

# CS800 Series Commercial/Industrial Pressure Reducing Regulators

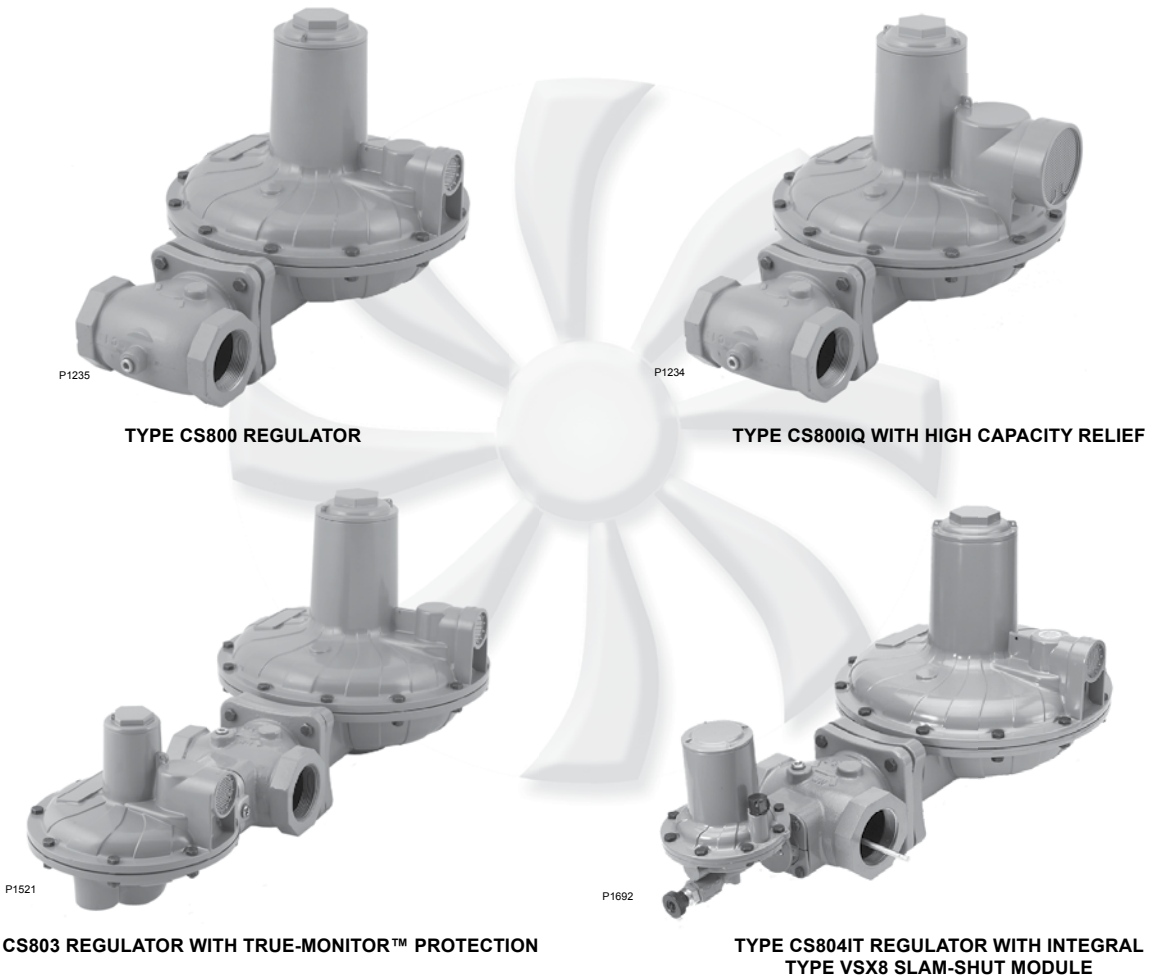


Figure 1. Typical CS800 Series Pressure Reducing Regulator

## Features and Benefits

- Flow-optimized disks provide the maximum flow for your application
- Largest number of overpressure protection offerings in the industry
- Wide variety of body sizes and end connections
- Body materials available in gray cast iron, ductile iron and steel
- Fixed Factor/Pressure Factor Measurement (PFM) accuracy capabilities
- Only standard tools required for pressure adjustment and orifice removal
- Simplified maintenance



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# Bulletin 71.1:CS800

## Specifications

The Specifications section lists the specifications for the CS800 Series Regulators. The following information is stamped on the nameplate of CS800 Series: Type Number, Maximum Outlet Pressure and Spring Range.

<p><b>Available Configurations</b> See Table 1</p> <p><b>Body Sizes, Material, End Connection and Pressure Rating<sup>(1)</sup></b> See Table 2</p> <p><b>Maximum Inlet Pressures<sup>(1)</sup></b> <b>Emergency:</b> 175 psig / 12.1 bar <b>Operating:</b> See Table 3</p> <p><b>Maximum Outlet Pressure<sup>(1)</sup></b> <b>Emergency (Casing):</b> 15 psig / 1.0 bar <b>To avoid internal parts damage:</b> 3 psig / 0.21 bar differential above outlet pressure setting</p> <p><b>Outlet Pressure Ranges<sup>(1)</sup></b> <b>Regulator:</b> 3.5 in. w.c. to 10 psig / 9 mbar to 0.69 bar See Table 4</p> <p><b>Internal Relief Performance</b> <b>Approximate Internal Relief Start-to-Discharge Point:</b> See Table 5 <b>Relief Performance:</b> <i>For Standard Internal Relief:</i> See Figures 9, 11, 13, 15, 17 and 19 <i>For High Capacity Internal Relief:</i> See Figures 10, 12, 14, 16, 18 and 20</p> <p><b>Token Relief Performance</b> <b>Approximate Token Relief Start-to-Discharge:</b> See Table 5</p> <p><b>Maximum Token Relief Discharge Capacities:</b> See Figure 8</p> <p><b>Flow Capacities</b> <b>With Standard Construction:</b> See Tables 14 through 16 and 18 through 51 <b>With True-Monitor™ or Slam Shut:</b> See Tables 14 through 51 <b>With Secondary Seat™ Construction:</b> See Tables 52 through 66 <b>With Low Inlet Option<sup>(3)</sup>:</b> See Tables 17 and 53</p> <p><b>Orifice Sizes, Flow Coefficients and IEC Sizing Coefficients</b> See Table 3</p> <p><b>Temperature Capabilities<sup>(1)(2)</sup></b> -20 to 150°F / -29 to 66°C</p>	<p><b>Spring Case Vent Connection</b> <b>Internal Relief:</b> 1 NPT <b>High Capacity Relief:</b> 2-1/2 NPT</p> <p><b>External Registration Connection</b> 3/4 NPT</p> <p><b>Spring Case Vent and Body Orientation</b> See Figure 21</p> <p><b>Secondary Seat Approximate Lockup Values and Associated Internal Relief Start-to-Discharge:</b> See Table 6</p> <p><b>TM600 Series True-Monitor Performance<sup>(1)</sup></b> <b>Inlet Pressure Ratings</b> <i>Maximum Operating:</i> Up to 125 psig / 8.6 bar <i>Maximum Emergency:</i> 175 psig / 12.1 bar <b>Outlet Pressure Range:</b> 12 in. w.c. to 7.5 psig / 30 mbar to 0.52 bar</p> <p><b>Type VSX8 Slam-Shut Device<sup>(1)</sup></b> <b>Maximum Inlet Pressure:</b> 175 psig / 12.1 bar <b>Maximum Operating Inlet Pressure:</b> 175 psig / 12.1 bar</p> <p><b>Construction Materials</b> <b>CS800 Series Main Valve and Actuator</b> <i>Body:</i> Gray Cast Iron, Ductile Iron or Steel <i>Body O-ring:</i> Nitrile (NBR) <i>Closing Cap:</i> Aluminum <i>Adjusting Screw:</i> Aluminum, Brass or Zinc-plated steel <i>Upper and Lower Case:</i> Aluminum <i>Valve Stem:</i> Aluminum or Zinc-plated steel <i>Diaphragm Head:</i> Zinc-plated steel <i>Orifice:</i> <i>Standard:</i> Aluminum <i>Secondary Seat:</i> Brass <i>Pusher Post or Internal Relief Valve Seat:</i> Aluminum or Zinc-plated steel <i>Diaphragm and Disk:</i> Nitrile (NBR) <i>Control Spring:</i> Stainless steel or Steel <i>Relief Valve Spring:</i> Stainless steel <i>Relief Valve Spring Retainer:</i> Aluminum or Zinc-plated steel <i>Vent Screen:</i> Stainless steel <i>Retaining Ring:</i> Stainless steel or Zinc-plated steel <i>Lever Pin:</i> Stainless steel or hardened steel <i>Spring Seat:</i> Aluminum <i>Lever:</i> Steel</p>
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1. The pressure/temperature limits in this Bulletin or any applicable standard or code limitation should not be exceeded.

2. Product has passed Emerson Process Management Regulator Technologies, Inc. testing for lockup, relief start-to-discharge and reseal down to -40 degrees.

3. Applies to Capacities with Low Inlet Option, which offers Enhanced Flow Performance at Low Inlet pressures for the 2 in. / DN 50 body with 5.5 to 8.5 in. w.c. / 13 to 21 mbar spring range.

- continued -

## Specifications (continued)

### Construction Materials (continued)

#### Type TM600 True-Monitor™ Actuator

*Diaphragm Case, Spring Case and Balanced Port*

*Assembly Housing:* Aluminum

*Diaphragm Retainer and Diaphragm Head:*

Zinc-plated Steel

*Valve Stem:* Aluminum

*Diaphragm:* Nitrile (NBR)

*Disk Holder and Disk Retainer:* Brass

*Disk/Seat Contact:* Nitrile (NBR)

*Monitor Stem:* Stainless steel

*Middle Diaphragm Retainer:* Zinc-plated steel

*Control Spring:* Stainless steel

*Vent Screen:* Stainless steel

*Vent Retaining Ring:* Zinc-plated steel

*Closing Cap:* Aluminum

*Adjusting Screw:* Aluminum

*O-rings:* Nitrile (NBR)

#### Type VSX8 Slam-Shut Device

*Diaphragm Case, Spring Case, Diaphragm Plate*

*and Valve Stem:* Aluminum

*Diaphragm and Disk:* Nitrile (NBR)

*Control Spring:* Music Wire or Stainless steel

### Construction Materials (continued)

#### Type VSX8 Slam-shut Device (continued)

*Vent Screen:* Stainless steel

*Vent Screen Retainer:* Zinc-plated steel

*Closing Cap:* Aluminum

*Adjusting Screw:* Aluminum

### Designed, Tested and Evaluated Consistent with:

ASME B16, ASME Section VIII DIV I and

ASTM B117 (Corrosion Resistance)

### Approximate Weights

#### With Threaded Body

*Type CS800/CS820:* 25 lbs / 11 kg

*Type CS803/CS823:* 34 lbs / 15 kg

*Type CS804/CS824:* 31 lbs / 14 kg

*Type CS805/CS825:* 26 lbs / 12 kg

*Type CS806/CS826:* 26 lbs / 12 kg

#### High-Pressure Types:

For CS85x add 2 lbs / 0.9 kg to Types listed above

#### With Flanged Body

Add 11 lbs / 5.0 kg to weights listed above

**Table 1. Available Configurations**

TYPE NUMBER				OPTIONS
C	S	8		
				<b>OUTLET PRESSURE CONSTRUCTION</b>
		0		Low Pressure Applications ( <i>Outlet Pressure: 3.5 to 30 in. w.c. / 9 to 75 mbar</i> )
		2		Medium Pressure Applications ( <i>Outlet Pressure: 1 to 5.5 psig / 69 mbar to 0.38 bar</i> )
		5		High Pressure Applications ( <i>Outlet Pressure: 5 to 10 psig / 0.34 to 0.69 bar</i> ) <sup>(1)</sup>
				<b>OVERPRESSURE PROTECTION MODULE</b>
		0		Without Overpressure Protection Module
		3		With Integral True-Monitor Module <sup>(4)</sup>
		4		With Slam-shut Module <sup>(4)</sup>
		5		With Secondary Seat™ Protection
		6		With Secondary Seat Protection with controlled bleed to indicate Secondary Seat is functioning <sup>(2)</sup>
				<b>PRESSURE REGISTRATION</b>
			I	Internal Registration
			E	External Registration <sup>(3)</sup>
				<b>RELIEF</b>
			N	Non-Relieving
			R	Internal Relief
			Q	High-Capacity Relief
			T	Token Relief
			L	Low Flow Token Relief
Example: Type Number CS800IR: Type CS800 regulator without Overpressure Protection Module with Internal Pressure Registration and with Internal Relief.				
1. High-pressure Construction is not available with True-Monitor Protection, Secondary Seat Protection or Relief.				
2. Available only with Internal Relief or High-Capacity Relief Constructions.				
3. Available only with Non-Relieving or Token Relief Constructions.				
4. Reference Instruction Manual D103126X012 for information regarding the Type TM600 Integral True-Monitor or Instruction Manual D103127X012 for Type VSX8 safety Slam-shut module.				

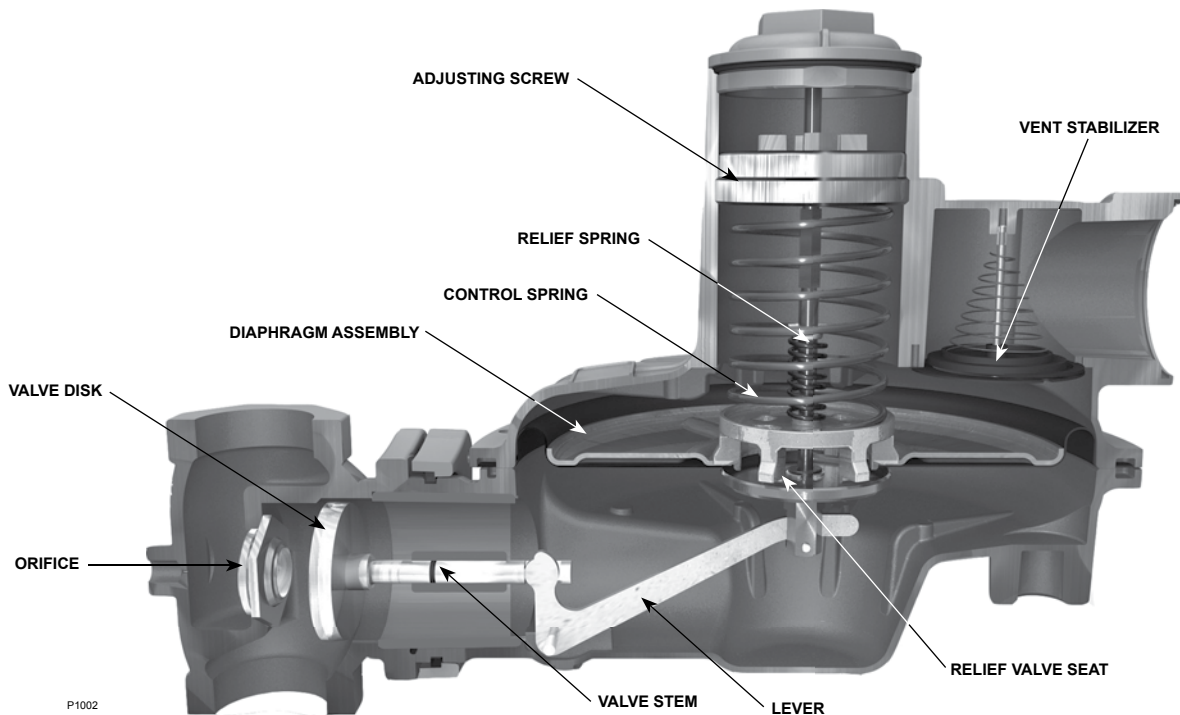


Figure 2. Internal View of CS800 Series with High Capacity Relief

## Introduction

The CS800 Series direct-operated, spring-loaded regulators have been engineered to fit a multitude of commercial and industrial pressure-reducing applications. 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 CS800 Series offers multiple overpressure protection options:

## Overpressure Protection Options Available

- **Internal Relief** – Provides overpressure protection to the downstream system by relieving gas through the diaphragm assembly to atmosphere in the event of an overpressure situation.
- **High-Capacity Internal Relief** – Provides an increase in relief performance over internal relief thereby offering a significant improvement in the level of overpressure protection to the downstream system in the event of an overpressure occurrence.

- **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.
- **Secondary Seat™ Protection** – Provides a solution to the most common cause of regulators failing to shut off by employing a secondary seating surface to provide shutoff in the event the primary orifice seating surface becomes damaged or blocked. See page 15 for additional information.
- **Slam-Shut Protection** – Discontinues gas service by shutting the gas off if there is an overpressure or underpressure condition.

## Overpressure Relief

- **Token Relief** – Provides overpressure relief via a small capacity or token relief that relieves minor overpressure caused by thermal expansion or minor nicks in the orifice or disk.

**Table 2. Body Sizes, Materials, End Connections and Maximum Cold Working Pressure Ratings<sup>(5)</sup>**

TYPE	BODY MATERIAL	END CONNECTION	BODY SIZE		FACE-TO-FACE DIMENSION		BODY INLET PRESSURE RATING	
			In.	DN	In.	mm	psig	bar
CS800, CS805, CS806, CS820, CS825, CS826 and CS850	Gray Cast Iron	NPT	1-1/4	----	6.12	155	175	12.1
			1-1/2	----	6.12	155		
			2 <sup>(1)</sup>	----	6.12	155		
			2	----	6.12	155		
		CL125 FF	2	50	7.5	191	175	12.1
2	50		10	254				
CS800 <sup>(3)</sup> , CS820 <sup>(3)</sup> , CS850 <sup>(3)</sup> , CS803, CS823, CS804, CS824 and CS854	Gray Cast Iron	NPT	2 <sup>(2)</sup>	----	6.12	155	175	12.1
	Ductile Iron	NPT	1-1/4 <sup>(4)</sup>	----	6.12	155	250	17.2
			1-1/2	----	6.12	155		
			2	----	6.12	155		
		Rp	2	----	6.12	155	250	17.2
		CL125 FF / CL150 FF	2	50	7.5 <sup>(4)</sup>	191 <sup>(4)</sup>	250	17.2
			2	50	10	254		
	PN 10/16	2	50	10.5	267	232	16	
		2	50	7.5 <sup>(4)</sup>	191 <sup>(4)</sup>			
	WCC Steel	NPT	1-1/4 <sup>(4)</sup>	----	6.12	155	290	20
			1-1/2	----	6.12	155		
			2	----	6.12	155		
		Rp	2	----	6.12	155	290	20
		CL150 RF	2	50	10	254	290	20
		PN 10/16	2	50	10	254	232	16

1. Standard on Types CS800, CS820 and CS850.  
 2. Standard on Types CS803, CS804, CS823, CS824 and CS854.  
 3. If a ductile iron or steel body material is selected without an Integral True-Monitor™ or Slam-shut Overpressure Protection (OPP) device, the port located at the bottom of the body will receive an aluminum plug.  
 4. Not available on Types CS804, CS824 and CS854.  
 5. The pressure/temperature limits in this Bulletin or any applicable standard or code limitation should not be exceeded.

**Table 3. Inlet Pressure Ratings and Flow and Sizing Coefficients**

ORIFICE SIZE		MAXIMUM OPERATING INLET PRESSURE TO OBTAIN OPTIMUM PERFORMANCE				MAXIMUM EMERGENCY INLET PRESSURE		WIDE-OPEN FLOW COEFFICIENTS			IEC SIZING COEFFICIENTS		
		psig Setpoints		In. w.c. Setpoints									
In.	mm	psig	bar	psig	bar	psig	bar	C <sub>g</sub>	C <sub>v</sub>	C <sub>i</sub>	X <sub>T</sub>	F <sub>L</sub>	F <sub>D</sub>
1/4 <sup>(1)</sup>	6.4 <sup>(1)</sup>	125	8.6	125	8.6	175	12.1	50	2.1	24.6	0.38	0.89	0.99
3/8	9.5	125	8.6	125	8.6	175	12.1	110	3.8	29.5	0.55	0.89	0.90
1/2	13	100	6.9	100	6.9	175	12.1	210	7.2	29.5	0.55	0.89	0.93
5/8	16	80	6.5	60	4.1	175	12.1	320	10.1	31.8	0.64	0.89	0.88
3/4	19	80	6.5	60	4.1	175	12.1	450	13.3	34	0.73	0.89	0.84
7/8	22	60	4.1	50	3.4	175	12.1	600	16.7	36	0.82	0.89	0.81
1 <sup>(1)</sup>	25 <sup>(1)</sup>	30	2.1	25	1.7	175	12.1	765	20.1	38.1	0.92	0.89	0.77
1-3/8 <sup>(1)(2)</sup>	35 <sup>(1)(2)</sup>	15	1.0	15	1.0	175	12.1	1125	29.8	37.7	0.90	0.89	0.76

1. Not available on the Types CS805, CS806, CS825 and CS826.  
 2. Not available on the Types CS803 and CS823.

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**Table 4. Outlet Pressure Ranges**

TYPE	OUTLET PRESSURE RANGE		COLOR CODE	PART NUMBER	SPRING WIRE DIAMETER		SPRING FREE LENGTH	
	In. w.c.	mbar			In.	mm	In.	mm
CS800, CS803, CS804, CS805 and CS806	3.5 to 6 <sup>(1)</sup>	9 to 15 <sup>(1)</sup>	Red	GE30337X012	0.15	3.8	6.8	173
	5.5 to 8.5	13 to 21	Black	GE30338X012	0.17	4.3	6.8	173
	5.5 to 8.5	13 to 21	Brown [Use with Low Inlet (LIN) Option]	GE49043X012	0.16	4.1	8.3	211
	8 to 12	20 to 30	Purple	GE30339X012	0.17	4.3	7.4	188
	10 to 16	25 to 40	White	GE30340X012	0.18	4.6	7.4	188
	14 to 30	35 to 75	Dark Green	GE30341X012	0.20	5.2	7.5	191
CS820, CS823, CS824, CS825 and CS826	1 to 2.5 psig	69 to 170	Dark Blue	GE30342X012	0.25	6.4	7.5	191
	1.5 to 3.5 psig	100 to 241	Orange	GE46922X012	0.26	6.6	7.1	180
	2.5 to 5.5 psig	170 to 380	Yellow	GE30343X012	0.29	7.5	6.7	170
CS850 and CS854	5 to 10 psig	345 to 690	Green with White Stripe	GE30344X012	0.39	9.9	7.6	192

1. In order to achieve the complete spring range listed, in some applications it may be required to re-orient the actuator/spring case to point downward to utilize the weight of the internal components.

**Table 5. Approximate Internal Relief Valve Start-to-Discharge Pressure Above Setpoint**

CONTROL SPRING	SETPOINT		SET RANGE		INTERNAL RELIEF AND HIGH CAPACITY RELIEF				TOKEN RELIEF	
					Start-to-Discharge Pressure Range above Setpoint		Low Start-to-Discharge Option <sup>(1)</sup>		Start-to-Discharge Pressure Range above Setpoint	
	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar
GE30337X012	4	10	3.5 to 6	9 to 15	11 to 18	27 to 42	7 to 14	17 to 35	6 to 14	15 to 35
GE30338X012	7	17	5.5 to 8.5	13 to 21	11 to 18	27 to 42	7 to 14	17 to 35	6 to 14	15 to 35
GE49043X012 (LIN)	7	17	5.5 to 8.5	13 to 21	11 to 18	27 to 42	7 to 14	17 to 35	6 to 14	15 to 35
GE30339X012	11	27	8 to 12	20 to 30	11 to 18	27 to 42	7 to 14	17 to 35	6 to 14	15 to 35
GE30340X012	14	35	10 to 16	25 to 40	11 to 18	27 to 42	7 to 14	17 to 35	6 to 14	15 to 35
GE30341X012	1 psig	69	14 to 30	35 to 75	7 in. w.c. to 1 psig	17 to 69	----	----	8 to 16	20 to 40
GE30342X012	2 psig	138	1 to 2.5 psig	70 to 170	7 in. w.c. to 2 psig	17 to 138	----	----	7 in. w.c. to 1 psig	17 to 69
GE46922X012	3 psig	207	1.5 to 3.5 psig	100 to 240	7 in. w.c. to 2 psig	17 to 138	----	----	0.5 to 1.5 psig	35 to 100
GE30343X012	5 psig	345	2.5 to 5.5 psig	170 to 380	7 in. w.c. to 2.5 psig	17 to 170	----	----	1 to 2 psig	69 to 138

1. Low start-to-discharge option is only available on the main control spring ranges up to 10 to 16 in. w.c. / 25 to 40 mbar.

**Table 6. Secondary Seat™ Outlet Pressures**

CONTROL SPRING	SPRING RANGE		SETPOINT		SECONDARY SEAT SHUTOFF PRESSURE <sup>(2)</sup> (Types CS805 and CS825)				DOWNSTREAM BUILD-UP PRESSURE <sup>(1)(2)(3)</sup> (Types CS806 and CS826)			
					Up to 1/2 in. / 13 mm orifice size		Up to 7/8 in. / 22 mm orifice size		Up to 1/2 in. / 13 mm orifice size		Up to 7/8 in. / 22 mm orifice size	
Color	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar
Black	5.5 to 8.5	13 to 21	7	17	11	27	12	30	25	62	23	57
Brown (LIN)	5.5 to 8.5	13 to 21	7	17	11	27	12	30	25	62	23	57
White Stripe	10 to 16	25 to 40	14	35	19	47	20	50	36	89	33	81
Dark Green	14 to 30	35 to 75	1 psig	69	1.2 psig	83	1.3 psig	90	2.1 psig	145	2 psig	138
Dark Blue	1 to 2.5 psig	69 to 170	2 psig	140	2.6 psig	179	2.6 psig	179	3.8 psig	262	3.7 psig	255
Yellow	2.5 to 5.5 psig	170 to 380	5 psig	345	6.3 psig	434	6.3 psig	434	7.4 psig	510	8.2 psig	565

1. Downstream pressure buildup with Secondary Seat fixed bleed in operation and regulator relief valve relieving to atmosphere.  
 2. Outlet pressure values listed are at maximum operating inlet pressure rating per orifice.  
 3. If the outlet pressure rises above setpoint exceeding the pressure rating of the regulator, the internal parts must be inspected and replaced if damaged.

