

# CS400 Series Commercial / Industrial Pressure Reducing Regulators

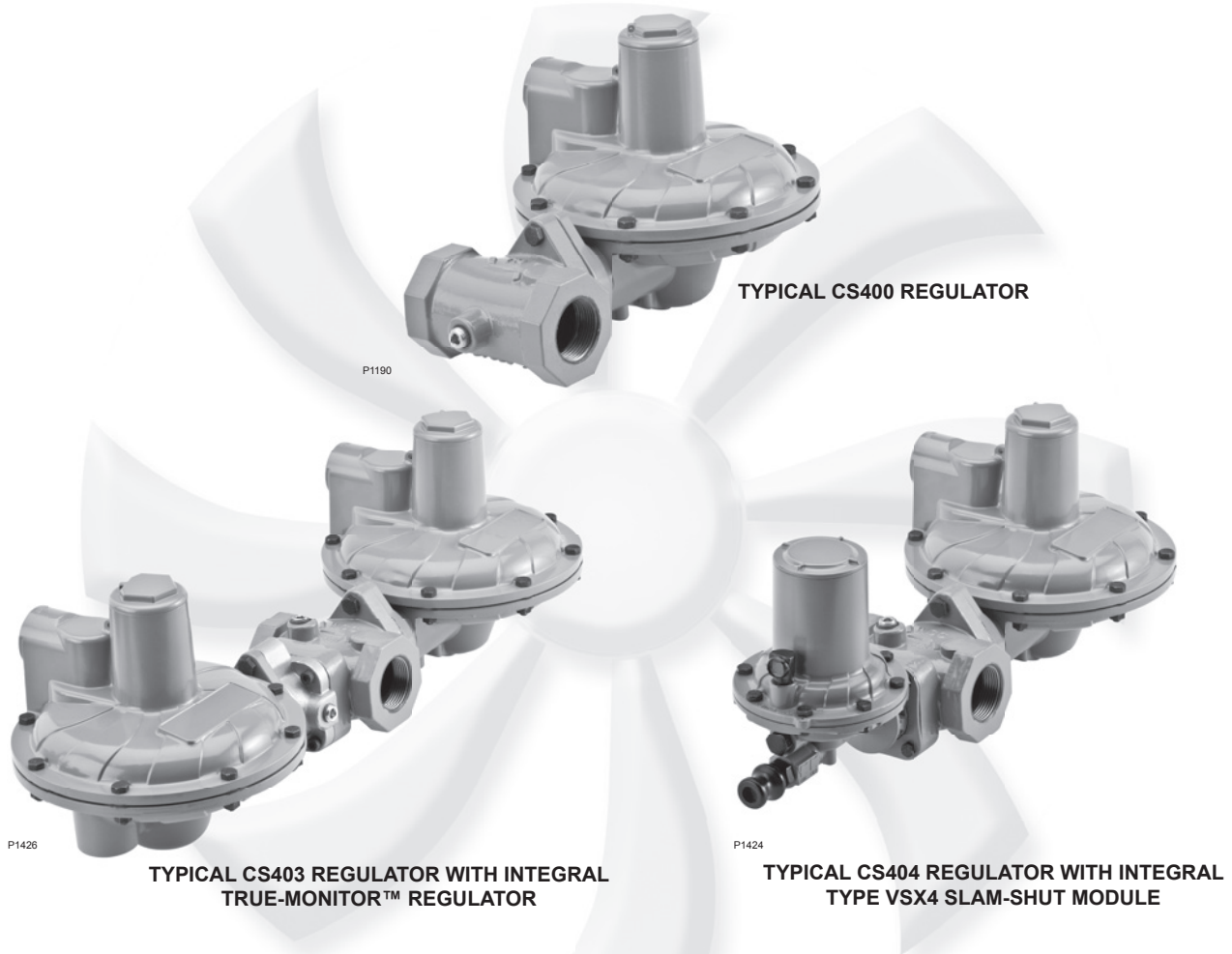
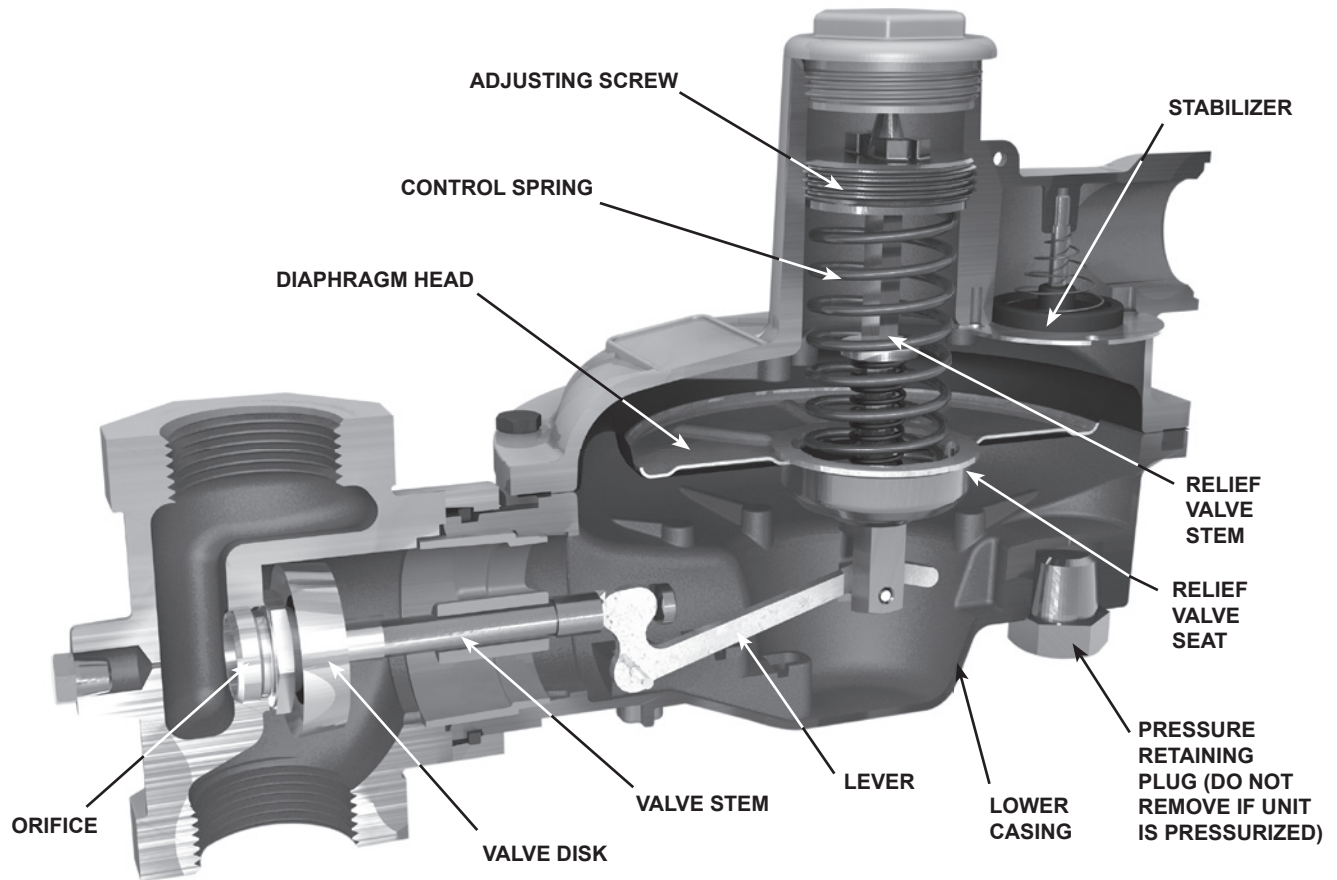


Figure 1. Typical CS400 Pressure Reducing Regulator

## 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 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

### Available Configurations

See Figure 3

### Body Sizes, Material, End Connections, and Pressure Rating<sup>(1)</sup>

See Table 1

### Inlet Pressures<sup>(1)</sup>

**Emergency:** 175 psig / 12.1 bar

**Operating:** See Table 2

### Maximum Outlet Pressure<sup>(1)</sup>

**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<sup>(1)</sup>

3.5-inches 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

### Temperature Capabilities<sup>(1)(2)</sup>

-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-inch / 1.37 mm

### TM600 Series True-Monitor™ Performance<sup>(1)</sup>

#### Inlet Pressure Ratings

*Maximum Operating:* Up to 125 psig / 8.6 bar

*Maximum Emergency:* 175 psig / 12.1 bar

#### Outlet Pressure Range:

11-inches 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, Spring Case*

*Diaphragm Plate:* Zinc-plated Steel

*Valve Stem:* Aluminum

*Orifice:* Aluminum

*Pusher Post or Relief Valve Seat:* Zinc-plated steel

*Diaphragm and Disk:* Nitrile (NBR)

*Control Spring:* Music Wire or Stainless steel

*Relief Valve Spring:* Stainless steel

*Relief Valve Spring Retainer:* Aluminum

*Vent Screen:* 18-8 Stainless steel

*Vent Retaining Ring:* Zinc-plated steel

*Lever Pin:* 18-8 Stainless steel

*Spring Seat, Lever, Other Metal Parts:* Steel

#### Type TM600 True-Monitor Actuator

*Diaphragm Case, Spring Case, Disk Housing,*

*Diaphragm Upper Retainer, Diaphragm Plate:*

Zinc-Plated Steel

*Valve Stem:* Aluminum

*Diaphragm:* Nitrile (NBR)

*Disk holder, 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.

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## Specifications (Continued)

|  |   |
|--|---|
| <p><b>Type TM600 True-Monitor™ Actuator (continued)</b><br/> <i>Monitor Stem:</i> 302 Stainless<br/> <i>Middle Diaphragm Retainer:</i> Zinc-plated steel<br/> <i>Control Spring:</i> 302 Stainless steel<br/> <i>Vent Screen:</i> 18-8 Stainless steel<br/> <i>Vent Retaining Ring:</i> Zinc-plated steel<br/> <i>Closing Cap:</i> Aluminum<br/> <i>Adjusting Screw:</i> Aluminum<br/> <i>O-rings:</i> Nitrile (NBR)</p> <p><b>Type VSX4 Slam-shut Device</b><br/> <i>Diaphragm Case, Spring Case, Diaphragm Plate, and Valve Stem:</i> Aluminum<br/> <i>Diaphragm and Disk:</i> Nitrile (NBR)<br/> <i>Control Spring:</i> Music Wire or 302 Stainless<br/> <i>Vent Screen:</i> 18-8 Stainless</p> | <p><b>Type VSX4 Slam-shut Device (continued)</b><br/> <i>Vent Screen Retainer:</i> Zinc-plated steel<br/> <i>Closing Cap:</i> Aluminum<br/> <i>Adjusting Screw:</i> Aluminum</p> <p><b>Approximate Weights</b><br/> <b>With Threaded Body</b><br/> <i>Type CS400:</i> 9 pounds / 4 kg<br/> <i>Type CS403:</i> 18.5 pounds / 8 kg<br/> <i>Type CS404:</i> 11.2 pounds / 5 kg<br/> <b>With Flanged Body</b><br/>                     Add 8.6 pounds / 4 kg to weights listed</p> <p><b>Designed, Tested, and Evaluated Consistent With:</b><br/>                     ASME B16, ASME Section VIII DIV I, ASTM B117<br/>                     (Corrosion Resistance)</p> |
|--|---|

| TYPE NUMBER   |   |   |   |   | OPTIONS |  |
|---|---|---|---|---|---------|--|
| C   | S | 4 | 0 |   |         |  |
|   |   |   |   |   |         | <b>OVERPRESSURE PROTECTION MODULE</b>          |
|   |   |   | 0 |   |         | Without Overpressure Protection Module         |
|   |   |   | 3 |   |         | With Integral Monitor Module <sup>(1)(2)</sup> |
|   |   |   | 4 |   |         | With Slam-shut Module <sup>(3)</sup>           |
|   |   |   |   |   |         | <b>PRESSURE REGISTRATION</b>                   |
|   |   |   |   | E |         | External Registration <sup>(3)</sup>           |
|   |   |   |   | I |         | Internal Registration                          |
|   |   |   |   |   |         | <b>RELIEF</b>                                  |
|   |   |   |   | N |         | Non-Relief                                     |
|   |   |   |   | T |         | Token Internal Relief                          |
|   |   |   |   | R |         | Internal Relief                                |
| Example: Type number <b>CS404IT</b> : 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.<br>2. Reference Instruction Manual D103127X012 for information regarding the Type VSX4 safety shut-off module.<br>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 |      |
|-------------------|---------------|---------------|----------------|------------------------|-----|----------------------|------|
|                   |               |               |                | Inches                 | 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             |                |                        |     |                      |      |
|                   | NPS 2 / DN 50 | NPS 2 / DN 50 | 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  |                      |      |
|                   |               |               | PN 10/16       | 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**

| TYPES                         | ORIFICE SIZE |     | MAXIMUM OPERATING INLET PRESSURE TO OBTAIN OPTIMUM PERFORMANCE |     | FLOW COEFFICIENTS (WIDE-OPEN) |                | C <sub>1</sub> | IEC SIZING COEFFICIENTS |                |                |
|-------------------------------|--------------|-----|--|-----|-------------------------------|----------------|----------------|-------------------------|----------------|----------------|
|                               | Inches       | mm  | psig   | bar | C <sub>g</sub>                | C <sub>v</sub> |                | X <sub>T</sub>          | F <sub>L</sub> | F <sub>D</sub> |
| CS400,<br>CS403, and<br>CS404 | 3/16         | 4.8 | 125  | 8.6 | 27                            | 0.97           | 27.7           | 0.50                    | 0.89           | 0.91           |
|                               | 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          | 9.5 | 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           |

**Table 3. Outlet Pressure Ranges**

| TYPES                            | OUTLET PRESSURE RANGE    |                | PART NUMBER | SPRING COLOR | SPRING WIRE DIAMETER |      | SPRING FREE LENGTH |     |
|----------------------------------|--------------------------|----------------|-------------|--------------|----------------------|------|--------------------|-----|
|                                  | Inches                   | mm             |             |              | Inches               | mm   | Inches             | mm  |
| CS400,<br>CS403,<br>and<br>CS404 | 3.5 to 5-inches w.c.     | 9 to 12 mbar   | GE30198X012 | Red          | 0.098                | 2.49 | 4.18               | 106 |
|                                  | 4.5 to 6.5-inches w.c.   | 11 to 16 mbar  | GE30195X012 | Purple       | 0.080                | 2.03 | 4.32               | 110 |
|                                  | 6 to 8-inches w.c.       | 15 to 20 mbar  | GE30188X012 | Gold         | 0.108                | 2.74 | 4.18               | 106 |
|                                  | 7.5 to 11-inches w.c.    | 19 to 27 mbar  | GE30189X012 | Blue         | 0.110                | 2.80 | 4.40               | 112 |
|                                  | 10 to 14-inches w.c.     | 25 to 35 mbar  | GE30224X012 | Unpainted    |                      |      |                    |     |
|                                  | 12 to 19-inches w.c.     | 30 to 47 mbar  | GE30196X012 | Green        | 0.112                | 2.85 | 4.70               | 119 |
|                                  | 18-inches 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**

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

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

| Type   | PRIMARY REGULATOR |             |                    |              | INTEGRAL MONITOR        |             |                              |                                  |              |
|--------|-------------------|-------------|--------------------|--------------|-------------------------|-------------|------------------------------|----------------------------------|--------------|
|        | Setpoint          |             | Spring Part Number | Spring Color | Setpoint <sup>(1)</sup> |             | Spring Part Number           | Spring Range, Inches w.c. / mbar | Spring Color |
|        | Inches w.c.       | mbar        |                    |              | Inches 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-inches w.c. / 17 mbar, the Integral Monitor can also be set at 14, 21-inches 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, Inches w.c. / mbar | Spring Range, Inches w.c. / mbar | Overpressure Shutoff (OPSO)                         |                                  |                    |
|                |                              |                                  | Factory Setpoint, Inches w.c. / mbar <sup>(1)</sup> | Spring Range, Inches w.c. / mbar | Spring Part Number |
| CS404          | 4 / 10                       | 3.5 to 5 / 9 to 13               | 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 28             | 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 48      | 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                  | 1 to 2 psig / 69 to 138          | 2.5 psig / 172                                      | 1.4 to 4.1 psig / 95 to 280      | GF02171X012        |
|                | 1.5 psig / 103               |                                  | 3.0 psig / 207                                      |                                  |                    |
|                | 2 psig / 138                 |                                  | 3.5 psig / 241                                      |                                  |                    |
|                | 3 psig / 207                 | 2 to 5.5 psig / 138 to 380       | 6.3 psig / 434                                      | 3.2 to 11 psig / 220 to 760      | GF02173X012        |
|                | 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 <sup>(1)</sup> | Range, psig / mbar      | Spring Part Number | Typical Setpoint, psig / mbar <sup>(1)</sup> | 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                                    |                         | GF02170X012        |  |                         | 0.73 / 50          |
|       | 2 / 138               |                            | 3.5 / 241                                    | 3.8 to 8.7 / 260 to 600 | GF02171X012        | 1.75 / 121                                   | 1.5 to 7.3 / 100 to 500 | FA142869X12        |
|       | 3 / 207               | 6.3 / 434                  | 5.8 to 16 / 400 to 1100                      |                         | GF02172X012        | 2 / 140                                      |                         |                    |
|       | 4 / 276               | 7.3 / 503                  |  | 2.9 / 200               |                    |  |                         |                    |
|       | 5 / 345               | 2 to 5.5 psig / 138 to 380 | 8.3 / 572                                    | 3.6 / 250               |                    |  |                         |                    |
|       | 5.5 / 380             |                            | 8.8 / 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.

## 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-inches w.c. / 17 to 70 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.

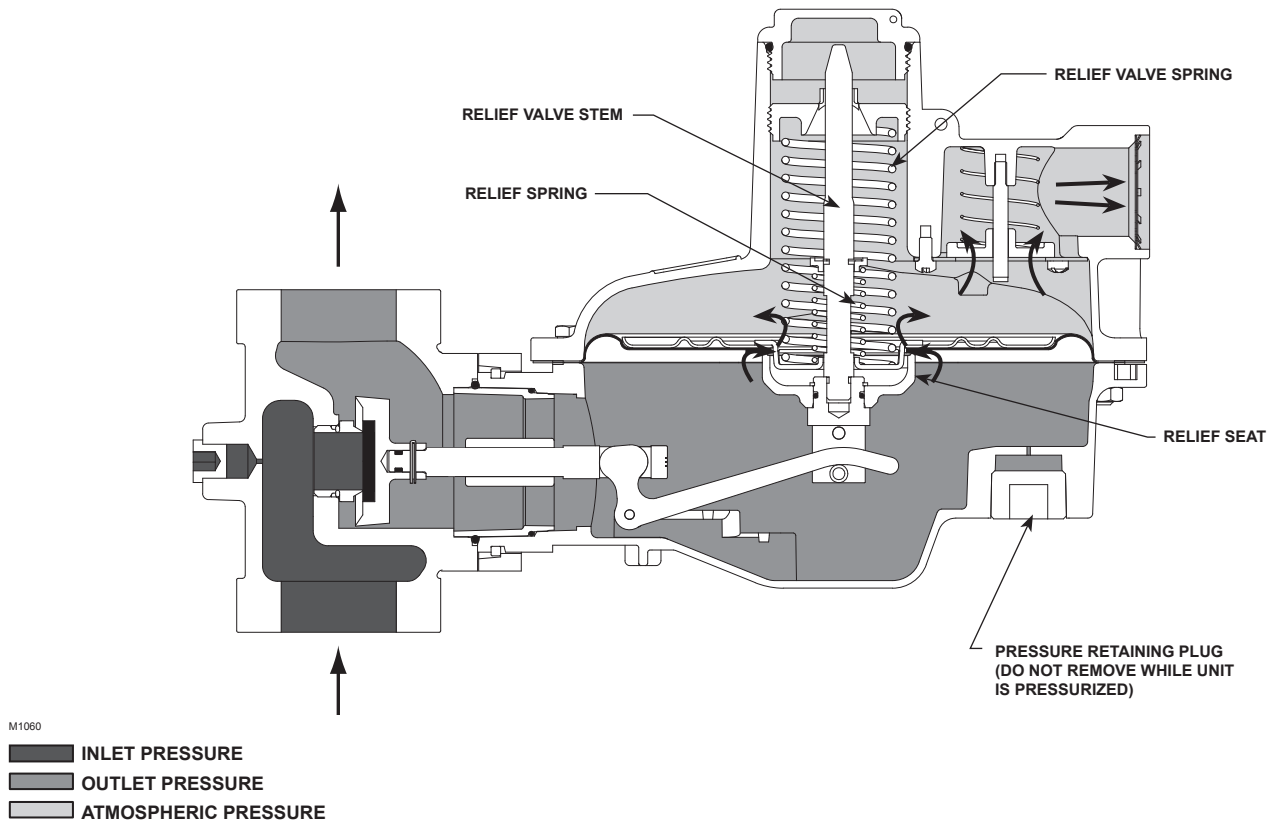


Figure 4. Type CS400IR Internally Registered Regulator with Internal Relief Operational Schematic

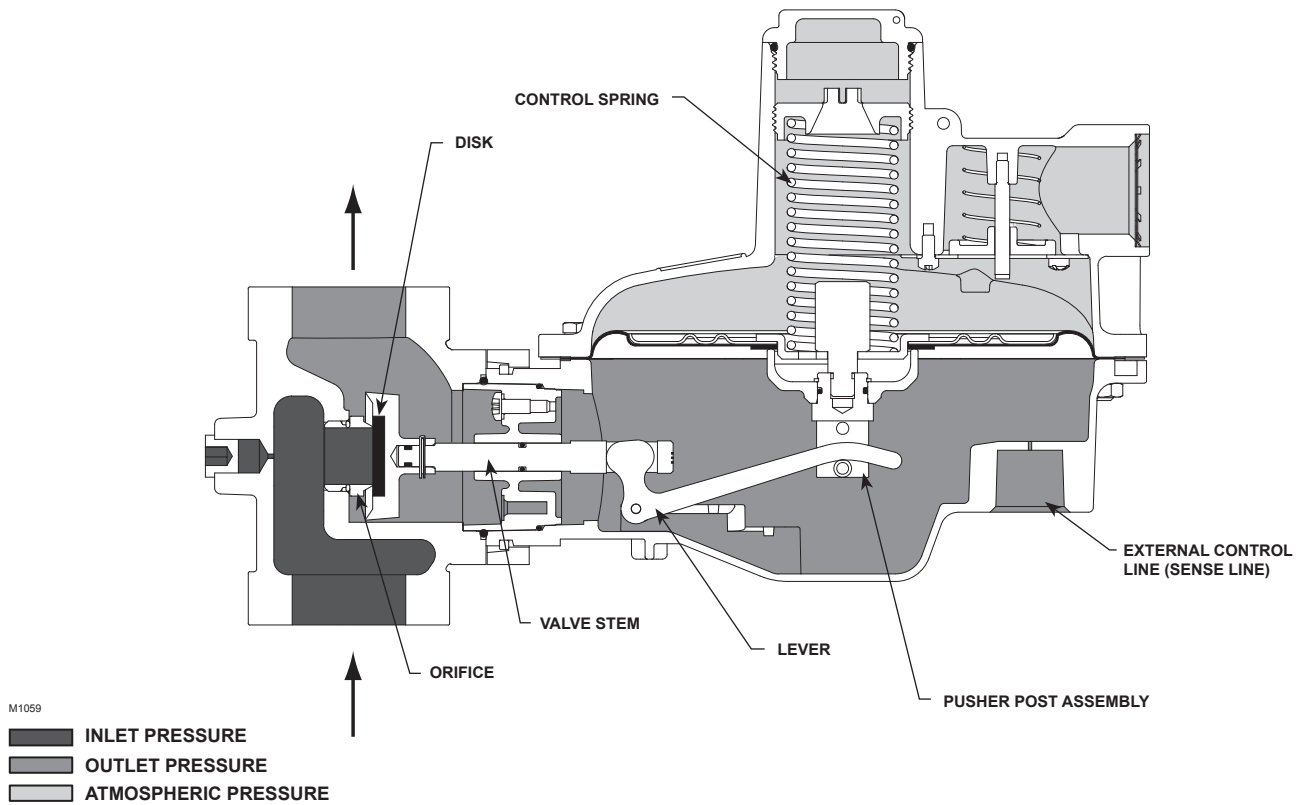


Figure 5. Type CS400ER Externally Registered Regulator Operational Schematic



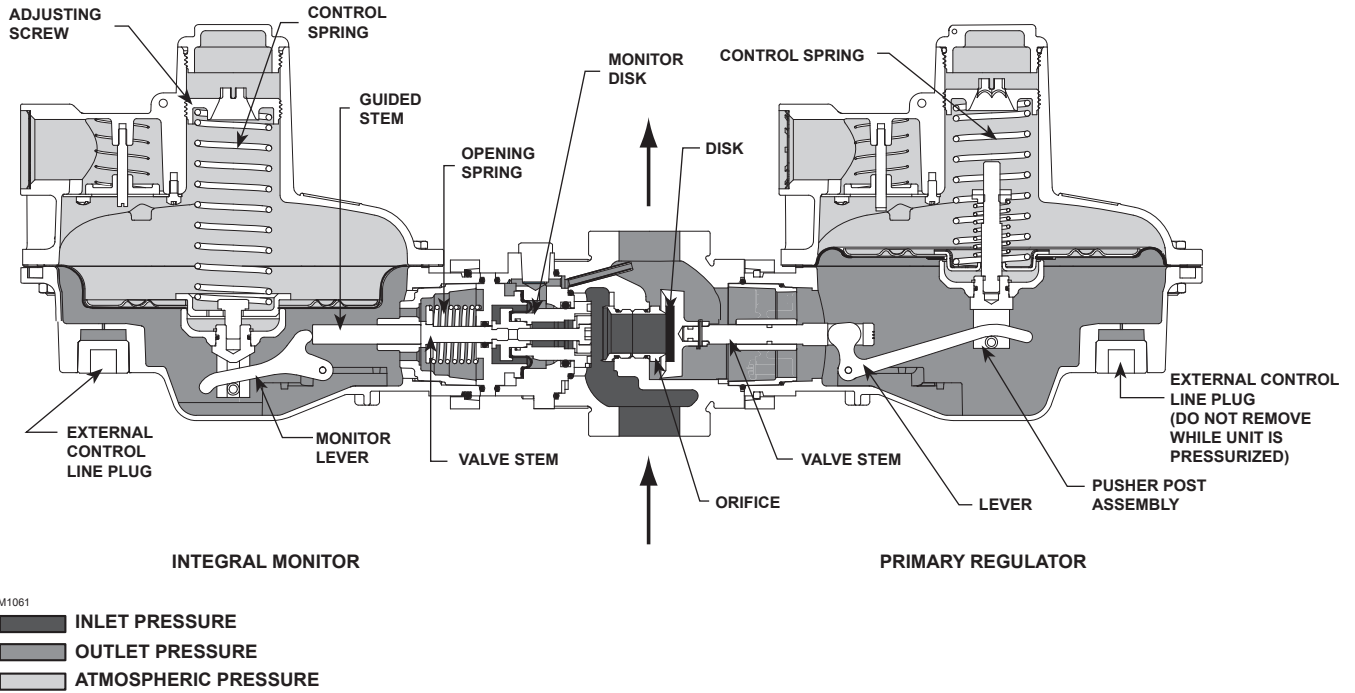


Figure 6. Type CS403, Internally Registered Primary Regulator with Internally Registered Integral Monitor Operational Schematic

