

February 2025

Compliance with ANSI B109.5 Natural Gas Regulator Standard for Fisher™ CS800, CS400, CSB400 and CSB700 Product Families (CSR Products)

This memo serves to inform you of our company's compliance with the ANSI B109.5 natural gas regulator standard for the Fisher CSR product models. Our evaluation process has ensured that these products meet or exceed the requirements outlined in ANSI B109.5 standard, including corrosion resistance, flow capacity, safety features and lever disconnect relief curves.

Our compliance efforts have included thorough testing and verification procedures conducted in accordance with ANSI B109.5 guidelines such as:

- Lever disconnect relief testing
- Actuator pressure test
- Diaphragm strength test
- Cantilever strength test

- 1000 hr salt spray
- Vent freeze test

Enclosed with this memo are lever disconnect relief curves for the Types CS400IR and CS800IR and CS800IQ. Below is a summary of the lever disconnect relief values from the curves provided.

Table 1 summarizes the relief curves below and should be used to determine the maximum inlet pressure at which the CSR internal relief can prevent downstream pressure from exceeding the maximum allowable P2 buildup per ANSI B109.5.

Should you require any additional information or clarification regarding our compliance procedures, please do not hesitate to contact us. Please contact your local Emerson Impact Partner with any questions.

Table 1. Lever Disconnect Relief Curve Summary Table - Maximum Inlet Pressure for CSR Internal Relief Protection per ANSI B109.5

P2 BUILD-UP PER CUSTOMER REQUIREMENT			MAXIMUM INLET PRESSURE PER ANSI B109.5 P2 BUILD-UP, psig / bar												
			TYPE CS400IR				TYPE CS800IR				TYPE CS800IQ				
			ORIFICE SIZE				ORIFICE SIZE				ORIFICE SIZE				
Body Size	Setpoint	Max. Allowable P2 per ANSI B109.5	3/16 in. / 4.8 mm	7/32 x 1/4 in. / 5.6 x 6.4 mm	1/4 in. / 6.4 mm	5/16 in. / 7.9 mm	3/8 in. / 9.5 mm	1/4 in. / 6.4 mm	3/8 in. / 9.5 mm	1/2 in. / 13 mm	5/8 in. / 16 mm	1/4 in. / 6.4 mm	3/8 in. / 9.5 mm	1/2 in. / 13 mm	5/8 in. / 16 mm
1-1/4 in. / DN 32	7 In. w.c. / 17 mbar	2 psi	91 / 6.3	47 / 3.2	47 / 3.2	22 / 1.5	13 / 0.9	45 / 3.1	13 / 0.9	5 / 0.34	3.5 / 0.24	105 / 7.2	41 / 2.8	17 / 1.2	8 / 0.55
	9.2 In. w.c. / 23 mbar	2 psi	86 / 5.9	44 / 3.0	44 / 3.0	20 / 1.4	11 / 0.76	41 / 2.8	12 / 0.83	5 / 0.34	3.5 / 0.24	99 / 6.8	38 / 2.6	15 / 1.0	8 / 0.55
	2 psig / 0.14 bar	5 psi	115 / 7.9	62 / 4.3	62 / 4.3	30 / 2.1	19 / 1.3	62 / 4.3	21 / 1.4	9.5 / 0.66	7 / 0.48	>125 / 8.6	59 / 4.1	26 / 1.8	14 / 0.97
	5 psig / 0.34 bar	10 psi	92 / 6.3	63 / 4.3	63 / 4.3	21 / 1.4	17 / 1.2	65 / 4.5	23 / 1.6	13 / 0.9	11 / 0.76	>125 / 8.6	65 / 4.5	29 / 2.0	20 / 1.4
1-1/2 in. / DN 40	7 In. w.c. / 17 mbar	2 psi	94 / 6.5	49 / 3.4	49 / 3.4	22 / 1.5	14 / 0.97	45 / 3.1	13 / 0.9	5.5 / 0.38	3.5 / 0.24	99 / 6.8	38 / 2.6	15 / 1.0	8 / 0.55
	9.2 In. w.c. / 23 mbar	2 psi	87 / 6.0	47 / 3.2	47 / 3.2	19 / 1.3	12 / 0.83	39 / 2.7	11 / 0.76	4.5 / 0.31	3.5 / 0.24	94 / 6.5	36 / 2.5	4 / 0.28	8 / 0.55
	2 psig / 0.14 bar	5 psi	121 / 8.3	66 / 4.6	66 / 4.6	31 / 2.1	21 / 1.4	66 / 4.6	26 / 1.8	11.5 / 0.79	8 / 0.55	>125 / 8.6	59 / 4.1	27 / 1.9	15 / 1.0
	5 psig / 0.34 bar	10 psi	93 / 6.4	65 / 4.5	65 / 4.5	22 / 1.5	20 / 1.4	51 / 3.5	18 / 1.2	12 / 0.83	11 / 0.76	>125 / 8.6	60 / 4.1	28 / 1.9	20 / 1.4
2 in. / DN 50	7 In. w.c. / 17 mbar	2 psi	104 / 7.2	56 / 3.9	56 / 3.9	26 / 1.8	15 / 1.0	53 / 3.7	17 / 1.2	6 / 0.41	4 / 0.28	115 / 7.9	40 / 2.8	18 / 1.2	10 / 0.69
	9.2 In. w.c. / 23 mbar	2 psi	99 / 6.8	54 / 3.7	54 / 3.7	23 / 1.6	14 / 0.97	50 / 3.4	16 / 1.1	5.5 / 0.38	4 / 0.28	96 / 6.6	41 / 2.8	16 / 1.1	10 / 0.69
	2 psig / 0.14 bar	5 psi	>125 / 8.6	71 / 4.9	71 / 4.9	34 / 2.3	22 / 1.5	73 / 5.0	25 / 1.7	10.5 / 0.72	8 / 0.55	>125 / 8.6	66 / 4.6	30 / 2.1	16 / 1.1
	5 psig / 0.34 bar	10 psi	118 / 8.1	77 / 5.3	77 / 5.3	26 / 1.8	20 / 1.4	51 / 3.5	19 / 1.3	11 / 0.76	10 / 0.69	>125 / 8.6	78 / 5.4	34 / 2.3	23 / 1.6

