperature limits in this Bulletin or any applicable standard limitation should not be exceeded.

2. Product has passed Fisher™ testing for lockup, relief start-to-discharge and reseal down to -40 degrees.

CS400 Series

Specifications (continued)

Type TM600 True-Monitor™ Actuator (continued)

Monitor Stem: Stainless
 Middle Diaphragm Retainer: Zinc-plated steel
 Control Spring: Music wire or Stainless steel
 Vent Screen: Stainless steel
 Vent Retaining Ring: Zinc-plated steel
 Closing Cap: Aluminum
 Adjusting Screw: Aluminum
 O-rings: Nitrile (NBR)

Type VSX4 Slam-shut Device

Diaphragm Case and Spring Case: Aluminum
 Diaphragm Plate: Engineered Resin
 Diaphragm and Disk: Nitrile (NBR)
 Control Spring: Music Wire, Stainless steel or Steel
 Vent Screen: Stainless steel

Type VSX4 Slam-shut Device (continued)

Closing Cap: Aluminum
 Adjusting Screw: Brass

Approximate Weights

With Threaded Body

Type CS400: 9 lbs / 4 kg
 Type CS403: 18.5 lbs / 8 kg
 Type CS404: 11.2 lbs / 5 kg

With Flanged Body

Add 8.6 lbs / 4 kg to weights listed

Designed, Tested and Evaluated Consistent With:

ASME B16, ASME Section VIII DIV I, ASTM B117
 (Corrosion Resistance and EN334)

| TYPE NUMBER | | | | | OPTIONS | |
|--|---|---|---|---|---------|--|
| C | S | 4 | 0 | | | |
| | | | | | | OVERPRESSURE PROTECTION MODULE |
| | | | | 0 | | Without Overpressure Protection Module |
| | | | | 3 | | With Integral Monitor Module ⁽¹⁾⁽²⁾ |
| | | | | 4 | | With Slam-shut Module ⁽³⁾ |
| | | | | | | PRESSURE REGISTRATION |
| | | | | E | | External Registration ⁽³⁾ |
| | | | | I | | Internal Registration |
| | | | | | | RELIEF |
| | | | | N | | Non-Relief |
| | | | | T | | Token Internal Relief |
| | | | | R | | Internal Relief |
| Example: Type number CS404IT : A Type CS400 regulator constructed with Type VSX4 Slam-shut module, with Internal pressure registration and with Token relief. | | | | | | |
| 1. Reference Instruction Manual D103126X012 for information regarding the Integral Monitor module. | | | | | | |
| 2. Reference Instruction Manual D103127X012 for information regarding the Type VSX4 safety shut-off module. | | | | | | |
| 3. Available only with Non-Relieving or Token Relief options, not Internal Relief. | | | | | | |

Figure 3. Available Configurations

Table 1. Body Sizes, Materials, End Connections and Pressure Rating

| BODY MATERIAL | INLET SIZE | OUTLET SIZE | END CONNECTION | FACE-TO-FACE DIMENSION | | BODY PRESSURE RATING | |
|-------------------|---------------|---------------|-------------------|------------------------|-----|----------------------|------|
| | | | | In. | mm | psig | bar |
| Gray Cast Iron | 1-1/4 | 1-1/4 | NPT | 4.5 | 114 | 175 | 12.1 |
| | 1-1/4 | 1-1/2 | | | | | |
| | 1-1/2 | 1-1/2 | | | | | |
| | 2 | 2 | CL125 FF | 10 | 254 | | |
| Ductile Cast Iron | 1-1/4 | 1-1/4 | NPT | 4.5 | 114 | 290 | 20.0 |
| | 1-1/2 | 1-1/2 | | | | | |
| | 2 | 2 | | | | | |
| | 1-1/4 | 1-1/4 | Rp | 4.5 | 114 | | |
| | 1-1/2 | 1-1/2 | | | | | |
| | 2 | 2 | | | | | |
| | NPS 2 / DN 50 | NPS 2 / DN 50 | CL125 FF/CL150 FF | 10 | 254 | 232 | 16.0 |
| Steel | 1-1/4 | 1-1/4 | NPT | 4.5 | 114 | 290 | 20.0 |
| | 1-1/2 | 1-1/2 | | | | | |
| | 1-1/4 | 1-1/4 | Rp | 4.5 | 114 | | |
| | 1-1/2 | 1-1/2 | | | | | |

Table 2. Inlet Pressure Ratings and Flow and Sizing Coefficients

| TYPE | ORIFICE SIZE | | MAXIMUM OPERATING INLET PRESSURE TO OBTAIN OPTIMUM PERFORMANCE | | FLOW COEFFICIENTS (WIDE-OPEN) | | C _i | IEC SIZING COEFFICIENTS | | |
|------------------------------|---------------------------|--------------------------|--|-----|-------------------------------|----------------|----------------|-------------------------|----------------|----------------|
| | In. | mm | psig | bar | C _g | C _v | | X _r | F _L | F _D |
| CS400, CS403 and CS404 | 3/16 | 4.8 | 125 | 8.6 | 27 | 0.97 | 27.7 | 0.50 | 0.89 | 0.91 |
| | 7/32 x 1/4 ⁽¹⁾ | 5.5 x 6.4 ⁽¹⁾ | 125 | 8.6 | 36.5 | 1.26 | 28.9 | 0.53 | | 0.89 |
| | 1/4 | 6.4 | 125 | 8.6 | 50 | 1.77 | 28.2 | 0.50 | | 0.92 |
| | 5/16 | 7.9 | 100 | 6.9 | 82 | 2.90 | 28.3 | 0.50 | | 0.94 |
| | 3/8 ⁽²⁾ | 9.5 ⁽²⁾ | 60 | 4.1 | 113 | 3.72 | 30.4 | 0.58 | | 0.89 |
| | 1/2 | 12 | 40 | 2.8 | 182 | 5.61 | 32.4 | 0.66 | | 0.82 |
| | 5/8 | 16 | 30 | 2.1 | 284 | 7.26 | 39.1 | 0.97 | | 0.74 |
| | 3/4 | 19 | 20 | 1.4 | 356 | 9.83 | 36.2 | 0.83 | | 0.72 |

1. Available for Type CS400 only.
2. 80 psig / 5.5 bar maximum operating inlet pressure available at special request for setpoints 1 psig / 0.07 bar or greater.

Table 3. Outlet Pressure Ranges

| TYPE | OUTLET PRESSURE RANGE | | PART NUMBER | SPRING COLOR | SPRING WIRE DIAMETER | | SPRING FREE LENGTH | |
|---------------------------------|-----------------------|----------------|-------------|--------------|----------------------|------|--------------------|-----|
| | In. | mm | | | In. | mm | | |
| CS400, CS403 and CS404 | 3.5 to 5 in. w.c. | 9 to 12 mbar | GE30198X012 | Red | 0.098 | 2.49 | 4.18 | 106 |
| | 4.5 to 6.5 in. w.c. | 11 to 16 mbar | GE30195X012 | Purple | 0.080 | 2.03 | 4.32 | 110 |
| | 6 to 8 in. w.c. | 15 to 20 mbar | GE30188X012 | Gold | 0.108 | 2.74 | 4.18 | 106 |
| | 7.5 to 11 in. w.c. | 19 to 27 mbar | GE30189X012 | Blue | 0.110 | 2.80 | 4.40 | 112 |
| | 10 to 14 in. w.c. | 25 to 35 mbar | GE30224X012 | Unpainted | | | | |
| | 12 to 19 in. w.c. | 30 to 47 mbar | GE30196X012 | Green | 0.112 | 2.85 | 4.70 | 119 |
| | 18 in. w.c. to 1 psig | 45 to 69 mbar | GE30225X012 | Orange | 0.120 | 3.05 | 4.94 | 125 |
| | 1 to 2 psig | 69 to 138 mbar | GE30190X012 | Black | 0.140 | 3.56 | 4.66 | 118 |
| 2 to 5.5 psig | 138 to 380 mbar | GE30197X012 | Yellow | 0.172 | 4.37 | 4.42 | 112 | |

Table 4. Approximate Internal Relief Valve Start-to-Discharge Pressure Above Setpoint

| SETPOINT | SPRING COLOR | SPRING PART NUMBER | START-TO-DISCHARGE PRESSURE RANGE ABOVE SETPOINT | |
|-----------------------|--------------|--------------------|--|----------------------------------|
| | | | Internal Relief | Token Relief |
| 7 in. w.c. / 17 mbar | Gold | GE30188X012 | 6 to 12 in. w.c. / 15 to 30 mbar | 6 to 12 in. w.c. / 15 to 30 mbar |
| 11 in. w.c. / 27 mbar | Blue | GE30189X012 | 6 to 12 in. w.c. / 15 to 30 mbar | 6 to 12 in. w.c. / 15 to 30 mbar |
| 14 in. w.c. / 35 mbar | Unpainted | GE30224X012 | 6 to 12 in. w.c. / 15 to 30 mbar | 6 to 12 in. w.c. / 15 to 30 mbar |
| 1 psig / 69 mbar | Orange | GE30225X012 | 0.5 to 1.5 psi / 34 to 103 mbar | 0.5 to 1 psi / 34 to 69 mbar |
| 2 psig / 138 mbar | Black | GE30190X012 | 0.5 to 1.5 psi / 34 to 103 mbar | 0.5 to 1 psi / 34 to 69 mbar |
| 5 psig / 345 mbar | Yellow | GE30197X012 | 0.5 to 3.3 psi / 34 to 228 mbar | 0.5 to 2 psi / 34 to 138 mbar |

Table 5. Type CS403 Overpressure Protection Benefits Vs. Backup Orifice Device

| | CS403 SERIES True-Monitor™ | BACKUP ORIFICE DEVICE |
|--|----------------------------|-----------------------|
| Damage/nick on seat | X | X |
| Damage to disk | X | X |
| Damage or disconnected lever | X | ---- |
| Damage to diaphragm | X | ---- |
| Blocked or broken registration to primary regulator ⁽¹⁾ | X | ---- |

1. For external pressure registered units, in order to gain True-Monitor Protection in the case of damaged or broken sense line, it is required that the Primary and Integral Wide-Open Monitor do not share downstream sense lines.

CS400 Series

Table 6. Type CS403 Regulator and Integral Monitor Outlet Pressure Ranges

| Type | PRIMARY REGULATOR | | | | INTEGRAL MONITOR | | | | |
|--------|-------------------|-------------|--------------------|--------------|-------------------------|-------------|------------------------------|-------------------------------|--------------|
| | Setpoint | | Spring Part Number | Spring Color | Setpoint ⁽¹⁾ | | Spring Part Number | Spring Range, In. w.c. / mbar | Spring Color |
| | In. w.c. | mbar | | | In. w.c. | mbar | | | |
| CS403 | 4 | 10 | GE30198X012 | Red | 14 | 35 | GE30189X012 | 12 to 21 / 30 to 52 | Blue |
| | 5 | 12 | GE30195X012 | Purple | | | | | |
| | 7 | 17 | GE30188X012 | Gold | | | | | |
| | 11 | 27 | GE30189X012 | Blue | 21 | 52 | GE30196X012 | 18 to 30 / 45 to 75 | Green |
| | 14 | 35 | GE30224X012 | Unpainted | | | | | |
| | 18 | 45 | GE30196X012 | Green | 1 psig | 69 | GE30225X012 | 26 to 40 / 65 to 99 | Orange |
| | 1 psig | 69 | GE30225X012 | Orange | 1.5 psig | 103 | GE30190X012 | 1.4 to 2.9 psig / 97 to 200 | Black |
| | 2 psig | 138 | GE30190X012 | Black | 2.5 psig | 172 | GE30190X012 | 1.4 to 2.9 psig / 97 to 200 | Black |
| | 3 psig | 207 | GE30197X012 | Yellow | 3.5 psig | 241 | GE35081X012 | 2.6 to 3.7 psig / 179 to 255 | Purple |
| | 4 psig | 276 | GE30197X012 | | 5 psig | 345 | GE30192X012 | 3.6 to 6 psig / 248 to 414 | Dark Blue |
| 5 psig | 345 | GE30197X012 | 6 psig | | 414 | GE33121X012 | 5.1 to 7.5 psig / 352 to 517 | Red | |

1. Integral Monitor setpoints shown represent the minimum setpoint difference between the Integral Monitor and the Primary regulator. Higher monitor setpoints can be chosen, e.g., for a Primary regulator setpoint of 7 in. w.c. / 17 mbar, the Integral Monitor can also be set at 14, 21 in. w.c. / 35, 52 mbar, 1 psig / 69 mbar or higher.

Table 7. Type CS404 Regulator and Slam-Shut OPSO Pressure Ranges

| Type | REGULATOR | | SLAM-SHUT DEVICE | | |
|----------------|---------------------------|-------------------------------|--|-------------------------------|--------------------|
| | Setpoint, In. w.c. / mbar | Spring Range, In. w.c. / mbar | Overpressure Shutoff (OPSO) | | |
| | | | Factory Setpoint, In. w.c. / mbar ⁽¹⁾ | Spring Range, In. w.c. / mbar | Spring Part Number |
| CS404 | 4 / 10 | 3.5 to 5 / 9 to 12 | 18 / 45 | 12 to 25 / 30 to 60 | GF02168X012 |
| | 5 / 12 | 4.5 to 6.5 / 11 to 16 | 19 / 47 | | |
| | 7 / 17 | 6 to 8 / 15 to 20 | 21 / 52 | | |
| | 11 / 27 | 7.5 to 11 / 19 to 27 | 0.9 psig / 62 | 0.58 to 1.6 psig / 40 to 110 | GF02169X012 |
| | 14 / 35 | 10 to 14 / 25 to 35 | 1.1 psig / 75 | | |
| | 0.65 psig / 45 | 0.45 to 0.7 psig / 30 to 47 | 1.4 psig / 96 | 0.87 to 2.8 psig / 60 to 190 | GF02170X012 |
| | 0.72 psig / 50 | 0.65 to 1 psig / 45 to 69 | 1.6 psig / 112 | | |
| | 1 psig / 69 | | 2.5 psig / 172 | 1.4 to 4.1 psig / 95 to 280 | GF02171X012 |
| | 1.5 psig / 103 | 1 to 2 psig / 69 to 138 | 3.0 psig / 207 | | |
| | 2 psig / 138 | 2 to 5.5 psig / 138 to 380 | 3.5 psig / 241 | 3.2 to 11 psig / 220 to 760 | GF02173X012 |
| | 3 psig / 207 | | 6.3 psig / 434 | | |
| | 4 psig / 276 | | 7.3 psig / 503 | | |
| | 5 psig / 345 | | 8.3 psig / 572 | | |
| 5.5 psig / 380 | 8.8 psig / 606 | | | | |

1. For Types CS404IT and CS404ET equipped with Token Relief, if Non-Factory slam-shut OPSO setpoints are specified, they must not encroach on the Token Relief Start-to-Discharge values provided in Table 4.

Table 8. Type CS404 Regulator and Slam-shut OPSO and UPSO Pressure Ranges

| Type | REGULATOR | | SLAM-SHUT DEVICE | | | | | |
|-----------|-----------------------|----------------------------|--|-------------------------|--------------------|--|-------------------------|--------------------|
| | Setpoint, psig / mbar | Spring Range, psig / mbar | Overpressure Shutoff (OPSO) | | | Underpressure Shutoff (UPSO) | | |
| | | | Typical Setpoint, psig / mbar ⁽¹⁾ | Range, psig / mbar | Spring Part Number | Typical Setpoint, psig / mbar ⁽¹⁾ | Range, psig / mbar | Spring Part Number |
| CS404 | 0.51 / 35 | 0.36 to 0.51 / 25 to 35 | 1.1 / 75 | 0.73 to 1.9 / 50 to 130 | GF02168X012 | 0.32 / 22 | 0.14 to 1.1 / 10 to 75 | T14169T0012 |
| | 0.65 / 45 | 0.45 to 0.7 / 30 to 48 | 1.4 / 95 | | | 0.4 / 30 | | |
| | 0.72 / 50 | 0.65 to 1 / 45 to 69 | 1.6 / 110 | 1.4 to 3.9 / 95 to 270 | GF02169X012 | 0.4 / 30 | | |
| | 1 / 69 | | 2.5 / 172 | 2.2 to 5.5 / 150 to 380 | 0.58 / 40 | 0.36 to 2.3 / 25 to 160 | T14170T0012 | |
| | 1.5 / 103 | 1 to 2 psig / 69 to 138 | 3.0 / 207 | | 0.73 / 50 | | | |
| | 2 / 138 | 2 to 5.5 psig / 138 to 380 | 3.5 / 241 | 3.8 to 8.7 / 260 to 600 | GF02170X012 | 1 / 69 | 1.5 to 7.3 / 100 to 500 | FA142869X12 |
| | 3 / 207 | | 6.3 / 434 | | GF02171X012 | 1.75 / 121 | | |
| | 4 / 276 | | 7.3 / 503 | | GF02172X012 | 2 / 140 | | |
| | 5 / 345 | | 8.3 / 572 | | | 2.9 / 200 | | |
| 5.5 / 380 | 8.8 / 606 | 5.8 to 16 / 400 to 1100 | 3.6 / 250 | | | | | |

1. For Types CS404IT and CS404ET equipped with Token Relief, if Non-Factory slam-shut OPSO setpoints are specified, they must not encroach on the Token Relief Start-to-Discharge values provided in Table 4.

Principle of Operation

Type CS400 Base Regulator Operation

Refer to Figures 4 and 5. When downstream demand decreases, the pressure under the diaphragm increases. This pressure overcomes the regulator setting (which is set by the regulator control spring). Through the action of the pusher post assembly, lever and valve stem, the valve disk moves closer to the orifice and reduces gas flow. If demand downstream increases, pressure under the diaphragm decreases. Spring force pushes the pusher post assembly downward, the valve disk moves away from the orifice and the gas flow increases downstream as the regulator opens in response to the decreased pressure underneath the diaphragm.

The Type CS400IR regulator includes an internal relief valve for overpressure protection. If the downstream pressure exceeds the regulator setting by 7 to 28 in. w.c. / 17 to 69 mbar (depending on the main spring used), the relief valve opens and excess gas is vented through the stabilizer vent in the upper spring case.

The Types CS400IT and CS400ET provide a low capacity/token relief. Token relief provides relief from minor overpressure caused by nicks or dents on the orifice or by thermal expansion of gas in the downstream line. Token relief also provides a token or signal, in the form of odor, that an overpressure situation is occurring.

Type CS403 Integral Monitor Operation

Type CS403 combines the operation of a conventional two-regulator wide-open monitor set into one body, see Figures 6 and 7. The Integral True-Monitor™ is installed on the inlet side of the body and serves to throttle flow and maintain an acceptable downstream pressure in the case where the Primary regulator fails to regulate downstream pressure. During normal operation the Integral Monitor is in a wide-open state as its setpoint is set higher than the primary regulator. See Table 6 for guidance regarding the setpoints of the regulator and associated integral monitor sets. If the downstream pressure should rise to the setpoint of the internal monitor due to loss of pressure control by the primary regulator, the integral monitor will assume

control and regulator the flow to the downstream system. See the Type TM600 Instruction Manual for additional details of operation.

If a Token relief is present, the token relief will relieve a small amount of gas to the atmosphere as an indication that the Integral monitor is controlling the downstream pressure.

Type CS404 Slam-Shut Operation

The Type VSX4 slam-shut module on the Type CS404 regulator is a fast acting shut-off device that provides overpressure (OPSO) or over and underpressure (OPSO/UPSO) protection by completely shutting off the flow of gas to the downstream system. See Tables 7 and 8 for guidance regarding the typical setpoints of the regulator and associated OPSO and UPSO sets. The Type VSX4's actions are independent of the Type CS404 regulator and of variations to the inlet pressure. The Type VSX4 provides the option of internal or external downstream pressure registration. External registration requires a downstream sensing line.

The Type VSX4 shut-off disk is normally in the open (reset) position, see Figures 8 and 9. If the downstream pressure below the slam-shut diaphragm increases (or decreases) until it reaches the slam-shut setpoint, this diaphragm moves upward (or downward) to release the trip mechanism which allows the spring force on the stem to push the disk against the seat, shutting off all gas flow. To reset the slam-shut after gas has been shutoff, reference the Type VSX4 Instruction Manual for additional details.

In order for the Underpressure Shutoff (UPSO) of any slam-shut to be triggered, the downstream pipe pressure must drop below the UPSO setpoint. In the case of a downstream line break, numerous factors can prevent the downstream pipe pressure from decreasing below the slam-shut UPSO setpoint. These factors include the distance of pipe to the break, the diameter of the pipe, size of the break and the number of restrictions, such as valves, elbows and bends, downstream of the regulator and/or slam-shut device. Due to these factors additional protections should be installed to stop flow in the event of a line break.

CS400 Series

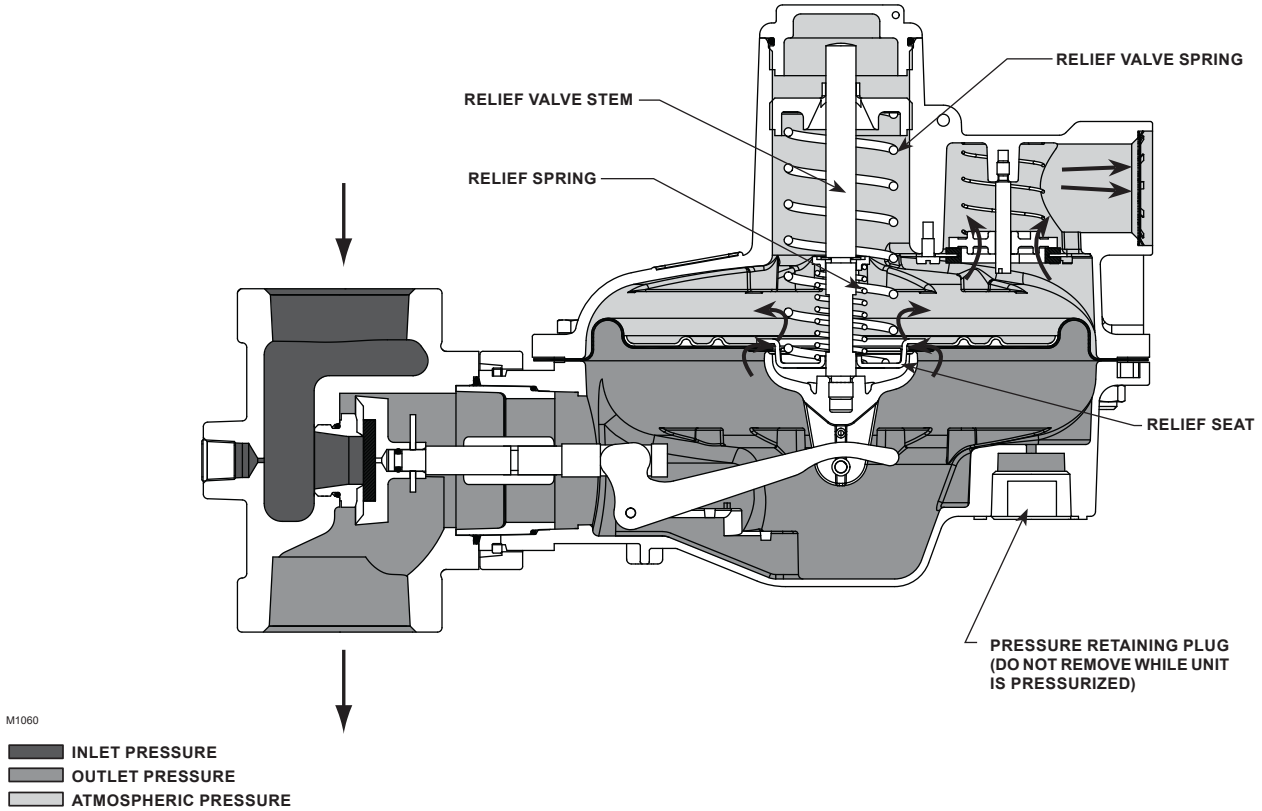


Figure 4. Type CS400IR Internally Registered Regulator with Internal Relief Operational Schematic

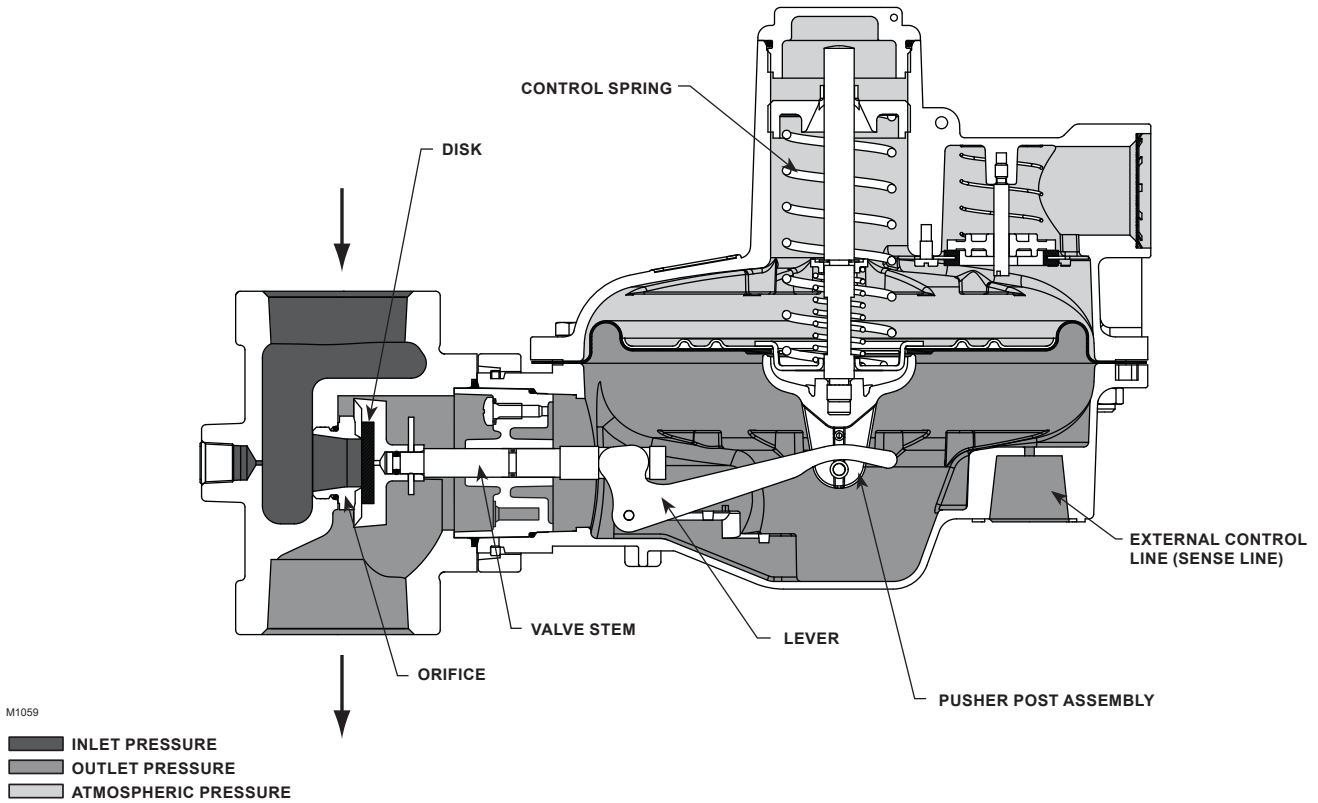
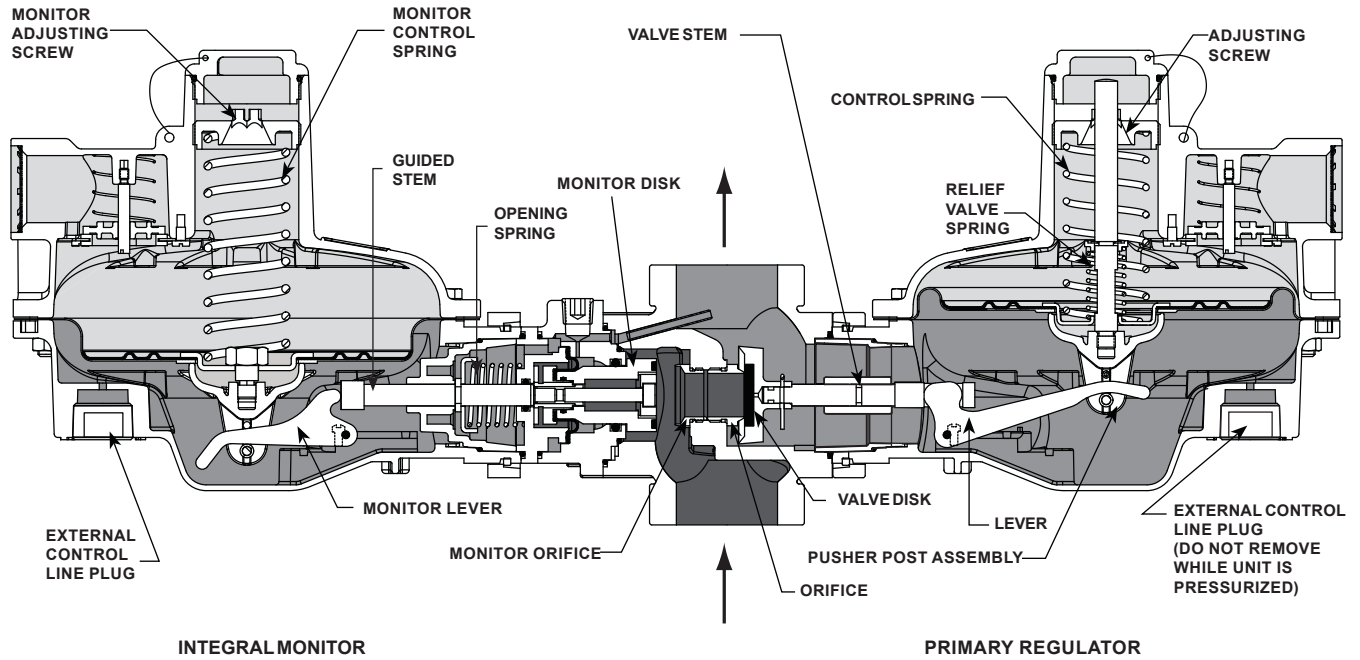


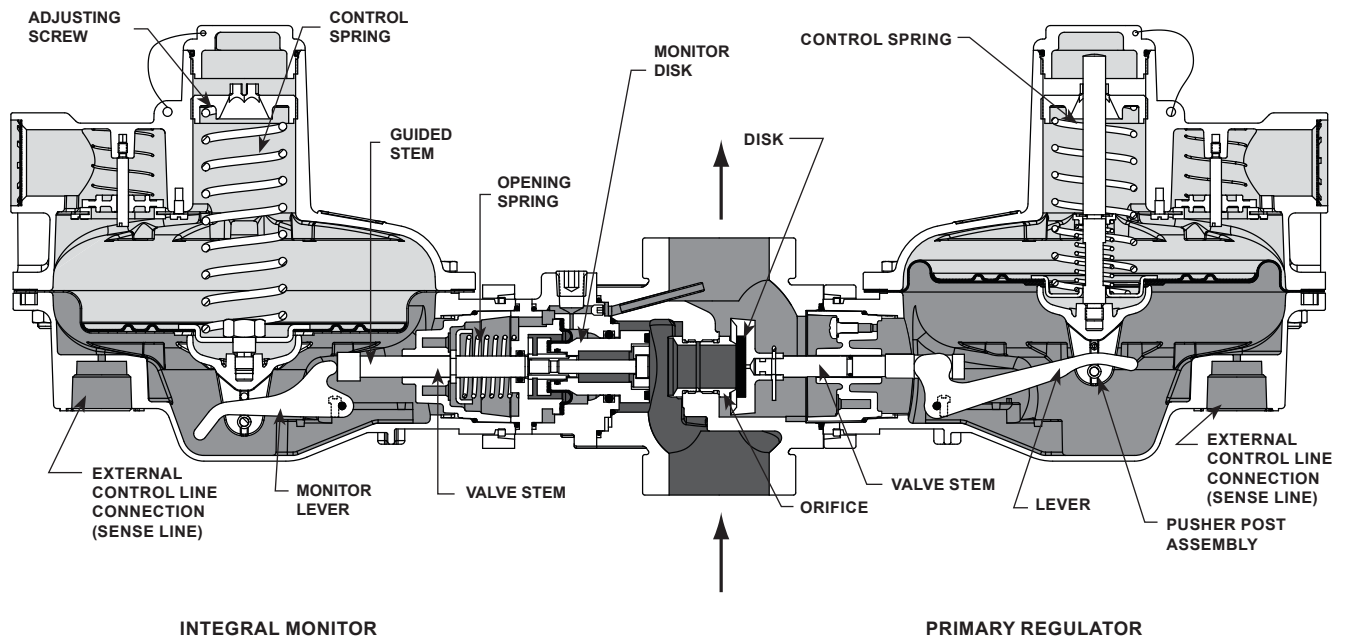
Figure 5. Type CS400ER Externally Registered Regulator Operational Schematic



M1061

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE

Figure 6. Type CS403, Internally Registered Primary Regulator with Internally Registered Integral Monitor Operational Schematic