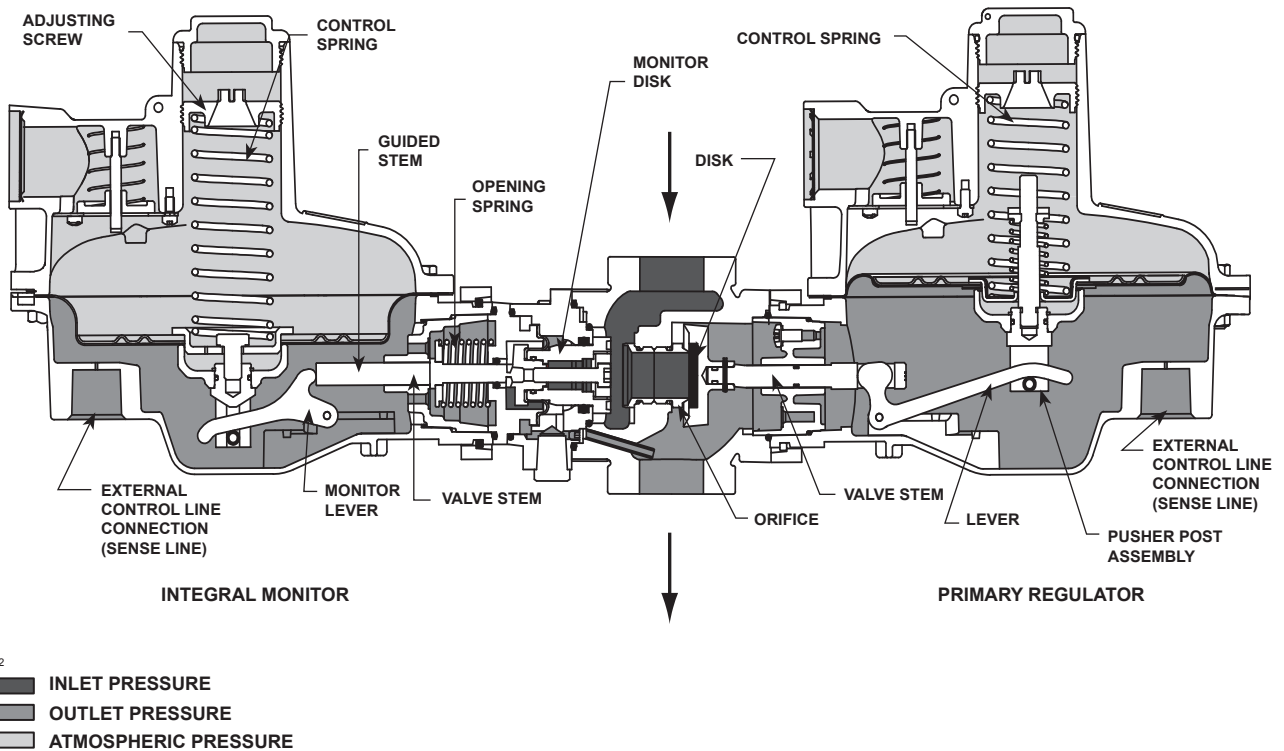


Figure 7. Type CS403, Externally Registered Primary Regulator with Externally Registered Integral Monitor Operational Schematic

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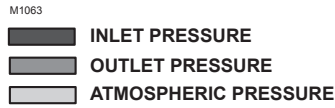
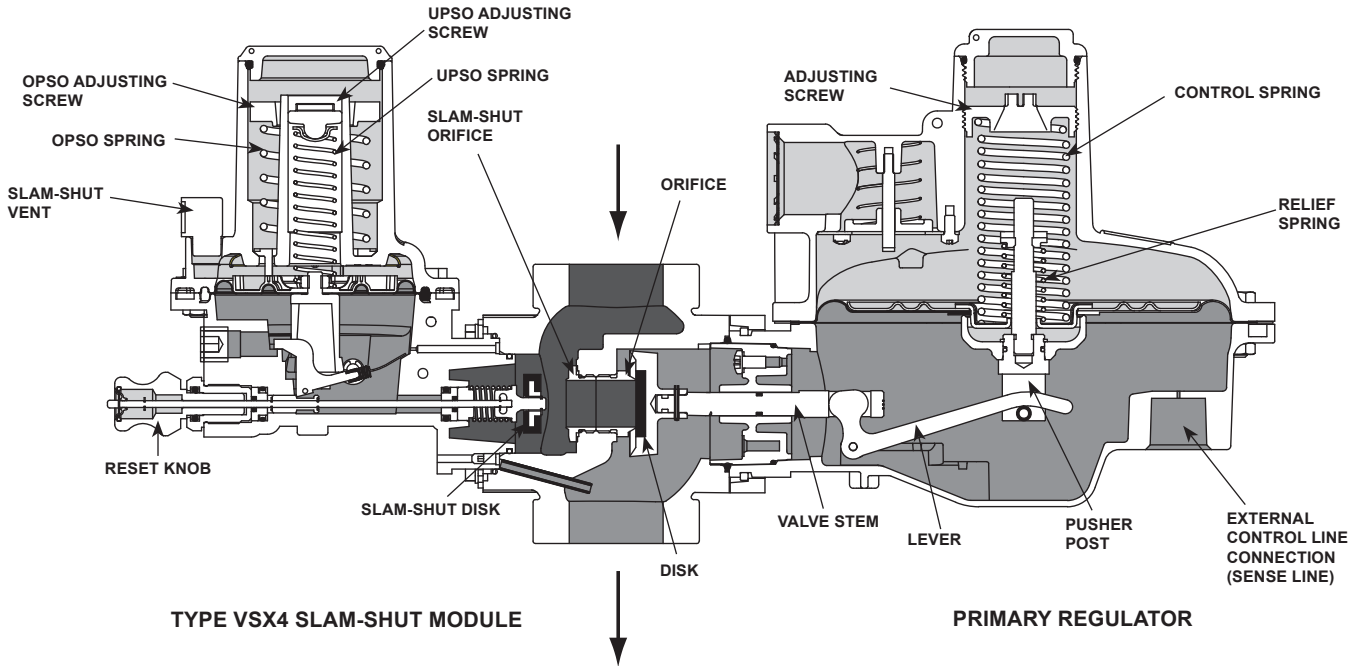


Figure 8. Type CS404ET Externally Registered Regulator with Slam-shut Operational Schematic

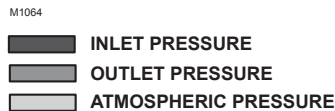
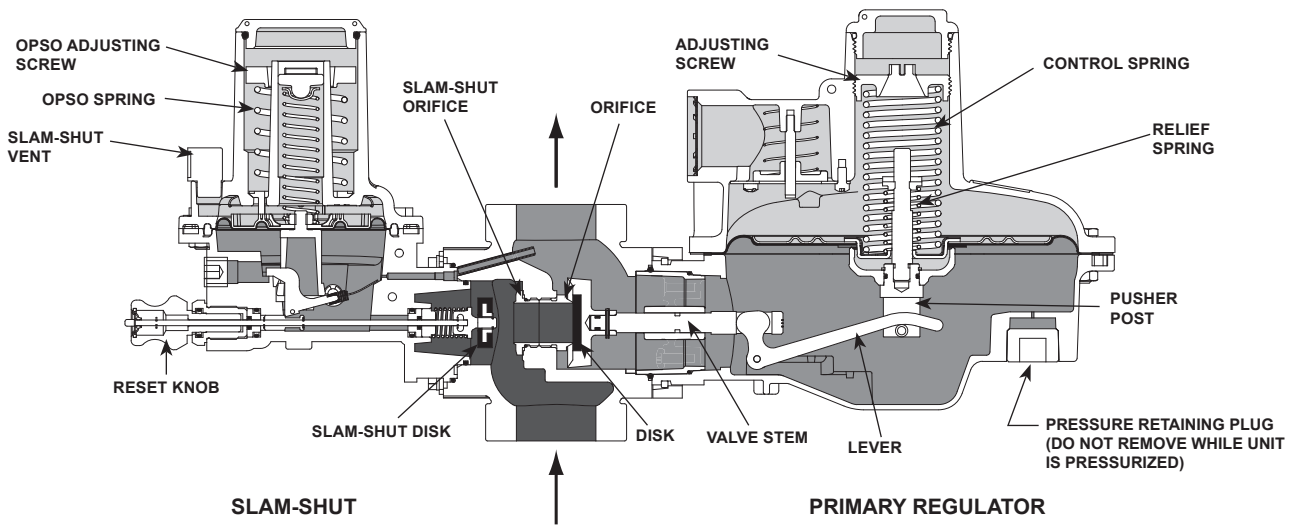


Figure 9. Type CS404IT Internally Registered Regulator with Slam-shut Operational Schematic

## 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.

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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/UPSO) 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 Nm<sup>3</sup>/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

$\Delta P$  = 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-inches w.c. / 17 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 100                       | 2.6                | 160   | 4.2                | 200   | 5.3                | 290   | 7.7                | 370   | 9.9                | 630   | 16.9               | 560   | 15.0               |
| 1   | 0.07 | 170                       | 4.5                | 250   | 6.7                | 330   | 8.8                | 630   | 16.9               | 650   | 17.4               | 660   | 17.7               | 730   | 19.5               |
| 2   | 0.14 | 260                       | 6.9                | 510   | 13.6               | 770   | 20.6               | 660   | 17.7               | 880   | 23.6               | 1,100 | 29.5               | 1,200 | 32.2               |
| 3   | 0.21 | 390                       | 10.4               | 690   | 18.5               | 710   | 19.0               | 860   | 23.0               | 1,100 | 29.5               | 1,700 | 45.6               | 1,800 | 48.3               |
| 5   | 0.34 | 500                       | 13.4               | 800   | 21.4               | 970   | 26.0               | 1,300 | 34.8               | 1,600 | 42.9               | 2,700 | 72.4               | 3,200 | 85.9               |
| 10  | 0.69 | 750                       | 20.1               | 1,200 | 32.2               | 1,900 | 51.0               | 2,500 | 67.1               | 3,300 | 88.5               | 3,300 | 88.5               | 3,900 | 105                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,700 | 45.6               | 2,800 | 75.1               | 3,200 | 85.9               | 3,300 | 88.5               | 3,300 | 88.5               | 3,900 | 105                |
| 20  | 1.4  | 1,100                     | 29.5               | 1,900 | 51.0               | 3,200 | 85.9               | 3,200 | 85.9               | 3,300 | 88.5               | 3,300 | 88.5               | 3,900 | 105                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 3,300 | 88.5               | 2,400 | 64.4               | 2,700 | 72.4               | 3,300 | 88.5               |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 2,800 | 75.1               | 2,000 | 53.6               | 2,100 | 56.3               | 1,700 | 45.6               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 2,800 | 75.1               | 2,000 | 53.6               | 1,600 | 42.9               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 1,900 | 51.0               | 1,500 | 40.2               | 1,600 | 42.9               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 1,900 | 51.0               | 1,500 | 40.2               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,700                     | 45.6               | 1,900 | 51.0               | 1,500 | 40.2               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,700                     | 45.6               | 1,900 | 51.0               |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 120                       | 3.2                | 210   | 5.6                | 220   | 5.9                | 280   | 7.5                | 340   | 9.1                | 470   | 12.6               | 720   | 19.3               |
| 1   | 0.07 | 170                       | 4.5                | 260   | 6.9                | 330   | 8.8                | 620   | 16.6               | 840   | 22.5               | 620   | 16.6               | 740   | 19.8               |
| 2   | 0.14 | 260                       | 6.9                | 500   | 13.4               | 770   | 20.6               | 730   | 19.5               | 850   | 22.8               | 1,100 | 29.5               | 1,300 | 34.8               |
| 3   | 0.21 | 310                       | 8.3                | 680   | 18.2               | 780   | 20.9               | 980   | 26.3               | 1,200 | 32.2               | 1,400 | 37.5               | 1,800 | 48.3               |
| 5   | 0.34 | 540                       | 14.4               | 940   | 25.2               | 950   | 25.5               | 1,300 | 34.8               | 2,300 | 61.7               | 3,300 | 88.5               | 4,400 | 118                |
| 10  | 0.69 | 770                       | 20.6               | 1,200 | 32.2               | 2,000 | 53.6               | 3,000 | 80.5               | 3,300 | 88.5               | 4,300 | 115                | 4,400 | 118                |
| 15  | 1.0  | 990                       | 26.5               | 1,800 | 48.3               | 2,900 | 77.8               | 3,300 | 88.5               | 3,300 | 88.5               | 4,300 | 115                | 4,400 | 118                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 3,300 | 88.5               | 3,300 | 88.5               | 4,300 | 115                | 4,400 | 118                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,300 | 61.7               | 3,300 | 88.5               | 3,300 | 88.5               | 2,500 | 67.1               | 2,800 | 75.1               |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 2,500 | 67.1               | 3,300 | 88.5               | 2,500 | 67.1               | 2,500 | 67.1               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 1,900 | 51.0               | 2,900 | 77.8               | 2,200 | 59.0               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,200                     | 59.0               | 1,800 | 48.3               | 2,500 | 67.1               | 2,000 | 53.6               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,200                     | 59.0               | 1,800 | 48.3               | 2,200 | 59.0               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,800                     | 48.3               | 1,800 | 48.3               | 2,200 | 59.0               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,600                     | 42.9               | 1,800 | 48.3               |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 130                       | 3.4                | 200   | 5.3                | 260   | 6.9                | 260   | 6.9                | 420   | 11.2               | 380   | 10.2               | 750   | 20.1               |
| 1   | 0.07 | 160                       | 4.2                | 280   | 7.5                | 330   | 8.8                | 590   | 15.8               | 610   | 16.3               | 660   | 17.7               | 760   | 20.4               |
| 2   | 0.14 | 240                       | 6.4                | 400   | 10.7               | 700   | 18.7               | 610   | 16.3               | 840   | 22.5               | 1,100 | 29.5               | 1,100 | 29.5               |
| 3   | 0.21 | 320                       | 8.5                | 660   | 17.7               | 610   | 16.3               | 850   | 22.8               | 1,100 | 29.5               | 1,500 | 40.2               | 1,700 | 45.6               |
| 5   | 0.34 | 540                       | 14.4               | 730   | 19.5               | 790   | 21.2               | 1,100 | 29.5               | 1,900 | 51.0               | 2,400 | 64.4               | 2,700 | 72.4               |
| 10  | 0.69 | 700                       | 18.7               | 1,200 | 32.2               | 1,500 | 40.2               | 2,400 | 64.4               | 4,000 | 107                | 4,400 | 118                | 4,400 | 118                |
| 15  | 1.0  | 980                       | 26.3               | 1,700 | 45.6               | 2,500 | 67.1               | 3,500 | 93.9               | 4,200 | 113                | 4,400 | 118                | 4,400 | 118                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 3,500 | 93.9               | 4,400 | 118                | 4,400 | 118                | 4,400 | 118                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,600 | 69.7               | 3,300 | 88.5               | 3,500 | 93.9               | 4,400 | 118                | 4,400 | 118                | 4,400 | 118                |
| 40  | 2.8  | 1,900                     | 51.0               | 3,200 | 85.9               | 3,300 | 88.5               | 3,100 | 83.2               | 3,200 | 85.9               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,200 | 85.9               | 3,200 | 85.9               | 2,800 | 75.1               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 3,200 | 85.9               | 3,000 | 80.5               | 2,500 | 67.1               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 3,000 | 80.5               | 2,900 | 77.8               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,100                     | 83.2               | 3,000 | 80.5               | 2,900 | 77.8               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,100                     | 83.2               | 2,800 | 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.

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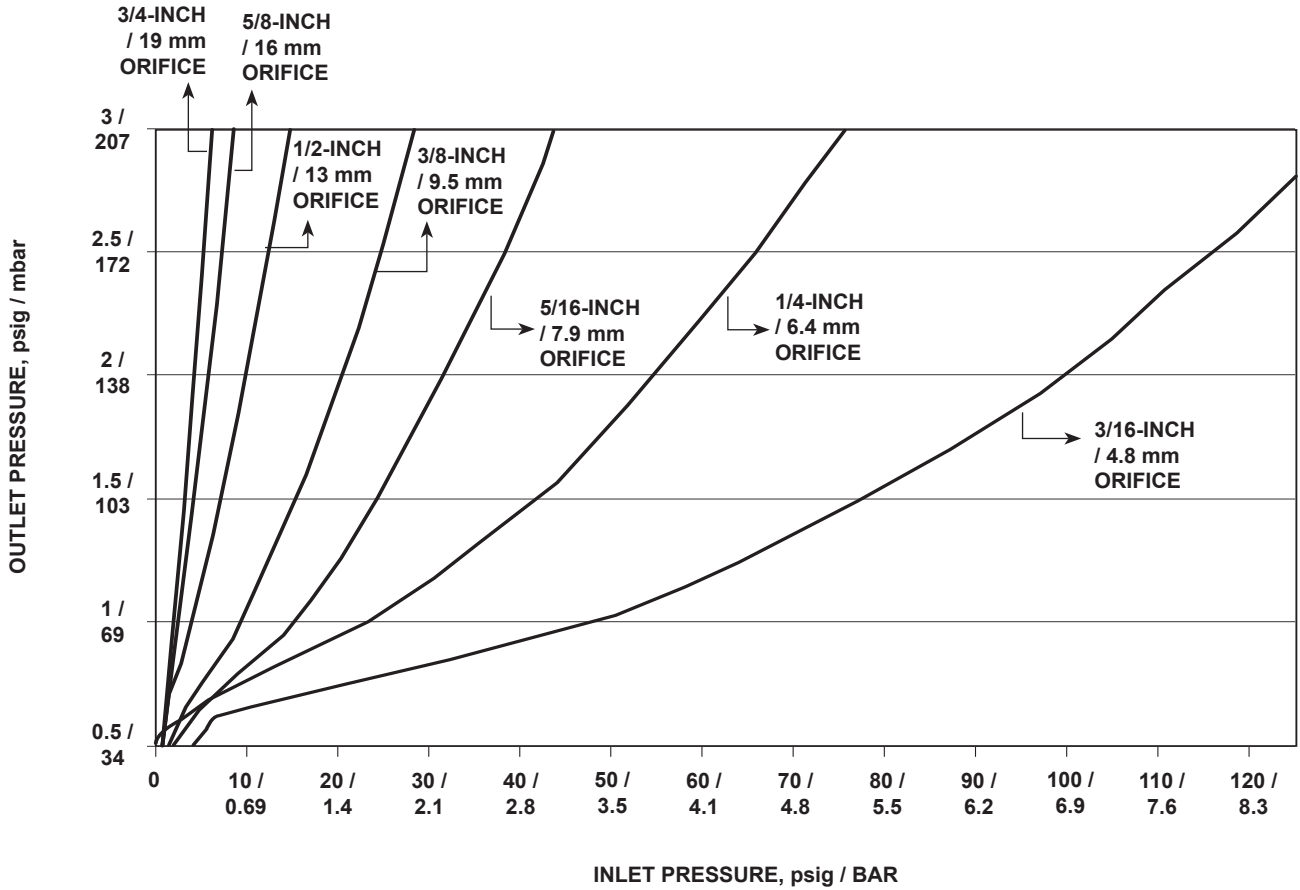


Figure 10. Type CS400IR Relief Curves (Blocked per Orifice Size) at 7-inches w.c. / 17 mbar Set Pressure

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

| ORIFICE SIZE |     | REGULATOR SET PRESSURE |      | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW <sup>(1)</sup> |      |                   |     |
|--------------|-----|------------------------|------|---|------|-------------------|-----|
|              |     |                        |      | 1 psig / 69 mbar  |      | 2 psig / 138 mbar |     |
| Inches       | mm  | Inches w.c.            | mbar | psig  | bar  | psig              | bar |
| 3/16         | 4.8 | 7                      | 17   | 46  | 3.2  | 100               | 6.9 |
| 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-inches w.c. / 27 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 150                       | 4.0                | 220   | 5.9                | 300   | 8.0                | 320   | 8.5                | 530   | 14.2               | 710   | 19.0               | 550   | 14.7               |
| 1   | 0.07 | 210                       | 5.6                | 320   | 8.5                | 680   | 18.2               | 700   | 18.7               | 840   | 22.5               | 810   | 21.7               | 1,000 | 26.8               |
| 2   | 0.14 | 320                       | 8.5                | 600   | 16.1               | 940   | 25.2               | 920   | 24.6               | 1,100 | 29.5               | 1,500 | 40.2               | 1,600 | 42.9               |
| 3   | 0.21 | 450                       | 12.0               | 700   | 18.7               | 1,100 | 29.5               | 1,100 | 29.5               | 1,500 | 40.2               | 2,000 | 53.6               | 2,300 | 61.7               |
| 5   | 0.34 | 540                       | 14.4               | 920   | 24.6               | 1,200 | 32.2               | 1,500 | 40.2               | 2,100 | 56.3               | 2,900 | 77.8               | 3,200 | 85.9               |
| 10  | 0.69 | 780                       | 20.9               | 1,300 | 34.8               | 2,100 | 56.3               | 2,600 | 69.7               | 3,500 | 93.9               | 3,900 | 105                | 4,300 | 115                |
| 15  | 1.0  | 980                       | 26.3               | 1,700 | 45.6               | 2,800 | 75.1               | 3,400 | 91.2               | 3,500 | 93.9               | 3,900 | 105                | 4,300 | 115                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 3,400 | 91.2               | 3,400 | 91.2               | 3,500 | 93.9               | 2,200 | 59.0               | 4,300 | 115                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 3,400 | 91.2               | 3,400 | 91.2               | 3,500 | 93.9               | 2,200 | 59.0               |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 2,800 | 75.1               | 2,700 | 72.4               | 2,400 | 64.4               | 1,800 | 48.3               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 2,800 | 75.1               | 2,500 | 67.1               | 1,700 | 45.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 2,600 | 69.7               | 2,400 | 64.4               | 1,700 | 45.6               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,500                     | 67.1               | 2,000 | 53.6               | 2,400 | 64.4               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,700                     | 45.6               | 1,900 | 51.0               | 1,600 | 42.9               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,700                     | 45.6               | 1,900 | 51.0               |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 100                       | 2.6                | 160   | 4.2                | 240   | 6.4                | 340   | 9.1                | 410   | 11.0               | 530   | 14.2               | 690   | 18.5               |
| 1   | 0.07 | 170                       | 4.5                | 320   | 8.5                | 440   | 11.8               | 700   | 18.7               | 970   | 26.0               | 880   | 23.6               | 970   | 26.0               |
| 2   | 0.14 | 280                       | 7.5                | 550   | 14.7               | 840   | 22.5               | 970   | 26.0               | 1,200 | 32.2               | 1,500 | 40.2               | 2,000 | 53.6               |
| 3   | 0.21 | 410                       | 11.0               | 710   | 19.0               | 930   | 24.9               | 1,100 | 29.5               | 1,600 | 42.9               | 2,200 | 59.0               | 2,600 | 69.7               |
| 5   | 0.34 | 560                       | 15.0               | 970   | 26.0               | 1,200 | 32.2               | 1,700 | 45.6               | 2,700 | 72.4               | 3,500 | 93.9               | 3,500 | 93.9               |
| 10  | 0.69 | 800                       | 21.4               | 1,400 | 37.5               | 2,100 | 56.3               | 3,000 | 80.5               | 3,500 | 93.9               | 3,500 | 93.9               | 4,800 | 129                |
| 15  | 1.0  | 990                       | 26.5               | 1,800 | 48.3               | 2,900 | 77.8               | 3,300 | 88.5               | 3,500 | 93.9               | 3,500 | 93.9               | 4,800 | 129                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 3,300 | 88.5               | 3,500 | 93.9               | 3,500 | 93.9               | 4,900 | 134                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 3,300 | 88.5               | 3,300 | 88.5               | 2,500 | 67.1               | 1,900 | 51.0               |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,200 | 85.9               | 3,300 | 88.5               | 3,000 | 80.5               | 2,500 | 67.1               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,200 | 85.9               | 3,300 | 88.5               | 1,800 | 48.3               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 2,000 | 53.6               | 3,200 | 85.9               | 1,700 | 45.6               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,800                     | 75.1               | 2,000 | 53.6               | 1,900 | 51.0               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,800                     | 75.1               | 2,000 | 53.6               | 1,900 | 51.0               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 2,800                     | 75.1               | 2,000 | 53.6               |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 0.5   | 0.03 | 110                       | 2.9                | 200   | 5.3                | 270   | 7.2                | 340   | 9.1                | 420   | 11.2               | 620   | 16.6               | 870   | 23.3               |
| 1   | 0.07 | 190                       | 5.1                | 270   | 7.2                | 430   | 11.5               | 690   | 18.5               | 990   | 26.5               | 820   | 22.0               | 1,000 | 26.8               |
| 2   | 0.14 | 290                       | 7.7                | 530   | 14.2               | 800   | 21.4               | 940   | 25.2               | 1,100 | 29.5               | 1,400 | 37.5               | 1,700 | 45.6               |
| 3   | 0.21 | 410                       | 11.0               | 730   | 19.5               | 870   | 23.3               | 1,200 | 32.2               | 1,400 | 37.5               | 1,900 | 51.0               | 2,400 | 64.4               |
| 5   | 0.34 | 550                       | 14.7               | 920   | 24.6               | 1,100 | 29.5               | 1,500 | 40.2               | 2,200 | 59.0               | 3,100 | 83.2               | 3,500 | 93.9               |
| 10  | 0.69 | 790                       | 21.2               | 1,300 | 34.8               | 1,900 | 51.0               | 2,800 | 75.1               | 4,000 | 107                | 4,200 | 113                | 4,800 | 129                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 2,800 | 75.1               | 3,700 | 99.3               | 4,000 | 107                | 4,200 | 113                | 4,800 | 129                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 3,400 | 91.2               | 3,700 | 99.3               | 4,100 | 110                | 4,200 | 113                | 4,800 | 129                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 3,400 | 91.2               | 3,700 | 99.3               | 4,100 | 110                | 2,600 | 69.7               |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,200 | 85.9               | 3,400 | 91.2               | 3,200 | 85.9               | 3,000 | 80.5               |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,200 | 85.9               | 3,400 | 91.2               | 3,200 | 85.9               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 3,200 | 85.9               | 3,400 | 91.2               | 3,200 | 85.9               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 3,200 | 85.9               | 3,400 | 91.2               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,300                     | 88.5               | 3,200 | 85.9               | 3,000 | 80.5               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,300                     | 88.5               | 3,200 | 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.