**Table 7. Types CS803 and CS823 Regulator and Integral True-Monitor™ Outlet Pressure Ranges without Token Relief**

Type	PRIMARY REGULATOR					INTEGRAL TRUE-MONITOR				
	Setpoint		Spring Range		Spring Color	Setpoint		Spring Range		Spring Color
	In. w.c.	mbar	In. w.c.	mbar		In. w.c.	mbar	In. w.c.	mbar	
CS803IN and CS803EN	4	10	3.5 to 6	9 to 15	Red	14	35	12 to 21	30 to 52	Blue
						21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	7	17	5.5 to 8.5	13 to 21	Black	14	35	12 to 21	30 to 52	Blue
						21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	7	17	5.5 to 8.5	13 to 21	Brown (LIN)	14	35	12 to 21	30 to 52	Blue
						21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	11	27	8 to 12	20 to 30	Purple	21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
						1.5 psig	103	1.4 to 2.9 psig	97 to 200	Black
	14	35	10 to 16	25 to 40	White	21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
1.5 psig						103	1.4 to 2.9 psig	97 to 200	Black	
1 psig	69	14 to 30	35 to 75	Dark Green	1.5 psig	103	1.4 to 2.9 psig	97 to 200	Black	
					2 psig	138	1.4 to 2.9 psig	97 to 200	Black	
					3.5 psig	241	2.6 to 3.7 psig	179 to 255	Purple	
CS823IN and CS823EN	2 psig	138	1 to 2.5 psig	69 to 170	Dark Blue	2.5 psig	172	1.4 to 2.9 psig	97 to 200	Black
						3 psig	207	2.6 to 3.7 psig	179 to 255	Purple
						5 psig	345	3.6 to 6 psig	248 to 414	Dark Blue
	3 psig	207	1.5 to 3.5 psig	100 to 241	Orange	3.5 psig	241	2.6 to 3.7 psig	179 to 255	Purple
						4 psig	276	3.6 to 6 psig	248 to 414	Dark Blue
						6 psig	414	5.1 to 7.5 psig	352 to 517	Red
	5 psig	345	2.5 to 5.5 psig	170 to 380	Yellow	6 psig	414	5.1 to 7.5 psig	352 to 517	Red
7 psig						483	5.1 to 7.5 psig	352 to 517	Red	
					7.5 psig	517	5.1 to 7.5 psig	352 to 517	Red	

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**Table 8. Primary Regulator and Integral True-Monitor™ Outlet Pressure Ranges with Token Relief**

PRIMARY REGULATOR						INTEGRAL TRUE-MONITOR				
Type	Setpoint		Spring Pressure Range		Spring Color	Setpoint		Spring Pressure Range		Spring Color
	In. w.c.	mbar	In. w.c.	mbar		In. w.c.	mbar	In. w.c.	mbar	
CS803IT, CS803IL, CS803ET and CS803EL	4	10	3.5 to 6	9 to 15	Red	21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	7	17	5.5 to 8.5	13 to 21	Black	21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	7	17	5.5 to 8.5	13 to 21	Brown (LIN)	21	52	18 to 30	45 to 75	Green
						1 psig	69	26 to 40	65 to 99	Orange
	11	27	8 to 12	20 to 30	Purple	1 psig	69	26 to 40	65 to 99	Orange
						1.5 psig	103	1.4 to 2.9 psig	97 to 200	Black
	14	35	10 to 16	25 to 40	White	1 psig	69	26 to 40	65 to 99	Orange
						1.5 psig	103	1.4 to 2.9 psig	97 to 200	Black
	1 psig	69	14 to 30	35 to 75	Dark Green	2 psig	138	1.4 to 2.9 psig	97 to 200	Black
						3 psig	207	2.6 to 3.7 psig	179 to 255	Purple
CS823IT, CS823IL, CS823ET and CS823EL	2 psig	138	1 to 2.5 psig	69 to 170	Dark Blue	3 psig	207	2.6 to 3.7 psig	179 to 255	Purple
						4 psig	276	3.6 to 6 psig	248 to 414	Dark Blue
						5 psig	345	3.6 to 6 psig	248 to 414	Dark Blue
	3 psig	207	1.5 to 3.5 psig	100 to 241	Orange	6 psig	414	5.1 to 7.5 psig	352 to 517	Red
						7 psig	483	5.1 to 7.5 psig	352 to 517	Red
						7.5 psig	517	5.1 to 7.5 psig	352 to 517	Red
5 psig	345	2.5 to 5.5 psig	170 to 380	Yellow	7.5 psig	517	5.1 to 7.5 psig	352 to 517	Red	

**Table 9. CS800 Series Disk Color Selection**

PRESSURE REGISTRATION	TYPE	BODY SIZE		SPRING RANGE <sup>(1)</sup>		BODY MATERIAL	END CONNECTION	DISK COLOR	DISK ASSEMBLY PART NUMBER	REPAIR KIT <sup>(2)</sup>
		In.	DN	In. w.c.	mbar					
Internal	CS800	1-1/4 and 1-1/2	32 and 40	3.5 to 30	9 to 75	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2
				3.5 to 6	9 to 15	All Materials	All Connections	Green	GE29773X042	RCS800XGRN2
		2	50	5.5 to 8.5 and 8 to 12	13 to 21 and 20 to 30	Gray Cast Iron	All Connections	Blue	GE29773X032	RCS800XBLU2
						Ductile Iron or WCC Steel	Flanged	Blue	GE29773X032	RCS800XBLU2
				Threaded	Dark Gray	GE29773X082	RCS800XGRY2			
			10 to 16 and 14 to 30	25 to 40 and 35 to 75	All Materials	All Connections	Green	GE29773X042	RCS800XGRN2	
	CS820 and CS850	All Sizes	1 to 10 psig	69 to 690	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2	
External	All	All Sizes	All	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2		

1. The 3.5 to 30 in. w.c. / 9 to 75 mbar spring range indicates that all of the springs within this range are applicable.  
2. Repair kit includes O-ring (key 19), disk assembly (key 36) and O-ring (key 62).



**Table 10. CS803 and CS804 Series Disk Color Selection**

PRESSURE REGISTRATION	TYPE	BODY SIZE		SPRING RANGE <sup>(1)</sup>		BODY MATERIAL	END CONNECTION	DISK COLOR	DISK ASSEMBLY PART NUMBER	REPAIR KIT <sup>(2)</sup>	
		In.	DN	In. w.c.	mbar						
Internal	CS803 and CS804	1-1/2	40	3.5 to 30	9 to 75	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2	
		2	50	3.5 to 6		9 to 15	All Materials	All Connections	Green	GE29773X042	RCS800XGRN2
				5.5 to 8.5 and 8 to 12	13 to 21 and 20 to 30	Ductile Iron or WCC Steel	Flanged	Blue	GE29773X032	RCS800XBLU2	
						Gray Cast Iron	Threaded	Dark Gray	GE29773X082	RCS800XGRY2	
				10 to 16 and 14 to 30		25 to 40 and 35 to 75	All Materials	All Connections	Green	GE29773X042	RCS800XGRN2
	All Sizes	1 to 10 psig	69 to 690	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2			
External	All	All Sizes	All	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2			

1. The 3.5 to 30 in. w.c. / 9 to 75 mbar spring range indicates that all of the springs within this range are applicable.  
 2. Repair kit includes O-ring (key 19), disk assembly (key 36) and O-ring (key 62).

**Table 11. CS805 and CS806 Series Disk Color Selection**

PRESSURE REGISTRATION	TYPE	BODY SIZE		SPRING RANGE <sup>(1)</sup>		BODY MATERIAL	END CONNECTION	DISK COLOR	DISK ASSEMBLY PART NUMBER	REPAIR KIT <sup>(3)</sup>
		In.	DN	In. w.c.	mbar					
Internal	CS805 and CS806	1-1/4	32	3.5 to 30	9 to 75	Gray Cast Iron	All Connections	Yellow/White Dot	GE29773X062	RCS800XYEL2
		1-1/2	40					Green/White Dot	GE29773X092	RCS800XGR22
		2	50					White/White Dot <sup>(2)</sup>	GE29773X052	RCS800XWHT2
	CS825 and CS826	All Sizes	1 to 5.5 psig	69 to 380	Gray Cast Iron	All Connections	Yellow/White Dot	GE29773X062	RCS800XYEL2	
External	All	All Sizes	All	All Materials	All Connections	Black	GE29773X022	RCS800XBLK2		

1. The 3.5 to 30 in. w.c. / 9 to 75 mbar spring range indicates that all of the springs within this range are applicable.  
 2. White/White Dot disk requires the open end to be directed downstream with the direction of flow.  
 3. Repair kit includes O-ring (key 19), disk assembly (key 36) and O-ring (key 62).

**Table 12. Regulator and Slam-Shut Overpressure Shutoff (OPSO) Pressure Ranges**

REGULATOR					SLAM-SHUT DEVICE				
Type	Factory Setpoint		Spring Range		Factory Setpoint <sup>(1)</sup>		Spring Range <sup>(2)</sup>		Spring Part Number and Color
	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	
	Over Pressure Shut-off (OPSO)								
CS804	4	10	3.5 to 6	9 to 15	19	47	12 to 25	30 to 60	GF02168X012 / Brown
	7	17	5.5 to 8.5	14 to 21	22	55			
	7 (optional)	17 (optional)	5.5 to 8.5	14 to 21	25	62	16 to 44	40 to 110	GF02169X012 / Red
	11	27	8 to 12	20 to 30					
	14	35	10 to 16	25 to 40	30	75	24 to 78	60 to 190	GF02170X012 / Orange
	14 (optional)	35 (optional)	10 to 16	25 to 40	2 psig	138	1.4 to 4.1 psig	97 to 283	GF02171X012 / Pink
1 psig	69	14 to 30	35 to 75	2 psig	138				
CS824	2 psig	138	1 to 2.5 psig	69 to 170	3.5 psig	241	2 to 7.3 psig	138 to 503	GF02172X012 / Green
	3 psig	207	1.5 to 3.5 psig	100 to 241	5 psig	345			
	5 psig	345	2.5 to 5.5 psig	170 to 380	7 psig	483	3.2 to 8.5 psig	221 to 586	GF02173X012 / Silver
CS854	7 psig	483	5 to 10 psig	345 to 690	9 psig	621	5.8 to 13 psig	400 to 896	GF04353X012 / Yellow

1. For units equipped with Token Relief, if Non-Factory Slam-shut OPSO setpoints are specified, they must be higher than the Token Relief Start-to-Discharge values provided in Table 5.  
 2. If Non-Factory OPSO setpoints are specified, the allowable OPSO setpoint cannot exceed the maximum of 3 psig / 207 mbar above the regulator setpoint in order to ensure no internal parts damage from overpressure.

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**Table 13. Regulator and Slam-Shut Underpressure Shutoff (UPSO) Pressure and Overpressure Shutoff (OPSO) Ranges**

REGULATOR					SLAM-SHUT DEVICE									
					Under Pressure Shut-off (UPSO)					Over Pressure Shut-off (OPSO)				
Type	Factory Setpoint		Spring Range		Factory Setpoint <sup>(1)</sup>		Spring Range		Spring Part Number and Color	Factory Setpoint <sup>(2)</sup>		Spring Range Over UPSO Setpoint <sup>(3)</sup>		Spring Part Number and Color
	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar	In. w.c.	mbar		In. w.c.	mbar	In. w.c.	mbar	
CS804	7	17	5.5 to 8.5	14 to 21	3	7	2 to 12	5 to 30	T14168T0012 / White	22	55	17 to 28	42 to 69	GF02168X012 / Brown
	11	27	8 to 12	20 to 30	6	15								
	14	35	10 to 16	25 to 40	9	22								
	1 psig	69	14 to 30	35 to 75	0.5 psig	35	0.36 to 2.3 psig	25 to 160	T14170T0012 / Silver	2 psig	138	1.3 to 3.1 psig	90 to 214	GF02170X012 / Orange
CS824	2 psig	138	1 to 2.5 psig	69 to 170	1 psig	69	0.36 to 2.3 psig	25 to 160	T14170T0012 / Silver	3.5 psig	241	1.3 to 3.1 psig	90 to 214	GF02170X012 / Orange
	3 psig	207	1.5 to 3.5 psig	100 to 241	1.75 psig	121	1.5 to 7.3 psig	100 to 500	FA142869X12 / Orange Stripe	5 psig	345	2.7 to 5.5 psig	186 to 379	GF02171X012 / Pink
	5 psig	345	2.5 to 5.5 psig	170 to 380	3 psig	207				7 psig	483			
CS854	7 psig	483	5 to 10 psig	345 to 690	3.5 psig	241	1.5 to 7.3 psig	100 to 500	FA142869X12 / Orange Stripe	9 psig	621	2.7 to 5.5 psig	186 to 379	GF02171X012 / Pink

1. If Non-Factory UPSO setpoints are specified, a minimum differential of 4 in. w.c. / 10 mbar between UPSO setpoint and regulator setpoint must be maintained in order to ensure a secure latch of the Slam-Shut.  
2. For units equipped with Token Relief, if Non-Factory Slam-shut OPSO setpoints are specified, they must be higher than the Token Relief Start-to-Discharge values provided in Table 5.  
3. If Non-Factory OPSO setpoints are specified, the allowable OPSO setpoint cannot exceed the maximum of 3 psig / 207 mbar above the regulator setpoint in order to ensure no internal parts damage from overpressure.

## Principle of Operation and Overpressure Protection

### Types CS800, CS820 and CS850 Base Regulator Operation

Refer to Figures 3 and 4. 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.

## Relief Operation

### Internal Relief “R”

Type numbers with the “R” suffix, e.g., Type CS800IR, provide internal relief discharge through the diaphragm assembly (see Figure 3) to minimize overpressure. Any outlet pressure above

the start-to-discharge point of the non-adjustable relief spring (see Table 5) moves the diaphragm off the relief seat, allowing excess pressure to discharge through the vent. If 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. This secondary travel stop for internal relief is not available on token relieving units. Units with internal relief valve have 1 NPT vent size. See Figures 9, 11, 13, 15, 17 and 19 for relief capacity.

### High-Capacity Internal Relief “Q”

Type numbers with the “Q” suffix, e.g., Type CS800IQ, provide high capacity relief discharge across the diaphragm assembly to minimize overpressure. Any outlet pressure above the start-to-discharge point of the non-adjustable relief spring (see Table 5) 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

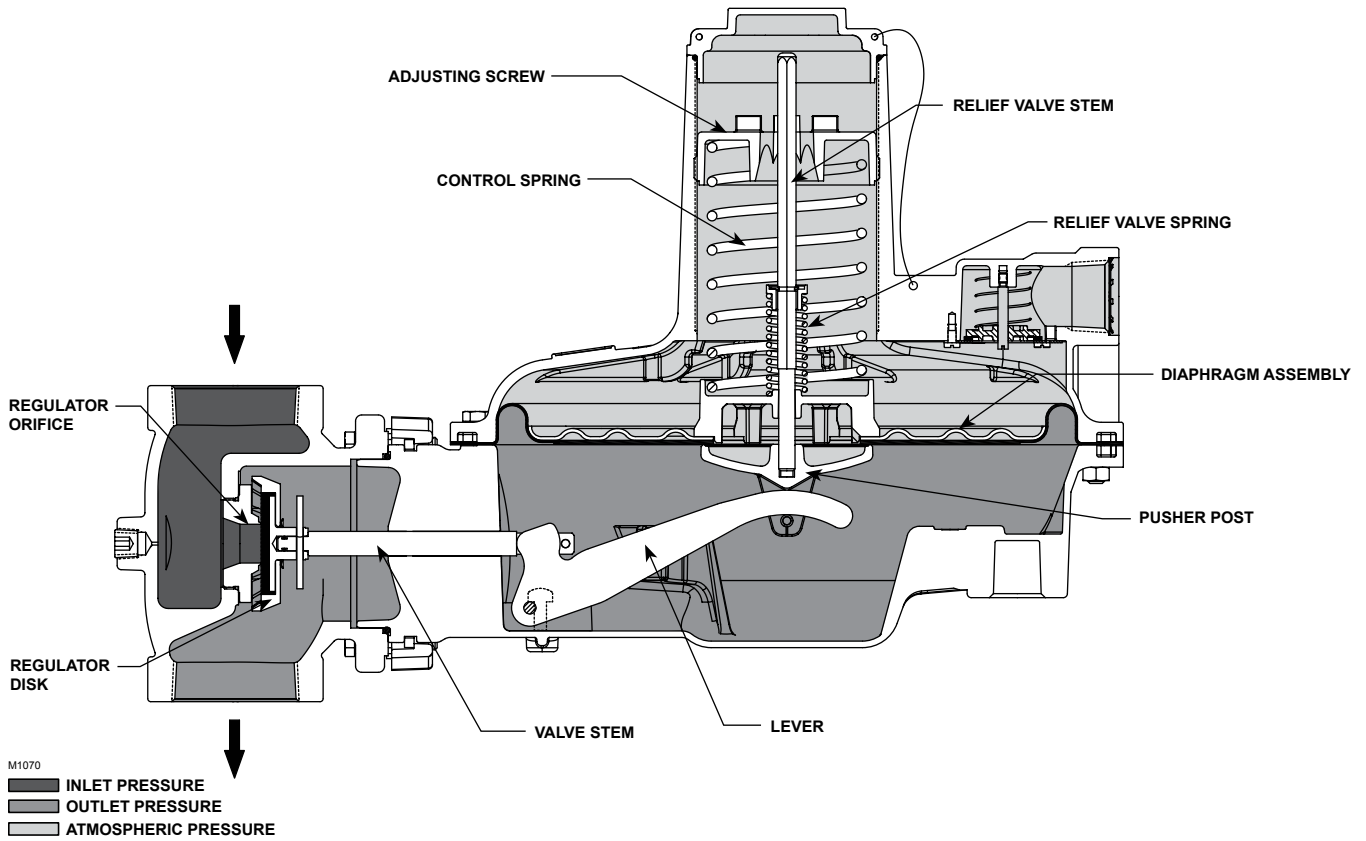


Figure 3. Type CS800IR Internally Registered Regulator with Internal Relief Operational Schematic

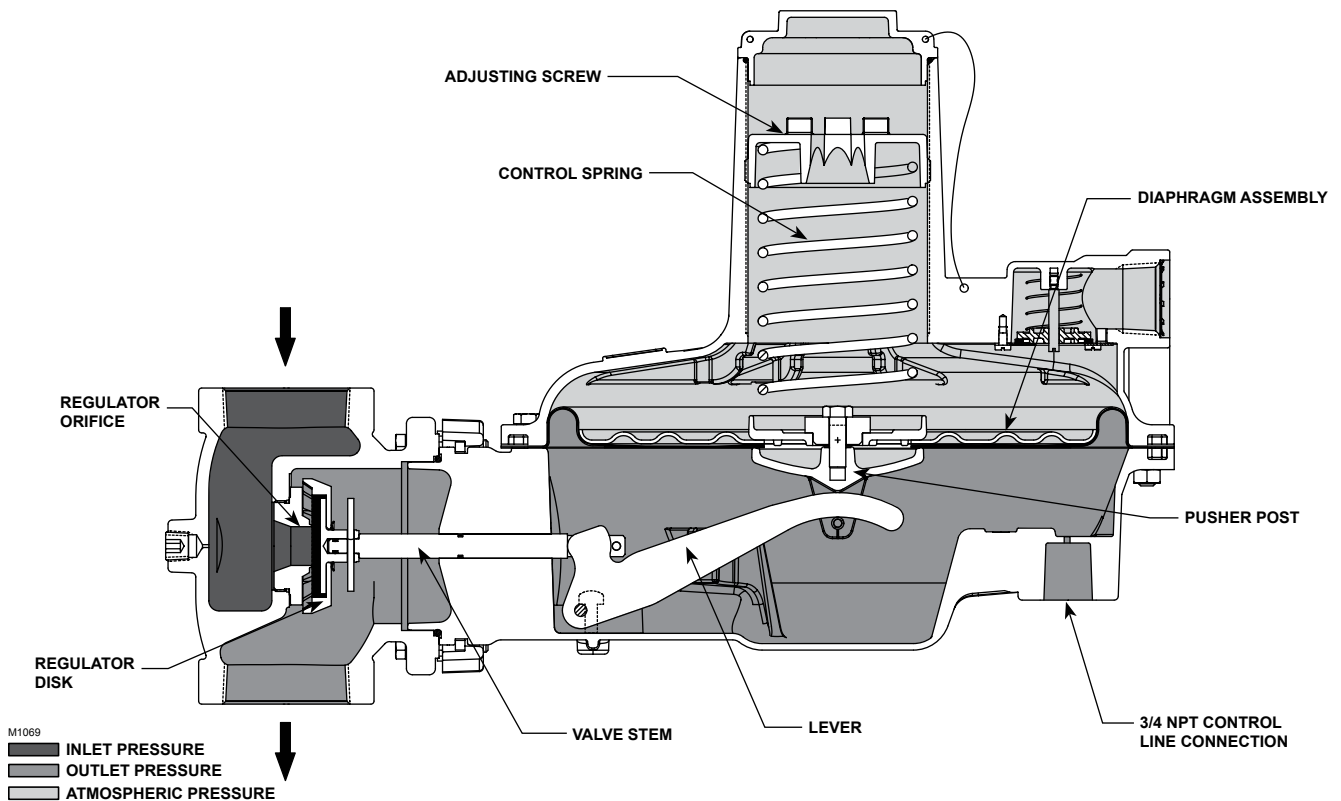


Figure 4. Type CS800EN Externally Registered Regulator Operational Schematic

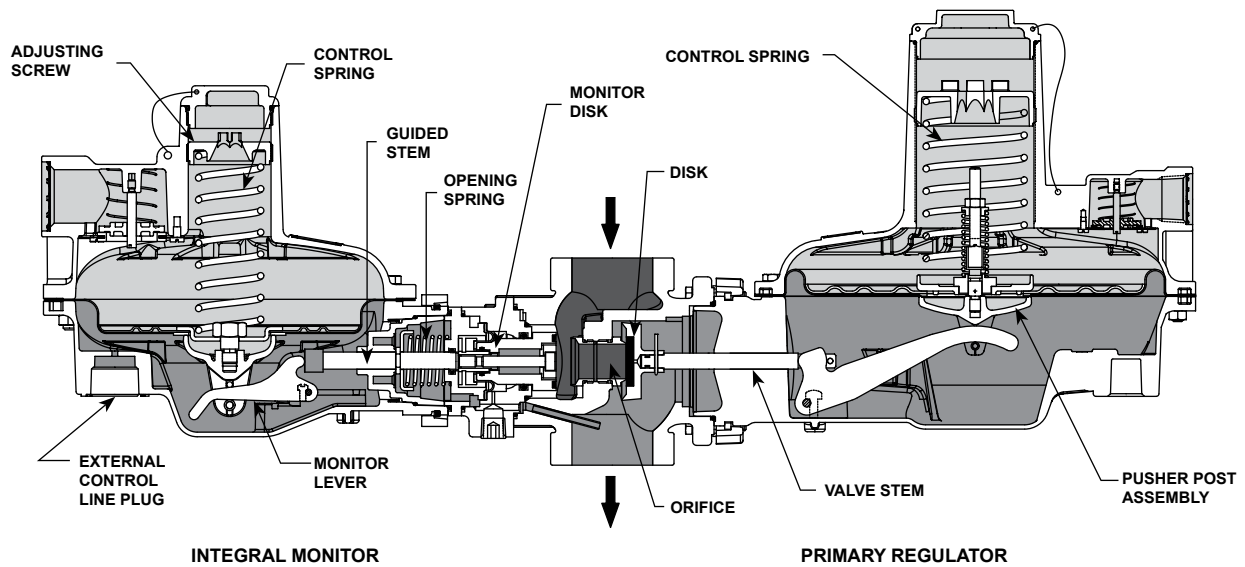


Figure 5. Type CS803IT Internally Registered Primary Regulator with Internally Registered Integral Monitor Operational Schematic

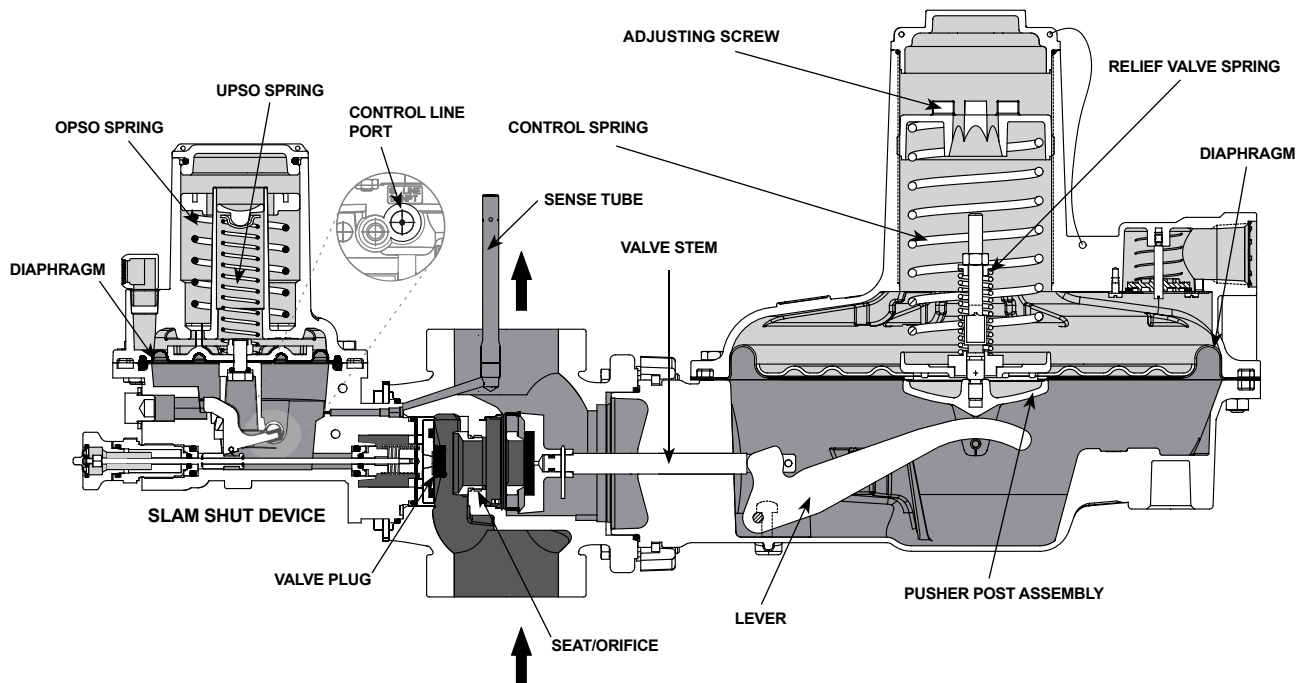
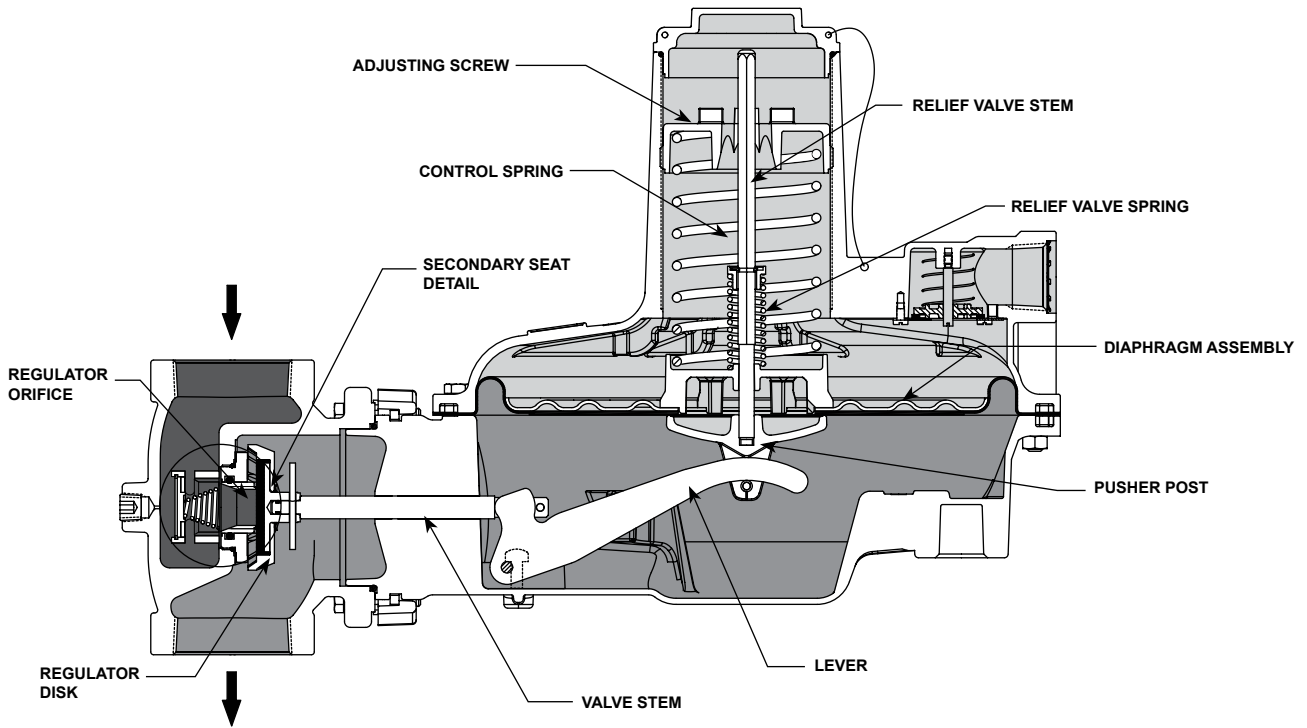
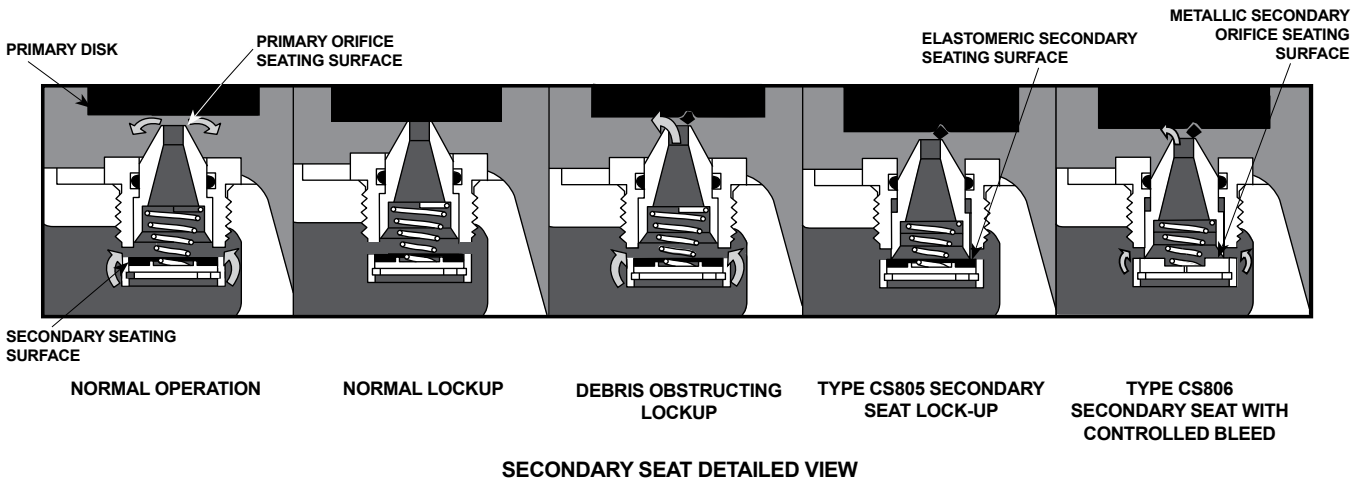


Figure 6. Type CS804IT Internally Registered Regulator with Slam-Shut Module Operational Schematic



M1072  
 ■ INLET PRESSURE  
 ■ OUTLET PRESSURE  
 ■ ATMOSPHERIC PRESSURE



M1072  
 ■ INLET PRESSURE  
 ■ OUTLET PRESSURE  
 ■ ATMOSPHERIC PRESSURE

Figure 7. CS805 Series with Secondary Seat™ Protection

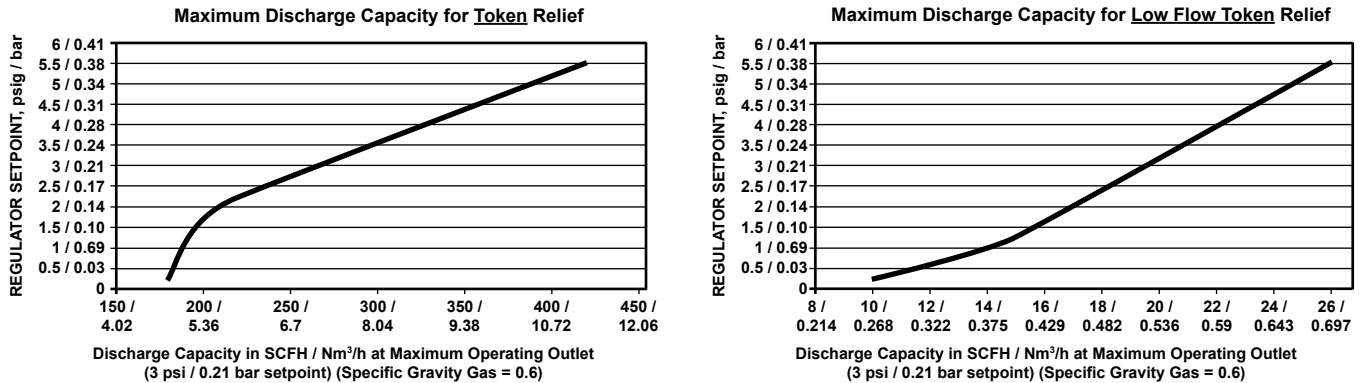


Figure 8. Maximum Discharge Capacity for Token and Low Flow Token Relief

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. Units with high capacity internal relief valve have 2-1/2 NPT vent size. See Figures 10, 12, 14, 16, 18 and 20 for relief capacity.