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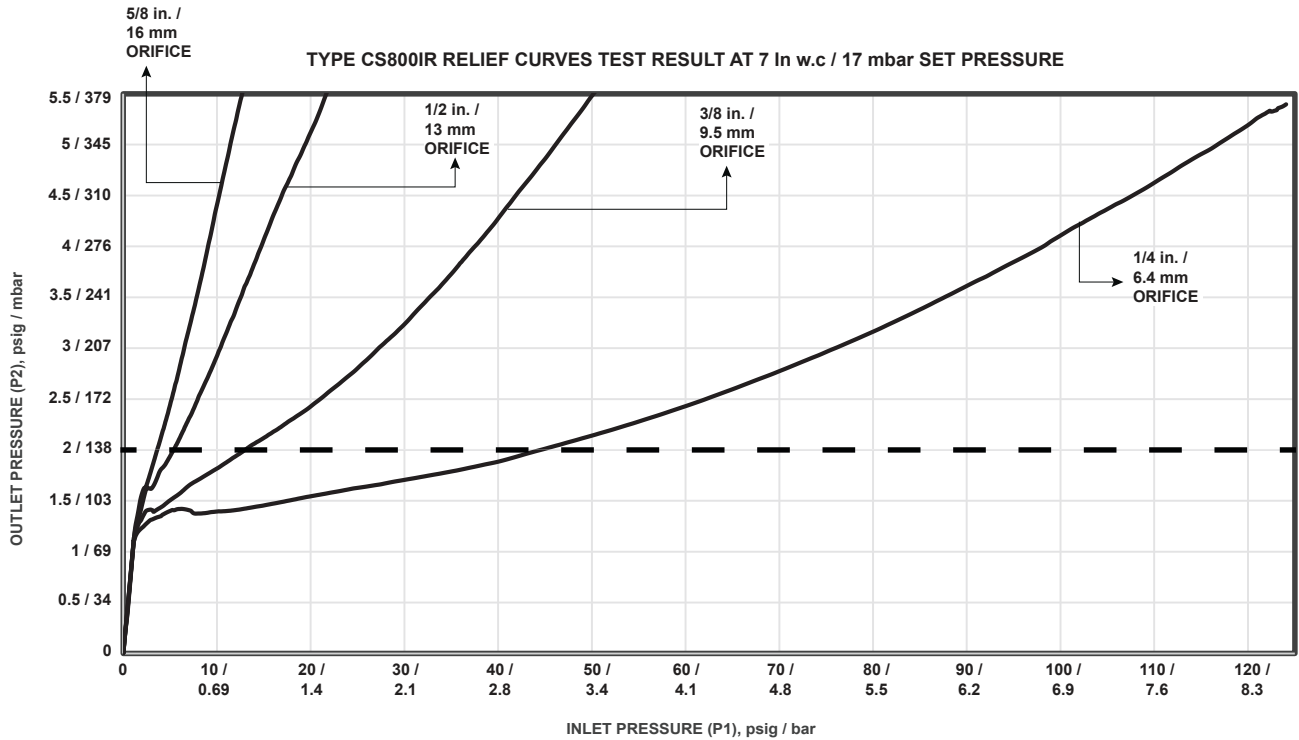