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

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

| CAPACITIES IN SCFH / Nm³/h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--|------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Inlet Pressure   |      | Orifice Size, Inches / 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                      | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h |
| <b>Body Size: NPS 1-1/4</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1  | 0.07 | 190                       | 5.1   | 280   | 7.5   | 380   | 10.2  | 680   | 18.2  | 860   | 23.0  | 890   | 23.8  | 1,000 | 26.8  |
| 2  | 0.14 | 320                       | 8.5   | 540   | 14.4  | 770   | 20.6  | 910   | 24.4  | 1,100 | 29.5  | 1,300 | 34.8  | 1,700 | 45.6  |
| 3  | 0.21 | 390                       | 10.4  | 700   | 18.7  | 840   | 22.5  | 1,100 | 29.5  | 1,500 | 40.2  | 2,000 | 53.6  | 2,200 | 59.0  |
| 5  | 0.34 | 530                       | 14.2  | 880   | 23.6  | 1,100 | 29.5  | 1,500 | 40.2  | 2,100 | 56.3  | 2,700 | 72.4  | 3,100 | 83.2  |
| 10   | 0.69 | 770                       | 20.6  | 1,300 | 34.8  | 2,000 | 53.6  | 2,600 | 69.7  | 3,300 | 88.5  | 3,600 | 96.6  | 4,100 | 110   |
| 15   | 1.0  | 970                       | 26.0  | 1,700 | 45.6  | 2,600 | 69.7  | 3,400 | 91.2  | 3,600 | 96.6  | 3,600 | 96.6  | 4,300 | 115   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,000 | 53.6  | 3,200 | 85.9  | 3,400 | 91.2  | 3,600 | 96.6  | 3,600 | 96.6  | 4,300 | 115   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,300 | 61.7  | 3,200 | 85.9  | 3,400 | 91.2  | 3,600 | 96.6  | 3,300 | 88.5  |       |       |
| 40   | 2.8  | 1,800                     | 48.3  | 2,300 | 61.7  | 1,900 | 51.0  | 2,300 | 61.7  | 2,000 | 53.6  |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 2,300 | 61.7  | 1,900 | 51.0  | 2,300 | 61.7  |       |       |       |       |       |       |
| 60   | 4.1  | 2,500                     | 67.1  | 2,300 | 61.7  | 1,900 | 51.0  | 2,300 | 61.7  |       |       |       |       |       |       |
| 80   | 5.5  | 2,500                     | 67.1  | 2,000 | 53.6  | 1,900 | 51.0  |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 2,500                     | 67.1  | 1,900 | 51.0  | 1,900 | 51.0  |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 1,600                     | 42.9  | 1,900 | 51.0  |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 1-1/2</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1  | 0.07 | 180                       | 4.8   | 260   | 6.9   | 420   | 11.2  | 680   | 18.2  | 870   | 23.3  | 840   | 22.5  | 840   | 22.5  |
| 2  | 0.14 | 280                       | 7.5   | 530   | 14.2  | 760   | 20.4  | 860   | 23.0  | 1,000 | 26.8  | 1,300 | 34.8  | 1,600 | 42.9  |
| 3  | 0.21 | 370                       | 9.9   | 740   | 19.8  | 870   | 23.3  | 980   | 26.3  | 1,500 | 40.2  | 2,100 | 56.3  | 2,200 | 59.0  |
| 5  | 0.34 | 560                       | 15.0  | 930   | 24.9  | 1,100 | 29.5  | 1,500 | 40.2  | 2,300 | 61.7  | 3,500 | 93.9  | 3,500 | 93.9  |
| 10   | 0.69 | 760                       | 20.4  | 1,300 | 34.8  | 1,900 | 51.0  | 2,700 | 72.4  | 3,500 | 93.9  | 3,800 | 102   | 4,500 | 121   |
| 15   | 1.0  | 980                       | 26.3  | 1,800 | 48.3  | 2,600 | 69.7  | 3,400 | 91.2  | 3,500 | 93.9  | 3,800 | 102   | 4,500 | 121   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,100 | 56.3  | 3,200 | 85.9  | 3,400 | 91.2  | 3,500 | 93.9  | 3,800 | 102   | 4,500 | 121   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,800 | 75.1  | 3,400 | 91.2  | 3,400 | 91.2  | 3,300 | 88.5  | 3,000 | 80.5  |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 2,900 | 77.8  | 3,400 | 91.2  | 3,100 | 83.2  | 2,800 | 75.1  |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 2,900 | 77.8  | 3,400 | 91.2  | 2,900 | 77.8  |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 2,900 | 77.8  | 3,400 | 91.2  | 2,800 | 75.1  |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 2,900 | 77.8  | 3,400 | 91.2  |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 3,500                     | 93.9  | 2,900 | 77.8  | 3,400 | 91.2  |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 3,600                     | 96.6  | 2,900 | 77.8  |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 2</b>  |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1  | 0.07 | 170                       | 4.5   | 230   | 6.1   | 350   | 9.3   | 530   | 14.2  | 890   | 23.8  | 790   | 21.2  | 960   | 25.7  |
| 2  | 0.14 | 310                       | 8.3   | 450   | 12.0  | 760   | 20.4  | 940   | 25.2  | 1,000 | 26.8  | 1,400 | 37.5  | 1,600 | 42.9  |
| 3  | 0.21 | 360                       | 9.6   | 700   | 18.7  | 860   | 23.0  | 1,100 | 29.5  | 1,400 | 37.5  | 1,700 | 45.6  | 2,200 | 59.0  |
| 5  | 0.34 | 560                       | 15.0  | 890   | 23.8  | 1,100 | 29.5  | 1,600 | 42.9  | 2,200 | 59.0  | 2,800 | 75.1  | 3,500 | 93.9  |
| 10   | 0.69 | 760                       | 20.4  | 1,300 | 34.8  | 1,900 | 51.0  | 2,600 | 69.7  | 3,300 | 88.5  | 3,400 | 91.2  | 4,500 | 121   |
| 15   | 1.0  | 980                       | 26.3  | 1,800 | 48.3  | 2,600 | 69.7  | 3,400 | 91.2  | 3,500 | 93.9  | 3,500 | 93.9  | 4,800 | 129   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,100 | 56.3  | 3,200 | 85.9  | 3,500 | 93.9  | 3,600 | 96.6  | 3,600 | 96.6  | 4,800 | 129   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,700 | 72.4  | 3,400 | 91.2  | 3,600 | 96.6  | 4,000 | 107   | 2,400 | 64.4  |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 3,200 | 85.9  | 3,500 | 93.9  | 3,600 | 96.6  | 2,700 | 72.4  |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 3,200 | 85.9  | 3,700 | 99.3  | 2,900 | 77.8  |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 3,200 | 85.9  | 3,700 | 99.3  | 2,800 | 75.1  |       |       |       |       |       |       |
| 80   | 5.5  | 3,100                     | 83.2  | 2,800 | 75.1  | 3,700 | 99.3  |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 3,100                     | 83.2  | 2,600 | 69.7  | 3,700 | 99.3  |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 3,100                     | 83.2  | 2,600 | 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.



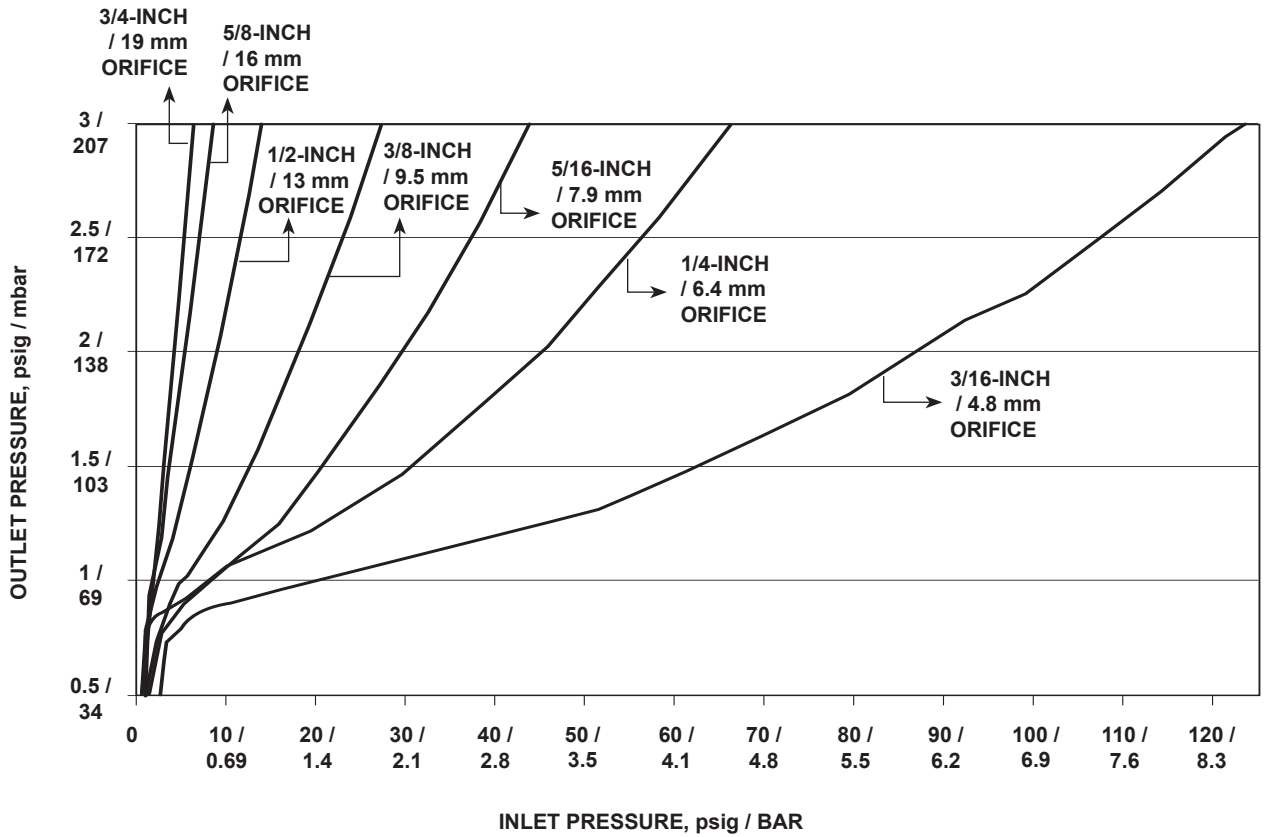


Figure 11. Type CS400IR Relief Curves (Blocked per Orifice Size) at 14-inches w.c. / 35 mbar Set Pressure

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

| ORIFICE SIZE |     | REGULATOR SET PRESSURE |      | MAXIMUM INLET PRESSURE TO KEEP OUTLET PRESSURE AT/OR BELOW <sup>(1)</sup> |     |                     |     |
|--------------|-----|------------------------|------|---|-----|---------------------|-----|
|              |     |                        |      | 2 psig / 138 mbar   |     | 2.5 psig / 172 mbar |     |
| Inches       | mm  | Inches w.c.            | mbar | psig  | bar | psig                | bar |
| 3/16         | 4.8 | 14                     | 35   | 87  | 6.0 | 107                 | 7.4 |
| 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.

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**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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -11 mbar     | 11 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 260                       | 6.9                | 470   | 12.6               | 730   | 19.5               | 970   | 26.0               | 1,000 | 26.8               | 1,500 | 40.2               | 1,700 | 45.6               |
| 3   | 0.21 | 350                       | 9.3                | 670   | 17.9               | 910   | 24.4               | 1,100 | 29.5               | 1,500 | 40.2               | 1,900 | 51.0               | 2,300 | 61.7               |
| 5   | 0.34 | 520                       | 13.9               | 900   | 24.1               | 1,200 | 32.2               | 1,500 | 40.2               | 2,100 | 56.3               | 3,100 | 83.2               | 3,400 | 91.2               |
| 10  | 0.69 | 770                       | 20.6               | 1,300 | 34.8               | 2,000 | 53.6               | 2,600 | 69.7               | 3,600 | 96.6               | 5,000 | 134                | 6,000 | 161                |
| 15  | 1.0  | 980                       | 26.3               | 1,600 | 42.9               | 2,700 | 72.4               | 3,700 | 99.3               | 4,900 | 132                | 6,000 | 161                | 6,000 | 161                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 4,100 | 110                | 4,900 | 132                | 6,000 | 161                | 6,000 | 161                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 4,300 | 115                | 4,400 | 118                | 4,900 | 132                | 6,000 | 161                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,400 | 91.2               | 4,600 | 123                | 4,400 | 118                | 4,900 | 132                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 4,600 | 123                | 4,400 | 118                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.4               | 4,700 | 126                | 4,600 | 123                | 4,400 | 118                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 4,700 | 126                | 4,600 | 123                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,200                     | 85.9               | 4,700 | 126                | 4,600 | 123                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,200                     | 85.9               | 4,700 | 126                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 270                       | 7.2                | 490   | 13.1               | 740   | 19.8               | 960   | 25.7               | 1,100 | 29.5               | 1,200 | 32.2               | 1,500 | 40.2               |
| 3   | 0.21 | 370                       | 9.9                | 680   | 18.2               | 950   | 25.5               | 1,000 | 26.8               | 1,500 | 40.2               | 1,900 | 51.0               | 2,300 | 61.7               |
| 5   | 0.34 | 540                       | 14.4               | 930   | 24.9               | 1,100 | 29.5               | 1,600 | 42.9               | 2,400 | 64.4               | 3,300 | 88.5               | 4,200 | 113                |
| 10  | 0.69 | 820                       | 22.0               | 1,300 | 34.8               | 1,800 | 48.3               | 2,700 | 72.4               | 4,400 | 118                | 5,600 | 150                | 6,000 | 161                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 2,500 | 67.1               | 3,700 | 99.3               | 5,500 | 148                | 5,600 | 150                | 6,000 | 161                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 4,600 | 123                | 5,500 | 148                | 5,600 | 150                | 6,000 | 161                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 4,700 | 126                | 5,500 | 148                | 5,500 | 148                | 5,600 | 150                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,300 | 88.5               | 5,500 | 148                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,900 | 105                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,400 | 118                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 4,400 | 118                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 4,400 | 118                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 4,400 | 118                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 270                       | 7.2                | 410   | 11.0               | 690   | 18.5               | 940   | 25.2               | 1,000 | 26.8               | 1,400 | 37.5               | 1,500 | 40.2               |
| 3   | 0.21 | 370                       | 9.9                | 640   | 17.1               | 920   | 24.6               | 1,000 | 26.8               | 1,400 | 37.5               | 1,800 | 48.3               | 2,200 | 59.0               |
| 5   | 0.34 | 530                       | 14.2               | 920   | 24.6               | 1,100 | 29.5               | 1,500 | 40.2               | 2,100 | 56.3               | 2,700 | 72.4               | 3,600 | 96.6               |
| 10  | 0.69 | 820                       | 22.0               | 1,300 | 34.8               | 1,800 | 48.3               | 2,500 | 67.1               | 4,000 | 107                | 5,100 | 137                | 7,100 | 191                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 2,500 | 67.1               | 3,600 | 96.6               | 5,200 | 140                | 7,100 | 191                | 7,100 | 191                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,300 | 88.5               | 4,600 | 123                | 6,900 | 185                | 7,100 | 191                | 7,100 | 191                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,600 | 69.7               | 4,000 | 107                | 6,100 | 164                | 6,900 | 185                | 7,100 | 191                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,200 | 85.9               | 5,600 | 150                | 6,900 | 185                | 6,900 | 185                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 6,600 | 177                | 6,900 | 185                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,500 | 121                | 6,600 | 177                | 6,900 | 185                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 6,000 | 161                | 6,600 | 177                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 6,000 | 161                | 6,600 | 177                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 6,000 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -21 mbar     | 21 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 300                       | 8.0                | 570   | 15.3               | 920   | 24.6               | 1,200 | 32.2               | 1,500 | 40.2               | 2,400 | 64.4               | 2,800 | 75.1               |
| 3   | 0.21 | 400                       | 10.7               | 750   | 20.1               | 1,100 | 29.5               | 1,400 | 37.5               | 2,100 | 56.3               | 2,700 | 72.4               | 3,500 | 93.9               |
| 5   | 0.34 | 550                       | 14.7               | 1,000 | 26.8               | 1,500 | 40.2               | 1,900 | 51.0               | 2,800 | 75.1               | 4,300 | 115                | 5,000 | 134                |
| 10  | 0.69 | 820                       | 22.0               | 1,400 | 37.5               | 2,400 | 64.4               | 3,000 | 80.5               | 4,500 | 121                | 6,700 | 180                | 7,600 | 204                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 3,000 | 80.5               | 4,000 | 107                | 5,800 | 156                | 7,600 | 204                | 7,600 | 204                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,600 | 96.6               | 4,600 | 123                | 7,400 | 199                | 7,600 | 204                | 7,600 | 204                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 4,600 | 123                | 6,300 | 169                | 7,600 | 204                | 7,600 | 204                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,400 | 91.2               | 5,800 | 156                | 7,600 | 204                | 7,600 | 204                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 6,400 | 172                | 7,600 | 204                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,700 | 126                | 7,600 | 204                | 7,600 | 204                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,800 | 156                | 7,600 | 204                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 7,100 | 191                | 7,600 | 204                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,800                     | 129                | 7,100 | 191                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 310                       | 8.3                | 570   | 15.3               | 910   | 24.4               | 1,100 | 29.5               | 1,700 | 45.6               | 2,200 | 59.0               | 2,700 | 72.4               |
| 3   | 0.21 | 410                       | 11.0               | 760   | 20.4               | 1,100 | 29.5               | 1,400 | 37.5               | 2,200 | 59.0               | 3,200 | 85.9               | 3,800 | 102                |
| 5   | 0.34 | 570                       | 15.3               | 990   | 26.5               | 1,500 | 40.2               | 2,000 | 53.6               | 3,100 | 83.2               | 4,600 | 123                | 5,800 | 156                |
| 10  | 0.69 | 850                       | 22.8               | 1,400 | 37.5               | 2,300 | 61.7               | 3,100 | 83.2               | 5,100 | 137                | 7,700 | 207                | 9,500 | 255                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 3,000 | 80.5               | 4,000 | 107                | 6,600 | 177                | 8,000 | 215                | 9,500 | 255                |
| 20  | 1.4  | 1,200                     | 32.2               | 2,100 | 56.3               | 3,600 | 96.6               | 4,900 | 132                | 7,900 | 212                | 8,000 | 215                | 9,500 | 255                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 4,700 | 126                | 6,300 | 169                | 7,900 | 212                | 8,000 | 215                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,400 | 91.2               | 5,800 | 156                | 7,700 | 207                | 7,900 | 212                |       |                    |       |                    |
| 50  | 3.5  | 2,300                     | 61.7               | 4,000 | 107                | 6,800 | 183                | 7,700 | 207                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,600 | 123                | 7,700 | 207                | 7,700 | 207                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,600 | 150                | 7,700 | 207                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,100                     | 110                | 7,100 | 191                | 7,700 | 207                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                     | 132                | 7,100 | 191                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 310                       | 8.3                | 520   | 13.9               | 860   | 23.0               | 1,100 | 29.5               | 1,600 | 42.9               | 2,300 | 61.7               | 2,600 | 69.7               |
| 3   | 0.21 | 420                       | 11.2               | 700   | 18.7               | 1,100 | 29.5               | 1,400 | 37.5               | 2,200 | 59.0               | 3,000 | 80.5               | 3,400 | 91.2               |
| 5   | 0.34 | 550                       | 14.7               | 990   | 26.5               | 1,500 | 40.2               | 2,000 | 53.6               | 2,900 | 77.8               | 4,300 | 115                | 5,600 | 150                |
| 10  | 0.69 | 830                       | 22.2               | 1,400 | 37.5               | 2,300 | 61.7               | 3,100 | 83.2               | 5,000 | 134                | 7,600 | 204                | 9,600 | 258                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 3,000 | 80.5               | 4,100 | 110                | 6,400 | 172                | 8,000 | 215                | 9,600 | 258                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,600 | 96.6               | 4,900 | 132                | 7,900 | 212                | 8,000 | 215                | 9,600 | 258                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 4,300 | 115                | 6,300 | 169                | 7,900 | 212                | 8,000 | 215                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,300 | 88.5               | 5,800 | 156                | 7,900 | 212                | 7,900 | 212                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 6,900 | 185                | 7,900 | 212                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,600 | 123                | 7,700 | 207                | 7,900 | 212                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 6,000 | 161                | 7,700 | 207                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 7,100 | 191                | 7,700 | 207                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 5,000                     | 134                | 7,100 | 191                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -7 mbar   | 7 mbar   | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 240                       | 6.4                | 380   | 10.2               | 600   | 16.1               | 860   | 23.0               | 830   | 22.2               | 1,000 | 26.8               | 1,200 | 32.2               |
| 3   | 0.21 | 310                       | 8.3                | 630   | 16.9               | 710   | 19.0               | 840   | 22.5               | 1,100 | 29.5               | 1,400 | 37.5               | 1,500 | 40.2               |
| 5   | 0.34 | 490                       | 13.1               | 840   | 22.5               | 960   | 25.7               | 1,300 | 34.8               | 1,600 | 42.9               | 2,300 | 61.7               | 2,500 | 67.1               |
| 10  | 0.69 | 720                       | 19.3               | 1,200 | 32.2               | 1,700 | 45.6               | 2,200 | 59.0               | 3,000 | 80.5               | 4,400 | 118                | 4,600 | 123                |
| 15  | 1.0  | 930                       | 24.9               | 1,500 | 40.2               | 2,300 | 61.7               | 3,300 | 88.5               | 3,900 | 105                | 5,100 | 137                | 6,000 | 161                |
| 20  | 1.4  | 1,000                     | 26.8               | 2,000 | 53.6               | 3,000 | 80.5               | 3,800 | 102                | 3,900 | 105                | 5,100 | 137                | 6,000 | 161                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,700 | 72.4               | 3,200 | 85.9               | 3,800 | 102                | 3,900 | 105                | 5,100 | 137                |       |                    |
| 40  | 2.8  | 1,700                     | 45.6               | 3,400 | 91.2               | 3,200 | 85.9               | 3,800 | 102                | 3,900 | 105                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,800 | 102                | 3,200 | 85.9               | 4,300 | 115                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,300                     | 61.7               | 3,800 | 102                | 3,200 | 85.9               | 4,300 | 115                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 3,800 | 102                | 3,200 | 85.9               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,600                     | 96.6               | 3,800 | 102                | 3,200 | 85.9               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 3,800 | 102                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 240                       | 6.4                | 350   | 9.3                | 620   | 16.6               | 780   | 20.9               | 830   | 22.2               | 910   | 24.4               | 1,000 | 26.8               |
| 3   | 0.21 | 320                       | 8.5                | 630   | 16.9               | 790   | 21.2               | 780   | 20.9               | 1,000 | 26.8               | 1,300 | 34.8               | 1,600 | 42.9               |
| 5   | 0.34 | 520                       | 13.9               | 860   | 23.0               | 840   | 22.5               | 1,200 | 32.2               | 1,700 | 45.6               | 2,400 | 64.4               | 2,800 | 75.1               |
| 10  | 0.69 | 710                       | 19.0               | 1,100 | 29.5               | 1,500 | 40.2               | 2,100 | 56.3               | 3,800 | 102.0              | 5,300 | 142                | 6,000 | 161                |
| 15  | 1.0  | 940                       | 25.2               | 1,600 | 42.9               | 2,200 | 59.0               | 3,200 | 85.9               | 4,900 | 132                | 5,300 | 142                | 6,000 | 161                |
| 20  | 1.4  | 1,100                     | 29.5               | 1,900 | 51.0               | 2,800 | 75.1               | 4,200 | 112.7              | 4,900 | 132                | 5,300 | 142                | 6,000 | 161                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,800 | 75.1               | 4,000 | 107                | 4,800 | 129                | 4,900 | 132                | 5,300 | 142                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,300 | 88.5               | 4,000 | 107                | 4,800 | 129                | 4,100 | 110                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,800 | 102                | 4,000 | 107                | 4,800 | 129                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,000 | 107                | 4,000 | 107                | 4,800 | 129                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 4,000 | 107                | 3,200 | 85.9               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 4,000 | 107                | 2,900 | 77.8               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 4,000 | 107                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 240                       | 6.4                | 340   | 9.1                | 560   | 15.0               | 800   | 21.4               | 740   | 19.8               | 990   | 26.5               | 1,100 | 29.5               |
| 3   | 0.21 | 320                       | 8.5                | 590   | 15.8               | 820   | 22.0               | 730   | 19.5               | 1,000 | 26.8               | 1,200 | 32.2               | 1,400 | 37.5               |
| 5   | 0.34 | 500                       | 13.4               | 840   | 22.5               | 820   | 22.0               | 1,100 | 29.5               | 1,500 | 40.2               | 1,900 | 51.0               | 2,500 | 67.1               |
| 10  | 0.69 | 670                       | 17.9               | 1,100 | 29.5               | 1,300 | 34.8               | 2,000 | 53.6               | 3,100 | 83.2               | 4,100 | 110                | 5,500 | 148                |
| 15  | 1.0  | 970                       | 26.0               | 1,600 | 42.9               | 1,900 | 51.0               | 3,100 | 83.2               | 4,100 | 110                | 6,500 | 174                | 6,500 | 174                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 2,900 | 77.8               | 3,900 | 105                | 6,200 | 166                | 6,500 | 174                | 6,500 | 174                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,500 | 67.1               | 3,600 | 96.6               | 5,900 | 158                | 6,200 | 166                | 6,500 | 174                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,100 | 83.2               | 5,100 | 137                | 6,000 | 161                | 6,200 | 166                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 4,000 | 107                | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,400 | 118                | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 5,000                     | 134                | 6,000 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -14 mbar  | 14 mbar | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  |      | Body Size: NPS 1-1/4      |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| bar   |      | Body Size: NPS 1-1/4      |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 270                       | 7.2                | 510   | 13.6               | 840   | 22.5               | 1,000 | 26.8               | 1,200 | 32.2               | 1,700 | 45.6               | 2,000 | 53.6               |
| 3   | 0.21 | 370                       | 9.9                | 700   | 18.7               | 1,000 | 26.8               | 1,200 | 32.2               | 1,700 | 45.6               | 2,200 | 59.0               | 2,700 | 72.4               |
| 5   | 0.34 | 530                       | 14.2               | 940   | 25.2               | 1,300 | 34.8               | 1,700 | 45.6               | 2,400 | 64.4               | 3,400 | 91.2               | 4,100 | 110                |
| 10  | 0.69 | 790                       | 21.2               | 1,400 | 37.5               | 2,200 | 59.0               | 2,800 | 75.1               | 3,900 | 105                | 5,600 | 150                | 6,700 | 180                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,700 | 45.6               | 2,900 | 77.8               | 3,800 | 102                | 5,300 | 142                | 7,000 | 188                | 7,800 | 209                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,500 | 93.9               | 4,200 | 113                | 6,800 | 183                | 7,600 | 204                | 7,800 | 209                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 4,700 | 126                | 6,200 | 166                | 7,600 | 204                | 7,600 | 204                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,400 | 91.2               | 5,800 | 156                | 7,600 | 204                | 7,600 | 204                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 6,200 | 166                | 7,600 | 204                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,700 | 126                | 7,600 | 204                | 7,600 | 204                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 5,800 | 156                | 7,600 | 204                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,800                     | 102                | 6,500 | 174                | 7,600 | 204                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,700                     | 126                | 6,500 | 174                |       |                    |       |                    |       |                    |       |                    |       |                    |
| psig  |      | Body Size: NPS 1-1/2      |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| bar   |      | Body Size: NPS 1-1/2      |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 290                       | 7.7                | 530   | 14.2               | 810   | 21.7               | 1,000 | 26.8               | 1,300 | 34.8               | 1,500 | 40.2               | 1,900 | 51.0               |
| 3   | 0.21 | 390                       | 10.4               | 700   | 18.7               | 1,000 | 26.8               | 1,200 | 32.2               | 1,700 | 45.6               | 2,400 | 64.4               | 2,700 | 72.4               |
| 5   | 0.34 | 550                       | 14.7               | 960   | 25.7               | 1,300 | 34.8               | 1,800 | 48.3               | 2,700 | 72.4               | 3,800 | 102                | 4,900 | 132                |
| 10  | 0.69 | 840                       | 22.5               | 1,400 | 37.5               | 2,100 | 56.3               | 2,800 | 75.1               | 4,600 | 123                | 5,600 | 150                | 6,000 | 161                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 2,700 | 72.4               | 3,900 | 105                | 5,600 | 150                | 5,600 | 150                | 6,000 | 161                |
| 20  | 1.4  | 1,200                     | 32.2               | 2,100 | 56.3               | 3,400 | 91.2               | 4,700 | 126                | 5,600 | 150                | 5,600 | 150                | 6,000 | 161                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,800 | 75.1               | 4,700 | 126                | 6,300 | 169                | 5,600 | 150                | 5,600 | 150                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,300 | 88.5               | 5,500 | 148                | 5,600 | 150                | 5,600 | 150                |       |                    |       |                    |
| 50  | 3.5  | 2,300                     | 61.7               | 3,900 | 105                | 5,500 | 148                | 5,600 | 150                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,500 | 121                | 5,500 | 148                | 5,600 | 150                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,400 | 145                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |       |                    |
| psig  |      | Body Size: NPS 2          |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| bar   |      | Body Size: NPS 2          |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 290                       | 7.7                | 450   | 12.0               | 750   | 20.1               | 1,000 | 26.8               | 1,300 | 34.8               | 1,700 | 45.6               | 1,800 | 48.3               |
| 3   | 0.21 | 380                       | 10.2               | 670   | 17.9               | 1,000 | 26.8               | 1,100 | 29.5               | 1,700 | 45.6               | 2,100 | 56.3               | 2,600 | 69.7               |
| 5   | 0.34 | 540                       | 14.4               | 950   | 25.5               | 1,200 | 32.2               | 1,700 | 45.6               | 2,400 | 64.4               | 3,100 | 83.2               | 4,300 | 115                |
| 10  | 0.69 | 820                       | 22.0               | 1,400 | 37.5               | 2,100 | 56.3               | 2,800 | 75.1               | 4,500 | 121                | 6,000 | 161                | 8,200 | 220                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,800 | 48.3               | 2,700 | 72.4               | 3,900 | 105                | 5,700 | 153                | 6,600 | 177                | 8,200 | 220                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,100 | 56.3               | 3,400 | 91.2               | 4,800 | 129                | 6,000 | 161                | 6,600 | 177                | 8,200 | 220                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,600 | 69.7               | 4,200 | 113                | 6,300 | 169                | 6,000 | 161                | 6,600 | 177                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,300 | 88.5               | 5,700 | 153                | 6,300 | 169                | 6,000 | 161                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,000 | 107                | 5,700 | 153                | 6,300 | 169                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,500 | 121                | 5,700 | 153                | 6,300 | 169                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,500 | 148                | 5,700 | 153                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 5,500 | 148                | 5,700 | 153                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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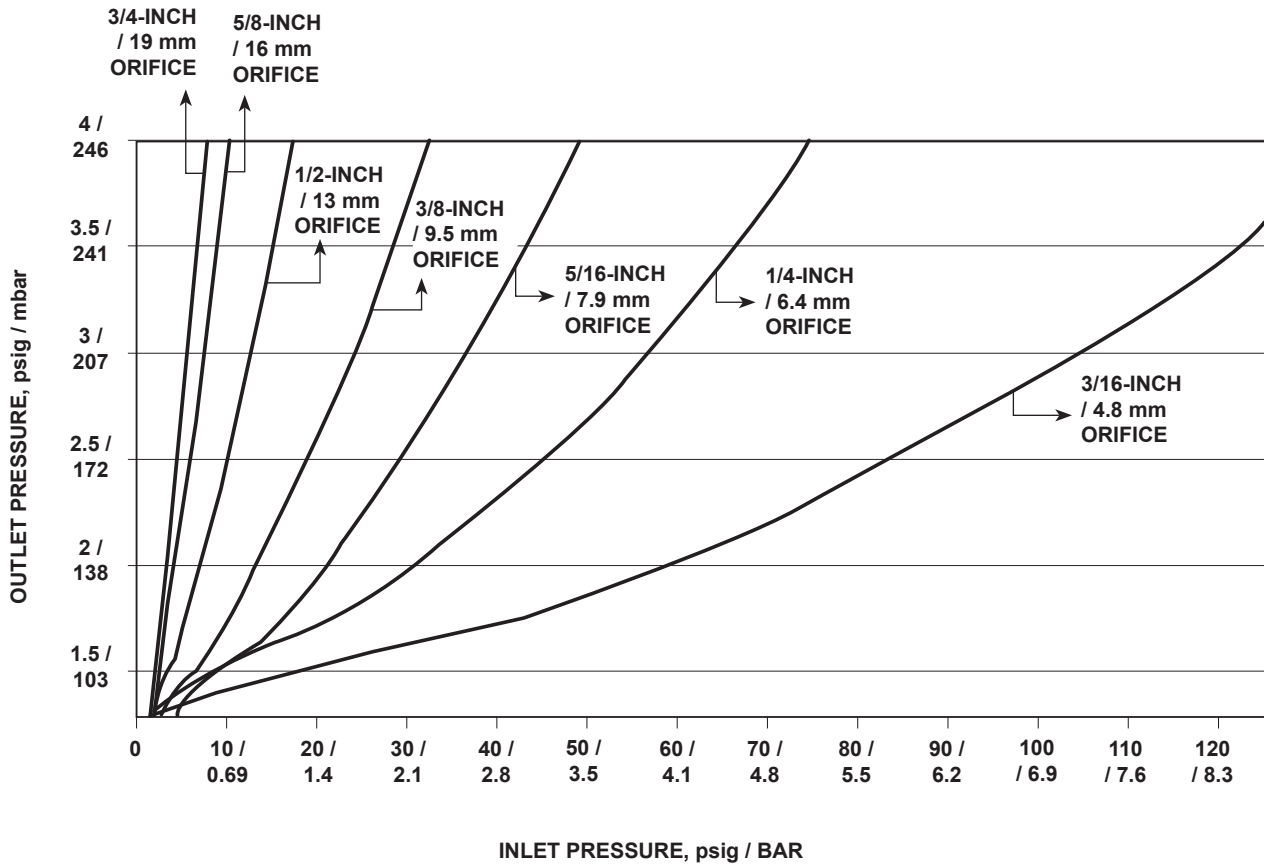