## Token Relief “T” and Low Flow Token Relief “L”

Type numbers with the “T” or “L” suffix, e.g., Types CS800IT and CS800IL 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. Start-to-discharge values for Token reliefs are found in Table 5. Maximum discharge capacities for Token reliefs are found in Figure 8.

## Types CS803 and CS823 Integral True-Monitor™ Operation

Types CS803 and CS823 combine the operation of a conventional two-regulator wide-open monitor set into one body, see Figure 5. The Integral True-Monitor is installed on the inlet side of the body and serves to control downstream pressure in the situation where the Primary regulator can no longer regulate downstream pressure. During normal operation the True-Monitor is in a wide-open state as its setpoint is set higher than the primary regulator. See Tables 7 and 8 for guidance regarding the setpoints of the regulator and associated Integral Monitor sets. If the downstream pressure should rise to the setpoint of the True-Monitor due to loss of pressure control by the primary regulator, the

monitor will assume control and regulate flow to the downstream system. Internal and external downstream pressure registration are available. External pressure registration requires a downstream sensing line. 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.

## Types CS804, CS824 and CS854 Slam-Shut Operation

The Type VSX8 Slam-shut module on the CS804 Series regulators is a fast acting shutoff device that provides overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection by completely shutting off the flow of gas to the downstream system. See Tables 12 and 13 for guidance regarding the typical setpoint of the regulator and associated OPSO and UPSO sets. The Type VSX8’s actions are independent of the CS804 Series regulator and of variations to the inlet pressure. The Type VSX8 provides the option of internal or external downstream pressure registration. External registration requires a downstream sensing line.

The Type VSX8 shutoff disk is normally in the open (reset) position, see Figure 6. 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, refer to Type VSX8 Instruction Manual (D103127X012) for additional details.

## Note

In order for the Underpressure Shutoff (UPS) of any slam-shut to be triggered, the downstream pipe pressure must drop below the UPS setpoint. In the case of a downstream line break, numerous factors can prevent the downstream pipe pressure from decreasing below the slam-shut UPS 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.

## Types CS805 and CS825 with Secondary Seat™ Protection

### Note

Types CS805 and CS825 regulators do not have any means to alert when the Secondary Seat operates at lockup. Therefore, it is recommended that Internal relief or high-capacity relief are also selected or the addition of some other method of overpressure protection be added in the downstream system as discussed in the Overpressure Protection section.

Refer to Figure 7. The Type CS805 provides Secondary Seat Protection. As downstream demand decreases and downstream pressure rises to the regulator pressure lockup value, the regulator will lockup. If, however, damage has occurred to the primary disk, to the primary orifice seating surface or debris has become lodged between the primary disk and primary orifice, the outlet pressure will continue to rise. This additional pressure causes the primary disk to apply additional force to the orifice seating surface, which causes the Secondary seating surface to move toward the Secondary disk or sealing surface. If downstream demand decreases to zero, then the secondary seating surface will contact the sealing surface to provide lockup. See Table 6 for Secondary Seat shutoff above setpoint.

## Types CS806 and CS826 Secondary Seat Protection with Bleed

The Types CS806 and CS826 provides small bleed to the downstream system as an indication that the Secondary Seat is providing lock-up. In the event that the primary orifice and disk cannot provide lockup, the secondary seating surface will move into contact with a metal disk. This metal to metal interface, combined with a small drilled bleed hole, will allow a small amount of gas to bleed downstream thereby increasing outlet pressure until the internal relief valve begins to discharge gas to the atmosphere. The odor of this discharged gas provides an indication that the regulator is relying on the Secondary Seat for overpressure protection. See Table 6 for Secondary Seat maximum downstream buildup.

## Secondary Seat Protection Limitations

### Note

**Overpressure conditions can occur in the downstream piping when the Secondary Seat Protection is installed. The Secondary Seat Protection serves only as a backup to the primary seat for lockup. Refer to the sections on Overpressure Protection and Maintenance.**

Secondary Seat Protection does not provide additional overpressure protection in the event the secondary seat or disk is damaged by debris or contamination in the pipeline or from conditions that would cause the regulator to go wide-open.

## Installation

The CS800 Series regulators may be installed in any position. However, the spring case vent should be pointed downward. If gas escaping through the CS800 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; protect the end of the vent pipe from anything that might clog it. Regulators with External Registration require the use of an external control line.

## Non-Relieving “N”

Type numbers with the “N” suffix, e.g., Type CS800IN, do not provide internal relief discharge through the diaphragm assembly.

The CS800 Series regulators have outlet pressure ratings that are lower than their inlet pressure ratings. A pressure relieving or pressure limiting device is needed if the application inlet pressure can exceed the outlet pressure rating and the regulator is not equipped with internal relief, high capacity relief, Integral True-Monitor™ Protection or Secondary Seat™ Protection.

### Note

**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.**

## Downstream Control Line Connection

A CS800 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, see Figure 4. A regulator with a downstream control line is used for monitoring installations or other applications where there is 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.

## Capacity Information

Tables 14 through 66 provide natural gas regulating capacities at selected inlet pressures, outlet pressure settings and body outlet sizes. 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 3)
- $C_g$  = Gas sizing coefficient (see Table 3)
- $G$  = Gas specific gravity (air = 1.0)
- $P_1$  = Regulator inlet pressure, psia
- $\Delta P$  = 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 published capacities were obtained using inlet and outlet piping the same size as the regulator body size.



**Table 14. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 4 in. w.c. / 10 mbar Setpoint for 1-1/2 in. / DN 40 Body Size**

SETPOINT	ACCURACY		SPRING			
	Drop	Boost	Set Range		Part Number / Color	
4 in. w.c.	-1 in. w.c.	2 in. w.c.	3.5 to 6 in. w.c.		GE30337X012 / Red	
10 mbar	-2.5 mbar	5 mbar	9 to 15 mbar			

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
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	SCFH	Nm <sup>3</sup> /h
Body Size: 1-1/2 in. / DN 40																	
0.4	0.03			300	8.1	300	8.1	300	8.1	1000	26.8	1400	37.6	1400	37.6	1600	43.0
0.51	0.04			300	8.1	500	13.4	850	22.8	1400	37.6	1590	42.7	1600	43.0	1710	45.9
1	0.07	400	10.7	800	21.5	1200	32.2	1540	41.3	2100	56.4	2300	61.7	2500	67.1	2700	72.5
2	0.14	600	16.1	1300	34.9	2000	53.7	2400	64.4	2800	75.2	3100	83.2	3470	93.2	3470	93.2
3	0.21	780	20.9	1600	43.0	2470	66.3	2860	76.8	3360	90.2	3620	97.2	4100	110	4190	113
5	0.34	1150	30.9	2170	58.3	2940	78.9	3800	102	4500	121	4580	123	5190	139	5190	139
10	0.69	1370	36.8	2900	77.9	4750	128	5200	140	5650	152	5650	152	5650	152	5930	159
15	1.0	1600	43.0	3600	96.6	6200	166	6500	175	6500	175	6500	175	6000	161	6710	180
20	1.4	2070	55.6	4300	115	6620	178	7250	195	7250	195	7400	199	7500	201		
25	1.7	2550	68.5	5000	134	7050	189	7250	195	7250	195	7500	201	9000	242		
30	2.1	2860	76.8	5010	135	7050	189	7250	195	7250	195	7500	201				
40	2.8	3170	85.1	5020	135	7050	189	7250	195	7250	195	7500	201				
50	3.4	4120	111	5070	136	7050	189	7250	195	7250	195	7500	201				
60	4.1	4750	128	5100	137	7050	189	7250	195	7250	195						
80	5.5	5700	153	6200	166	7170	193										
100	6.9	6650	179	7300	196	7300	196										
125	8.6	6950	187	8300	223												

     Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
     Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.

**Table 15. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 4 in. w.c. / 10 mbar Setpoint for 2 in. / DN 50 Body Size**

SETPOINT	ACCURACY		SPRING			
	Drop	Boost	Set Range		Part Number / Color	
4 in. w.c.	-1 in. w.c.	2 in. w.c.	3.5 to 6 in. w.c.		GE30337X012 / Red	
10 mbar	-2.5 mbar	5 mbar	9 to 15 mbar			

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
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	SCFH	Nm <sup>3</sup> /h
Body Size: 2 in. / DN 50																	
0.4	0.03			300	8.1	300	8.1	300	8.1	1170	31.4	1400	37.6	1600	43.0	1800	48.3
0.51	0.04			300	8.1	500	13.4	1000	26.8	1550	41.6	1900	51.0	2070	55.6	2400	64.4
1	0.07	400	10.7	900	24.2	1300	34.9	1760	47.2	1950	52.3	3000	80.5	2710	72.8	3800	102
2	0.14	600	16.1	1240	33.3	2070	55.6	2620	70.3	3930	106	5000	134	3450	92.6	5620	151
3	0.21	730	19.6	1530	41.1	2580	69.3	3540	95.0	4980	134	6200	166	6830	183	8010	215
5	0.34	1000	26.8	2090	56.1	3700	99.3	5500	148	7800	209	8600	231	9500	255	10,620	285
10	0.69	1320	35.4	3000	80.5	5100	137	7450	200	10,400	279	10,900	293	11,750	315	12,580	338
15	1.0	1650	44.3	3700	99.3	6500	175	9400	252	13,000	349	13,200	354	14,000	376	13,150	353
20	1.4	2020	54.2	4450	120	7850	211	10,150	273	13,000	349	13,200	354	16,000	430		
25	1.7	2400	64.4	5200	140	9200	247	10,900	293	13,000	349	13,200	354	18,000	483		
30	2.1	2720	73.0	5560	149	9460	254	10,980	295	13,400	360	13,560	364				
40	2.8	3040	81.6	5920	159	9720	261	11,060	297	13,800	371	13,920	374				
50	3.4	4000	107	7000	188	10,500	282	11,300	303	15,000	403	12,510	336				
60	4.1	4450	120	9000	242	12,800	344	13,800	371	11,140	299						
80	5.5	4970	133	9250	248	12,850	345										
100	6.9	5500	148	9500	255	11,770	316										
125	8.6	7250	195	9500	255												

     Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
     Gray areas indicate limited capacities due to boost effects.  
     Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.

# Bulletin 71.1:CS800

**Table 16. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 1-1/2 in. / DN 40 Body Size**

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30338X012 / Black
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, in. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
0.4	0.03			430	11.5	740	19.9	550	14.8	800	21.5	800	21.5	1060	28.5	1420	38.1
0.51	0.04			520	14.0	800	21.5	890	23.9	1100	29.5	1150	30.9	1300	34.9	1630	43.8
1	0.07	570	15.3	770	20.7	1140	30.6	1360	36.5	1510	40.5	1830	49.1	1960	52.6	2640	70.9
2	0.14	780	20.9	980	26.3	1570	42.1	1790	48.1	2220	59.6	2510	67.4	2790	74.9	3550	95.3
3	0.21	990	26.6	1230	33.0	1960	52.6	2380	63.9	2810	75.4	3310	88.9	3680	98.8	4380	118
5	0.34	1220	32.8	1920	51.5	2940	78.9	3390	91.0	4130	111	4130	111	4850	130	5510	148
10	0.69	1600	43.0	3160	84.8	4900	132	5130	138	5950	160	6270	168	6650	179	7200	193
15	1.0	1980	53.2	4150	111	6310	169	6040	162	7110	191	7240	194	7520	202	7650	205
20	1.4	2330	62.6	4910	132	7300	196	7130	191	7770	209	7770	209	8010	215		
25	1.7	2620	70.3	5680	153	7550	203	7550	203	8220	221	8330	224	8330	224		
30	2.1	2990	80.3	6370	171	8310	223	8140	219	8560	230	8560	230				
40	2.8	3650	98.0	7830	210	8990	241	8690	233	8770	235	8770	235				
50	3.4	4320	116	9010	242	9010	242	8880	238	9000	242	9210	247				
60	4.1	5010	135	9040	243	9040	243	9040	243	9070	244						
80	5.5	6290	169	9620	258	9620	258										
100	6.9	7550	202	9510	255	9510	255										
125	8.6	7820	210	9600	258												

       Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
 Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.

**Table 17. Types CS800<sup>(1)(3)</sup>, CS803<sup>(2)(3)</sup> and CS804<sup>(3)(5)</sup> Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 2 in. / DN 50 Body Size, Enhanced Low Inlet (LIN) Option**

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE49043X012 / Brown
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19 <sup>(1)</sup>		7/8 / 22		1 / 25 <sup>(2)</sup>		1-3/8 / 35 <sup>(4)(5)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
0.4	0.03			460	12.3	750	20.1	910	24.4	1210	32.5	1470	39.5	1590	42.7	2390	64.2
0.51	0.04			600	16.1	820	22.0	1120	30.1	1580	42.4	1690	45.4	1720	46.2	2910	78.1
1	0.07	570	15.3	820	22.0	1330	35.7	1670	44.8	2190	58.8	2690	72.2	3330	89.4	4300	115
2	0.14	810	21.7	1080	29.0	2040	54.8	2750	73.8	3950	106	4610	124	4990	134	6250	168
3	0.21	1040	27.9	1450	38.9	2830	76.0	3730	100	5140	138	5920	159	6590	177	6970	187
5	0.34	1260	33.8	2050	55.0	3870	104	4990	134	7730	208	9080	244	11,020	296	10,380	279
10	0.69	1610	43.2	3070	82.4	6130	165	9360	251	12,330	331	14,570	391	16,360	439	13,210	355
15	1.0	1980	53.2	4050	109	7810	210	11,780	316	16,180	434	19,680	528	21,270	571	16,160	434
20	1.4	2160	58.0	4920	132	9210	247	13,860	372	18,920	508	22,030	591	22,030	591		
25	1.7	2490	66.8	5720	154	10,520	282	16,160	434	22,030 <sup>(3)</sup>	591 <sup>(3)</sup>	22,030	591	22,030	591		

- Black areas show where indicated droop/boost would be exceeded regardless of capacity.
- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
- 1. Type CS800 with Ductile Iron or Steel body exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.
- 2. Type CS800 with Ductile Iron or Steel Bodies and Type CS803 exhibit a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.
- 3. Due to boost, the Type CS800 with Ductile Iron or Steel bodies, the Types CS803 and CS804 exhibit a 40% reduction in capacity for indicated condition. Multiply listed values by a factor of 0.6.
- 4. Not available on the Type CS803.
- 5. Type CS804 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 18. Types CS800<sup>(1)</sup>, CS803<sup>(2)</sup> and CS804 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 2 in. / DN 50 Body Size**

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30338X012 / Black
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25 <sup>(1)(2)</sup>		1-3/8 / 35 <sup>(3)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
5	0.34	1120	30.1	1120	30.1	2600	69.8	3670	98.5	4630	124	8130	218	9590	257	5510	148
10	0.69	1480	39.7	2520	67.7	4840	130	9100	244	12,450	334	13,250	356	16,280	437	7200	193
15	1.0	1870	50.2	3130	84.0	7760	208	12,000	322	16,170	434	16,630	446	20,380	547	7650	205
20	1.4	2130	57.2	4230	114	9200	247	14,550	391	19,090	513	17,370	466	22,860	614		
25	1.7	2500	67.1	5530	149	10,510	282	15,920	427	20,180	542	17,370	466	22,860	614		
30	2.1	2850	76.5	6290	169	11,850	318	18,720	503	23,010	618	17,380	467				
40	2.8	3590	96.4	7850	211	14,100	379	22,910	615	25,910	696	16,180	434				
50	3.4	4200	113	9280	249	16,740	449	24,340	653	27,340	734	12,050	324				
60	4.1	4910	132	10,810	290	19,390	521	24,360	654	19,730	530						
80	5.5	6220	167	13,740	369	25,530	685										
100	6.9	7440	200	16,630	446	25,530	685										
125	8.6	8730	234	20,320	546												

- Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.
- Gray areas indicate limited capacities due to boost effects.
- 1. Type CS800 with Ductile Iron or Steel Bodies exhibit a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.
- 2. Types CS803 and CS804 exhibit a 30% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.7.
- 3. Not available on the Type CS803.

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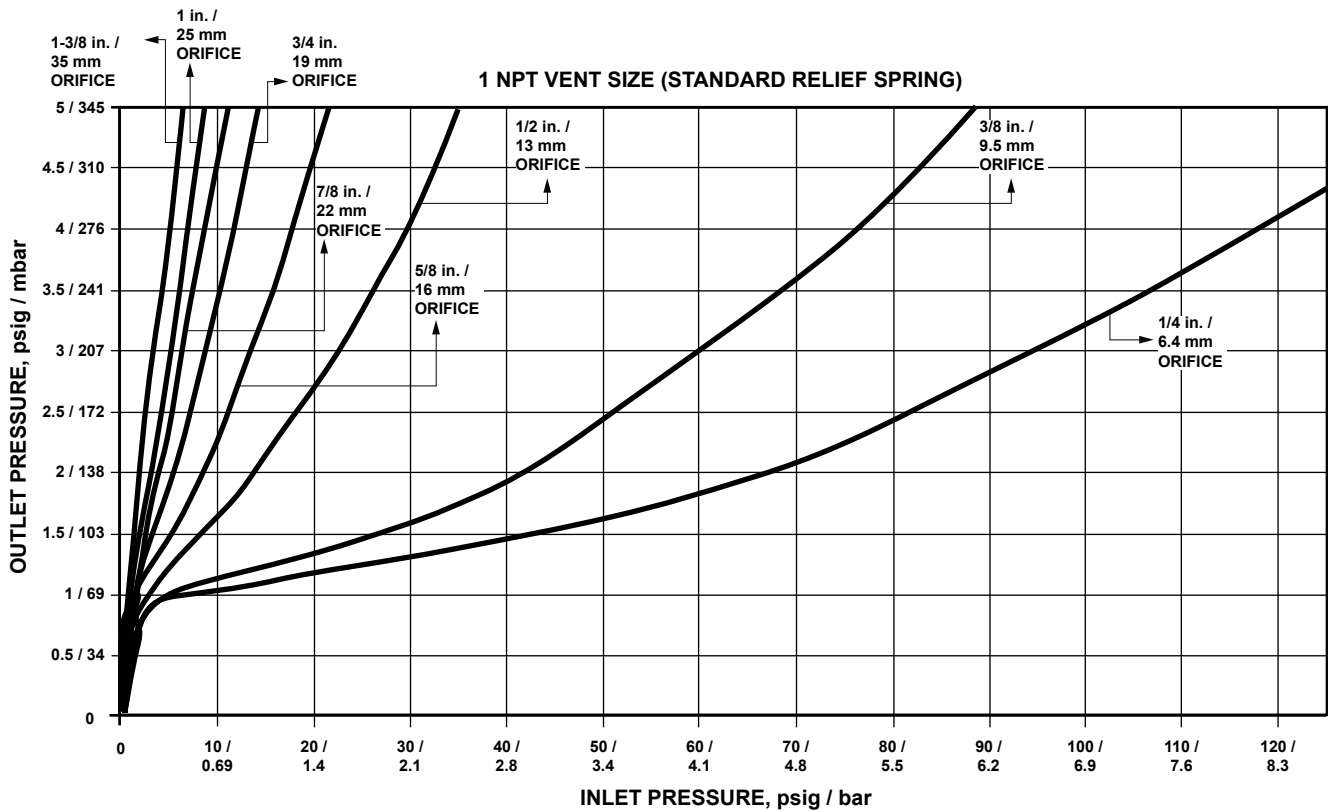


Figure 9. Type CS800IR Relief Curves (Blocked Open per Orifice Size) at 7 in. w.c. / 17 mbar Set Pressure

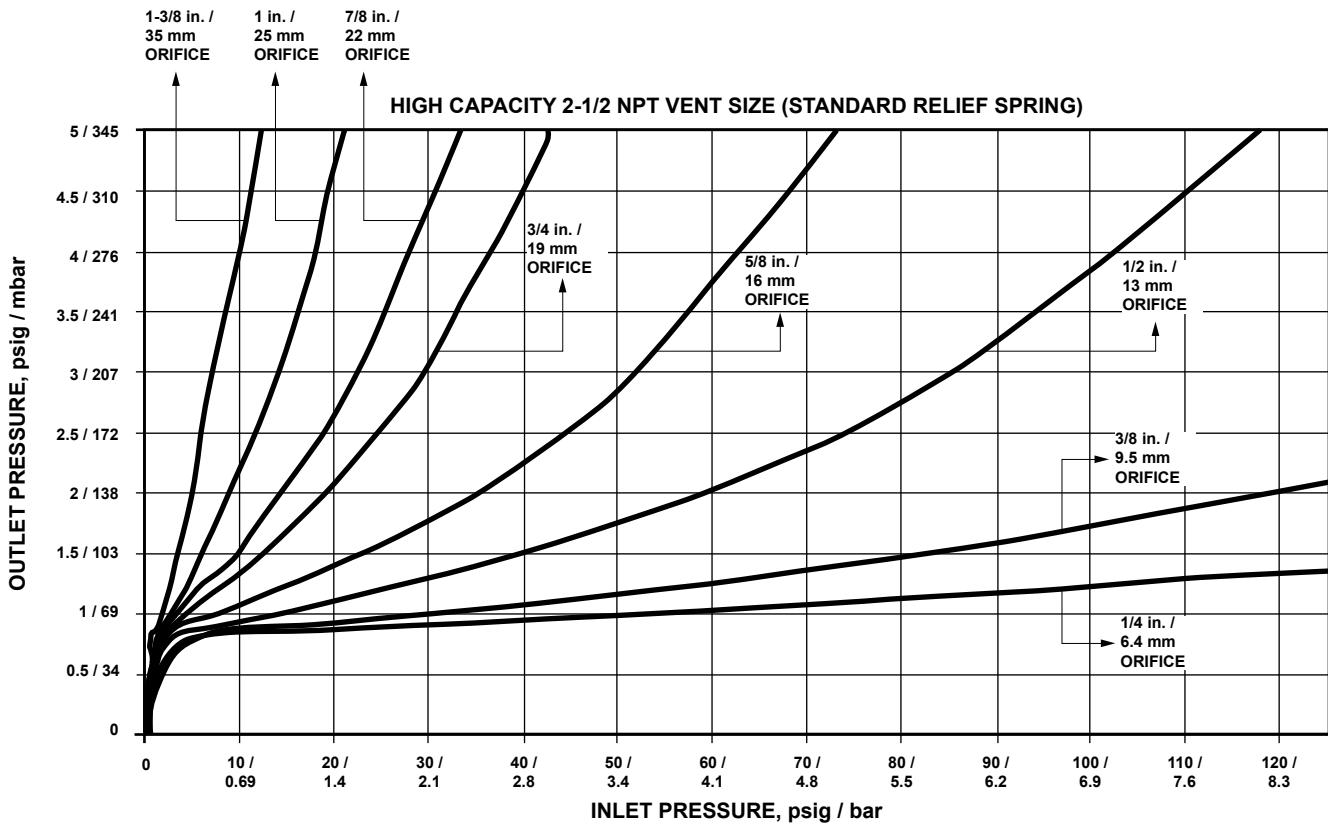


Figure 10. Type CS800IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 7 in. w.c. / 17 mbar Set Pressure