Figure 1. Type CS800IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.25 in. / 32 mm Body

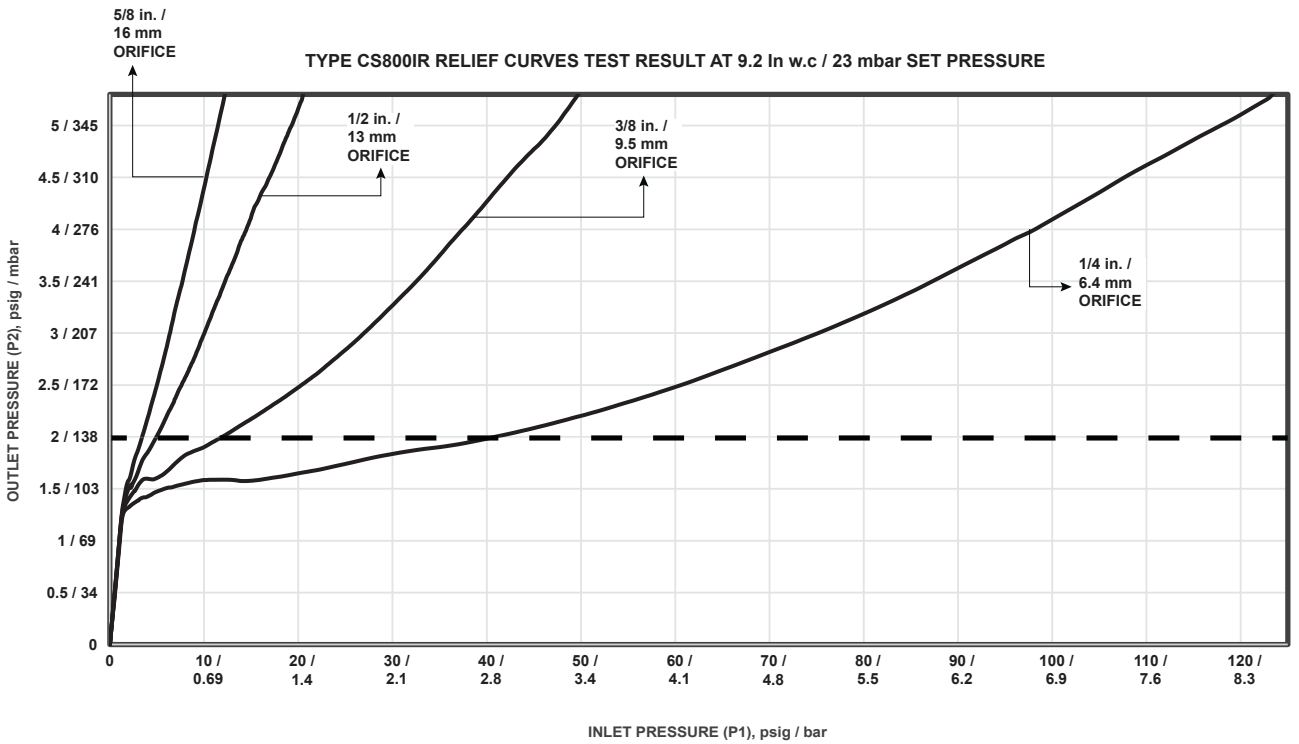


Figure 2. Type CS800IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.25 in. / 32 mm Body