Figure 12. Type CS400IR Relief Curves (Blocked per Orifice Size) at 1 psig / 69 mbar Set Pressure

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 <sup>(1)</sup> |     |                   |     |
|--------------|-----|------------------------|------|---|-----|-------------------|-----|
|              |     |                        |      | 2.5 psig / 172 mbar   |     | 3 psig / 207 mbar |     |
| Inches       | mm  | psig                   | mbar | psig  | bar | psig              | bar |
| 3/16         | 4.8 | 1                      | 69   | 84  | 5.8 | 105               | 7.2 |
| 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 260                       | 6.9                | 290   | 7.7                | 590   | 15.8               | 810   | 21.7               | 740   | 19.8               | 750   | 20.1               | 890   | 23.8               |
| 5   | 0.34 | 480                       | 12.8               | 710   | 19.0               | 630   | 16.9               | 850   | 22.8               | 1,000 | 26.8               | 1,400 | 37.5               | 1,600 | 42.9               |
| 10  | 0.69 | 630                       | 16.9               | 900   | 24.1               | 1,000 | 26.8               | 1,500 | 40.2               | 1,900 | 51.0               | 2,500 | 67.1               | 2,900 | 77.8               |
| 15  | 1.0  | 860                       | 23.0               | 1,200 | 32.2               | 1,500 | 40.2               | 2,200 | 59.0               | 2,800 | 75.1               | 4,100 | 110                | 4,700 | 126                |
| 20  | 1.4  | 1,000                     | 26.8               | 1,600 | 42.9               | 2,100 | 56.3               | 2,700 | 72.4               | 4,300 | 115                | 5,200 | 140                | 5,600 | 150                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,300 | 61.7               | 3,000 | 80.5               | 4,500 | 121                | 5,400 | 145                | 5,600 | 150                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,200 | 85.9               | 4,400 | 118                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,800 | 102                | 5,300 | 142                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,400 | 118                | 5,300 | 142                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 4,400 | 118                | 5,300 | 142                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,700                     | 99.3               | 4,400 | 118                | 5,300 | 142                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,700                     | 99.3               | 4,400 | 118                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 220                       | 5.9                | 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               | 650   | 17.4               | 800   | 21.4               | 1,000 | 26.8               | 1,300 | 34.8               | 1,500 | 40.2               |
| 10  | 0.69 | 600                       | 16.1               | 890   | 23.8               | 1,000 | 26.8               | 1,500 | 40.2               | 2,000 | 53.6               | 2,400 | 64.4               | 3,200 | 85.9               |
| 15  | 1.0  | 810                       | 21.7               | 1,100 | 29.5               | 1,400 | 37.5               | 2,000 | 53.6               | 2,700 | 72.4               | 4,600 | 123                | 5,600 | 150                |
| 20  | 1.4  | 1,000                     | 26.8               | 1,500 | 40.2               | 1,800 | 48.3               | 2,900 | 77.8               | 4,000 | 107                | 5,200 | 140                | 5,600 | 150                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,100 | 56.3               | 3,100 | 83.2               | 4,600 | 123                | 5,400 | 145                | 5,600 | 150                |       |                    |
| 40  | 2.8  | 1,700                     | 45.6               | 2,900 | 77.8               | 4,800 | 129                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,800 | 102                | 5,300 | 142                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.4               | 4,500 | 121                | 5,300 | 142                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 4,500 | 121                | 5,300 | 142                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,700                     | 99.3               | 4,500 | 121                | 5,300 | 142                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,700                     | 99.3               | 4,500 | 121                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 220                       | 5.9                | 360   | 9.6                | 570   | 15.3               | 800   | 21.4               | 620   | 16.6               | 760   | 20.4               | 830   | 22.2               |
| 5   | 0.34 | 360                       | 9.6                | 710   | 19.0               | 570   | 15.3               | 780   | 20.9               | 1,000 | 26.8               | 1,200 | 32.2               | 1,400 | 37.5               |
| 10  | 0.69 | 560                       | 15.0               | 890   | 23.8               | 920   | 24.6               | 1,400 | 37.5               | 1,900 | 51.0               | 2,300 | 61.7               | 2,900 | 77.8               |
| 15  | 1.0  | 860                       | 23.0               | 1,100 | 29.5               | 1,300 | 34.8               | 2,000 | 53.6               | 2,800 | 75.1               | 3,700 | 99.3               | 3,900 | 105                |
| 20  | 1.4  | 1,000                     | 26.8               | 1,400 | 37.5               | 1,700 | 45.6               | 2,600 | 69.7               | 3,700 | 99.3               | 5,200 | 140                | 5,600 | 150                |
| 30  | 2.1  | 1,300                     | 34.8               | 2,000 | 53.6               | 2,400 | 64.4               | 4,000 | 107                | 5,400 | 145                | 5,600 | 150                |       |                    |
| 40  | 2.8  | 1,700                     | 45.6               | 2,900 | 77.8               | 3,900 | 105                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,600 | 96.6               | 4,300 | 115                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,200 | 113                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,800                     | 102                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,800                     | 102                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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 / Nm³/h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--|------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Inlet Pressure   |      | Orifice Size, Inches / 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                      | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h |
| <b>Body Size: NPS 1-1/4</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 330                       | 8.8   | 430   | 11.5  | 770   | 20.6  | 1,000 | 26.8  | 1,200 | 32.2  | 1,400 | 37.5  | 1,500 | 40.2  |
| 5  | 0.34 | 540                       | 14.4  | 830   | 22.2  | 1,000 | 26.8  | 1,300 | 34.8  | 1,700 | 45.6  | 2,400 | 64.4  | 2,900 | 77.8  |
| 10   | 0.69 | 810                       | 21.7  | 1,200 | 32.2  | 1,800 | 48.3  | 2,300 | 61.7  | 3,100 | 83.2  | 4,300 | 115   | 5,600 | 150   |
| 15   | 1.0  | 990                       | 26.5  | 1,700 | 45.6  | 2,300 | 61.7  | 3,300 | 88.5  | 4,200 | 113   | 6,100 | 164   | 6,200 | 166   |
| 20   | 1.4  | 1,200                     | 32.2  | 2,100 | 56.3  | 3,000 | 80.5  | 3,900 | 105   | 6,000 | 161   | 6,100 | 164   | 6,200 | 166   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,700 | 72.4  | 4,200 | 113   | 5,900 | 158   | 6,000 | 161   | 6,100 | 164   |       |       |
| 40   | 2.8  | 1,800                     | 48.3  | 3,400 | 91.2  | 5,300 | 142   | 5,900 | 158   | 6,000 | 161   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 3,900 | 105   | 5,300 | 142   | 5,900 | 158   |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 5,000 | 134   | 5,300 | 142   | 5,900 | 158   |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 5,000 | 134   | 5,300 | 142   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 4,000                     | 107   | 5,000 | 134   | 5,300 | 142   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 4,000                     | 107   | 5,000 | 134   |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 1-1/2</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 290                       | 7.7   | 540   | 14.4  | 840   | 22.5  | 1,000 | 26.8  | 1,100 | 29.5  | 1,500 | 40.2  | 1,700 | 45.6  |
| 5  | 0.34 | 510                       | 13.6  | 840   | 22.5  | 1,000 | 26.8  | 1,300 | 34.8  | 1,800 | 48.3  | 2,300 | 61.7  | 2,900 | 77.8  |
| 10   | 0.69 | 770                       | 20.6  | 1,200 | 32.2  | 1,700 | 45.6  | 2,400 | 64.4  | 3,200 | 85.9  | 4,800 | 129   | 6,200 | 166   |
| 15   | 1.0  | 990                       | 26.5  | 1,700 | 45.6  | 2,300 | 61.7  | 3,200 | 85.9  | 5,100 | 137   | 6,400 | 172   | 6,700 | 180   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,100 | 56.3  | 2,800 | 75.1  | 4,200 | 113   | 6,000 | 161   | 6,400 | 172   | 6,700 | 180   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,800 | 75.1  | 4,500 | 121   | 5,900 | 158   | 6,000 | 161   | 6,400 | 172   |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 3,300 | 88.5  | 5,600 | 150   | 5,900 | 158   | 6,000 | 161   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 3,900 | 105   | 5,600 | 150   | 5,900 | 158   |       |       |       |       |       |       |
| 60   | 4.1  | 2,500                     | 67.1  | 4,500 | 121   | 5,600 | 150   | 5,900 | 158   |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 5,100 | 137   | 5,600 | 150   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 3,900                     | 105   | 5,100 | 137   | 5,600 | 150   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 4,000                     | 107   | 5,100 | 137   |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 2</b>  |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 290                       | 7.7   | 530   | 14.2  | 800   | 21.4  | 1,000 | 26.8  | 1,100 | 29.5  | 1,400 | 37.5  | 1,600 | 42.9  |
| 5  | 0.34 | 490                       | 13.1  | 850   | 22.8  | 970   | 26.0  | 1,300 | 34.8  | 1,800 | 48.3  | 2,300 | 61.7  | 2,800 | 75.1  |
| 10   | 0.69 | 750                       | 20.1  | 1,300 | 34.8  | 1,600 | 42.9  | 2,400 | 64.4  | 3,200 | 85.9  | 4,200 | 113   | 4,800 | 129   |
| 15   | 1.0  | 1,000                     | 26.8  | 1,600 | 42.9  | 2,200 | 59.0  | 3,000 | 80.5  | 4,500 | 121   | 6,200 | 166   | 6,000 | 161   |
| 20   | 1.4  | 1,100                     | 29.5  | 1,900 | 51.0  | 2,800 | 75.1  | 3,900 | 105   | 5,900 | 158   | 6,000 | 161   | 6,000 | 161   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,700 | 72.4  | 3,700 | 99.3  | 5,700 | 153   | 5,900 | 158   | 6,000 | 161   |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 3,300 | 88.5  | 5,100 | 137   | 5,900 | 158   | 5,900 | 158   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 4,000 | 107   | 5,500 | 148   | 5,900 | 158   |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 4,600 | 123   | 5,500 | 148   | 5,900 | 158   |       |       |       |       |       |       |
| 80   | 5.5  | 3,200                     | 85.9  | 4,600 | 123   | 5,500 | 148   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 4,000                     | 107   | 4,600 | 123   | 5,500 | 148   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 4,000                     | 107   | 4,600 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 270                       | 7.2                | 330   | 8.8                | 630   | 16.9               | 850   | 22.8               | 860   | 23.0               | 870   | 23.3               | 1,000 | 26.8               |
| 5   | 0.34 | 500                       | 13.4               | 740   | 19.8               | 730   | 19.5               | 1,000 | 26.8               | 1,200 | 32.2               | 1,600 | 42.9               | 1,900 | 51.0               |
| 10  | 0.69 | 680                       | 18.2               | 1,000 | 26.8               | 1,100 | 29.5               | 1,700 | 45.6               | 2,200 | 59.0               | 2,900 | 77.8               | 3,400 | 91.2               |
| 15  | 1.0  | 640                       | 17.1               | 1,300 | 34.8               | 1,700 | 45.6               | 2,500 | 67.1               | 3,200 | 85.9               | 4,600 | 123                | 5,300 | 142                |
| 20  | 1.4  | 1,100                     | 29.5               | 1,700 | 45.6               | 2,300 | 61.7               | 3,000 | 80.5               | 4,800 | 129                | 6,300 | 169                | 6,300 | 169                |
| 30  | 2.1  | 1,100                     | 29.5               | 2,500 | 67.1               | 3,400 | 91.2               | 4,900 | 132                | 6,300 | 169                | 6,300 | 169                |       |                    |
| 40  | 2.8  | 1,600                     | 42.9               | 3,300 | 88.5               | 4,700 | 126                | 6,000 | 161                | 6,300 | 169                |       |                    |       |                    |
| 50  | 3.5  | 2,000                     | 53.6               | 3,800 | 102                | 5,500 | 148                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.4               | 4,500 | 121                | 5,500 | 148                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 5,400 | 145                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,800                     | 102                | 5,400 | 145                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,800                     | 102                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 230                       | 6.1                | 370   | 9.9                | 690   | 18.5               | 900   | 24.1               | 770   | 20.6               | 940   | 25.2               | 1,000 | 26.8               |
| 5   | 0.34 | 450                       | 12.0               | 770   | 20.6               | 730   | 19.5               | 960   | 25.7               | 1,200 | 32.2               | 1,500 | 40.2               | 1,800 | 48.3               |
| 10  | 0.69 | 670                       | 17.9               | 990   | 26.5               | 1,100 | 29.5               | 1,700 | 45.6               | 2,300 | 61.7               | 3,100 | 83.2               | 4,100 | 110                |
| 15  | 1.0  | 890                       | 23.8               | 1,300 | 34.8               | 1,600 | 42.9               | 2,300 | 61.7               | 3,400 | 91.2               | 5,300 | 142                | 6,300 | 169                |
| 20  | 1.4  | 1,000                     | 26.8               | 1,700 | 45.6               | 2,100 | 56.3               | 3,300 | 88.5               | 4,600 | 123                | 6,300 | 169                | 6,300 | 169                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,400 | 64.4               | 3,600 | 96.6               | 5,200 | 140                | 6,300 | 169                | 6,300 | 169                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 3,100 | 83.2               | 5,100 | 137                | 6,300 | 169                | 6,300 | 169                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,800 | 102                | 6,100 | 164                | 6,300 | 169                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.4               | 4,500 | 121                | 6,100 | 164                | 6,300 | 169                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 5,400 | 145                | 6,100 | 164                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,800                     | 102                | 5,400 | 145                | 6,100 | 164                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,800                     | 102                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 240                       | 6.4                | 390   | 10.4               | 600   | 16.1               | 860   | 23.0               | 730   | 19.5               | 1,000 | 26.8               | 1,000 | 26.8               |
| 5   | 0.34 | 440                       | 11.8               | 740   | 19.8               | 690   | 18.5               | 910   | 24.4               | 1,200 | 32.2               | 1,500 | 40.2               | 1,700 | 45.6               |
| 10  | 0.69 | 640                       | 17.1               | 990   | 26.5               | 1,000 | 26.8               | 1,600 | 42.9               | 2,200 | 59.0               | 2,700 | 72.4               | 3,300 | 88.5               |
| 15  | 1.0  | 930                       | 24.9               | 1,200 | 32.2               | 1,500 | 40.2               | 2,300 | 61.7               | 3,100 | 83.2               | 4,200 | 113                | 4,600 | 123                |
| 20  | 1.4  | 1,100                     | 29.5               | 1,500 | 40.2               | 1,900 | 51.0               | 2,900 | 77.8               | 4,100 | 110                | 6,000 | 161                | 6,000 | 161                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,300 | 61.7               | 2,800 | 75.1               | 4,400 | 118                | 6,000 | 161                | 6,000 | 161                |       |                    |
| 40  | 2.8  | 1,700                     | 45.6               | 3,100 | 83.2               | 4,200 | 113                | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,800 | 102                | 4,700 | 126                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,400 | 118                | 6,000 | 161                | 6,000 | 161                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 5,700 | 153                | 6,000 | 161                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                     | 105                | 5,700 | 153                | 6,000 | 161                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,900                     | 105                | 5,700 | 153                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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 / Nm³/h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--|------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Inlet Pressure   |      | Orifice Size, Inches / 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                      | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h | SCFH  | Nm³/h |
| <b>Body Size: NPS 1-1/4</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 350                       | 9.3   | 460   | 12.3  | 820   | 22.0  | 1,100 | 29.5  | 1,300 | 34.8  | 1,600 | 42.9  | 1,900 | 51.0  |
| 5  | 0.34 | 550                       | 14.7  | 850   | 22.8  | 1,100 | 29.5  | 1,500 | 40.2  | 1,900 | 51.0  | 2,600 | 69.7  | 3,400 | 91.2  |
| 10   | 0.69 | 850                       | 22.8  | 1,300 | 34.8  | 1,900 | 51.0  | 2,600 | 69.7  | 3,400 | 91.2  | 4,700 | 126   | 6,200 | 166   |
| 15   | 1.0  | 1,000                     | 26.8  | 1,700 | 45.6  | 2,500 | 67.1  | 3,600 | 96.6  | 4,400 | 118   | 6,200 | 166   | 6,200 | 166   |
| 20   | 1.4  | 1,200                     | 32.2  | 2,100 | 56.3  | 3,100 | 83.2  | 4,100 | 110   | 6,200 | 166   | 6,200 | 166   | 6,200 | 166   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,700 | 72.4  | 4,400 | 118   | 6,000 | 161   | 6,200 | 166   | 6,200 | 166   |       |       |
| 40   | 2.8  | 1,800                     | 48.3  | 3,400 | 91.2  | 5,400 | 145   | 6,000 | 161   | 6,200 | 166   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 4,000 | 107   | 6,000 | 161   | 6,000 | 161   |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 4,600 | 123   | 6,000 | 161   | 6,000 | 161   |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 3,900                     | 105   | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 3,900                     | 105   | 5,800 | 156   |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 1-1/2</b>                                    |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 310                       | 8.3   | 570   | 15.3  | 900   | 24.1  | 1,100 | 29.5  | 1,300 | 34.8  | 1,700 | 45.6  | 1,900 | 51.0  |
| 5  | 0.34 | 520                       | 13.9  | 880   | 23.6  | 1,100 | 29.5  | 1,500 | 40.2  | 2,000 | 53.6  | 2,600 | 69.7  | 3,300 | 88.5  |
| 10   | 0.69 | 800                       | 21.4  | 1,300 | 34.8  | 1,900 | 51.0  | 2,500 | 67.1  | 3,400 | 91.2  | 5,300 | 142   | 6,700 | 180   |
| 15   | 1.0  | 1,000                     | 26.8  | 1,800 | 48.3  | 2,500 | 67.1  | 3,600 | 96.6  | 5,400 | 145   | 6,400 | 172   | 6,700 | 180   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,100 | 56.3  | 3,100 | 83.2  | 4,500 | 121   | 6,200 | 166   | 6,400 | 172   | 6,700 | 180   |
| 30   | 2.1  | 1,600                     | 42.9  | 2,800 | 75.1  | 4,600 | 123   | 6,200 | 166   | 6,200 | 166   | 6,400 | 172   |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 3,300 | 88.5  | 5,700 | 153   | 6,200 | 166   | 6,200 | 166   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 3,900 | 105   | 6,000 | 161   | 6,200 | 166   |       |       |       |       |       |       |
| 60   | 4.1  | 2,500                     | 67.1  | 4,500 | 121   | 6,000 | 161   | 6,200 | 166   |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 3,900                     | 105   | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 3,900                     | 105   | 5,800 | 156   |       |       |       |       |       |       |       |       |       |       |
| <b>Body Size: NPS 2</b>  |      |                           |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3  | 0.21 | 300                       | 8.0   | 560   | 15.0  | 850   | 22.8  | 1,100 | 29.5  | 1,300 | 34.8  | 1,700 | 45.6  | 1,900 | 51.0  |
| 5  | 0.34 | 500                       | 13.4  | 890   | 23.8  | 1,000 | 26.8  | 1,500 | 40.2  | 2,100 | 56.3  | 2,700 | 72.4  | 3,200 | 85.9  |
| 10   | 0.69 | 780                       | 20.9  | 1,300 | 34.8  | 1,800 | 48.3  | 2,600 | 69.7  | 3,600 | 96.6  | 4,900 | 131   | 5,600 | 150   |
| 15   | 1.0  | 1,000                     | 26.8  | 1,700 | 45.6  | 2,400 | 64.4  | 3,300 | 88.5  | 5,100 | 137   | 6,000 | 161   | 6,000 | 161   |
| 20   | 1.4  | 1,100                     | 29.5  | 2,000 | 53.6  | 3,000 | 80.5  | 4,200 | 113   | 6,000 | 161   | 6,000 | 161   | 6,000 | 161   |
| 30   | 2.1  | 1,500                     | 40.2  | 2,700 | 72.4  | 3,900 | 105   | 6,000 | 161   | 6,000 | 161   | 6,000 | 161   |       |       |
| 40   | 2.8  | 1,900                     | 51.0  | 3,300 | 88.5  | 5,400 | 145   | 6,000 | 161   | 6,000 | 161   |       |       |       |       |
| 50   | 3.5  | 2,200                     | 59.0  | 4,000 | 107   | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |
| 60   | 4.1  | 2,600                     | 69.7  | 4,600 | 123   | 5,800 | 156   | 6,000 | 161   |       |       |       |       |       |       |
| 80   | 5.5  | 3,300                     | 88.5  | 5,800 | 156   | 5,800 | 156   |       |       |       |       |       |       |       |       |
| 100  | 6.9  | 4,100                     | 110   | 5,800 | 156   | 5,800 | 156   |       |       |       |       |       |       |       |       |
| 125  | 8.6  | 4,100                     | 110   | 5,800 | 156   |       |       |       |       |       |       |       |       |       |       |

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

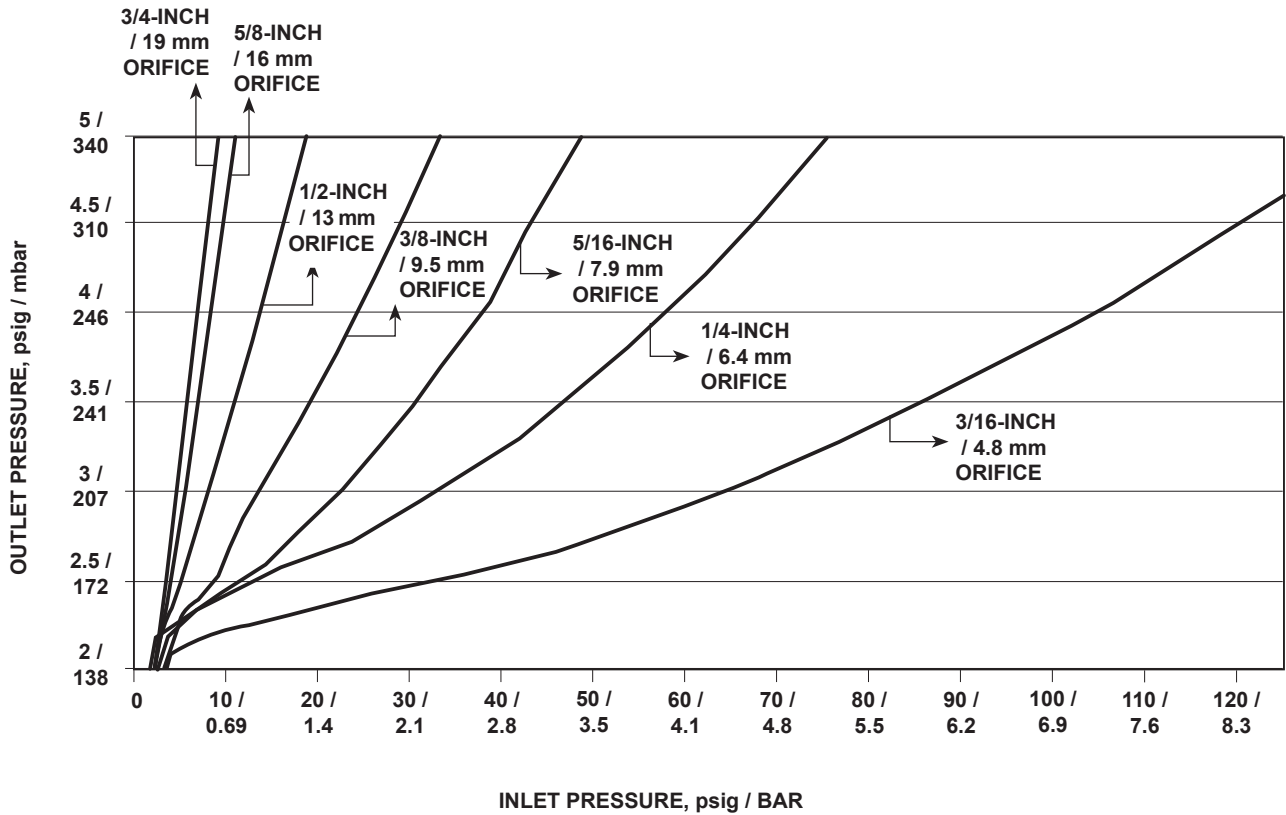


Figure 13. Type CS400IR Relief Curves (Blocked per Orifice Size) at 2 psig / 138 mbar Set Pressure

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 <sup>(1)</sup> |      |                   |     |
|--------------|-----|------------------------|------|---|------|-------------------|-----|
|              |     |                        |      | 3 psig / 207 mbar   |      | 4 psig / 276 mbar |     |
| Inches       | mm  | psig                   | mbar | psig  | bar  | psig              | bar |
| 3/16         | 4.8 | 2                      | 138  | 64  | 4.4  | 105               | 7.2 |
| 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.