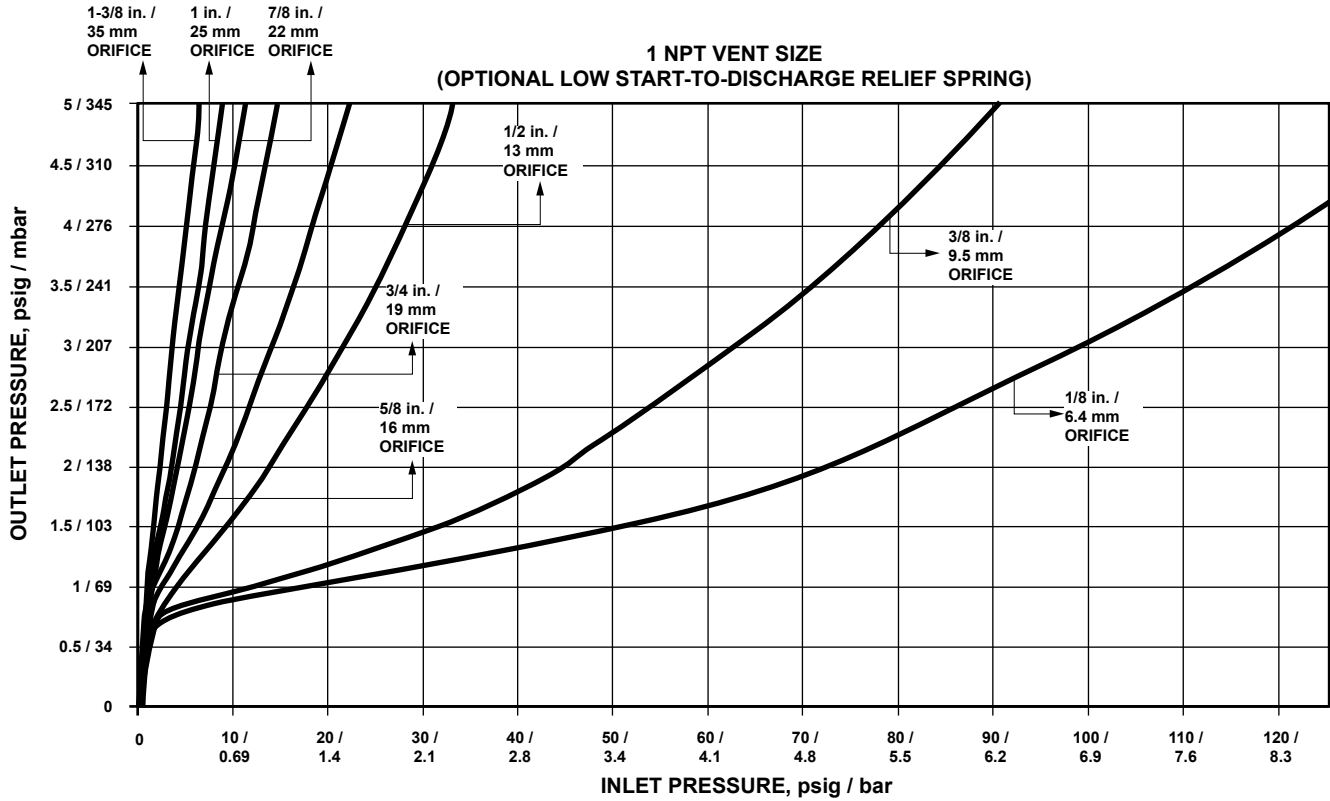


Figure 11. Type CS800IR Relief Curves (Blocked Open per Orifice Size) at 7 in. w.c. / 17 mbar Set Pressure

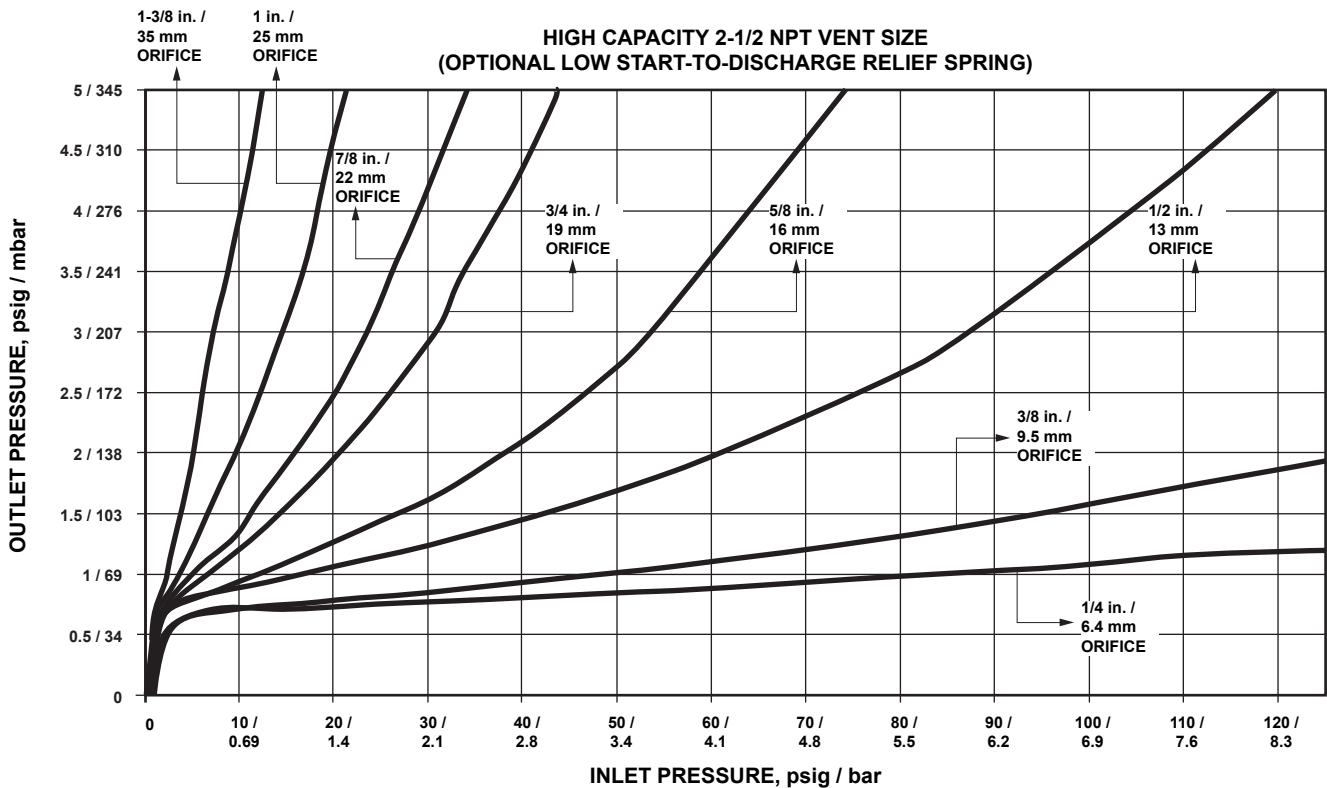


Figure 12. Type CS800IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 7 in. w.c. / 17 mbar Set Pressure

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**Table 19. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint for 1-1/2 in. / DN 40 Body Size**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
14 in. w.c.	-2 in. w.c.	2 in. w.c.	10 to 16 in. w.c.	GE30340X012 / White
35 mbar	-5 mbar	5 mbar	25 to 40 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
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	SCFH	Nm <sup>3</sup> /h
Body Size: 1-1/2 in. / DN 40																	
1	0.07	450	12.1	670	18.0	1000	26.8	1100	29.5	1250	33.6	1400	37.6	1500	40.3	1950	52.3
2	0.14	550	14.8	1070	28.7	1400	37.6	1600	43.0	1750	47.0	2000	53.7	2300	61.7	2500	67.1
3	0.21	700	18.8	1160	31.1	1610	43.2	1900	51.0	2160	58.0	2500	67.1	2960	79.5	3250	87.2
5	0.34	1000	26.8	1200	32.2	2050	55.0	2500	67.1	3000	80.5	3600	96.6	4300	115	4750	128
10	0.69	1370	36.8	2120	56.9	3150	84.6	3800	102	4550	122	5100	137	5800	156	6300	169
15	1.0	1750	47.0	3050	81.9	4250	114	5100	137	6100	164	6700	180	7300	196	7850	211
20	1.4	2120	56.9	3900	105	4950	133	6000	161	7250	195	7600	204	8000	215		
25	1.7	2500	67.1	4750	128	5650	152	7000	188	8700	234	8700	234	8600	231		
30	2.1	2820	75.7	5420	146	6260	168	7500	201	8960	241	8960	241				
40	2.8	3140	84.3	6090	164	6870	184	7900	212	9220	248	9220	248				
50	3.4	4100	110	8100	217	8720	234	9300	250	9870	265	9870	265				
60	4.1	4750	128	9450	254	9730	261	9730	261	10,240	275						
80	5.5	6100	164	9920	266	10,270	276										
100	6.9	7450	200	10,400	279	10,430	280										
125	8.6	9050	243	10,400	279												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS803.

**Table 20. Types CS800, CS803 and CS804 Series Internal Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint for 2 in. / DN 50 Body Size**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
14 in. w.c.	-2 in. w.c.	2 in. w.c.	10 to 16 in. w.c.	GE30340X012 / White
35 mbar	-5 mbar	5 mbar	25 to 40 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
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	SCFH	Nm <sup>3</sup> /h
Body Size: 2 in. / DN 50																	
1	0.07	450	12.1	630	16.9	770	20.7	1300	34.9	1500	40.3	1600	43.0	1700	45.6	2700	72.5
2	0.14	600	16.1	1000	26.8	1800	48.3	2240	60.1	2800	75.2	3260	87.5	3800	102	3800	102
3	0.21	750	20.1	1210	32.5	2200	59.1	2700	72.5	3200	85.9	3700	99.3	4300	115	6060	163
5	0.34	1050	28.2	1750	47.0	2800	75.2	3300	88.6	4000	107	4600	124	5300	142	10,200	274
10	0.69	1400	37.6	2720	73.0	4250	114	6500	175	9200	247	10,300	277	11,650	313	14,550	391
15	1.0	1750	47.0	3700	99.3	5700	153	9600	258	14,400	387	16,100	432	17,910	481	17,110	459
20	1.4	2170	58.3	4700	126	7950	213	11,700	314	16,200	435	18,800	505	20,290	545		
25	1.7	2560	68.7	5700	153	10,200	274	12,400	333	18,000	483	21,400	575	22,000	591		
30	2.1	2910	78.1	6440	173	10,310	277	12,400	333	18,220	489	21,400	575				
40	2.8	3540	95.0	7770	209	10,540	283	13,020	350	18,680	502	21,400	575				
50	3.4	4170	112	9190	247	10,770	289	14,500	389	19,140	514	21,400	575				
60	4.1	4800	129	10,900	293	11,000	295	14,900	400	19,600	526						
80	5.5	6100	164	12,550	337	12,550	337										
100	6.9	7400	199	14,100	379	14,100	379										
125	8.6	9100	244	16,120	433												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS803.

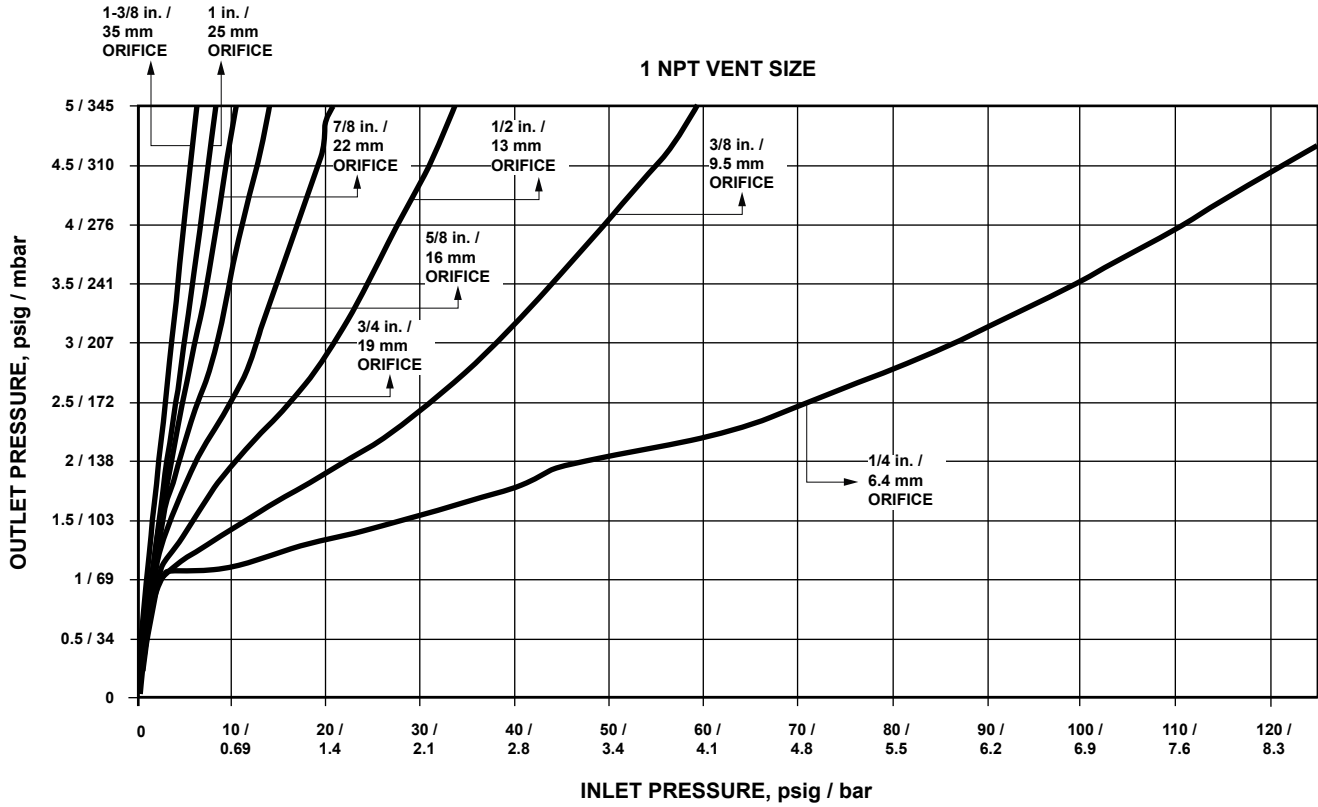


Figure 13. Type CS800IR Relief Curves (Blocked Open per Orifice Size) at 14 in. w.c. / 35 mbar Set Pressure

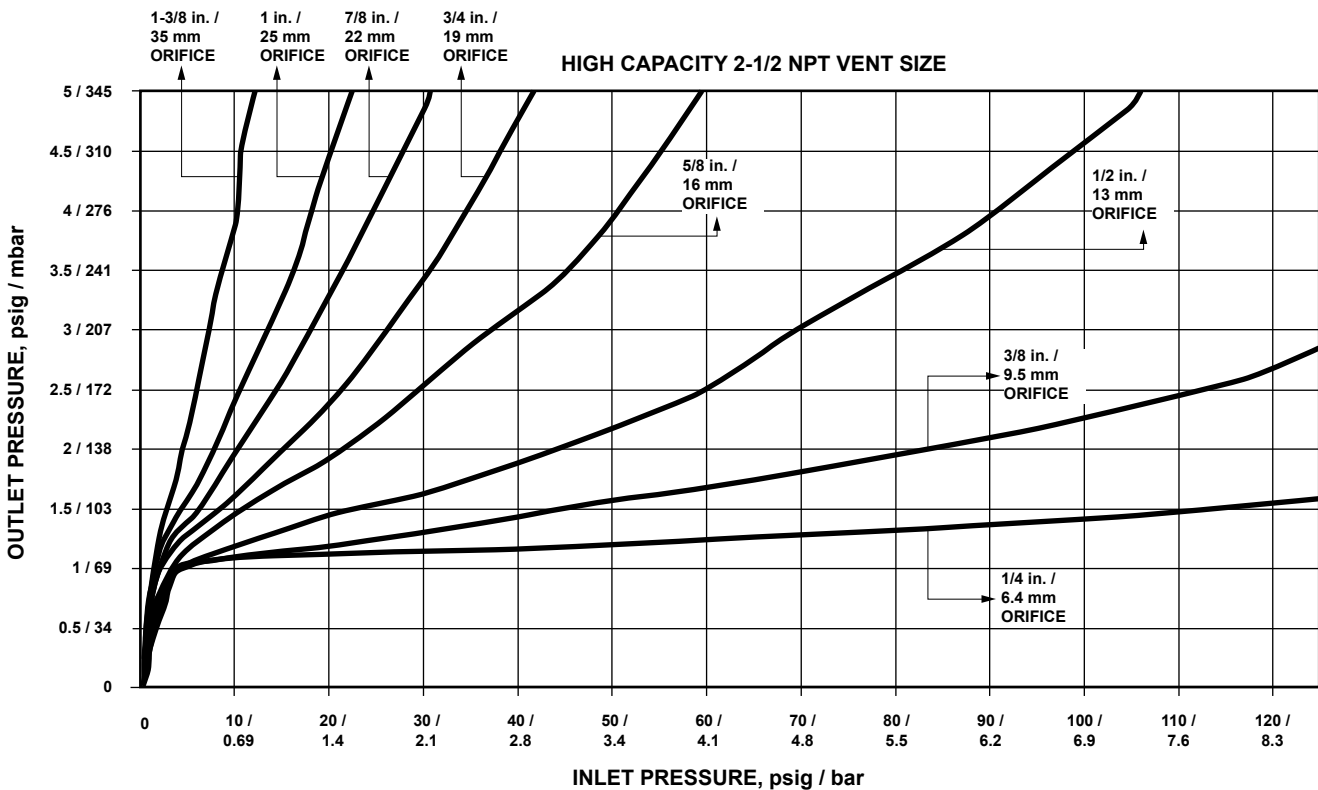


Figure 14. Type CS800IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 14 in. w.c. / 35 mbar Set Pressure

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**Table 21. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 1% ABS Accuracy**

SETPOINT	ACCURACY: +/- 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-4.3 in. w.c.	4.3 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-11 mbar	11 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
2	0.14	650	17.4	1050	28.2	1350	36.2	1800	48.3	2450	65.8	2600	69.8	2700	72.5	3000	80.5
3	0.21	780	20.9	1400	37.6	1800	48.3	2260	60.7	2900	77.9	3130	84.0	3360	90.2	3730	100
5	0.34	1050	28.2	2100	56.4	2700	72.5	3200	85.9	3800	102	4200	113	4700	126	5200	140
10	0.69	1500	40.3	2800	75.2	3700	99.3	4600	124	5600	150	6300	169	7000	188	7300	196
15	1.0	1950	52.3	3750	101	4900	132	5800	156	6900	185	7600	204	8500	228	8750	235
20	1.4	2200	59.1	4600	124	5800	156	6900	185	8150	219	9200	247	10,350	278		
25	1.7	2500	67.1	5000	134	7250	195	8100	217	9050	243	9500	255	10,850	291		
30	2.1	2800	75.2	6000	161	8200	220	8700	234	9400	252	9500	255	11,000	295		
40	2.8	3550	95.3	7350	197	9100	244	9300	250	9500	255	9500	255				
50	3.4	4050	109	8450	227	10,300	276	10,300	277	10,300	277	10,300	277				
60	4.1	4800	129	9050	243	10,450	281	10,500	282	10,550	283	10,550	283				
80	5.5	5900	158	11,000	295	11,000	295	11,000	295	11,000	295						
100	6.9	7400	199	11,150	299	11,150	299										
125	8.6	9000	242	11,750	315												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.  
 2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 22. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 1% ABS Accuracy**

SETPOINT	ACCURACY: +/- 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-4.3 in. w.c.	4.3 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-11 mbar	11 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
2	0.14	570	39.3	970	66.9	1910	132	1910	132	2750	190	2900	200	3100	214	3300	228
3	0.21	730	50.3	1460	101	2250	155	2660	183	3200	221	3630	250	4150	286	5200	359
5	0.34	1050	72.4	2200	152	2750	190	3400	234	4100	283	5100	352	6250	431	9000	621
10	0.69	1500	103	2500	172	4050	279	6100	421	8500	586	10,700	738	13,250	914	13,700	945
15	1.0	1900	131	3450	238	5800	400	9000	621	13,000	896	14,400	993	16,000	1103	16,300	1124
20	1.4	2240	154	4800	331	7700	531	10,200	703	13,300	917	15,700	1083	18,500	1276		
25	1.7	2500	172	5600	386	10,400	717	13,100	903	16,500	1138	17,700	1220	19,000	1310		
30	2.1	2900	200	6350	438	11,950	823	15,000	1034	18,800	1296	19,000	1310	19,300	1331		
40	2.8	3650	252	7850	541	14,550	1003	16,700	1151	19,300	1331	19,500	1344				
50	3.4	4250	293	9300	641	16,700	1151	18,400	1269	20,500	1413	20,700	1427				
60	4.1	4900	338	10,950	755	19,400	1338	20,000	1379	20,800	1434	21,000	1448				
80	5.5	6200	428	13,790	951	20,400	1407	20,600	1420	20,800	1434						
100	6.9	7400	510	16,510	1138	21,100	1455										
125	8.6	9350	645	20,200	1393												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.



**Table 23. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 2% ABS Accuracy**

SETPOINT	ACCURACY: +/- 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-8.7 in. w.c.	8.7 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-22 mbar	22 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
2	0.14	740	19.9	1450	38.9	2100	56.4	2800	75.2	3700	99.3	4100	110	4650	125	5350	144
3	0.21	910	24.4	1800	48.3	2580	69.3	3400	91.3	4480	120	5100	137	5730	154	6200	166
5	0.34	1180	31.7	2320	62.3	3550	95.3	4700	126	6050	162	6900	185	7900	212	7900	212
10	0.69	1630	43.8	3380	90.7	5100	137	6700	180	8550	230	9000	242	9550	256	10,100	271
15	1.0	1960	52.6	4170	112	6700	180	7900	212	9400	252	10,300	277	11,250	302	11,400	306
20	1.4	2250	60.4	4740	127	8100	217	9200	247	10,500	282	11,300	303	12,200	328		
25	1.7	2660	71.4	5710	153	10,100	271	10,800	290	11,550	310	12,000	322	12,600	338		
30	2.1	2960	79.5	6440	173	10,550	283	11,400	306	12,350	332	12,700	341	13,100	352		
40	2.8	3650	98.0	7850	211	10,550	283	11,400	306	12,350	332	12,350	332				
50	3.4	4350	117	9250	248	12,000	322	12,500	336	13,000	349	13,000	349				
60	4.1	5000	134	10,900	293	12,600	338	12,800	344	13,000	349	13,000	349				
80	5.5	6340	170	12,550	337	13,000	349	13,000	349	13,000	349						
100	6.9	7740	208	12,900	346	13,450	361										
125	8.6	9380	252	13,450	361												

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

1. Not available on the Type CS803.

2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 24. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 2% ABS Accuracy**

SETPOINT	ACCURACY: +/- 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-8.7 in. w.c.	8.7 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-22 mbar	22 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
2	0.14	700	18.8	1110	29.8	2340	62.8	3100	83.2	4100	110	4800	129	5470	147	7900	212
3	0.21	850	22.8	1710	45.9	2960	79.5	4060	109	5180	139	6430	173	7630	205	10,030	269
5	0.34	1150	30.9	2250	60.4	4000	107	5800	156	7920	213	9700	260	11,620	312	14,300	384
10	0.69	1610	43.2	3510	94.2	6200	166	8900	239	12,250	329	14,750	396	18,280	491	19,480	523
15	1.0	1910	51.3	4250	114	7850	211	11,500	309	15,010	403	18,700	502	21,390	574	22,760	611
20	1.4	2240	60.1	4980	134	9100	244	13,600	365	18,990	510	22,300	599	24,110	647		
25	1.7	2610	70.1	5770	155	10,300	277	15,500	416	21,800	585	26,200	703	26,620	715		
30	2.1	2910	78.1	6540	176	11,800	317	18,300	491	24,710	663	27,670	743	27,670	743		
40	2.8	3630	97.4	8000	215	14,300	384	21,600	580	29,870	802	30,500	819				
50	3.4	4330	116	9300	250	16,700	448	24,400	655	31,950	858	31,950	858				
60	4.1	4950	133	10,850	291	19,500	524	26,100	701	32,010	859	32,410	870				
80	5.5	6310	169	13,600	365	24,600	660	28,900	776	32,010	859						
100	6.9	7640	205	16,810	451	30,200	811										
125	8.6	9370	252	20,480	550												

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

1. Not available on the Type CS803.

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**Table 25. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-2.8 in. w.c.	2.8 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-7 mbar	7 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
2	0.14	530	14.2	710	19.1	940	25.2	1220	32.8	1430	38.4	1430	38.4	1330	35.7	1930	51.8
3	0.21	620	16.6	1070	28.7	1150	30.9	1490	40.0	1770	47.5	1700	45.6	1700	45.6	2530	67.9
5	0.34	810	21.7	1560	41.9	1650	44.3	2050	55.0	2530	67.9	2450	65.8	2450	65.8	3750	101
10	0.69	1360	36.5	2080	55.8	3100	83.2	3840	103	4680	126	4840	130	4950	133	5330	143
15	1.0	1650	44.3	2920	78.4	3860	104	4670	125	5570	150	6290	169	7000	188	7500	201
20	1.4	1960	52.6	3650	98.0	4560	122	5040	135	5570	150	6680	179	8120	218		
25	1.7	2400	64.4	4400	118	5550	149	6700	180	7900	212	7900	212	8650	232		
30	2.1	2570	69.0	5270	142	5650	152	7080	190	8220	221	9300	250	9990	268		
40	2.8	3360	90.2	3960	106	7300	196	7790	209	8470	227	8510	229				
50	3.4	3960	106	7920	213	7970	214	8590	231	8920	240	8920	240				
60	4.1	4660	125	7820	210	8020	215	8520	229	9020	242	9020	242				
80	5.5	5860	157	8740	235	9020	242	9020	242	9020	242						
100	6.9	7350	197	8960	241	10,150	273										
125	8.6	9050	243	10,020	269												

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

1. Not available on the Type CS803.

2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 26. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-2.8 in. w.c.	2.8 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-7 mbar	7 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
2	0.14	500	13.4	860	23.1	1420	38.1	1450	38.9	1450	38.9	1450	38.9	1450	38.9	1450	38.9
3	0.21	610	16.4	1030	27.7	1420	38.1	1660	44.6	2000	53.7	2300	61.7	2700	72.5	3260	87.5
5	0.34	850	22.8	1640	44.0	1800	48.3	2130	57.2	2570	69.0	3320	89.1	4190	113	5140	138
10	0.69	1350	36.2	1750	47.0	2380	63.9	4000	107	5920	159	6540	176	7110	191	8470	227
15	1.0	1610	43.2	2690	72.2	3540	95.0	5290	142	7470	201	7680	206	8050	216	9580	257
20	1.4	2000	53.7	3760	101	5350	144	7430	200	9760	262	9760	262	9800	263		
25	1.7	2400	64.4	4340	117	7000	188	9770	262	13,100	352	13,410	360	13,890	373		
30	2.1	2470	66.3	5120	137	7500	201	11,420	307	16,250	436	17,320	465	18,520	497		
40	2.8	3490	93.7	7300	196	13,100	352	15,510	416	18,410	494	20,910	561				
50	3.4	3900	105	8020	215	16,110	433	17,090	459	18,410	494	22,290	598				
60	4.1	4600	124	10,700	287	18,800	505	19,700	529	20,700	556	22,410	602				
80	5.5	5700	153	13,000	349	18,800	505	19,700	529	20,700	556						
100	6.9	7190	193	15,720	422	19,070	512										
125	8.6	9190	247	19,600	526												

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

1. Not available on the Type CS803.

**Table 27. Types CS800, CS803<sup>(1)</sup> and CS804<sup>(2)</sup> Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-5.5 in. w.c.	5.5 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-14 mbar	14 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
2	0.14	500	13.4	750	20.1	1750	47.0	2000	53.7	2250	60.4	2300	61.7	2400	64.4	2850	76.5
3	0.21	700	18.8	1100	29.5	1930	51.8	2200	59.1	2630	70.6	2900	77.9	3210	86.2	3680	98.8
5	0.34	1100	29.5	1800	48.3	2300	61.7	2800	75.2	3400	91.3	4100	110	4850	130	5350	144
10	0.69	1600	43.0	3200	85.9	4600	124	5800	156	7250	195	8000	215	8800	236	8800	236
15	1.0	1900	51.0	3970	107	5400	145	6600	177	8030	216	8700	234	9410	253	10,020	269
20	1.4	2200	59.1	4750	128	6200	166	7400	199	8820	237	9400	252	10,020	269		
25	1.7	2500	67.1	5520	148	7000	188	8200	220	9610	258	10,100	271	10,630	285		
30	2.1	2800	75.2	6300	169	7800	209	9000	242	10,400	279	10,800	290	11,250	302		
40	2.8	3500	94.0	7400	199	8410	226	9400	252	10,600	285	10,600	285				
50	3.4	4200	113	8500	228	9030	242	9800	263	10,800	290	10,800	290				
60	4.1	4900	132	9600	258	9650	259	10,300	277	11,000	295	11,000	295				
80	5.5	6100	164	10,070	270	10,800	290	10,900	293	11,000	295						
100	6.9	7300	196	10,550	283	11,950	321										
125	8.6	9100	244	10,550	283												