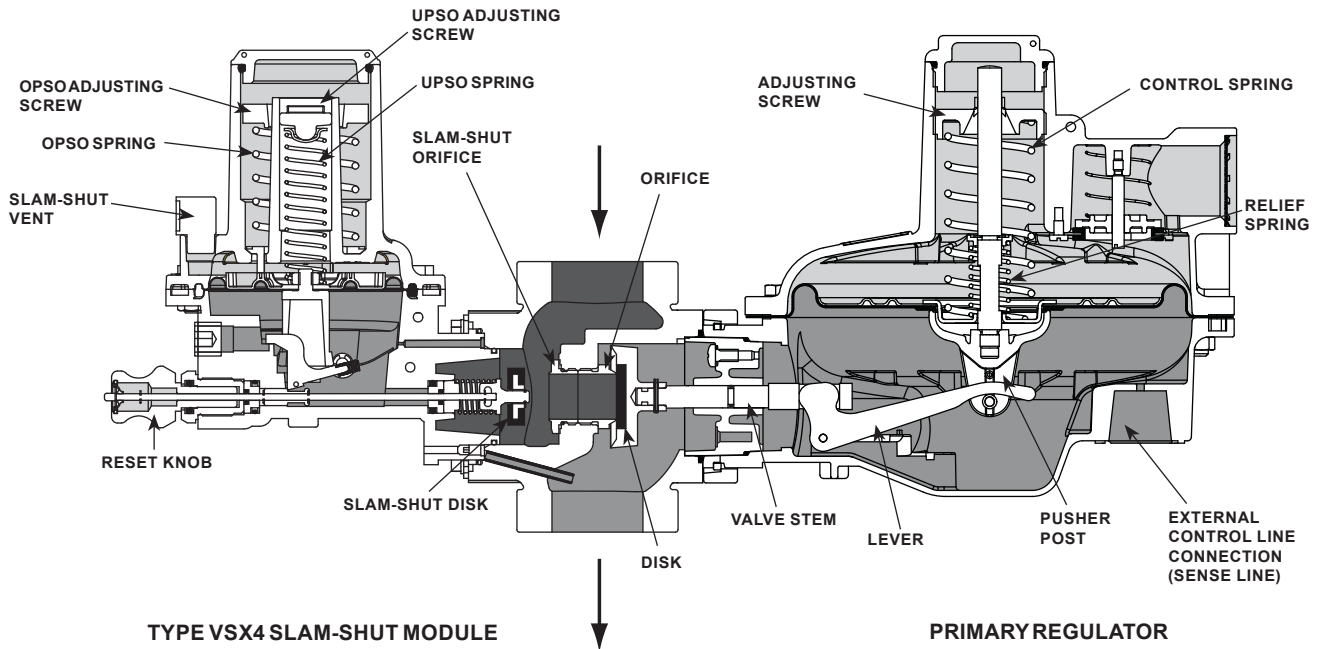


M1062

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE

Figure 7. Type CS403, Externally Registered Primary Regulator with Externally Registered Integral Monitor Operational Schematic

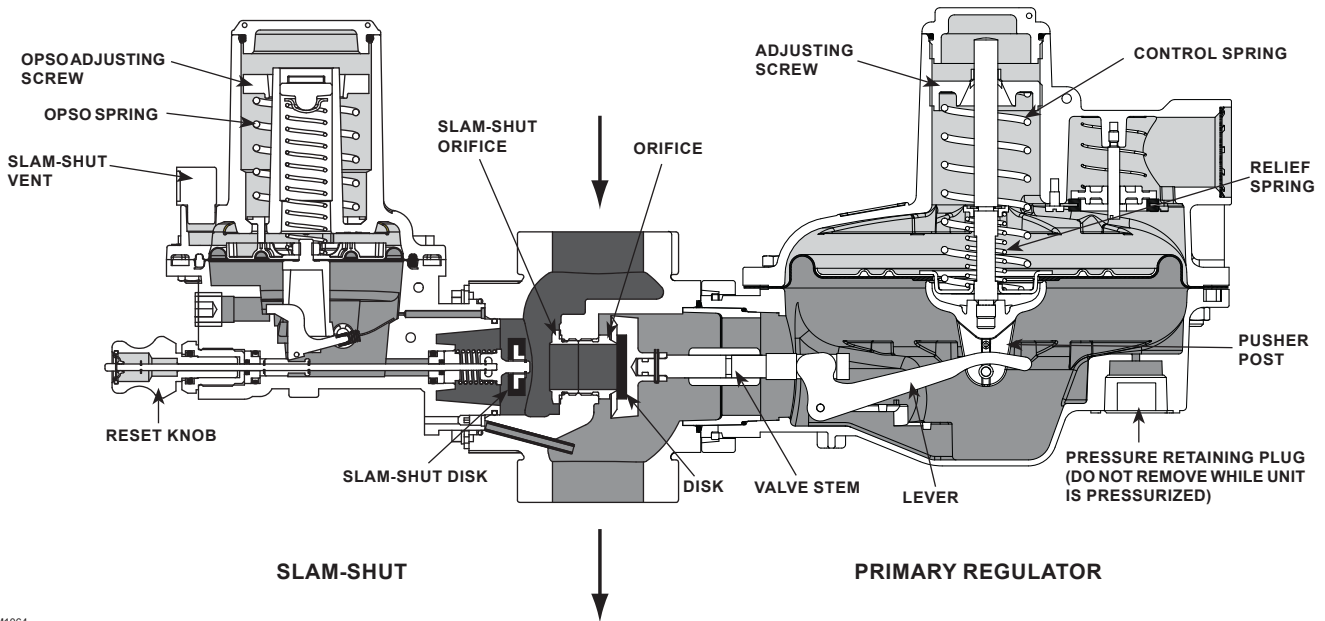
CS400 Series



M1063

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE

Figure 8. Type CS404ET Externally Registered Regulator with Slam-shut Operational Schematic



M1064

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE

Figure 9. Type CS404IT Internally Registered Regulator with Slam-shut Operational Schematic

Installation

The CS400 Series regulators may be installed in any position. However, the spring case vent should be pointed downward. If gas escaping through the CS400 Series internal relief valve could constitute a hazard, the spring case vent must be piped to a location where escaping gas will not be hazardous. If the vented gas will be piped to another location, use obstruction-free tubing or piping at least equal in size to the vent and the end of the vent pipe must be protected from anything that might clog it. Regulators with External Registration require the use of an external control line.

Downstream Control Line Connection

A CS400 Series regulator with an EN, ET or ER in the type number has a blocked throat, an O-ring stem seal and a 3/4 NPT control line tapping in the lower diaphragm casing, Figure 5. A regulator with a downstream control line is used for monitoring installations or other applications where there are other equipment installed between the regulator and the pressure control point. The O-ring stem seal helps separate body pressure from diaphragm case pressure on monitor installations where leakage cannot be tolerated.

Overpressure Protection

The CS400 Series regulators have outlet pressure ratings that are lower than their inlet pressure ratings. A pressure relieving or pressure limiting device is needed for Types CS400IN, CS400IT, CP400EN and CS400ET if inlet pressure can exceed the outlet pressure rating as these regulators do not have standard internal relief, high outlet pressure shutoff or integral slam-shut module. Optional internal relief constructions are available and denoted by the last letter of the Type Number suffix and are defined in the following paragraphs.

Overpressuring any portion of a regulator or associated equipment may cause personal injury, leakage or property damage due to bursting of pressure-containing parts or explosion of accumulated gas. Provide appropriate pressure relieving or pressure limiting devices to ensure that the limits in the Specifications section are not exceeded. Regulator operation within ratings does not prevent the possibility of damage from external sources or from debris in the pipeline.

Internal Relief “R”

Type numbers with the “R” suffix, e.g. Type CS400IR, provide internal relief discharge across the diaphragm assembly (Figure 4) to minimize overpressure. Any outlet pressure above the start-to-discharge point of the non-adjustable relief spring moves the diaphragm off the relief seat, allowing excess pressure to discharge through the vent. If emergency conditions should exist that prevent normal operation of the regulator or internal relief valve, the relief valve stem acts as a secondary travel stop contacting the underside of the closing cap and stopping the upward travel of the relief seat. Since the diaphragm continues to rise as downstream pressure builds, the diaphragm lifts off of the relief seat to provide relief operation. The secondary travel stop for internal relief is not available on token relieving units. See Figures 10, 11, 12, 13 and 14 for relief capacity.

Token Relief “T”

Type numbers with the “T” suffix, e.g. Type CS400IT, provide low capacity/token internal relief. Token relief provides relief only from minor overpressure caused by nicks or dents on the orifice or disk or by thermal expansion of gas in the downstream line. Token relief also provides a token or signal, in the form of odor, that an overpressure situation is occurring. Start-to-discharge values of the Token relief are consistent with the Internal relief values found in Table 4.

Non-Relieving “N”

Type numbers with the “N” suffix, e.g. Type CS400IN, do NOT provide internal relief discharge across the diaphragm assembly.

Integral True-Monitor™ Protection

Types CS403IN, CS403EN, CS403IT and CS403ET combine the operation of a conventional two-regulator wide-open monitor set into one body. The Integral True-Monitor is installed on the inlet side of the body and serves to throttle flow and maintain an acceptable downstream pressure in the case where the primary regulator fails to regulate. Unlike multiple seat designs that rely on the primary regulator for all protection against loss of pressure control modes, the CS403 Series provides protection from a wide variety of conditions that could cause the primary regulator not to regulate downstream pressure.

CS400 Series

Refer to Figures 6 and 7. If the primary regulator ceases to control downstream pressure, outlet pressure will rise underneath the diaphragm of the integral monitor, which will assume control of the downstream pressure.

Table 5 shows a comparison between the integral True-Monitor™ protection and the protection offered by an backup orifice device, which seals on a secondary seating surface should the primary orifice seating surface or disk become damaged.

Pressure Registration

The Integral True-Monitor has the options for internal pressure registration and external registration, denoted by the “I” and “E” in the type number, respectively. The method of pressure registration is dependent on the registration of the primary regulator, see Figures 6 and 7. The wide-open monitor’s registration should match the registration of the primary regulator, if the primary regulator’s registration is internal, then the wide-open monitor regulator’s registration must also be internal, if the primary regulator is external, then the monitor must also be external.

Refer to the relief sizing coefficients and the Capacity Information section to determine the required relief valve capacity.

Integral Type VSX4 Slam-Shut Module

The Type VSX4 slam-shut module on the Type CS404 regulator is a fast acting shut-off device that provides overpressure (OPSO) or over and underpressure (OPSO/UPS0) protection by shutting off the flow of gas to the downstream system. The Type VSX4’s actions are independent of the CS404 Series regulator and of variations to the inlet pressure. The Type VSX4 provides the option of internal or external downstream pressure registration dependent on the registration of the primary regulator, see Figures 8 and 9. External registration requires a downstream sensing line.

Refer to the relief sizing coefficients and the Capacity Information section to determine the required relief valve capacity.

Capacity Information

Tables 9, 11, 12, 14, 15, 16, 17, 19, 20, 21, 22, 24, 25, 26, 27, 29 through 71 provide natural gas regulating capacities at selected inlet pressures, outlet pressure settings and body outlet sizes. Tables 70 and 71 provide capacities specifically for Pressure Factor Measurement applications. Flows are in

SCFH (60°F and 14.7 psia) and Nm³/h (0°C and 1.01325 bar) of 0.6 specific gravity natural gas. To determine equivalent capacities for air, propane, butane or nitrogen, multiply the capacity number in the tables by the following appropriate conversion factor: 0.775 for air, 0.628 for propane, 0.548 for butane or 0.789 for nitrogen. For gases of other specific gravities, multiply the given capacity by 0.775 and divide by the square root of the appropriate specific gravity.

Relief Sizing

For critical flow:

To determine wide-open flow capacities for relief sizing of 0.6 specific gravity natural gas at 60°F at critical pressure drops (absolute outlet pressure equal to approximately one-half or less than one-half of the absolute inlet pressure), use the following formula:

$$Q = P_{1abs}(C_g)(1.29)$$

For subcritical flow:

If pressure drops are lower than critical (absolute outlet pressure greater than approximately one-half the absolute inlet pressure), use the following formula and convert according to the factors in the preceding paragraph if necessary:

$$Q = \sqrt{\frac{520}{GT}} C_g P_1 \text{SIN} \left[\frac{3417}{C_1} \sqrt{\frac{\Delta P}{P_1}} \right] \text{DEG}$$

where:

- C_1 = C_g/C_v (see Table 2)
- C_g = Gas sizing coefficient (see Table 2)
- G = Gas specific gravity (air = 1.0)
- P_1 = Regulator inlet pressure, psi a
- ΔP = Pressure drop across regulator, psig
- Q = Gas flow rate, SCFH
- T = Absolute temperature of gas at inlet, °Rankine

Note

Due to boost, the above formulas cannot be used to obtain correct regulating capacities for regulators with internal registration.

The following capacities tables were obtained using inlet and outlet piping the same size as the regulator body size. The body size indicated in the tables refers to the outlet side of the body.

Table 9. Type CS400 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|------------|-------------|------------|-----------------|---------------------|
| | Drop | Boost | | |
| 7 in. w.c. | -1 in. w.c. | 2 in. w.c. | 6 to 8 in. w.c. | GE30188X012 / Gold |
| 17 mbar | -2 mbar | 5 mbar | 15 to 20 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 100 | 2.6 | 240 | 6.4 | 160 | 4.2 | 200 | 5.3 | 290 | 7.7 | 370 | 9.9 | 630 | 16.9 | 560 | 15.0 |
| 1 | 0.07 | 170 | 4.5 | 320 | 8.6 | 250 | 6.7 | 330 | 8.8 | 630 | 16.9 | 650 | 17.4 | 660 | 17.7 | 730 | 19.5 |
| 2 | 0.14 | 260 | 6.9 | 570 | 15.3 | 510 | 13.6 | 770 | 20.6 | 660 | 17.7 | 880 | 23.6 | 1100 | 29.5 | 1200 | 32.2 |
| 3 | 0.21 | 390 | 10.4 | 700 | 18.8 | 690 | 18.5 | 710 | 19.0 | 860 | 23.0 | 1100 | 29.5 | 1700 | 45.6 | 1800 | 48.3 |
| 5 | 0.34 | 500 | 13.4 | 750 | 20.1 | 800 | 21.4 | 970 | 26.0 | 1300 | 34.8 | 1600 | 42.9 | 2700 | 72.4 | 3200 | 85.9 |
| 10 | 0.69 | 750 | 20.1 | 1100 | 29.5 | 1200 | 32.2 | 1900 | 51.0 | 2500 | 67.1 | 3300 | 88.5 | 3300 | 88.5 | 3900 | 105 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1700 | 45.6 | 2800 | 75.1 | 3200 | 85.9 | 3300 | 88.5 | 3300 | 88.5 | 3900 | 105 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 1900 | 51.0 | 3200 | 85.9 | 3200 | 85.9 | 3300 | 88.5 | 3300 | 88.5 | 3900 | 105 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3300 | 88.5 | 2400 | 64.4 | 2700 | 72.4 | 3300 | 88.5 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 2800 | 75.1 | 2000 | 53.6 | 2100 | 56.3 | 1700 | 45.6 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 2800 | 75.1 | 2000 | 53.6 | 1600 | 42.9 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 1900 | 50.9 | 1900 | 51.0 | 1500 | 40.2 | 1600 | 42.9 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 1700 | 45.6 | 1900 | 51.0 | 1500 | 40.2 | | | | | | | | |
| 100 | 6.9 | 1700 | 45.6 | 1700 | 45.6 | 1900 | 51.0 | 1500 | 40.2 | | | | | | | | |
| 125 | 8.6 | 1700 | 45.6 | 1700 | 45.6 | 1900 | 51.0 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 120 | 3.2 | 250 | 6.7 | 210 | 5.6 | 220 | 5.9 | 280 | 7.5 | 340 | 9.1 | 470 | 12.6 | 720 | 19.3 |
| 1 | 0.07 | 170 | 4.5 | 330 | 8.8 | 260 | 6.9 | 330 | 8.8 | 620 | 16.6 | 840 | 22.5 | 620 | 16.6 | 740 | 19.8 |
| 2 | 0.14 | 260 | 6.9 | 450 | 12.1 | 500 | 13.4 | 770 | 20.6 | 730 | 19.5 | 850 | 22.8 | 1100 | 29.5 | 1300 | 34.8 |
| 3 | 0.21 | 310 | 8.3 | 700 | 18.8 | 680 | 18.2 | 780 | 20.9 | 980 | 26.3 | 1200 | 32.2 | 1400 | 37.5 | 1800 | 48.3 |
| 5 | 0.34 | 540 | 14.4 | 770 | 20.6 | 940 | 25.2 | 950 | 25.5 | 1300 | 34.8 | 2300 | 61.7 | 3300 | 88.5 | 4400 | 118 |
| 10 | 0.69 | 770 | 20.6 | 1100 | 29.5 | 1200 | 32.2 | 2000 | 53.6 | 3000 | 80.5 | 3300 | 88.5 | 4300 | 115 | 4400 | 118 |
| 15 | 1.0 | 990 | 26.5 | 1400 | 37.5 | 1800 | 48.3 | 2900 | 77.8 | 3300 | 88.5 | 3300 | 88.5 | 4300 | 115 | 4400 | 118 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 3300 | 88.5 | 3300 | 88.5 | 4300 | 115 | 4400 | 118 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2300 | 61.7 | 3300 | 88.5 | 3300 | 88.5 | 2500 | 67.1 | 2800 | 75.1 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 2500 | 67.1 | 3300 | 88.5 | 2500 | 67.1 | 2500 | 67.1 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 1900 | 50.9 | 1900 | 51.0 | 2900 | 77.8 | 2200 | 59.0 | | | | | | |
| 60 | 4.1 | 2200 | 59.0 | 2000 | 53.6 | 1800 | 48.3 | 2500 | 67.1 | 2000 | 53.6 | | | | | | |
| 80 | 5.5 | 2200 | 59.0 | 2100 | 56.3 | 1800 | 48.3 | 2200 | 59.0 | | | | | | | | |
| 100 | 6.9 | 1800 | 48.3 | 1600 | 42.9 | 1800 | 48.3 | 2200 | 59.0 | | | | | | | | |
| 125 | 8.6 | 1600 | 42.9 | 1600 | 42.9 | 1800 | 48.3 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 130 | 3.4 | 250 | 6.7 | 200 | 5.3 | 260 | 6.9 | 260 | 6.9 | 420 | 11.2 | 380 | 10.2 | 750 | 20.1 |
| 1 | 0.07 | 160 | 4.2 | 330 | 8.8 | 280 | 7.5 | 330 | 8.8 | 590 | 15.8 | 610 | 16.3 | 660 | 17.7 | 760 | 20.4 |
| 2 | 0.14 | 240 | 6.4 | 450 | 12.1 | 400 | 10.7 | 700 | 18.7 | 700 | 18.7 | 840 | 22.5 | 1100 | 29.5 | 1100 | 29.5 |
| 3 | 0.21 | 320 | 8.5 | 700 | 18.8 | 660 | 17.7 | 610 | 16.3 | 850 | 22.8 | 1100 | 29.5 | 1500 | 40.2 | 1700 | 45.6 |
| 5 | 0.34 | 540 | 14.4 | 770 | 20.6 | 730 | 19.5 | 790 | 21.2 | 1100 | 29.5 | 1900 | 51.0 | 2400 | 64.4 | 2700 | 72.4 |
| 10 | 0.69 | 700 | 18.7 | 1100 | 29.5 | 1200 | 32.2 | 1500 | 40.2 | 2400 | 64.4 | 4000 | 107 | 4400 | 118 | 4400 | 118 |
| 15 | 1.0 | 980 | 26.3 | 1400 | 37.5 | 1700 | 45.6 | 2500 | 67.1 | 3500 | 93.9 | 4200 | 113 | 4400 | 118 | 4400 | 118 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 3500 | 93.9 | 4400 | 118 | 4400 | 118 | 4400 | 118 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2600 | 69.7 | 3300 | 88.5 | 3500 | 93.9 | 4400 | 118 | 3200 | 85.9 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3200 | 85.9 | 3300 | 88.5 | 3100 | 83.2 | 3200 | 85.9 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 1900 | 50.9 | 3200 | 85.9 | 3200 | 85.9 | 2800 | 75.1 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 2000 | 53.6 | 3200 | 85.9 | 3000 | 80.5 | 2500 | 67.1 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 2100 | 56.3 | 3000 | 80.5 | 2900 | 77.8 | | | | | | | | |
| 100 | 6.9 | 3100 | 83.2 | 1600 | 42.9 | 3000 | 80.5 | 2900 | 77.8 | | | | | | | | |
| 125 | 8.6 | 3100 | 83.2 | 1600 | 42.9 | 2800 | 75.1 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

CS400 Series

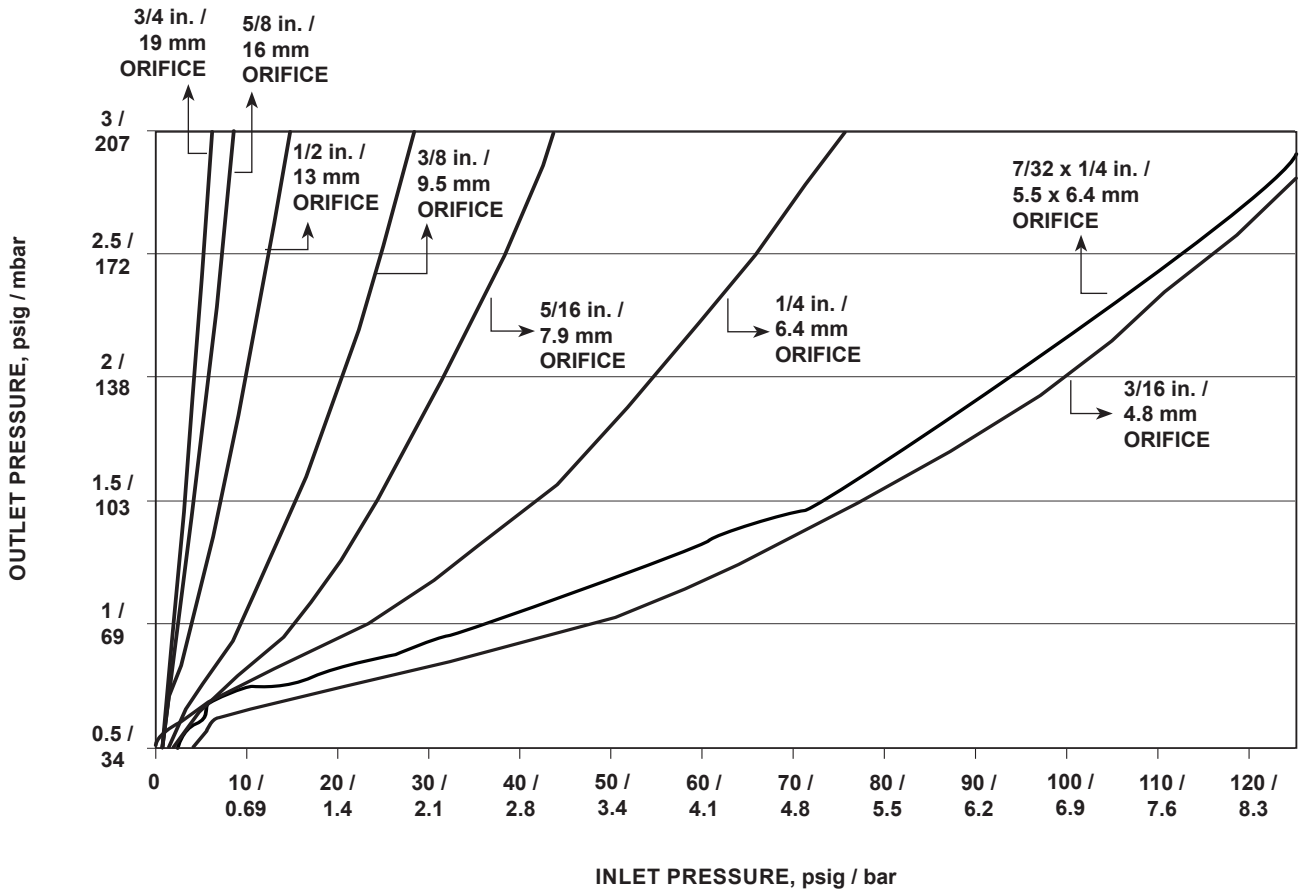


Figure 10. Type CS400IR Relief Curves (Blocked per Orifice Size) at 7 in. w.c. / 17 mbar Set Pressure

Table 10. Type CS400 Relief Table, 7 in. w.c. / 17 mbar Setpoint, Internal Registration

| ORIFICE SIZE | | REGULATOR SET PRESSURE | | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW ⁽¹⁾ | | | |
|--------------|-----------|------------------------|------|---|------|-------------------|-----|
| | | | | 1 psig / 69 mbar | | 2 psig / 138 mbar | |
| In. | mm | In. w.c. | mbar | psig | bar | psig | bar |
| 3/16 | 4.8 | 7 | 17 | 46 | 3.2 | 100 | 6.9 |
| 7/32 x 1/4 | 5.5 x 6.4 | | | 35 | 2.4 | 94 | 6.5 |
| 1/4 | 6.4 | | | 23 | 1.6 | 54 | 3.7 |
| 5/16 | 7.9 | | | 15 | 1.0 | 31 | 2.1 |
| 3/8 | 9.5 | | | 9 | 0.62 | 20 | 1.4 |

1. Relief values obtained by blocking regulator open per orifice.

Table 11. Type CS400 Internal Registration Flow Capacities for 11 in. w.c. / 27 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-------------|-------------|------------|--------------------|---------------------|
| | Drop | Boost | | |
| 11 in. w.c. | -2 in. w.c. | 2 in. w.c. | 7.5 to 11 in. w.c. | GE30189X012 / Blue |
| 27 mbar | -5 mbar | 5 mbar | 19 to 27 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 150 | 4.0 | 260 | 7.0 | 220 | 5.9 | 300 | 8.0 | 320 | 8.5 | 530 | 14.2 | 710 | 19.0 | 550 | 14.7 |
| 1 | 0.07 | 210 | 5.6 | 360 | 9.6 | 320 | 8.5 | 680 | 18.2 | 700 | 18.7 | 840 | 22.5 | 810 | 21.7 | 1000 | 26.8 |
| 2 | 0.14 | 320 | 8.5 | 570 | 15.3 | 600 | 16.1 | 940 | 25.2 | 920 | 24.6 | 1100 | 29.5 | 1500 | 40.2 | 1600 | 42.9 |
| 3 | 0.21 | 450 | 12.0 | 710 | 19.0 | 700 | 18.7 | 1100 | 29.5 | 1100 | 29.5 | 1500 | 40.2 | 2000 | 53.6 | 2300 | 61.7 |
| 5 | 0.34 | 540 | 14.4 | 850 | 22.8 | 920 | 24.6 | 1200 | 32.2 | 1500 | 40.2 | 2100 | 56.3 | 2900 | 77.8 | 3200 | 85.9 |
| 10 | 0.69 | 780 | 20.9 | 1100 | 29.5 | 1300 | 34.8 | 2100 | 56.3 | 2600 | 69.7 | 3500 | 93.9 | 3900 | 105 | 4300 | 115 |
| 15 | 1.0 | 980 | 26.3 | 1400 | 37.5 | 1700 | 45.6 | 2800 | 75.1 | 3400 | 91.2 | 3500 | 93.9 | 3900 | 105 | 4300 | 115 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 3400 | 91.2 | 3400 | 91.2 | 3500 | 93.9 | 2200 | 59.0 | 4300 | 115 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 3400 | 91.2 | 3400 | 91.2 | 3500 | 93.9 | 2200 | 59.0 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 2800 | 75.1 | 2700 | 72.4 | 2400 | 64.4 | 1800 | 48.3 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 2800 | 75.1 | 2500 | 67.1 | 1700 | 45.6 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 2300 | 61.6 | 2600 | 69.7 | 2400 | 64.4 | 1700 | 45.6 | | | | | | |
| 80 | 5.5 | 2500 | 67.1 | 2000 | 53.6 | 2000 | 53.6 | 2400 | 64.4 | | | | | | | | |
| 100 | 6.9 | 1700 | 45.6 | 2000 | 53.6 | 1900 | 51.0 | 1600 | 42.9 | | | | | | | | |
| 125 | 8.6 | 1700 | 45.6 | 2000 | 53.6 | 1900 | 51.0 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 100 | 2.6 | 260 | 7.0 | 160 | 4.2 | 240 | 6.4 | 340 | 9.1 | 410 | 11.0 | 530 | 14.2 | 690 | 18.5 |
| 1 | 0.07 | 170 | 4.5 | 360 | 9.6 | 320 | 8.5 | 440 | 11.8 | 700 | 18.7 | 970 | 26.0 | 880 | 23.6 | 970 | 26.0 |
| 2 | 0.14 | 280 | 7.5 | 510 | 13.7 | 550 | 14.7 | 840 | 22.5 | 970 | 26.0 | 1200 | 32.2 | 1500 | 40.2 | 2000 | 53.6 |
| 3 | 0.21 | 410 | 11.0 | 700 | 18.8 | 710 | 19.0 | 930 | 24.9 | 1100 | 29.5 | 1600 | 42.9 | 2200 | 59.0 | 2600 | 69.7 |
| 5 | 0.34 | 560 | 15.0 | 840 | 22.5 | 970 | 26.0 | 1200 | 32.2 | 1700 | 45.6 | 2700 | 72.4 | 3500 | 93.9 | 3500 | 93.9 |
| 10 | 0.69 | 800 | 21.4 | 1200 | 32.2 | 1400 | 37.5 | 2100 | 56.3 | 3000 | 80.5 | 3500 | 93.9 | 3500 | 93.9 | 4800 | 129 |
| 15 | 1.0 | 990 | 26.5 | 1400 | 37.5 | 1800 | 48.3 | 2900 | 77.8 | 3300 | 88.5 | 3500 | 93.9 | 3500 | 93.9 | 4800 | 129 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 3300 | 88.5 | 3500 | 93.9 | 3500 | 93.9 | 4900 | 134 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 3300 | 88.5 | 3300 | 88.5 | 2500 | 67.1 | 1900 | 51.0 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3200 | 85.9 | 3300 | 88.5 | 3000 | 80.5 | 2500 | 67.1 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 2200 | 59.0 | 3200 | 85.9 | 3300 | 88.5 | 1800 | 48.3 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 2000 | 53.6 | 2000 | 53.6 | 3200 | 85.9 | 1700 | 45.6 | | | | | | |
| 80 | 5.5 | 2800 | 75.1 | 2200 | 59.0 | 2000 | 53.6 | 1900 | 51.0 | | | | | | | | |
| 100 | 6.9 | 2800 | 75.1 | 1700 | 45.6 | 2000 | 53.6 | 1900 | 51.0 | | | | | | | | |
| 125 | 8.6 | 2800 | 75.1 | 1700 | 45.6 | 2000 | 53.6 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 110 | 2.9 | 270 | 7.2 | 200 | 5.3 | 270 | 7.2 | 340 | 9.1 | 420 | 11.2 | 620 | 16.6 | 870 | 23.3 |
| 1 | 0.07 | 190 | 5.1 | 350 | 9.4 | 270 | 7.2 | 430 | 11.5 | 690 | 18.5 | 990 | 26.5 | 820 | 22.0 | 1000 | 26.8 |
| 2 | 0.14 | 290 | 7.7 | 560 | 15.0 | 530 | 14.2 | 800 | 21.4 | 940 | 25.2 | 1100 | 29.5 | 1400 | 37.5 | 1700 | 45.6 |
| 3 | 0.21 | 410 | 11.0 | 690 | 18.5 | 730 | 19.5 | 870 | 23.3 | 1200 | 32.2 | 1400 | 37.5 | 1900 | 51.0 | 2400 | 64.4 |
| 5 | 0.34 | 550 | 14.7 | 810 | 21.7 | 920 | 24.6 | 1100 | 29.5 | 1500 | 40.2 | 2200 | 59.0 | 3100 | 83.2 | 3500 | 93.9 |
| 10 | 0.69 | 790 | 21.2 | 1100 | 29.5 | 1300 | 34.8 | 1900 | 51.0 | 2800 | 75.1 | 4000 | 107 | 4200 | 113 | 4800 | 129 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2800 | 75.1 | 3700 | 99.3 | 4000 | 107 | 4200 | 113 | 4800 | 129 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 3400 | 91.2 | 3700 | 99.3 | 4100 | 110 | 4200 | 113 | 4800 | 129 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3400 | 91.2 | 3700 | 99.3 | 4100 | 110 | 2600 | 69.7 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3200 | 85.9 | 3400 | 91.2 | 3200 | 85.9 | 3000 | 80.5 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 3200 | 85.9 | 3400 | 91.2 | 3200 | 85.9 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3500 | 93.8 | 3200 | 85.9 | 3400 | 91.2 | 3200 | 85.9 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 2600 | 69.7 | 3200 | 85.9 | 3400 | 91.2 | | | | | | | | |
| 100 | 6.9 | 3300 | 88.5 | 2700 | 72.4 | 3200 | 85.9 | 3000 | 80.5 | | | | | | | | |
| 125 | 8.6 | 3300 | 88.5 | 2700 | 72.4 | 3200 | 85.9 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