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**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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                             |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|-----------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
|   |      | <b>Body Size: NPS 1-1/4</b> |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 460                         | 12.3               | 460   | 12.3               | 470   | 12.6               | 630   | 16.9               | 800   | 21.4               | 970   | 26.0               | 1,100 | 29.5               |
| 15  | 1.0  | 500                         | 13.4               | 600   | 16.1               | 660   | 17.7               | 910   | 24.4               | 1,200 | 32.2               | 1,700 | 45.6               | 2,000 | 53.6               |
| 20  | 1.4  | 560                         | 15.0               | 740   | 19.8               | 880   | 23.6               | 1,200 | 32.2               | 1,800 | 48.3               | 1,800 | 48.3               | 1,800 | 48.3               |
| 30  | 2.1  | 860                         | 23.0               | 910   | 24.4               | 1,600 | 42.9               | 2,000 | 53.6               | 2,400 | 64.4               | 3,200 | 85.9               |       |                    |
| 40  | 2.8  | 1,100                       | 29.5               | 1,300 | 34.8               | 1,800 | 48.3               | 2,700 | 72.4               | 2,900 | 77.8               |       |                    |       |                    |
| 50  | 3.5  | 1,500                       | 40.2               | 1,900 | 51.0               | 2,600 | 69.7               | 2,700 | 72.4               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,500                       | 40.2               | 2,100 | 56.3               | 3,300 | 88.5               | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,900                       | 51.0               | 3,000 | 80.5               | 5,100 | 137                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,600                       | 69.7               | 4,600 | 123                | 5,100 | 137                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 2,600                       | 69.7               | 4,600 | 123                |       |                    |       |                    |       |                    |       |                    |       |                    |
|   |      | <b>Body Size: NPS 1-1/2</b> |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 430                         | 11.5               | 540   | 14.4               | 410   | 11.0               | 660   | 17.7               | 710   | 19.0               | 1,500 | 40.2               | 920   | 24.6               |
| 15  | 1.0  | 500                         | 13.4               | 520   | 13.9               | 590   | 15.8               | 930   | 24.9               | 1,000 | 26.8               | 2,300 | 61.7               | 1,600 | 42.9               |
| 20  | 1.4  | 580                         | 15.5               | 700   | 18.7               | 770   | 20.6               | 1,100 | 29.5               | 1,300 | 34.8               | 1,900 | 51.0               | 1,900 | 51.0               |
| 30  | 2.1  | 790                         | 21.2               | 970   | 26.0               | 1,100 | 29.5               | 1,500 | 40.2               | 2,200 | 59.0               | 2,500 | 67.1               |       |                    |
| 40  | 2.8  | 950                         | 25.5               | 1,200 | 32.2               | 1,400 | 37.5               | 2,000 | 53.6               | 2,500 | 67.1               |       |                    |       |                    |
| 50  | 3.5  | 1,100                       | 29.5               | 1,500 | 40.2               | 1,800 | 48.3               | 2,500 | 67.1               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,400                       | 37.5               | 1,700 | 45.6               | 2,200 | 59.0               | 3,700 | 99.3               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,800                       | 48.3               | 2,400 | 64.4               | 3,100 | 83.2               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,300                       | 61.7               | 4,000 | 107                | 4,300 | 115                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,000                       | 80.5               | 4,600 | 123                |       |                    |       |                    |       |                    |       |                    |       |                    |
|   |      | <b>Body Size: NPS 2</b>     |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 350                         | 9.3                | 510   | 13.6               | 360   | 9.6                | 570   | 15.3               | 780   | 20.9               | 910   | 24.4               | 1,000 | 26.8               |
| 15  | 1.0  | 490                         | 13.1               | 550   | 14.7               | 560   | 15.0               | 740   | 19.8               | 1,000 | 26.8               | 1,300 | 34.8               | 1,400 | 37.5               |
| 20  | 1.4  | 640                         | 17.1               | 700   | 18.7               | 710   | 19.0               | 1,000 | 26.8               | 1,300 | 34.8               | 1,600 | 42.9               | 1,800 | 48.3               |
| 30  | 2.1  | 830                         | 22.2               | 960   | 25.7               | 1,000 | 26.8               | 1,400 | 37.5               | 2,500 | 67.1               | 3,300 | 88.5               |       |                    |
| 40  | 2.8  | 1,000                       | 26.8               | 1,200 | 32.2               | 1,200 | 32.2               | 2,200 | 59.0               | 3,500 | 93.9               |       |                    |       |                    |
| 50  | 3.5  | 1,100                       | 29.5               | 1,500 | 40.2               | 1,600 | 42.9               | 2,300 | 61.7               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,400                       | 37.5               | 1,600 | 42.9               | 2,100 | 56.3               | 2,600 | 69.7               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,300                       | 61.7               | 2,700 | 72.4               | 2,700 | 72.4               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,500                       | 67.1               | 3,800 | 102                | 3,900 | 105                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,200                       | 85.9               | 4,800 | 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**

| 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 560                       | 15.0               | 720   | 19.3               | 840   | 22.5               | 1,100 | 29.5               | 1,400 | 37.5               | 970   | 26.0               | 2,000 | 53.6               |
| 15  | 1.0  | 700                       | 18.7               | 980   | 26.3               | 1,200 | 32.2               | 1,600 | 42.9               | 2,300 | 61.7               | 3,100 | 83.2               | 3,500 | 93.9               |
| 20  | 1.4  | 910                       | 24.4               | 1,200 | 32.2               | 1,500 | 40.2               | 2,100 | 56.3               | 3,100 | 83.2               | 3,100 | 83.2               | 3,700 | 99.3               |
| 30  | 2.1  | 1,300                     | 34.8               | 1,700 | 45.6               | 2,600 | 69.7               | 3,200 | 85.9               | 3,200 | 85.9               | 3,200 | 85.9               |       |                    |
| 40  | 2.8  | 1,700                     | 45.6               | 2,300 | 61.7               | 3,300 | 88.5               | 4,700 | 126                | 5,200 | 140                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,200 | 85.9               | 4,300 | 115                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,300                     | 61.7               | 3,700 | 99.3               | 5,200 | 140                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,900                     | 77.8               | 4,900 | 132                | 5,200 | 140                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                     | 105                | 5,200 | 140                | 5,200 | 140                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 5,200 | 140                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2 - External</b>                                      |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 580                       | 15.5               | 770   | 20.6               | 770   | 20.6               | 1,100 | 29.5               | 1,300 | 34.8               | 1,700 | 45.6               | 1,800 | 48.3               |
| 15  | 1.0  | 710                       | 19.0               | 900   | 24.1               | 1,100 | 29.5               | 1,600 | 42.9               | 2,000 | 53.6               | 2,700 | 72.4               | 2,800 | 75.1               |
| 20  | 1.4  | 870                       | 23.3               | 1,200 | 32.2               | 1,500 | 40.2               | 2,000 | 53.6               | 2,500 | 67.1               | 3,500 | 93.9               | 4,300 | 115                |
| 30  | 2.1  | 1,200                     | 32.2               | 1,600 | 42.9               | 2,000 | 53.6               | 3,000 | 80.5               | 3,800 | 102                | 5,200 | 140                |       |                    |
| 40  | 2.8  | 1,500                     | 40.2               | 2,100 | 56.3               | 2,700 | 72.4               | 4,200 | 113                | 5,200 | 140                |       |                    |       |                    |
| 50  | 3.5  | 1,900                     | 51.0               | 2,600 | 69.7               | 3,500 | 93.9               | 5,200 | 140                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,300                     | 61.7               | 3,200 | 85.9               | 5,000 | 134                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,000                     | 80.5               | 4,700 | 126                | 5,000 | 134                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,600                     | 96.6               | 5,000 | 134                | 5,000 | 134                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 5,000 | 134                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 550                       | 14.7               | 760   | 20.4               | 690   | 18.5               | 1,000 | 26.8               | 1,400 | 37.5               | 1,700 | 45.6               | 1,800 | 48.3               |
| 15  | 1.0  | 720                       | 19.3               | 920   | 24.6               | 980   | 26.3               | 1,400 | 37.5               | 1,900 | 51.0               | 2,500 | 67.1               | 2,600 | 69.7               |
| 20  | 1.4  | 920                       | 24.6               | 1,100 | 29.5               | 1,200 | 32.2               | 1,800 | 48.3               | 2,400 | 64.4               | 3,400 | 91.2               | 3,800 | 102                |
| 30  | 2.1  | 1,200                     | 32.2               | 1,700 | 45.6               | 1,900 | 51.0               | 2,700 | 72.4               | 4,300 | 115                | 5,200 | 140                |       |                    |
| 40  | 2.8  | 1,600                     | 42.9               | 2,400 | 64.4               | 2,400 | 64.4               | 4,300 | 115                | 5,200 | 140                |       |                    |       |                    |
| 50  | 3.5  | 1,900                     | 51.0               | 2,700 | 72.4               | 3,100 | 83.2               | 4,900 | 132                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,200                     | 59.0               | 3,000 | 80.5               | 4,200 | 113                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 4,600 | 123                | 5,200 | 140                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,700                     | 99.3               | 5,000 | 134                | 5,200 | 140                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,700                     | 126                | 5,000 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 610                       | 16.3               | 850   | 22.8               | 1,000 | 26.8               | 1,300 | 34.8               | 1,800 | 48.3               | 2,200 | 59.0               | 2,500 | 67.1               |
| 15  | 1.0  | 780                       | 20.9               | 1,200 | 32.2               | 1,400 | 37.5               | 1,900 | 51.0               | 2,900 | 77.8               | 3,700 | 99.3               | 4,500 | 121                |
| 20  | 1.4  | 1,000                     | 26.8               | 1,500 | 40.2               | 1,900 | 51.0               | 2,600 | 69.7               | 3,800 | 102                | 4,600 | 123                | 4,700 | 126                |
| 30  | 2.1  | 1,300                     | 34.8               | 2,000 | 53.6               | 3,100 | 83.2               | 3,900 | 105                | 5,500 | 148                | 5,500 | 148                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 2,800 | 75.1               | 3,900 | 105                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,800 | 102                | 5,000 | 134                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,100 | 110                | 5,400 | 145                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,000                     | 80.5               | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 5,400 | 145                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,000                     | 107                | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 640                       | 17.1               | 900   | 24.1               | 960   | 25.7               | 1,300 | 34.8               | 1,600 | 42.9               | 2,200 | 59.0               | 2,200 | 59.0               |
| 15  | 1.0  | 790                       | 21.2               | 1,000 | 26.8               | 1,400 | 37.5               | 2,000 | 53.6               | 2,500 | 67.1               | 3,500 | 93.9               | 3,600 | 96.6               |
| 20  | 1.4  | 970                       | 26.0               | 1,400 | 37.5               | 1,800 | 48.3               | 2,500 | 67.1               | 3,300 | 88.5               | 4,400 | 118                | 5,400 | 145                |
| 30  | 2.1  | 1,400                     | 37.5               | 1,900 | 51.0               | 2,600 | 69.7               | 3,800 | 102                | 5,300 | 142                | 5,500 | 148                |       |                    |
| 40  | 2.8  | 1,600                     | 42.9               | 2,500 | 67.1               | 3,300 | 88.5               | 5,100 | 137                | 5,500 | 148                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,200 | 85.9               | 4,200 | 113                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 3,900 | 105                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,200 | 140                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,700                     | 99.3               | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,300                     | 115                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 620                       | 16.6               | 910   | 24.4               | 890   | 23.8               | 1,300 | 34.8               | 1,600 | 42.9               | 2,100 | 56.3               | 2,400 | 64.4               |
| 15  | 1.0  | 800                       | 21.4               | 1,100 | 29.5               | 1,300 | 34.8               | 1,800 | 48.3               | 2,400 | 64.4               | 3,200 | 85.9               | 3,400 | 91.2               |
| 20  | 1.4  | 1,000                     | 26.8               | 1,400 | 37.5               | 1,600 | 42.9               | 2,300 | 61.7               | 3,100 | 83.2               | 4,200 | 113                | 5,000 | 134                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,000 | 53.6               | 2,400 | 64.4               | 3,400 | 91.2               | 5,200 | 140                | 5,500 | 148                |       |                    |
| 40  | 2.8  | 1,800                     | 48.3               | 2,700 | 72.4               | 3,200 | 85.9               | 4,900 | 132                | 5,500 | 148                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,100 | 83.2               | 4,000 | 107                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 3,600 | 96.6               | 5,000 | 134                | 5,500 | 148                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 5,000 | 134                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                     | 105                | 5,500 | 148                | 5,500 | 148                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 5,500 | 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**

| 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 720                       | 19.3               | 1,200 | 32.2               | 1,700 | 45.6               | 2,200 | 59.0               | 3,000 | 80.5               | 3,900 | 105                | 4,700 | 126                |
| 15  | 1.0  | 960                       | 25.7               | 1,700 | 45.6               | 2,400 | 64.4               | 3,100 | 83.2               | 4,700 | 126                | 6,200 | 166                | 7,000 | 188                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 3,000 | 80.5               | 4,000 | 107                | 6,000 | 161                | 6,500 | 174                | 7,000 | 188                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,700 | 72.4               | 4,500 | 121                | 5,800 | 156                | 6,500 | 174                | 6,500 | 174                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,400 | 91.2               | 5,500 | 148                | 6,500 | 174                | 6,500 | 174                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 4,100 | 110                | 6,500 | 174                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,600 | 123                | 6,500 | 174                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 5,700 | 153                | 6,500 | 174                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 5,700 | 153                | 6,500 | 174                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,200                     | 113                | 5,700 | 153                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 750                       | 20.1               | 1,200 | 32.2               | 1,600 | 42.9               | 2,300 | 61.7               | 2,900 | 77.8               | 3,900 | 105                | 4,400 | 118                |
| 15  | 1.0  | 990                       | 26.5               | 1,500 | 40.2               | 2,300 | 61.7               | 3,200 | 85.9               | 4,200 | 113                | 6,100 | 164                | 7,200 | 193                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 2,800 | 75.1               | 4,000 | 107                | 5,900 | 158                | 6,600 | 177                | 7,200 | 193                |
| 30  | 2.1  | 1,600                     | 42.9               | 2,600 | 69.7               | 4,200 | 113                | 5,900 | 158                | 6,500 | 174                | 6,600 | 177                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,300 | 88.5               | 5,200 | 140                | 6,500 | 174                | 6,500 | 174                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,800 | 102                | 6,200 | 166                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,500 | 121                | 6,200 | 166                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,700 | 153                | 6,200 | 166                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,100                     | 110                | 5,700 | 153                | 6,200 | 166                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 5,700 | 153                |       |                    |       |                    |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 720                       | 19.3               | 1,200 | 32.2               | 1,500 | 40.2               | 2,200 | 59.0               | 3,000 | 80.5               | 3,800 | 102                | 4,700 | 126                |
| 15  | 1.0  | 970                       | 26.0               | 1,600 | 42.9               | 2,200 | 59.0               | 3,200 | 85.9               | 4,400 | 118                | 5,700 | 153                | 6,600 | 177                |
| 20  | 1.4  | 1,100                     | 29.5               | 2,000 | 53.6               | 2,900 | 77.8               | 3,900 | 105                | 5,200 | 140                | 6,800 | 183                | 7,200 | 193                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,700 | 72.4               | 4,000 | 107                | 5,400 | 145                | 6,500 | 174                | 6,800 | 183                |       |                    |
| 40  | 2.8  | 1,900                     | 51.0               | 3,200 | 85.9               | 5,000 | 134                | 6,500 | 174                | 6,500 | 174                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,800 | 102                | 5,900 | 158                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,300 | 115                | 6,200 | 166                | 6,500 | 174                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,900 | 158                | 6,200 | 166                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 5,900 | 158                | 6,200 | 166                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                     | 132                | 5,900 | 158                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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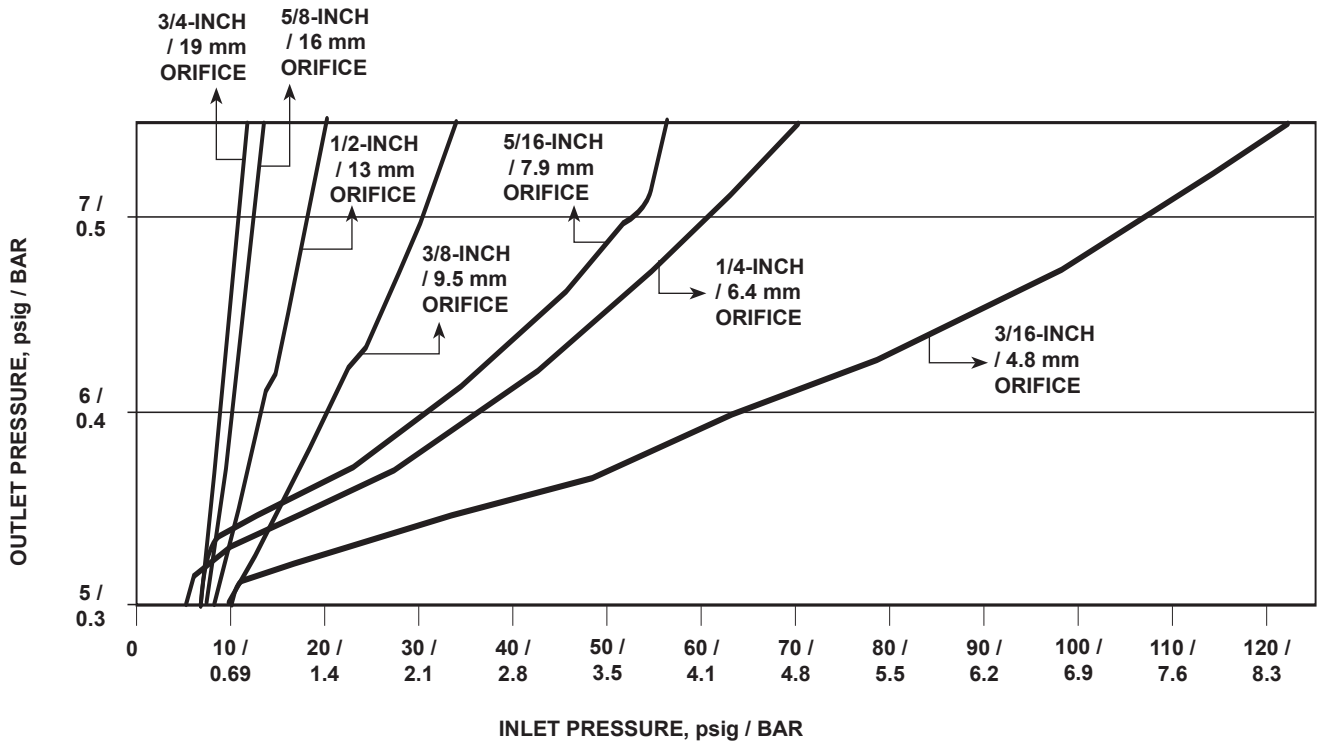


Figure 14. Type CS400IR Relief Curves (Blocked per Orifice Size) at 5 psig / 345 mbar Set Pressure