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

1. Not available on the Type CS803.

2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 28. Types CS800, CS803 and CS804 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-5.5 in. w.c.	5.5 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-14 mbar	14 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
2	0.14	650	17.4	1040	27.9	2200	59.1	2570	69.0	3200	85.9	3400	91.3	3600	96.6	4500	121
3	0.21	800	21.5	1560	41.9	2530	67.9	3100	83.2	3730	100	4300	115	4960	133	6330	170
5	0.34	1100	29.5	2300	61.7	3200	85.9	3900	105	4800	129	6100	164	7700	207	10,000	269
10	0.69	1600	43.0	3000	80.5	4300	115	7500	201	11,400	306	13,200	354	15,200	408	16,300	438
15	1.0	1900	51.0	4000	107	6900	185	10,800	290	14,560	391	18,000	483	19,930	535	20,170	542
20	1.4	2300	61.7	4900	132	9100	244	13,600	365	18,520	497	21,300	572	22,680	609		
25	1.7	2600	69.8	5600	150	10,500	282	15,500	416	21,700	583	24,300	652	24,410	655		
30	2.1	2900	77.9	6500	175	11,800	317	17,900	481	24,020	645	25,320	680	25,580	687		
40	2.8	3700	99.3	8000	215	14,500	389	20,100	540	27,000	725	27,810	747				
50	3.4	4300	115	9300	250	16,600	446	21,700	583	27,810	747	27,810	747				
60	4.1	4900	132	10,940	294	19,500	524	24,900	669	29,050	780	29,050	780				
80	5.5	6300	169	13,830	371	24,000	644	27,400	736	29,070	780						
100	6.9	7700	207	16,680	448	29,500	792										
125	8.6	9600	258	20,200	542												

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

1. Not available on the Type CS803.

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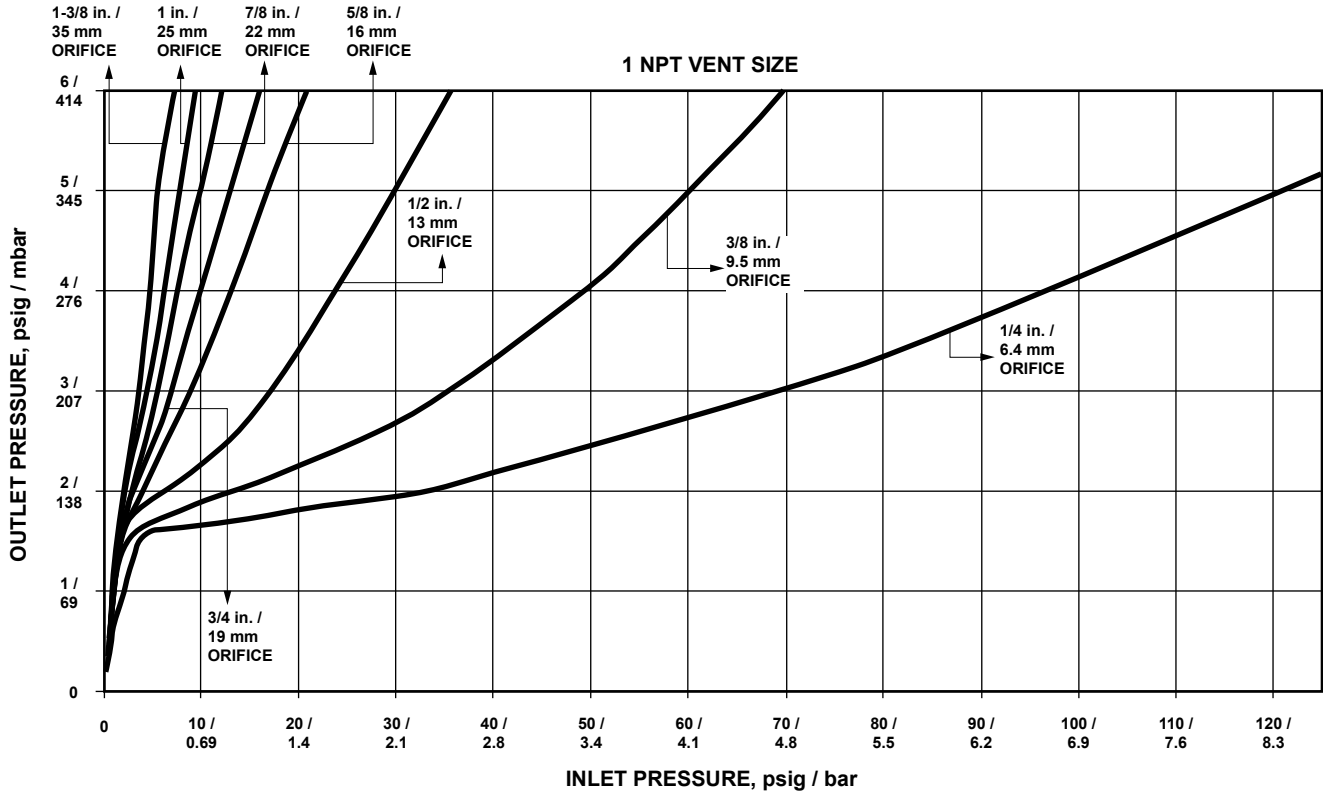


Figure 15. Type CS800IR Relief Curves (Blocked Open per Orifice Size) at 1 psig / 0.07 bar Set Pressure

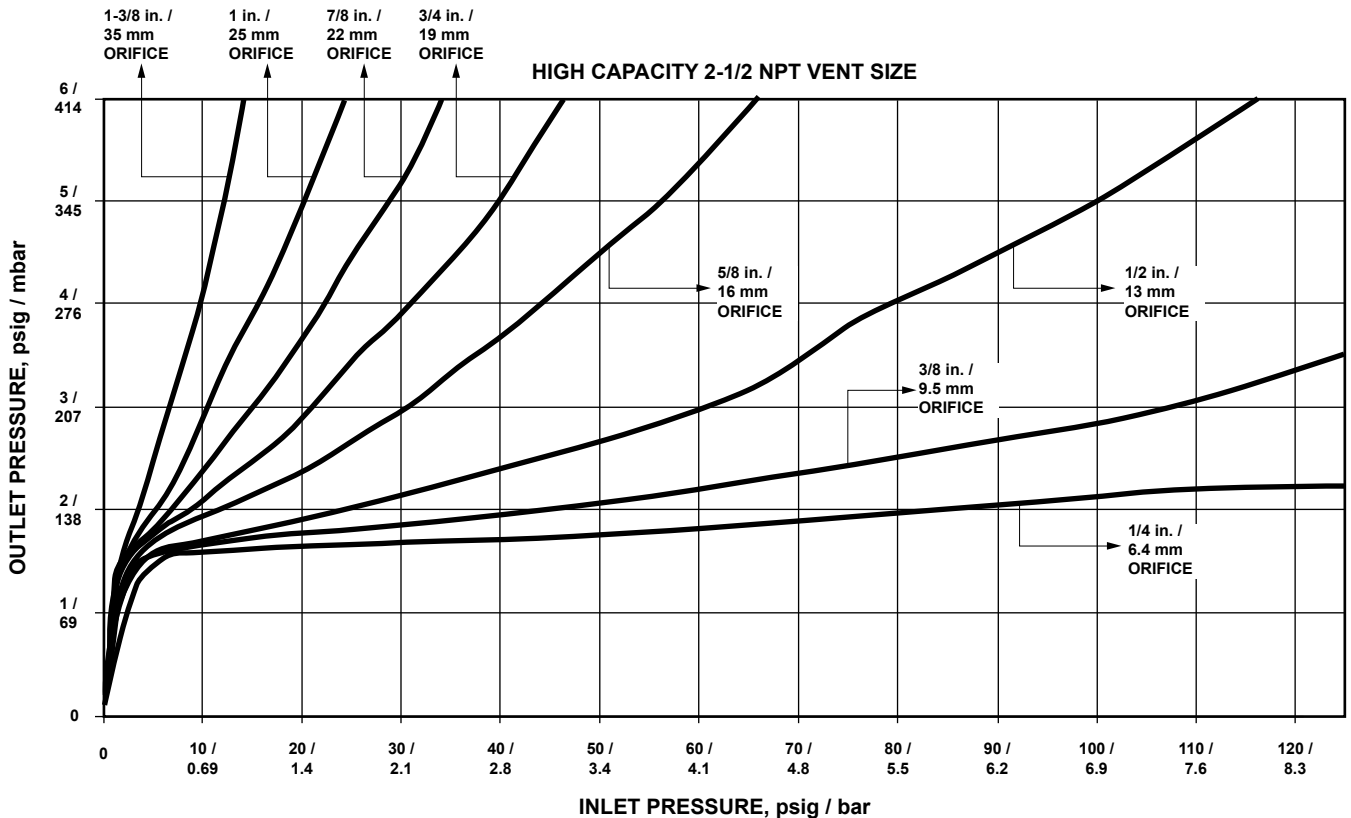


Figure 16. Type CS800IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 1 psig / 0.07 bar Set Pressure

**Table 29.** Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 1% ABS Accuracy

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.17 psig	0.17 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-12 mbar	12 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
3	0.21	710	19.1	1000	26.8	1000	26.8	1380	37.0	1600	43.0	1780	47.8	1800	48.3	2510	67.4
5	0.34	900	24.2	1160	31.1	1740	46.7	2080	55.8	2440	65.5	2920	78.4	3300	88.6	4150	111
10	0.69	1410	37.9	1980	53.2	2930	78.7	3780	102	4280	115	4760	128	5250	141	6430	173
15	1.0	1920	51.5	2690	72.2	4040	109	5060	136	5580	150	5760	155	6920	186	7720	207
20	1.4	2310	62.0	3370	90.5	5180	139	6350	171	6870	184	7500	201	7870	211		
25	1.7	2570	69.0	4050	109	6050	162	7280	195	7580	204	7890	212	8440	227		
30	2.1	2930	78.7	4720	127	6960	187	7800	209	8570	230	8230	221	9050	243		
40	2.8	3510	94.2	6280	169	8370	225	9400	252	9450	254	9290	250				
50	3.4	4330	116	7550	203	9320	250	9440	253	10,220	274	10,040	270				
60	4.1	4940	133	8960	241	10,010	269	10,420	280	10,420	280	10,140	272				
80	5.5	6360	171	10,320	277	10,890	292	11,180	300	11,180	300						
100	6.9	7560	203	11,090	298	11,290	303										
125	8.6	9300	250	11,290	303												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

**Table 30.** Types CS820, CS823<sup>(1)(2)</sup> and CS824<sup>(3)</sup> Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 2 in. / DN 50 Body Size at 1% ABS Accuracy

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.17 psig	0.17 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-12 mbar	12 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5 <sup>(1)</sup>		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25 <sup>(1)</sup>		1-3/8 / 35 <sup>(2)(3)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
3	0.21	650	17.4	810	21.7	1080	29.0	1610	43.2	1690	45.4	1860	49.9	2690	72.2	3060	82.1
5	0.34	1040	27.9	1290	34.6	1850	49.7	2540	68.2	2900	77.9	3960	106	4270	115	5340	143
10	0.69	1480	39.7	2240	60.1	3410	91.5	4850	130	5780	155	7560	203	9230	248	10,800	290
15	1.0	1870	50.2	3260	87.5	5410	145	7700	207	8490	228	11,750	315	12,530	336	14,550	391
20	1.4	2280	61.2	4070	109	7360	198	10,180	273	11,900	320	13,250	356	14,760	396		
25	1.7	2600	69.8	4980	134	9100	244	12,640	339	15,050	404	16,190	435	17,120	460		
30	2.1	2920	78.4	5780	155	10,640	286	14,500	389	16,950	455	17,370	466	18,170	488		
40	2.8	3510	94.2	7640	205	14,010	376	17,930	481	20,100	537	20,230	542				
50	3.4	4240	113	8790	236	16,930	455	21,160	568	22,560	606	20,230	542				
60	4.1	4980	134	10,650	286	19,640	527	23,460	630	23,600	634	20,230	542				
80	5.5	6300	169	13,600	365	24,830	667	24,830	667	24,830	667						
100	6.9	7620	205	16,280	437	28,790	773										
125	8.6	9370	252	19,900	534												

1. Type CS823 exhibits a 15% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.85.  
 2. Not available on the Type CS823.  
 3. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

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**Table 31. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 2% ABS Accuracy**

SETPOINT	ACCURACY: + / - 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.33 psig	0.33 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-23 mbar	23 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
3	0.21	800	21.5	1350	36.2	1810	48.6	2370	63.6	2680	71.9	3460	92.9	3490	93.7	4140	111
5	0.34	1010	27.1	1790	48.1	2810	75.4	3740	100	4210	113	5000	134	5640	151	7310	196
10	0.69	1550	41.6	2930	78.7	4800	129	6160	165	6880	185	7440	200	8520	229	9690	260
15	1.0	1980	53.2	3870	104	6450	173	8040	216	8610	231	9020	242	10,210	274	10,800	290
20	1.4	2310	62.0	4740	127	7810	210	9480	255	10,030	269	10,510	282	11,350	305		
25	1.7	2670	71.7	5560	149	8890	239	10,270	276	11,080	297	11,160	300	12,220	328		
30	2.1	2980	80.0	6300	169	9830	264	11,500	309	11,900	320	11,560	310	12,590	338		
40	2.8	3630	97.4	7850	211	11,290	303	12,590	338	12,870	346	12,630	339				
50	3.4	4360	117	9160	246	12,610	339	13,100	352	13,340	358	13,340	358				
60	4.1	4990	134	10,860	292	13,500	362	13,530	363	13,530	363	13,530	363				
80	5.5	6380	171	13,420	360	14,230	382	14,230	382	14,230	382						
100	6.9	7660	206	14,690	394	15,150	407										
125	8.6	9390	252	14,690	394												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS823.

**Table 32. Types CS820, CS823<sup>(1)(2)</sup> and CS824<sup>(4)</sup> Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 2 in. / DN 50 Body Size at 2% ABS Accuracy**

SETPOINT	ACCURACY: + / - 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.33 psig	0.33 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-23 mbar	23 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25 <sup>(1)</sup>		1-3/8 / 35 <sup>(3)(4)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
3	0.21	720	19.3	1150	30.9	1980	53.2	2470	66.3	3230 <sup>(2)</sup>	86.7 <sup>(2)</sup>	3540	95.0	4200	113	5640	151
5	0.34	1140	30.6	1850	49.7	3140	84.3	4120	111	5150 <sup>(2)</sup>	138 <sup>(2)</sup>	6120	164	7050	189	9210	247
10	0.69	1600	43.0	3100	83.2	5380	144	7250	195	8730	234	11,300	303	12,550	337	16,570	445
15	1.0	1980	53.2	4150	111	7440	200	10,230	275	12,410	333	15,290	411	16,900	454	19,470	523
20	1.4	2330	62.6	4930	132	9100	244	12,570	337	15,870	426	18,530	497	19,190	515		
25	1.7	2650	71.1	5670	152	10,450	281	14,690	394	18,720	503	21,120	567	22,120	594		
30	2.1	2940	78.9	6170	166	11,770	316	16,960	455	20,850	560	23,130	621	23,740	637		
40	2.8	3580	96.1	7920	213	14,780	397	20,790	558	24,670	662	26,630	715				
50	3.4	4280	115	9090	244	17,550	471	24,300	652	26,400	709	28,150	756				
60	4.1	4980	134	10,860	292	20,470	550	28,340	761	28,340	761	29,780	800				
80	5.5	6310	169	13,700	368	25,840	694	30,680	824	30,680	824						
100	6.9	7650	205	16,580	445	30,980	832										
125	8.6	9360	251	20,190	542												

1. Type CS823 exhibits a 10% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.9.  
2. Due to droop, the Type CS823 exhibits a 15% reduction in capacity for indicated conditions. Multiply listed values by a factor of 0.85.  
3. Not available on the Type CS823.  
4. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 33.** Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 10% Accuracy

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.20 psig	0.20 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-14 mbar	14 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
3	0.21	740	19.9	1170	31.4	1170	31.4	1560	41.9	1730	46.4	2240	60.1	2240	60.1	3080	82.7
5	0.34	960	25.8	1410	37.9	1980	53.2	2510	67.4	2850	76.5	3640	97.7	3980	107	4830	130
10	0.69	1450	38.9	2260	60.7	3360	90.2	4320	116	5040	135	5510	148	6030	162	7410	199
15	1.0	1940	52.1	3080	82.7	4640	125	5830	157	6480	174	6980	187	7740	208	8440	227
20	1.4	2310	62.0	3880	104	5920	159	7090	190	7720	207	8020	215	8860	238		
25	1.7	2610	70.1	4660	125	6830	183	8210	220	8470	227	8600	231	9180	246		
30	2.1	2960	79.5	5430	146	7750	208	8810	237	9450	254	9120	245	9860	265		
40	2.8	3570	95.8	6830	183	9110	245	10,220	274	10,230	275	10,230	275				
50	3.4	4340	117	8310	223	10,060	270	10,520	282	10,800	290	10,800	290				
60	4.1	4970	133	9680	260	10,850	291	11,100	298	11,100	298	11,100	298				
80	5.5	6370	171	11,390	306	11,810	317	11,810	317	11,810	317						
100	6.9	7590	204	12,070	324	12,090	325										
125	8.6	9340	251	12,080	324												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

**Table 34.** Types CS820, CS823<sup>(1)</sup> and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 2 in. / DN 50 Body Size at 10% Accuracy

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.20 psig	0.20 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-14 mbar	14 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(2)(3)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
3	0.21	670	18.0	910	24.4	1280	34.4	1760	47.2	1920 <sup>(1)</sup>	51.5 <sup>(1)</sup>	2310	62.0	2770	74.4	3490	93.7
5	0.34	1080	29.0	1430	38.4	2230	59.9	3110	83.5	3440 <sup>(1)</sup>	92.3 <sup>(1)</sup>	4830	130	4970	133	6390	172
10	0.69	1510	40.5	2580 <sup>(1)</sup>	69.3 <sup>(1)</sup>	4040	109	5470	147	6680	179	8670	233	10,060	270	12,100	325
15	1.0	1900	51.0	3610	96.9	6220	167	8610	231	9800	263	12,320	331	13,570	364	17,260	463
20	1.4	2310	62.0	4520	121	7980	214	10,990	295	13,000	349	14,630	393	16,230	436		
25	1.7	2620	70.3	5380	144	9690	260	13,480	362	16,010	430	17,180	461	18,510	497		
30	2.1	2940	78.9	5910	159	11,080	297	15,240	409	18,190	488	19,450	522	19,930	535		
40	2.8	3530	94.8	7770	209	14,390	386	18,740	503	21,510	577	22,830	613				
50	3.4	4250	114	8860	238	17,160	461	22,320	599	23,060	619	23,060	619				
60	4.1	4980	134	10,710	288	20,160	541	23,740	637	23,740	637	23,740	637				
80	5.5	6310	169	13,640	366	25,290	679	26,330	707	26,330	707						
100	6.9	7640	205	16,380	440	29,370	789										
125	8.6	9370	252	19,980	536												

1. Due to droop, the Type CS823 exhibits a 10% reduction in capacity for indicated conditions. Multiply listed values by a factor of 0.9.  
 2. Not available on the Type CS823.  
 3. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

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**Table 35. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.40 psig	0.40 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-28 mbar	28 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
3	0.21	820	22.0	1420	38.1	1960	52.6	2830	76.0	3200	85.9	3950	106	4160	112	4620	124
5	0.34	1060	28.5	1860	49.9	3220	86.4	4200	113	5020	135	5920	159	6570	176	8000	215
10	0.69	1590	42.7	3120	83.8	5230	140	6870	184	7600	204	8410	226	9580	257	11,220	301
15	1.0	1990	53.4	4090	110	6970	187	8880	238	9820	264	10,200	274	11,520	309	11,790	317
20	1.4	2310	62.0	4880	131	8440	227	10,380	279	11,160	300	11,490	309	12,630	339		
25	1.7	2680	71.9	5640	151	9630	259	11,480	308	12,480	335	12,130	326	13,570	364		
30	2.1	2980	80.0	6340	170	10,670	286	12,360	332	12,960	348	12,990	349	13,920	374		
40	2.8	3660	98.3	7850	211	12,140	326	14,150	380	14,240	382	13,470	362				
50	3.4	4360	117	9260	249	13,460	361	14,190	381	14,920	401	14,280	383				
60	4.1	5000	134	10,860	292	14,740	396	14,910	400	15,260	410	14,620	393				
80	5.5	6400	172	13,710	368	15,440	415	15,440	415	15,440	415						
100	6.9	7670	206	15,900	427	16,200	435										
125	8.6	9410	253	16,080	432												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

**Table 36. Types CS820, CS823<sup>(1)(2)</sup> and CS824 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint for 2 in. / DN 50 Body Size at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.40 psig	0.40 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-28 mbar	28 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25 <sup>(1)</sup>		1-3/8 / 35 <sup>(3)(4)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
3	0.21	730	19.6	1280	34.4	2140	57.4	2890	77.6	3400 <sup>(2)</sup>	91.3 <sup>(2)</sup>	4190	113	4800	129	6490	174
5	0.34	1150	30.9	1960	52.6	3440	92.3	4380	118	5700 <sup>(2)</sup>	153 <sup>(2)</sup>	6770	182	7960	214	11,840	318
10	0.69	1610	43.2	3260	87.5	5790	155	7870	211	9930	267	11,840	318	13,680	367	18,160	488
15	1.0	1980	53.2	4200	113	7760	208	10,520	282	13,510	363	16,080	432	18,220	489	20,810	559
20	1.4	2330	62.6	4950	133	9250	248	12,990	349	16,570	445	19,760	531	20,610	553		
25	1.7	2660	71.4	5710	153	10,560	284	15,060	404	19,630	527	22,340	600	23,530	632		
30	2.1	2940	78.9	6300	169	11,890	319	17,290	464	21,870	587	24,500	658	25,180	676		
40	2.8	3600	96.6	7950	213	14,880	400	21,370	574	24,710	663	28,610	768				
50	3.4	4280	115	9200	247	17,600	473	24,860	667	27,290	733	29,870	802				
60	4.1	4980	134	10,890	292	20,430	549	29,670	797	29,670	797	30,930	830				
80	5.5	6310	169	13,710	368	25,880	695	32,240	866	32,240	866						
100	6.9	7650	205	16,620	446	31,200	838										
125	8.6	9360	251	20,220	543												

1. Type CS823 exhibits a 10% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.9.  
 2. Due to droop, the Type CS823 exhibits a 15% reduction in capacity for indicated conditions. Multiply listed values by a factor of 0.85.  
 3. Not available on the Type CS823.  
 4. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.



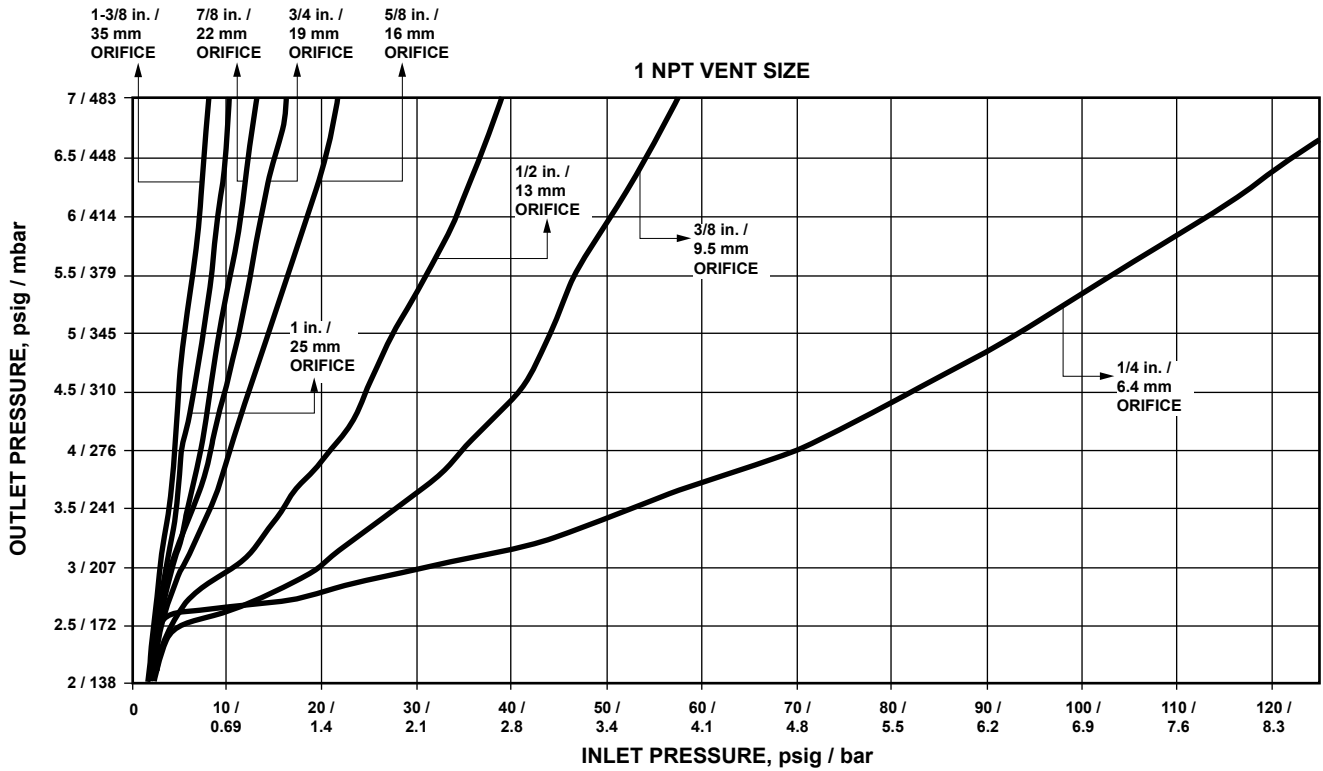


Figure 17. Type CS820IR Relief Curves (Blocked Open per Orifice Size) at 2 psig / 0.14 bar Set Pressure

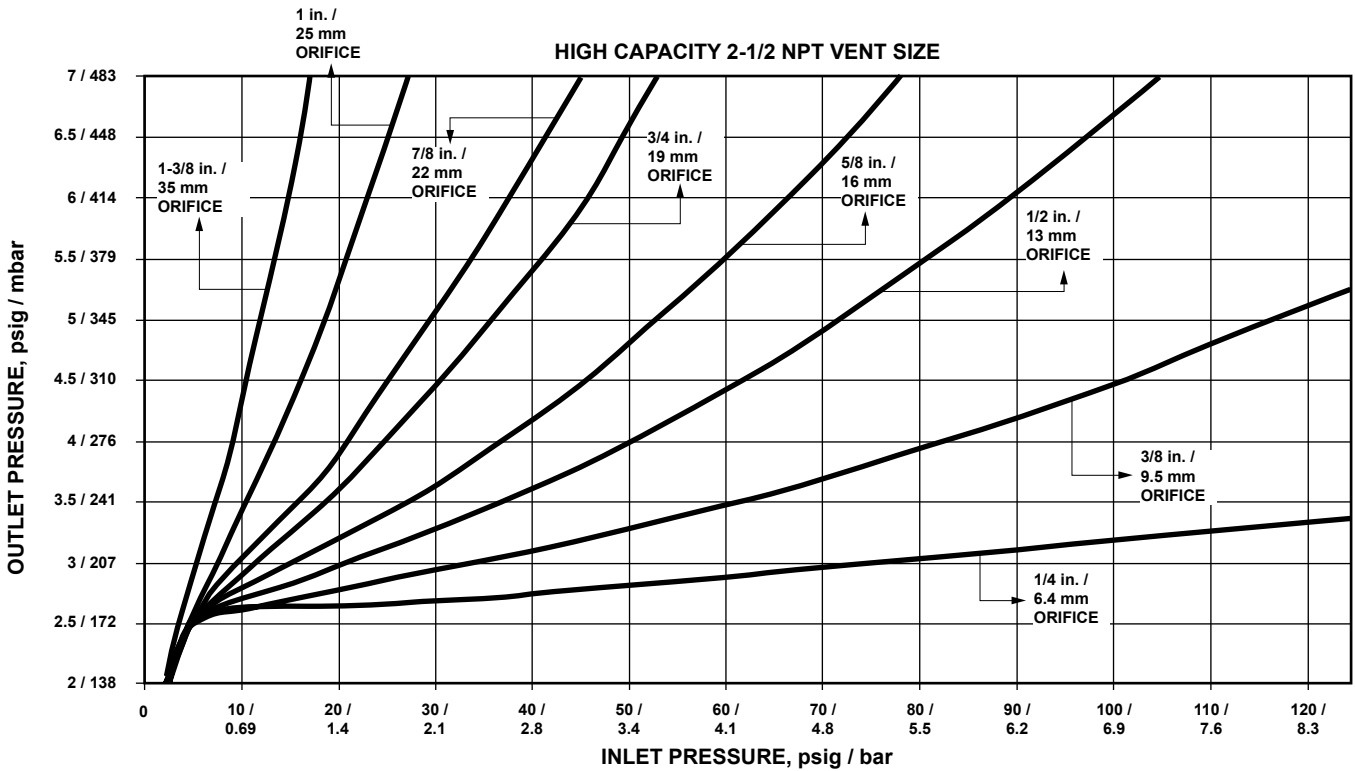


Figure 18. Type CS820IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 2 psig / 0.14 bar Set Pressure