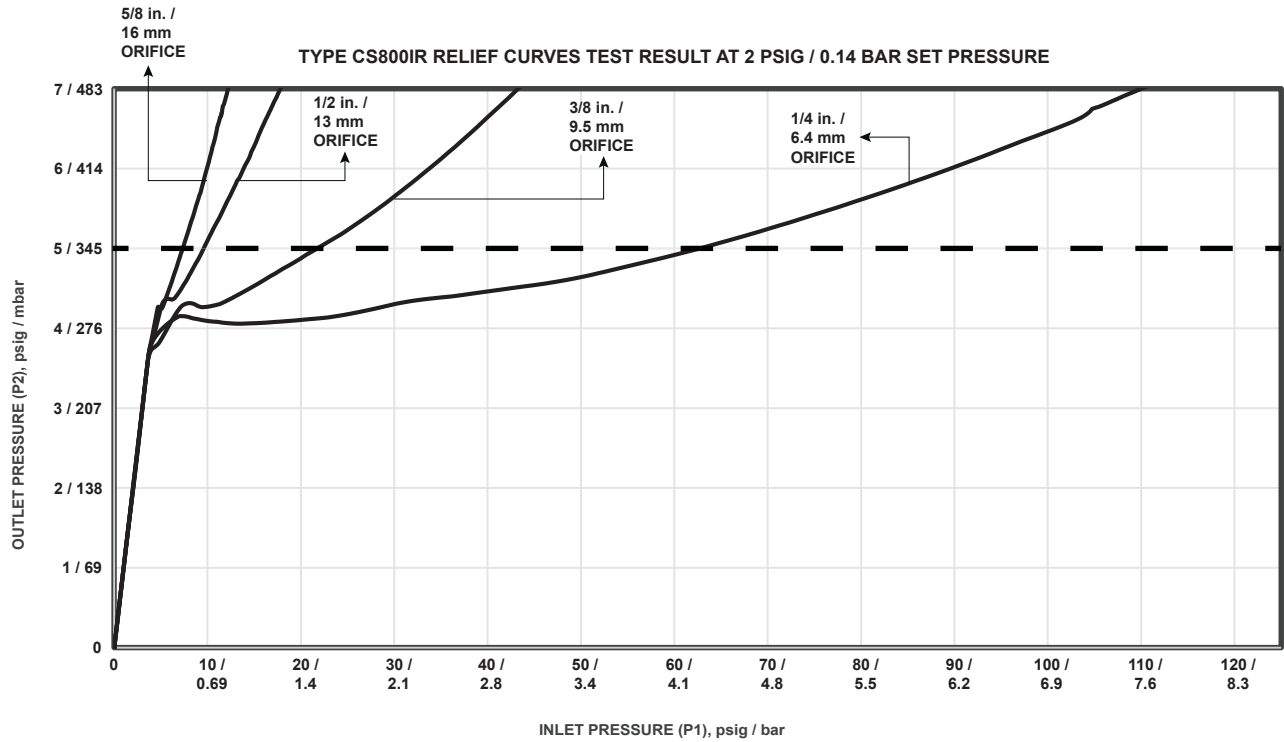


Figure 3. Type CS800IR Lever Disconnect with 2 psig / 0.14 bar Setpoint, 1.25 in. / 32 mm Body