CS400 Series

Table 12. Type CS400 Internal Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-------------|-------------|------------|-------------------|-------------------------|
| | Droop | Boost | | |
| 14 in. w.c. | -2 in. w.c. | 2 in. w.c. | 10 to 14 in. w.c. | GE30224X012 / Unpainted |
| 35 mbar | -5 mbar | 5 mbar | 25 to 35 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | | | |
| 1 | 0.07 | 190 | 5.1 | 340 | 9.1 | 280 | 7.5 | 380 | 10.2 | 680 | 18.2 | 860 | 23.0 | 890 | 23.8 | 1000 | 26.8 |
| 2 | 0.14 | 320 | 8.5 | 550 | 14.7 | 540 | 14.4 | 770 | 20.6 | 910 | 24.4 | 1100 | 29.5 | 1300 | 34.8 | 1700 | 45.6 |
| 3 | 0.21 | 390 | 10.4 | 690 | 18.5 | 700 | 18.7 | 840 | 22.5 | 1100 | 29.5 | 1500 | 40.2 | 2000 | 53.6 | 2200 | 59.0 |
| 5 | 0.34 | 530 | 14.2 | 820 | 22.0 | 880 | 23.6 | 1100 | 29.5 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3100 | 83.2 |
| 10 | 0.69 | 770 | 20.6 | 1100 | 29.5 | 1300 | 34.8 | 2000 | 53.6 | 2600 | 69.7 | 3300 | 88.5 | 3600 | 96.6 | 4100 | 110 |
| 15 | 1.0 | 970 | 26.0 | 1400 | 37.5 | 1700 | 45.6 | 2600 | 69.7 | 3400 | 91.2 | 3600 | 96.6 | 3600 | 96.6 | 4300 | 115 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 3200 | 85.9 | 3400 | 91.2 | 3600 | 96.6 | 3600 | 96.6 | 4300 | 115 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2300 | 61.7 | 3200 | 85.9 | 3400 | 91.2 | 3600 | 96.6 | 3300 | 88.5 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 2300 | 61.7 | 1900 | 51.0 | 2300 | 61.7 | 2000 | 53.6 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 2300 | 61.7 | 1900 | 51.0 | 2300 | 61.7 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3500 | 93.8 | 2300 | 61.7 | 1900 | 51.0 | 2300 | 61.7 | | | | | | |
| 80 | 5.5 | 2500 | 67.1 | 2100 | 56.3 | 2000 | 53.6 | 1900 | 51.0 | | | | | | | | |
| 100 | 6.9 | 2500 | 67.1 | 2100 | 56.3 | 1900 | 51.0 | 1900 | 51.0 | | | | | | | | |
| 125 | 8.6 | 1600 | 42.9 | 2100 | 56.3 | 1900 | 51.0 | | | | | | | | | | |
| Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | | | |
| 1 | 0.07 | 180 | 4.8 | 340 | 9.1 | 260 | 6.9 | 420 | 11.2 | 680 | 18.2 | 870 | 23.3 | 840 | 22.5 | 840 | 22.5 |
| 2 | 0.14 | 280 | 7.5 | 490 | 13.1 | 530 | 14.2 | 760 | 20.4 | 860 | 23.0 | 1000 | 26.8 | 1300 | 34.8 | 1600 | 42.9 |
| 3 | 0.21 | 370 | 9.9 | 690 | 18.5 | 740 | 19.8 | 870 | 23.3 | 980 | 26.3 | 1500 | 40.2 | 2100 | 56.3 | 2200 | 59.0 |
| 5 | 0.34 | 560 | 15.0 | 810 | 21.7 | 930 | 24.9 | 1100 | 29.5 | 1500 | 40.2 | 2300 | 61.7 | 3500 | 93.9 | 3500 | 93.9 |
| 10 | 0.69 | 760 | 20.4 | 1100 | 29.5 | 1300 | 34.8 | 1900 | 51.0 | 2700 | 72.4 | 3500 | 93.9 | 3800 | 102 | 4500 | 121 |
| 15 | 1.0 | 980 | 26.3 | 1400 | 37.5 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 3500 | 93.9 | 3800 | 102 | 4500 | 121 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3200 | 85.9 | 3400 | 91.2 | 3500 | 93.9 | 3800 | 102 | 4500 | 121 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 3400 | 91.2 | 3400 | 91.2 | 3300 | 88.5 | 3000 | 80.5 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 2900 | 77.8 | 3400 | 91.2 | 3100 | 83.2 | 2800 | 75.1 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 2300 | 61.6 | 2900 | 77.8 | 3400 | 91.2 | 2900 | 77.8 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 2000 | 53.6 | 2900 | 77.8 | 3400 | 91.2 | 2800 | 75.1 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 2300 | 61.6 | 2900 | 77.8 | 3400 | 91.2 | | | | | | | | |
| 100 | 6.9 | 3500 | 93.9 | 1700 | 45.6 | 2900 | 77.8 | 3400 | 91.2 | | | | | | | | |
| 125 | 8.6 | 3600 | 96.6 | 1700 | 45.6 | 2900 | 77.8 | | | | | | | | | | |
| Body Size: NPS 2 | | | | | | | | | | | | | | | | | |
| 1 | 0.07 | 170 | 4.5 | 330 | 8.8 | 230 | 6.1 | 350 | 9.3 | 530 | 14.2 | 890 | 23.8 | 790 | 21.2 | 960 | 25.7 |
| 2 | 0.14 | 310 | 8.3 | 480 | 12.9 | 450 | 12.0 | 760 | 20.4 | 940 | 25.2 | 1000 | 26.8 | 1400 | 37.5 | 1600 | 42.9 |
| 3 | 0.21 | 360 | 9.6 | 680 | 18.2 | 700 | 18.7 | 860 | 23.0 | 1100 | 29.5 | 1400 | 37.5 | 1700 | 45.6 | 2200 | 59.0 |
| 5 | 0.34 | 560 | 15.0 | 790 | 21.2 | 890 | 23.8 | 1100 | 29.5 | 1600 | 42.9 | 2200 | 59.0 | 2800 | 75.1 | 3500 | 93.9 |
| 10 | 0.69 | 760 | 20.4 | 1100 | 29.5 | 1300 | 34.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 3400 | 91.2 | 4500 | 121 |
| 15 | 1.0 | 980 | 26.3 | 1400 | 37.5 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 3500 | 93.9 | 3500 | 93.9 | 4800 | 129 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3200 | 85.9 | 3500 | 93.9 | 3600 | 96.6 | 3600 | 96.6 | 4800 | 129 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3400 | 91.2 | 3600 | 96.6 | 4000 | 107 | 2400 | 64.4 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3200 | 85.9 | 3500 | 93.9 | 3600 | 96.6 | 2700 | 72.4 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 3200 | 85.9 | 3700 | 99.3 | 2900 | 77.8 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 3200 | 85.9 | 3700 | 99.3 | 2800 | 75.1 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 2700 | 72.4 | 2800 | 75.1 | 3700 | 99.3 | | | | | | | | |
| 100 | 6.9 | 3100 | 83.2 | 2800 | 75.0 | 2600 | 69.7 | 3700 | 99.3 | | | | | | | | |
| 125 | 8.6 | 3100 | 83.2 | 2800 | 75.0 | 2600 | 69.7 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 Gray areas indicate limited capacities due to boost effects.

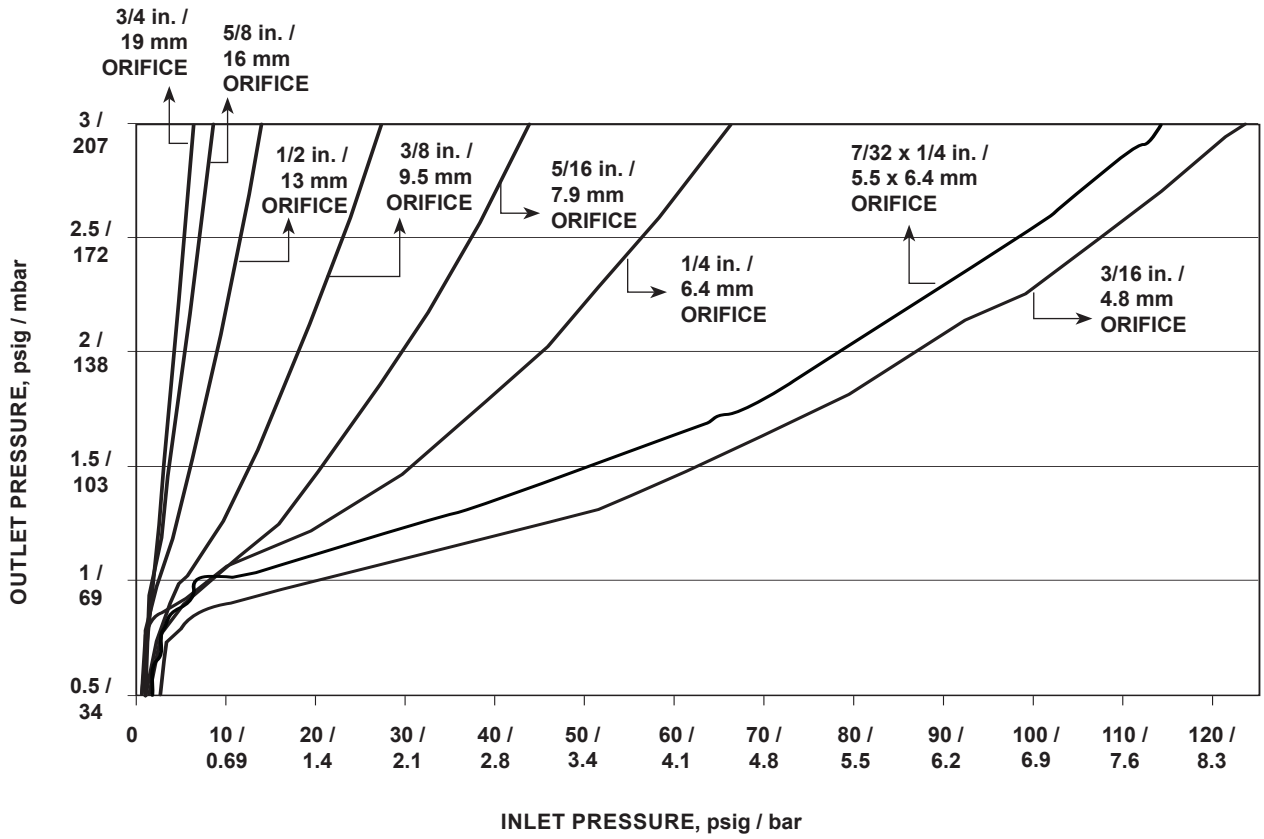


Figure 11. Type CS400IR Relief Curves (Blocked per Orifice Size) at 14 in. w.c. / 35 mbar Set Pressure

Table 13. Type CS400 Relief Table, 14 in. w.c. / 35 mbar Setpoint, Internal Registration

| ORIFICE SIZE | | REGULATOR SET PRESSURE | | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW ⁽¹⁾ | | | |
|--------------|-----------|------------------------|------|---|-----|---------------------|-----|
| | | | | 2 psig / 138 mbar | | 2.5 psig / 172 mbar | |
| In. | mm | In. w.c. | mbar | psig | bar | psig | bar |
| 3/16 | 4.8 | 14 | 35 | 87 | 6.0 | 107 | 7.4 |
| 7/32 x 1/4 | 5.5 x 6.4 | | | 76 | 5.2 | 94 | 6.5 |
| 1/4 | 6.4 | | | 45 | 3.1 | 56 | 3.9 |
| 5/16 | 7.9 | | | 30 | 2.1 | 37 | 2.6 |
| 3/8 | 9.5 | | | 18 | 1.2 | 23 | 1.6 |

1. Relief values obtained by blocking regulator open per orifice.

CS400 Series

Table 14. Type CS400 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------------|----------------------|
| | + / - 1% ABS | | | |
| 1 psig | -0.16 psi | 0.16 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -11 mbar | 11 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 260 | 6.9 | 470 | 12.6 | 470 | 12.6 | 730 | 19.5 | 970 | 26.0 | 1000 | 26.8 | 1500 | 40.2 | 1700 | 45.6 |
| 3 | 0.21 | 350 | 9.3 | 650 | 17.4 | 670 | 17.9 | 910 | 24.4 | 1100 | 29.5 | 1500 | 40.2 | 1900 | 51.0 | 2300 | 61.7 |
| 5 | 0.34 | 520 | 13.9 | 810 | 21.7 | 900 | 24.1 | 1200 | 32.2 | 1500 | 40.2 | 2100 | 56.3 | 3100 | 83.2 | 3400 | 91.2 |
| 10 | 0.69 | 770 | 20.6 | 1100 | 29.5 | 1300 | 34.8 | 2000 | 53.6 | 2600 | 69.7 | 3600 | 96.6 | 5000 | 134 | 6000 | 161 |
| 15 | 1.0 | 980 | 26.3 | 1400 | 37.5 | 1600 | 42.9 | 2700 | 72.4 | 3700 | 99.3 | 4900 | 132 | 6000 | 161 | 6000 | 161 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 4100 | 110 | 4900 | 132 | 6000 | 161 | 6000 | 161 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 4300 | 115 | 4400 | 118 | 4900 | 132 | 6000 | 161 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 4600 | 123 | 4400 | 118 | 4900 | 132 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 4600 | 123 | 4400 | 118 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3500 | 93.8 | 4700 | 126 | 4600 | 123 | 4400 | 118 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4500 | 120.6 | 4700 | 126 | 4600 | 123 | | | | | | | | |
| 100 | 6.9 | 3200 | 85.9 | 5400 | 144.7 | 4700 | 126 | 4600 | 123 | | | | | | | | |
| 125 | 8.6 | 3200 | 85.9 | 6400 | 171.5 | 4700 | 126 | | | | | | | | | | |
| Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 270 | 7.2 | 430 | 11.5 | 490 | 13.1 | 740 | 19.8 | 960 | 25.7 | 1100 | 29.5 | 1200 | 32.2 | 1500 | 40.2 |
| 3 | 0.21 | 370 | 9.9 | 630 | 16.9 | 680 | 18.2 | 950 | 25.5 | 1000 | 26.8 | 1500 | 40.2 | 1900 | 51.0 | 2300 | 61.7 |
| 5 | 0.34 | 540 | 14.4 | 840 | 22.5 | 930 | 24.9 | 1100 | 29.5 | 1600 | 42.9 | 2400 | 64.4 | 3300 | 88.5 | 4200 | 113 |
| 10 | 0.69 | 820 | 22.0 | 1100 | 29.5 | 1300 | 34.8 | 1800 | 48.3 | 2700 | 72.4 | 4400 | 118 | 5600 | 150 | 6000 | 161 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2500 | 67.1 | 3700 | 99.3 | 5500 | 148 | 5600 | 150 | 6000 | 161 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 4600 | 123 | 5500 | 148 | 5600 | 150 | 6000 | 161 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 4700 | 126 | 5500 | 148 | 5500 | 148 | | | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3300 | 88.5 | 5500 | 148 | 5500 | 148 | 5500 | 148 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3900 | 105 | 5500 | 148 | 5500 | 148 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3600 | 96.5 | 4400 | 118 | 5500 | 148 | 5500 | 148 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 4400 | 118 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 4400 | 118 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6700 | 179.6 | 4400 | 118 | | | | | | | | | | |
| Body Size: NPS 2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 270 | 7.2 | 480 | 12.9 | 410 | 11.0 | 690 | 18.5 | 940 | 25.2 | 1000 | 26.8 | 1400 | 37.5 | 1500 | 40.2 |
| 3 | 0.21 | 370 | 9.9 | 640 | 17.2 | 640 | 17.1 | 920 | 24.6 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2200 | 59.0 |
| 5 | 0.34 | 530 | 14.2 | 800 | 21.4 | 920 | 24.6 | 1100 | 29.5 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3600 | 96.6 |
| 10 | 0.69 | 820 | 22.0 | 1100 | 29.5 | 1300 | 34.8 | 1800 | 48.3 | 2500 | 67.1 | 4000 | 107 | 5100 | 137 | 7100 | 191 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2500 | 67.1 | 3600 | 96.6 | 5200 | 140 | 7100 | 191 | 7100 | 191 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 4600 | 123 | 6900 | 185 | 7100 | 191 | 7100 | 191 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2600 | 69.7 | 4000 | 107 | 6100 | 164 | 6900 | 185 | 7100 | 191 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3200 | 85.9 | 5600 | 150 | 6900 | 185 | 6900 | 185 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 4000 | 107 | 6600 | 177 | 6900 | 185 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4500 | 121 | 6600 | 177 | 6900 | 185 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 6000 | 161 | 6600 | 177 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 6000 | 161 | 6600 | 177 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6500 | 174.2 | 6000 | 161 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 15. Type CS400 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------------|----------------------|
| | + / - 2% ABS | | | |
| 1 psig | -0.31 psi | 0.31 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -21 mbar | 21 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 300 | 8.0 | 550 | 14.7 | 570 | 15.3 | 920 | 24.6 | 1200 | 32.2 | 1500 | 40.2 | 2400 | 64.4 | 2800 | 75.1 |
| 3 | 0.21 | 400 | 10.7 | 700 | 18.8 | 750 | 20.1 | 1100 | 29.5 | 1400 | 37.5 | 2100 | 56.3 | 2700 | 72.4 | 3500 | 93.9 |
| 5 | 0.34 | 550 | 14.7 | 880 | 23.6 | 1000 | 26.8 | 1500 | 40.2 | 1900 | 51.0 | 2800 | 75.1 | 4300 | 115 | 5000 | 134 |
| 10 | 0.69 | 820 | 22.0 | 1200 | 32.2 | 1400 | 37.5 | 2400 | 64.4 | 3000 | 80.5 | 4500 | 121 | 6700 | 180 | 7600 | 204 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 3000 | 80.5 | 4000 | 107 | 5800 | 156 | 7600 | 204 | 7600 | 204 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3600 | 96.6 | 4600 | 123 | 7400 | 199 | 7600 | 204 | 7600 | 204 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 4600 | 123 | 6300 | 169 | 7600 | 204 | 7600 | 204 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 5800 | 156 | 7600 | 204 | 7600 | 204 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 6400 | 172 | 7600 | 204 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3500 | 93.8 | 4700 | 126 | 7600 | 204 | 7600 | 204 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4400 | 117.9 | 5800 | 156 | 7600 | 204 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 7100 | 191 | 7600 | 204 | | | | | | | | |
| 125 | 8.6 | 4800 | 129 | 6600 | 176.9 | 7100 | 191 | | | | | | | | | | |
| Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 310 | 8.3 | 510 | 13.7 | 570 | 15.3 | 910 | 24.4 | 1100 | 29.5 | 1700 | 45.6 | 2200 | 59.0 | 2700 | 72.4 |
| 3 | 0.21 | 410 | 11.0 | 670 | 18.0 | 760 | 20.4 | 1100 | 29.5 | 1400 | 37.5 | 2200 | 59.0 | 3200 | 85.9 | 3800 | 102 |
| 5 | 0.34 | 570 | 15.3 | 870 | 23.3 | 990 | 26.5 | 1500 | 40.2 | 2000 | 53.6 | 3100 | 83.2 | 4600 | 123 | 5800 | 156 |
| 10 | 0.69 | 850 | 22.8 | 1200 | 32.2 | 1400 | 37.5 | 2300 | 61.7 | 3100 | 83.2 | 5100 | 137 | 7700 | 207 | 9500 | 255 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 3000 | 80.5 | 4000 | 107 | 6600 | 177 | 8000 | 215 | 9500 | 255 |
| 20 | 1.4 | 1200 | 32.2 | 1600 | 42.9 | 2100 | 56.3 | 3600 | 96.6 | 4900 | 132 | 7900 | 212 | 8000 | 215 | 9500 | 255 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 4700 | 126 | 6300 | 169 | 7900 | 212 | 8000 | 215 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3400 | 91.2 | 5800 | 156 | 7700 | 207 | 7900 | 212 | | | | |
| 50 | 3.4 | 2300 | 61.7 | 3100 | 83.1 | 4000 | 107 | 6800 | 183 | 7700 | 207 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3600 | 96.5 | 4600 | 123 | 7700 | 207 | 7700 | 207 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 5600 | 150 | 7700 | 207 | | | | | | | | |
| 100 | 6.9 | 4100 | 110 | 5400 | 144.7 | 7100 | 191 | 7700 | 207 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 6600 | 176.9 | 7100 | 191 | | | | | | | | | | |
| Body Size: NPS 2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 310 | 8.3 | 570 | 15.3 | 520 | 13.9 | 860 | 23.0 | 1100 | 29.5 | 1600 | 42.9 | 2300 | 61.7 | 2600 | 69.7 |
| 3 | 0.21 | 420 | 11.2 | 680 | 18.2 | 700 | 18.7 | 1100 | 29.5 | 1400 | 37.5 | 2200 | 59.0 | 3000 | 80.5 | 3400 | 91.2 |
| 5 | 0.34 | 550 | 14.7 | 870 | 23.3 | 990 | 26.5 | 1500 | 40.2 | 2000 | 53.6 | 2900 | 77.8 | 4300 | 115 | 5600 | 150 |
| 10 | 0.69 | 830 | 22.2 | 1200 | 32.2 | 1400 | 37.5 | 2300 | 61.7 | 3100 | 83.2 | 5000 | 134 | 7600 | 204 | 9600 | 258 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 3000 | 80.5 | 4100 | 110 | 6400 | 172 | 8000 | 215 | 9600 | 258 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3600 | 96.6 | 4900 | 132 | 7900 | 212 | 8000 | 215 | 9600 | 258 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 4300 | 115 | 6300 | 169 | 7900 | 212 | 8000 | 215 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5800 | 156 | 7900 | 212 | 7900 | 212 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 6900 | 185 | 7900 | 212 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4600 | 123 | 7700 | 207 | 7900 | 212 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 6000 | 161 | 7700 | 207 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 7100 | 191 | 7700 | 207 | | | | | | | | |
| 125 | 8.6 | 5000 | 134 | 6600 | 176.9 | 7100 | 191 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 16. Type CS400 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|-----------------------|----------------------|
| | + / - 10% | | | |
| 1 psig | -0.1 psi | 0.01 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -7 mbar | 7 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 240 | 6.4 | 400 | 10.7 | 380 | 10.2 | 600 | 16.1 | 860 | 23.0 | 830 | 22.2 | 1000 | 26.8 | 1200 | 32.2 |
| 3 | 0.21 | 310 | 8.3 | 620 | 16.6 | 630 | 16.9 | 710 | 19.0 | 840 | 22.5 | 1100 | 29.5 | 1400 | 37.5 | 1500 | 40.2 |
| 5 | 0.34 | 490 | 13.1 | 730 | 19.6 | 840 | 22.5 | 960 | 25.7 | 1300 | 34.8 | 1600 | 42.9 | 2300 | 61.7 | 2500 | 67.1 |
| 10 | 0.69 | 720 | 19.3 | 1100 | 29.5 | 1200 | 32.2 | 1700 | 45.6 | 2200 | 59.0 | 3000 | 80.5 | 4400 | 118 | 4600 | 123 |
| 15 | 1.0 | 930 | 24.9 | 1300 | 34.8 | 1500 | 40.2 | 2300 | 61.7 | 3300 | 88.5 | 3900 | 105 | 5100 | 137 | 6000 | 161 |
| 20 | 1.4 | 1000 | 26.8 | 1600 | 42.9 | 2000 | 53.6 | 3000 | 80.5 | 3800 | 102 | 3900 | 105 | 5100 | 137 | 6000 | 161 |
| 30 | 2.1 | 1400 | 37.5 | 2000 | 53.6 | 2700 | 72.4 | 3200 | 85.9 | 3800 | 102 | 3900 | 105 | 5100 | 137 | | |
| 40 | 2.8 | 1700 | 45.6 | 2600 | 69.7 | 3400 | 91.2 | 3200 | 85.9 | 3800 | 102 | 3900 | 105 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3100 | 83.1 | 3800 | 102 | 3200 | 85.9 | 4300 | 115 | | | | | | |
| 60 | 4.1 | 2300 | 61.7 | 3500 | 93.8 | 3800 | 102 | 3200 | 85.9 | 4300 | 115 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4500 | 120.6 | 3800 | 102 | 3200 | 85.9 | | | | | | | | |
| 100 | 6.9 | 3600 | 96.6 | 5400 | 144.7 | 3800 | 102 | 3200 | 85.9 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 5800 | 155.4 | 3800 | 102 | | | | | | | | | | |
| Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 240 | 6.4 | 370 | 9.9 | 350 | 9.3 | 620 | 16.6 | 780 | 20.9 | 830 | 22.2 | 910 | 24.4 | 1000 | 26.8 |
| 3 | 0.21 | 320 | 8.5 | 600 | 16.1 | 630 | 16.9 | 790 | 21.2 | 780 | 20.9 | 1000 | 26.8 | 1300 | 34.8 | 1600 | 42.9 |
| 5 | 0.34 | 520 | 13.9 | 790 | 21.2 | 860 | 23.0 | 840 | 22.5 | 1200 | 32.2 | 1700 | 45.6 | 2400 | 64.4 | 2800 | 75.1 |
| 10 | 0.69 | 710 | 19.0 | 1000 | 26.8 | 1100 | 29.5 | 1500 | 40.2 | 2100 | 56.3 | 3800 | 102.0 | 5300 | 142 | 6000 | 161 |
| 15 | 1.0 | 940 | 25.2 | 1300 | 34.8 | 1600 | 42.9 | 2200 | 59.0 | 3200 | 85.9 | 4900 | 132 | 5300 | 142 | 6000 | 161 |
| 20 | 1.4 | 1100 | 29.5 | 1500 | 40.2 | 1900 | 51.0 | 2800 | 75.1 | 4200 | 112.7 | 4900 | 132 | 5300 | 142 | 6000 | 161 |
| 30 | 2.1 | 1400 | 37.5 | 2100 | 56.3 | 2800 | 75.1 | 4000 | 107 | 4800 | 129 | 4900 | 132 | 5300 | 142 | | |
| 40 | 2.8 | 1800 | 48.3 | 2500 | 67.0 | 3300 | 88.5 | 4000 | 107 | 4800 | 129 | 4100 | 110 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3800 | 102 | 4000 | 107 | 4800 | 129 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3600 | 96.5 | 4000 | 107 | 4000 | 107 | 4800 | 129 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 3400 | 91.1 | 4000 | 107 | 3200 | 85.9 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 2900 | 77.7 | 4000 | 107 | 2900 | 77.8 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6600 | 176.9 | 4000 | 107 | | | | | | | | | | |
| Body Size: NPS 2 | | | | | | | | | | | | | | | | | |
| 2 | 0.14 | 240 | 6.4 | 400 | 10.7 | 340 | 9.1 | 560 | 15.0 | 800 | 21.4 | 740 | 19.8 | 990 | 26.5 | 1100 | 29.5 |
| 3 | 0.21 | 320 | 8.5 | 610 | 16.3 | 590 | 15.8 | 820 | 22.0 | 730 | 19.5 | 1000 | 26.8 | 1200 | 32.2 | 1400 | 37.5 |
| 5 | 0.34 | 500 | 13.4 | 730 | 19.6 | 840 | 22.5 | 820 | 22.0 | 1100 | 29.5 | 1500 | 40.2 | 1900 | 51.0 | 2500 | 67.1 |
| 10 | 0.69 | 670 | 17.9 | 1000 | 26.8 | 1100 | 29.5 | 1300 | 34.8 | 2000 | 53.6 | 3100 | 83.2 | 4100 | 110 | 5500 | 148 |
| 15 | 1.0 | 970 | 26.0 | 1300 | 34.8 | 1600 | 42.9 | 1900 | 51.0 | 3100 | 83.2 | 4100 | 110 | 6500 | 174 | 6500 | 174 |
| 20 | 1.4 | 1100 | 29.5 | 1500 | 40.2 | 2000 | 53.6 | 2900 | 77.8 | 3900 | 105 | 6200 | 166 | 6500 | 174 | 6500 | 174 |
| 30 | 2.1 | 1500 | 40.2 | 2000 | 53.6 | 2500 | 67.1 | 3600 | 96.6 | 5900 | 158 | 6200 | 166 | 6500 | 174 | | |
| 40 | 2.8 | 1800 | 48.3 | 2500 | 67.0 | 3100 | 83.2 | 5100 | 137 | 6000 | 161 | 6200 | 166 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3000 | 80.4 | 4000 | 107 | 6000 | 161 | 6000 | 161 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4400 | 118 | 6000 | 161 | 6000 | 161 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 6000 | 161 | 6000 | 161 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 6000 | 161 | 6000 | 161 | | | | | | | | |
| 125 | 8.6 | 5000 | 134 | 6500 | 174.2 | 6000 | 161 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 17. Type CS400 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------------|----------------------|
| | + / - 20% | | | |
| 1 psig | -0.2 psi | 0.2 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -14 mbar | 14 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 270 | 7.2 | 500 | 13.4 | 510 | 13.6 | 840 | 22.5 | 1000 | 26.8 | 1200 | 32.2 | 1700 | 45.6 | 2000 | 53.6 |
| 3 | 0.21 | 370 | 9.9 | 670 | 18.0 | 700 | 18.7 | 1000 | 26.8 | 1200 | 32.2 | 1700 | 45.6 | 2200 | 59.0 | 2700 | 72.4 |
| 5 | 0.34 | 530 | 14.2 | 840 | 22.5 | 940 | 25.2 | 1300 | 34.8 | 1700 | 45.6 | 2400 | 64.4 | 3400 | 91.2 | 4100 | 110 |
| 10 | 0.69 | 790 | 21.2 | 1200 | 32.2 | 1400 | 37.5 | 2200 | 59.0 | 2800 | 75.1 | 3900 | 105 | 5600 | 150 | 6700 | 180 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1700 | 45.6 | 2900 | 77.8 | 3800 | 102 | 5300 | 142 | 7000 | 188 | 7800 | 209 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3500 | 93.9 | 4200 | 113 | 6800 | 183 | 7600 | 204 | 7800 | 209 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 4700 | 126 | 6200 | 166 | 7600 | 204 | 7600 | 204 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 5800 | 156 | 7600 | 204 | 7600 | 204 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 6200 | 166 | 7600 | 204 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3500 | 93.8 | 4700 | 126 | 7600 | 204 | 7600 | 204 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4500 | 120.6 | 5800 | 156 | 7600 | 204 | | | | | | | | |
| 100 | 6.9 | 3800 | 102 | 5400 | 144.7 | 6500 | 174 | 7600 | 204 | | | | | | | | |
| 125 | 8.6 | 4700 | 126 | 6500 | 174.2 | 6500 | 174 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 290 | 7.7 | 460 | 12.3 | 530 | 14.2 | 810 | 21.7 | 1000 | 26.8 | 1300 | 34.8 | 1500 | 40.2 | 1900 | 51.0 |
| 3 | 0.21 | 390 | 10.4 | 640 | 17.2 | 700 | 18.7 | 1000 | 26.8 | 1200 | 32.2 | 1700 | 45.6 | 2400 | 64.4 | 2700 | 72.4 |
| 5 | 0.34 | 550 | 14.7 | 860 | 23.0 | 960 | 25.7 | 1300 | 34.8 | 1800 | 48.3 | 2700 | 72.4 | 3800 | 102 | 4900 | 132 |
| 10 | 0.69 | 840 | 22.5 | 1100 | 29.5 | 1400 | 37.5 | 2100 | 56.3 | 2800 | 75.1 | 4600 | 123 | 5600 | 150 | 6000 | 161 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2700 | 72.4 | 3900 | 105 | 5600 | 150 | 5600 | 150 | 6000 | 161 |
| 20 | 1.4 | 1200 | 32.2 | 1600 | 42.9 | 2100 | 56.3 | 3400 | 91.2 | 4700 | 126 | 5600 | 150 | 5600 | 150 | 6000 | 161 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 4700 | 126 | 6300 | 169 | 5600 | 150 | 5600 | 150 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5500 | 148 | 5600 | 150 | 5600 | 150 | | | | |
| 50 | 3.4 | 2300 | 61.7 | 3100 | 83.1 | 3900 | 105 | 5500 | 148 | 5600 | 150 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3600 | 96.5 | 4500 | 121 | 5500 | 148 | 5600 | 150 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 5400 | 145 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 5500 | 148 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6700 | 179.6 | 5500 | 148 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 290 | 7.7 | 520 | 13.9 | 450 | 12.0 | 750 | 20.1 | 1000 | 26.8 | 1300 | 34.8 | 1700 | 45.6 | 1800 | 48.3 |
| 3 | 0.21 | 380 | 10.2 | 660 | 17.7 | 670 | 17.9 | 1000 | 26.8 | 1100 | 29.5 | 1700 | 45.6 | 2100 | 56.3 | 2600 | 69.7 |
| 5 | 0.34 | 540 | 14.4 | 830 | 22.2 | 950 | 25.5 | 1200 | 32.2 | 1700 | 45.6 | 2400 | 64.4 | 3100 | 83.2 | 4300 | 115 |
| 10 | 0.69 | 820 | 22.0 | 1100 | 29.5 | 1400 | 37.5 | 2100 | 56.3 | 2800 | 75.1 | 4500 | 121 | 6000 | 161 | 8200 | 220 |
| 15 | 1.0 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2700 | 72.4 | 3900 | 105 | 5700 | 153 | 6600 | 177 | 8200 | 220 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3400 | 91.2 | 4800 | 129 | 6000 | 161 | 6600 | 177 | 8200 | 220 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2600 | 69.7 | 4200 | 113 | 6300 | 169 | 6000 | 161 | 6600 | 177 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5700 | 153 | 6300 | 169 | 6000 | 161 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 5700 | 153 | 6300 | 169 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4500 | 121 | 5700 | 153 | 6300 | 169 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 5500 | 148 | 5700 | 153 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 5500 | 148 | 5700 | 153 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6500 | 174.2 | 5500 | 148 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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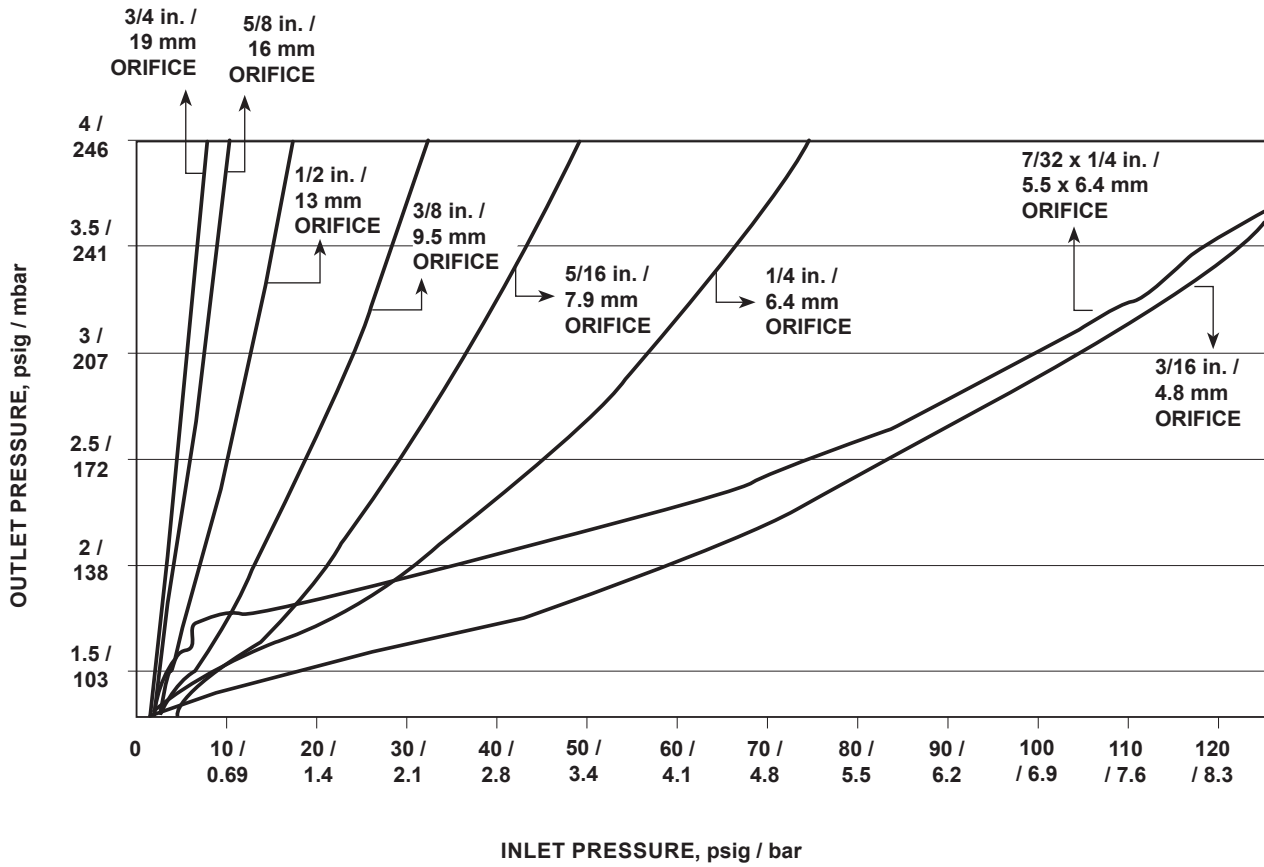