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 <sup>(1)</sup> |     |                   |     |
|--------------|-----|------------------------|------|---|-----|-------------------|-----|
|              |     |                        |      | 6 psig / 414 mbar   |     | 7 psig / 483 mbar |     |
| Inches       | mm  | psig                   | mbar | psig  | bar | psig              | bar |
| 3/16         | 4.8 | 5                      | 345  | 63  | 4.3 | 106               | 7.3 |
| 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-inches w.c. / 17 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,060 | 28.4               |
| 5   | 0.34 | 210                       | 5.6                | 590   | 15.8               | 610   | 16.3               | 870   | 23.3               | 1,120 | 30.0               | 1,360 | 36.5               | 1,920 | 51.5               |
| 10  | 0.69 | 210                       | 5.6                | 680   | 18.2               | 970   | 26.0               | 1,180 | 31.6               | 1,430 | 38.3               | 2,000 | 53.6               | 2,500 | 67.1               |
| 15  | 1.0  | 210                       | 5.6                | 1,060 | 28.4               | 1,150 | 30.8               | 1,440 | 38.6               | 1,720 | 46.1               | 2,100 | 56.3               | 2,700 | 72.4               |
| 20  | 1.4  | 980                       | 26.3               | 1,220 | 32.7               | 1,390 | 37.3               | 1,550 | 41.6               | 1,550 | 41.6               | 2,500 | 67.1               | 3,300 | 88.5               |
| 30  | 2.1  | 1,230                     | 33.0               | 1,450 | 38.9               | 1,700 | 45.6               | 1,800 | 48.3               | 1,880 | 50.4               | 2,600 | 69.7               |       |                    |
| 40  | 2.8  | 1,400                     | 37.5               | 1,450 | 38.9               | 1,730 | 46.4               | 1,880 | 50.4               | 2,300 | 61.7               |       |                    |       |                    |
| 50  | 3.5  | 1,450                     | 38.9               | 1,450 | 38.9               | 1,860 | 49.9               | 2,000 | 53.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,450                     | 38.9               | 1,450 | 38.9               | 2,000 | 53.6               | 2,300 | 61.7               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,450                     | 38.9               | 1,450 | 38.9               | 2,500 | 67.1               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,450                     | 38.9               | 1,450 | 38.9               | 2,900 | 77.8               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,450                     | 38.9               | 1,450 | 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-inches w.c. / 27 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,040 | 27.9               |
| 2   | 0.14 | 280                       | 7.5                | 470   | 12.6               | 600   | 16.1               | 840   | 22.5               | 1,050 | 28.1               | 1,330  | 35.7               | 1,530 | 41.0               |
| 3   | 0.21 | 370                       | 9.9                | 600   | 16.1               | 760   | 20.4               | 1,060 | 28.4               | 1,380 | 37.0               | 1,390  | 37.3               | 1,950 | 52.3               |
| 5   | 0.34 | 500                       | 13.4               | 810   | 21.7               | 1,380 | 37.0               | 1,900 | 51.0               | 1,950 | 52.3               | 2,000  | 53.6               | 2,400 | 64.4               |
| 10  | 0.69 | 760                       | 20.4               | 1,330 | 35.7               | 1,480 | 39.7               | 2,100 | 56.3               | 2,700 | 72.4               | 3,600  | 96.6               | 3,800 | 102                |
| 15  | 1.0  | 840                       | 22.5               | 1,790 | 48.0               | 1,960 | 52.6               | 2,700 | 72.4               | 3,500 | 93.9               | 4,900  | 132                | 6,600 | 177                |
| 20  | 1.4  | 1,180                     | 31.6               | 1,990 | 53.4               | 2,500 | 67.1               | 3,800 | 102                | 4,900 | 132                | 7,100  | 191                | 7,300 | 196                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,400 | 64.4               | 3,300 | 88.5               | 5,100 | 137                | 7,900 | 212                | 10,700 | 287                |       |                    |
| 40  | 2.8  | 1,880                     | 50.4               | 3,100 | 83.2               | 4,700 | 126                | 6,200 | 166                | 9,700 | 260                |        |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,900 | 105                | 5,700 | 153                | 8,200 | 220                |       |                    |        |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,600 | 123                | 6,500 | 174                | 9,900 | 266                |       |                    |        |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 6,000 | 161                | 7,000 | 188                |       |                    |       |                    |        |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 7,000 | 188                | 7,000 | 188                |       |                    |       |                    |        |                    |       |                    |
| 125   | 8.6  | 4,700                     | 126                | 8,600 | 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-inches w.c. / 35 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |        |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,040  | 27.9               | 1,180  | 31.6               | 1,520 | 40.8               |
| 3   | 0.21 | 350                       | 9.3                | 570   | 15.3               | 750    | 20.1               | 970   | 26.0               | 1,610  | 43.2               | 1,650  | 44.2               | 1,730 | 46.4               |
| 5   | 0.34 | 480                       | 12.8               | 760   | 20.4               | 1,310  | 35.1               | 1,330 | 35.7               | 1,630  | 43.7               | 2,300  | 61.7               | 2,300 | 61.7               |
| 10  | 0.69 | 760                       | 20.4               | 1,380 | 37.0               | 1,670  | 44.8               | 2,100 | 56.3               | 2,600  | 69.7               | 3,500  | 93.9               | 3,900 | 105                |
| 15  | 1.0  | 970                       | 26.0               | 1,650 | 44.2               | 1,940  | 52.0               | 2,500 | 67.1               | 3,900  | 105                | 5,000  | 134                | 5,100 | 137                |
| 20  | 1.4  | 1,170                     | 31.4               | 1,760 | 47.2               | 2,300  | 61.7               | 3,200 | 85.9               | 4,200  | 113                | 6,100  | 164                | 6,500 | 174                |
| 30  | 2.1  | 1,500                     | 40.2               | 2,400 | 64.4               | 3,300  | 88.5               | 4,200 | 113                | 6,400  | 172                | 10,300 | 277                |       |                    |
| 40  | 2.8  | 1,830                     | 49.1               | 3,200 | 85.9               | 4,000  | 107                | 5,900 | 158                | 10,900 | 293                |        |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,700 | 99.3               | 5,200  | 140                | 8,200 | 220                |        |                    |        |                    |       |                    |
| 60  | 4.1  | 2,500                     | 67.1               | 4,500 | 121                | 6,200  | 166                | 8,700 | 234                |        |                    |        |                    |       |                    |
| 80  | 5.5  | 3,300                     | 88.5               | 5,400 | 145                | 9,100  | 244                |       |                    |        |                    |        |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 6,700 | 180                | 11,200 | 301                |       |                    |        |                    |        |                    |       |                    |
| 125   | 8.6  | 4,600                     | 123                | 8,100 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -11 mbar     | 11 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,130 | 30.3               |
| 5   | 0.34 | 360                       | 9.6                | 360   | 9.6                | 550   | 14.7               | 550   | 14.7               | 1,050 | 28.1               | 1,400 | 37.5               | 1,430 | 38.3               |
| 10  | 0.69 | 360                       | 9.6                | 360   | 9.6                | 1,060 | 28.4               | 1,420 | 38.1               | 1,770 | 47.5               | 2,100 | 56.3               | 2,100 | 56.3               |
| 15  | 1.0  | 480                       | 12.8               | 940   | 25.2               | 1,370 | 36.7               | 1,700 | 45.6               | 2,200 | 59.0               | 2,500 | 67.1               | 2,700 | 72.4               |
| 20  | 1.4  | 940                       | 25.2               | 950   | 25.5               | 1,670 | 44.8               | 2,000 | 53.6               | 2,700 | 72.4               | 2,900 | 77.8               | 2,900 | 77.8               |
| 30  | 2.1  | 1,280                     | 34.3               | 1,280 | 34.3               | 2,000 | 53.6               | 2,700 | 72.4               | 3,300 | 89                 | 3,900 | 105                |       |                    |
| 40  | 2.8  | 1,590                     | 42.6               | 1,590 | 42.6               | 2,600 | 69.7               | 3,400 | 91.2               | 4,200 | 113                |       |                    |       |                    |
| 50  | 3.5  | 1,830                     | 49.1               | 1,950 | 52.3               | 3,000 | 80.5               | 3,600 | 96.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,990                     | 53.4               | 1,990 | 53.4               | 3,300 | 88.5               | 3,900 | 105                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,300                     | 61.7               | 2,300 | 61.7               | 4,000 | 107                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,700                     | 72.4               | 2,700 | 72.4               | 4,400 | 118                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,200                     | 85.9               | 3,200 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -21 mbar     | 21 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,290 | 34.6               | 1,590 | 42.6               | 1,590 | 42.6               |
| 3   | 0.21 | 400                                | 10.7               | 600   | 16.1               | 870    | 23.3               | 1,100 | 29.5               | 1,510 | 40.5               | 1,940 | 52.0               | 2,100 | 56.3               |
| 5   | 0.34 | 530                                | 14.2               | 820   | 22.0               | 1,330  | 35.7               | 1,480 | 39.7               | 2,000 | 53.6               | 2,700 | 72.4               | 2,800 | 75.1               |
| 10  | 0.69 | 810                                | 21.7               | 1,310 | 35.1               | 1,830  | 49.1               | 2,300 | 61.7               | 3,300 | 88.5               | 4,200 | 113                | 4,600 | 123                |
| 15  | 1.0  | 900                                | 24.1               | 1,600 | 42.9               | 2,300  | 61.7               | 2,900 | 77.8               | 4,200 | 113                | 5,600 | 150                | 6,100 | 164                |
| 20  | 1.4  | 1,210                              | 32.4               | 1,910 | 51.2               | 2,800  | 75.1               | 3,700 | 99.3               | 5,200 | 140                | 6,700 | 180                | 7,100 | 191                |
| 30  | 2.1  | 1,580                              | 42.4               | 2,400 | 64.4               | 3,700  | 99.3               | 4,900 | 132                | 7,100 | 191                | 9,200 | 247                |       |                    |
| 40  | 2.8  | 1,930                              | 51.8               | 3,100 | 83.2               | 4,700  | 126                | 6,300 | 169                | 9,100 | 244                |       |                    |       |                    |
| 50  | 3.5  | 2,200                              | 59.0               | 3,800 | 102                | 5,800  | 156                | 7,300 | 196                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                              | 69.7               | 4,300 | 115                | 6,600  | 177                | 8,500 | 228                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                              | 88.5               | 5,400 | 145                | 8,500  | 228                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                              | 107                | 6,600 | 177                | 10,700 | 287                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                              | 132                | 8,100 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -7 mbar   | 7 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,130 | 30.3               | 1,270 | 34.0               | 1,340 | 35.9               |
| 15  | 1.0  | 480                                | 12.8               | 570   | 15.3               | 880   | 23.6               | 1,090 | 29.2               | 1,410 | 37.8               | 1,540 | 41.3               | 1,760 | 47.2               |
| 20  | 1.4  | 660                                | 17.7               | 660   | 17.7               | 1,060 | 28.4               | 1,280 | 34.3               | 1,670 | 44.8               | 1,740 | 46.7               | 1,850 | 49.6               |
| 30  | 2.1  | 850                                | 22.8               | 850   | 22.8               | 1,330 | 35.7               | 1,620 | 43.4               | 1,880 | 50.4               | 2,200 | 59.0               |       |                    |
| 40  | 2.8  | 1,020                              | 27.3               | 1,020 | 27.3               | 1,680 | 45.1               | 1,930 | 51.8               | 2,200 | 59.0               |       |                    |       |                    |
| 50  | 3.5  | 1,210                              | 32.4               | 1,210 | 32.4               | 1,840 | 49.3               | 1,970 | 52.8               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,280                              | 34.3               | 1,280 | 34.3               | 1,920 | 51.5               | 2,000 | 53.6               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,430                              | 38.3               | 1,430 | 38.3               | 2,300 | 61.7               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,550                              | 41.6               | 1,550 | 41.6               | 2,700 | 72.4               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,710                              | 45.9               | 1,710 | 45.9               |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -14 mbar  | 14 mbar | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,200 | 32.2               | 1,350 | 36.2               |
| 5   | 0.34 | 410                                | 11.0               | 410   | 11.0               | 840   | 22.5               | 1,070 | 28.7               | 1,330 | 35.7               | 1,780 | 47.7               | 1,790 | 48.0               |
| 10  | 0.69 | 410                                | 11.0               | 410   | 11.0               | 1,310 | 35.1               | 1,650 | 44.2               | 2,200 | 59.0               | 2,600 | 69.7               | 2,900 | 77.8               |
| 15  | 1.0  | 490                                | 13.1               | 1,250 | 33.5               | 1,670 | 44.8               | 2,100 | 56.3               | 2,800 | 75.1               | 3,500 | 93.9               | 3,700 | 99.3               |
| 20  | 1.4  | 1,090                              | 29.2               | 1,480 | 39.7               | 2,000 | 53.6               | 2,500 | 67.1               | 3,500 | 93.9               | 4,000 | 107                | 4,100 | 110                |
| 30  | 2.1  | 1,490                              | 40.0               | 1,940 | 52.0               | 2,600 | 69.7               | 3,300 | 88.5               | 4,400 | 118                | 5,400 | 145                |       |                    |
| 40  | 2.8  | 1,790                              | 48.0               | 2,500 | 67.1               | 3,300 | 88.5               | 4,300 | 115                | 5,700 | 153                |       |                    |       |                    |
| 50  | 3.5  | 2,100                              | 56.3               | 2,300 | 61.7               | 3,900 | 105                | 4,900 | 132                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                              | 64.4               | 3,300 | 88.5               | 4,500 | 121                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                              | 83.2               | 3,300 | 88.5               | 5,400 | 145                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,600                              | 96.6               | 3,700 | 99.3               | 6,400 | 172                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                              | 121                | 4,500 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,580 | 42.4               |
| 5   | 0.34 | 350                                | 9.3                | 480   | 12.8               | 590   | 15.8               | 750   | 20.1               | 1,150 | 30.8               | 1,150 | 30.8               | 1,230 | 33.0               |
| 10  | 0.69 | 590                                | 15.8               | 800   | 21.4               | 1,080 | 28.9               | 1,170 | 31.4               | 1,530 | 41.0               | 1,800 | 48.3               | 2,400 | 64.4               |
| 15  | 1.0  | 700                                | 18.7               | 1,060 | 28.4               | 1,140 | 30.6               | 1,550 | 41.6               | 2,100 | 56.3               | 2,600 | 69.7               | 2,900 | 77.8               |
| 20  | 1.4  | 960                                | 25.7               | 1,290 | 34.6               | 1,440 | 38.6               | 1,910 | 51.2               | 2,600 | 69.7               | 3,000 | 80.5               | 3,000 | 80.5               |
| 30  | 2.1  | 1,260                              | 33.8               | 1,620 | 43.4               | 2,000 | 53.6               | 2,800 | 75.1               | 3,200 | 85.9               | 3,700 | 99.3               |       |                    |
| 40  | 2.8  | 1,600                              | 42.9               | 2,200 | 59.0               | 2,500 | 67.1               | 3,300 | 88.5               | 3,900 | 105                |       |                    |       |                    |
| 50  | 3.5  | 1,810                              | 48.5               | 2,500 | 67.1               | 2,700 | 72.4               | 3,600 | 96.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,100                              | 56.3               | 2,700 | 72.4               | 3,100 | 83.2               | 4,100 | 110                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,700                              | 72.4               | 3,400 | 91.2               | 3,600 | 96.6               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,000                              | 80.5               | 3,900 | 105                | 4,100 | 110                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,500                              | 93.9               | 4,900 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,190 | 31.9               | 2,000 | 53.6               | 2,400 | 64.4               |
| 5   | 0.34 | 460                       | 12.3               | 750   | 20.1               | 1,000 | 26.8               | 1,300 | 34.8               | 2,200 | 59.0               | 2,200 | 59.0               | 2,600 | 69.7               |
| 10  | 0.69 | 750                       | 20.1               | 1,170 | 31.4               | 1,750 | 46.9               | 2,100 | 56.3               | 3,000 | 80.5               | 3,600 | 96.6               | 4,500 | 121                |
| 15  | 1.0  | 990                       | 26.5               | 1,720 | 46.1               | 2,100 | 56.3               | 2,800 | 75.1               | 3,900 | 105                | 5,200 | 140                | 5,700 | 153                |
| 20  | 1.4  | 1,170                     | 31.4               | 2,000 | 53.6               | 2,500 | 67.1               | 3,600 | 96.6               | 5,100 | 137                | 6,200 | 166                | 6,600 | 177                |
| 30  | 2.1  | 1,530                     | 41.0               | 2,500 | 67.1               | 3,700 | 99.3               | 4,900 | 132                | 6,500 | 174                | 8,000 | 215                |       |                    |
| 40  | 2.8  | 1,870                     | 50.2               | 3,300 | 88.5               | 4,500 | 121                | 6,200 | 166                | 8,000 | 215                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,900 | 105                | 5,100 | 137                | 7,100 | 191                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                     | 69.7               | 4,300 | 115                | 6,100 | 164                | 8,500 | 228                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.9               | 5,600 | 150                | 8,000 | 215                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                     | 105                | 6,800 | 183                | 9,400 | 252                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                     | 132                | 8,400 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,380 | 37.0               | 1,700 | 45.6               |
| 5   | 0.34 | 390                       | 10.4               | 550   | 14.7               | 690   | 18.5               | 890   | 23.8               | 1,380 | 37.0               | 1,380 | 37.0               | 1,540 | 41.3               |
| 10  | 0.69 | 640                       | 17.1               | 880   | 23.6               | 1,230 | 33.0               | 1,410 | 37.8               | 1,830 | 49.1               | 2,200 | 59.0               | 2,900 | 77.8               |
| 15  | 1.0  | 800                       | 21.4               | 1,160 | 31.1               | 1,370 | 36.7               | 1,800 | 48.3               | 2,500 | 67.1               | 3,200 | 85.9               | 3,500 | 93.9               |
| 20  | 1.4  | 1,060                     | 28.4               | 1,490 | 40.0               | 1,660 | 44.5               | 2,200 | 59.0               | 3,100 | 83.2               | 3,700 | 99.3               | 3,700 | 99.3               |
| 30  | 2.1  | 1,430                     | 38.3               | 1,830 | 49.1               | 2,400 | 64.4               | 3,300 | 88.5               | 3,900 | 105                | 4,800 | 129                |       |                    |
| 40  | 2.8  | 1,730                     | 46.4               | 2,600 | 69.7               | 2,900 | 77.8               | 3,900 | 105                | 4,800 | 129                |       |                    |       |                    |
| 50  | 3.5  | 2,000                     | 53.6               | 2,900 | 77.8               | 3,300 | 88.5               | 4,400 | 118                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,300                     | 61.7               | 3,200 | 85.9               | 3,700 | 99.3               | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,000                     | 80.5               | 4,100 | 110                | 4,700 | 126                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,400                     | 91.2               | 4,700 | 126                | 5,300 | 142                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,200                     | 113                | 5,800 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,360 | 36.5               | 2,200 | 59.0               | 2,600 | 69.7               |
| 5   | 0.34 | 500                                | 13.4               | 800   | 21.4               | 1,100  | 29.5               | 1,500 | 40.2               | 2,500 | 67.1               | 2,500 | 67.1               | 3,000 | 80.5               |
| 10  | 0.69 | 790                                | 21.2               | 1,270 | 34.0               | 1,960  | 52.6               | 2,500 | 67.1               | 3,400 | 91.2               | 4,200 | 113                | 5,400 | 145                |
| 15  | 1.0  | 1,020                              | 27.3               | 1,760 | 47.2               | 2,300  | 61.7               | 3,200 | 85.9               | 4,500 | 121                | 6,000 | 161                | 6,800 | 183                |
| 20  | 1.4  | 1,180                              | 31.6               | 2,100 | 56.3               | 2,800  | 75.1               | 3,900 | 105                | 5,800 | 156                | 7,000 | 188                | 8,000 | 215                |
| 30  | 2.1  | 1,550                              | 41.6               | 2,600 | 69.7               | 4,000  | 107                | 5,500 | 148                | 7,900 | 212                | 9,500 | 255                |       |                    |
| 40  | 2.8  | 1,900                              | 51.0               | 3,300 | 88.5               | 5,000  | 134                | 6,900 | 185                | 9,800 | 263                |       |                    |       |                    |
| 50  | 3.5  | 2,200                              | 59.0               | 4,100 | 110                | 5,800  | 156                | 8,200 | 220                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,600                              | 69.7               | 4,500 | 121                | 6,800  | 183                | 9,600 | 258                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                              | 88.5               | 5,800 | 156                | 8,900  | 239                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                              | 105                | 7,000 | 188                | 10,500 | 282                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                              | 132                | 8,700 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,030 | 27.6               | 1,230 | 33.0               | 1,590 | 42.6               |
| 20  | 1.4  | 570                                | 15.3               | 690   | 18.5               | 750   | 20.1               | 990   | 26.5               | 1,250 | 33.5               | 1,470 | 39.4               | 1,710 | 45.9               |
| 30  | 2.1  | 680                                | 18.2               | 810   | 21.7               | 980   | 26.3               | 1,150 | 30.8               | 1,560 | 41.8               | 1,600 | 42.9               |       |                    |
| 40  | 2.8  | 680                                | 18.2               | 1,040 | 27.9               | 1,290 | 34.6               | 1,660 | 44.5               | 1,700 | 45.6               |       |                    |       |                    |
| 50  | 3.5  | 1,070                              | 28.7               | 1,370 | 36.7               | 1,420 | 38.1               | 1,590 | 42.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,140                              | 30.6               | 1,310 | 35.1               | 1,660 | 44.5               | 1,860 | 49.9               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,530                              | 41.0               | 1,720 | 46.1               | 1,840 | 49.3               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,570                              | 42.1               | 1,750 | 46.9               | 1,750 | 46.9               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 2,000                              | 53.6               | 2,300 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,400 | 37.5               | 1,550 | 41.6               | 1,810 | 48.5               |
| 15  | 1.0  | 690                       | 18.5               | 800   | 21.4               | 1,370 | 36.7               | 1,520 | 40.8               | 1,950 | 52.3               | 2,300 | 61.7               | 2,700 | 72.4               |
| 20  | 1.4  | 890                       | 23.8               | 1,190 | 31.9               | 1,370 | 36.7               | 1,860 | 49.9               | 2,200 | 59.0               | 2,700 | 72.4               | 3,200 | 85.9               |
| 30  | 2.1  | 1,220                     | 32.7               | 1,590 | 42.6               | 1,980 | 53.1               | 2,300 | 61.7               | 3,000 | 80.5               | 3,400 | 91.2               |       |                    |
| 40  | 2.8  | 1,500                     | 40.2               | 1,920 | 51.5               | 2,300 | 61.7               | 3,200 | 85.9               | 3,800 | 102                |       |                    |       |                    |
| 50  | 3.5  | 1,810                     | 48.5               | 2,400 | 64.4               | 2,700 | 72.4               | 3,400 | 91.2               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,000                     | 53.6               | 2,600 | 69.7               | 3,200 | 85.9               | 3,900 | 105                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,600                     | 69.7               | 3,500 | 93.9               | 3,900 | 105                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,100                     | 83.2               | 3,900 | 105                | 4,300 | 115                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,900                     | 105                | 5,400 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,660 | 44.5               | 2,000 | 54                 | 2,200 | 59.0               |
| 15  | 1.0  | 760                       | 20.4               | 1,220 | 32.7               | 1,710 | 46                 | 1,810 | 48.5               | 2,300 | 62                 | 2,800 | 75                 | 3,400 | 91.2               |
| 20  | 1.4  | 990                       | 26.5               | 1,400 | 37.5               | 1,710 | 46                 | 2,300 | 61.7               | 2,800 | 75                 | 3,500 | 94                 | 4,100 | 110                |
| 30  | 2.1  | 1,400                     | 37.5               | 1,890 | 50.7               | 2,400 | 64                 | 2,900 | 77.8               | 3,900 | 105                | 4,400 | 118                |       |                    |
| 40  | 2.8  | 1,670                     | 44.8               | 2,300 | 61.7               | 2,900 | 78                 | 4,000 | 107                | 4,900 | 132                |       |                    |       |                    |
| 50  | 3.5  | 1,960                     | 52.6               | 2,900 | 77.8               | 3,400 | 91                 | 4,600 | 123                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.4               | 3,200 | 85.9               | 4,000 | 107                | 5,200 | 140                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,100                     | 83.2               | 4,200 | 113                | 5,000 | 134                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,500                     | 93.9               | 4,900 | 132                | 5,600 | 150                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,500                     | 121                | 6,700 | 180                |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                                    |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|------------------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
|   |      | Body Size: NPS 1-1/4, 1-1/2, and 2 |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 670                                | 17.9               | 1320  | 35.4               | 1,600  | 42.9               | 1,700 | 45.6               | 3,000 | 80.5               | 3,600 | 97                 | 4,200 | 113                |
| 15  | 1.0  | 950                                | 25.5               | 1770  | 47.5               | 2,700  | 72.4               | 3,100 | 83.2               | 4,400 | 118                | 5,500 | 148                | 6,300 | 169                |
| 20  | 1.4  | 1,160                              | 31.1               | 2,000 | 53.6               | 2,900  | 77.8               | 3,700 | 99.3               | 5,300 | 142                | 7,000 | 188                | 8,200 | 220                |
| 30  | 2.1  | 1,570                              | 42.1               | 2,600 | 69.7               | 4,100  | 110                | 5,200 | 140                | 7,700 | 207                | 9,000 | 247                |       |                    |
| 40  | 2.8  | 1,860                              | 49.9               | 3,300 | 88.5               | 4,800  | 129                | 6,700 | 180                | 9,000 | 242                |       |                    |       |                    |
| 50  | 3.5  | 2,000                              | 53.6               | 3,900 | 105                | 5,800  | 156                | 8,100 | 217                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,500                              | 67.1               | 4,300 | 115                | 7,000  | 188                | 9,600 | 258                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,300                              | 88.5               | 5,600 | 150                | 8,900  | 239                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                              | 105                | 6,600 | 177                | 10,200 | 274                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                              | 132                | 8,800 | 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-inches w.c. / 17 mbar Setpoint

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,050 | 28.1               | 1,210 | 32.4               |
| 3   | 0.21 | 310                       | 8.3                | 460   | 12.3               | 650   | 17.4               | 740   | 19.8               | 1,270 | 34.0               | 1,440 | 38.6               | 1,790 | 48.0               |
| 5   | 0.34 | 420                       | 11.3               | 660   | 17.7               | 960   | 25.7               | 1,180 | 31.6               | 2,070 | 55.5               | 2,460 | 65.9               | 2,730 | 73.2               |
| 10  | 0.69 | 720                       | 19.3               | 1,280 | 34.3               | 1,840 | 49.3               | 2,390 | 64.1               | 3,640 | 97.6               | 4,830 | 129                | 4,850 | 130.0              |
| 15  | 1.0  | 970                       | 26.0               | 1,800 | 48.2               | 2,700 | 72.4               | 3,580 | 95.9               | 5,130 | 138                | 3,910 | 105                | 6,700 | 180                |
| 20  | 1.4  | 1,150                     | 30.8               | 2,170 | 58.2               | 3,390 | 90.9               | 4,530 | 121                | 3,170 | 85.0               | 2,540 | 68.1               | 3,330 | 89.2               |
| 30  | 2.1  | 1,530                     | 41.0               | 2,780 | 74.5               | 4,450 | 119                | 2,410 | 64.6               | 2,260 | 60.6               | 2,280 | 61.1               |       |                    |
| 40  | 2.8  | 1,890                     | 50.7               | 2,800 | 75.0               | 2,980 | 79.9               | 2,120 | 56.8               | 2,260 | 60.6               |       |                    |       |                    |
| 50  | 3.5  | 2,260                     | 60.6               | 2,800 | 75.0               | 2,690 | 72.1               | 2,080 | 55.7               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.3               | 2,730 | 73.2               | 2,590 | 69.4               | 2,040 | 54.7               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,400                     | 64.3               | 2,590 | 69.4               | 2,590 | 69.4               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,400                     | 64.3               | 2,590 | 69.4               | 2,590 | 69.4               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 2,540                     | 68.1               | 2,590 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -0.011 bar   | 0.011 bar | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |        |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  | bar  | 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               | 1,000 | 26.8               | 1,080 | 28.9               |
| 5   | 0.34 | 400                       | 10.7               | 550   | 14.7               | 800   | 21.4               | 900   | 24.1               | 1,180  | 31.6               | 1,520 | 40.7               | 1,900 | 50.9               |
| 10  | 0.69 | 610                       | 16.3               | 880   | 23.6               | 1,270 | 34.0               | 1,510 | 40.5               | 2,210  | 59.2               | 2,790 | 74.8               | 3,310 | 88.7               |
| 15  | 1.0  | 860                       | 23.0               | 1,270 | 34.0               | 1,770 | 47.4               | 2,140 | 57.4               | 3,120  | 83.6               | 4,380 | 117                | 5,230 | 140                |
| 20  | 1.4  | 1,070                     | 28.7               | 1,540 | 41.3               | 2,260 | 60.6               | 2,890 | 77.5               | 4,100  | 110                | 6,110 | 164                | 6,820 | 183                |
| 30  | 2.1  | 1,450                     | 38.9               | 2,390 | 64.1               | 3,300 | 88.4               | 4,250 | 114                | 7,210  | 193                | 8,300 | 222                |       |                    |
| 40  | 2.8  | 1,880                     | 50.4               | 3,250 | 87.1               | 4,460 | 120                | 6,370 | 171                | 10,110 | 271                |       |                    |       |                    |
| 50  | 3.5  | 2,220                     | 59.5               | 3,920 | 105                | 5,990 | 161                | 8,150 | 218                |        |                    |       |                    |       |                    |
| 60  | 4.1  | 2,630                     | 70.5               | 4,590 | 123                | 7,470 | 200                | 9,620 | 258                |        |                    |       |                    |       |                    |
| 80  | 5.5  | 3,340                     | 89.5               | 5,980 | 160                | 8,620 | 231                |       |                    |        |                    |       |                    |       |                    |
| 100   | 6.9  | 3,560                     | 95.4               | 7,230 | 194                | 8,620 | 231                |       |                    |        |                    |       |                    |       |                    |
| 125   | 8.6  | 3,560                     | 95.4               | 7,610 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -21 bar      | 21 mbar   | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |        |                    |        |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  | bar  | Body Size: NPS 1-1/4      |                    |       |                    |        |                    |        |                    |        |                    |        |                    |       |                    |
| 2   | 0.14 | 250                       | 6.7                | 460   | 12.3               | 640    | 17.2               | 770    | 20.6               | 1,050  | 28.1               | 1,180  | 31.6               | 1,460 | 39.1               |
| 3   | 0.21 | 420                       | 11.3               | 570   | 15.3               | 840    | 22.5               | 1,050  | 28.1               | 1,440  | 38.6               | 1,800  | 48.2               | 2,020 | 54.1               |
| 5   | 0.34 | 530                       | 14.2               | 810   | 21.7               | 1,230  | 33.0               | 1,500  | 40.2               | 1,980  | 53.1               | 2,430  | 65.1               | 2,930 | 78.5               |
| 10  | 0.69 | 800                       | 21.4               | 1,320 | 35.4               | 1,930  | 51.7               | 2,420  | 64.9               | 3,390  | 90.9               | 4,250  | 114                | 4,870 | 131                |
| 15  | 1.0  | 1,030                     | 27.6               | 1,750 | 46.9               | 2,580  | 69.1               | 3,210  | 86.0               | 4,720  | 127                | 5,900  | 158                | 6,550 | 176                |
| 20  | 1.4  | 1,200                     | 32.2               | 2,120 | 56.8               | 3,190  | 85.5               | 4,000  | 107                | 6,000  | 161                | 7,390  | 198                | 8,360 | 224                |
| 30  | 2.1  | 1,560                     | 41.8               | 2,770 | 74.2               | 4,350  | 117                | 5,780  | 155                | 8,730  | 234                | 10,820 | 290                |       |                    |
| 40  | 2.8  | 1,920                     | 51.5               | 3,400 | 91.1               | 5,520  | 148                | 7,430  | 199                | 11,390 | 305                |        |                    |       |                    |
| 50  | 3.5  | 2,280                     | 61.1               | 4,060 | 109                | 6,620  | 177                | 9,150  | 245                |        |                    |        |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,670 | 125                | 7,760  | 208                | 10,720 | 287                |        |                    |        |                    |       |                    |
| 80  | 5.5  | 3,370                     | 90.3               | 5,980 | 160                | 9,870  | 265                |        |                    |        |                    |        |                    |       |                    |
| 100   | 6.9  | 4,100                     | 110                | 7,250 | 194                | 12,000 | 322                |        |                    |        |                    |        |                    |       |                    |
| 125   | 8.6  | 4,380                     | 117                | 8,190 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |  |
| 69 mbar  |  | -7 bar    | 7 mbar   | 45 to 69 mbar            |                      |  |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  | bar  | 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               | 1,080 | 28.9               | 1,210 | 32.4               |
| 10  | 0.69 | 490                       | 13.1               | 640   | 17.2               | 1,450  | 38.9               | 1,100 | 29.5               | 1,580 | 42.3               | 2,190 | 58.7               | 2,360 | 63.2               |
| 15  | 1.0  | 660                       | 17.7               | 890   | 23.9               | 1,970  | 52.8               | 1,600 | 42.9               | 2,220 | 59.5               | 3,070 | 82.3               | 4,190 | 112                |
| 20  | 1.4  | 840                       | 22.5               | 1,100 | 29.5               | 2,460  | 65.9               | 2,150 | 57.6               | 3,160 | 84.7               | 5,110 | 137                | 5,960 | 160                |
| 30  | 2.1  | 1,180                     | 31.6               | 1,810 | 48.5               | 3,610  | 96.7               | 3,470 | 93.0               | 6,380 | 171                | 7,160 | 192                |       |                    |
| 40  | 2.8  | 1,640                     | 44.0               | 2,590 | 69.4               | 4,800  | 129                | 4,970 | 133                | 9,700 | 260                |       |                    |       |                    |
| 50  | 3.5  | 2,100                     | 56.3               | 3,510 | 94.1               | 6,260  | 168                | 7,390 | 198                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,480                     | 66.5               | 4,370 | 117                | 7,580  | 203                | 9,030 | 242                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,280                     | 87.9               | 5,930 | 159                | 9,710  | 260                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,020                     | 108                | 7,220 | 194                | 11,940 | 320                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,030                     | 81.2               | 7,030 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |  |
| 69 mbar  |  | -14 bar   | 14 mbar  | 45 to 69 mbar            |                      |  |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |        |                    |        |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  | bar  | 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               | 1,000  | 26.8               | 1,200 | 32.2               | 1,390 | 37.3               |
| 5   | 0.34 | 450                       | 12.1               | 640   | 17.2               | 1,350  | 36.2               | 1,080  | 28.9               | 1,460  | 39.1               | 1,860 | 49.8               | 2,270 | 60.8               |
| 10  | 0.69 | 740                       | 19.8               | 1,050 | 28.1               | 2,100  | 56.3               | 1,890  | 50.7               | 2,610  | 69.9               | 3,230 | 86.6               | 3,850 | 103                |
| 15  | 1.0  | 950                       | 25.5               | 1,460 | 39.1               | 2,750  | 73.7               | 2,530  | 67.8               | 3,630  | 97.3               | 4,980 | 134                | 5,800 | 155                |
| 20  | 1.4  | 1,180                     | 31.6               | 1,860 | 49.8               | 3,390  | 90.9               | 3,290  | 88.2               | 4,890  | 131                | 6,610 | 177                | 7,370 | 198                |
| 30  | 2.1  | 1,530                     | 41.0               | 2,680 | 71.8               | 4,470  | 120                | 4,710  | 126                | 7,650  | 205                | 9,180 | 246                |       |                    |
| 40  | 2.8  | 1,900                     | 50.9               | 3,320 | 89.0               | 5,620  | 151                | 6,760  | 181                | 10,380 | 278                |       |                    |       |                    |
| 50  | 3.5  | 2,250                     | 60.3               | 4,000 | 107                | 6,680  | 179                | 8,530  | 229                |        |                    |       |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,650 | 125                | 7,770  | 208                | 10,030 | 269                |        |                    |       |                    |       |                    |
| 80  | 5.5  | 3,360                     | 90.0               | 5,980 | 160                | 9,900  | 265                |        |                    |        |                    |       |                    |       |                    |
| 100   | 6.9  | 4,090                     | 110                | 7,230 | 194                | 12,010 | 322                |        |                    |        |                    |       |                    |       |                    |
| 125   | 8.6  | 3,890                     | 104                | 7,840 | 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**

| SETPOINT | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,090 | 29.2               | 1,310 | 35.1               | 1,430 | 38.3               |
| 10  | 0.69 | 600                       | 16.1               | 870   | 23.3               | 1,110 | 29.7               | 1,360 | 36.4               | 1,940 | 52.0               | 2,480 | 66.5               | 2,930 | 78.5               |
| 15  | 1.0  | 790                       | 21.2               | 1,180 | 31.6               | 1,010 | 27.1               | 1,960 | 52.5               | 2,900 | 77.7               | 3,600 | 96.5               | 4,240 | 114                |
| 20  | 1.4  | 990                       | 26.5               | 1,490 | 39.9               | 2,030 | 54.4               | 2,580 | 69.1               | 3,680 | 98.6               | 4,880 | 131                | 5,690 | 153                |
| 30  | 2.1  | 1,410                     | 37.8               | 2,150 | 57.6               | 3,030 | 81.2               | 4,120 | 110                | 6,030 | 162                | 7,280 | 195                |       |                    |
| 40  | 2.8  | 1,840                     | 49.3               | 2,800 | 75.0               | 4,590 | 123                | 5,700 | 153                | 7,760 | 208                |       |                    |       |                    |
| 50  | 3.5  | 2,160                     | 57.9               | 3,440 | 92.2               | 5,920 | 159                | 7,120 | 191                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,580                     | 69.1               | 4,210 | 113                | 7,310 | 196                | 8,230 | 221                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,340                     | 89.5               | 5,920 | 159                | 9,510 | 255                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,000                     | 107                | 7,140 | 191                | 6,810 | 183                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,440                     | 92.2               | 6,290 | 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**

| 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 bar      | 23 mbar   | 69 to 138 mbar |                     |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 320                       | 8.6                | 550   | 14.7               | 770   | 20.6               | 860   | 23.0               | 1,150 | 30.8               | 1,440 | 38.6               | 1,600 | 42.9               |
| 5   | 0.34 | 470                       | 12.6               | 780   | 20.9               | 1,090 | 29.2               | 1,330 | 35.6               | 1,850 | 49.6               | 2,270 | 60.8               | 2,610 | 69.9               |
| 10  | 0.69 | 790                       | 21.2               | 1,350 | 36.2               | 1,810 | 48.5               | 2,240 | 60.0               | 3,270 | 87.6               | 3,970 | 106                | 4,640 | 124                |
| 15  | 1.0  | 970                       | 26.0               | 1,780 | 47.7               | 2,160 | 57.9               | 3,120 | 83.6               | 4,500 | 121                | 5,400 | 145                | 6,290 | 169                |
| 20  | 1.4  | 1,170                     | 31.4               | 2,150 | 57.6               | 3,110 | 83.3               | 3,990 | 107                | 5,540 | 149                | 6,900 | 185                | 7,790 | 209                |
| 30  | 2.1  | 1,550                     | 41.5               | 2,800 | 75.0               | 4,380 | 117                | 5,600 | 150                | 7,820 | 210                | 9,200 | 247                |       |                    |
| 40  | 2.8  | 1,930                     | 51.7               | 3,420 | 91.7               | 5,530 | 148                | 7,200 | 193                | 9,840 | 264                |       |                    |       |                    |
| 50  | 3.5  | 2,260                     | 60.6               | 4,100 | 110                | 6,470 | 173                | 8,570 | 230                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,600 | 123                | 7,710 | 207                | 9,850 | 264                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,370                     | 90.3               | 5,960 | 160                | 9,820 | 263                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,030                     | 108                | 7,230 | 194                | 8,110 | 217                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,420                     | 119                | 7,670 | 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.