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**Table 37. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 1% ABS Accuracy**

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-0.20 psig	0.20 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-14 mbar	14 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	930	25.0	940	25.2	1290	34.6	1760	47.2	1910	51.3	2320	62.3	2390	64.2	3300	88.6
15	1.0	1220	32.8	1220	32.8	1810	48.6	2370	63.6	2660	71.4	2860	76.8	3570	95.8	4320	116
20	1.4	1590	42.7	1590	42.7	2250	60.4	2950	79.2	3110	83.5	3880	104	4580	123		
25	1.7	1900	51	1900	51.0	2730	73.3	3570	95.8	3890	104	4370	117	5790	155		
30	2.1	2160	58	2200	59.1	3150	84.6	4140	111	4290	115	5380	144	6200	166		
40	2.8	2690	72	2760	74.1	3750	101	4980	134	5110	137	6560	176				
50	3.4	3250	87	3310	88.9	4650	125	6190	166	6500	175	8020	215				
60	4.1	3850	103	4160	112	5690	153	7090	190	7410	199	8780	236				
80	5.5	5130	138	5290	142	7500	201	8570	230	9230	248						
100	6.9	6100	164	6100	164	9000	242										
125	8.6	7320	197	7430	200												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-0.20 psig	0.20 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-14 mbar	14 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	850	22.8	850	22.8	1270	34.1	1530	41.1	1900	51.0	2000	53.7	2390	64.2	3240	87.0
15	1.0	1150	30.9	1150	30.9	1920	51.5	2150	57.7	2790	74.9	2790	74.9	3750	101	5170	139
20	1.4	1490	40.0	1520	40.8	2390	64.2	2870	77.0	3360	90.2	3870	104	5030	135		
25	1.7	1770	47.5	1770	47.5	2850	76.5	3350	89.9	4480	120	4480	120	6560	176		
30	2.1	2020	54.2	2150	57.7	3470	93.2	4300	115	5060	136	5720	154	8010	215		
40	2.8	2590	69.5	2900	77.9	4730	127	5780	155	7740	208	9120	245				
50	3.4	3130	84.0	3630	97.4	6250	168	7200	193	9720	261	14,940	401				
60	4.1	3460	92.9	4150	111	7950	213	8520	229	12,940	347	20,040	538				
80	5.5	5070	136	5940	160	13,910	373	15,510	416	15,510	416						
100	6.9	6800	183	8430	226	18,840	506										
125	8.6	9090	244	15,390	413												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.  
 2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 38. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 2% ABS Accuracy**

SETPOINT	ACCURACY: + / - 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-0.39 psig	0.39 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-27 mbar	27 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	1360	36.5	1600	43.0	2170	58.3	2940	78.9	3480	93.4	3780	102	4560	122	5730	154
15	1.0	1890	50.7	2120	56.9	3140	84.3	4170	112	5030	135	5710	153	6760	182	7550	203
20	1.4	2210	59.3	2820	75.7	3960	106	5240	141	6010	161	7140	192	8240	221		
25	1.7	2520	67.7	3250	87.2	4880	131	6150	165	7290	196	7670	206	9890	266		
30	2.1	2660	71.4	3830	103	5290	142	7400	199	8040	216	8930	240	10,850	291		
40	2.8	3370	90.5	5000	134	7010	188	8740	235	9440	253	11,050	297				
50	3.4	3990	107	5870	158	8470	227	10,000	269	11,420	307	12,550	337				
60	4.1	4910	132	7150	192	9430	253	11,230	302	12,620	339	13,220	355				
80	5.5	6180	166	9260	249	11,910	320	13,760	369	14,570	391						
100	6.9	7610	204	10,620	285	13,920	374										
125	8.6	9160	246	11,740	315												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

SETPOINT	ACCURACY: + / - 2% ABS		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-0.39 psig	0.39 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-27 mbar	27 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	1120	30.1	1540	41.3	2330	62.6	2870	77.0	3840	103	3880	104	5060	136	6180	166
15	1.0	1820	48.9	1950	52.3	3410	91.5	4020	108	5440	146	5830	157	7730	208	10,160	273
20	1.4	2250	60.4	2730	73.3	4380	118	5510	148	7550	203	8580	230	10,870	292		
25	1.7	2540	68.2	3330	89.4	5560	149	6650	179	8550	230	10,580	284	13,260	356		
30	2.1	2930	78.7	4050	109	6360	171	8380	225	10,580	284	13,250	356	16,600	446		
40	2.8	3600	96.6	5280	142	8830	237	11,870	319	14,770	397	16,120	433				
50	3.4	4270	115	6430	173	12,330	331	15,450	415	17,460	469	21,810	586				
60	4.1	4890	131	8470	227	15,400	413	19,500	524	20,660	555	25,170	676				
80	5.5	6240	168	12,210	328	21,390	574	23,340	627	23,340	661						
100	6.9	7590	204	15,980	429	25,630	688										
125	8.6	9350	251	19,730	530												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.  
 2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

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**Table 39. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
5 psig	-0.50 psig	0.50 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-34 mbar	34 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	1450	38.9	1870	50.2	2650	71.1	3640	97.7	4170	112	5190	139	5760	155	7240	194
15	1.0	1910	51.3	2640	70.9	3920	105	5070	136	6050	162	6970	187	7960	214	9410	253
20	1.4	2260	60.7	3440	92.3	4910	132	6530	175	7520	202	8800	236	9670	260		
25	1.7	2640	70.9	4060	109	5920	159	7510	202	8570	230	9620	258	11,320	304		
30	2.1	2710	72.8	4700	126	6690	180	8750	235	9900	266	10,670	286	12,160	326		
40	2.8	3410	91.5	6000	161	8000	215	10,100	271	11,330	304	13,220	355				
50	3.4	4100	110	7260	195	10,070	270	11,540	310	13,030	350	14,920	401				
60	4.1	4950	133	8610	231	11,250	302	12,880	346	14,220	382	15,630	420				
80	5.5	6260	168	10,690	287	13,890	373	15,400	413	16,290	437						
100	6.9	7660	206	12,590	338	15,980	429										
125	8.6	9300	250	14,860	399												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
5 psig	-0.50 psig	0.50 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-34 mbar	34 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	1280	34.4	1880	50.5	2940	78.9	3530	94.8	4830	130	4970	133	6060	163	7680	206
15	1.0	1880	50.5	2410	64.7	4310	116	5160	139	7240	194	7610	204	9790	263	12,150	326
20	1.4	2300	61.7	3310	88.9	5610	151	6900	185	9230	248	10,390	279	12,770	343		
25	1.7	2660	71.4	4200	113	7040	189	8220	221	10,950	294	12,690	341	15,480	416		
30	2.1	2950	79.2	4990	134	8220	221	10,580	284	13,060	351	14,810	398	19,260	517		
40	2.8	3640	97.7	6360	171	11,080	297	14,630	393	17,710	475	20,120	540				
50	3.4	4280	115	8000	215	14,370	386	18,760	504	21,200	569	23,760	638				
60	4.1	4940	133	9900	266	17,590	472	21,760	584	23,760	638	27,480	738				
80	5.5	6290	169	13,260	356	22,900	615	27,200	730	27,200	730						
100	6.9	7650	205	16,380	440	28,030	753										
125	8.6	9390	252	20,030	538												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS823.  
 2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

**Table 40. Types CS820, CS823 and CS824 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
5 psig	-1.0 psig	1.0 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-69 mbar	69 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	1530	41.1	2710	72.8	4370	117	5880	158	6680	179	8470	227	9740	262	12,040	323
15	1.0	1960	52.6	3750	101	6250	168	7870	211	9620	258	11,330	304	12,580	338	15,210	408
20	1.4	2310	62.0	4720	127	7850	211	10,140	272	11,480	308	13,870	372	14,580	391		
25	1.7	2640	70.9	5520	148	9360	251	10,840	291	13,070	351	15,030	404	16,530	444		
30	2.1	2880	77.3	6390	172	10,570	284	12,760	343	14,620	393	16,620	446	16,990	456		
40	2.8	3560	95.6	7870	211	12,500	336	15,170	407	16,890	453	19,270	517				
50	3.4	4240	114	9360	251	14,840	398	16,650	447	18,310	492	21,270	571				
60	4.1	4950	133	11,000	295	16,380	440	17,530	471	19,970	536	22,640	608				
80	5.5	6310	169	13,840	372	19,090	513	20,400	548	22,710	610						
100	6.9	7690	206	16,280	437	21,380	574										
125	8.6	9390	252	19,280	518												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS823.

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
5 psig	-1.0 psig	1.0 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-69 mbar	69 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)(2)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	1500	40.3	2840	76.2	4780	128	5970	160	8000	215	9400	252	10,550	283	13,590	365
15	1.0	1970	52.9	3870	104	6960	187	8540	229	11,770	316	12,740	342	15,830	425	19,260	517
20	1.4	2330	62.6	4700	126	8600	231	10,760	289	14,810	398	16,600	446	19,810	532		
25	1.7	2660	71.4	5700	153	10,060	270	13,260	356	17,350	466	19,690	529	21,840	586		
30	2.1	2970	79.7	6500	175	11,660	313	15,530	417	20,540	551	20,950	562	24,770	665		
40	2.8	3670	98.5	7910	212	14,470	389	20,460	549	24,480	657	25,870	695				
50	3.4	4320	116	9340	251	17,690	475	23,180	622	29,880	802	30,750	826				
60	4.1	5010	135	11,120	299	20,100	540	27,820	747	31,780	853	33,840	909				
80	5.5	6340	170	13,740	369	25,800	693	34,910	937	36,270	974						
100	6.9	7710	207	16,900	454	31,450	844										
125	8.6	9410	253	20,580	553												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS823.  
2. Type CS824 exhibits a 20% reduction in capacity for indicated orifice size. Multiply listed values by a factor of 0.8.

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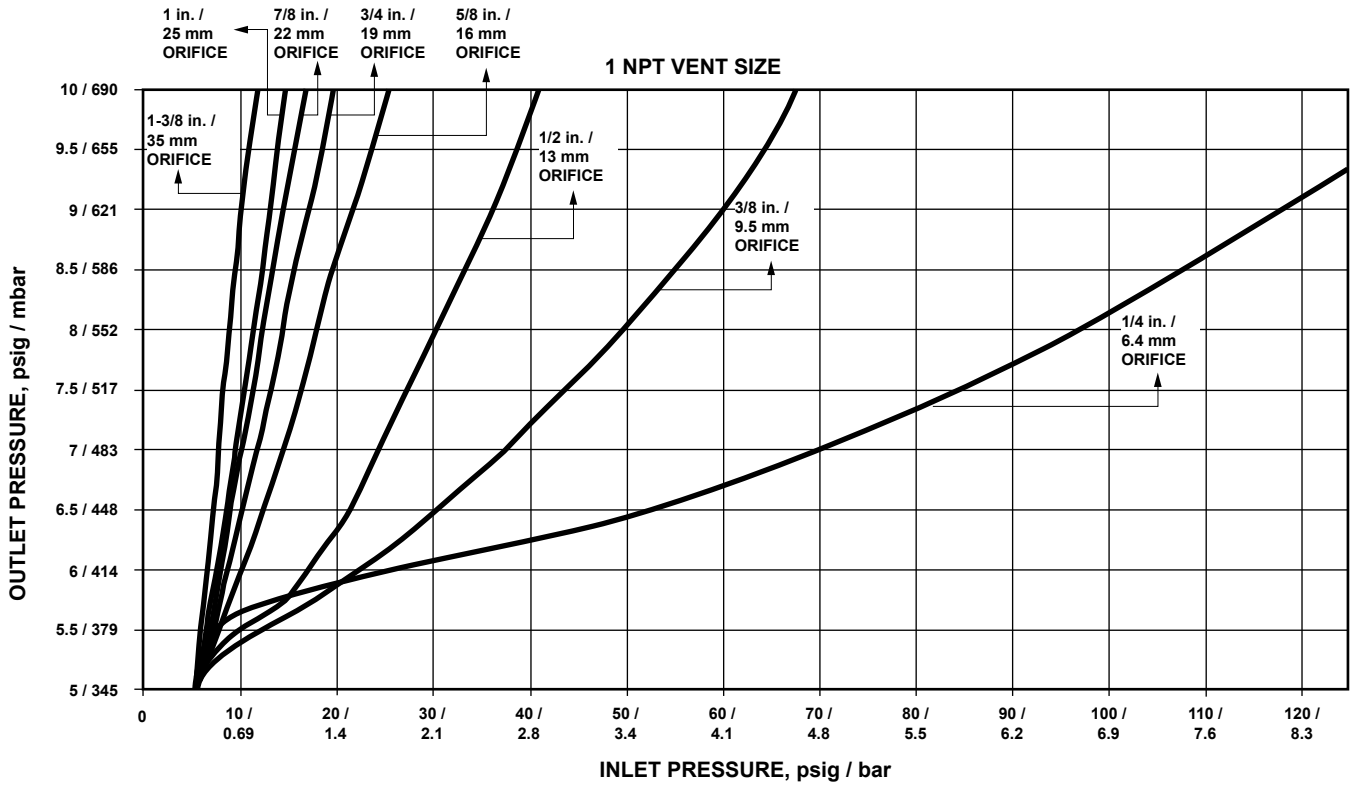


Figure 19. Type CS820IR Relief Curves (Blocked Open per Orifice Size) at 5 psig / 0.34 bar Set Pressure

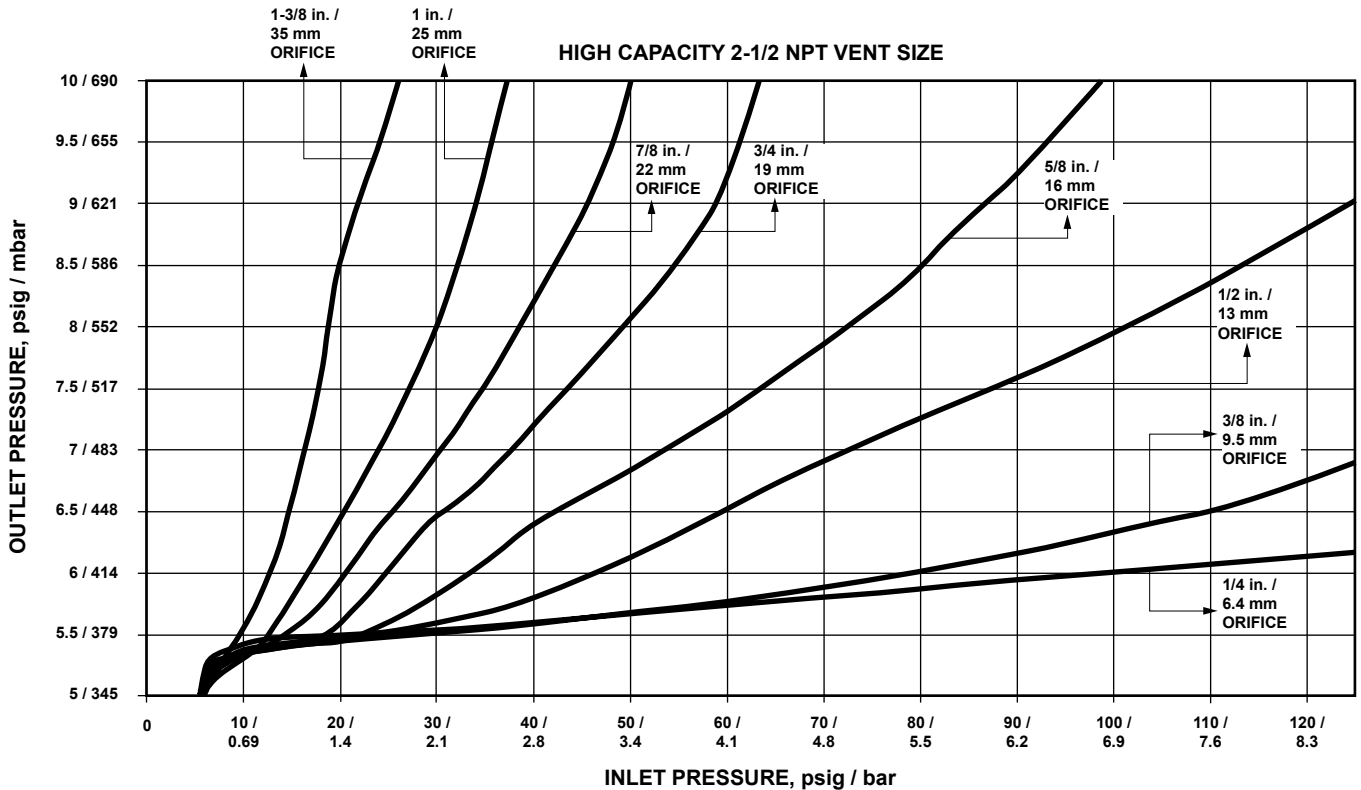


Figure 20. Type CS820IQ High Capacity Relief Curves (Blocked Open per Orifice Size) at 5 psig / 0.34 bar Set Pressure

**Table 41. Types CS850 and CS854 Internal Registration Flow Capacities for 7 psig / 0.48 bar Setpoint at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
7 psig	-0.7 psig	0.7 psig	5 to 10 psig	GE30344X012 / Green with White Stripe
0.48 bar	-48 mbar	48 mbar	345 to 690 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	1140	30.6	1250	33.6	1710	45.9	2030	54.5	2550	68.5	3140	84.3	3370	90.5	4290	115
15	1.0	1590	42.7	1810	48.6	2660	71.4	3150	84.6	3840	103	4490	121	5480	147	6860	184
20	1.4	2010	54.0	2460	66.0	3400	91.3	4170	112	4590	123	5710	153	6740	181		
25	1.7	2400	64.4	2980	80.0	4190	113	5030	135	5970	160	6790	182	7800	209		
30	2.1	2750	73.8	3450	92.6	4800	129	5840	157	7050	189	7890	212	9070	244		
40	2.8	3420	91.8	4380	118	6180	166	7350	197	8310	223	9760	262				
50	3.4	3990	107	5270	142	7450	200	8900	239	11,530	310	11,530	310				
60	4.1	4730	127	6220	167	8470	227	10,410	280	11,550	310	13,300	357				
80	5.5	5950	160	7700	207	11,070	297	13,150	353	15,300	411						
100	6.9	7300	196	9480	255	12,400	333										
125	8.6	8660	233	11,250	302												
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	750	20.1	1290	34.6	1750	47.0	2140	57.4	2640	70.9	3170	85.1	3550	95.3	4540	122
15	1.0	1710	45.9	1950	52.3	2740	73.6	3530	94.8	4050	109	4750	128	5860	157	7640	205
20	1.4	2150	57.7	2500	67.1	3440	92.3	4470	120	5500	148	6600	177	7850	211		
25	1.7	2380	63.9	3070	82.4	4190	113	5390	145	6150	165	8150	219	9360	251		
30	2.1	2870	77.0	3570	95.8	4900	132	6300	169	7430	200	9980	268	11,640	313		
40	2.8	3540	95.0	4630	124	6570	176	8610	231	10,430	280	12,830	344				
50	3.4	4210	113	5530	149	7570	203	10,550	283	12,380	332	16,070	431				
60	4.1	4790	129	6690	180	9970	268	12,780	343	14,680	394	19,320	519				
80	5.5	6070	163	8740	235	14,170	380	16,720	449	17,930	481						
100	6.9	7690	206	11,310	304	18,060	485										
125	8.6	9220	248	14,520	390												

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

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**Table 42. Types CS850 and CS854 Internal Registration Flow Capacities for 7 psig / 0.48 bar Setpoint at 20% Accuracy**

SETPOINT		ACCURACY: + / - 20% GAUGE		SPRING			
		Droop	Boost	Set Range		Part Number / Color	
7 psig		-1.4 psig	1.4 psig	5 to 10 psig		GE30344X012 / Green with White Stripe	
0.48 bar		-0.10 bar	0.10 bar	345 to 690 mbar			

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Size: 1-1/2 in. / DN 40															
10	0.69	1350	36.2	2090	56.1	3100	83.2	3850	103	4760	128	5780	155	6270	168	8620	231
15	1.0	1870	50.2	3060	82.1	4780	128	5830	157	6990	188	8540	229	9610	258	12,270	329
20	1.4	2190	58.8	3930	106	5970	160	7450	200	8850	238	10,690	287	12,280	330		
25	1.7	2550	68.5	4810	129	7400	199	8970	241	10,630	285	12,880	346	13,610	365		
30	2.1	2900	77.9	5520	148	8440	227	10,320	277	12,400	333	14,340	385	15,400	413		
40	2.8	3610	96.9	7030	189	10,610	285	12,970	348	15,010	403	17,140	460				
50	3.4	4260	114	8370	225	12,500	336	15,010	403	18,020	484	19,120	513				
60	4.1	4880	131	9850	264	14,320	384	16,940	455	19,130	514	20,780	558				
80	5.5	6250	168	12,680	340	17,670	474	19,700	529	21,670	582						
100	6.9	7610	204	15,170	407	19,700	529										
125	8.6	9290	249	17,740	476												
psig	bar	Body Size: 2 in. / DN 50															
10	0.69	1070	28.7	2230	59.9	3160	84.8	4040	109	4980	134	5880	158	6910	186	8860	238
15	1.0	1820	48.9	3180	85.4	4610	124	6210	167	7360	198	9080	244	10,790	290	14,360	386
20	1.4	2300	61.7	4110	110	6040	162	8060	216	9940	267	11,680	314	13,270	356		
25	1.7	2640	70.9	4970	133	7490	201	10,160	273	11,780	316	13,930	374	16,610	446		
30	2.1	2990	80.3	5710	153	8680	233	11,550	310	14,060	377	16,300	438	19,820	532		
40	2.8	3670	98.5	7360	198	11,440	307	14,910	400	18,130	487	21,300	572				
50	3.4	4350	117	8840	237	13,780	370	18,390	494	21,560	579	25,210	677				
60	4.1	5010	135	10,560	284	17,310	465	21,630	581	25,080	673	28,560	767				
80	5.5	6320	170	13,510	363	22,290	598	25,840	694	27,620	742						
100	6.9	7750	208	16,590	445	26,950	724										
125	8.6	9400	252	19,680	528												

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



**Table 43.** Types CS850 and CS854 Internal Registration Flow Capacities for 10 psig / 0.69 bar Setpoint at 10% Accuracy

SETPOINT		ACCURACY: +/- 10% GAUGE		SPRING			
		Droop	Boost	Set Range		Part Number / Color	
10 psig		-1 psig	1 psig	5 to 10 psig		GE30344X012 / Green with White Stripe	
0.69 bar		-0.07 bar	0.07 mbar	345 to 690 mbar			

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
15	1.0	1300	34.9	1780	47.9	2460	66.1	2780	74.7	3140	84.2	4040	108	4040	108	6010	161
20	1.4	1960	52.6	2240	60.1	2980	80.0	3640	97.5	4370	117	5230	140	6060	163		
25	1.7	2430	65.2	2860	76.9	4020	108	4780	128	5180	139	6530	175	7210	193		
30	2.1	2910	78.1	3210	86.2	4470	120	5720	153	6540	175	7400	198	8420	226		
40	2.8	3560	95.4	4080	109	6090	163	7150	192	8680	233	9860	264				
50	3.4	4230	113	5020	135	7760	208	9730	261	10,750	288	11,210	300				
60	4.1	4790	129	6360	170	8900	238	10,530	282	12,960	347	13,720	368				
80	5.5	6110	164	7950	213	10,840	290	13,920	373	15,610	418						
100	6.9	7610	204	9730	261	12,780	343										
125	8.6	8960	240	11,890	319												

**Table 44.** Types CS850 and CS854 Internal Registration Flow Capacities for 10 psig / 0.69 bar Setpoint at 20% Accuracy

SETPOINT		ACCURACY: +/- 20% GAUGE		SPRING			
		Droop	Boost	Set Range		Part Number / Color	
10 psig		-2 psig	2 psig	5 to 10 psig		GE30344X012 / Green with White Stripe	
0.69 bar		-1.4 bar	1.4 bar	345 to 690 mbar			

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
15	1.0	1820	48.8	3160	84.8	4670	125	6050	162	6650	178	8250	221	9420	252	11,730	314
20	1.4	2190	58.8	3850	103	6450	173	7820	210	9380	251	11,000	295	12,560	336		
25	1.7	2570	69.0	4920	132	8110	217	9780	262	11,240	301	14,080	377	14,750	395		
30	2.1	2950	79.2	5780	155	9090	244	11,710	314	14,110	378	15,450	414	17,370	465		
40	2.8	3620	97.0	7330	197	11,740	315	14,830	398	16,820	451	19,590	525				
50	3.4	4310	116	8910	239	14,510	389	17,600	472	19,840	532	22,180	594				
60	4.1	4940	133	10,410	279	16,430	440	19,720	528	23,450	628	23,920	641				
80	5.5	6260	168	13,140	352	20,040	537	23,940	641	28,110	753						
100	6.9	7660	205	16,210	434	23,050	618										
125	8.6	9290	249	19,320	517.8												

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**Table 45. Types CS800, CS803 and CS804 External Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint**

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-2 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30338X012 / Black
17 mbar	-5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
0.4	0.03			550	14.8	780	20.9	1090	29.3	1000	26.8	1390	37.3	1640	44.0	1780	47.8
0.51	0.04	360	9.7	630	16.9	930	25.0	1100	29.5	1530	41.1	1530	41.1	1940	52.1	2400	64.4
1	0.07	500	13.4	830	22.3	1290	34.6	1730	46.4	1980	53.2	2320	62.3	2860	76.8	3780	102
2	0.14	720	19.3	1330	35.7	2010	54.0	2550	68.5	3260	87.5	3740	100	4360	117	5930	159
3	0.21	870	23.4	1650	44.3	2500	67.1	3180	85.4	4130	111	4760	128	5250	141	7110	191
5	0.34	1120	30.1	2070	55.6	3410	91.5	4380	118	5620	151	6400	172	7500	201	9370	252
10	0.69	1480	39.7	2990	80.3	5010	135	6480	174	8420	226	9820	264	11,600	311	14,600	392
15	1.0	1810	48.6	3710	99.6	6410	172	8320	223	10,800	290	12,770	343	15,130	406	19,610	526
20	1.4	2170	58.3	4560	122	7720	207	10,750	289	13,660	367	15,080	405	18,520	497		
25	1.7	2520	67.7	5320	143	9030	242	12,220	328	16,340	439	18,630	500	21,950	589		
30	2.1	2770	74.4	5990	161	10,440	280	13,770	370	17,790	478	20,350	546				
40	2.8	3400	91.3	7360	198	12,490	335	16,720	449	20,320	546	25,650	689				
50	3.4	4010	108	8700	234	14,510	390	18,750	503	24,220	650	26,390	709				
60	4.1	4630	124	10,110	271	16,810	451	22,130	594	26,490	711						
80	5.5	5960	160	12,550	337	19,580	526										
100	6.9	7280	195	15,030	404	22,540	605										
125	8.6	8150	219	16,990	456												

     Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
 Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.