Figure 12. Type CS400IR Relief Curves (Blocked per Orifice Size) at 1 psig / 69 mbar Set Pressure

Table 18. Type CS400 Relief Table, 1 psig / 69 mbar Setpoint, Internal Registration

| ORIFICE SIZE | | REGULATOR SET PRESSURE | | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW ⁽¹⁾ | | | |
|--------------|-----------|------------------------|------|---|-----|-------------------|-----|
| | | | | 2.5 psig / 172 mbar | | 3 psig / 207 mbar | |
| In. | mm | psig | mbar | psig | bar | psig | bar |
| 3/16 | 4.8 | 1 | 69 | 84 | 5.8 | 105 | 7.2 |
| 7/32 x 1/4 | 5.5 x 6.4 | | | 81 | 5.6 | 100 | 6.9 |
| 1/4 | 6.4 | | | 46 | 3.2 | 56 | 3.9 |
| 5/16 | 7.9 | | | 29 | 2.0 | 37 | 2.6 |
| 3/8 | 9.5 | | | 19 | 1.3 | 24 | 1.7 |

1. Relief values obtained by blocking regulator open per orifice.

Table 19. Type CS400 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 1% ABS | | | |
| 2 psig | -0.17 psi | 0.17 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -12 mbar | 12 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 260 | 6.9 | 400 | 10.7 | 290 | 7.7 | 590 | 15.8 | 810 | 21.7 | 740 | 19.8 | 750 | 20.1 | 890 | 23.8 |
| 5 | 0.34 | 480 | 12.8 | 770 | 20.6 | 710 | 19.0 | 630 | 16.9 | 850 | 22.8 | 1000 | 26.8 | 1400 | 37.5 | 1600 | 42.9 |
| 10 | 0.69 | 630 | 16.9 | 890 | 23.9 | 900 | 24.1 | 1000 | 26.8 | 1500 | 40.2 | 1900 | 51.0 | 2500 | 67.1 | 2900 | 77.8 |
| 15 | 1.0 | 860 | 23.0 | 1200 | 32.2 | 1200 | 32.2 | 1500 | 40.2 | 2200 | 59.0 | 2800 | 75.1 | 4100 | 110 | 4700 | 126 |
| 20 | 1.4 | 1000 | 26.8 | 1500 | 40.2 | 1600 | 42.9 | 2100 | 56.3 | 2700 | 72.4 | 4300 | 115 | 5200 | 140 | 5600 | 150 |
| 30 | 2.1 | 1400 | 37.5 | 2000 | 53.6 | 2300 | 61.7 | 3000 | 80.5 | 4500 | 121 | 5400 | 145 | 5600 | 150 | | |
| 40 | 2.8 | 1800 | 48.3 | 2500 | 67.0 | 3200 | 85.9 | 4400 | 118 | 5400 | 145 | 5400 | 145 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3800 | 102 | 5300 | 142 | 5400 | 145 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3400 | 91.1 | 4400 | 118 | 5300 | 142 | 5400 | 145 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4400 | 117.9 | 4400 | 118 | 5300 | 142 | | | | | | | | |
| 100 | 6.9 | 3700 | 99.3 | 5300 | 142.0 | 4400 | 118 | 5300 | 142 | | | | | | | | |
| 125 | 8.6 | 3700 | 99.3 | 5700 | 152.8 | 4400 | 118 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 220 | 5.9 | 370 | 9.9 | 330 | 8.8 | 640 | 17.1 | 760 | 20.4 | 670 | 17.9 | 830 | 22.2 | 910 | 24.4 |
| 5 | 0.34 | 410 | 11.0 | 740 | 19.8 | 740 | 19.8 | 650 | 17.4 | 800 | 21.4 | 1000 | 26.8 | 1300 | 34.8 | 1500 | 40.2 |
| 10 | 0.69 | 600 | 16.1 | 850 | 22.8 | 890 | 23.8 | 1000 | 26.8 | 1500 | 40.2 | 2000 | 53.6 | 2400 | 64.4 | 3200 | 85.9 |
| 15 | 1.0 | 810 | 21.7 | 1200 | 32.2 | 1100 | 29.5 | 1400 | 37.5 | 2000 | 53.6 | 2700 | 72.4 | 4600 | 123 | 5600 | 150 |
| 20 | 1.4 | 1000 | 26.8 | 1500 | 40.2 | 1500 | 40.2 | 1800 | 48.3 | 2900 | 77.8 | 4000 | 107 | 5200 | 140 | 5600 | 150 |
| 30 | 2.1 | 1400 | 37.5 | 2000 | 53.6 | 2100 | 56.3 | 3100 | 83.2 | 4600 | 123 | 5400 | 145 | 5600 | 150 | | |
| 40 | 2.8 | 1700 | 45.6 | 2500 | 67.0 | 2900 | 77.8 | 4800 | 129 | 5400 | 145 | 5400 | 145 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3000 | 80.4 | 3800 | 102 | 5300 | 142 | 5400 | 145 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3500 | 93.8 | 4500 | 121 | 5300 | 142 | 5400 | 145 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4400 | 117.9 | 4500 | 121 | 5300 | 142 | | | | | | | | |
| 100 | 6.9 | 3700 | 99.3 | 5400 | 144.7 | 4500 | 121 | 5300 | 142 | | | | | | | | |
| 125 | 8.6 | 3700 | 99.3 | 6400 | 171.5 | 4500 | 121 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 220 | 5.9 | 390 | 10.5 | 360 | 9.6 | 570 | 15.3 | 800 | 21.4 | 620 | 16.6 | 760 | 20.4 | 830 | 22.2 |
| 5 | 0.34 | 360 | 9.6 | 690 | 18.5 | 710 | 19.0 | 570 | 15.3 | 780 | 20.9 | 1000 | 26.8 | 1200 | 32.2 | 1400 | 37.5 |
| 10 | 0.69 | 560 | 15.0 | 870 | 23.3 | 890 | 23.8 | 920 | 24.6 | 1400 | 37.5 | 1900 | 51.0 | 2300 | 61.7 | 2900 | 77.8 |
| 15 | 1.0 | 860 | 23.0 | 1100 | 29.5 | 1100 | 29.5 | 1300 | 34.8 | 2000 | 53.6 | 2800 | 75.1 | 3700 | 99.3 | 3900 | 105 |
| 20 | 1.4 | 1000 | 26.8 | 1400 | 37.5 | 1400 | 37.5 | 1700 | 45.6 | 2600 | 69.7 | 3700 | 99.3 | 5200 | 140 | 5600 | 150 |
| 30 | 2.1 | 1300 | 34.8 | 1900 | 50.9 | 2000 | 53.6 | 2400 | 64.4 | 4000 | 107 | 5400 | 145 | 5600 | 150 | | |
| 40 | 2.8 | 1700 | 45.6 | 2500 | 67.0 | 2900 | 77.8 | 3900 | 105 | 5400 | 145 | 5400 | 145 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3000 | 80.4 | 3600 | 96.6 | 4300 | 115 | 5400 | 145 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3400 | 91.1 | 4200 | 113 | 5400 | 145 | 5400 | 145 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4400 | 117.9 | 5400 | 145 | 5400 | 145 | | | | | | | | |
| 100 | 6.9 | 3800 | 102 | 5400 | 144.7 | 5400 | 145 | 5400 | 145 | | | | | | | | |
| 125 | 8.6 | 3800 | 102 | 6500 | 174.2 | 5400 | 145 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 20. Type CS400 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 2% ABS | | | |
| 2 psig | -0.33 psi | 0.33 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -23 mbar | 23 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 330 | 8.8 | 580 | 15.5 | 430 | 11.5 | 770 | 20.6 | 1000 | 26.8 | 1200 | 32.2 | 1400 | 37.5 | 1500 | 40.2 |
| 5 | 0.34 | 540 | 14.4 | 820 | 22.0 | 830 | 22.2 | 1000 | 26.8 | 1300 | 34.8 | 1700 | 45.6 | 2400 | 64.4 | 2900 | 77.8 |
| 10 | 0.69 | 810 | 21.7 | 1100 | 29.5 | 1200 | 32.2 | 1800 | 48.3 | 2300 | 61.7 | 3100 | 83.2 | 4300 | 115 | 5600 | 150 |
| 15 | 1.0 | 990 | 26.5 | 1400 | 37.5 | 1700 | 45.6 | 2300 | 61.7 | 3300 | 88.5 | 4200 | 113 | 6100 | 164 | 6200 | 166 |
| 20 | 1.4 | 1200 | 32.2 | 1600 | 42.9 | 2100 | 56.3 | 3000 | 80.5 | 3900 | 105 | 6000 | 161 | 6100 | 164 | 6200 | 166 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 4200 | 113 | 5900 | 158 | 6000 | 161 | 6100 | 164 | | |
| 40 | 2.8 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 5300 | 142 | 5900 | 158 | 6000 | 161 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3900 | 105 | 5300 | 142 | 5900 | 158 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 5000 | 134 | 5300 | 142 | 5900 | 158 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4400 | 117.9 | 5000 | 134 | 5300 | 142 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 5000 | 134 | 5300 | 142 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6500 | 174.2 | 5000 | 134 | | | | | | | | | | |
| | | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 290 | 7.7 | 490 | 13.1 | 540 | 14.4 | 840 | 22.5 | 1000 | 26.8 | 1100 | 29.5 | 1500 | 40.2 | 1700 | 45.6 |
| 5 | 0.34 | 510 | 13.6 | 790 | 21.2 | 840 | 22.5 | 1000 | 26.8 | 1300 | 34.8 | 1800 | 48.3 | 2300 | 61.7 | 2900 | 77.8 |
| 10 | 0.69 | 770 | 20.6 | 1090 | 29.2 | 1200 | 32.2 | 1700 | 45.6 | 2400 | 64.4 | 3200 | 85.9 | 4800 | 129 | 6200 | 166 |
| 15 | 1.0 | 990 | 26.5 | 1300 | 34.8 | 1700 | 45.6 | 2300 | 61.7 | 3200 | 85.9 | 5100 | 137 | 6400 | 172 | 6700 | 180 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 2800 | 75.1 | 4200 | 113 | 6000 | 161 | 6400 | 172 | 6700 | 180 |
| 30 | 2.1 | 1500 | 40.2 | 2100 | 56.3 | 2800 | 75.1 | 4500 | 121 | 5900 | 158 | 6000 | 161 | 6400 | 172 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5600 | 150 | 5900 | 158 | 6000 | 161 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3900 | 105 | 5600 | 150 | 5900 | 158 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3600 | 96.5 | 4500 | 121 | 5600 | 150 | 5900 | 158 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 5100 | 137 | 5600 | 150 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 5400 | 144.7 | 5100 | 137 | 5600 | 150 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6600 | 176.9 | 5100 | 137 | | | | | | | | | | |
| | | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 290 | 7.7 | 580 | 15.5 | 530 | 14.2 | 800 | 21.4 | 1000 | 26.8 | 1100 | 29.5 | 1400 | 37.5 | 1600 | 42.9 |
| 5 | 0.34 | 490 | 13.1 | 770 | 20.6 | 850 | 22.8 | 970 | 26.0 | 1300 | 34.8 | 1800 | 48.3 | 2300 | 61.7 | 2800 | 75.1 |
| 10 | 0.69 | 750 | 20.1 | 1110 | 29.7 | 1300 | 34.8 | 1600 | 42.9 | 2400 | 64.4 | 3200 | 85.9 | 4200 | 113 | 4800 | 129 |
| 15 | 1.0 | 1000 | 26.8 | 1300 | 34.8 | 1600 | 42.9 | 2200 | 59.0 | 3000 | 80.5 | 4500 | 121 | 6200 | 166 | 6000 | 161 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 1900 | 51.0 | 2800 | 75.1 | 3900 | 105 | 5900 | 158 | 6000 | 161 | 6000 | 161 |
| 30 | 2.1 | 1500 | 40.2 | 2000 | 53.6 | 2700 | 72.4 | 3700 | 99.3 | 5700 | 153 | 5900 | 158 | 6000 | 161 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5100 | 137 | 5900 | 158 | 5900 | 158 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 5500 | 148 | 5900 | 158 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4600 | 123 | 5500 | 148 | 5900 | 158 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4500 | 120.6 | 4600 | 123 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5500 | 147.4 | 4600 | 123 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6600 | 176.9 | 4600 | 123 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 21. Type CS400 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|----------------|---------------------|
| | + / - 10% | | | |
| 2 psig | -0.2 psi | 0.2 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -14 mbar | 14 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------------|-----------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 270 | 7.2 | 440 | 11.8 | 330 | 8.8 | 630 | 16.9 | 850 | 22.8 | 860 | 23.0 | 870 | 23.3 | 1000 | 26.8 |
| 5 | 0.34 | 500 | 13.4 | 780 | 20.9 | 740 | 19.8 | 730 | 19.5 | 1000 | 26.8 | 1200 | 32.2 | 1600 | 42.9 | 1900 | 51.0 |
| 10 | 0.69 | 680 | 18.2 | 970 | 26.0 | 1000 | 26.8 | 1100 | 29.5 | 1700 | 45.6 | 2200 | 59.0 | 2900 | 77.8 | 3400 | 91.2 |
| 15 | 1.0 | 640 | 17.1 | 1300 | 34.8 | 1300 | 34.8 | 1700 | 45.6 | 2500 | 67.1 | 3200 | 85.9 | 4600 | 123 | 5300 | 142 |
| 20 | 1.4 | 1100 | 29.5 | 1500 | 40.2 | 1700 | 45.6 | 2300 | 61.7 | 3000 | 80.5 | 4800 | 129 | 6300 | 169 | 6300 | 169 |
| 30 | 2.1 | 1100 | 29.5 | 2000 | 53.6 | 2500 | 67.1 | 3400 | 91.2 | 4900 | 132 | 6300 | 169 | 6300 | 169 | | |
| 40 | 2.8 | 1600 | 42.9 | 2500 | 67.0 | 3300 | 88.5 | 4700 | 126 | 6000 | 161 | 6300 | 169 | | | | |
| 50 | 3.4 | 2000 | 53.6 | 3000 | 80.4 | 3800 | 102 | 5500 | 148 | 6000 | 161 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3500 | 93.8 | 4500 | 121 | 5500 | 148 | 6000 | 161 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4400 | 117.9 | 5400 | 145 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 3800 | 102 | 5400 | 144.7 | 5400 | 145 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 3800 | 102 | 6000 | 160.8 | 5400 | 145 | | | | | | | | | | |
| | | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 230 | 6.1 | 400 | 10.7 | 370 | 9.9 | 690 | 18.5 | 900 | 24.1 | 770 | 20.6 | 940 | 25.2 | 1000 | 26.8 |
| 5 | 0.34 | 450 | 12.0 | 750 | 20.1 | 770 | 20.6 | 730 | 19.5 | 960 | 25.7 | 1200 | 32.2 | 1500 | 40.2 | 1800 | 48.3 |
| 10 | 0.69 | 670 | 17.9 | 950 | 25.5 | 990 | 26.5 | 1100 | 29.5 | 1700 | 45.6 | 2300 | 61.7 | 3100 | 83.2 | 4100 | 110 |
| 15 | 1.0 | 890 | 23.8 | 1200 | 32.2 | 1300 | 34.8 | 1600 | 42.9 | 2300 | 61.7 | 3400 | 91.2 | 5300 | 142 | 6300 | 169 |
| 20 | 1.4 | 1000 | 26.8 | 1500 | 40.2 | 1700 | 45.6 | 2100 | 56.3 | 3300 | 88.5 | 4600 | 123 | 6300 | 169 | 6300 | 169 |
| 30 | 2.1 | 1500 | 40.2 | 2000 | 53.6 | 2400 | 64.4 | 3600 | 96.6 | 5200 | 140 | 6300 | 169 | 6300 | 169 | | |
| 40 | 2.8 | 1800 | 48.3 | 2500 | 67.0 | 3100 | 83.2 | 5100 | 137 | 6300 | 169 | 6300 | 169 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3000 | 80.4 | 3800 | 102 | 6100 | 164 | 6300 | 169 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3500 | 93.8 | 4500 | 121 | 6100 | 164 | 6300 | 169 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4500 | 120.6 | 5400 | 145 | 6100 | 164 | | | | | | | | |
| 100 | 6.9 | 3800 | 102 | 5400 | 144.7 | 5400 | 145 | 6100 | 164 | | | | | | | | |
| 125 | 8.6 | 3800 | 102 | 6500 | 174.2 | 5400 | 145 | | | | | | | | | | |
| | | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| psig | bar | | | | | | | | | | | | | | | | |
| 3 | 0.21 | 240 | 6.4 | 430 | 11.5 | 390 | 10.4 | 600 | 16.1 | 860 | 23.0 | 730 | 19.5 | 1000 | 26.8 | 1000 | 26.8 |
| 5 | 0.34 | 440 | 11.8 | 720 | 19.3 | 740 | 19.8 | 690 | 18.5 | 910 | 24.4 | 1200 | 32.2 | 1500 | 40.2 | 1700 | 45.6 |
| 10 | 0.69 | 640 | 17.1 | 970 | 26.0 | 990 | 26.5 | 1000 | 26.8 | 1600 | 42.9 | 2200 | 59.0 | 2700 | 72.4 | 3300 | 88.5 |
| 15 | 1.0 | 930 | 24.9 | 1200 | 32.2 | 1200 | 32.2 | 1500 | 40.2 | 2300 | 61.7 | 3100 | 83.2 | 4200 | 113 | 4600 | 123 |
| 20 | 1.4 | 1100 | 29.5 | 1400 | 37.5 | 1500 | 40.2 | 1900 | 51.0 | 2900 | 77.8 | 4100 | 110 | 6000 | 161 | 6000 | 161 |
| 30 | 2.1 | 1400 | 37.5 | 1900 | 50.9 | 2300 | 61.7 | 2800 | 75.1 | 4400 | 118 | 6000 | 161 | 6000 | 161 | | |
| 40 | 2.8 | 1700 | 45.6 | 2500 | 67.0 | 3100 | 83.2 | 4200 | 113 | 6000 | 161 | 6000 | 161 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3800 | 102 | 4700 | 126 | 6000 | 161 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3500 | 93.8 | 4400 | 118 | 6000 | 161 | 6000 | 161 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4400 | 117.9 | 5700 | 153 | 6000 | 161 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 5400 | 144.7 | 5700 | 153 | 6000 | 161 | | | | | | | | |
| 125 | 8.6 | 3900 | 105 | 6500 | 174.2 | 5700 | 153 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 22. Type CS400 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|----------------|---------------------|
| | + / - 20% | | | |
| 2 psig | -0.4 psi | 0.4 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -28 mbar | 28 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| psig | bar | 350 | 9.3 | 600 | 16.1 | 460 | 12.3 | 820 | 22.0 | 1100 | 29.5 | 1300 | 34.8 | 1600 | 42.9 | 1900 | 51.0 |
| 3 | 0.21 | 550 | 14.7 | 830 | 22.2 | 850 | 22.8 | 1100 | 29.5 | 1500 | 40.2 | 1900 | 51.0 | 2600 | 69.7 | 3400 | 91.2 |
| 5 | 0.34 | 850 | 22.8 | 1120 | 30.0 | 1300 | 34.8 | 1900 | 51.0 | 2600 | 69.7 | 3400 | 91.2 | 4700 | 126 | 6200 | 166 |
| 10 | 0.69 | 1000 | 26.8 | 1400 | 37.5 | 1700 | 45.6 | 2500 | 67.1 | 3600 | 96.6 | 4400 | 118 | 6200 | 166 | 6200 | 166 |
| 15 | 1.0 | 1200 | 32.2 | 1600 | 42.9 | 2100 | 56.3 | 3100 | 83.2 | 4100 | 110 | 6200 | 166 | 6200 | 166 | 6200 | 166 |
| 20 | 1.4 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 4400 | 118 | 6000 | 161 | 6200 | 166 | 6200 | 166 | | |
| 30 | 2.1 | 1800 | 48.3 | 2600 | 69.7 | 3400 | 91.2 | 5400 | 145 | 6000 | 161 | 6200 | 166 | | | | |
| 40 | 2.8 | 2200 | 59.0 | 3000 | 80.4 | 4000 | 107 | 6000 | 161 | 6000 | 161 | | | | | | |
| 50 | 3.4 | 2600 | 69.7 | 3500 | 93.8 | 4600 | 123 | 6000 | 161 | 6000 | 161 | | | | | | |
| 60 | 4.1 | 3300 | 88.5 | 4500 | 120.6 | 5800 | 156 | 6000 | 161 | | | | | | | | |
| 80 | 5.5 | 3900 | 105 | 5400 | 144.7 | 5800 | 156 | 6000 | 161 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 6600 | 176.9 | 5800 | 156 | | | | | | | | | | |
| 125 | 8.6 | | | | | | | | | | | | | | | | |
| | | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| psig | bar | 310 | 8.3 | 520 | 13.9 | 570 | 15.3 | 900 | 24.1 | 1100 | 29.5 | 1300 | 34.8 | 1700 | 45.6 | 1900 | 51.0 |
| 3 | 0.21 | 520 | 13.9 | 800 | 21.4 | 880 | 23.6 | 1100 | 29.5 | 1500 | 40.2 | 2000 | 53.6 | 2600 | 69.7 | 3300 | 88.5 |
| 5 | 0.34 | 800 | 21.4 | 1110 | 29.7 | 1300 | 34.8 | 1900 | 51.0 | 2500 | 67.1 | 3400 | 91.2 | 5300 | 142 | 6700 | 180 |
| 10 | 0.69 | 1000 | 26.8 | 1400 | 37.5 | 1800 | 48.3 | 2500 | 67.1 | 3600 | 96.6 | 5400 | 145 | 6400 | 172 | 6700 | 180 |
| 15 | 1.0 | 1100 | 29.5 | 1600 | 42.9 | 2100 | 56.3 | 3100 | 83.2 | 4500 | 121 | 6200 | 166 | 6400 | 172 | 6700 | 180 |
| 20 | 1.4 | 1600 | 42.9 | 2100 | 56.3 | 2800 | 75.1 | 4600 | 123 | 6200 | 166 | 6200 | 166 | 6400 | 172 | | |
| 30 | 2.1 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5700 | 153 | 6200 | 166 | 6200 | 166 | | | | |
| 40 | 2.8 | 2200 | 59.0 | 3000 | 80.4 | 3900 | 105 | 6000 | 161 | 6200 | 166 | | | | | | |
| 50 | 3.4 | 2500 | 67.1 | 3600 | 96.5 | 4500 | 121 | 6000 | 161 | 6200 | 166 | | | | | | |
| 60 | 4.1 | 3300 | 88.5 | 4500 | 120.6 | 5800 | 156 | 6000 | 161 | | | | | | | | |
| 80 | 5.5 | 3900 | 105 | 5400 | 144.7 | 5800 | 156 | 6000 | 161 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 6600 | 176.9 | 5800 | 156 | | | | | | | | | | |
| 125 | 8.6 | | | | | | | | | | | | | | | | |
| | | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| psig | bar | 300 | 8.0 | 600 | 16.1 | 560 | 15.0 | 850 | 22.8 | 1100 | 29.5 | 1300 | 34.8 | 1700 | 45.6 | 1900 | 51.0 |
| 3 | 0.21 | 500 | 13.4 | 790 | 21.2 | 890 | 23.8 | 1000 | 26.8 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3200 | 85.9 |
| 5 | 0.34 | 780 | 20.9 | 1130 | 30.3 | 1300 | 34.8 | 1800 | 48.3 | 2600 | 69.7 | 3600 | 96.6 | 4900 | 131 | 5600 | 150 |
| 10 | 0.69 | 1000 | 26.8 | 1400 | 37.5 | 1700 | 45.6 | 2400 | 64.4 | 3300 | 88.5 | 5100 | 137 | 6000 | 161 | 6000 | 161 |
| 15 | 1.0 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 3000 | 80.5 | 4200 | 113 | 6000 | 161 | 6000 | 161 | 6000 | 161 |
| 20 | 1.4 | 1500 | 40.2 | 2100 | 56.3 | 2700 | 72.4 | 3900 | 105 | 6000 | 161 | 6000 | 161 | 6000 | 161 | | |
| 30 | 2.1 | 1900 | 51.0 | 2600 | 69.7 | 3300 | 88.5 | 5400 | 145 | 6000 | 161 | 6000 | 161 | | | | |
| 40 | 2.8 | 2200 | 59.0 | 3100 | 83.1 | 4000 | 107 | 5800 | 156 | 6000 | 161 | | | | | | |
| 50 | 3.4 | 2600 | 69.7 | 3500 | 93.8 | 4600 | 123 | 5800 | 156 | 6000 | 161 | | | | | | |
| 60 | 4.1 | 3300 | 88.5 | 4500 | 120.6 | 5800 | 156 | 5800 | 156 | | | | | | | | |
| 80 | 5.5 | 4100 | 110 | 5400 | 144.7 | 5800 | 156 | 5800 | 156 | | | | | | | | |
| 100 | 6.9 | 4100 | 110 | 6600 | 176.9 | 5800 | 156 | | | | | | | | | | |
| 125 | 8.6 | | | | | | | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

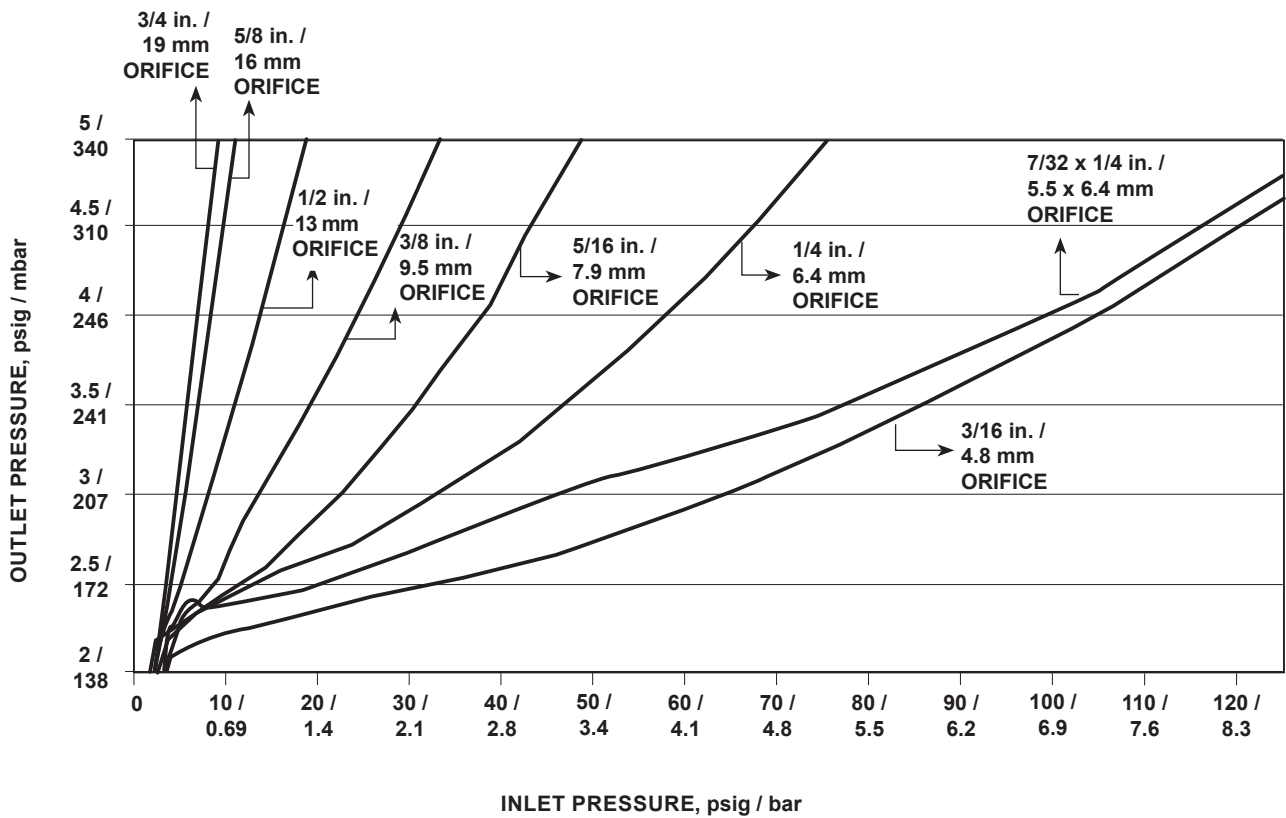


Figure 13. Type CS400IR Relief Curves (Blocked per Orifice Size) at 2 psig / 138 mbar Set Pressure

Table 23. Type CS400 Relief Table, 2 psig / 138 mbar Setpoint, Internal Registration

| ORIFICE SIZE | | REGULATOR SET PRESSURE | | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW ⁽¹⁾ | | | |
|--------------|-----------|------------------------|------|---|------|-------------------|-----|
| | | | | 3 psig / 207 mbar | | 4 psig / 276 mbar | |
| In. | mm | psig | mbar | psig | bar | psig | bar |
| 3/16 | 4.8 | 2 | 138 | 64 | 4.4 | 105 | 7.2 |
| 7/32 x 1/4 | 5.5 x 6.4 | | | 43 | 3.0 | 95 | 6.5 |
| 1/4 | 6.4 | | | 32 | 2.2 | 58 | 4.0 |
| 5/16 | 7.9 | | | 23 | 1.6 | 37 | 2.6 |
| 3/8 | 9.5 | | | 14 | 0.97 | 24 | 1.7 |