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**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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,030 | 27.6               |
| 5   | 0.34 | 390                       | 10.5               | 580   | 15.5               | 800   | 21.4               | 920   | 24.7               | 1,250 | 33.5               | 1,510 | 40.5               | 1,710 | 45.8               |
| 10  | 0.69 | 660                       | 17.7               | 1,020 | 27.3               | 1,280 | 34.3               | 1,560 | 41.8               | 2,240 | 60.0               | 2,800 | 75.0               | 3,290 | 88.2               |
| 15  | 1.0  | 860                       | 23.0               | 1,360 | 36.4               | 1,260 | 33.8               | 2,280 | 61.1               | 3,380 | 90.6               | 3,910 | 105                | 4,730 | 127                |
| 20  | 1.4  | 1,080                     | 28.9               | 1,720 | 46.1               | 2,280 | 61.1               | 2,940 | 78.8               | 4,120 | 110                | 5,480 | 147                | 6,100 | 164                |
| 30  | 2.1  | 1,440                     | 38.6               | 2,460 | 65.9               | 3,490 | 93.5               | 4,560 | 122                | 6,340 | 170                | 7,740 | 207                |       |                    |
| 40  | 2.8  | 1,890                     | 50.7               | 3,120 | 83.6               | 4,910 | 132                | 6,150 | 165                | 8,210 | 220                |       |                    |       |                    |
| 50  | 3.5  | 2,200                     | 59.0               | 3,750 | 101                | 6,100 | 164                | 7,460 | 200                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,590                     | 69.4               | 4,390 | 118                | 7,430 | 199                | 8,510 | 228                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,360                     | 90.0               | 5,930 | 159                | 9,610 | 258                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,010                     | 108                | 7,170 | 192                | 7,140 | 191                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,670                     | 98.4               | 6,770 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |        |                    |        |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |       |                    |        |                    |        |                    |        |                    |       |                    |
| 3   | 0.21 | 330                       | 8.8                | 580   | 15.5               | 820   | 22.0               | 940    | 25.2               | 1,320  | 35.4               | 1,680  | 45.0               | 1,870 | 50.1               |
| 5   | 0.34 | 490                       | 13.1               | 850   | 22.8               | 1,220 | 32.7               | 1,500  | 40.2               | 2,090  | 56.0               | 2,590  | 69.4               | 3,000 | 80.4               |
| 10  | 0.69 | 800                       | 21.4               | 1,410 | 37.8               | 1,990 | 53.3               | 2,510  | 67.3               | 3,620  | 97.0               | 4,410  | 118                | 5,110 | 137                |
| 15  | 1.0  | 1,000                     | 26.8               | 1,820 | 48.8               | 2,450 | 65.7               | 3,410  | 91.4               | 4,930  | 132                | 5,950  | 160                | 6,960 | 187                |
| 20  | 1.4  | 1,190                     | 31.9               | 2,170 | 58.2               | 3,320 | 89.0               | 4,290  | 115                | 6,090  | 163                | 7,430  | 199                | 8,370 | 224                |
| 30  | 2.1  | 1,560                     | 41.8               | 2,810 | 75.3               | 4,530 | 121                | 5,890  | 158                | 8,400  | 225                | 10,060 | 270                |       |                    |
| 40  | 2.8  | 1,930                     | 51.7               | 3,430 | 91.9               | 5,630 | 151                | 7,510  | 201                | 10,290 | 276                |        |                    |       |                    |
| 50  | 3.5  | 2,280                     | 61.1               | 4,100 | 110                | 6,590 | 177                | 8,860  | 237                |        |                    |        |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,650 | 125                | 7,760 | 208                | 10,240 | 274                |        |                    |        |                    |       |                    |
| 80  | 5.5  | 3,370                     | 90.3               | 5,970 | 160                | 9,880 | 265                |        |                    |        |                    |        |                    |       |                    |
| 100   | 6.9  | 4,040                     | 108                | 7,240 | 194                | 8,350 | 224                |        |                    |        |                    |        |                    |       |                    |
| 125   | 8.6  | 4,640                     | 124                | 7,930 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,050 | 28.1               |
| 15  | 1.0  | 400                       | 10.7               | 570   | 15.3               | 630   | 16.9               | 820   | 22.0               | 1,080 | 28.9               | 1,460 | 39.1               | 1,700 | 45.6               |
| 20  | 1.4  | 540                       | 14.5               | 760   | 20.4               | 780   | 20.9               | 1,050 | 28.1               | 1,510 | 40.5               | 1,880 | 50.4               | 2,340 | 62.7               |
| 30  | 2.1  | 740                       | 19.8               | 1,040 | 27.9               | 1,170 | 31.4               | 1,590 | 42.6               | 2,360 | 63.2               | 2,920 | 78.3               |       |                    |
| 40  | 2.8  | 920                       | 24.7               | 1,240 | 33.2               | 1,610 | 43.1               | 2,150 | 57.6               | 3,530 | 94.6               |       |                    |       |                    |
| 50  | 3.5  | 1,170                     | 31.4               | 1,740 | 46.6               | 2,120 | 56.8               | 2,800 | 75.0               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,380                     | 37.0               | 1,980 | 53.1               | 2,710 | 72.6               | 3,400 | 91.1               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,950                     | 52.3               | 2,950 | 79.1               | 4,310 | 116                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,680                     | 71.8               | 4,160 | 112                | 7,230 | 194                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,480                     | 93.3               | 5,710 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
|   |      | Body Size: NPS 1-1/4      |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 480                       | 12.9               | 680   | 18.2               | 820    | 22.0               | 1,000 | 26.8               | 1,340 | 35.9               | 1,810 | 48.5               | 1,910 | 51.2               |
| 15  | 1.0  | 660                       | 17.7               | 900   | 24.1               | 1,060  | 28.4               | 1,470 | 39.4               | 2,060 | 55.2               | 2,650 | 71.0               | 2,940 | 78.8               |
| 20  | 1.4  | 860                       | 23.0               | 1,260 | 33.8               | 1,490  | 39.9               | 1,880 | 50.4               | 2,750 | 73.7               | 3,520 | 94.3               | 3,960 | 106                |
| 30  | 2.1  | 1,210                     | 32.4               | 1,800 | 48.2               | 2,170  | 58.2               | 2,920 | 78.3               | 4,160 | 112                | 6,000 | 161                |       |                    |
| 40  | 2.8  | 1,570                     | 42.1               | 2,340 | 62.7               | 3,020  | 80.9               | 3,900 | 105                | 5,820 | 156                |       |                    |       |                    |
| 50  | 3.5  | 1,930                     | 51.7               | 2,930 | 78.5               | 4,040  | 108                | 5,160 | 138                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,300                     | 61.6               | 3,610 | 96.7               | 5,130  | 138                | 6,830 | 183                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,120                     | 83.6               | 4,990 | 134                | 7,740  | 207                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,950                     | 106                | 6,330 | 170                | 10,210 | 274                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,820                     | 129                | 8,430 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 540                       | 14.5               | 790   | 21.2               | 990    | 26.5               | 1,230 | 33.0               | 1,690 | 45.3               | 2,160 | 57.9               | 2,340 | 62.7               |
| 15  | 1.0  | 760                       | 20.4               | 1,100 | 29.5               | 1,420  | 38.1               | 1,830 | 49.0               | 2,520 | 67.5               | 3,270 | 87.6               | 3,550 | 95.1               |
| 20  | 1.4  | 960                       | 25.7               | 1,480 | 39.7               | 1,880  | 50.4               | 2,390 | 64.1               | 3,360 | 90.0               | 4,410 | 118                | 5,050 | 135                |
| 30  | 2.1  | 1,390                     | 37.3               | 2,190 | 58.7               | 2,720  | 72.9               | 3,600 | 96.5               | 5,010 | 134                | 7,110 | 191                |       |                    |
| 40  | 2.8  | 1,790                     | 48.0               | 2,840 | 76.1               | 3,680  | 98.6               | 4,790 | 128                | 7,230 | 194                |       |                    |       |                    |
| 50  | 3.5  | 2,150                     | 57.6               | 3,480 | 93.3               | 4,840  | 130                | 6,330 | 170                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,550                     | 68.3               | 4,170 | 112                | 6,090  | 163                | 8,250 | 221                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,320                     | 89.0               | 5,490 | 147                | 8,530  | 229                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,050                     | 109                | 7,050 | 189                | 10,830 | 290                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                     | 131                | 8,570 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |        |                    |        |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |        |                    |        |                    |        |                    |        |                    |       |                    |
| 10  | 0.69 | 670                       | 18.0               | 1,140 | 30.6               | 1,650  | 44.2               | 2,050  | 54.9               | 2,950  | 79.1               | 3,800  | 102                | 4,130 | 111                |
| 15  | 1.0  | 940                       | 25.2               | 1,650 | 44.2               | 2,380  | 63.8               | 3,010  | 80.7               | 4,200  | 113                | 5,560  | 149                | 6,280 | 168                |
| 20  | 1.4  | 1,170                     | 31.4               | 2,110 | 56.5               | 2,950  | 79.1               | 3,900  | 105                | 5,560  | 149                | 7,020  | 188                | 8,270 | 222                |
| 30  | 2.1  | 1,530                     | 41.0               | 2,700 | 72.4               | 4,210  | 113                | 5,570  | 149                | 7,910  | 212                | 10,320 | 277                |       |                    |
| 40  | 2.8  | 1,890                     | 50.7               | 3,360 | 90.0               | 5,360  | 144                | 7,260  | 195                | 10,320 | 277                |        |                    |       |                    |
| 50  | 3.5  | 2,270                     | 60.8               | 4,040 | 108                | 6,540  | 175                | 8,940  | 240                |        |                    |        |                    |       |                    |
| 60  | 4.1  | 2,640                     | 70.8               | 4,640 | 124                | 7,670  | 206                | 10,420 | 279                |        |                    |        |                    |       |                    |
| 80  | 5.5  | 3,360                     | 90.0               | 5,930 | 159                | 9,710  | 260                |        |                    |        |                    |        |                    |       |                    |
| 100   | 6.9  | 4,090                     | 110                | 7,210 | 193                | 11,650 | 312                |        |                    |        |                    |        |                    |       |                    |
| 125   | 8.6  | 4,960                     | 133                | 8,830 | 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-inches w.c. / 17 mbar Setpoint**

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

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |      |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,060 | 28.4               | 1,140 | 30.6               |
| 5   | 0.34 | 340                       | 9.1                | 570   | 15.3               | 460   | 12.3               | 440   | 11.8               | 1110 | 29.7               | 1,440 | 38.6               | 1,440 | 38.6               |
| 10  | 0.69 | 480                       | 12.9               | 370   | 9.9                | 910   | 24.4               | 1,350 | 36.2               | 1610 | 43.1               | 1,980 | 53.1               | 2,040 | 54.7               |
| 15  | 1.0  | 340                       | 9.1                | 540   | 14.5               | 1,190 | 31.9               | 1,500 | 40.2               | 1940 | 52.0               | 2,640 | 70.8               | 2,320 | 62.2               |
| 20  | 1.4  | 480                       | 12.9               | 1,160 | 31.1               | 1,500 | 40.2               | 1,830 | 49.0               | 2360 | 63.2               | 3,700 | 99.2               | 3,380 | 90.6               |
| 30  | 2.1  | 1,110                     | 29.7               | 1,590 | 42.6               | 1,860 | 49.8               | 2,350 | 63.0               | 2340 | 62.7               | 6,510 | 175                |       |                    |
| 40  | 2.8  | 1,300                     | 34.8               | 1,810 | 48.5               | 2,320 | 62.2               | 2,850 | 76.4               | 4590 | 123                |       |                    |       |                    |
| 50  | 3.4  | 1,540                     | 41.3               | 2,420 | 64.9               | 3,160 | 84.7               | 3,410 | 91.4               |      |                    |       |                    |       |                    |
| 60  | 4.1  | 1,800                     | 48.2               | 2,870 | 76.9               | 3,970 | 106                | 3,840 | 103                |      |                    |       |                    |       |                    |
| 80  | 5.5  | 2,320                     | 62.2               | 4,320 | 116                | 5,750 | 154                |       |                    |      |                    |       |                    |       |                    |
| 100   | 6.9  | 3,230                     | 86.6               | 5,940 | 159                | 5,750 | 154                |       |                    |      |                    |       |                    |       |                    |
| 125   | 8.6  | 4,310                     | 116                | 7,520 | 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<br>69 mbar | -0.16 psig<br>-0.011 bar | -0.16 psig<br>0.011 bar | 18-inches w.c. to 1 psig<br>45 to 69 mbar | GE30225X012 / Orange |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,160 | 31.1               |
| 3   | 0.2  | 320                       | 8.6                | 420   | 11.3               | 490   | 13.1               | 280   | 7.5                | 370   | 9.9                | 1,040 | 27.9               | 1,130 | 30.3               |
| 5   | 0.3  | 400                       | 10.7               | 540   | 14.5               | 440   | 11.8               | 790   | 21.2               | 1,080 | 28.9               | 1,420 | 38.1               | 1,550 | 41.5               |
| 10  | 0.69 | 390                       | 10.5               | 390   | 10.5               | 990   | 26.5               | 1,250 | 33.5               | 1,670 | 44.8               | 2,040 | 54.7               | 2,340 | 62.7               |
| 15  | 1.0  | 370                       | 9.9                | 1,060 | 28.4               | 1,320 | 35.4               | 1,610 | 43.1               | 2,150 | 57.6               | 2,800 | 75.0               | 3,010 | 80.7               |
| 20  | 1.4  | 920                       | 24.7               | 1,340 | 35.9               | 1,610 | 43.1               | 1,860 | 49.8               | 2,410 | 64.6               | 3,190 | 85.5               | 3,540 | 94.9               |
| 30  | 2.1  | 1,240                     | 33.2               | 1,680 | 45.0               | 2,020 | 54.1               | 2,480 | 66.5               | 3,280 | 87.9               | 4,240 | 114                |       |                    |
| 40  | 2.8  | 1,500                     | 40.2               | 2,090 | 56.0               | 2,430 | 65.1               | 3,020 | 80.9               | 4,170 | 112                |       |                    |       |                    |
| 50  | 3.4  | 1,820                     | 48.8               | 2,470 | 66.2               | 2,770 | 74.2               | 3,800 | 102                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,090                     | 56.0               | 2,950 | 79.1               | 3,530 | 94.6               | 4,090 | 110                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,630                     | 70.5               | 3,410 | 91.4               | 3,530 | 94.6               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,340                     | 89.5               | 4,030 | 108                | 4,420 | 119                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,860                     | 103                | 5,010 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -21 mbar     | 21 mbar   | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 2   | 0.14 | 310                       | 8.3                | 480   | 12.9               | 600   | 16.1               | 790   | 21.2               | 1,530 | 41.0               | 1,750 | 46.9               | 1,760 | 47.2               |
| 3   | 0.21 | 400                       | 10.7               | 620   | 16.6               | 830   | 22.2               | 750   | 20.1               | 1,380 | 37.0               | 1,690 | 45.3               | 2,060 | 55.2               |
| 5   | 0.34 | 540                       | 14.5               | 840   | 22.5               | 990   | 26.5               | 1,400 | 37.5               | 1,930 | 51.7               | 2,500 | 67.0               | 2,850 | 76.4               |
| 10  | 0.69 | 710                       | 19.0               | 820   | 22.0               | 1,740 | 46.6               | 2,190 | 58.7               | 3,050 | 81.7               | 3,760 | 101                | 4,470 | 120                |
| 15  | 1.0  | 760                       | 20.4               | 1,680 | 45.0               | 2,350 | 63.0               | 2,870 | 76.9               | 3,940 | 106                | 5,140 | 138                | 5,700 | 153                |
| 20  | 1.4  | 1,180                     | 31.6               | 2,030 | 54.4               | 2,770 | 74.2               | 3,440 | 92.2               | 4,740 | 127                | 6,120 | 164                | 7,140 | 191                |
| 30  | 2.1  | 1,550                     | 41.5               | 2,690 | 72.1               | 3,660 | 98.1               | 4,560 | 122                | 6,540 | 175                | 8,890 | 238                |       |                    |
| 40  | 2.8  | 1,910                     | 51.2               | 3,340 | 89.5               | 4,620 | 124                | 5,790 | 155                | 8,400 | 225                |       |                    |       |                    |
| 50  | 3.4  | 2,270                     | 60.8               | 3,930 | 105                | 5,490 | 147                | 7,060 | 189                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,620                     | 70.2               | 4,710 | 126                | 6,560 | 176                | 8,470 | 227                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,350                     | 89.8               | 5,740 | 154                | 8,310 | 223                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,070                     | 109                | 7,060 | 189                | 8,660 | 232                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,950                     | 133                | 8,540 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -7 mbar   | 7 mbar   | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,040 | 27.9               |
| 10  | 0.69 | 240                       | 6.4                | 380   | 10.2               | 690   | 18.5               | 880   | 23.6               | 1,140 | 30.6               | 1,300 | 34.8               | 1,580 | 42.3               |
| 15  | 1.0  | 360                       | 9.6                | 790   | 21.2               | 940   | 25.2               | 1,100 | 29.5               | 1,400 | 37.5               | 1,690 | 45.3               | 2,110 | 56.5               |
| 20  | 1.4  | 540                       | 14.5               | 950   | 25.5               | 1,080 | 28.9               | 1,200 | 32.2               | 1,560 | 41.8               | 1,880 | 50.4               | 2,400 | 64.3               |
| 30  | 2.1  | 920                       | 24.7               | 1,170 | 31.4               | 1,320 | 35.4               | 1,330 | 35.6               | 1,840 | 49.3               | 2,610 | 69.9               |       |                    |
| 40  | 2.8  | 980                       | 26.3               | 1,500 | 40.2               | 1,500 | 40.2               | 1,680 | 45.0               | 2,260 | 60.6               |       |                    |       |                    |
| 50  | 3.4  | 1,320                     | 35.4               | 1,710 | 45.8               | 1,650 | 44.2               | 1,990 | 53.3               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,370                     | 36.7               | 1,980 | 53.1               | 1,990 | 53.3               | 1,990 | 53.3               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,650                     | 44.2               | 1,870 | 50.1               | 1,990 | 53.3               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,070                     | 55.5               | 2,220 | 59.5               | 2,440 | 65.4               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 2,360                     | 63.2               | 2,690 | 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-inches w.c. to 1 psig | GE30225X012 / Orange |
| 69 mbar  | -14 mbar  | 14 mbar  | 45 to 69 mbar            |                      |

| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,280 | 34.3               |
| 3   | 0.21 | 350                       | 9.4                | 490   | 13.1               | 610   | 16.3               | 440   | 11.8               | 620   | 16.6               | 1,210 | 32.4               | 1,400 | 37.5               |
| 5   | 0.34 | 450                       | 12.1               | 640   | 17.2               | 600   | 16.1               | 960   | 25.7               | 1,370 | 36.7               | 1,770 | 47.4               | 1,940 | 52.0               |
| 10  | 0.69 | 500                       | 13.4               | 450   | 12.1               | 1,220 | 32.7               | 1,550 | 41.5               | 2,170 | 58.2               | 2,580 | 69.1               | 2,900 | 77.7               |
| 15  | 1.0  | 400                       | 10.7               | 1,320 | 35.4               | 1,630 | 43.7               | 2,020 | 54.1               | 2,660 | 71.3               | 3,500 | 93.8               | 3,900 | 105                |
| 20  | 1.4  | 1,050                     | 28.1               | 1,590 | 42.6               | 1,970 | 52.8               | 2,360 | 63.2               | 3,180 | 85.2               | 4,220 | 113                | 4,940 | 132                |
| 30  | 2.1  | 1,420                     | 38.1               | 2,100 | 56.3               | 2,540 | 68.1               | 3,100 | 83.1               | 4,320 | 116                | 5,750 | 154                |       |                    |
| 40  | 2.8  | 1,770                     | 47.4               | 2,570 | 68.9               | 3,210 | 86.0               | 3,930 | 105                | 5,620 | 151                |       |                    |       |                    |
| 50  | 3.4  | 2,150                     | 57.6               | 3,090 | 82.8               | 3,640 | 97.6               | 4,860 | 130                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,420                     | 64.9               | 3,700 | 99.2               | 4,560 | 122                | 5,520 | 148                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,140                     | 84.2               | 4,320 | 116                | 5,380 | 144                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,810                     | 102                | 5,460 | 146                | 6,430 | 172                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,660                     | 125                | 6,820 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,270 | 34.0               |
| 5   | 0.34 | 350                       | 9.4                | 520   | 13.9               | 620   | 16.6               | 350   | 9.4                | 990   | 26.5               | 1,270 | 34.0               | 1,340 | 35.9               |
| 10  | 0.69 | 500                       | 13.4               | 410   | 11.0               | 980   | 26.3               | 1,210 | 32.4               | 1,640 | 44.0               | 2,110 | 56.5               | 2,350 | 63.0               |
| 15  | 1.0  | 340                       | 9.1                | 890   | 23.9               | 1,330 | 35.6               | 1,650 | 44.2               | 2,160 | 57.9               | 2,660 | 71.3               | 3,040 | 81.5               |
| 20  | 1.4  | 450                       | 12.1               | 1,310 | 35.1               | 1,650 | 44.2               | 1,940 | 52.0               | 2,580 | 69.1               | 3,310 | 88.7               | 3,750 | 101                |
| 30  | 2.1  | 1,260                     | 33.8               | 1,700 | 45.6               | 2,200 | 59.0               | 2,530 | 67.8               | 3,340 | 89.5               | 4,230 | 113                |       |                    |
| 40  | 2.8  | 1,510                     | 40.5               | 2,110 | 56.5               | 2,630 | 70.5               | 3,000 | 80.4               | 3,950 | 106                |       |                    |       |                    |
| 50  | 3.4  | 1,880                     | 50.4               | 2,510 | 67.3               | 3,120 | 83.6               | 3,530 | 94.6               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,130                     | 57.1               | 2,700 | 72.4               | 3,490 | 93.5               | 3,530 | 94.6               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,700                     | 72.4               | 3,770 | 101                | 4,350 | 117                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,990                     | 80.1               | 4,140 | 111                | 5,280 | 142                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,630                     | 97.3               | 5,130 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
| 3   | 0.21 | 320                       | 8.6                | 520   | 13.9               | 690    | 18.5               | 910   | 24.4               | 1,120 | 30.0               | 1,530 | 41.0               | 1,900 | 50.9               |
| 5   | 0.34 | 470                       | 12.6               | 770   | 20.6               | 1,080  | 28.9               | 1,380 | 37.0               | 1,800 | 48.2               | 2,280 | 61.1               | 2,430 | 65.1               |
| 10  | 0.69 | 750                       | 20.1               | 1,270 | 34.0               | 1,710  | 45.8               | 2,210 | 59.2               | 2,920 | 78.3               | 3,820 | 102                | 4,220 | 113                |
| 15  | 1.0  | 830                       | 22.2               | 1,680 | 45.0               | 2,370  | 63.5               | 2,950 | 79.1               | 3,910 | 105                | 5,020 | 135                | 5,750 | 154                |
| 20  | 1.4  | 1,180                     | 31.6               | 2,090 | 56.0               | 2,860  | 76.6               | 3,650 | 97.8               | 4,970 | 133                | 6,120 | 164                | 7,020 | 188                |
| 30  | 2.1  | 1,550                     | 41.5               | 2,740 | 73.4               | 3,810  | 102                | 4,800 | 129                | 6,800 | 182                | 8,780 | 235                |       |                    |
| 40  | 2.8  | 1,900                     | 50.9               | 3,360 | 90.0               | 4,720  | 127                | 5,970 | 160                | 8,410 | 225                |       |                    |       |                    |
| 50  | 3.4  | 2,250                     | 60.3               | 4,010 | 108                | 5,670  | 152                | 7,170 | 192                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,590 | 123                | 6,750  | 181                | 8,140 | 218                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,330                     | 89.2               | 5,910 | 158                | 8,550  | 229                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,060                     | 109                | 7,100 | 190                | 10,990 | 295                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,920                     | 132                | 8,580 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,400 | 37.5               |
| 5   | 0.34 | 400                       | 10.7               | 580   | 15.5               | 720   | 19.3               | 520   | 13.9               | 1,150 | 30.8               | 1,480 | 39.7               | 1,620 | 43.4               |
| 10  | 0.69 | 570                       | 15.3               | 460   | 12.3               | 1,180 | 31.6               | 1,500 | 40.2               | 1,910 | 51.2               | 2,490 | 66.7               | 2,780 | 74.5               |
| 15  | 1.0  | 390                       | 10.5               | 1,240 | 33.2               | 1,610 | 43.1               | 1,970 | 52.8               | 2,610 | 69.9               | 3,340 | 89.5               | 3,600 | 96.5               |
| 20  | 1.4  | 470                       | 12.6               | 1,540 | 41.3               | 1,950 | 52.3               | 2,360 | 63.2               | 3,110 | 83.3               | 3,960 | 106                | 4,490 | 120                |
| 30  | 2.1  | 1,400                     | 37.5               | 2,010 | 53.9               | 2,610 | 69.9               | 3,030 | 81.2               | 4,120 | 110                | 5,350 | 143                |       |                    |
| 40  | 2.8  | 1,730                     | 46.4               | 2,470 | 66.2               | 3,280 | 87.9               | 3,670 | 98.4               | 5,070 | 136                |       |                    |       |                    |
| 50  | 3.4  | 2,040                     | 54.7               | 2,930 | 78.5               | 3,740 | 100                | 4,370 | 117                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.3               | 3,270 | 87.6               | 4,420 | 119                | 4,870 | 131                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,050                     | 81.7               | 4,450 | 119.3              | 5,520 | 148                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,600                     | 96.5               | 5,150 | 138.0              | 6,970 | 187                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,310                     | 116                | 6,140 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |        |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |        |                    |       |                    |       |                    |        |                    |       |                    |
| 3   | 0.21 | 340                       | 9.1                | 570   | 15.3               | 760    | 20.4               | 1,020 | 27.3               | 1,310 | 35.1               | 1,630  | 43.7               | 2,110 | 56.5               |
| 5   | 0.34 | 490                       | 13.1               | 830   | 22.2               | 1,170  | 31.4               | 1,550 | 41.5               | 2,020 | 54.1               | 2,560  | 68.6               | 2,830 | 75.8               |
| 10  | 0.69 | 780                       | 20.9               | 1,320 | 35.4               | 1,940  | 52.0               | 2,590 | 69.4               | 3,470 | 93.0               | 4,350  | 117                | 4,920 | 132                |
| 15  | 1.0  | 910                       | 24.4               | 1,770 | 47.4               | 2,630  | 70.5               | 3,350 | 89.8               | 4,640 | 124                | 5,770  | 155                | 6,880 | 184                |
| 20  | 1.4  | 1,190                     | 31.9               | 2,160 | 57.9               | 3,200  | 85.8               | 4,110 | 110                | 5,560 | 149                | 7,270  | 195                | 8,180 | 219                |
| 30  | 2.1  | 1,560                     | 41.8               | 2,800 | 75.0               | 4,260  | 114                | 5,530 | 148                | 7,790 | 209                | 10,190 | 273                |       |                    |
| 40  | 2.8  | 1,930                     | 51.7               | 3,460 | 92.7               | 5,280  | 142                | 6,950 | 186                | 9,610 | 258                |        |                    |       |                    |
| 50  | 3.4  | 2,280                     | 61.1               | 4,080 | 109                | 6,300  | 169                | 8,250 | 221                |       |                    |        |                    |       |                    |
| 60  | 4.1  | 2,650                     | 71.0               | 4,730 | 127                | 7,320  | 196                | 9,570 | 257                |       |                    |        |                    |       |                    |
| 80  | 5.5  | 3,360                     | 90.0               | 5,990 | 161                | 9,340  | 250                |       |                    |       |                    |        |                    |       |                    |
| 100   | 6.9  | 4,090                     | 110                | 7,220 | 194                | 11,680 | 313                |       |                    |       |                    |        |                    |       |                    |
| 125   | 8.6  | 4,980                     | 134                | 8,870 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /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               | 1,000 | 26.8               | 1,250 | 33.5               | 1,320 | 35.4               |
| 20  | 1.4  | 110                       | 2.9                | 590   | 15.8               | 850   | 22.8               | 940   | 25.2               | 1,270 | 34.0               | 1,550 | 41.5               | 1,650 | 44.2               |
| 30  | 2.1  | 710                       | 19.0               | 900   | 24.1               | 1,120 | 30.0               | 1,330 | 35.6               | 1,590 | 42.6               | 1,830 | 49.0               |       |                    |
| 40  | 2.8  | 880                       | 23.6               | 1,100 | 29.5               | 1,350 | 36.2               | 1,530 | 41.0               | 2,040 | 54.7               |       |                    |       |                    |
| 50  | 3.4  | 1,010                     | 27.1               | 1,340 | 35.9               | 1,640 | 44.0               | 1,780 | 47.7               |       |                    |       |                    |       |                    |
| 60  | 4.1  | 1,060                     | 28.4               | 1,470 | 39.4               | 1,780 | 47.7               | 1,780 | 47.7               |       |                    |       |                    |       |                    |
| 80  | 5.5  | 1,400                     | 37.5               | 1,690 | 45.3               | 1,860 | 49.8               |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 1,740                     | 46.6               | 2,250 | 60.3               | 2,010 | 53.9               |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 1,920                     | 51.5               | 2,420 | 64.9               |       |                    |       |                    |       |                    |       |                    |       |                    |