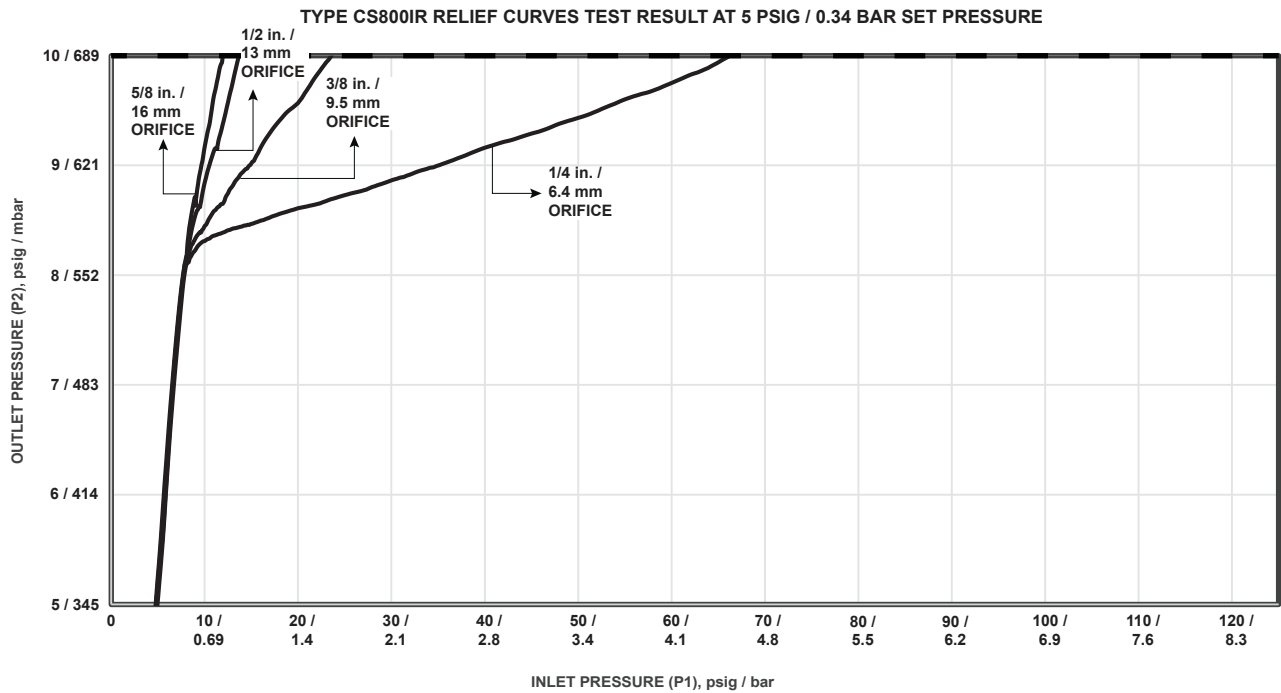


Figure 4. Type CS800IR Lever Disconnect with 5 psig / 0.34 bar Setpoint, 1.25 in. / 32 mm Body