1. Relief values obtained by blocking regulator open per orifice.

CS400 Series

Table 24. Type CS400 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------|----------------------|
| | + / - 1% ABS | | | |
| 5 psig | -0.20 psi | 0.20 psi | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -14 mbar | 14 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 460 | 12.3 | 400 | 10.7 | 460 | 12.3 | 470 | 12.6 | 630 | 16.9 | 800 | 21.4 | 970 | 26.0 | 1100 | 29.5 |
| 15 | 1.0 | 500 | 13.4 | 500 | 13.4 | 600 | 16.1 | 660 | 17.7 | 910 | 24.4 | 1200 | 32.2 | 1700 | 45.6 | 2000 | 53.6 |
| 20 | 1.4 | 560 | 15.0 | 600 | 16.1 | 740 | 19.8 | 880 | 23.6 | 1200 | 32.2 | 1800 | 48.3 | 1800 | 48.3 | 1800 | 48.3 |
| 30 | 2.1 | 860 | 23.0 | 800 | 21.4 | 910 | 24.4 | 1600 | 42.9 | 2000 | 53.6 | 2400 | 64.4 | 3200 | 85.9 | | |
| 40 | 2.8 | 1100 | 29.5 | 1100 | 29.5 | 1300 | 34.8 | 1800 | 48.3 | 2700 | 72.4 | 2900 | 77.8 | | | | |
| 50 | 3.4 | 1500 | 40.2 | 1400 | 37.5 | 1900 | 51.0 | 2600 | 69.7 | 2700 | 72.4 | | | | | | |
| 60 | 4.1 | 1500 | 40.2 | 1600 | 42.9 | 2100 | 56.3 | 3300 | 88.5 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 1900 | 51.0 | 2500 | 67.0 | 3000 | 80.5 | 5100 | 137 | | | | | | | | |
| 100 | 6.9 | 2600 | 69.7 | 3100 | 83.1 | 4600 | 123 | 5100 | 137 | | | | | | | | |
| 125 | 8.6 | 2600 | 69.7 | 3900 | 104.5 | 4600 | 123 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 430 | 11.5 | 390 | 10.5 | 540 | 14.4 | 410 | 11.0 | 660 | 17.7 | 710 | 19.0 | 1500 | 40.2 | 920 | 24.6 |
| 15 | 1.0 | 500 | 13.4 | 500 | 13.4 | 520 | 13.9 | 590 | 15.8 | 930 | 24.9 | 1000 | 26.8 | 2300 | 61.7 | 1600 | 42.9 |
| 20 | 1.4 | 580 | 15.5 | 600 | 16.1 | 700 | 18.7 | 770 | 20.6 | 1100 | 29.5 | 1300 | 34.8 | 1900 | 51.0 | 1900 | 51.0 |
| 30 | 2.1 | 790 | 21.2 | 900 | 24.1 | 970 | 26.0 | 1100 | 29.5 | 1500 | 40.2 | 2200 | 59.0 | 2500 | 67.1 | | |
| 40 | 2.8 | 950 | 25.5 | 1200 | 32.2 | 1200 | 32.2 | 1400 | 37.5 | 2000 | 53.6 | 2500 | 67.1 | | | | |
| 50 | 3.4 | 1100 | 29.5 | 1400 | 37.5 | 1500 | 40.2 | 1800 | 48.3 | 2500 | 67.1 | | | | | | |
| 60 | 4.1 | 1400 | 37.5 | 1700 | 45.6 | 1700 | 45.6 | 2200 | 59.0 | 3700 | 99.3 | | | | | | |
| 80 | 5.5 | 1800 | 48.3 | 2600 | 69.7 | 2400 | 64.4 | 3100 | 83.2 | | | | | | | | |
| 100 | 6.9 | 2300 | 61.7 | 3600 | 96.5 | 4000 | 107 | 4300 | 115 | | | | | | | | |
| 125 | 8.6 | 3000 | 80.5 | 4800 | 128.6 | 4600 | 123 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 350 | 9.3 | 400 | 10.7 | 510 | 13.6 | 360 | 9.6 | 570 | 15.3 | 780 | 20.9 | 910 | 24.4 | 1000 | 26.8 |
| 15 | 1.0 | 490 | 13.1 | 500 | 13.4 | 550 | 14.7 | 560 | 15.0 | 740 | 19.8 | 1000 | 26.8 | 1300 | 34.8 | 1400 | 37.5 |
| 20 | 1.4 | 640 | 17.1 | 600 | 16.1 | 700 | 18.7 | 710 | 19.0 | 1000 | 26.8 | 1300 | 34.8 | 1600 | 42.9 | 1800 | 48.3 |
| 30 | 2.1 | 830 | 22.2 | 800 | 21.4 | 960 | 25.7 | 1000 | 26.8 | 1400 | 37.5 | 2500 | 67.1 | 3300 | 88.5 | | |
| 40 | 2.8 | 1000 | 26.8 | 1000 | 26.8 | 1200 | 32.2 | 1200 | 32.2 | 2200 | 59.0 | 3500 | 93.9 | | | | |
| 50 | 3.4 | 1100 | 29.5 | 1300 | 34.8 | 1500 | 40.2 | 1600 | 42.9 | 2300 | 61.7 | | | | | | |
| 60 | 4.1 | 1400 | 37.5 | 1600 | 42.9 | 1600 | 42.9 | 2100 | 56.3 | 2600 | 69.7 | | | | | | |
| 80 | 5.5 | 2300 | 61.7 | 2000 | 53.6 | 2700 | 72.4 | 2700 | 72.4 | | | | | | | | |
| 100 | 6.9 | 2500 | 67.1 | 2800 | 75.0 | 3800 | 102 | 3900 | 105 | | | | | | | | |
| 125 | 8.6 | 3200 | 85.9 | 4200 | 112.6 | 4800 | 129 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 25. Type CS400 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 2% ABS Accuracy

| | | ACCURACY | | | |
|----------|--------------|----------|-----------------|----------------------|--|
| SETPOINT | + / - 2% ABS | | SET RANGE | PART NUMBER / COLOR | |
| 5 psig | -0.39 psi | 0.39 psi | 2 to 5.5 psig | GE30197X012 / Yellow | |
| 345 mbar | -27 mbar | 27 mbar | 138 to 380 mbar | | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|---------------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 560 | 15.0 | 640 | 17.2 | 720 | 19.3 | 840 | 22.5 | 1100 | 29.5 | 1400 | 37.5 | 970 | 26.0 | 2000 | 53.6 |
| 15 | 1.0 | 700 | 18.7 | 900 | 24.1 | 980 | 26.3 | 1200 | 32.2 | 1600 | 42.9 | 2300 | 61.7 | 3100 | 83.2 | 3500 | 93.9 |
| 20 | 1.4 | 910 | 24.4 | 1000 | 26.8 | 1200 | 32.2 | 1500 | 40.2 | 2100 | 56.3 | 3100 | 83.2 | 3100 | 83.2 | 3700 | 99.3 |
| 30 | 2.1 | 1300 | 34.8 | 1400 | 37.5 | 1700 | 45.6 | 2600 | 69.7 | 3200 | 85.9 | 3200 | 85.9 | 3200 | 85.9 | | |
| 40 | 2.8 | 1700 | 45.6 | 1900 | 50.9 | 2300 | 61.7 | 3300 | 88.5 | 4700 | 126 | 5200 | 140 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 2400 | 64.3 | 3200 | 85.9 | 4300 | 115 | 5200 | 140 | | | | | | |
| 60 | 4.1 | 2300 | 61.7 | 2800 | 75.0 | 3700 | 99.3 | 5200 | 140 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 2900 | 77.8 | 3700 | 99.2 | 4900 | 132 | 5200 | 140 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 4900 | 131.3 | 5200 | 140 | 5200 | 140 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 6100 | 163.5 | 5200 | 140 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 - External | | | | | | | | | | | | | | | |
| 10 | 0.69 | 580 | 15.5 | 620 | 16.6 | 770 | 20.6 | 770 | 20.6 | 1100 | 29.5 | 1300 | 34.8 | 1700 | 45.6 | 1800 | 48.3 |
| 15 | 1.0 | 710 | 19.0 | 900 | 24.1 | 900 | 24.1 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 2700 | 72.4 | 2800 | 75.1 |
| 20 | 1.4 | 870 | 23.3 | 1100 | 29.5 | 1200 | 32.2 | 1500 | 40.2 | 2000 | 53.6 | 2500 | 67.1 | 3500 | 93.9 | 4300 | 115 |
| 30 | 2.1 | 1200 | 32.2 | 1500 | 40.2 | 1600 | 42.9 | 2000 | 53.6 | 3000 | 80.5 | 3800 | 102 | 5200 | 140 | | |
| 40 | 2.8 | 1500 | 40.2 | 2000 | 53.6 | 2100 | 56.3 | 2700 | 72.4 | 4200 | 113 | 5200 | 140 | | | | |
| 50 | 3.4 | 1900 | 51.0 | 2600 | 69.7 | 2600 | 69.7 | 3500 | 93.9 | 5200 | 140 | | | | | | |
| 60 | 4.1 | 2300 | 61.7 | 3000 | 80.4 | 3200 | 85.9 | 5000 | 134 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 3000 | 80.5 | 4100 | 109.9 | 4700 | 126 | 5000 | 134 | | | | | | | | |
| 100 | 6.9 | 3600 | 96.6 | 5200 | 139.4 | 5000 | 134 | 5000 | 134 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 6200 | 166.2 | 5000 | 134 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 550 | 14.7 | 640 | 17.2 | 760 | 20.4 | 690 | 18.5 | 1000 | 26.8 | 1400 | 37.5 | 1700 | 45.6 | 1800 | 48.3 |
| 15 | 1.0 | 720 | 19.3 | 900 | 24.1 | 920 | 24.6 | 980 | 26.3 | 1400 | 37.5 | 1900 | 51.0 | 2500 | 67.1 | 2600 | 69.7 |
| 20 | 1.4 | 920 | 24.6 | 1100 | 29.5 | 1100 | 29.5 | 1200 | 32.2 | 1800 | 48.3 | 2400 | 64.4 | 3400 | 91.2 | 3800 | 102 |
| 30 | 2.1 | 1200 | 32.2 | 1400 | 37.5 | 1700 | 45.6 | 1900 | 51.0 | 2700 | 72.4 | 4300 | 115 | 5200 | 140 | | |
| 40 | 2.8 | 1600 | 42.9 | 1900 | 50.9 | 2400 | 64.4 | 2400 | 64.4 | 4300 | 115 | 5200 | 140 | | | | |
| 50 | 3.4 | 1900 | 51.0 | 2400 | 64.3 | 2700 | 72.4 | 3100 | 83.2 | 4900 | 132 | | | | | | |
| 60 | 4.1 | 2200 | 59.0 | 2800 | 75.0 | 3000 | 80.5 | 4200 | 113 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4000 | 107.2 | 4600 | 123 | 5200 | 140 | | | | | | | | |
| 100 | 6.9 | 3700 | 99.3 | 5100 | 136.7 | 5000 | 134 | 5200 | 140 | | | | | | | | |
| 125 | 8.6 | 4700 | 126 | 6200 | 166.2 | 5000 | 134 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 26. Type CS400 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------|----------------------|
| | + / - 10% | | | |
| 5 psig | -0.5 psi | 0.5 psi | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -34 mbar | 34 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 610 | 16.3 | 740 | 19.8 | 850 | 22.8 | 1000 | 26.8 | 1300 | 34.8 | 1800 | 48.3 | 2200 | 59.0 | 2500 | 67.1 |
| 15 | 1.0 | 780 | 20.9 | 1000 | 26.8 | 1200 | 32.2 | 1400 | 37.5 | 1900 | 51.0 | 2900 | 77.8 | 3700 | 99.3 | 4500 | 121 |
| 20 | 1.4 | 1000 | 26.8 | 1200 | 32.2 | 1500 | 40.2 | 1900 | 51.0 | 2600 | 69.7 | 3800 | 102 | 4600 | 123 | 4700 | 126 |
| 30 | 2.1 | 1300 | 34.8 | 1700 | 45.6 | 2000 | 53.6 | 3100 | 83.2 | 3900 | 105 | 5500 | 148 | 5500 | 148 | | |
| 40 | 2.8 | 1800 | 48.3 | 2300 | 61.6 | 2800 | 75.1 | 3900 | 105 | 5500 | 148 | 5500 | 148 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 2800 | 75.0 | 3800 | 102 | 5000 | 134 | 5500 | 148 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3200 | 85.8 | 4100 | 110 | 5400 | 145 | 5500 | 148 | | | | | | |
| 80 | 5.5 | 3000 | 80.5 | 4200 | 112.6 | 5400 | 145 | 5400 | 145 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5300 | 142.0 | 5400 | 145 | 5400 | 145 | | | | | | | | |
| 125 | 8.6 | 4000 | 107 | 6400 | 171.5 | 5400 | 145 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 640 | 17.1 | 710 | 19.0 | 900 | 24.1 | 960 | 25.7 | 1300 | 34.8 | 1600 | 42.9 | 2200 | 59.0 | 2200 | 59.0 |
| 15 | 1.0 | 790 | 21.2 | 1000 | 26.8 | 1000 | 26.8 | 1400 | 37.5 | 2000 | 53.6 | 2500 | 67.1 | 3500 | 93.9 | 3600 | 96.6 |
| 20 | 1.4 | 970 | 26.0 | 1300 | 34.8 | 1400 | 37.5 | 1800 | 48.3 | 2500 | 67.1 | 3300 | 88.5 | 4400 | 118 | 5400 | 145 |
| 30 | 2.1 | 1400 | 37.5 | 1800 | 48.2 | 1900 | 51.0 | 2600 | 69.7 | 3800 | 102 | 5300 | 142 | 5500 | 148 | | |
| 40 | 2.8 | 1600 | 42.9 | 2300 | 61.6 | 2500 | 67.1 | 3300 | 88.5 | 5100 | 137 | 5500 | 148 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 2800 | 75.0 | 3200 | 85.9 | 4200 | 113 | 5500 | 148 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3300 | 88.4 | 3900 | 105 | 5500 | 148 | 5500 | 148 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4300 | 115.2 | 5200 | 140 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 3700 | 99.3 | 5300 | 142.0 | 5500 | 148 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 4300 | 115 | 6300 | 168.8 | 5500 | 148 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 620 | 16.6 | 760 | 20.4 | 910 | 24.4 | 890 | 23.8 | 1300 | 34.8 | 1600 | 42.9 | 2100 | 56.3 | 2400 | 64.4 |
| 15 | 1.0 | 800 | 21.4 | 1000 | 26.8 | 1100 | 29.5 | 1300 | 34.8 | 1800 | 48.3 | 2400 | 64.4 | 3200 | 85.9 | 3400 | 91.2 |
| 20 | 1.4 | 1000 | 26.8 | 1300 | 34.8 | 1400 | 37.5 | 1600 | 42.9 | 2300 | 61.7 | 3100 | 83.2 | 4200 | 113 | 5000 | 134 |
| 30 | 2.1 | 1400 | 37.5 | 1700 | 45.6 | 2000 | 53.6 | 2400 | 64.4 | 3400 | 91.2 | 5200 | 140 | 5500 | 148 | | |
| 40 | 2.8 | 1800 | 48.3 | 2300 | 61.6 | 2700 | 72.4 | 3200 | 85.9 | 4900 | 132 | 5500 | 148 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 2800 | 75.0 | 3100 | 83.2 | 4000 | 107 | 5500 | 148 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 3300 | 88.4 | 3600 | 96.6 | 5000 | 134 | 5500 | 148 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4300 | 115.2 | 5000 | 134 | 5500 | 148 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 5300 | 142.0 | 5500 | 148 | 5500 | 148 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 6400 | 171.5 | 5500 | 148 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 27. Type CS400 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 20% Accuracy

| | | ACCURACY | | | |
|----------|-----------|----------|-----------------|----------------------|--|
| SETPOINT | + / - 20% | | SET RANGE | PART NUMBER / COLOR | |
| 5 psig | -1 psig | 1 psig | 2 to 5.5 psig | GE30197X012 / Yellow | |
| 345 mbar | -69 mbar | 69 mbar | 138 to 380 mbar | | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 7/32 x 1/4 | 5.5 x 6.4 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 720 | 19.3 | 1000 | 26.8 | 1200 | 32.2 | 1700 | 45.6 | 2200 | 59.0 | 3000 | 80.5 | 3900 | 105 | 4700 | 126 |
| 15 | 1.0 | 960 | 25.7 | 1300 | 34.8 | 1700 | 45.6 | 2400 | 64.4 | 3100 | 83.2 | 4700 | 126 | 6200 | 166 | 7000 | 188 |
| 20 | 1.4 | 1100 | 29.5 | 1500 | 40.2 | 2000 | 53.6 | 3000 | 80.5 | 4000 | 107 | 6000 | 161 | 6500 | 174 | 7000 | 188 |
| 30 | 2.1 | 1400 | 37.5 | 2000 | 53.6 | 2700 | 72.4 | 4500 | 121 | 5800 | 156 | 6500 | 174 | 6500 | 174 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3400 | 91.2 | 5500 | 148 | 6500 | 174 | 6500 | 174 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 4100 | 110 | 6500 | 174 | 6500 | 174 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4600 | 123 | 6500 | 174 | 6500 | 174 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 4500 | 120.6 | 5700 | 153 | 6500 | 174 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 5700 | 153 | 6500 | 174 | | | | | | | | |
| 125 | 8.6 | 4200 | 113 | 6500 | 174.2 | 5700 | 153 | | | | | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 750 | 20.1 | 1000 | 26.8 | 1200 | 32.2 | 1600 | 42.9 | 2300 | 61.7 | 2900 | 77.8 | 3900 | 105 | 4400 | 118 |
| 15 | 1.0 | 990 | 26.5 | 1300 | 34.8 | 1500 | 40.2 | 2300 | 61.7 | 3200 | 85.9 | 4200 | 113 | 6100 | 164 | 7200 | 193 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 2800 | 75.1 | 4000 | 107 | 5900 | 158 | 6600 | 177 | 7200 | 193 |
| 30 | 2.1 | 1600 | 42.9 | 2000 | 53.6 | 2600 | 69.7 | 4200 | 113 | 5900 | 158 | 6500 | 174 | 6600 | 177 | | |
| 40 | 2.8 | 1900 | 51.0 | 2500 | 67.0 | 3300 | 88.5 | 5200 | 140 | 6500 | 174 | 6500 | 174 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3000 | 80.4 | 3800 | 102 | 6200 | 166 | 6500 | 174 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4500 | 121 | 6200 | 166 | 6500 | 174 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4400 | 117.9 | 5700 | 153 | 6200 | 166 | | | | | | | | |
| 100 | 6.9 | 4100 | 110 | 5400 | 144.7 | 5700 | 153 | 6200 | 166 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 6600 | 176.9 | 5700 | 153 | | | | | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 720 | 19.3 | 1100 | 29.5 | 1200 | 32.2 | 1500 | 40.2 | 2200 | 59.0 | 3000 | 80.5 | 3800 | 102 | 4700 | 126 |
| 15 | 1.0 | 970 | 26.0 | 1400 | 37.5 | 1600 | 42.9 | 2200 | 59.0 | 3200 | 85.9 | 4400 | 118 | 5700 | 153 | 6600 | 177 |
| 20 | 1.4 | 1100 | 29.5 | 1600 | 42.9 | 2000 | 53.6 | 2900 | 77.8 | 3900 | 105 | 5200 | 140 | 6800 | 183 | 7200 | 193 |
| 30 | 2.1 | 1500 | 40.2 | 2000 | 53.6 | 2700 | 72.4 | 4000 | 107 | 5400 | 145 | 6500 | 174 | 6800 | 183 | | |
| 40 | 2.8 | 1900 | 51.0 | 2600 | 69.7 | 3200 | 85.9 | 5000 | 134 | 6500 | 174 | 6500 | 174 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3100 | 83.1 | 3800 | 102 | 5900 | 158 | 6500 | 174 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 3500 | 93.8 | 4300 | 115 | 6200 | 166 | 6500 | 174 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 4500 | 120.6 | 5900 | 158 | 6200 | 166 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 5400 | 144.7 | 5900 | 158 | 6200 | 166 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 6600 | 176.9 | 5900 | 158 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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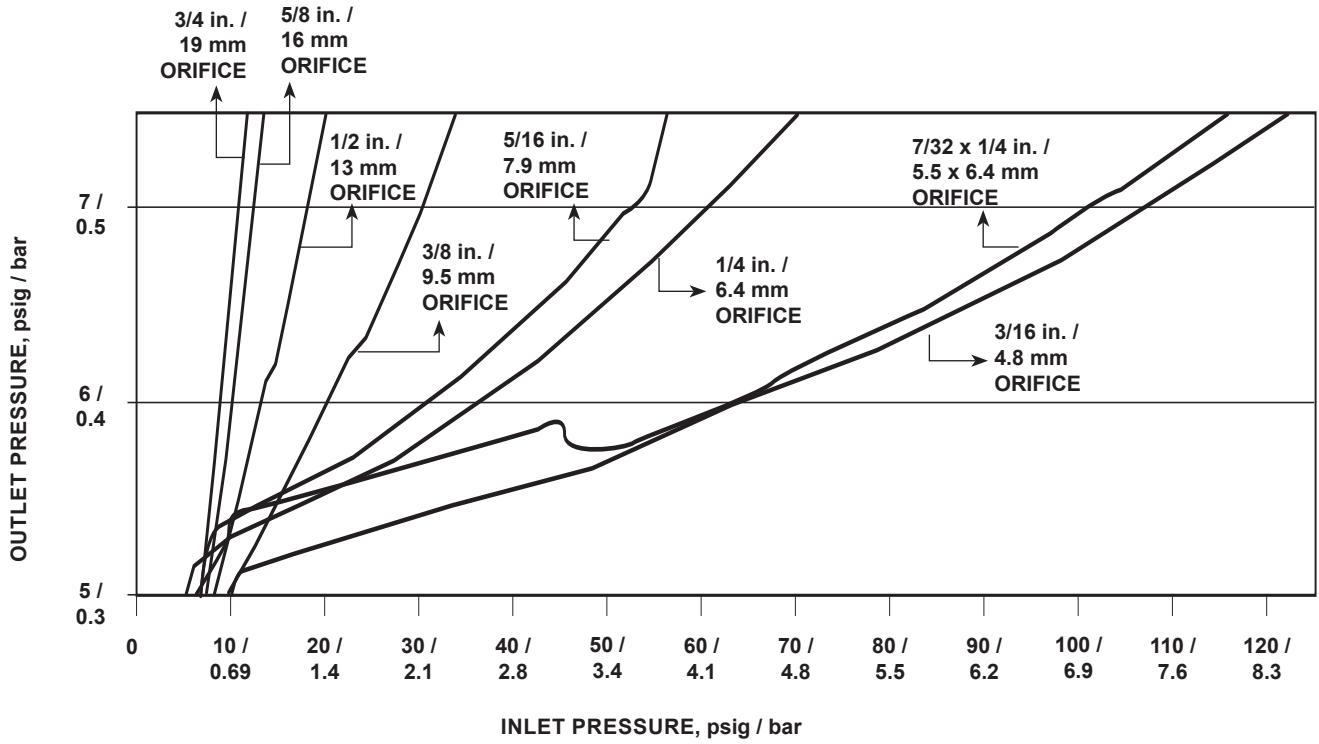


Figure 14. Type CS400IR Relief Curves (Blocked per Orifice Size) at 5 psig / 345 mbar Set Pressure

Table 28. Type CS400 Relief Table, 5 psig / 345 mbar Setpoint, Internal Registration

| ORIFICE SIZE | | REGULATOR SET PRESSURE | | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW ⁽¹⁾ | | | |
|--------------|-----------|------------------------|------|---|-----|-------------------|-----|
| | | | | 6 psig / 414 mbar | | 7 psig / 483 mbar | |
| In. | mm | psig | mbar | psig | bar | psig | bar |
| 3/16 | 4.8 | 5 | 345 | 63 | 4.3 | 106 | 7.3 |
| 7/32 x 1/4 | 5.5 x 6.4 | | | 60 | 4.1 | 95 | 6.5 |
| 1/4 | 6.4 | | | 36 | 2.5 | 61 | 4.2 |
| 5/16 | 7.9 | | | 31 | 2.1 | 53 | 3.7 |
| 3/8 | 9.5 | | | 20 | 1.4 | 29 | 2.0 |

1. Relief values obtained by blocking regulator open per orifice.

Table 29. Type CS400 External Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint

| SETPPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|------------|-------------|------------|-----------------|---------------------|
| | Drop | Boost | | |
| 7 in. w.c. | -1 in. w.c. | 2 in. w.c. | 6 to 8 in. w.c. | GE30188X012 / Gold |
| 17 mbar | -2 mbar | 5 mbar | 15 to 20 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 140 | 3.7 | 200 | 5.3 | 230 | 6.1 | 280 | 7.5 | 360 | 9.6 | 410 | 11.0 | 430 | 11.5 |
| 1 | 0.07 | 180 | 4.8 | 260 | 6.9 | 300 | 8.0 | 360 | 9.6 | 360 | 9.6 | 610 | 16.3 | 760 | 20.4 |
| 2 | 0.14 | 210 | 5.6 | 350 | 9.3 | 360 | 9.6 | 360 | 9.6 | 360 | 9.6 | 910 | 24.4 | 980 | 26.3 |
| 3 | 0.21 | 210 | 5.6 | 450 | 12.0 | 510 | 13.6 | 510 | 13.6 | 510 | 13.6 | 990 | 26.5 | 1060 | 28.4 |
| 5 | 0.34 | 210 | 5.6 | 590 | 15.8 | 610 | 16.3 | 870 | 23.3 | 1120 | 30.0 | 1360 | 36.5 | 1920 | 51.5 |
| 10 | 0.69 | 210 | 5.6 | 680 | 18.2 | 970 | 26.0 | 1180 | 31.6 | 1430 | 38.3 | 2000 | 53.6 | 2500 | 67.1 |
| 15 | 1.0 | 210 | 5.6 | 1060 | 28.4 | 1150 | 30.8 | 1440 | 38.6 | 1720 | 46.1 | 2100 | 56.3 | 2700 | 72.4 |
| 20 | 1.4 | 980 | 26.3 | 1220 | 32.7 | 1390 | 37.3 | 1550 | 41.6 | 1550 | 41.6 | 2500 | 67.1 | 3300 | 88.5 |
| 30 | 2.1 | 1230 | 33.0 | 1450 | 38.9 | 1700 | 45.6 | 1800 | 48.3 | 1880 | 50.4 | 2600 | 69.7 | | |
| 40 | 2.8 | 1400 | 37.5 | 1450 | 38.9 | 1730 | 46.4 | 1880 | 50.4 | 2300 | 61.7 | | | | |
| 50 | 3.4 | 1450 | 38.9 | 1450 | 38.9 | 1860 | 49.9 | 2000 | 53.6 | | | | | | |
| 60 | 4.1 | 1450 | 38.9 | 1450 | 38.9 | 2000 | 53.6 | 2300 | 61.7 | | | | | | |
| 80 | 5.5 | 1450 | 38.9 | 1450 | 38.9 | 2500 | 67.1 | | | | | | | | |
| 100 | 6.9 | 1450 | 38.9 | 1450 | 38.9 | 2900 | 77.8 | | | | | | | | |
| 125 | 8.6 | 1450 | 38.9 | 1450 | 38.9 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 30. Type CS400 External Registration Flow Capacities for 11 in. w.c. / 27 mbar Setpoint

| SETPPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-------------|-------------|------------|--------------------|---------------------|
| | Drop | Boost | | |
| 11 in. w.c. | -2 in. w.c. | 2 in. w.c. | 7.5 to 11 in. w.c. | GE30189X012 / Blue |
| 27 mbar | -5 mbar | 5 mbar | 19 to 27 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 130 | 3.4 | 170 | 4.5 | 240 | 6.4 | 290 | 7.7 | 350 | 9.3 | 350 | 9.3 | 350 | 9.3 |
| 1 | 0.07 | 160 | 4.2 | 350 | 9.3 | 380 | 10.2 | 520 | 13.9 | 690 | 18.5 | 890 | 23.8 | 1040 | 27.9 |
| 2 | 0.14 | 280 | 7.5 | 470 | 12.6 | 600 | 16.1 | 840 | 22.5 | 1050 | 28.1 | 1330 | 35.7 | 1530 | 41.0 |
| 3 | 0.21 | 370 | 9.9 | 600 | 16.1 | 760 | 20.4 | 1060 | 28.4 | 1380 | 37.0 | 1390 | 37.3 | 1950 | 52.3 |
| 5 | 0.34 | 500 | 13.4 | 810 | 21.7 | 1380 | 37.0 | 1900 | 51.0 | 1950 | 52.3 | 2000 | 53.6 | 2400 | 64.4 |
| 10 | 0.69 | 760 | 20.4 | 1330 | 35.7 | 1480 | 39.7 | 2100 | 56.3 | 2700 | 72.4 | 3600 | 96.6 | 3800 | 102 |
| 15 | 1.0 | 840 | 22.5 | 1790 | 48.0 | 1960 | 52.6 | 2700 | 72.4 | 3500 | 93.9 | 4900 | 132 | 6600 | 177 |
| 20 | 1.4 | 1180 | 31.6 | 1990 | 53.4 | 2500 | 67.1 | 3800 | 102 | 4900 | 132 | 7100 | 191 | 7300 | 196 |
| 30 | 2.1 | 1500 | 40.2 | 2400 | 64.4 | 3300 | 88.5 | 5100 | 137 | 7900 | 212 | 10,700 | 287 | | |
| 40 | 2.8 | 1880 | 50.4 | 3100 | 83.2 | 4700 | 126 | 6200 | 166 | 9700 | 260 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3900 | 105 | 5700 | 153 | 8200 | 220 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 4600 | 123 | 6500 | 174 | 9900 | 266 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 6000 | 161 | 7000 | 188 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 7000 | 188 | 7000 | 188 | | | | | | | | |
| 125 | 8.6 | 4700 | 126 | 8600 | 231 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 31. Type CS400 External Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-------------|-------------|------------|-------------------|-------------------------|
| | Droop | Boost | | |
| 14 in. w.c. | -2 in. w.c. | 2 in. w.c. | 10 to 14 in. w.c. | GE30224X012 / Unpainted |
| 35 mbar | -5 mbar | 5 mbar | 25 to 35 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|--------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 1 | 0.07 | 170 | 4.5 | 260 | 6.9 | 370 | 9.9 | 490 | 13.1 | 610 | 16.3 | 820 | 22.0 | 840 | 22.5 |
| 2 | 0.14 | 270 | 7.2 | 450 | 12.0 | 600 | 16.1 | 810 | 21.7 | 1040 | 27.9 | 1180 | 31.6 | 1520 | 40.8 |
| 3 | 0.21 | 350 | 9.3 | 570 | 15.3 | 750 | 20.1 | 970 | 26.0 | 1610 | 43.2 | 1650 | 44.2 | 1730 | 46.4 |
| 5 | 0.34 | 480 | 12.8 | 760 | 20.4 | 1310 | 35.1 | 1330 | 35.7 | 1630 | 43.7 | 2300 | 61.7 | 2300 | 61.7 |
| 10 | 0.69 | 760 | 20.4 | 1380 | 37.0 | 1670 | 44.8 | 2100 | 56.3 | 2600 | 69.7 | 3500 | 93.9 | 3900 | 105 |
| 15 | 1.0 | 970 | 26.0 | 1650 | 44.2 | 1940 | 52.0 | 2500 | 67.1 | 3900 | 105 | 5000 | 134 | 5100 | 137 |
| 20 | 1.4 | 1170 | 31.4 | 1760 | 47.2 | 2300 | 61.7 | 3200 | 85.9 | 4200 | 113 | 6100 | 164 | 6500 | 174 |
| 30 | 2.1 | 1500 | 40.2 | 2400 | 64.4 | 3300 | 88.5 | 4200 | 113 | 6400 | 172 | 10,300 | 277 | | |
| 40 | 2.8 | 1830 | 49.1 | 3200 | 85.9 | 4000 | 107 | 5900 | 158 | 10,900 | 293 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3700 | 99.3 | 5200 | 140 | 8200 | 220 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 4500 | 121 | 6200 | 166 | 8700 | 234 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 5400 | 145 | 9100 | 244 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 6700 | 180 | 11,200 | 301 | | | | | | | | |
| 125 | 8.6 | 4600 | 123 | 8100 | 217 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 32. Type CS400 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------------|----------------------|
| | + / - 1% ABS | | | |
| 1 psig | -0.16 psi | 0.16 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -11 mbar | 11 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 240 | 6.4 | 320 | 8.5 | 350 | 9.3 | 350 | 9.3 | 350 | 9.3 | 350 | 9.3 | 350 | 9.3 |
| 3 | 0.21 | 310 | 8.3 | 360 | 9.6 | 420 | 11.2 | 420 | 11.2 | 420 | 11.2 | 960 | 25.7 | 1130 | 30.3 |
| 5 | 0.34 | 360 | 9.6 | 360 | 9.6 | 550 | 14.7 | 550 | 14.7 | 1050 | 28.1 | 1400 | 37.5 | 1430 | 38.3 |
| 10 | 0.69 | 360 | 9.6 | 360 | 9.6 | 1060 | 28.4 | 1420 | 38.1 | 1770 | 47.5 | 2100 | 56.3 | 2100 | 56.3 |
| 15 | 1.0 | 480 | 12.8 | 940 | 25.2 | 1370 | 36.7 | 1700 | 45.6 | 2200 | 59.0 | 2500 | 67.1 | 2700 | 72.4 |
| 20 | 1.4 | 940 | 25.2 | 950 | 25.5 | 1670 | 44.8 | 2000 | 53.6 | 2700 | 72.4 | 2900 | 77.8 | 2900 | 77.8 |
| 30 | 2.1 | 1280 | 34.3 | 1280 | 34.3 | 2000 | 53.6 | 2700 | 72.4 | 3300 | 89 | 3900 | 105 | | |
| 40 | 2.8 | 1590 | 42.6 | 1590 | 42.6 | 2600 | 69.7 | 3400 | 91.2 | 4200 | 113 | | | | |
| 50 | 3.4 | 1830 | 49.1 | 1950 | 52.3 | 3000 | 80.5 | 3600 | 96.6 | | | | | | |
| 60 | 4.1 | 1990 | 53.4 | 1990 | 53.4 | 3300 | 88.5 | 3900 | 105 | | | | | | |
| 80 | 5.5 | 2300 | 61.7 | 2300 | 61.7 | 4000 | 107 | | | | | | | | |
| 100 | 6.9 | 2700 | 72.4 | 2700 | 72.4 | 4400 | 118 | | | | | | | | |
| 125 | 8.6 | 3200 | 85.9 | 3200 | 85.9 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 33. Type CS400 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------------|----------------------|
| | + / - 2% ABS | | | |
| 1 psig | -0.31 psi | 0.31 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -21 mbar | 21 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 310 | 8.3 | 480 | 12.8 | 680 | 18.2 | 900 | 24.1 | 1290 | 34.6 | 1590 | 42.6 | 1590 | 42.6 |
| 3 | 0.21 | 400 | 10.7 | 600 | 16.1 | 870 | 23.3 | 1100 | 29.5 | 1510 | 40.5 | 1940 | 52.0 | 2100 | 56.3 |
| 5 | 0.34 | 530 | 14.2 | 820 | 22.0 | 1330 | 35.7 | 1480 | 39.7 | 2000 | 53.6 | 2700 | 72.4 | 2800 | 75.1 |
| 10 | 0.69 | 810 | 21.7 | 1310 | 35.1 | 1830 | 49.1 | 2300 | 61.7 | 3300 | 88.5 | 4200 | 113 | 4600 | 123 |
| 15 | 1.0 | 900 | 24.1 | 1600 | 42.9 | 2300 | 61.7 | 2900 | 77.8 | 4200 | 113 | 5600 | 150 | 6100 | 164 |
| 20 | 1.4 | 1210 | 32.4 | 1910 | 51.2 | 2800 | 75.1 | 3700 | 99.3 | 5200 | 140 | 6700 | 180 | 7100 | 191 |
| 30 | 2.1 | 1580 | 42.4 | 2400 | 64.4 | 3700 | 99.3 | 4900 | 132 | 7100 | 191 | 9200 | 247 | | |
| 40 | 2.8 | 1930 | 51.8 | 3100 | 83.2 | 4700 | 126 | 6300 | 169 | 9100 | 244 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3800 | 102 | 5800 | 156 | 7300 | 196 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 4300 | 115 | 6600 | 177 | 8500 | 228 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 5400 | 145 | 8500 | 228 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 6600 | 177 | 10,700 | 287 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 8100 | 217 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 34. Type CS400 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------------|----------------------|
| | + / - 10% | | | |
| 1 psig | -0.1 psi | 0.1 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -7 mbar | 7 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 210 | 5.6 | 220 | 5.9 | 260 | 6.9 | 260 | 6.9 | 260 | 6.9 | 260 | 6.9 | 260 | 6.9 |
| 3 | 0.21 | 240 | 6.4 | 280 | 7.5 | 390 | 10.4 | 390 | 10.4 | 390 | 10.4 | 650 | 17.4 | 760 | 20.4 |
| 5 | 0.34 | 310 | 8.3 | 340 | 9.1 | 450 | 12.0 | 490 | 13.1 | 700 | 18.7 | 870 | 23.3 | 900 | 24.1 |
| 10 | 0.69 | 340 | 9.1 | 340 | 9.1 | 670 | 17.9 | 980 | 26.3 | 1130 | 30.3 | 1270 | 34.0 | 1340 | 35.9 |
| 15 | 1.0 | 480 | 12.8 | 570 | 15.3 | 880 | 23.6 | 1090 | 29.2 | 1410 | 37.8 | 1540 | 41.3 | 1760 | 47.2 |
| 20 | 1.4 | 660 | 17.7 | 660 | 17.7 | 1060 | 28.4 | 1280 | 34.3 | 1670 | 44.8 | 1740 | 46.7 | 1850 | 49.6 |
| 30 | 2.1 | 850 | 22.8 | 850 | 22.8 | 1330 | 35.7 | 1620 | 43.4 | 1880 | 50.4 | 2200 | 59.0 | | |
| 40 | 2.8 | 1020 | 27.3 | 1020 | 27.3 | 1680 | 45.1 | 1930 | 51.8 | 2200 | 59.0 | | | | |
| 50 | 3.4 | 1210 | 32.4 | 1210 | 32.4 | 1840 | 49.3 | 1970 | 52.8 | | | | | | |
| 60 | 4.1 | 1280 | 34.3 | 1280 | 34.3 | 1920 | 51.5 | 2000 | 53.6 | | | | | | |
| 80 | 5.5 | 1430 | 38.3 | 1430 | 38.3 | 2300 | 61.7 | | | | | | | | |
| 100 | 6.9 | 1550 | 41.6 | 1550 | 41.6 | 2700 | 72.4 | | | | | | | | |
| 125 | 8.6 | 1710 | 45.9 | 1710 | 45.9 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 35. Type CS400 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------------|----------------------|
| | + / - 20% | | | |
| 1 psig | -0.2 psi | 0.2 psi | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -14 mbar | 14 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|-----------------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | |
| 2 | 0.14 | 270 | 7.2 | 360 | 9.6 | 430 | 11.5 | 430 | 11.5 | 430 | 11.5 | 430 | 11.5 | 430 | 11.5 |
| 3 | 0.21 | 350 | 9.3 | 410 | 11.0 | 470 | 12.6 | 470 | 12.6 | 470 | 12.6 | 1200 | 32.2 | 1350 | 36.2 |
| 5 | 0.34 | 410 | 11.0 | 410 | 11.0 | 840 | 22.5 | 1070 | 28.7 | 1330 | 35.7 | 1780 | 47.7 | 1790 | 48.0 |
| 10 | 0.69 | 410 | 11.0 | 410 | 11.0 | 1310 | 35.1 | 1650 | 44.2 | 2200 | 59.0 | 2600 | 69.7 | 2900 | 77.8 |
| 15 | 1.0 | 490 | 13.1 | 1250 | 33.5 | 1670 | 44.8 | 2100 | 56.3 | 2800 | 75.1 | 3500 | 93.9 | 3700 | 99.3 |
| 20 | 1.4 | 1090 | 29.2 | 1480 | 39.7 | 2000 | 53.6 | 2500 | 67.1 | 3500 | 93.9 | 4000 | 107 | 4100 | 110 |
| 30 | 2.1 | 1490 | 40.0 | 1940 | 52.0 | 2600 | 69.7 | 3300 | 88.5 | 4400 | 118 | 5400 | 145 | | |
| 40 | 2.8 | 1790 | 48.0 | 2500 | 67.1 | 3300 | 88.5 | 4300 | 115 | 5700 | 153 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 2300 | 61.7 | 3900 | 105 | 4900 | 132 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3300 | 88.5 | 4500 | 121 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 3300 | 88.5 | 5400 | 145 | | | | | | | | |
| 100 | 6.9 | 3600 | 96.6 | 3700 | 99.3 | 6400 | 172 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 4500 | 121 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 36. Type CS400 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 1% ABS | | | |
| 2 psig | -0.17 psi | 0.17 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -12 mbar | 12 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|-----------------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | |
| 3 | 0.21 | 250 | 6.7 | 310 | 8.3 | 420 | 11.2 | 550 | 14.7 | 680 | 18.2 | 910 | 24.4 | 1580 | 42.4 |
| 5 | 0.34 | 350 | 9.3 | 480 | 12.8 | 590 | 15.8 | 750 | 20.1 | 1150 | 30.8 | 1150 | 30.8 | 1230 | 33.0 |
| 10 | 0.69 | 590 | 15.8 | 800 | 21.4 | 1080 | 28.9 | 1170 | 31.4 | 1530 | 41.0 | 1800 | 48.3 | 2400 | 64.4 |
| 15 | 1.0 | 700 | 18.7 | 1060 | 28.4 | 1140 | 30.6 | 1550 | 41.6 | 2100 | 56.3 | 2600 | 69.7 | 2900 | 77.8 |
| 20 | 1.4 | 960 | 25.7 | 1290 | 34.6 | 1440 | 38.6 | 1910 | 51.2 | 2600 | 69.7 | 3000 | 80.5 | 3000 | 80.5 |
| 30 | 2.1 | 1260 | 33.8 | 1620 | 43.4 | 2000 | 53.6 | 2800 | 75.1 | 3200 | 85.9 | 3700 | 99.3 | | |
| 40 | 2.8 | 1600 | 42.9 | 2200 | 59.0 | 2500 | 67.1 | 3300 | 88.5 | 3900 | 105 | | | | |
| 50 | 3.4 | 1810 | 48.5 | 2500 | 67.1 | 2700 | 72.4 | 3600 | 96.6 | | | | | | |
| 60 | 4.1 | 2100 | 56.3 | 2700 | 72.4 | 3100 | 83.2 | 4100 | 110 | | | | | | |
| 80 | 5.5 | 2700 | 72.4 | 3400 | 91.2 | 3600 | 96.6 | | | | | | | | |
| 100 | 6.9 | 3000 | 80.5 | 3900 | 105 | 4100 | 110 | | | | | | | | |
| 125 | 8.6 | 3500 | 93.9 | 4900 | 132 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 37. Type CS400 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 2% ABS | | | |
| 2 psig | -0.33 psi | 0.33 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -23 mbar | 23 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 320 | 8.5 | 460 | 12.3 | 660 | 17.7 | 880 | 23.6 | 1190 | 31.9 | 2000 | 53.6 | 2400 | 64.4 |
| 5 | 0.34 | 460 | 12.3 | 750 | 20.1 | 1000 | 26.8 | 1300 | 34.8 | 2200 | 59.0 | 2200 | 59.0 | 2600 | 69.7 |
| 10 | 0.69 | 750 | 20.1 | 1170 | 31.4 | 1750 | 46.9 | 2100 | 56.3 | 3000 | 80.5 | 3600 | 96.6 | 4500 | 121 |
| 15 | 1.0 | 990 | 26.5 | 1720 | 46.1 | 2100 | 56.3 | 2800 | 75.1 | 3900 | 105 | 5200 | 140 | 5700 | 153 |
| 20 | 1.4 | 1170 | 31.4 | 2000 | 53.6 | 2500 | 67.1 | 3600 | 96.6 | 5100 | 137 | 6200 | 166 | 6600 | 177 |
| 30 | 2.1 | 1530 | 41.0 | 2500 | 67.1 | 3700 | 99.3 | 4900 | 132 | 6500 | 174 | 8000 | 215 | | |
| 40 | 2.8 | 1870 | 50.2 | 3300 | 88.5 | 4500 | 121 | 6200 | 166 | 8000 | 215 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3900 | 105 | 5100 | 137 | 7100 | 191 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 4300 | 115 | 6100 | 164 | 8500 | 228 | | | | | | |
| 80 | 5.5 | 3200 | 85.9 | 5600 | 150 | 8000 | 215 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 6800 | 183 | 9400 | 252 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 8400 | 226 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 38. Type CS400 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|----------------|---------------------|
| | + / - 10% | | | |
| 2 psig | -0.2 psi | 0.2 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -14 mbar | 14 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 280 | 7.5 | 340 | 9.1 | 470 | 12.6 | 620 | 16.6 | 800 | 21.4 | 1380 | 37.0 | 1700 | 45.6 |
| 5 | 0.34 | 390 | 10.4 | 550 | 14.7 | 690 | 18.5 | 890 | 23.8 | 1380 | 37.0 | 1380 | 37.0 | 1540 | 41.3 |
| 10 | 0.69 | 640 | 17.1 | 880 | 23.6 | 1230 | 33.0 | 1410 | 37.8 | 1830 | 49.1 | 2200 | 59.0 | 2900 | 77.8 |
| 15 | 1.0 | 800 | 21.4 | 1160 | 31.1 | 1370 | 36.7 | 1800 | 48.3 | 2500 | 67.1 | 3200 | 85.9 | 3500 | 93.9 |
| 20 | 1.4 | 1060 | 28.4 | 1490 | 40.0 | 1660 | 44.5 | 2200 | 59.0 | 3100 | 83.2 | 3700 | 99.3 | 3700 | 99.3 |
| 30 | 2.1 | 1430 | 38.3 | 1830 | 49.1 | 2400 | 64.4 | 3300 | 88.5 | 3900 | 105 | 4800 | 129 | | |
| 40 | 2.8 | 1730 | 46.4 | 2600 | 69.7 | 2900 | 77.8 | 3900 | 105 | 4800 | 129 | | | | |
| 50 | 3.4 | 2000 | 53.6 | 2900 | 77.8 | 3300 | 88.5 | 4400 | 118 | | | | | | |
| 60 | 4.1 | 2300 | 61.7 | 3200 | 85.9 | 3700 | 99.3 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 3000 | 80.5 | 4100 | 110 | 4700 | 126 | | | | | | | | |
| 100 | 6.9 | 3400 | 91.2 | 4700 | 126 | 5300 | 142 | | | | | | | | |
| 125 | 8.6 | 4200 | 113 | 5800 | 156 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 39. Type CS400 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|----------------|---------------------|
| | + / - 20% | | | |
| 2 psig | -0.4 psi | 0.4 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -28 mbar | 28 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 330 | 8.8 | 540 | 14.4 | 720 | 19.3 | 990 | 26.5 | 1360 | 36.5 | 2200 | 59.0 | 2600 | 69.7 |
| 5 | 0.34 | 500 | 13.4 | 800 | 21.4 | 1100 | 29.5 | 1500 | 40.2 | 2500 | 67.1 | 2500 | 67.1 | 3000 | 80.5 |
| 10 | 0.69 | 790 | 21.2 | 1270 | 34.0 | 1960 | 52.6 | 2500 | 67.1 | 3400 | 91.2 | 4200 | 113 | 5400 | 145 |
| 15 | 1.0 | 1020 | 27.3 | 1760 | 47.2 | 2300 | 61.7 | 3200 | 85.9 | 4500 | 121 | 6000 | 161 | 6800 | 183 |
| 20 | 1.4 | 1180 | 31.6 | 2100 | 56.3 | 2800 | 75.1 | 3900 | 105 | 5800 | 156 | 7000 | 188 | 8000 | 215 |
| 30 | 2.1 | 1550 | 41.6 | 2600 | 69.7 | 4000 | 107 | 5500 | 148 | 7900 | 212 | 9500 | 255 | | |
| 40 | 2.8 | 1900 | 51.0 | 3300 | 88.5 | 5000 | 134 | 6900 | 185 | 9800 | 263 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 4100 | 110 | 5800 | 156 | 8200 | 220 | | | | | | |
| 60 | 4.1 | 2600 | 69.7 | 4500 | 121 | 6800 | 183 | 9600 | 258 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 5800 | 156 | 8900 | 239 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 7000 | 188 | 10,500 | 282 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 8700 | 234 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 40. Type CS400 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------|----------------------|
| | + / - 1% ABS | | | |
| 5 psig | -0.20 psi | 0.20 psi | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -14 mbar | 14 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 330 | 8.8 | 500 | 13.4 | 500 | 13.4 | 540 | 14.4 | 640 | 17.1 | 790 | 21.2 | 990 | 26.5 |
| 15 | 1.0 | 470 | 12.6 | 610 | 16.3 | 720 | 19.3 | 840 | 22.5 | 1030 | 27.6 | 1230 | 33.0 | 1590 | 42.6 |
| 20 | 1.4 | 570 | 15.3 | 690 | 18.5 | 750 | 20.1 | 990 | 26.5 | 1250 | 33.5 | 1470 | 39.4 | 1710 | 45.9 |
| 30 | 2.1 | 680 | 18.2 | 810 | 21.7 | 980 | 26.3 | 1150 | 30.8 | 1560 | 41.8 | 1600 | 42.9 | | |
| 40 | 2.8 | 680 | 18.2 | 1040 | 27.9 | 1290 | 34.6 | 1660 | 44.5 | 1700 | 45.6 | | | | |
| 50 | 3.4 | 1070 | 28.7 | 1370 | 36.7 | 1420 | 38.1 | 1590 | 42.6 | | | | | | |
| 60 | 4.1 | 1140 | 30.6 | 1310 | 35.1 | 1660 | 44.5 | 1860 | 49.9 | | | | | | |
| 80 | 5.5 | 1530 | 41.0 | 1720 | 46.1 | 1840 | 49.3 | | | | | | | | |
| 100 | 6.9 | 1570 | 42.1 | 1750 | 46.9 | 1750 | 46.9 | | | | | | | | |
| 125 | 8.6 | 2000 | 53.6 | 2300 | 61.7 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 41. Type CS400 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------|----------------------|
| | + / - 2% ABS | | | |
| 5 psig | -0.39 psi | 0.39 psi | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -27 mbar | 27 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 460 | 12.3 | 680 | 18.2 | 680 | 18.2 | 680 | 18.2 | 1400 | 37.5 | 1550 | 41.6 | 1810 | 48.5 |
| 15 | 1.0 | 690 | 18.5 | 800 | 21.4 | 1370 | 36.7 | 1520 | 40.8 | 1950 | 52.3 | 2300 | 61.7 | 2700 | 72.4 |
| 20 | 1.4 | 890 | 23.8 | 1190 | 31.9 | 1370 | 36.7 | 1860 | 49.9 | 2200 | 59.0 | 2700 | 72.4 | 3200 | 85.9 |
| 30 | 2.1 | 1220 | 32.7 | 1590 | 42.6 | 1980 | 53.1 | 2300 | 61.7 | 3000 | 80.5 | 3400 | 91.2 | | |
| 40 | 2.8 | 1500 | 40.2 | 1920 | 51.5 | 2300 | 61.7 | 3200 | 85.9 | 3800 | 102 | | | | |
| 50 | 3.4 | 1810 | 48.5 | 2400 | 64.4 | 2700 | 72.4 | 3400 | 91.2 | | | | | | |
| 60 | 4.1 | 2000 | 53.6 | 2600 | 69.7 | 3200 | 85.9 | 3900 | 105 | | | | | | |
| 80 | 5.5 | 2600 | 69.7 | 3500 | 93.9 | 3900 | 105 | | | | | | | | |
| 100 | 6.9 | 3100 | 83.2 | 3900 | 105 | 4300 | 115 | | | | | | | | |
| 125 | 8.6 | 3900 | 105 | 5400 | 145 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 42. Type CS400 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------|---------------------|
| | + / - 10% | | | |
| 5 psig | -0.5 psi | 0.5 psi | 2 to 5.5 psig | GE30190X012 / Black |
| 345 mbar | -34 mbar | 34 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 530 | 14.2 | 710 | 19.0 | 710 | 19.0 | 710 | 19.0 | 1660 | 44.5 | 2000 | 54 | 2200 | 59.0 |
| 15 | 1.0 | 760 | 20.4 | 1220 | 32.7 | 1710 | 46 | 1810 | 48.5 | 2300 | 62 | 2800 | 75 | 3400 | 91.2 |
| 20 | 1.4 | 990 | 26.5 | 1400 | 37.5 | 1710 | 46 | 2300 | 61.7 | 2800 | 75 | 3500 | 94 | 4100 | 110 |
| 30 | 2.1 | 1400 | 37.5 | 1890 | 50.7 | 2400 | 64 | 2900 | 77.8 | 3900 | 105 | 4400 | 118 | | |
| 40 | 2.8 | 1670 | 44.8 | 2300 | 61.7 | 2900 | 78 | 4000 | 107 | 4900 | 132 | | | | |
| 50 | 3.4 | 1960 | 52.6 | 2900 | 77.8 | 3400 | 91 | 4600 | 123 | | | | | | |
| 60 | 4.1 | 2400 | 64.4 | 3200 | 85.9 | 4000 | 107 | 5200 | 140 | | | | | | |
| 80 | 5.5 | 3100 | 83.2 | 4200 | 113 | 5000 | 134 | | | | | | | | |
| 100 | 6.9 | 3500 | 93.9 | 4900 | 132 | 5600 | 150 | | | | | | | | |
| 125 | 8.6 | 4500 | 121 | 6700 | 180 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 43. Type CS400 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------|---------------------|
| | + / - 20% | | | |
| 5 psig | -1 psig | 1 psig | 2 to 5.5 psig | GE30190X012 / Black |
| 345 mbar | -69 mbar | 69 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4, 1-1/2 and 2 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 670 | 17.9 | 1320 | 35.4 | 1600 | 42.9 | 1700 | 45.6 | 3000 | 80.5 | 3600 | 97 | 4200 | 113 |
| 15 | 1.0 | 950 | 25.5 | 1770 | 47.5 | 2700 | 72.4 | 3100 | 83.2 | 4400 | 118 | 5500 | 148 | 6300 | 169 |
| 20 | 1.4 | 1160 | 31.1 | 2000 | 53.6 | 2900 | 77.8 | 3700 | 99.3 | 5300 | 142 | 7000 | 188 | 8200 | 220 |
| 30 | 2.1 | 1570 | 42.1 | 2600 | 69.7 | 4100 | 110 | 5200 | 140 | 7700 | 207 | 9000 | 247 | | |
| 40 | 2.8 | 1860 | 49.9 | 3300 | 88.5 | 4800 | 129 | 6700 | 180 | 9000 | 242 | | | | |
| 50 | 3.4 | 2000 | 53.6 | 3900 | 105 | 5800 | 156 | 8100 | 217 | | | | | | |
| 60 | 4.1 | 2500 | 67.1 | 4300 | 115 | 7000 | 188 | 9600 | 258 | | | | | | |
| 80 | 5.5 | 3300 | 88.5 | 5600 | 150 | 8900 | 239 | | | | | | | | |
| 100 | 6.9 | 3900 | 105 | 6600 | 177 | 10,200 | 274 | | | | | | | | |
| 125 | 8.6 | 4900 | 132 | 8800 | 236 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 44. Types CS403 and CS404 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|------------|-------------|------------|-----------------|---------------------|
| | Droop | Boost | | |
| 7 in. w.c. | -1 in. w.c. | 2 in. w.c. | 6 to 8 in. w.c. | GE30188X012 / Gold |
| 17 mbar | -2 mbar | 5 mbar | 15 to 20 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 80 | 2.1 | 160 | 4.3 | 210 | 5.6 | 250 | 67 | 520 | 13.9 | 420 | 11.3 | 410 | 11.0 |
| 1 | 0.07 | 160 | 4.3 | 290 | 7.8 | 440 | 11.8 | 340 | 9.1 | 520 | 13.9 | 560 | 15.0 | 730 | 19.6 |
| 2 | 0.14 | 280 | 7.5 | 350 | 9.4 | 480 | 12.9 | 590 | 15.8 | 830 | 22.2 | 1050 | 28.1 | 1210 | 32.4 |
| 3 | 0.21 | 310 | 8.3 | 460 | 12.3 | 650 | 17.4 | 740 | 19.8 | 1270 | 34.0 | 1440 | 38.6 | 1790 | 48.0 |
| 5 | 0.34 | 420 | 11.3 | 660 | 17.7 | 960 | 25.7 | 1180 | 31.6 | 2070 | 55.5 | 2460 | 65.9 | 2730 | 73.2 |
| 10 | 0.69 | 720 | 19.3 | 1280 | 34.3 | 1840 | 49.3 | 2390 | 64.1 | 3640 | 97.6 | 4830 | 129 | 4850 | 130.0 |
| 15 | 1.0 | 970 | 26.0 | 1800 | 48.2 | 2700 | 72.4 | 3580 | 95.9 | 5130 | 138 | 3910 | 105 | 6700 | 180 |
| 20 | 1.4 | 1150 | 30.8 | 2170 | 58.2 | 3390 | 90.9 | 4530 | 121 | 3170 | 85.0 | 2540 | 68.1 | 3330 | 89.2 |
| 30 | 2.1 | 1530 | 41.0 | 2780 | 74.5 | 4450 | 119 | 2410 | 64.6 | 2260 | 60.6 | 2280 | 61.1 | | |
| 40 | 2.8 | 1890 | 50.7 | 2800 | 75.0 | 2980 | 79.9 | 2120 | 56.8 | 2260 | 60.6 | | | | |
| 50 | 3.4 | 2260 | 60.6 | 2800 | 75.0 | 2690 | 72.1 | 2080 | 55.7 | | | | | | |
| 60 | 4.1 | 2400 | 64.3 | 2730 | 73.2 | 2590 | 69.4 | 2040 | 54.7 | | | | | | |
| 80 | 5.5 | 2400 | 64.3 | 2590 | 69.4 | 2590 | 69.4 | | | | | | | | |
| 100 | 6.9 | 2400 | 64.3 | 2590 | 69.4 | 2590 | 69.4 | | | | | | | | |
| 125 | 8.6 | 2540 | 68.1 | 2590 | 69.4 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 Gray areas indicate limited capacities due to boost effects.

Table 45. Types CS403 and CS404 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|-----------------------|----------------------|
| | + / - 1% ABS | | | |
| 1 psig | -0.16 psig | 0.16 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -0.011 bar | 0.011 bar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 200 | 5.4 | 330 | 8.8 | 430 | 11.5 | 460 | 12.3 | 620 | 16.6 | 730 | 19.6 | 790 | 21.2 |
| 3 | 0.21 | 370 | 9.9 | 380 | 10.2 | 590 | 15.8 | 640 | 17.2 | 830 | 22.2 | 1000 | 26.8 | 1080 | 28.9 |
| 5 | 0.34 | 400 | 10.7 | 550 | 14.7 | 800 | 21.4 | 900 | 24.1 | 1180 | 31.6 | 1520 | 40.7 | 1900 | 50.9 |
| 10 | 0.69 | 610 | 16.3 | 880 | 23.6 | 1270 | 34.0 | 1510 | 40.5 | 2210 | 59.2 | 2790 | 74.8 | 3310 | 88.7 |
| 15 | 1.0 | 860 | 23.0 | 1270 | 34.0 | 1770 | 47.4 | 2140 | 57.4 | 3120 | 83.6 | 4380 | 117 | 5230 | 140 |
| 20 | 1.4 | 1070 | 28.7 | 1540 | 41.3 | 2260 | 60.6 | 2890 | 77.5 | 4100 | 110 | 6110 | 164 | 6820 | 183 |
| 30 | 2.1 | 1450 | 38.9 | 2390 | 64.1 | 3300 | 88.4 | 4250 | 114 | 7210 | 193 | 8300 | 222 | | |
| 40 | 2.8 | 1880 | 50.4 | 3250 | 87.1 | 4460 | 120 | 6370 | 171 | 10,110 | 271 | | | | |
| 50 | 3.4 | 2220 | 59.5 | 3920 | 105 | 5990 | 161 | 8150 | 218 | | | | | | |
| 60 | 4.1 | 2630 | 70.5 | 4590 | 123 | 7470 | 200 | 9620 | 258 | | | | | | |
| 80 | 5.5 | 3340 | 89.5 | 5980 | 160 | 8620 | 231 | | | | | | | | |
| 100 | 6.9 | 3560 | 95.4 | 7230 | 194 | 8620 | 231 | | | | | | | | |
| 125 | 8.6 | 3560 | 95.4 | 7610 | 204 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 46. Types CS403 and CS404 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|-----------------------|----------------------|
| | + / - 2% ABS | | | |
| 1 psig | -0.31 psig | 0.31 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -21 bar | 21 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 250 | 6.7 | 460 | 12.3 | 640 | 17.2 | 770 | 20.6 | 1050 | 28.1 | 1180 | 31.6 | 1460 | 39.1 |
| 3 | 0.21 | 420 | 11.3 | 570 | 15.3 | 840 | 22.5 | 1050 | 28.1 | 1440 | 38.6 | 1800 | 48.2 | 2020 | 54.1 |
| 5 | 0.34 | 530 | 14.2 | 810 | 21.7 | 1230 | 33.0 | 1500 | 40.2 | 1980 | 53.1 | 2430 | 65.1 | 2930 | 78.5 |
| 10 | 0.69 | 800 | 21.4 | 1320 | 35.4 | 1930 | 51.7 | 2420 | 64.9 | 3390 | 90.9 | 4250 | 114 | 4870 | 131 |
| 15 | 1.0 | 1030 | 27.6 | 1750 | 46.9 | 2580 | 69.1 | 3210 | 86.0 | 4720 | 127 | 5900 | 158 | 6550 | 176 |
| 20 | 1.4 | 1200 | 32.2 | 2120 | 56.8 | 3190 | 85.5 | 4000 | 107 | 6000 | 161 | 7390 | 198 | 8360 | 224 |
| 30 | 2.1 | 1560 | 41.8 | 2770 | 74.2 | 4350 | 117 | 5780 | 155 | 8730 | 234 | 10,820 | 290 | | |
| 40 | 2.8 | 1920 | 51.5 | 3400 | 91.1 | 5520 | 148 | 7430 | 199 | 11,390 | 305 | | | | |
| 50 | 3.4 | 2280 | 61.1 | 4060 | 109 | 6620 | 177 | 9150 | 245 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4670 | 125 | 7760 | 208 | 10,720 | 287 | | | | | | |
| 80 | 5.5 | 3370 | 90.3 | 5980 | 160 | 9870 | 265 | | | | | | | | |
| 100 | 6.9 | 4100 | 110 | 7250 | 194 | 12,000 | 322 | | | | | | | | |
| 125 | 8.6 | 4380 | 117 | 8190 | 220 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 47. Types CS403 and CS404 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 10% Accuracy

| SETPOINT | | ACCURACY | | SET RANGE | PART NUMBER / COLOR | |
|----------|--|-----------|----------|-----------------------|----------------------|--|
| | | + / - 10% | | | | |
| 1 psig | | -0.1 psig | 0.1 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange | |
| 69 mbar | | -7 bar | 7 mbar | 45 to 69 mbar | | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 180 | 4.8 | 280 | 7.5 | 480 | 12.9 | 340 | 9.1 | 430 | 11.5 | 480 | 12.9 | 570 | 15.3 |
| 3 | 0.21 | 330 | 8.8 | 290 | 7.8 | 640 | 17.2 | 470 | 12.6 | 600 | 16.1 | 680 | 18.2 | 810 | 21.7 |
| 5 | 0.34 | 310 | 8.3 | 400 | 10.7 | 900 | 24.1 | 640 | 17.2 | 830 | 22.2 | 1080 | 28.9 | 1210 | 32.4 |
| 10 | 0.69 | 490 | 13.1 | 640 | 17.2 | 1450 | 38.9 | 1100 | 29.5 | 1580 | 42.3 | 2190 | 58.7 | 2360 | 63.2 |
| 15 | 1.0 | 660 | 17.7 | 890 | 23.9 | 1970 | 52.8 | 1600 | 42.9 | 2220 | 59.5 | 3070 | 82.3 | 4190 | 112 |
| 20 | 1.4 | 840 | 22.5 | 1100 | 29.5 | 2460 | 65.9 | 2150 | 57.6 | 3160 | 84.7 | 5110 | 137 | 5960 | 160 |
| 30 | 2.1 | 1180 | 31.6 | 1810 | 48.5 | 3610 | 96.7 | 3470 | 93.0 | 6380 | 171 | 7160 | 192 | | |
| 40 | 2.8 | 1640 | 44.0 | 2590 | 69.4 | 4800 | 129 | 4970 | 133 | 9700 | 260 | | | | |
| 50 | 3.4 | 2100 | 56.3 | 3510 | 94.1 | 6260 | 168 | 7390 | 198 | | | | | | |
| 60 | 4.1 | 2480 | 66.5 | 4370 | 117 | 7580 | 203 | 9030 | 242 | | | | | | |
| 80 | 5.5 | 3280 | 87.9 | 5930 | 159 | 9710 | 260 | | | | | | | | |
| 100 | 6.9 | 4020 | 108 | 7220 | 194 | 11,940 | 320 | | | | | | | | |
| 125 | 8.6 | 3030 | 81.2 | 7030 | 188 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 48. Types CS403 and CS404 Internal Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 20% Accuracy

| SETPOINT | | ACCURACY | | SET RANGE | PART NUMBER / COLOR | |
|----------|--|-----------|----------|-----------------------|----------------------|--|
| | | + / - 20% | | | | |
| 1 psig | | -0.2 psig | 0.2 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange | |
| 69 mbar | | -14 bar | 14 mbar | 45 to 69 mbar | | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 220 | 5.9 | 370 | 9.9 | 700 | 18.8 | 560 | 15.0 | 760 | 20.4 | 840 | 22.5 | 960 | 25.7 |
| 3 | 0.21 | 380 | 10.2 | 450 | 12.1 | 950 | 25.5 | 740 | 19.8 | 1000 | 26.8 | 1200 | 32.2 | 1390 | 37.3 |
| 5 | 0.34 | 450 | 12.1 | 640 | 17.2 | 1350 | 36.2 | 1080 | 28.9 | 1460 | 39.1 | 1860 | 49.8 | 2270 | 60.8 |
| 10 | 0.69 | 740 | 19.8 | 1050 | 28.1 | 2100 | 56.3 | 1890 | 50.7 | 2610 | 69.9 | 3230 | 86.6 | 3850 | 103 |
| 15 | 1.0 | 950 | 25.5 | 1460 | 39.1 | 2750 | 73.7 | 2530 | 67.8 | 3630 | 97.3 | 4980 | 134 | 5800 | 155 |
| 20 | 1.4 | 1180 | 31.6 | 1860 | 49.8 | 3390 | 90.9 | 3290 | 88.2 | 4890 | 131 | 6610 | 177 | 7370 | 198 |
| 30 | 2.1 | 1530 | 41.0 | 2680 | 71.8 | 4470 | 120 | 4710 | 126 | 7650 | 205 | 9180 | 246 | | |
| 40 | 2.8 | 1900 | 50.9 | 3320 | 89.0 | 5620 | 151 | 6760 | 181 | 10,380 | 278 | | | | |
| 50 | 3.4 | 2250 | 60.3 | 4000 | 107 | 6680 | 179 | 8530 | 229 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4650 | 125 | 7770 | 208 | 10,030 | 269 | | | | | | |
| 80 | 5.5 | 3360 | 90.0 | 5980 | 160 | 9900 | 265 | | | | | | | | |
| 100 | 6.9 | 4090 | 110 | 7230 | 194 | 12,010 | 322 | | | | | | | | |
| 125 | 8.6 | 3890 | 104 | 7840 | 210 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 49. Types CS403 and CS404 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 1% ABS Accuracy

| SETPPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-----------|--------------|-----------|----------------|---------------------|
| | + / - 1% ABS | | | |
| 2 psig | -0.17 psig | 0.17 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -12 bar | 12 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 3 | 0.21 | 250 | 6.7 | 440 | 11.8 | 520 | 13.9 | 500 | 13.4 | 680 | 18.2 | 820 | 22.0 | 900 | 24.1 |
| 5 | 0.34 | 360 | 9.6 | 510 | 13.7 | 690 | 18.5 | 810 | 21.7 | 1090 | 29.2 | 1310 | 35.1 | 1430 | 38.3 |
| 10 | 0.69 | 600 | 16.1 | 870 | 23.3 | 1110 | 29.7 | 1360 | 36.4 | 1940 | 52.0 | 2480 | 66.5 | 2930 | 78.5 |
| 15 | 1.0 | 790 | 21.2 | 1180 | 31.6 | 1500 | 40.2 | 1960 | 52.5 | 2900 | 77.7 | 3600 | 96.5 | 4240 | 114 |
| 20 | 1.4 | 990 | 26.5 | 1490 | 39.9 | 2030 | 54.4 | 2580 | 69.1 | 3680 | 98.6 | 4880 | 131 | 5690 | 153 |
| 30 | 2.1 | 1410 | 37.8 | 2150 | 57.6 | 3030 | 81.2 | 4120 | 110 | 6030 | 162 | 7280 | 195 | | |
| 40 | 2.8 | 1840 | 49.3 | 2800 | 75.0 | 4590 | 123 | 5700 | 153 | 7760 | 208 | | | | |
| 50 | 3.4 | 2160 | 57.9 | 3440 | 92.2 | 5920 | 159 | 7120 | 191 | | | | | | |
| 60 | 4.1 | 2580 | 69.1 | 4210 | 113 | 7310 | 196 | 8230 | 221 | | | | | | |
| 80 | 5.5 | 3340 | 89.5 | 5920 | 159 | 9510 | 255 | | | | | | | | |
| 100 | 6.9 | 4000 | 107 | 7140 | 191 | 6810 | 183 | | | | | | | | |
| 125 | 8.6 | 3440 | 92.2 | 6290 | 169 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 50. Types CS403 and CS404 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 2% ABS Accuracy

| SETPPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|-----------|--------------|-----------|----------------|---------------------|
| | + / - 2% ABS | | | |
| 2 psig | -0.33 psig | 0.33 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -23 bar | 23 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 3 | 0.21 | 320 | 8.6 | 550 | 14.7 | 770 | 20.6 | 860 | 23.0 | 1150 | 30.8 | 1440 | 38.6 | 1600 | 42.9 |
| 5 | 0.34 | 470 | 12.6 | 780 | 20.9 | 1090 | 29.2 | 1330 | 35.6 | 1850 | 49.6 | 2270 | 60.8 | 2610 | 69.9 |
| 10 | 0.69 | 790 | 21.2 | 1350 | 36.2 | 1810 | 48.5 | 2240 | 60.0 | 3270 | 87.6 | 3970 | 106 | 4640 | 124 |
| 15 | 1.0 | 970 | 26.0 | 1780 | 47.7 | 2160 | 57.9 | 3120 | 83.6 | 4500 | 121 | 5400 | 145 | 6290 | 169 |
| 20 | 1.4 | 1170 | 31.4 | 2150 | 57.6 | 3110 | 83.3 | 3990 | 107 | 5540 | 149 | 6900 | 185 | 7790 | 209 |
| 30 | 2.1 | 1550 | 41.5 | 2800 | 75.0 | 4380 | 117 | 5600 | 150 | 7820 | 210 | 9200 | 247 | | |
| 40 | 2.8 | 1930 | 51.7 | 3420 | 91.7 | 5530 | 148 | 7200 | 193 | 9840 | 264 | | | | |
| 50 | 3.4 | 2260 | 60.6 | 4100 | 110 | 6470 | 173 | 8570 | 230 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4600 | 123 | 7710 | 207 | 9850 | 264 | | | | | | |
| 80 | 5.5 | 3370 | 90.3 | 5960 | 160 | 9820 | 263 | | | | | | | | |
| 100 | 6.9 | 4030 | 108 | 7230 | 194 | 8110 | 217 | | | | | | | | |
| 125 | 8.6 | 4420 | 119 | 7670 | 206 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