**Table 46. Types CS800, CS803 and CS804 External Registration Flow Capacities for 10 in. w.c. / 25 mbar Setpoint**

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
10 in. w.c.	-2 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30339X012 / Purple
25 mbar	-5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
0.51	0.04	310	8.3	560	15.0	640	17.2	990	26.6	1290	34.6	1250	33.6	1250	33.6	1970	52.9
1	0.07	470	12.6	750	20.1	1130	30.3	1430	38.4	1850	49.7	2210	59.3	2520	67.7	3530	94.8
2	0.14	690	18.5	1250	33.6	1530	41.1	1910	51.3	2880	77.3	3560	95.6	3750	101	5110	137
3	0.21	850	22.8	1540	41.3	2260	60.7	2860	76.8	3690	99.1	4350	117	4690	126	6320	170
5	0.34	1080	29.0	2050	55.0	3090	83.0	3850	103	4810	129	5850	157	6860	184	8180	220
10	0.69	1420	38.1	2590	69.5	4470	120	5460	147	7370	198	8340	224	10,130	272	13,030	350
15	1.0	1750	47.0	3500	94.0	5880	158	7500	201	9380	252	11,120	299	13,700	368	18,810	505
20	1.4	2090	56.1	4200	113	7260	195	9470	254	11,860	318	14,270	383	16,060	431		
25	1.7	2450	65.8	4950	133	8690	233	11,450	307	14,720	395	17,400	467	18,860	506		
30	2.1	2790	74.9	5600	150	10,170	273	12,560	337	16,420	441	19,700	529				
40	2.8	3390	91.0	6850	184	12,420	333	15,470	415	20,510	551	24,130	648				
50	3.4	4010	108	8200	220	14,090	378	17,960	482	23,020	618	29,010	779				
60	4.1	4620	124	9500	255	16,410	441	19,770	531	26,280	706						
80	5.5	5920	159	11,900	320	19,050	511										
100	6.9	7200	193	14,270	383	21,960	590										
125	8.6	8080	217	15,680	421												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
 1. Not available on the Type CS803.

**Table 47. Types CS800, CS803 and CS804 External Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
14 in. w.c.	-2 in. w.c.	2 in. w.c.	10 to 16 in. w.c.	GE30340X012 / White
35 mbar	-5 mbar	5 mbar	25 to 40 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
1	0.07	430	11.5	520	14.0	1210	32.5	1210	32.5	1290	34.6	1540	41.3	1790	48.1	2510	67.4
2	0.14	630	16.9	990	26.6	1690	45.4	2010	54.0	2440	65.5	2900	77.9	3350	89.9	4500	121
3	0.21	770	20.7	1350	36.2	1870	50.2	2540	68.2	2890	77.6	3730	100	4230	114	5660	152
5	0.34	1030	27.7	1800	48.3	2760	74.1	3280	88.1	4020	108	5320	143	5730	154	7160	192
10	0.69	1380	37.0	2560	68.7	4000	107	5110	137	6320	170	7700	207	8530	229	13,160	353
15	1.0	1700	45.6	3220	86.4	4980	134	6400	172	8180	220	10,270	276	11,690	314	19,100	513
20	1.4	1970	52.9	4040	109	6270	168	8110	218	10,620	285	15,320	411	17,550	471		
25	1.7	2340	62.8	4890	131	7810	210	9570	257	12,530	336	18,870	507	20,710	556		
30	2.1	2710	72.8	5320	143	8280	222	10,890	292	13,070	351	19,710	529				
40	2.8	3300	88.6	6900	185	10,980	295	13,280	357	16,560	444	26,440	710				
50	3.4	3890	104	8290	223	12,990	349	16,060	431	18,020	484	30,650	823				
60	4.1	4490	121	9710	261	15,400	413	18,340	492	21,170	568						
80	5.5	5770	155	12,450	334	18,900	507										
100	6.9	7000	188	15,030	404	21,320	572										
125	8.6	7900	212	16,680	448												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS803.

**Table 48. Types CS800, CS803 and CS804 External Registration Flow Capacities for 1 psig / 0.07 bar Setpoint**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-5.5 in. w.c.	5.5 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-14 mbar	14 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
2	0.14	680	18.3	1090	29.3	1830	49.1	2540	68.2	2950	79.2	3390	91.0	4140	111	6030	162
3	0.21	870	23.4	1500	40.3	2530	67.9	3360	90.2	4300	115	4870	131	5700	153	7310	196
5	0.34	1170	31.4	2050	55.0	3430	92.1	4690	126	6110	164	7000	188	8210	220	9760	262
10	0.69	1490	40.0	2960	79.5	4840	130	6550	176	8320	223	9480	255	11,380	306	14,700	395
15	1.0	1810	48.6	3790	102	6610	177	8740	235	10,590	284	11,840	318	13,980	375	20,000	537
20	1.4	2130	57.2	4920	132	7750	208	10,220	274	12,360	332	14,930	401	16,240	436		
25	1.7	2580	69.3	5590	150	9070	244	11,790	317	14,230	382	17,970	482	18,370	493		
30	2.1	2900	77.9	6570	176	10,070	270	13,200	354	16,450	442	19,880	534	22,620	607		
40	2.8	3640	97.7	7830	210	12,890	346	15,860	426	19,200	515	20,760	557				
50	3.4	4420	119	9360	251	15,480	416	18,380	493	22,670	609	24,280	652				
60	4.1	5100	137	10,910	293	18,120	486	21,070	566	24,680	663	26,750	718				
80	5.5	6460	173	13,140	353	20,770	558	23,970	644	27,780	746						
100	6.9	7930	213	16,420	441	23,090	620										
125	8.6	8730	234	19,710	529												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS803.

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**Table 49. Types CS820, CS823 and CS824 External Registration Flow Capacities for 2 psig / 138 mbar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
2 psig	-0.40 psig	0.40 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
138 mbar	-28 mbar	28 mbar	69 to 170 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
3	0.21	760	20.4	1220	32.8	1820	48.9	2780	74.6	2780	74.6	4180	112	5360	144	5540	149
5	0.34	1080	29.0	1770	47.5	2880	77.3	3710	99.6	4840	130	5570	150	6950	187	8570	230
10	0.69	1460	39.2	2560	68.7	4400	118	6330	170	7400	197	8750	235	9180	246	12,710	341
15	1.0	1760	47.2	3560	95.6	5540	149	7870	211	9590	257	11,280	303	11,890	319	15,220	409
20	1.4	2090	56.1	4310	116	6680	179	9610	258	11,940	321	13,420	360	14,300	384		
25	1.7	2350	63.1	5100	137	7600	204	10,780	289	13,440	361	14,020	376	15,510	416		
30	2.1	2710	72.8	5760	155	8980	241	12,410	333	15,040	404	15,770	423	17,220	462		
40	2.8	3390	91.0	7290	196	10,560	284	14,810	398	16,840	452	18,260	490				
50	3.4	3970	107	8530	229	12,490	335	16,790	451	18,370	493	19,490	523				
60	4.1	4570	123	9930	267	14,050	377	18,570	499	19,310	518	21,120	567				
80	5.5	5880	158	12,420	333	16,150	434	20,330	546	21,450	576						
100	6.9	7250	195	14,670	394	18,850	506										
125	8.6	8960	241	16,450	442												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS823.

**Table 50. Types CS820, CS823 and CS824 External Registration Flow Capacities for 5 psig / 345 mbar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-1 psig	1 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
345 mbar	-0.07 mbar	69 mbar	170 to 380 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35 <sup>(1)</sup>	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
10	0.69	1430	38.4	2320	62.3	4370	117	4780	128	5920	159	7360	198	8670	233	10,820	291
15	1.0	1800	48.3	3370	90.5	5370	144	7030	189	8520	229	11,130	299	11,870	319	15,610	419
20	1.4	2120	56.9	4510	121	6640	178	8920	240	11,730	315	13,420	360	15,360	412		
25	1.7	2430	65.2	5340	143	7770	209	11,420	307	14,150	380	15,880	426	18,530	497		
30	2.1	2730	73.3	5960	160	9120	245	13,180	354	15,890	427	17,100	459	20,070	539		
40	2.8	3410	91.5	7210	194	11,410	306	16,620	446	18,800	505	19,890	534				
50	3.4	4040	109	8640	232	13,540	364	17,940	482	21,260	571	24,110	647				
60	4.1	4560	122	10,140	272	15,530	417	21,730	583	24,520	658	26,500	711				
80	5.5	5880	158	12,840	345	20,480	550	25,360	681	29,700	797						
100	6.9	7230	194	15,560	418	23,710	637										
125	8.6	8910	239	20,320	546												

Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.  
1. Not available on the Type CS823.

**Table 51. Types CS850 and CS854 External Registration Flow Capacities for 7 psig / 483 mbar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
7 psig	-1.4 psig	1.4 psig	5 to 10 psig	GE30344X012 / Green with White Stripe
483 mbar	-96 mbar	96 mbar	345 to 690 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS																	
Inlet Pressure		Orifice Size, In. / mm															
		1/4 / 6.4		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22		1 / 25		1-3/8 / 35	
		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	SCFH	Nm <sup>3</sup> /h
psig	bar	Body Sizes: 1-1/2 and 2 in. / DN 40 and 50															
10	0.69	1410	37.9	1750	47.0	2030	54.5	3630	97.4	4130	111	4770	128	5390	145	7360	198
15	1.0	1880	50.5	2840	76.2	4040	109	5350	144	6970	187	7280	195	9050	243	12,240	329
20	1.4	2230	59.9	3710	99.6	5200	140	6840	184	8520	229	9550	256	11,390	306		
25	1.7	2590	69.5	3710	99.6	6250	168	8580	230	10,630	285	11,740	315	13,260	356		
30	2.1	2860	76.8	5140	138	7120	191	9970	268	12,780	343	14,020	376	14,890	400		
40	2.8	3540	95.0	6440	173	9050	243	12,630	339	14,690	394	16,690	448				
50	3.4	4290	115	7710	207	11,610	312	14,930	401	18,140	487	21,190	569				
60	4.1	4980	134	8920	240	13,370	359	16,650	447	20,110	540	23,550	632				
80	5.5	6010	161	11,490	309	17,230	463	19,220	516	24,430	656						
100	6.9	7360	198	15,110	406	20,130	540										
125	8.6	9090	244	17,490	470												

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

**Table 52. Types CS805 and CS806 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 1-1/2 in. / DN 40 Body Size**

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30338X012 / Black
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
0.51	0.04					730	19.6	850	22.8	910	24.4
1	0.07	580	15.6	800	21.5	880	23.6	1050	28.2	1060	28.5
2	0.14	900	24.2	1140	30.6	1520	40.8	1610	43.2	1610	43.2
3	0.21	1080	29.0	1480	39.7	1920	51.5	2250	60.4	2260	60.7
5	0.34	1620	43.5	2120	56.9	2560	68.7	3370	90.5	3470	93.2
10	0.69	2520	67.7	3100	83.2	5200	140	5620	151	5680	153
15	1.0	3150	84.6	5350	144	6400	172	7500	201	7140	192
20	1.4	3910	105	6500	175	7200	193	7500	201	8610	231
25	1.7	4680	126	7600	204	7600	204	7600	204	8610	231
30	2.1	5160	139	7700	207	7700	207	7700	207	9550	256
40	2.8	6140	165	7800	209	7900	212	7900	212	9550	256
50	3.4	7120	191	7900	212	8000	215	8000	215	9550	256
60	4.1	7500	201	8000	215	8000	215	8000	215		
80	5.5	8500	228	8500	228						
100	6.9	8500	228	8500	228						
125	8.6	8500	228								

Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

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**Table 53.** Types CS805 and CS806 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 2 in. / DN 50 Body Size, Enhanced Low Inlet (LIN) Option

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE49043X012 / Brown
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 2 in. / DN 50									
0.51	0.04	[Black Area]				970	26.2	1140	30.8	1320	35.7
1	0.07	710	19.1	1120	30.1	1270	34.2	1490	40.1	1990	53.5
2	0.14	1140	30.6	1710	45.9	2190	59.0	2570	69.1	2970	79.9
3	0.21	1460	39.3	2090	56.1	2580	69.3	3180	85.4	3750	101
5	0.34	2040	54.8	2670	71.9	4000	108	4370	118	5590	150
10	0.69	3120	84	4590	123	7120	191	7680	206	8300	223
15	1.0	4030	108	6160	166	8950	241	9650	259	10,610	285
20	1.4	4770	128	7550	203	10,990	295	11,860	318	12,660	340
25	1.7	5640	152	9170	246	12,680	341	12,930	347	13,610	365

[Black Area] Black areas show where indicated droop/boost would be exceeded regardless of capacity.

**Table 54.** Types CS805 and CS806 Internal Registration Flow Capacities for 7 in. w.c. / 17 mbar Setpoint for 2 in. / DN 50 Body Size

SETPOINT	ACCURACY		SPRING	
	Drop	Boost	Set Range	Part Number / Color
7 in. w.c.	-1 in. w.c.	2 in. w.c.	5.5 to 8.5 in. w.c.	GE30338X012 / Black
17 mbar	-2.5 mbar	5 mbar	13 to 21 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 2 in. / DN 50									
0.51	0.04	[Black Area]				870	23.4	1020	27.4	1270	34.1
1	0.07	540	14.5	1010	27.1	1190	31.9	1530	41.1	1510	40.5
2	0.14	900	24.2	1480	39.7	1710	45.9	2040	54.8	2290	61.5
3	0.21	1200	32.2	1830	49.1	2410	64.7	2750	73.8	3110	83.5
5	0.34	1670	44.8	2520	67.7	3280	88.1	4410	118	4600	124
10	0.69	2750	73.8	4190	113	6010	161	7210	194	7730	208
15	1.0	3670	98.5	6350	171	8140	219	9430	253	9750	262
20	1.4	4630	124	7910	212	9730	261	11,180	300	11,480	308
25	1.7	5560	149	9260	249	11,140	299	12,500	336	12,690	341
30	2.1	6330	170	10,350	278	12,500	336	12,500	336	13,830	371
40	2.8	7930	213	12,000	322	12,500	336	12,500	336	16,130	433
50	3.4	9490	255	12,140	326	12,500	336	12,500	336	17,060	458
60	4.1	10,800	290	12,500	336	12,500	336	12,500	336		
80	5.5	11,870	319	12,500	336						
100	6.9	12,500	336	12,500	336						
125	8.6	12,500	336								

[Black Area] Black areas show where indicated droop/boost would be exceeded regardless of capacity.  
 [Blank Area] Blank areas indicate where maximum operating inlet pressure for a given orifice size is exceeded.

**Table 55.** Types CS805 and CS806 Internal Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint for 1-1/2 in. / DN 40 Body Size

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
14 in. w.c.	-2 in. w.c.	2 in. w.c.	10 to 16 in. w.c.	GE30340X012 / White
35 mbar	-5 mbar	5 mbar	25 to 40 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
1	0.07	540	14.5	830	22.3	870	23.4	1450	38.9	1490	40.0
2	0.14	880	23.6	1340	36.0	1440	38.7	2080	55.8	2230	59.9
3	0.21	1210	32.5	1770	47.5	2250	60.4	2390	64.2	3000	80.5
5	0.34	1650	44.3	2570	69.0	3340	89.7	3970	107	4150	111
10	0.69	2750	73.8	4270	115	5510	148	6270	168	6560	176
15	1.0	3680	98.8	5820	156	7370	198	7640	205	8060	216
20	1.4	4830	130	7080	190	8540	229	9200	247	9200	247
25	1.7	5620	151	8380	225	9600	258	9600	258	10,000	269
30	2.1	6360	171	9110	245	10,530	283	10,530	283	10,810	290
40	2.8	7940	213	10,740	288	11,870	319	11,870	319	11,870	319
50	3.4	9490	255	11,730	315	12,350	332	12,350	332	12,350	332
60	4.1	10,510	282	12,370	332	12,870	346	13,160	353		
80	5.5	12,660	340	13,170	354						
100	6.9	13,170	354	13,170	354						
125	8.6	13,630	366								

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

**Table 56.** Types CS805 and CS806 Internal Registration Flow Capacities for 14 in. w.c. / 35 mbar Setpoint for 2 in. / DN 50 Body Size

SETPOINT	ACCURACY		SPRING	
	Droop	Boost	Set Range	Part Number / Color
14 in. w.c.	-2 in. w.c.	2 in. w.c.	10 to 16 in. w.c.	GE30340X012 / White
35 mbar	-5 mbar	5 mbar	25 to 40 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 2 in. / DN 50									
1	0.07	670	18.0	890	23.9	1150	30.9	1190	31.9	1550	41.6
2	0.14	1070	28.7	1320	35.4	1570	42.1	1910	51.3	2370	63.6
3	0.21	1200	32.2	1770	47.5	2120	56.9	2570	69.0	3020	81.1
5	0.34	1710	45.9	2400	64.4	2950	79.2	3520	94.5	4180	112
10	0.69	2630	70.6	3890	104	4930	132	5750	154	6630	178
15	1.0	3520	94.5	5230	140	6340	170	7760	208	8740	235
20	1.4	4150	111	6680	179	7800	209	9990	268	10,500	282
25	1.7	5030	135	8190	220	9070	244	11,480	308	12,040	323
30	2.1	5960	160	9530	256	10,120	272	12,650	340	13,030	350
40	2.8	7650	205	11,870	319	13,370	359	15,120	406	15,340	412
50	3.4	9530	256	13,960	375	15,240	409	16,830	452	17,960	482
60	4.1	10,750	289	15,310	411	17,930	481	18,320	492		
80	5.5	13,860	372	19,100	513						
100	6.9	16,370	440	21,650	581						
125	8.6	19,090	513								

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

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**Table 57. Types CS805 and CS806 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-2.8 in. w.c.	2.8 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-7 mbar	7 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
2	0.14	840	22.6	1200	32.2	1310	35.2	1820	48.9	1610	43.2
3	0.21	1100	29.5	1520	40.8	1760	47.2	2430	65.2	2700	72.5
5	0.34	1680	45.1	2280	61.2	2820	75.7	3490	93.7	3710	99.6
10	0.69	2410	64.7	3430	92.1	4480	120	5630	151	6480	174
15	1.0	3080	82.7	4770	128	6910	186	7850	211	8520	229
20	1.4	4080	110	5970	160	8540	229	9100	244	9670	260
25	1.7	4690	126	7400	199	9030	242	9700	260	10,190	274
30	2.1	5790	155	8680	233	10,380	279	10,240	275	10,790	290
40	2.8	7310	196	10,290	276	11,660	313	11,470	308	11,930	320
50	3.4	9270	249	11,010	296	12,140	326	11,740	315	12,550	337
60	4.1	10,320	277	11,200	301	12,490	335	12,220	328		
80	5.5	11,810	317	11,610	312						
100	6.9	12,180	327	12,030	323						
125	8.6	11,730	315								

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

**Table 58. Types CS805 and CS806 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-2.8 in. w.c.	2.8 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-7 mbar	7 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 2 in. / DN 50									
2	0.14	760	20.4	1330	35.7	1600	43.0	1600	43.0	1880	50.5
3	0.21	1030	27.7	1460	39.2	1810	48.6	2360	63.4	2820	75.7
5	0.34	1640	44.0	2160	58.0	2690	72.2	3340	89.7	3930	106
10	0.69	2570	69.0	3530	94.8	4320	116	5710	153	6550	176
15	1.0	3170	85.1	4740	127	6340	170	7390	198	8950	240
20	1.4	4140	111	5630	151	7800	209	8790	236	10,970	295
25	1.7	4940	133	7110	191	9920	266	10,830	291	12,140	326
30	2.1	5390	145	8180	220	11,560	310	12,680	340	13,260	356
40	2.8	7030	189	11,300	303	13,640	366	15,280	410	16,180	434
50	3.4	9170	246	13,520	363	16,130	433	18,330	492	18,760	504
60	4.1	10,570	284	15,690	421	18,780	504	20,150	541		
80	5.5	13,500	362	19,670	528						
100	6.9	16,670	448	22,360	600						
125	8.6	19,890	534								

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



**Table 59.** Types CS805 and CS806 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 1-1/2 in. / DN 40 Body Size at 20% Accuracy

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-5.5 in. w.c.	5.5 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-14 mbar	14 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
2	0.14	1120	30.1	1710	45.9	2130	57.2	2600	69.8	2910	78.1
3	0.21	1620	43.5	2320	62.3	2510	67.4	3590	96.4	3750	101
5	0.34	2250	60.4	3090	83.0	3650	98.0	5190	139	5230	140
10	0.69	3150	84.6	4610	124	6320	170	7720	207	8330	224
15	1.0	3990	107	6310	169	8480	228	9390	252	10,000	269
20	1.4	4970	133	7600	204	9950	267	10,710	288	11,480	308
25	1.7	5490	147	8860	238	11,100	298	11,880	319	12,340	331
30	2.1	6590	177	9910	266	12,110	325	12,120	325	13,160	353
40	2.8	7890	212	11,640	313	13,000	349	13,590	365	13,920	374
50	3.4	9350	251	12,680	340	14,120	379	13,940	374	14,440	388
60	4.1	10,860	292	13,000	349	14,540	390	14,080	378		
80	5.5	13,310	357	13,780	370						
100	6.9	13,750	369	14,360	386						
125	8.6	13,750	369								

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

**Table 60.** Types CS805 and CS806 Internal Registration Flow Capacities for 1 psig / 0.07 bar Setpoint for 2 in. / DN 50 Body Size at 20% Accuracy

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
1 psig	-5.5 in. w.c.	5.5 in. w.c.	14 to 30 in. w.c.	GE30341X012 / Dark Green
0.07 bar	-14 mbar	14 mbar	35 to 75 mbar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 2 in. / DN 50									
2	0.14	1100	29.5	1590	42.7	2290	61.5	2670	71.7	2630	70.6
3	0.21	1390	37.3	2160	58.0	2970	79.7	3470	93.2	3730	100
5	0.34	2020	54.2	2970	79.7	4270	115	4770	128	5350	144
10	0.69	3230	86.7	4880	131	6870	184	7550	203	8520	229
15	1.0	3990	107	6190	166	8530	229	9470	254	10,990	295
20	1.4	4930	132	7380	198	10,690	287	11,190	300	13,620	366
25	1.7	5650	152	9190	247	12,240	329	12,630	339	14,680	394
30	2.1	6380	171	10,090	271	13,990	376	15,010	403	16,100	432
40	2.8	7830	210	12,900	346	16,080	432	18,220	489	19,340	519
50	3.4	9430	253	15,050	404	18,110	486	21,310	572	22,030	591
60	4.1	10,870	292	17,330	465	21,540	578	22,540	605		
80	5.5	13,820	371	21,480	577						
100	6.9	16,960	455	24,650	662						
125	8.6	20,290	545								

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

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**Table 61. Types CS825 and CS826 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint at 1% ABS Accuracy**

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Drop	Boost	Set Range	Part Number / Color
2 psig	-0.17 psig	0.17 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-12 mbar	12 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
3	0.21	690	19.8	1490	42.3	1070	30.5	1440	40.9	1660	47.2
5	0.34	860	24.4	1490	42.3	1840	52.4	2190	62.2	2490	70.5
10	0.69	1880	53.4	2560	72.7	3140	89.1	3980	113	4770	135
15	1.0	2510	71.2	3650	103	4280	121	5810	165	6300	179
20	1.4	3140	89.2	4710	134	5960	169	7950	225	8030	228
25	1.7	3920	111	5730	162	7210	204	8490	241	8880	252
30	2.1	4450	126	6890	195	7970	226	9260	262	10,420	295
40	2.8	6250	177	9020	256	10,170	288	11,090	314	11,770	333
50	3.4	7710	218	10,800	306	12,150	344	12,880	365	13,750	390
60	4.1	9580	271	11,390	323	13,100	371	13,210	374		
80	5.5	11,570	328	13,200	374						
100	6.9	12,990	368	14,020	397						
125	8.6	13,320	377								
psig	bar	Body Size: 2 in. / DN 50									
3	0.21	720	20.5	930	26.4	1120	31.8	1410	40.1	1670	47.3
5	0.34	1100	31.1	1530	43.5	1860	52.8	2350	66.8	2720	77.1
10	0.69	1840	52.1	2260	64.1	3590	102	4430	126	5670	161
15	1.0	2560	72.6	3760	107	5520	157	7120	202	8710	247
20	1.4	3290	93.2	4930	140	7500	212	9730	276	11,600	329
25	1.7	4060	115	6520	185	10,010	284	12,580	356	14,370	407
30	2.1	4680	133	8120	230	11,840	335	14,820	420	17,200	487
40	2.8	6730	191	11,580	328	16,140	457	19,140	542	21,940	621
50	3.4	8800	249	14,080	399	19,900	564	23,390	663	26,300	745
60	4.1	10,580	300	16,950	480	24,370	690	26,970	764		
80	5.5	13,590	385	22,090	626						
100	6.9	16,680	472	27,290	773						
125	8.6	20,280	574								

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

**Table 62. Types CS825 and CS826 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
2 psig	-0.20 psig	0.20 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-14 mbar	14 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
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: 1-1/2 in. / DN 40</b>											
3	0.21	740	19.9	1580	42.4	1230	33.0	1620	43.5	1860	49.9
5	0.34	990	26.6	1720	46.2	2020	54.2	2730	73.3	2870	77.0
10	0.69	2040	54.8	2970	79.7	3490	93.7	4820	129	5290	142
15	1.0	2890	77.6	4170	112	5000	134	6510	175	7010	188
20	1.4	3600	96.6	5350	144	6580	177	8620	231	8690	233
25	1.7	4370	117	6430	173	7950	213	9240	248	9530	256
30	2.1	4960	133	7690	206	9030	242	10,240	275	11,060	297
40	2.8	6800	183	9790	263	11,040	296	11,890	319	12,590	338
50	3.4	8140	219	11,460	308	12,760	343	13,290	357	14,450	388
60	4.1	9850	264	12,100	325	13,760	369	14,020	376		
80	5.5	12,110	325	13,830	371						
100	6.9	13,720	368	14,800	397						
125	8.6	13,880	373								
<b>Body Size: 2 in. / DN 50</b>											
3	0.21	810	21.7	1080	29.0	1340	36.0	1560	41.9	1780	47.8
5	0.34	1240	33.3	1760	47.2	2170	58.3	2750	73.8	3170	85.1
10	0.69	2100	56.4	2670	71.7	4130	111	4910	132	6300	169
15	1.0	2900	77.9	4220	113	6230	167	7920	213	9310	250
20	1.4	3640	97.7	5770	155	8400	226	10,470	281	12,460	335
25	1.7	4530	122	7180	193	10,660	286	13,300	357	14,970	402
30	2.1	5190	139	8840	237	12,270	330	15,280	410	17,900	481
40	2.8	7140	192	12,040	323	16,610	446	19,630	527	22,700	609
50	3.4	9020	242	14,530	390	20,410	548	23,830	640	26,840	721
60	4.1	10,720	288	17,070	458	24,980	671	27,450	737		
80	5.5	13,660	367	22,220	597						
100	6.9	16,760	450	27,350	734						
125	8.6	20,350	546								