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

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**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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 490                       | 13.1               | 690   | 18.5               | 350   | 9.4                | 990   | 26.5               | 1,300 | 34.8               | 1,620 | 43.4               | 1,810 | 48.5               |
| 15  | 1.0  | 670                       | 18.0               | 480   | 12.9               | 1,090 | 29.2               | 1,390 | 37.3               | 1,830 | 49.0               | 2,450 | 65.7               | 2,580 | 69.1               |
| 20  | 1.4  | 390                       | 10.5               | 780   | 20.9               | 1,430 | 38.3               | 1,820 | 48.8               | 2,310 | 61.9               | 2,950 | 79.1               | 3,270 | 87.6               |
| 30  | 2.1  | 1,200                     | 32.2               | 1,610 | 43.1               | 2,000 | 53.6               | 2,510 | 67.3               | 3,220 | 86.3               | 4,030 | 108                |       |                    |
| 40  | 2.8  | 1,480                     | 39.7               | 2,010 | 53.9               | 2,410 | 64.6               | 3,130 | 83.9               | 4,030 | 108                |       |                    |       |                    |
| 50  | 3.4  | 1,750                     | 46.9               | 2,500 | 67.0               | 2,970 | 79.6               | 3,760 | 101                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,010                     | 53.9               | 2,750 | 73.7               | 3,400 | 91.1               | 4,130 | 111                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 2,580                     | 69.1               | 3,570 | 95.7               | 4,080 | 109                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,110                     | 83.3               | 4,500 | 121                | 4,910 | 132                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,830                     | 103                | 5,240 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |       |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 550                       | 14.7               | 820   | 22.0               | 570   | 15.3               | 1,250 | 33.5               | 1,670 | 44.8               | 2,060 | 55.2               | 2,340 | 62.7               |
| 15  | 1.0  | 770                       | 20.6               | 510   | 13.7               | 1,430 | 38.3               | 1,700 | 45.6               | 2,280 | 61.1               | 3,000 | 80.4               | 3,270 | 87.6               |
| 20  | 1.4  | 540                       | 14.5               | 930   | 24.9               | 1,790 | 48.0               | 2,180 | 58.4               | 2,980 | 79.9               | 3,720 | 99.7               | 4,060 | 109                |
| 30  | 2.1  | 1,370                     | 36.7               | 1,850 | 49.6               | 2,470 | 66.2               | 3,020 | 80.9               | 3,990 | 107                | 5,230 | 140                |       |                    |
| 40  | 2.8  | 1,670                     | 44.8               | 2,480 | 66.5               | 3,050 | 81.7               | 3,890 | 104                | 5,090 | 136                |       |                    |       |                    |
| 50  | 3.4  | 2,050                     | 54.9               | 3,030 | 81.2               | 3,840 | 103                | 4,620 | 124                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,380                     | 63.8               | 3,310 | 88.7               | 4,330 | 116                | 5,200 | 139                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,020                     | 80.9               | 4,340 | 116                | 5,250 | 141                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,680                     | 98.6               | 5,540 | 149                | 6,490 | 174                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,530                     | 121                | 6,420 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / 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 <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| Body Size: NPS 1-1/4  |      |                           |                    |       |                    |        |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 700                       | 18.8               | 1,160 | 31.1               | 1,600  | 42.9               | 2,150 | 57.6               | 2,940 | 78.8               | 3,680 | 98.6               | 4,150 | 111                |
| 15  | 1.0  | 950                       | 25.5               | 1,580 | 42.3               | 2,340  | 62.7               | 2,980 | 79.9               | 4,170 | 112                | 5,350 | 143                | 5,960 | 160                |
| 20  | 1.4  | 1,120                     | 30.0               | 1,990 | 53.3               | 3,000  | 80.4               | 3,680 | 98.6               | 5,190 | 139                | 6,640 | 178                | 7,490 | 201                |
| 30  | 2.1  | 1,520                     | 40.7               | 2,690 | 72.1               | 4,080  | 109                | 5,200 | 139                | 7,290 | 195                | 9,390 | 252                |       |                    |
| 40  | 2.8  | 1,870                     | 50.1               | 3,330 | 89.2               | 5,140  | 138                | 6,620 | 177                | 9,180 | 246                |       |                    |       |                    |
| 50  | 3.4  | 2,230                     | 59.8               | 4,020 | 108                | 6,250  | 168                | 7,840 | 210                |       |                    |       |                    |       |                    |
| 60  | 4.1  | 2,610                     | 69.9               | 4,550 | 122                | 7,160  | 192                | 9,190 | 246                |       |                    |       |                    |       |                    |
| 80  | 5.5  | 3,320                     | 89.0               | 5,740 | 154                | 9,320  | 250                |       |                    |       |                    |       |                    |       |                    |
| 100   | 6.9  | 4,060                     | 109                | 7,230 | 194                | 11,310 | 303                |       |                    |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,920                     | 132                | 8,710 | 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 <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / mm |                    |       |                    |       |                    |       |                    |       |                    |
|   |      | 3/16                      | 4.8                | 1/4   | 6.4                | 3/8   | 9.5                | 1/2   | 13                 | 3/4   | 19                 |
| psig  | bar  | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| <b>Body Size: NPS 1-1/4</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |
| 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               | 1,000 | 26.8               |
| 10  | 0.69 | 410                       | 11.0               | 650   | 17.4               | 1,000 | 26.8               | 1,600 | 42.9               | 2,800 | 75.0               |
| 15  | 1.0  | 630                       | 16.9               | 940   | 25.2               | 1,700 | 45.6               | 2,800 | 75.0               | 4,600 | 123                |
| 20  | 1.4  | 790                       | 21.2               | 1,300 | 34.8               | 2,600 | 69.7               | 4,100 | 109                | 8,675 | 232                |
| 25  | 1.7  | 1,000                     | 26.8               | 1,800 | 48.2               | 3,900 | 104                | 5,400 | 144                |       |                    |
| 30  | 2.1  | 1,200                     | 32.2               | 2,200 | 59.0               | 4,000 | 107                | 6,500 | 174                |       |                    |
| 40  | 2.8  | 1,650                     | 44.2               | 3,100 | 83.1               | 5,200 | 139                | 9,500 | 254                |       |                    |
| 50  | 3.4  | 2,000                     | 53.6               | 3,750 | 100                | 5,200 | 139                |       |                    |       |                    |
| 60  | 4.1  | 2,400                     | 64.3               | 4,500 | 120                | 5,200 | 139                |       |                    |       |                    |
| 80  | 5.5  | 3,200                     | 85.8               | 5,900 | 158                |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,900                     | 104                | 7,200 | 192                |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,900                     | 131                | 7,600 | 203                |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 1-1/2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |
| 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               | 1,000 | 26.8               | 1,400 | 37.5               |
| 10  | 0.69 | 390                       | 10.5               | 590   | 15.8               | 1,300 | 34.8               | 1,975 | 52.9               | 3,100 | 83.1               |
| 15  | 1.0  | 580                       | 15.5               | 940   | 25.2               | 2,025 | 54.3               | 2,875 | 77.1               | 4,950 | 132                |
| 20  | 1.4  | 760                       | 20.4               | 1,200 | 32.2               | 2,600 | 69.7               | 3,775 | 101                | 7,800 | 208                |
| 25  | 1.7  | 980                       | 26.3               | 1,700 | 45.6               | 3,600 | 96.5               | 5,300 | 141                |       |                    |
| 30  | 2.1  | 1,200                     | 32.2               | 2,100 | 56.3               | 3,600 | 96.5               | 5,300 | 141                |       |                    |
| 40  | 2.8  | 1,675                     | 44.9               | 2,900 | 77.7               | 4,850 | 129                | 9,700 | 259                |       |                    |
| 50  | 3.4  | 2,075                     | 55.6               | 3,700 | 99.2               | 6,400 | 171                |       |                    |       |                    |
| 60  | 4.1  | 2,350                     | 63.0               | 4,300 | 115                | 7,800 | 208                |       |                    |       |                    |
| 80  | 5.5  | 3,150                     | 84.4               | 5,400 | 144                |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,750                     | 100                | 6,700 | 179                |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,850                     | 129                | 8,050 | 215                |       |                    |       |                    |       |                    |
| <b>Body Size: NPS 2</b>   |      |                           |                    |       |                    |       |                    |       |                    |       |                    |
| 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               | 1,300 | 34.8               |
| 10  | 0.69 | 440                       | 11.8               | 700   | 18.8               | 970   | 26.0               | 1,800 | 48.2               | 3,000 | 80.4               |
| 15  | 1.0  | 660                       | 17.7               | 1,000 | 26.8               | 1,600 | 42.9               | 2,800 | 75.0               | 4,200 | 112                |
| 20  | 1.4  | 850                       | 22.8               | 1,200 | 32.2               | 2,400 | 64.3               | 3,750 | 100                | 6,900 | 184                |
| 25  | 1.7  | 1,000                     | 26.8               | 1,700 | 45.6               | 3,100 | 83.1               | 5,300 | 141                |       |                    |
| 30  | 2.1  | 1,200                     | 32.2               | 2,125 | 57.0               | 3,625 | 97.2               | 5,350 | 143                |       |                    |
| 40  | 2.8  | 1,600                     | 42.9               | 2,925 | 78.4               | 4,875 | 130                | 9,700 | 259                |       |                    |
| 50  | 3.4  | 2,000                     | 53.6               | 3,725 | 99.8               | 6,400 | 171                |       |                    |       |                    |
| 60  | 4.1  | 2,350                     | 63.0               | 4,300 | 115                | 7,800 | 208                |       |                    |       |                    |
| 80  | 5.5  | 3,150                     | 84.4               | 5,425 | 145                |       |                    |       |                    |       |                    |
| 100   | 6.9  | 3,750                     | 100                | 6,725 | 180                |       |                    |       |                    |       |                    |
| 125   | 8.6  | 4,800                     | 128                | 8,050 | 215                |       |                    |       |                    |       |                    |

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

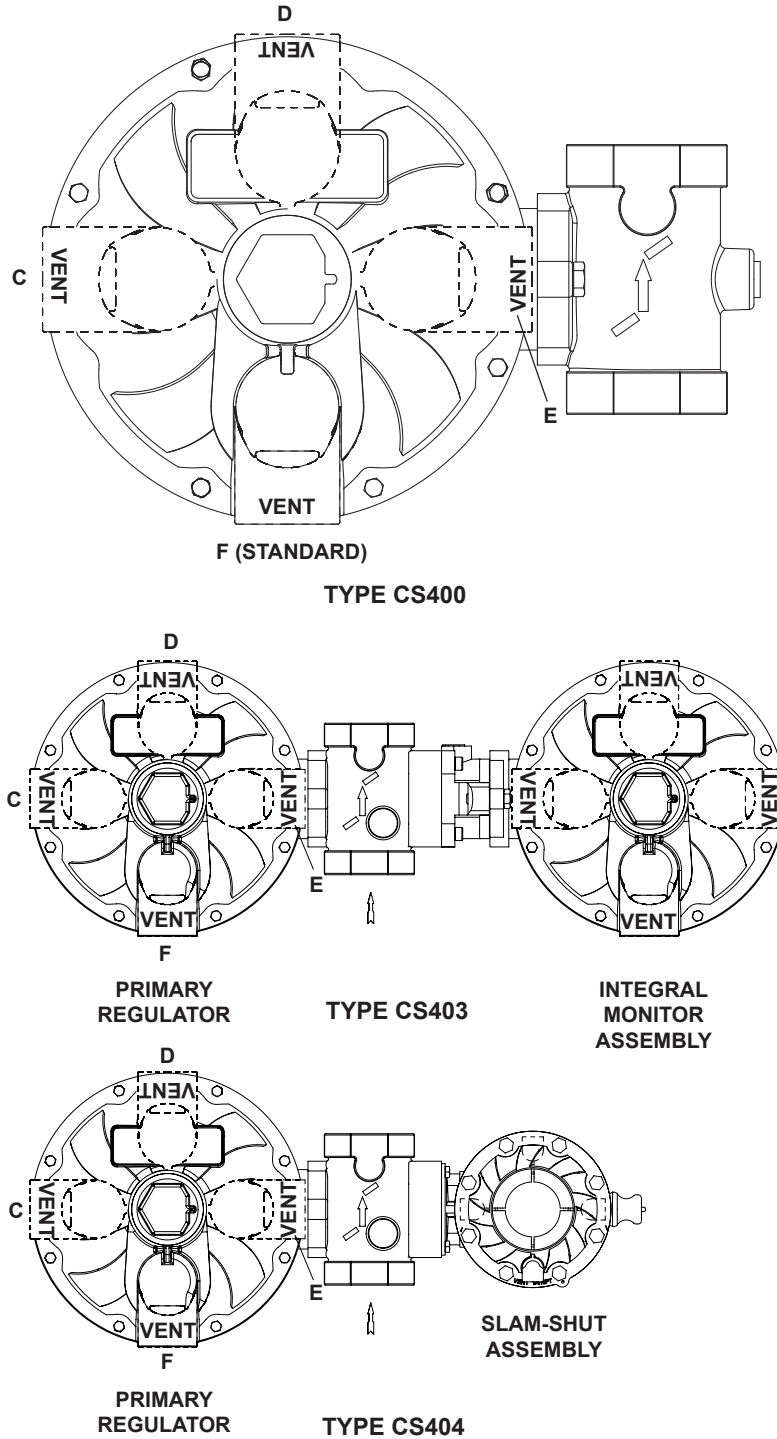
# Bulletin 71.1:CS400

**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 |                      |

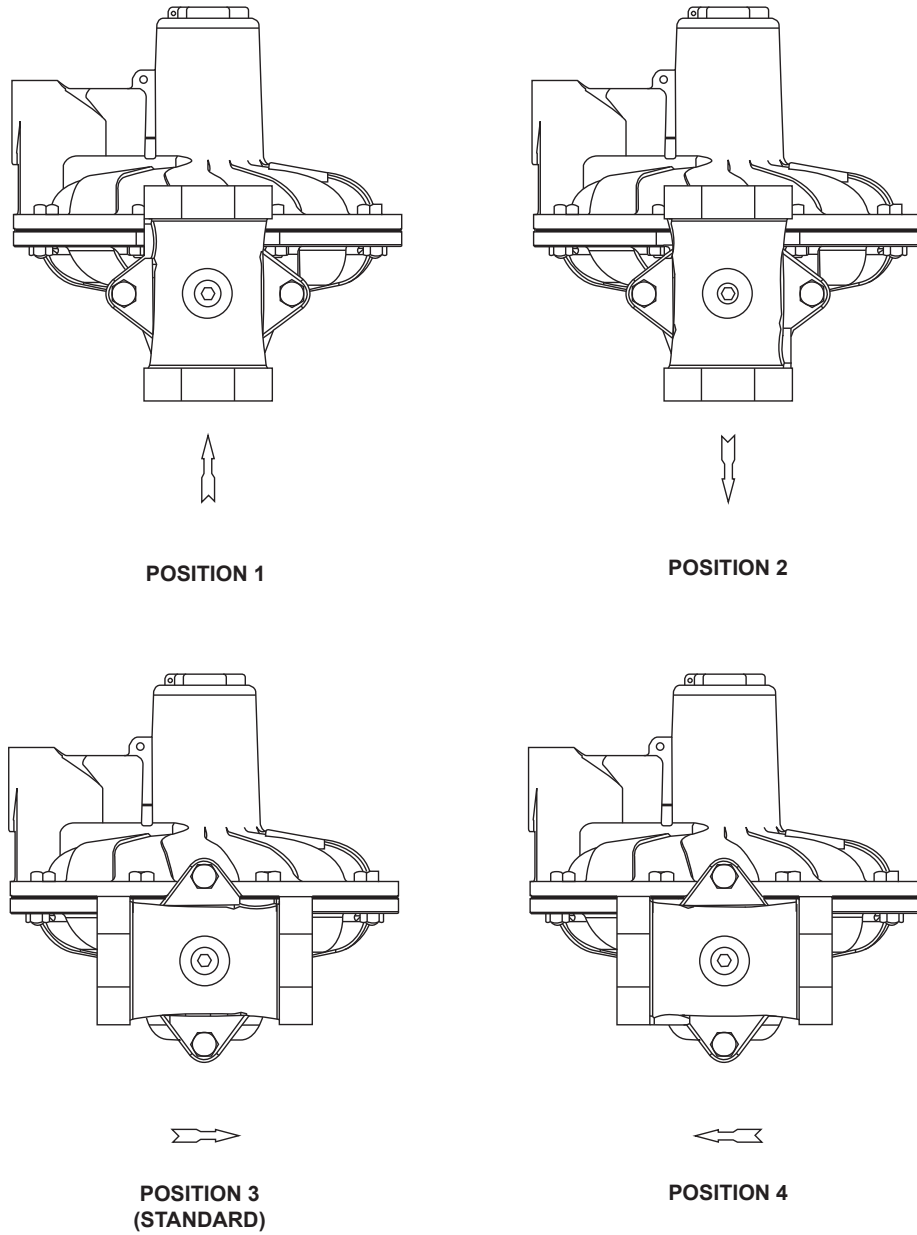
| CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY GAS |      |                           |                    |       |                    |       |                    |       |                    |       |                    |
|---|------|---------------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| Inlet Pressure  |      | Orifice Size, Inches / mm |                    |       |                    |       |                    |       |                    |       |                    |
|   |      | 3/16                      | 4.8                | 1/4   | 6.4                | 3/8   | 9.5                | 1/2   | 13                 | 3/4   | 19                 |
|   |      | SCFH                      | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h | SCFH  | Nm <sup>3</sup> /h |
| psig  | bar  | Body Size: NPS 1-1/4      |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 90                        | 2.4                | 100   | 2.7                | 410   | 11.0               | 550   | 14.7               | 1,100 | 29.5               |
| 15  | 1.0  | 160                       | 4.3                | 190   | 5.1                | 780   | 20.9               | 980   | 26.3               | 1,700 | 45.6               |
| 20  | 1.4  | 190                       | 5.1                | 280   | 7.5                | 1,100 | 29.5               | 1,300 | 34.8               | 2,175 | 58.3               |
| 25  | 1.7  | 250                       | 6.7                | 370   | 9.9                | 1,500 | 40.2               | 1,900 | 50.9               |       |                    |
| 30  | 2.1  | 310                       | 8.3                | 850   | 22.8               | 1,750 | 46.9               | 2,150 | 57.6               |       |                    |
| 40  | 2.8  | 540                       | 14.5               | 1,375 | 36.9               | 2,250 | 60.3               | 2,950 | 79.1               |       |                    |
| 50  | 3.4  | 1,100                     | 29.5               | 1,600 | 42.9               | 2,700 | 72.4               |       |                    |       |                    |
| 60  | 4.1  | 1,500                     | 40.2               | 2,200 | 59.0               | 3,750 | 100                |       |                    |       |                    |
| 80  | 5.5  | 1,975                     | 52.9               | 2,950 | 79.1               |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,725                     | 73.0               | 4,400 | 117                |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,525                     | 94.5               | 5,575 | 149                |       |                    |       |                    |       |                    |
| psig  | bar  | Body Size: NPS 1-1/2      |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 190                       | 5.1                | 230   | 6.2                | 350   | 9.4                | 590   | 15.8               | 1,000 | 26.8               |
| 15  | 1.0  | 300                       | 8.0                | 430   | 11.5               | 750   | 20.1               | 980   | 26.3               | 1,800 | 48.2               |
| 20  | 1.4  | 420                       | 11.3               | 590   | 15.8               | 1,000 | 26.8               | 1,300 | 34.8               | 2,000 | 53.6               |
| 25  | 1.7  | 490                       | 13.1               | 740   | 19.8               | 1,100 | 29.5               | 1,800 | 48.2               |       |                    |
| 30  | 2.1  | 660                       | 17.7               | 970   | 26.0               | 1,500 | 40.2               | 2,050 | 54.9               |       |                    |
| 40  | 2.8  | 840                       | 22.5               | 1,200 | 32.2               | 1,725 | 46.2               | 2,600 | 69.7               |       |                    |
| 50  | 3.4  | 1,100                     | 29.5               | 1,425 | 38.2               | 2,425 | 65.0               |       |                    |       |                    |
| 60  | 4.1  | 1,400                     | 37.5               | 1,725 | 46.2               | 2,750 | 73.7               |       |                    |       |                    |
| 80  | 5.5  | 2,200                     | 59.0               | 2,450 | 65.7               |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,600                     | 69.7               | 3,450 | 92.5               |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,250                     | 87.1               | 5,900 | 158                |       |                    |       |                    |       |                    |
| psig  | bar  | Body Size: NPS 2          |                    |       |                    |       |                    |       |                    |       |                    |
| 10  | 0.69 | 110                       | 2.9                | 140   | 3.8                | 220   | 5.9                | 800   | 21.4               | 1,000 | 26.8               |
| 15  | 1.0  | 180                       | 4.8                | 260   | 7.0                | 710   | 19.0               | 1,100 | 29.5               | 1,800 | 48.2               |
| 20  | 1.4  | 260                       | 7.0                | 350   | 9.4                | 1,000 | 26.8               | 1,700 | 45.6               | 2,900 | 77.7               |
| 25  | 1.7  | 360                       | 9.6                | 490   | 13.1               | 1,300 | 34.8               | 2,050 | 54.9               |       |                    |
| 30  | 2.1  | 530                       | 14.2               | 790   | 21.2               | 1,500 | 40.2               | 2,050 | 54.9               |       |                    |
| 40  | 2.8  | 870                       | 23.3               | 990   | 26.5               | 1,725 | 46.2               | 2,600 | 69.7               |       |                    |
| 50  | 3.4  | 1,200                     | 32.2               | 1,300 | 34.8               | 2,425 | 65.0               |       |                    |       |                    |
| 60  | 4.1  | 1,475                     | 39.5               | 1,725 | 46.2               | 2,750 | 73.7               |       |                    |       |                    |
| 80  | 5.5  | 2,300                     | 61.6               | 2,450 | 65.7               |       |                    |       |                    |       |                    |
| 100   | 6.9  | 2,600                     | 69.7               | 3,450 | 92.5               |       |                    |       |                    |       |                    |
| 125   | 8.6  | 3,250                     | 87.1               | 5,700 | 152                |       |                    |       |                    |       |                    |

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



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

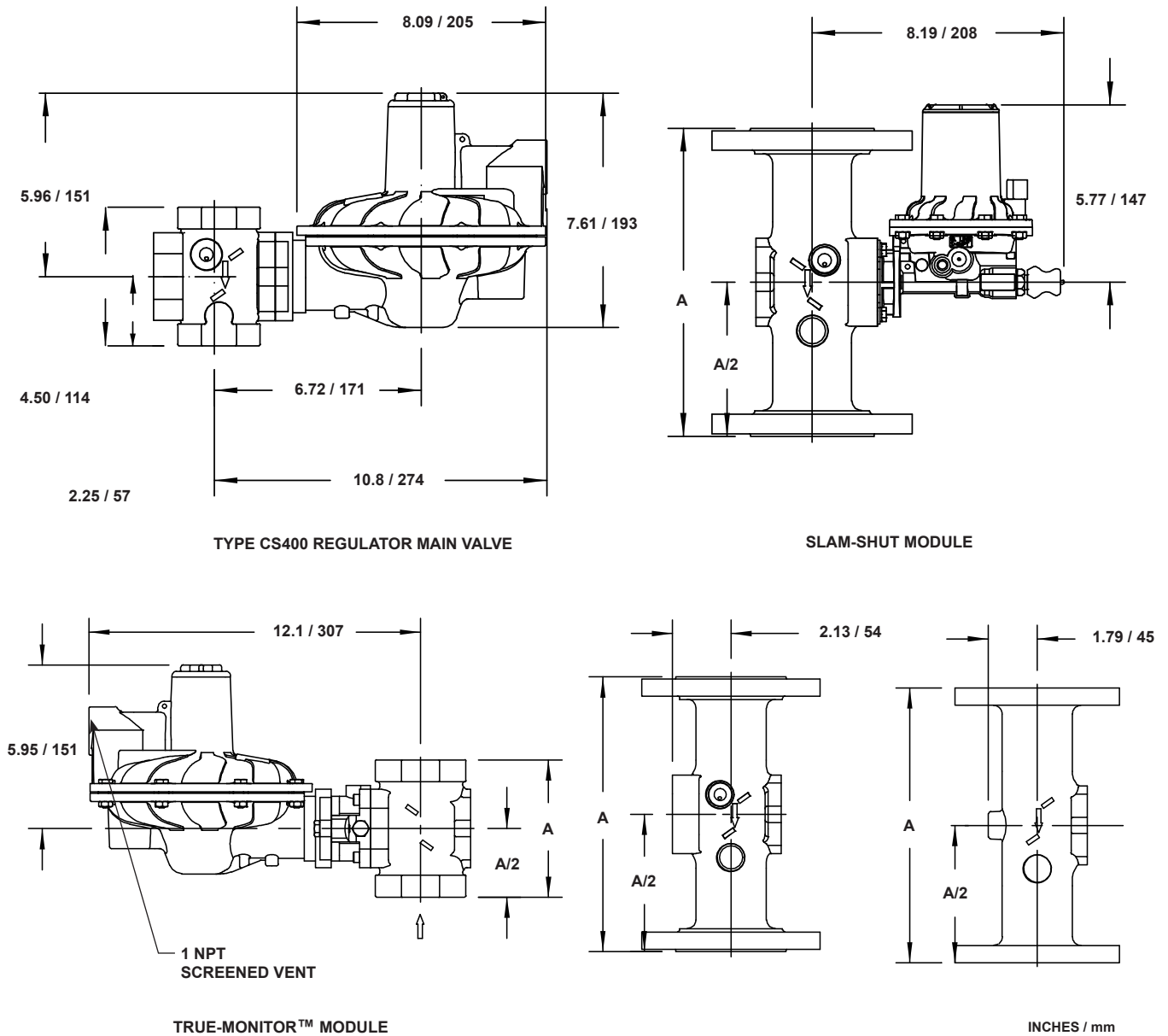


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CHOOSE VENT AND BODY POSITION FOR THE TYPES CS403 AND CS404 IN THE SAME MANNER AS FOR THE BASE TYPE CS400 REGULATOR. THE VENT OF THE INTEGRAL MONITOR OR SLAM SHUT WILL BE ORIENTED IN THE SAME DIRECTION AS THE PRIMARY REGULATOR. BODY POSITION WILL ALSO 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  |     |
|               | Inches                | mm  | Inches              | mm  | Inches | 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 |

## 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-inches w.c. / 9 to 12 mbar, Red
- 4.5 to 6.5-inches w.c. / 11 to 16 mbar, Purple
- 6 to 8-inches w.c. / 15 to 20 mbar, Gold
- 7.5 to 11-inches w.c. / 19 to 27 mbar, Blue
- 10 to 14-inches w.c. / 25 to 35 mbar, Unpainted
- 12 to 19-inches w.c. / 30 to 47 mbar, Green
- 18 to 28-inches w.c. / 45 to 70 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-inch / 4.8 mm
- 1/4-inch / 6.4 mm
- 5/16-inch / 7.9 mm
- 3/8-inch / 9.5 mm
- 1/2-inch / 13 mm
- 5/8-inch / 16 mm
- 3/4-inch / 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)

**Certification** (Available only on CS400 Series Construction)

- Pressure Factor Measurement (PFM)

### Slam-shut Trip Pressure Setting

#### Type VSX4

- Overpressure (OPSO) trip only  
(supply high pressure trip pressure)  
Indicate trip pressure \_\_\_\_\_
- Over and Underpressure (OPSO / UPSO) trip  
(supply high and low pressure trip pressure)  
Indicate trip points  
Over \_\_\_\_\_ Under \_\_\_\_\_

| 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   |       |
|---|-------|
| <b>Application:</b>   |       |
| 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? _____  |       |
| <b>Pressure:</b>  |       |
| Maximum Inlet Pressure ( $P_{1max}$ )   | _____ |
| Minimum Inlet Pressure ( $P_{1min}$ )   | _____ |
| Downstream Pressure Setting(s) ( $P_2$ )  | _____ |
| Maximum Flow ( $Q_{max}$ )  | _____ |
| <b>Performance Required:</b>  |       |
| Accuracy Requirements?  | _____ |
| Need for Fast Response?   | _____ |
| <b>Other Requirements:</b> _____  |       |
| _____   |       |

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