CS400 Series

Table 51. Types CS403 and CS404 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|----------------|---------------------|
| | + / - 10% | | | |
| 2 psig | -0.2 psig | 0.2 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -14 bar | 14 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 3 | 0.21 | 270 | 7.2 | 460 | 12.3 | 580 | 15.5 | 570 | 15.3 | 790 | 21.2 | 970 | 26.0 | 1030 | 27.6 |
| 5 | 0.34 | 390 | 10.5 | 580 | 15.5 | 800 | 21.4 | 920 | 24.7 | 1250 | 33.5 | 1510 | 40.5 | 1710 | 45.8 |
| 10 | 0.69 | 660 | 17.7 | 1020 | 27.3 | 1280 | 34.3 | 1560 | 41.8 | 2240 | 60.0 | 2800 | 75.0 | 3290 | 88.2 |
| 15 | 1.0 | 860 | 23.0 | 1360 | 36.4 | 1260 | 33.8 | 2280 | 61.1 | 3380 | 90.6 | 3910 | 105 | 4730 | 127 |
| 20 | 1.4 | 1080 | 28.9 | 1720 | 46.1 | 2280 | 61.1 | 2940 | 78.8 | 4120 | 110 | 5480 | 147 | 6100 | 164 |
| 30 | 2.1 | 1440 | 38.6 | 2460 | 65.9 | 3490 | 93.5 | 4560 | 122 | 6340 | 170 | 7740 | 207 | | |
| 40 | 2.8 | 1890 | 50.7 | 3120 | 83.6 | 4910 | 132 | 6150 | 165 | 8210 | 220 | | | | |
| 50 | 3.4 | 2200 | 59.0 | 3750 | 101 | 6100 | 164 | 7460 | 200 | | | | | | |
| 60 | 4.1 | 2590 | 69.4 | 4390 | 118 | 7430 | 199 | 8510 | 228 | | | | | | |
| 80 | 5.5 | 3360 | 90.0 | 5930 | 159 | 9610 | 258 | | | | | | | | |
| 100 | 6.9 | 4010 | 108 | 7170 | 192 | 7140 | 191 | | | | | | | | |
| 125 | 8.6 | 3670 | 98.4 | 6770 | 181 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 52. Types CS403 and CS404 Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|----------------|---------------------|
| | + / - 20% | | | |
| 2 psig | -0.4 psig | 0.4 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -28 bar | 28 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 3 | 0.21 | 330 | 8.8 | 580 | 15.5 | 820 | 22.0 | 940 | 25.2 | 1320 | 35.4 | 1680 | 45.0 | 1870 | 50.1 |
| 5 | 0.34 | 490 | 13.1 | 850 | 22.8 | 1220 | 32.7 | 1500 | 40.2 | 2090 | 56.0 | 2590 | 69.4 | 3000 | 80.4 |
| 10 | 0.69 | 800 | 21.4 | 1410 | 37.8 | 1990 | 53.3 | 2510 | 67.3 | 3620 | 97.0 | 4410 | 118 | 5110 | 137 |
| 15 | 1.0 | 1000 | 26.8 | 1820 | 48.8 | 2450 | 65.7 | 3410 | 91.4 | 4930 | 132 | 5950 | 160 | 6960 | 187 |
| 20 | 1.4 | 1190 | 31.9 | 2170 | 58.2 | 3320 | 89.0 | 4290 | 115 | 6090 | 163 | 7430 | 199 | 8370 | 224 |
| 30 | 2.1 | 1560 | 41.8 | 2810 | 75.3 | 4530 | 121 | 5890 | 158 | 8400 | 225 | 10,060 | 270 | | |
| 40 | 2.8 | 1930 | 51.7 | 3430 | 91.9 | 5630 | 151 | 7510 | 201 | 10,290 | 276 | | | | |
| 50 | 3.4 | 2280 | 61.1 | 4100 | 110 | 6590 | 177 | 8860 | 237 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4650 | 125 | 7760 | 208 | 10,240 | 274 | | | | | | |
| 80 | 5.5 | 3370 | 90.3 | 5970 | 160 | 9880 | 265 | | | | | | | | |
| 100 | 6.9 | 4040 | 108 | 7240 | 194 | 8350 | 224 | | | | | | | | |
| 125 | 8.6 | 4640 | 124 | 7930 | 213 | | | | | | | | | | |

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
 - Gray areas indicate limited capacities due to boost effects.

Table 53. Types CS403 and CS404 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------|----------------------|
| | + / - 1% ABS | | | |
| 5 psig | -0.2 psig | 0.2 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -14 bar | 14 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 10 | 0.69 | 300 | 8.0 | 410 | 11.0 | 470 | 12.6 | 560 | 15.0 | 710 | 19.0 | 970 | 26.0 | 1050 | 28.1 |
| 15 | 1.0 | 400 | 10.7 | 570 | 15.3 | 630 | 16.9 | 820 | 22.0 | 1080 | 28.9 | 1460 | 39.1 | 1700 | 45.6 |
| 20 | 1.4 | 540 | 14.5 | 760 | 20.4 | 780 | 20.9 | 1050 | 28.1 | 1510 | 40.5 | 1880 | 50.4 | 2340 | 62.7 |
| 30 | 2.1 | 740 | 19.8 | 1040 | 27.9 | 1170 | 31.4 | 1590 | 42.6 | 2360 | 63.2 | 2920 | 78.3 | | |
| 40 | 2.8 | 920 | 24.7 | 1240 | 33.2 | 1610 | 43.1 | 2150 | 57.6 | 3530 | 94.6 | | | | |
| 50 | 3.4 | 1170 | 31.4 | 1740 | 46.6 | 2120 | 56.8 | 2800 | 75.0 | | | | | | |
| 60 | 4.1 | 1380 | 37.0 | 1980 | 53.1 | 2710 | 72.6 | 3400 | 91.1 | | | | | | |
| 80 | 5.5 | 1950 | 52.3 | 2950 | 79.1 | 4310 | 116 | | | | | | | | |
| 100 | 6.9 | 2680 | 71.8 | 4160 | 112 | 7230 | 194 | | | | | | | | |
| 125 | 8.6 | 3480 | 93.3 | 5710 | 153 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 54. Types CS403 and CS404 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|-----------------|----------------------|
| | + / - 2% ABS | | | |
| 5 psig | -0.39 psig | 0.39 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -27 bar | 27 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| | | Body Size: NPS 1-1/4 | | | | | | | | | | | | | |
| 10 | 0.69 | 480 | 12.9 | 680 | 18.2 | 820 | 22.0 | 1000 | 26.8 | 1340 | 35.9 | 1810 | 48.5 | 1910 | 51.2 |
| 15 | 1.0 | 660 | 17.7 | 900 | 24.1 | 1060 | 28.4 | 1470 | 39.4 | 2060 | 55.2 | 2650 | 71.0 | 2940 | 78.8 |
| 20 | 1.4 | 860 | 23.0 | 1260 | 33.8 | 1490 | 39.9 | 1880 | 50.4 | 2750 | 73.7 | 3520 | 94.3 | 3960 | 106 |
| 30 | 2.1 | 1210 | 32.4 | 1800 | 48.2 | 2170 | 58.2 | 2920 | 78.3 | 4160 | 112 | 6000 | 161 | | |
| 40 | 2.8 | 1570 | 42.1 | 2340 | 62.7 | 3020 | 80.9 | 3900 | 105 | 5820 | 156 | | | | |
| 50 | 3.4 | 1930 | 51.7 | 2930 | 78.5 | 4040 | 108 | 5160 | 138 | | | | | | |
| 60 | 4.1 | 2300 | 61.6 | 3610 | 96.7 | 5130 | 138 | 6830 | 183 | | | | | | |
| 80 | 5.5 | 3120 | 83.6 | 4990 | 134 | 7740 | 207 | | | | | | | | |
| 100 | 6.9 | 3950 | 106 | 6330 | 170 | 10,210 | 274 | | | | | | | | |
| 125 | 8.6 | 4820 | 129 | 8430 | 226 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 55. Types CS403 and CS404 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|-----------------|----------------------|
| | + / - 10% | | | |
| 5 psig | -0.5 psig | 0.5 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -34 bar | 34 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 540 | 14.5 | 790 | 21.2 | 990 | 26.5 | 1230 | 33.0 | 1690 | 45.3 | 2160 | 57.9 | 2340 | 62.7 |
| 15 | 1.0 | 760 | 20.4 | 1100 | 29.5 | 1420 | 38.1 | 1830 | 49.0 | 2520 | 67.5 | 3270 | 87.6 | 3550 | 95.1 |
| 20 | 1.4 | 960 | 25.7 | 1480 | 39.7 | 1880 | 50.4 | 2390 | 64.1 | 3360 | 90.0 | 4410 | 118 | 5050 | 135 |
| 30 | 2.1 | 1390 | 37.3 | 2190 | 58.7 | 2720 | 72.9 | 3600 | 96.5 | 5010 | 134 | 7110 | 191 | | |
| 40 | 2.8 | 1790 | 48.0 | 2840 | 76.1 | 3680 | 98.6 | 4790 | 128 | 7230 | 194 | | | | |
| 50 | 3.4 | 2150 | 57.6 | 3480 | 93.3 | 4840 | 130 | 6330 | 170 | | | | | | |
| 60 | 4.1 | 2550 | 68.3 | 4170 | 112 | 6090 | 163 | 8250 | 221 | | | | | | |
| 80 | 5.5 | 3320 | 89.0 | 5490 | 147 | 8530 | 229 | | | | | | | | |
| 100 | 6.9 | 4050 | 109 | 7050 | 189 | 10,830 | 290 | | | | | | | | |
| 125 | 8.6 | 4900 | 131 | 8570 | 230 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 56. Types CS403 and CS404 Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------|----------------------|
| | + / - 20% | | | |
| 5 psig | -1 psig | 1 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -69 mbar | 69 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 670 | 18.0 | 1140 | 30.6 | 1650 | 44.2 | 2050 | 54.9 | 2950 | 79.1 | 3800 | 102 | 4130 | 111 |
| 15 | 1.0 | 940 | 25.2 | 1650 | 44.2 | 2380 | 63.8 | 3010 | 80.7 | 4200 | 113 | 5560 | 149 | 6280 | 168 |
| 20 | 1.4 | 1170 | 31.4 | 2110 | 56.5 | 2950 | 79.1 | 3900 | 105 | 5560 | 149 | 7020 | 188 | 8270 | 222 |
| 30 | 2.1 | 1530 | 41.0 | 2700 | 72.4 | 4210 | 113 | 5570 | 149 | 7910 | 212 | 10,320 | 277 | | |
| 40 | 2.8 | 1890 | 50.7 | 3360 | 90.0 | 5360 | 144 | 7260 | 195 | 10,320 | 277 | | | | |
| 50 | 3.4 | 2270 | 60.8 | 4040 | 108 | 6540 | 175 | 8940 | 240 | | | | | | |
| 60 | 4.1 | 2640 | 70.8 | 4640 | 124 | 7670 | 206 | 10,420 | 279 | | | | | | |
| 80 | 5.5 | 3360 | 90.0 | 5930 | 159 | 9710 | 260 | | | | | | | | |
| 100 | 6.9 | 4090 | 110 | 7210 | 193 | 11,650 | 312 | | | | | | | | |
| 125 | 8.6 | 4960 | 133 | 8830 | 237 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 57. Types CS403 and CS404 External Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|------------|-------------|------------|-----------------|---------------------|
| | Droop | Boost | | |
| 7 in. w.c. | -1 in. w.c. | 2 in. w.c. | 6 to 8 in. w.c. | GE30188X012 / Gold |
| 17 mbar | -2 mbar | 5 mbar | 15 to 20 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 0.5 | 0.03 | 110 | 2.9 | 150 | 4.0 | 290 | 7.8 | 300 | 8.0 | 370 | 9.9 | 410 | 11.0 | 510 | 13.7 |
| 1 | 0.07 | 150 | 4.0 | 230 | 6.2 | 280 | 7.5 | 380 | 10.2 | 510 | 13.7 | 600 | 16.1 | 500 | 13.4 |
| 2 | 0.14 | 220 | 5.9 | 330 | 8.8 | 380 | 10.2 | 530 | 14.2 | 690 | 18.5 | 750 | 20.1 | 920 | 24.7 |
| 3 | 0.21 | 270 | 7.2 | 390 | 10.5 | 490 | 13.1 | 490 | 13.1 | 870 | 23.3 | 1060 | 28.4 | 1140 | 30.6 |
| 5 | 0.34 | 340 | 9.1 | 570 | 15.3 | 460 | 12.3 | 440 | 11.8 | 1110 | 29.7 | 1440 | 38.6 | 1440 | 38.6 |
| 10 | 0.69 | 480 | 12.9 | 370 | 9.9 | 910 | 24.4 | 1350 | 36.2 | 1610 | 43.1 | 1980 | 53.1 | 2040 | 54.7 |
| 15 | 1.0 | 340 | 9.1 | 540 | 14.5 | 1190 | 31.9 | 1500 | 40.2 | 1940 | 52.0 | 2640 | 70.8 | 2320 | 62.2 |
| 20 | 1.4 | 480 | 12.9 | 1160 | 31.1 | 1500 | 40.2 | 1830 | 49.0 | 2360 | 63.2 | 3700 | 99.2 | 3380 | 90.6 |
| 30 | 2.1 | 1110 | 29.7 | 1590 | 42.6 | 1860 | 49.8 | 2350 | 63.0 | 2340 | 62.7 | 6510 | 175 | | |
| 40 | 2.8 | 1300 | 34.8 | 1810 | 48.5 | 2320 | 62.2 | 2850 | 76.4 | 4590 | 123 | | | | |
| 50 | 3.4 | 1540 | 41.3 | 2420 | 64.9 | 3160 | 84.7 | 3410 | 91.4 | | | | | | |
| 60 | 4.1 | 1800 | 48.2 | 2870 | 76.9 | 3970 | 106 | 3840 | 103 | | | | | | |
| 80 | 5.5 | 2320 | 62.2 | 4320 | 116 | 5750 | 154 | | | | | | | | |
| 100 | 6.9 | 3230 | 86.6 | 5940 | 159 | 5750 | 154 | | | | | | | | |
| 125 | 8.6 | 4310 | 116 | 7520 | 202 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 58. Types CS403 and CS404 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|------------|-----------------------|----------------------|
| | + / - 1% ABS | | | |
| 1 psig | -0.16 psig | -0.16 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -0.011 bar | 0.011 bar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.1 | 240 | 6.4 | 330 | 8.8 | 370 | 9.9 | 490 | 13.1 | 690 | 18.5 | 850 | 22.8 | 1160 | 31.1 |
| 3 | 0.2 | 320 | 8.6 | 420 | 11.3 | 490 | 13.1 | 280 | 7.5 | 370 | 9.9 | 1040 | 27.9 | 1130 | 30.3 |
| 5 | 0.3 | 400 | 10.7 | 540 | 14.5 | 440 | 11.8 | 790 | 21.2 | 1080 | 28.9 | 1420 | 38.1 | 1550 | 41.5 |
| 10 | 0.69 | 390 | 10.5 | 390 | 10.5 | 990 | 26.5 | 1250 | 33.5 | 1670 | 44.8 | 2040 | 54.7 | 2340 | 62.7 |
| 15 | 1.0 | 370 | 9.9 | 1060 | 28.4 | 1320 | 35.4 | 1610 | 43.1 | 2150 | 57.6 | 2800 | 75.0 | 3010 | 80.7 |
| 20 | 1.4 | 920 | 24.7 | 1340 | 35.9 | 1610 | 43.1 | 1860 | 49.8 | 2410 | 64.6 | 3190 | 85.5 | 3540 | 94.9 |
| 30 | 2.1 | 1240 | 33.2 | 1680 | 45.0 | 2020 | 54.1 | 2480 | 66.5 | 3280 | 87.9 | 4240 | 114 | | |
| 40 | 2.8 | 1500 | 40.2 | 2090 | 56.0 | 2430 | 65.1 | 3020 | 80.9 | 4170 | 112 | | | | |
| 50 | 3.4 | 1820 | 48.8 | 2470 | 66.2 | 2770 | 74.2 | 3800 | 102 | | | | | | |
| 60 | 4.1 | 2090 | 56.0 | 2950 | 79.1 | 3530 | 94.6 | 4090 | 110 | | | | | | |
| 80 | 5.5 | 2630 | 70.5 | 3410 | 91.4 | 3530 | 94.6 | | | | | | | | |
| 100 | 6.9 | 3340 | 89.5 | 4030 | 108 | 4420 | 119 | | | | | | | | |
| 125 | 8.6 | 3860 | 103 | 5010 | 134 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 59. Types CS403 and CS404 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|-----------------------|----------------------|
| | + / - 2% ABS | | | |
| 1 psig | -0.31 psig | 0.31 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -21 mbar | 21 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 310 | 8.3 | 480 | 12.9 | 600 | 16.1 | 790 | 21.2 | 1530 | 41.0 | 1750 | 46.9 | 1760 | 47.2 |
| 3 | 0.21 | 400 | 10.7 | 620 | 16.6 | 830 | 22.2 | 750 | 20.1 | 1380 | 37.0 | 1690 | 45.3 | 2060 | 55.2 |
| 5 | 0.34 | 540 | 14.5 | 840 | 22.5 | 990 | 26.5 | 1400 | 37.5 | 1930 | 51.7 | 2500 | 67.0 | 2850 | 76.4 |
| 10 | 0.69 | 710 | 19.0 | 820 | 22.0 | 1740 | 46.6 | 2190 | 58.7 | 3050 | 81.7 | 3760 | 101 | 4470 | 120 |
| 15 | 1.0 | 760 | 20.4 | 1680 | 45.0 | 2350 | 63.0 | 2870 | 76.9 | 3940 | 106 | 5140 | 138 | 5700 | 153 |
| 20 | 1.4 | 1180 | 31.6 | 2030 | 54.4 | 2770 | 74.2 | 3440 | 92.2 | 4740 | 127 | 6120 | 164 | 7140 | 191 |
| 30 | 2.1 | 1550 | 41.5 | 2690 | 72.1 | 3660 | 98.1 | 4560 | 122 | 6540 | 175 | 8890 | 238 | | |
| 40 | 2.8 | 1910 | 51.2 | 3340 | 89.5 | 4620 | 124 | 5790 | 155 | 8400 | 225 | | | | |
| 50 | 3.4 | 2270 | 60.8 | 3930 | 105 | 5490 | 147 | 7060 | 189 | | | | | | |
| 60 | 4.1 | 2620 | 70.2 | 4710 | 126 | 6560 | 176 | 8470 | 227 | | | | | | |
| 80 | 5.5 | 3350 | 89.8 | 5740 | 154 | 8310 | 223 | | | | | | | | |
| 100 | 6.9 | 4070 | 109 | 7060 | 189 | 8660 | 232 | | | | | | | | |
| 125 | 8.6 | 4950 | 133 | 8540 | 229 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 60. Types CS403 and CS404 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|-----------------------|----------------------|
| | + / - 10% | | | |
| 1 psig | -0.1 psig | 0.1 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -7 mbar | 7 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.1 | 200 | 5.4 | 250 | 6.7 | 290 | 7.8 | 370 | 9.9 | 500 | 13.4 | 580 | 15.5 | 880 | 23.6 |
| 3 | 0.2 | 260 | 7.0 | 310 | 8.3 | 350 | 9.4 | 170 | 4.6 | 340 | 9.1 | 690 | 18.5 | 790 | 21.2 |
| 5 | 0.3 | 310 | 8.3 | 400 | 10.7 | 260 | 7.0 | 590 | 15.8 | 760 | 20.4 | 930 | 24.9 | 1040 | 27.9 |
| 10 | 0.69 | 240 | 6.4 | 380 | 10.2 | 690 | 18.5 | 880 | 23.6 | 1140 | 30.6 | 1300 | 34.8 | 1580 | 42.3 |
| 15 | 1.0 | 360 | 9.6 | 790 | 21.2 | 940 | 25.2 | 1100 | 29.5 | 1400 | 37.5 | 1690 | 45.3 | 2110 | 56.5 |
| 20 | 1.4 | 540 | 14.5 | 950 | 25.5 | 1080 | 28.9 | 1200 | 32.2 | 1560 | 41.8 | 1880 | 50.4 | 2400 | 64.3 |
| 30 | 2.1 | 920 | 24.7 | 1170 | 31.4 | 1320 | 35.4 | 1330 | 35.6 | 1840 | 49.3 | 2610 | 69.9 | | |
| 40 | 2.8 | 980 | 26.3 | 1500 | 40.2 | 1500 | 40.2 | 1680 | 45.0 | 2260 | 60.6 | | | | |
| 50 | 3.4 | 1320 | 35.4 | 1710 | 45.8 | 1650 | 44.2 | 1990 | 53.3 | | | | | | |
| 60 | 4.1 | 1370 | 36.7 | 1980 | 53.1 | 1990 | 53.3 | 1990 | 53.3 | | | | | | |
| 80 | 5.5 | 1650 | 44.2 | 1870 | 50.1 | 1990 | 53.3 | | | | | | | | |
| 100 | 6.9 | 2070 | 55.5 | 2220 | 59.5 | 2440 | 65.4 | | | | | | | | |
| 125 | 8.6 | 2360 | 63.2 | 2690 | 72.1 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 61. Types CS403 and CS404 External Registration Flow Capacities for 1 psig / 69 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|-----------------------|----------------------|
| | + / - 20% | | | |
| 1 psig | -0.2 psig | 0.2 psig | 18 in. w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar | -14 mbar | 14 mbar | 45 to 69 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 2 | 0.14 | 260 | 7.0 | 390 | 10.5 | 450 | 12.1 | 590 | 15.8 | 840 | 22.5 | 990 | 26.5 | 1280 | 34.3 |
| 3 | 0.21 | 350 | 9.4 | 490 | 13.1 | 610 | 16.3 | 440 | 11.8 | 620 | 16.6 | 1210 | 32.4 | 1400 | 37.5 |
| 5 | 0.34 | 450 | 12.1 | 640 | 17.2 | 600 | 16.1 | 960 | 25.7 | 1370 | 36.7 | 1770 | 47.4 | 1940 | 52.0 |
| 10 | 0.69 | 500 | 13.4 | 450 | 12.1 | 1220 | 32.7 | 1550 | 41.5 | 2170 | 58.2 | 2580 | 69.1 | 2900 | 77.7 |
| 15 | 1.0 | 400 | 10.7 | 1320 | 35.4 | 1630 | 43.7 | 2020 | 54.1 | 2660 | 71.3 | 3500 | 93.8 | 3900 | 105 |
| 20 | 1.4 | 1050 | 28.1 | 1590 | 42.6 | 1970 | 52.8 | 2360 | 63.2 | 3180 | 85.2 | 4220 | 113 | 4940 | 132 |
| 30 | 2.1 | 1420 | 38.1 | 2100 | 56.3 | 2540 | 68.1 | 3100 | 83.1 | 4320 | 116 | 5750 | 154 | | |
| 40 | 2.8 | 1770 | 47.4 | 2570 | 68.9 | 3210 | 86.0 | 3930 | 105 | 5620 | 151 | | | | |
| 50 | 3.4 | 2150 | 57.6 | 3090 | 82.8 | 3640 | 97.6 | 4860 | 130 | | | | | | |
| 60 | 4.1 | 2420 | 64.9 | 3700 | 99.2 | 4560 | 122 | 5520 | 148 | | | | | | |
| 80 | 5.5 | 3140 | 84.2 | 4320 | 116 | 5380 | 144 | | | | | | | | |
| 100 | 6.9 | 3810 | 102 | 5460 | 146 | 6430 | 172 | | | | | | | | |
| 125 | 8.6 | 4660 | 125 | 6820 | 183 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 62. Types CS403 and CS404 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 1% ABS | | | |
| 2 psig | -0.17 psi | 0.17 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -12 mbar | 12 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 240 | 6.4 | 340 | 9.1 | 410 | 11.0 | 540 | 14.5 | 550 | 14.7 | 770 | 20.6 | 1270 | 34.0 |
| 5 | 0.34 | 350 | 9.4 | 520 | 13.9 | 620 | 16.6 | 350 | 9.4 | 990 | 26.5 | 1270 | 34.0 | 1340 | 35.9 |
| 10 | 0.69 | 500 | 13.4 | 410 | 11.0 | 980 | 26.3 | 1210 | 32.4 | 1640 | 44.0 | 2110 | 56.5 | 2350 | 63.0 |
| 15 | 1.0 | 340 | 9.1 | 890 | 23.9 | 1330 | 35.6 | 1650 | 44.2 | 2160 | 57.9 | 2660 | 71.3 | 3040 | 81.5 |
| 20 | 1.4 | 450 | 12.1 | 1310 | 35.1 | 1650 | 44.2 | 1940 | 52.0 | 2580 | 69.1 | 3310 | 88.7 | 3750 | 101 |
| 30 | 2.1 | 1260 | 33.8 | 1700 | 45.6 | 2200 | 59.0 | 2530 | 67.8 | 3340 | 89.5 | 4230 | 113 | | |
| 40 | 2.8 | 1510 | 40.5 | 2110 | 56.5 | 2630 | 70.5 | 3000 | 80.4 | 3950 | 106 | | | | |
| 50 | 3.4 | 1880 | 50.4 | 2510 | 67.3 | 3120 | 83.6 | 3530 | 94.6 | | | | | | |
| 60 | 4.1 | 2130 | 57.1 | 2700 | 72.4 | 3490 | 93.5 | 3530 | 94.6 | | | | | | |
| 80 | 5.5 | 2700 | 72.4 | 3770 | 101 | 4350 | 117 | | | | | | | | |
| 100 | 6.9 | 2990 | 80.1 | 4140 | 111 | 5280 | 142 | | | | | | | | |
| 125 | 8.6 | 3630 | 97.3 | 5130 | 138 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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Table 63. Types CS403 and CS404 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|----------------|---------------------|
| | + / - 2% ABS | | | |
| 2 psig | -0.33 psig | 0.33 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -23 mbar | 23 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 320 | 8.6 | 520 | 13.9 | 690 | 18.5 | 910 | 24.4 | 1120 | 30.0 | 1530 | 41.0 | 1900 | 50.9 |
| 5 | 0.34 | 470 | 12.6 | 770 | 20.6 | 1080 | 28.9 | 1380 | 37.0 | 1800 | 48.2 | 2280 | 61.1 | 2430 | 65.1 |
| 10 | 0.69 | 750 | 20.1 | 1270 | 34.0 | 1710 | 45.8 | 2210 | 59.2 | 2920 | 78.3 | 3820 | 102 | 4220 | 113 |
| 15 | 1.0 | 830 | 22.2 | 1680 | 45.0 | 2370 | 63.5 | 2950 | 79.1 | 3910 | 105 | 5020 | 135 | 5750 | 154 |
| 20 | 1.4 | 1180 | 31.6 | 2090 | 56.0 | 2860 | 76.6 | 3650 | 97.8 | 4970 | 133 | 6120 | 164 | 7020 | 188 |
| 30 | 2.1 | 1550 | 41.5 | 2740 | 73.4 | 3810 | 102 | 4800 | 129 | 6800 | 182 | 8780 | 235 | | |
| 40 | 2.8 | 1900 | 50.9 | 3360 | 90.0 | 4720 | 127 | 5970 | 160 | 8410 | 225 | | | | |
| 50 | 3.4 | 2250 | 60.3 | 4010 | 108 | 5670 | 152 | 7170 | 192 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4590 | 123 | 6750 | 181 | 8140 | 218 | | | | | | |
| 80 | 5.5 | 3330 | 89.2 | 5910 | 158 | 8550 | 229 | | | | | | | | |
| 100 | 6.9 | 4060 | 109 | 7100 | 190 | 10,990 | 295 | | | | | | | | |
| 125 | 8.6 | 4920 | 132 | 8580 | 230 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 64. Types CS403 and CS404 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|----------------|---------------------|
| | + / - 10% | | | |
| 2 psig | -0.2 psig | 0.2 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -14 mbar | 14 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 260 | 7.0 | 380 | 10.2 | 460 | 12.3 | 630 | 16.9 | 640 | 17.2 | 880 | 23.6 | 1400 | 37.5 |
| 5 | 0.34 | 400 | 10.7 | 580 | 15.5 | 720 | 19.3 | 520 | 13.9 | 1150 | 30.8 | 1480 | 39.7 | 1620 | 43.4 |
| 10 | 0.69 | 570 | 15.3 | 460 | 12.3 | 1180 | 31.6 | 1500 | 40.2 | 1910 | 51.2 | 2490 | 66.7 | 2780 | 74.5 |
| 15 | 1.0 | 390 | 10.5 | 1240 | 33.2 | 1610 | 43.1 | 1970 | 52.8 | 2610 | 69.9 | 3340 | 89.5 | 3600 | 96.5 |
| 20 | 1.4 | 470 | 12.6 | 1540 | 41.3 | 1950 | 52.3 | 2360 | 63.2 | 3110 | 83.3 | 3960 | 106 | 4490 | 120 |
| 30 | 2.1 | 1400 | 37.5 | 2010 | 53.9 | 2610 | 69.9 | 3030 | 81.2 | 4120 | 110 | 5350 | 143 | | |
| 40 | 2.8 | 1730 | 46.4 | 2470 | 66.2 | 3280 | 87.9 | 3670 | 98.4 | 5070 | 136 | | | | |
| 50 | 3.4 | 2040 | 54.7 | 2930 | 78.5 | 3740 | 100 | 4370 | 117 | | | | | | |
| 60 | 4.1 | 2400 | 64.3 | 3270 | 87.6 | 4420 | 119 | 4870 | 131 | | | | | | |
| 80 | 5.5 | 3050 | 81.7 | 4450 | 119.3 | 5520 | 148 | | | | | | | | |
| 100 | 6.9 | 3600 | 96.5 | 5150 | 138.0 | 6970 | 187 | | | | | | | | |
| 125 | 8.6 | 4310 | 116 | 6140 | 164.6 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 65. Types CS403 and CS404 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|----------------|---------------------|
| | + / - 20% | | | |
| 2 psig | -0.4 psig | 0.4 psig | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -28 mbar | 28 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|--------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 3 | 0.21 | 340 | 9.1 | 570 | 15.3 | 760 | 20.4 | 1020 | 27.3 | 1310 | 35.1 | 1630 | 43.7 | 2110 | 56.5 |
| 5 | 0.34 | 490 | 13.1 | 830 | 22.2 | 1170 | 31.4 | 1550 | 41.5 | 2020 | 54.1 | 2560 | 68.6 | 2830 | 75.8 |
| 10 | 0.69 | 780 | 20.9 | 1320 | 35.4 | 1940 | 52.0 | 2590 | 69.4 | 3470 | 93.0 | 4350 | 117 | 4920 | 132 |
| 15 | 1.0 | 910 | 24.4 | 1770 | 47.4 | 2630 | 70.5 | 3350 | 89.8 | 4640 | 124 | 5770 | 155 | 6880 | 184 |
| 20 | 1.4 | 1190 | 31.9 | 2160 | 57.9 | 3200 | 85.8 | 4110 | 110 | 5560 | 149 | 7270 | 195 | 8180 | 219 |
| 30 | 2.1 | 1560 | 41.8 | 2800 | 75.0 | 4260 | 114 | 5530 | 148 | 7790 | 209 | 10,190 | 273 | | |
| 40 | 2.8 | 1930 | 51.7 | 3460 | 92.7 | 5280 | 142 | 6950 | 186 | 9610 | 258 | | | | |
| 50 | 3.4 | 2280 | 61.1 | 4080 | 109 | 6300 | 169 | 8250 | 221 | | | | | | |
| 60 | 4.1 | 2650 | 71.0 | 4730 | 127 | 7320 | 196 | 9570 | 257 | | | | | | |
| 80 | 5.5 | 3360 | 90.0 | 5990 | 161 | 9340 | 250 | | | | | | | | |
| 100 | 6.9 | 4090 | 110 | 7220 | 194 | 11,680 | 313 | | | | | | | | |
| 125 | 8.6 | 4980 | 134 | 8870 | 238 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 66. Types CS403 and CS404 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 1% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|-----------------|----------------------|
| | + / - 1% ABS | | | |
| 5 psig | -0.2 psig | 0.2 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -14 mbar | 14 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 330 | 8.8 | 460 | 12.3 | 120 | 3.2 | 500 | 13.4 | 750 | 20.1 | 860 | 23.0 | 960 | 25.7 |
| 15 | 1.0 | 420 | 11.3 | 450 | 12.1 | 610 | 16.3 | 830 | 22.2 | 1000 | 26.8 | 1250 | 33.5 | 1320 | 35.4 |
| 20 | 1.4 | 110 | 2.9 | 590 | 15.8 | 850 | 22.8 | 940 | 25.2 | 1270 | 34.0 | 1550 | 41.5 | 1650 | 44.2 |
| 30 | 2.1 | 710 | 19.0 | 900 | 24.1 | 1120 | 30.0 | 1330 | 35.6 | 1590 | 42.6 | 1830 | 49.0 | | |
| 40 | 2.8 | 880 | 23.6 | 1100 | 29.5 | 1350 | 36.2 | 1530 | 41.0 | 2040 | 54.7 | | | | |
| 50 | 3.4 | 1010 | 27.1 | 1340 | 35.9 | 1640 | 44.0 | 1780 | 47.7 | | | | | | |
| 60 | 4.1 | 1060 | 28.4 | 1470 | 39.4 | 1780 | 47.7 | 1780 | 47.7 | | | | | | |
| 80 | 5.5 | 1400 | 37.5 | 1690 | 45.3 | 1860 | 49.8 | | | | | | | | |
| 100 | 6.9 | 1740 | 46.6 | 2250 | 60.3 | 2010 | 53.9 | | | | | | | | |
| 125 | 8.6 | 1920 | 51.5 | 2420 | 64.9 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