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

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**Table 63. Types CS825 and CS826 Internal Registration Flow Capacities for 2 psig / 0.14 bar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Drop	Boost	Set Range	Part Number / Color
2 psig	-0.40 psig	0.40 psig	1 to 2.5 psig	GE30342X012 / Dark Blue
0.14 bar	-28 mbar	28 mbar	0.07 to 0.17 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
3	0.21	1170	31.4	2020	54.2	2150	57.7	2570	69.0	3110	83.5
5	0.34	1770	47.5	2540	68.2	3130	84.0	4100	110	4520	121
10	0.69	3080	82.7	4420	119	5370	144	6800	183	7330	197
15	1.0	3880	104	5600	150	7180	193	8730	234	9850	264
20	1.4	4830	130	6970	187	9130	245	10,390	279	11,410	306
25	1.7	5740	154	8500	228	10,630	285	12,150	326	12,640	339
30	2.1	6180	166	9670	260	11,650	313	13,330	358	14,210	382
40	2.8	7810	210	12,190	327	13,870	372	15,330	412	15,860	426
50	3.4	9250	248	13,800	371	15,660	420	16,330	438	17,440	468
60	4.1	10,570	284	14,780	397	16,310	438	17,480	469		
80	5.5	13,170	354	16,800	451						
100	6.9	15,740	423	18,200	489						
125	8.6	17,430	468								
psig	bar	Body Size: 2 in. / DN 50									
3	0.21	1070	28.7	1470	39.5	2080	55.8	2540	68.2	2710	72.8
5	0.34	1760	47.2	2660	71.4	3420	91.8	4130	111	4660	125
10	0.69	2860	76.8	4260	114	5930	159	7190	193	8360	224
15	1.0	3880	104	5950	160	8200	220	9920	266	11,340	304
20	1.4	4740	127	7360	198	10,200	274	12,310	331	14,410	387
25	1.7	5590	150	8830	237	12,560	337	15,100	405	16,980	456
30	2.1	6310	169	10,150	273	14,290	384	17,140	460	19,320	519
40	2.8	7820	210	12,990	349	18,360	493	21,510	577	23,500	631
50	3.4	9370	252	15,320	411	22,350	600	25,450	683	28,260	759
60	4.1	10,860	292	17,710	475	26,420	709	29,670	797		
80	5.5	13,750	369	22,830	613						
100	6.9	16,800	451	27,610	741						
125	8.6	20,510	551								

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

**Table 64.** Types CS825 and CS826 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 1% ABS Accuracy

SETPOINT	ACCURACY: + / - 1% ABS		SPRING	
	Drop	Boost	Set Range	Part Number / Color
5 psig	-0.20 psig	0.20 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-14 mbar	14 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
		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: 1-1/2 in. / DN 40									
10	0.69	770	21.9	1030	29.2	1370	39.0	1790	50.8	2010	57.0
15	1.0	1190	33.9	1720	48.9	2140	60.8	2560	72.5	2560	72.5
20	1.4	1500	42.6	1940	55.1	2710	77.0	3100	88.0	3500	99.3
25	1.7	1680	47.6	2350	66.6	3340	94.8	3920	111	4400	125
30	2.1	2160	61.4	2740	77.8	3840	109	4910	139	5040	143
40	2.8	2680	76.0	3860	109	4830	137	6520	185	6560	186
50	3.4	3420	96.9	4650	132	6040	171	7580	215	7980	226
60	4.1	4050	115	5780	164	7400	210	8950	254		
80	5.5	5210	148	7660	217						
100	6.9	6810	193	8940	253						
125	8.6	7410	210								
psig	bar	Body Size: 2 in. / DN 50									
10	0.69	920	26.1	1220	34.7	1370	38.9	1730	49.0	1960	55.6
15	1.0	1300	37.1	1750	49.6	2020	57.5	2510	71.1	2930	83.0
20	1.4	1660	47.1	2180	61.7	2700	76.5	3220	91.3	3890	110
25	1.7	1930	54.8	2540	71.9	3140	89.1	4110	117	5490	155
30	2.1	2290	65.1	3060	86.8	3860	110	5270	149	6930	196
40	2.8	2870	81.5	4000	113	5370	152	8050	228	10,840	307
50	3.4	3510	99.6	5460	155	7860	223	10,990	311	14,620	414
60	4.1	4160	118	7250	205	11,130	315	15,400	436		
80	5.5	6360	180	11,380	322						
100	6.9	9640	273	16,370	464						
125	8.6	13,250	375								

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

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**Table 65. Types CS825 and CS826 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 10% Accuracy**

SETPOINT	ACCURACY: + / - 10% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-0.50 psig	0.50 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-34 mbar	34 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
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: 1-1/2 in. / DN 40</b>											
10	0.69	1750	47.0	2360	63.4	2860	76.8	3630	97.4	4290	115
15	1.0	2400	64.4	3530	94.8	4370	117	5400	145	5960	160
20	1.4	3110	83.5	4270	115	5660	152	6630	178	7540	202
25	1.7	3640	97.7	5320	143	6910	186	7870	211	8920	240
30	2.1	4350	117	6240	168	7950	213	9530	256	10,490	282
40	2.8	5490	147	7730	208	9760	262	11,740	315	12,770	343
50	3.4	6850	184	9270	249	11,900	320	13,230	355	14,360	386
60	4.1	7970	214	11,280	303	13,470	362	15,070	405		
80	5.5	10,650	286	13,750	369						
100	6.9	12,440	334	15,460	415						
125	8.6	14,500	389								
<b>Body Size: 2 in. / DN 50</b>											
10	0.69	1730	46.4	2400	64.4	2840	76.2	3620	97.2	4060	109
15	1.0	2500	67.1	3410	91.5	4300	115	5360	144	6490	174
20	1.4	3230	86.7	4360	117	5610	151	6950	187	8760	235
25	1.7	3810	102	5280	142	6860	184	8960	241	11,030	296
30	2.1	4410	118	6340	170	8430	226	10,780	289	13,080	351
40	2.8	5550	149	8640	232	11,810	317	15,280	410	17,290	464
50	3.4	6980	187	11,120	299	15,070	405	19,630	527	21,680	582
60	4.1	8750	235	13,630	366	18,300	491	23,260	624		
80	5.5	11,970	321	18,590	499						
100	6.9	15,030	404	23,560	633						
125	8.6	19,350	520								

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

**Table 66. Types CS825 and CS826 Internal Registration Flow Capacities for 5 psig / 0.34 bar Setpoint at 20% Accuracy**

SETPOINT	ACCURACY: + / - 20% GAUGE		SPRING	
	Droop	Boost	Set Range	Part Number / Color
5 psig	-1.0 psig	1.0 psig	2.5 to 5.5 psig	GE30343X012 / Yellow
0.34 bar	-69 mbar	69 mbar	0.17 to 0.38 bar	

CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS											
Inlet Pressure		Orifice Size, In. / mm									
		3/8 / 9.5		1/2 / 13		5/8 / 16		3/4 / 19		7/8 / 22	
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: 1-1/2 in. / DN 40</b>											
10	0.69	2460	66.0	3650	98.0	4680	126	5880	158	6610	177
15	1.0	3460	92.9	5200	140	6520	175	8240	221	9120	245
20	1.4	4370	117	6650	179	8300	223	10,120	272	11,110	298
25	1.7	5220	140	7700	207	10,020	269	12,050	324	13,400	360
30	2.1	6060	163	8980	241	11,440	307	13,520	363	15,180	408
40	2.8	7580	204	11,060	297	14,160	380	16,400	440	17,610	473
50	3.4	9150	246	12,850	345	16,250	436	17,880	480	19,590	526
60	4.1	10,490	282	15,370	413	18,130	487	20,170	542		
80	5.5	13,270	356	18,410	494						
100	6.9	15,310	411	20,820	559						
125	8.6	18,730	503								
<b>Body Size: 2 in. / DN 50</b>											
10	0.69	2440	65.5	3650	98.0	4660	125	5740	154	6660	179
15	1.0	3540	95.0	5220	140	6790	182	8260	222	9740	262
20	1.4	4480	120	6650	179	8720	234	10,670	286	12,370	332
25	1.7	5260	141	7950	213	10,580	284	13,090	351	15,060	404
30	2.1	6100	164	9370	252	12,540	337	15,440	415	17,410	467
40	2.8	7650	205	11,860	318	16,150	434	19,860	533	22,580	606
50	3.4	9230	248	14,510	390	19,730	530	24,260	651	27,210	731
60	4.1	10,710	288	16,820	452	23,710	637	28,650	769		
80	5.5	13,670	367	21,930	589						
100	6.9	16,630	446	27,000	725						
125	8.6	20,310	545								

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

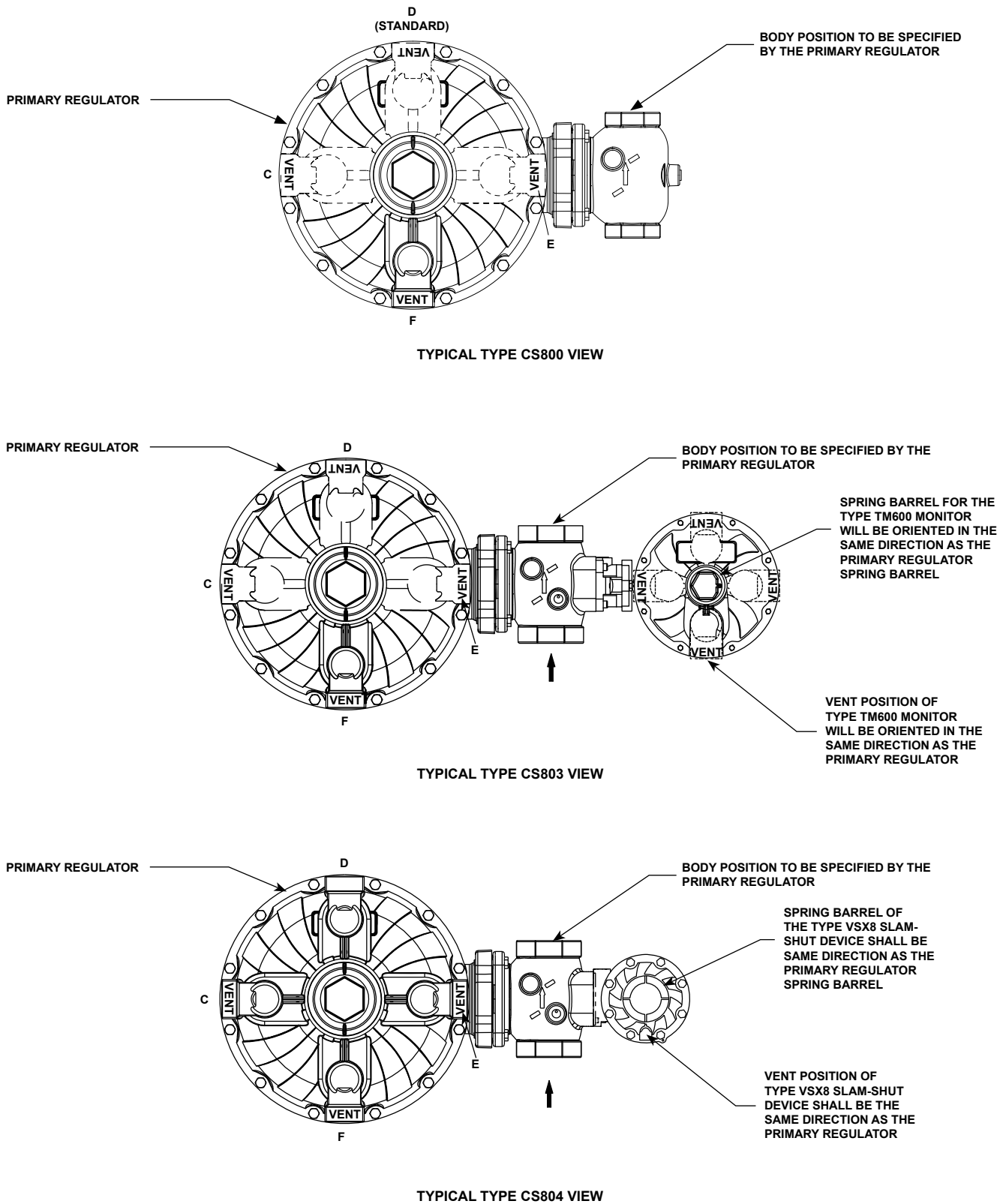


Figure 21. Spring Case Vent and Body Orientation

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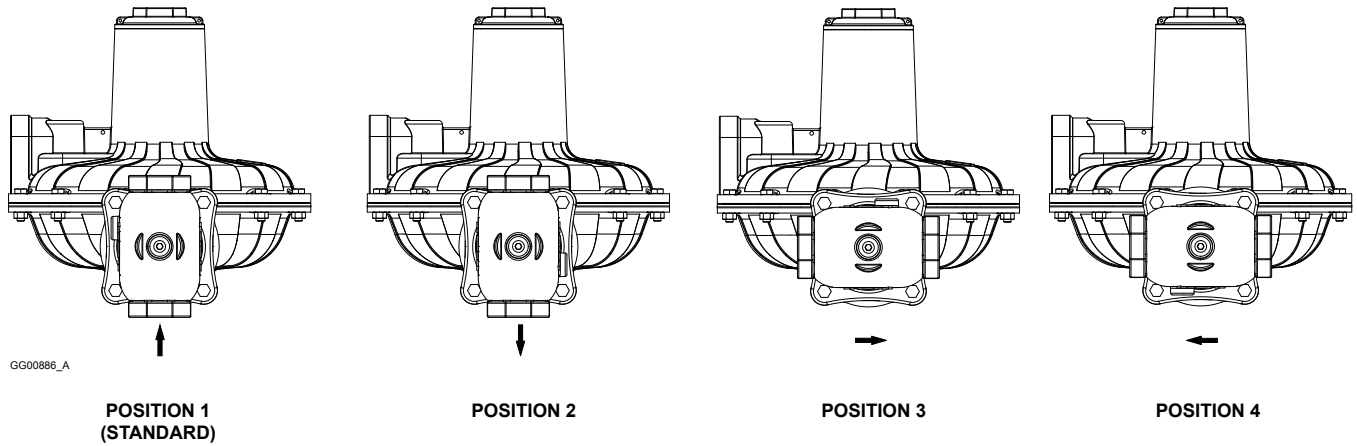
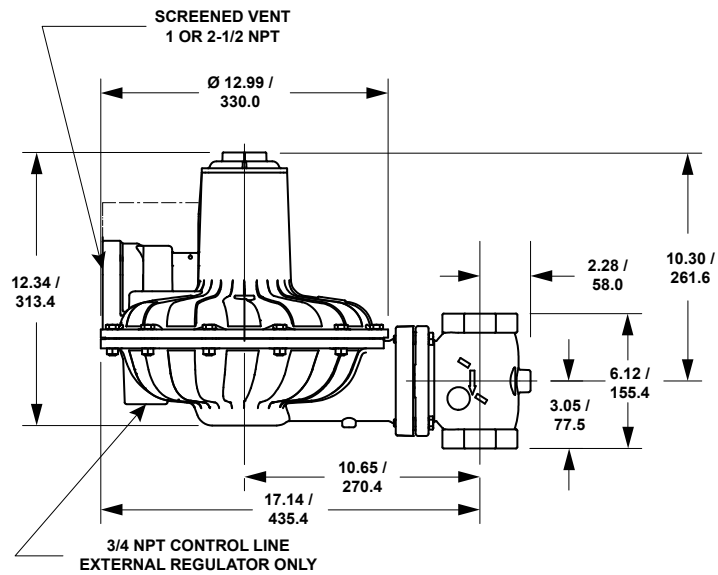
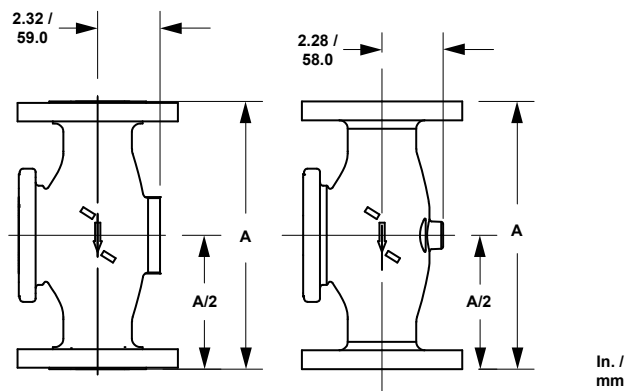


Figure 21. Spring Case Vent and Body Orientation (continued)



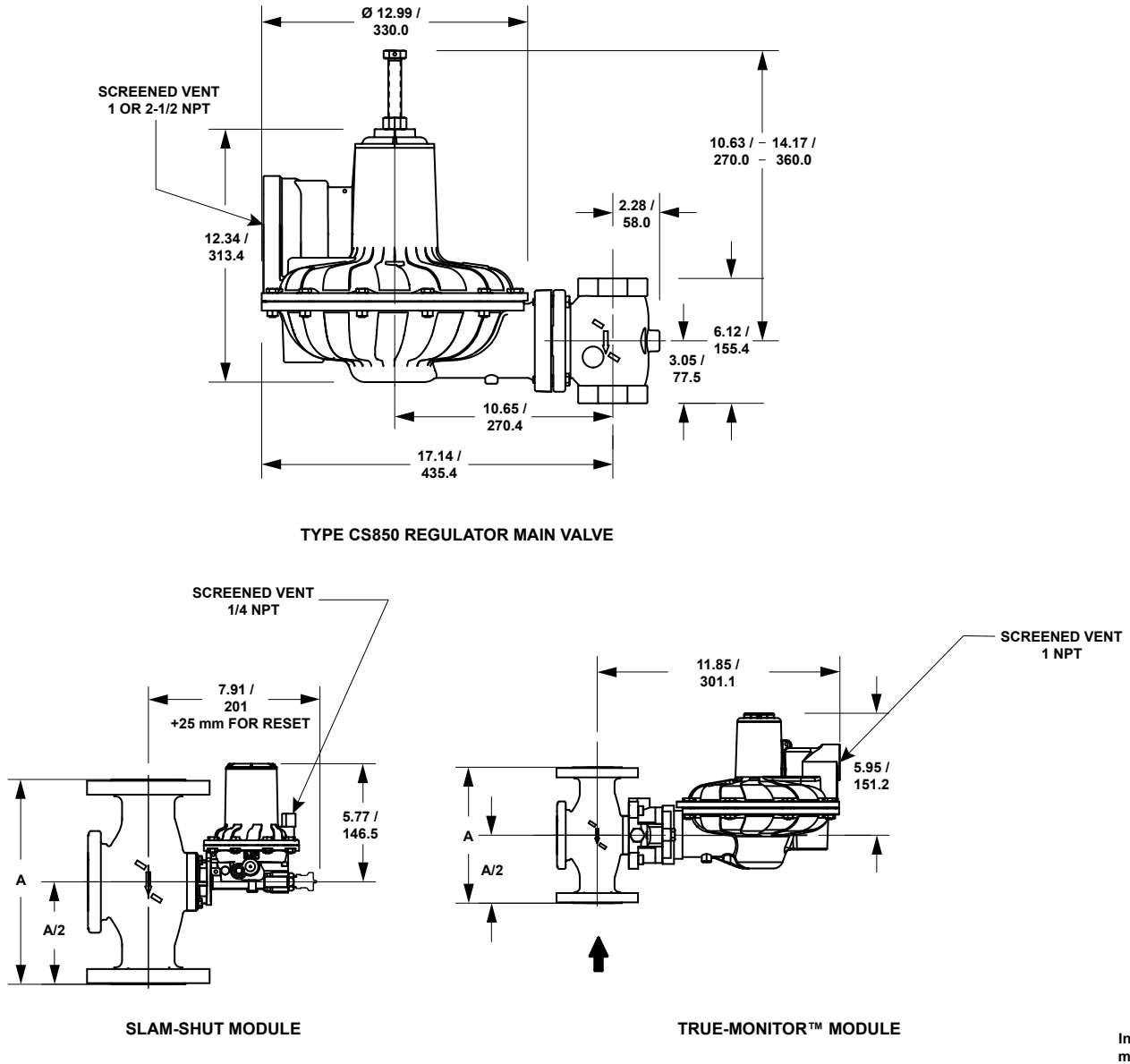
**TYPE CS800 REGULATOR MAIN VALVE**



ERSA00347

Figure 22. Dimensions





ERSA00347

Figure 22. Dimensions (continued)

Table 67. Dimensions

BODY SIZE		END CONNECTION STYLE	DIMENSION A			
In.	DN		In.		mm	
1-1/4 to 2	----	NPT or Rp	6.12		155	
2 <sup>(1)</sup>	50 <sup>(1)</sup>	CL125 FF Flange	7.5	10	191	254
2 <sup>(2)</sup>	50 <sup>(2)</sup>	CL125 FF, CL150 FF or PN 10/16 Flange				
2 <sup>(2)</sup>	50 <sup>(2)</sup>	CL125 FF or CL150 FF Flange	10.5		267	
2 <sup>(3)</sup>	50 <sup>(3)</sup>	CL150 RF or PN 16 Flange	10		254	

1. For Cast Iron.  
2. For Ductile Iron.  
3. For Steel.

## Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section on page 2. Review the description to the right of each

specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

## Ordering Guide

**Type** (See Table 1 for Construction Features)  
(Select One)

### Stand-Alone Regulator

- CS800IN
- CS800IR
- CS800IT
- CS800IQ
- CS800IL
- CS800EN
- CS800ET
- CS800EL
- CS820IN
- CS820IR
- CS820IT
- CS820IQ
- CS820IL
- CS820EN
- CS820ET
- CS820EL
- CS850IN
- CS850EN

### With Integral True-Monitor™ Module

- CS803IN
- CS803IT
- CS803IL
- CS803EN
- CS803ET
- CS803EL
- CS823IN
- CS823IT
- CS823IL
- CS823EN
- CS823ET
- CS823EL

### With Type Secondary Seat™ Protection

#### Without Vent

- CS805IN
- CS805IR
- CS805IT
- CS805IQ
- CS825IN
- CS825IR
- CS825IT
- CS825IQ

#### With Type Secondary Seat Protection with Vent

- CS806IR
- CS806IQ
- CS826IR
- CS826IQ

### With Slam Shut

- CS804IN
- CS804IT
- CS804IL
- CS804EN
- CS804ET
- CS804EL
- CS824IN
- CS824IT
- CS824IL
- CS824EN
- CS824ET
- CS824EL
- CS854IN
- CS854EN

**Body Material, Body Size and End Connection**  
(Select One)

### Gray Cast Iron (Types CS800, CS805, CS806, CS820, CS825, CS826 and CS850)

- 1-1/4 NPT\*\*\*
- 1-1/2 NPT\*\*\*
- 2 NPT\*\*\*
- NPS 2 / DN 50, CL125 FF\*\*\*  
*Face-to-face dimension:*
  - 7.5 in. / 191 mm
  - 10 in. / 254 mm

### Gray Cast Iron (Types CS803, CS823, CS804, CS824 and CS854)

- 2 NPT\*\*\*

### Ductile Iron (Types CS800, CS803, CS820, CS823 and CS850)

- 1-1/4 NPT\*\*\*
- 1-1/2 NPT\*\*\*
- 2 NPT\*\*\*
- Rp 1-1/4\*\*\*
- Rp 1-1/2\*\*\*
- Rp 2\*\*\*
- NPS 2 / DN 50, CL125 FF / CL150 FF\*\*\*  
*Face-to-face dimension:*
  - 7.5 in. / 191 mm
  - 10 in. / 254 mm
  - 10.5 in. / 267 mm
- NPS 2 / DN 50, PN 10/16\*\*\*  
*Face-to-face dimension:*
  - 7.5 in. / 191 mm
  - 10 in. / 254 mm

## Ordering Guide (continued)

### Ductile Iron (Types CS804, CS824 and CS854)

- 1-1/2 NPT\*\*\*
- 2 NPT\*\*\*
- Rp 2\*\*\*
- NPS 2 / DN 50, CL125 FF / CL150 FF\*\*\*  
*Face-to-face dimension:*
  - 10 in. / 254 mm
  - 10.5 in. / 267 mm
- NPS 2 / DN 50, PN 10/16\*\*\*<sup>(1)</sup>

### WCC Steel (Types CS800, CS803, CS820, CS823 and CS850)

- 1-1/4 NPT\*\*\*
- 1-1/2 NPT\*\*\*
- 2 NPT\*\*\*
- Rp 1-1/4\*\*\*
- Rp 1-1/2\*\*\*
- Rp 2\*\*\*
- NPS 2 / DN 50, CL150 RF\*\*\*<sup>(1)</sup>
- NPS 2 / DN 50, PN 10/16\*\*\*<sup>(1)</sup>

### WCC Steel (Types CS804, CS824 and CS854)

- 1-1/2 NPT\*\*\*
- 2 NPT\*\*\*
- Rp 2\*\*\*
- NPS 2 / DN 50, CL150 RF\*\*\*<sup>(1)</sup>
- NPS 2 / DN 50, PN 10/16\*\*\*<sup>(1)</sup>

### Outlet Pressure Range

(See Table 4) (Select One)

- 3.5 to 6 in. w.c. / 9 to 15 mbar, Red
- 5.5 to 8.5 in. w.c. / 13 to 21 mbar, Black
- 5.5 to 8.5 in. w.c. / 13 to 21 mbar, Brown
- 8 to 12 in. w.c. / 20 to 30 mbar, Purple
- 10 to 16 in. w.c. / 25 to 40 mbar, White
- 14 to 30 in. w.c. / 35 to 75 mbar, Dark Green
- 1 to 2.5 psig / 69 to 170 mbar, Dark Blue
- 1.5 to 3.5 psig / 100 to 241 mbar, Orange
- 2.5 to 5.5 psig / 170 to 380 mbar, Yellow
- 5 to 10 psig / 345 to 690 mbar, Green with White Stripe

### Orifice Size (Select One)

#### Types CS800, CS804, CS820, CS824, CS850 and CS854

- 1/4 in. / 6.4 mm
- 3/8 in. / 9.5 mm
- 1/2 in. / 13 mm
- 5/8 in. / 16 mm
- 3/4 in. / 19 mm
- 7/8 in. / 22 mm
- 1 in. / 25 mm
- 1-3/8 in. / 34.9 mm

#### Types CS803 and CS823

- 1/4 in. / 6.4 mm
- 3/8 in. / 9.5 mm
- 1/2 in. / 13 mm
- 5/8 in. / 16 mm
- 3/4 in. / 19 mm
- 7/8 in. / 22 mm
- 1 in. / 25 mm

### Types CS805, CS825, CS855, CS806, CS826 and CS856

- 3/8 in. / 9.5 mm
- 1/2 in. / 13 mm
- 5/8 in. / 16 mm
- 3/4 in. / 19 mm
- 7/8 in. / 22 mm

### Body Orientation (Select one, see Figure 21)

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

### Vent Orientation (Select one, see Figure 21)

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

### True-Monitor™ Control Pressure Range (For CS803 and CS823 Series)

(See Tables 7 and 8, select one if applicable)

- 12 to 21 in. w.c. / 30 to 52 mbar, Blue
- 18 to 30 in. w.c. / 45 to 75 mbar, Green
- 26 to 40 in. w.c. / 65 to 99 mbar, Orange
- 1.4 to 2.9 psig / 97 to 200 mbar, Black
- 2.6 to 3.7 psig / 179 to 255 mbar, Purple
- 3.6 to 6 psig / 248 to 414 mbar, Dark Blue
- 5.1 to 7.5 psig / 352 to 517 mbar, Red

### Slam-Shut Trip Pressure Setting

(For CS804, CS824 and CS854 Series)

(Select one if applicable and specify setpoint/s, see Tables 12 and 13)

- Overpressure Protection Only (OPSO)**  
Supply setpoint required \_\_\_\_\_

- Overpressure and Underpressure Protection (OPSO/UPSO)**

Supply overpressure setpoint required \_\_\_\_\_

Supply underpressure setpoint required \_\_\_\_\_

### Options (Select all that apply)

- Enhanced Low Inlet Pressure Flow Performance**  
Choose this option for enhanced flow performance for low inlet pressure systems, up to 25 psig / 1.7 bar. This option applies to the 5.5 to 8.5 in. w.c. / 13 to 21 mbar spring range when combined with 2 in. threaded or flanged bodies only.
- Low Relief Start-to-Discharge (STD) Spring**  
This option provides a relief start-to-discharge range of 7 to 14 in. w.c. / 17 to 35 mbar above setpoint for the Type CS800IR or CS800IQ with a spring range of up to 10 to 16 in. w.c. / 25 to 40 mbar.
- Closing Cap and Setpoint Seal Wire**

1. 10 in. / 254 mm face-to-face dimension

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## Ordering Guide (continued)

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

Specification Worksheet	
<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"/> Shutoff Device	
Is overpressure protection equipment selection assistance desired? _____	
<b>Pressure:</b>	
Maximum Inlet Pressure (P <sub>1max</sub> )	_____
Minimum Inlet Pressure (P <sub>1min</sub> )	_____
Downstream Pressure Setting(s) (P <sub>2</sub> )	_____
Maximum Flow (Q <sub>max</sub> )	_____
<b>Performance Required:</b>	
Accuracy Requirements?	_____
Need for Extremely Fast Response?	_____
<b>Other Requirements:</b> _____	
_____	

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