CS400 Series

Table 67. Types CS403 and CS404 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 2% ABS Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|-----------|-----------------|----------------------|
| | + / - 2% ABS | | | |
| 5 psig | -0.39 psig | 0.39 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -27 mbar | 27 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 490 | 13.1 | 690 | 18.5 | 350 | 9.4 | 990 | 26.5 | 1300 | 34.8 | 1620 | 43.4 | 1810 | 48.5 |
| 15 | 1.0 | 670 | 18.0 | 480 | 12.9 | 1090 | 29.2 | 1390 | 37.3 | 1830 | 49.0 | 2450 | 65.7 | 2580 | 69.1 |
| 20 | 1.4 | 390 | 10.5 | 780 | 20.9 | 1430 | 38.3 | 1820 | 48.8 | 2310 | 61.9 | 2950 | 79.1 | 3270 | 87.6 |
| 30 | 2.1 | 1200 | 32.2 | 1610 | 43.1 | 2000 | 53.6 | 2510 | 67.3 | 3220 | 86.3 | 4030 | 108 | | |
| 40 | 2.8 | 1480 | 39.7 | 2010 | 53.9 | 2410 | 64.6 | 3130 | 83.9 | 4030 | 108 | | | | |
| 50 | 3.4 | 1750 | 46.9 | 2500 | 67.0 | 2970 | 79.6 | 3760 | 101 | | | | | | |
| 60 | 4.1 | 2010 | 53.9 | 2750 | 73.7 | 3400 | 91.1 | 4130 | 111 | | | | | | |
| 80 | 5.5 | 2580 | 69.1 | 3570 | 95.7 | 4080 | 109 | | | | | | | | |
| 100 | 6.9 | 3110 | 83.3 | 4500 | 121 | 4910 | 132 | | | | | | | | |
| 125 | 8.6 | 3830 | 103 | 5240 | 140 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 68. Types CS403 and CS404 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 10% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|----------|-----------------|----------------------|
| | + / - 10% | | | |
| 5 psig | -0.5 psig | 0.5 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -34 mbar | 34 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 550 | 14.7 | 820 | 22.0 | 570 | 15.3 | 1250 | 33.5 | 1670 | 44.8 | 2060 | 55.2 | 2340 | 62.7 |
| 15 | 1.0 | 770 | 20.6 | 510 | 13.7 | 1430 | 38.3 | 1700 | 45.6 | 2280 | 61.1 | 3000 | 80.4 | 3270 | 87.6 |
| 20 | 1.4 | 540 | 14.5 | 930 | 24.9 | 1790 | 48.0 | 2180 | 58.4 | 2980 | 79.9 | 3720 | 99.7 | 4060 | 109 |
| 30 | 2.1 | 1370 | 36.7 | 1850 | 49.6 | 2470 | 66.2 | 3020 | 80.9 | 3990 | 107 | 5230 | 140 | | |
| 40 | 2.8 | 1670 | 44.8 | 2480 | 66.5 | 3050 | 81.7 | 3890 | 104 | 5090 | 136 | | | | |
| 50 | 3.4 | 2050 | 54.9 | 3030 | 81.2 | 3840 | 103 | 4620 | 124 | | | | | | |
| 60 | 4.1 | 2380 | 63.8 | 3310 | 88.7 | 4330 | 116 | 5200 | 139 | | | | | | |
| 80 | 5.5 | 3020 | 80.9 | 4340 | 116 | 5250 | 141 | | | | | | | | |
| 100 | 6.9 | 3680 | 98.6 | 5540 | 149 | 6490 | 174 | | | | | | | | |
| 125 | 8.6 | 4530 | 121 | 6420 | 172 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 69. Types CS403 and CS404 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 20% Accuracy

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|-----------|---------|-----------------|----------------------|
| | + / - 20% | | | |
| 5 psig | -1 psig | 1 psig | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -69 mbar | 69 mbar | 138 to 380 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS | | | | | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 5/16 | 7.9 | 3/8 | 9.5 | 1/2 | 13 | 5/8 | 16 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | | | | | |
| 10 | 0.69 | 700 | 18.8 | 1160 | 31.1 | 1600 | 42.9 | 2150 | 57.6 | 2940 | 78.8 | 3680 | 98.6 | 4150 | 111 |
| 15 | 1.0 | 950 | 25.5 | 1580 | 42.3 | 2340 | 62.7 | 2980 | 79.9 | 4170 | 112 | 5350 | 143 | 5960 | 160 |
| 20 | 1.4 | 1120 | 30.0 | 1990 | 53.3 | 3000 | 80.4 | 3680 | 98.6 | 5190 | 139 | 6640 | 178 | 7490 | 201 |
| 30 | 2.1 | 1520 | 40.7 | 2690 | 72.1 | 4080 | 109 | 5200 | 139 | 7290 | 195 | 9390 | 252 | | |
| 40 | 2.8 | 1870 | 50.1 | 3330 | 89.2 | 5140 | 138 | 6620 | 177 | 9180 | 246 | | | | |
| 50 | 3.4 | 2230 | 59.8 | 4020 | 108 | 6250 | 168 | 7840 | 210 | | | | | | |
| 60 | 4.1 | 2610 | 69.9 | 4550 | 122 | 7160 | 192 | 9190 | 246 | | | | | | |
| 80 | 5.5 | 3320 | 89.0 | 5740 | 154 | 9320 | 250 | | | | | | | | |
| 100 | 6.9 | 4060 | 109 | 7230 | 194 | 11,310 | 303 | | | | | | | | |
| 125 | 8.6 | 4920 | 132 | 8710 | 233 | | | | | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

Table 70. CS400 Series Internal Registration Flow Capacities for 2 psig / 138 mbar Setpoint with 1% Pressure Factor Accuracy (PFM Approved)

| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|---------------------|
| | + / - 1% ABS | | | |
| 2 psig | -0.17 psi | 0.17 psi | 1 to 2 psig | GE30190X012 / Black |
| 138 mbar | -12 mbar | 12 mbar | 69 to 138 mbar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY GAS | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 3/8 | 9.5 | 1/2 | 13 | 3/4 | 19 |
| psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| Body Size: NPS 1-1/4 | | | | | | | | | | | |
| 3 | 0.21 | 120 | 3.2 | 180 | 4.8 | 200 | 5.4 | 310 | 8.3 | 540 | 14.5 |
| 5 | 0.34 | 170 | 4.6 | 310 | 8.3 | 460 | 12.3 | 760 | 20.4 | 1000 | 26.8 |
| 10 | 0.69 | 410 | 11.0 | 650 | 17.4 | 1000 | 26.8 | 1600 | 42.9 | 2800 | 75.0 |
| 15 | 1.0 | 630 | 16.9 | 940 | 25.2 | 1700 | 45.6 | 2800 | 75.0 | 4600 | 123 |
| 20 | 1.4 | 790 | 21.2 | 1300 | 34.8 | 2600 | 69.7 | 4100 | 109 | 8675 | 232 |
| 25 | 1.7 | 1000 | 26.8 | 1800 | 48.2 | 3900 | 104 | 5400 | 144 | | |
| 30 | 2.1 | 1200 | 32.2 | 2200 | 59.0 | 4000 | 107 | 6500 | 174 | | |
| 40 | 2.8 | 1650 | 44.2 | 3100 | 83.1 | 5200 | 139 | 9500 | 254 | | |
| 50 | 3.4 | 2000 | 53.6 | 3750 | 100 | 5200 | 139 | | | | |
| 60 | 4.1 | 2400 | 64.3 | 4500 | 120 | 5200 | 139 | | | | |
| 80 | 5.5 | 3200 | 85.8 | 5900 | 158 | | | | | | |
| 100 | 6.9 | 3900 | 104 | 7200 | 192 | | | | | | |
| 125 | 8.6 | 4900 | 131 | 7600 | 203 | | | | | | |
| Body Size: NPS 1-1/2 | | | | | | | | | | | |
| 3 | 0.21 | 110 | 2.9 | 170 | 4.6 | 330 | 8.8 | 470 | 12.6 | 750 | 20.1 |
| 5 | 0.34 | 180 | 4.8 | 290 | 7.8 | 660 | 17.7 | 1000 | 26.8 | 1400 | 37.5 |
| 10 | 0.69 | 390 | 10.5 | 590 | 15.8 | 1300 | 34.8 | 1975 | 52.9 | 3100 | 83.1 |
| 15 | 1.0 | 580 | 15.5 | 940 | 25.2 | 2025 | 54.3 | 2875 | 77.1 | 4950 | 132 |
| 20 | 1.4 | 760 | 20.4 | 1200 | 32.2 | 2600 | 69.7 | 3775 | 101 | 7800 | 208 |
| 25 | 1.7 | 980 | 26.3 | 1700 | 45.6 | 3600 | 96.5 | 5300 | 141 | | |
| 30 | 2.1 | 1200 | 32.2 | 2100 | 56.3 | 3600 | 96.5 | 5300 | 141 | | |
| 40 | 2.8 | 1675 | 44.9 | 2900 | 77.7 | 4850 | 129 | 9700 | 259 | | |
| 50 | 3.4 | 2075 | 55.6 | 3700 | 99.2 | 6400 | 171 | | | | |
| 60 | 4.1 | 2350 | 63.0 | 4300 | 115 | 7800 | 208 | | | | |
| 80 | 5.5 | 3150 | 84.4 | 5400 | 144 | | | | | | |
| 100 | 6.9 | 3750 | 100 | 6700 | 179 | | | | | | |
| 125 | 8.6 | 4850 | 129 | 8050 | 215 | | | | | | |
| Body Size: NPS 2 | | | | | | | | | | | |
| 3 | 0.21 | 100 | 2.7 | 190 | 5.1 | 230 | 6.2 | 430 | 11.5 | 590 | 15.8 |
| 5 | 0.34 | 240 | 6.4 | 370 | 9.9 | 420 | 11.3 | 860 | 23.0 | 1300 | 34.8 |
| 10 | 0.69 | 440 | 11.8 | 700 | 18.8 | 970 | 26.0 | 1800 | 48.2 | 3000 | 80.4 |
| 15 | 1.0 | 660 | 17.7 | 1000 | 26.8 | 1600 | 42.9 | 2800 | 75.0 | 4200 | 112 |
| 20 | 1.4 | 850 | 22.8 | 1200 | 32.2 | 2400 | 64.3 | 3750 | 100 | 6900 | 184 |
| 25 | 1.7 | 1000 | 26.8 | 1700 | 45.6 | 3100 | 83.1 | 5300 | 141 | | |
| 30 | 2.1 | 1200 | 32.2 | 2125 | 57.0 | 3625 | 97.2 | 5350 | 143 | | |
| 40 | 2.8 | 1600 | 42.9 | 2925 | 78.4 | 4875 | 130 | 9700 | 259 | | |
| 50 | 3.4 | 2000 | 53.6 | 3725 | 99.8 | 6400 | 171 | | | | |
| 60 | 4.1 | 2350 | 63.0 | 4300 | 115 | 7800 | 208 | | | | |
| 80 | 5.5 | 3150 | 84.4 | 5425 | 145 | | | | | | |
| 100 | 6.9 | 3750 | 100 | 6725 | 180 | | | | | | |
| 125 | 8.6 | 4800 | 128 | 8050 | 215 | | | | | | |

□ - Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

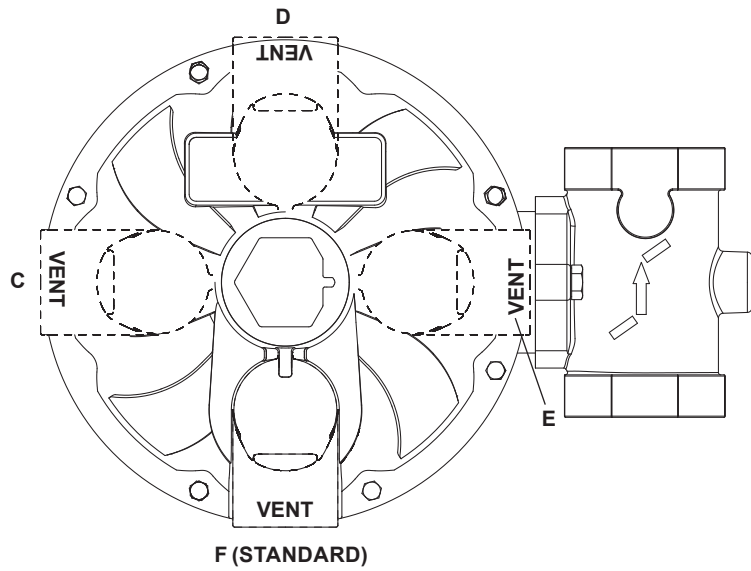
CS400 Series

Table 71. CS400 Series Internal Registration Flow Capacities for 5 psig / 345 mbar Setpoint with 1% Pressure Factor Accuracy (PFM Approved)

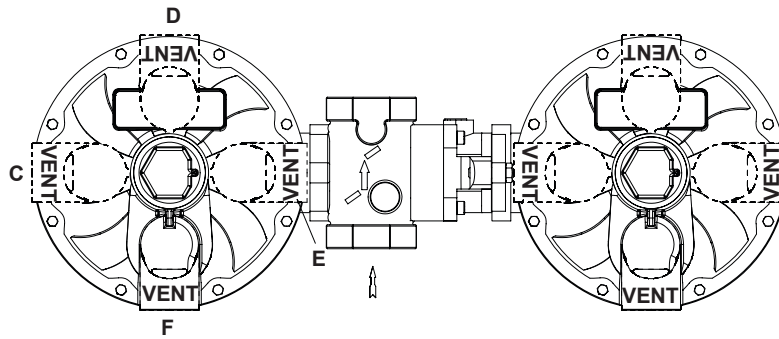
| SETPOINT | ACCURACY | | SET RANGE | PART NUMBER / COLOR |
|----------|--------------|----------|----------------|----------------------|
| | + / - 1% ABS | | | |
| 5 psig | -0.20 psi | 0.20 psi | 2 to 5.5 psig | GE30197X012 / Yellow |
| 345 mbar | -14 mbar | 14 mbar | 138 to 380 bar | |

| CAPACITIES IN SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY GAS | | | | | | | | | | | |
|---|------|------------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|
| Inlet Pressure | | Orifice Size, In. / mm | | | | | | | | | |
| | | 3/16 | 4.8 | 1/4 | 6.4 | 3/8 | 9.5 | 1/2 | 13 | 3/4 | 19 |
| | | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| psig | bar | Body Size: NPS 1-1/4 | | | | | | | | | |
| 10 | 0.69 | 90 | 2.4 | 100 | 2.7 | 410 | 11.0 | 550 | 14.7 | 1100 | 29.5 |
| 15 | 1.0 | 160 | 4.3 | 190 | 5.1 | 780 | 20.9 | 980 | 26.3 | 1700 | 45.6 |
| 20 | 1.4 | 190 | 5.1 | 280 | 7.5 | 1100 | 29.5 | 1300 | 34.8 | 2175 | 58.3 |
| 25 | 1.7 | 250 | 6.7 | 370 | 9.9 | 1500 | 40.2 | 1900 | 50.9 | | |
| 30 | 2.1 | 310 | 8.3 | 850 | 22.8 | 1750 | 46.9 | 2150 | 57.6 | | |
| 40 | 2.8 | 540 | 14.5 | 1375 | 36.9 | 2250 | 60.3 | 2950 | 79.1 | | |
| 50 | 3.4 | 1100 | 29.5 | 1600 | 42.9 | 2700 | 72.4 | | | | |
| 60 | 4.1 | 1500 | 40.2 | 2200 | 59.0 | 3750 | 100 | | | | |
| 80 | 5.5 | 1975 | 52.9 | 2950 | 79.1 | | | | | | |
| 100 | 6.9 | 2725 | 73.0 | 4400 | 117 | | | | | | |
| 125 | 8.6 | 3525 | 94.5 | 5575 | 149 | | | | | | |
| psig | bar | Body Size: NPS 1-1/2 | | | | | | | | | |
| 10 | 0.69 | 190 | 5.1 | 230 | 6.2 | 350 | 9.4 | 590 | 15.8 | 1000 | 26.8 |
| 15 | 1.0 | 300 | 8.0 | 430 | 11.5 | 750 | 20.1 | 980 | 26.3 | 1800 | 48.2 |
| 20 | 1.4 | 420 | 11.3 | 590 | 15.8 | 1000 | 26.8 | 1300 | 34.8 | 2000 | 53.6 |
| 25 | 1.7 | 490 | 13.1 | 740 | 19.8 | 1100 | 29.5 | 1800 | 48.2 | | |
| 30 | 2.1 | 660 | 17.7 | 970 | 26.0 | 1500 | 40.2 | 2050 | 54.9 | | |
| 40 | 2.8 | 840 | 22.5 | 1200 | 32.2 | 1725 | 46.2 | 2600 | 69.7 | | |
| 50 | 3.4 | 1100 | 29.5 | 1425 | 38.2 | 2425 | 65.0 | | | | |
| 60 | 4.1 | 1400 | 37.5 | 1725 | 46.2 | 2750 | 73.7 | | | | |
| 80 | 5.5 | 2200 | 59.0 | 2450 | 65.7 | | | | | | |
| 100 | 6.9 | 2600 | 69.7 | 3450 | 92.5 | | | | | | |
| 125 | 8.6 | 3250 | 87.1 | 5900 | 158 | | | | | | |
| psig | bar | Body Size: NPS 2 | | | | | | | | | |
| 10 | 0.69 | 110 | 2.9 | 140 | 3.8 | 220 | 5.9 | 800 | 21.4 | 1000 | 26.8 |
| 15 | 1.0 | 180 | 4.8 | 260 | 7.0 | 710 | 19.0 | 1100 | 29.5 | 1800 | 48.2 |
| 20 | 1.4 | 260 | 7.0 | 350 | 9.4 | 1000 | 26.8 | 1700 | 45.6 | 2900 | 77.7 |
| 25 | 1.7 | 360 | 9.6 | 490 | 13.1 | 1300 | 34.8 | 2050 | 54.9 | | |
| 30 | 2.1 | 530 | 14.2 | 790 | 21.2 | 1500 | 40.2 | 2050 | 54.9 | | |
| 40 | 2.8 | 870 | 23.3 | 990 | 26.5 | 1725 | 46.2 | 2600 | 69.7 | | |
| 50 | 3.4 | 1200 | 32.2 | 1300 | 34.8 | 2425 | 65.0 | | | | |
| 60 | 4.1 | 1475 | 39.5 | 1725 | 46.2 | 2750 | 73.7 | | | | |
| 80 | 5.5 | 2300 | 61.6 | 2450 | 65.7 | | | | | | |
| 100 | 6.9 | 2600 | 69.7 | 3450 | 92.5 | | | | | | |
| 125 | 8.6 | 3250 | 87.1 | 5700 | 152 | | | | | | |

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.



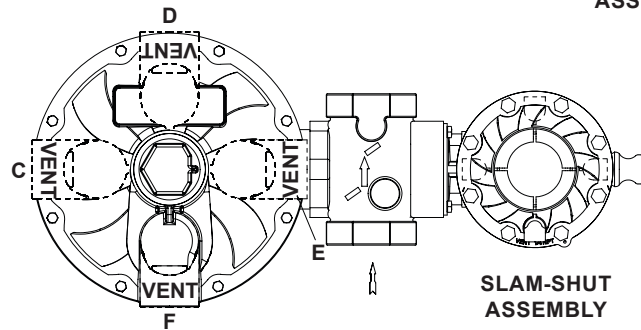
TYPE CS400



PRIMARY
REGULATOR

TYPE CS403

INTEGRAL
MONITOR
ASSEMBLY



PRIMARY
REGULATOR

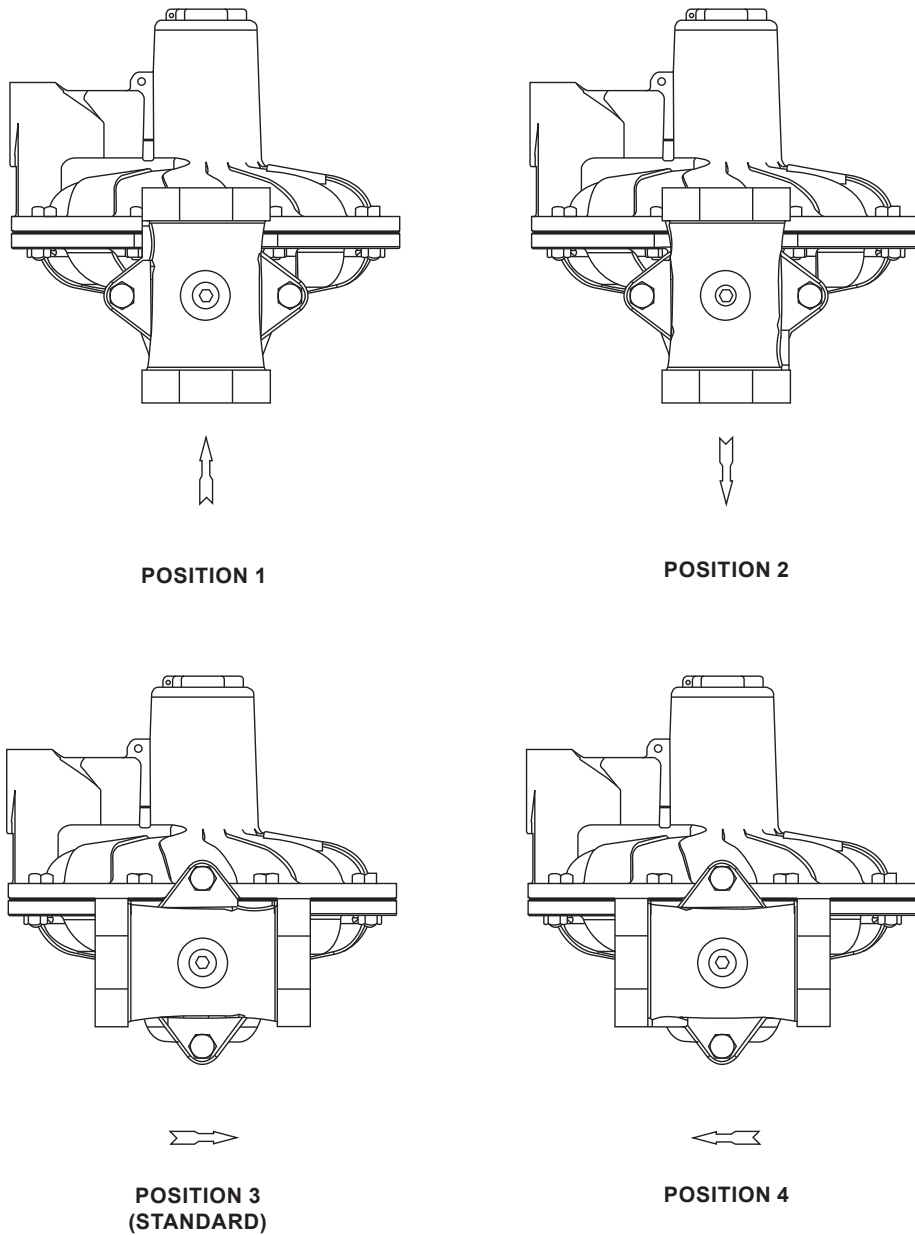
TYPE CS404

SLAM-SHUT
ASSEMBLY

CHOOSE VENT AND BODY POSITION FOR THE TYPES CS403 AND CS404 IN THE SAME MANNER AS FOR THE BASE TYPE CS400 REGULATOR. THE VENT OF THE INTEGRAL MONITOR OR SLAM SHUT WILL BE ORIENTED IN THE SAME DIRECTION AS THE PRIMARY REGULATOR. BODY POSITION WILL ALSO BE BASED ON PRIMARY REGULATOR AS THE SPRING BARREL OF THE INTEGRAL MONITOR OR SLAM SHUT WILL POINT THE SAME DIRECTION AS THE PRIMARY REGULATOR.

Figure 15. Spring Case Vent Orientation

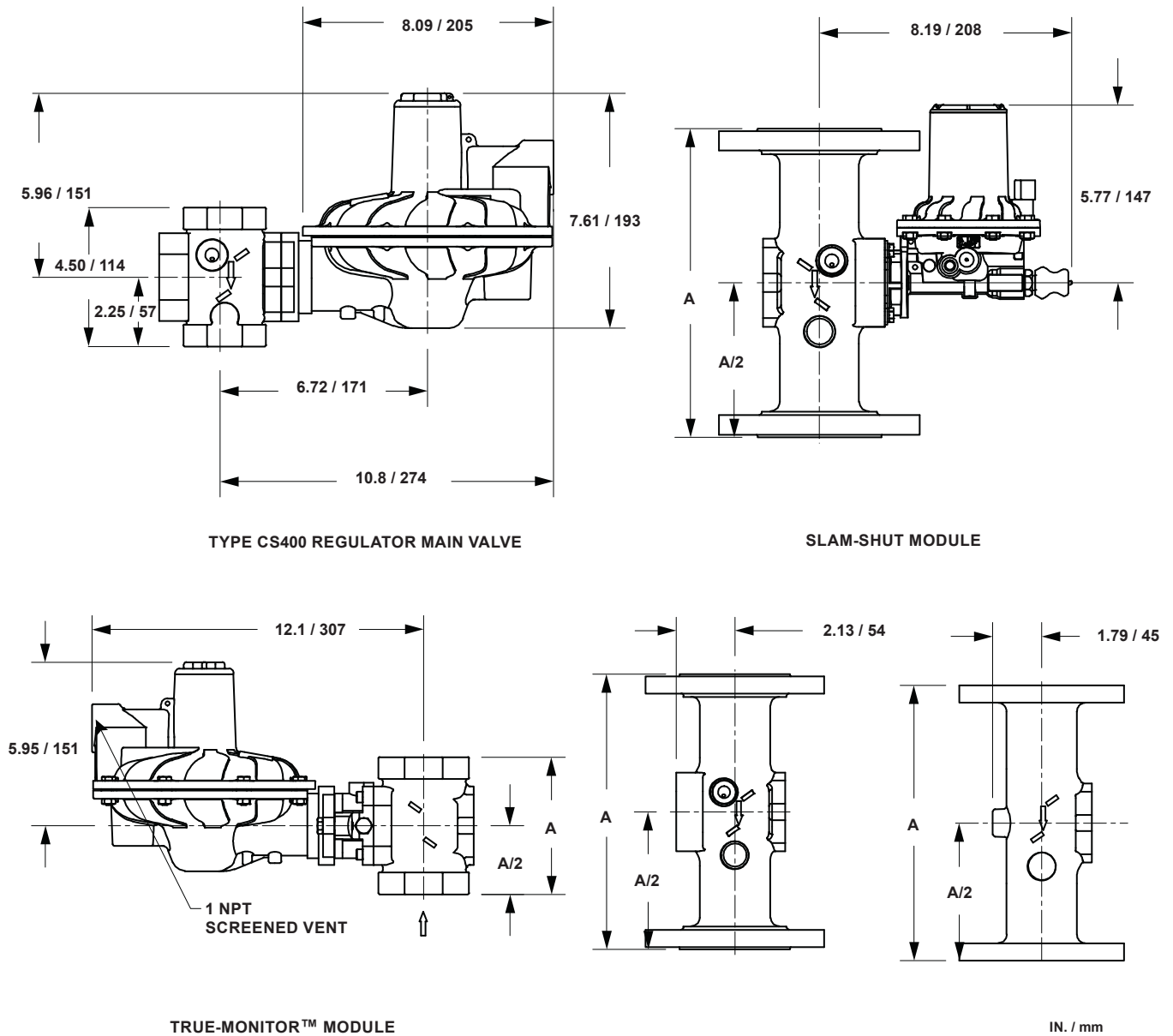
CS400 Series



GE26479-A_S6

CHOOSE VENT AND BODY POSITION FOR THE TYPES CS403 AND CS404 IN THE SAME MANNER AS FOR THE BASE TYPE CS400 REGULATOR. THE VENT OF THE INTEGRAL MONITOR OR SLAM SHUT WILL BE ORIENTED IN THE SAME DIRECTION AS THE PRIMARY REGULATOR. BODY POSITION WILL ALSO BE BASED ON PRIMARY REGULATOR AS THE SPRING BARREL OF THE INTEGRAL MONITOR OR SLAM SHUT WILL POINT THE SAME DIRECTION AS THE PRIMARY REGULATOR.

Figure 16. Body Orientation



GE34266

Figure 17. Dimensions

Table 72. Dimensions

| BODY SIZE | END CONNECTION STYLES | | | | | |
|---------------|-----------------------|-----|-------------------|-----|-------|-----|
| | A | | | | | |
| | NPT / Rp | | CL125 FF/CL150 FF | | PN 16 | |
| | in. | mm | in. | mm | in. | mm |
| 1-1/4 | 4.49 | 114 | ---- | | ---- | |
| 1-1/2 | | | | | | |
| 1 | 3.94 | 100 | ---- | | ---- | |
| 2 | 5 | 127 | ---- | | ---- | |
| NPS 2 / DN 50 | ---- | | 10 | 254 | 10 | 254 |

CS400 Series

Ordering Guide

Type (See Figure 3 for Construction Features)

(Select One)

Stand-Alone Regulator

- CS400IN
- CS400IR
- CS400IT
- CS400EN
- CS400ET

With Integral True-Monitor™ Module

- CS403IN
- CS403IT
- CS403EN
- CS403ET

With Type VSX4 Slam-shut Module

- CS404IN
- CS404IR
- CS404IT
- CS404EN
- CS404ET

Body Size, Material and End Connection (Select One)

Cast Iron (Type CS400 Only)

- 1-1/4 NPT***
- 1-1/4 x 1-1/2 NPT***
- 1-1/2 NPT***
- 2 NPT***
- NPS 2 / DN 50, CL125 FF***

Ductile Iron (All Types)

- 1-1/4 NPT***
- 1-1/2 NPT***
- 2 NPT***
- Rp 1-1/4***
- Rp 1-1/2***
- Rp 2***
- NPS 2, CL125 FF/CL150 FF***
- DN 50, PN 10/16***

Steel (All Types)

- 1-1/4 NPT***
- 1-1/2 NPT***
- Rp 1-1/4***
- Rp 1-1/2***

Outlet Pressure Range (Select One)

- 3.5 to 5 in. w.c. / 9 to 12 mbar, Red
- 4.5 to 6.5 in. w.c. / 11 to 16 mbar, Purple
- 6 to 8 in. w.c. / 15 to 20 mbar, Gold
- 7.5 to 11 in. w.c. / 19 to 27 mbar, Blue
- 10 to 14 in. w.c. / 25 to 35 mbar, Unpainted
- 12 to 19 in. w.c. / 30 to 47 mbar, Green
- 18 to 28 in. w.c. / 45 to 69 mbar, Orange
- 1 to 2 psig / 69 to 138 mbar, Black
- 2 to 5.5 psig / 138 to 380 mbar, Yellow

Orifice Size (Select One)

- 3/16 in. / 4.8 mm
- 7/32 in. x 1/4 in. / 5.5 x 6.4 mm
- 1/4 in. / 6.4 mm
- 5/16 in. / 7.9 mm
- 3/8 in. / 9.5 mm
- 1/2 in. / 13 mm
- 5/8 in. / 16 mm
- 3/4 in. / 19 mm

Body Orientation (Select One)

- Position 1***
- Position 2***
- Position 3 (standard)***
- Position 4***

Vent Orientation (Select One)

- Position C***
- Position D***
- Position E***
- Position F (standard)***

- continued -

Ordering Guide (continued)

| Regulators Quick Order Guide | |
|---|--|
| *** | Readily Available for Shipment |
| ** | Allow Additional Time for Shipment |
| * | Special Order, Constructed from Non-Stocked Parts. Consult your local Sales Office for Availability. |
| Availability of the product being ordered is determined by the component with the longest shipping time for the requested construction. | |

| Specification Worksheet |
|---|
| <p>Application: Specific Use _____ Line Size _____ Gas Type and Specific Gravity _____ Gas Temperature _____ Does the Application Require Overpressure Protection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, which is preferred: <input type="checkbox"/> Relief Valve <input type="checkbox"/> Monitor Regulator <input type="checkbox"/> Shut-off Device Is overpressure protection equipment selection assistance desired? _____</p> |
| <p>Pressure: Maximum Inlet Pressure (P_{1max}) _____ Minimum Inlet Pressure (P_{1min}) _____ Downstream Pressure Setting(s) (P_2) _____ Maximum Flow (Q_{max}) _____</p> |
| <p>Performance Required: Accuracy Requirements? _____ Need for Fast Response? _____</p> |
| <p>Other Requirements: _____ _____ _____</p> |

CS400 Series

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