ANSI B109.5 for CSR Products

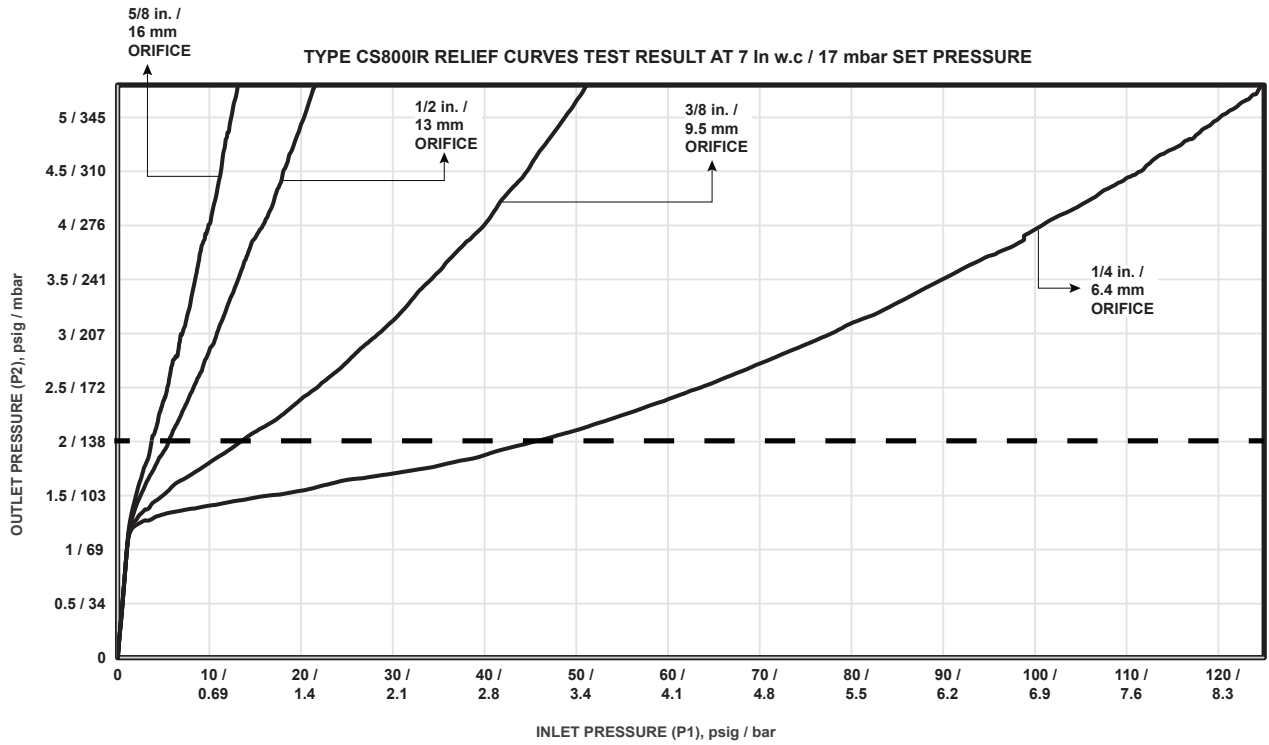


Figure 5. Type CS800IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.5 in. / 38 mm Body

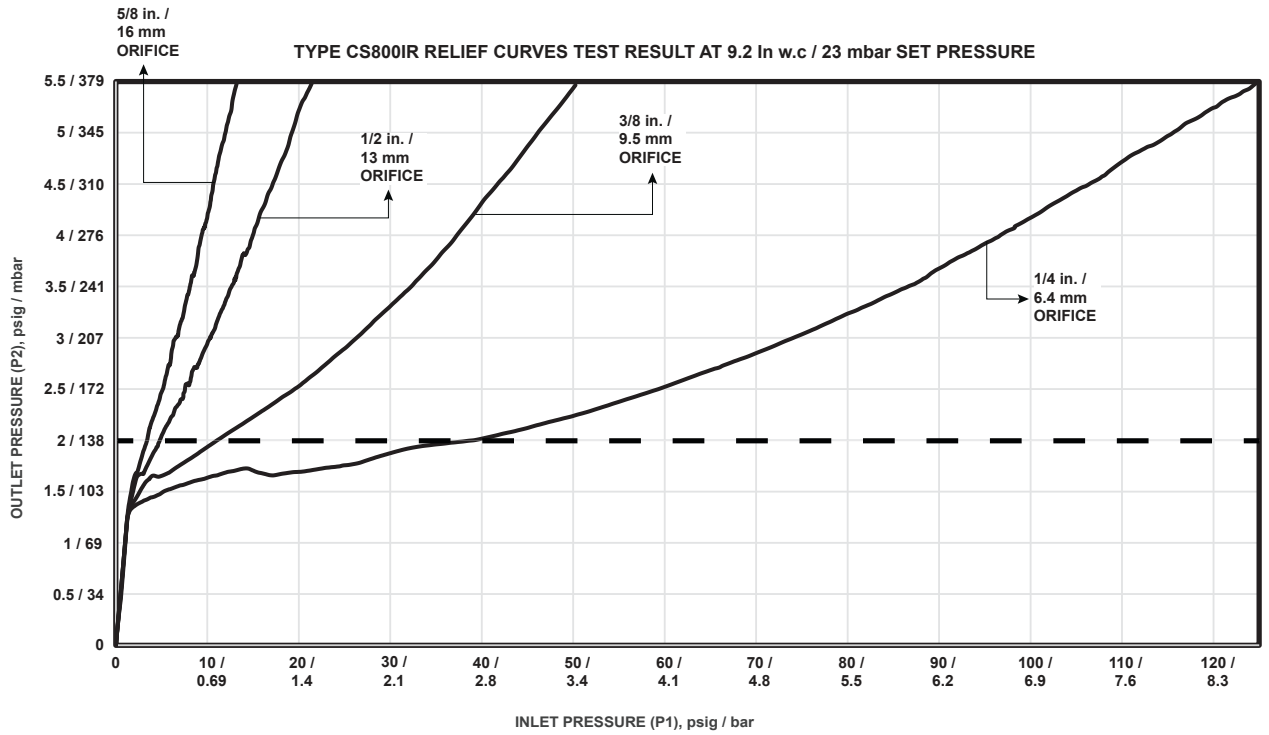


Figure 6. Type CS800IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.5 in. / 38 mm Body

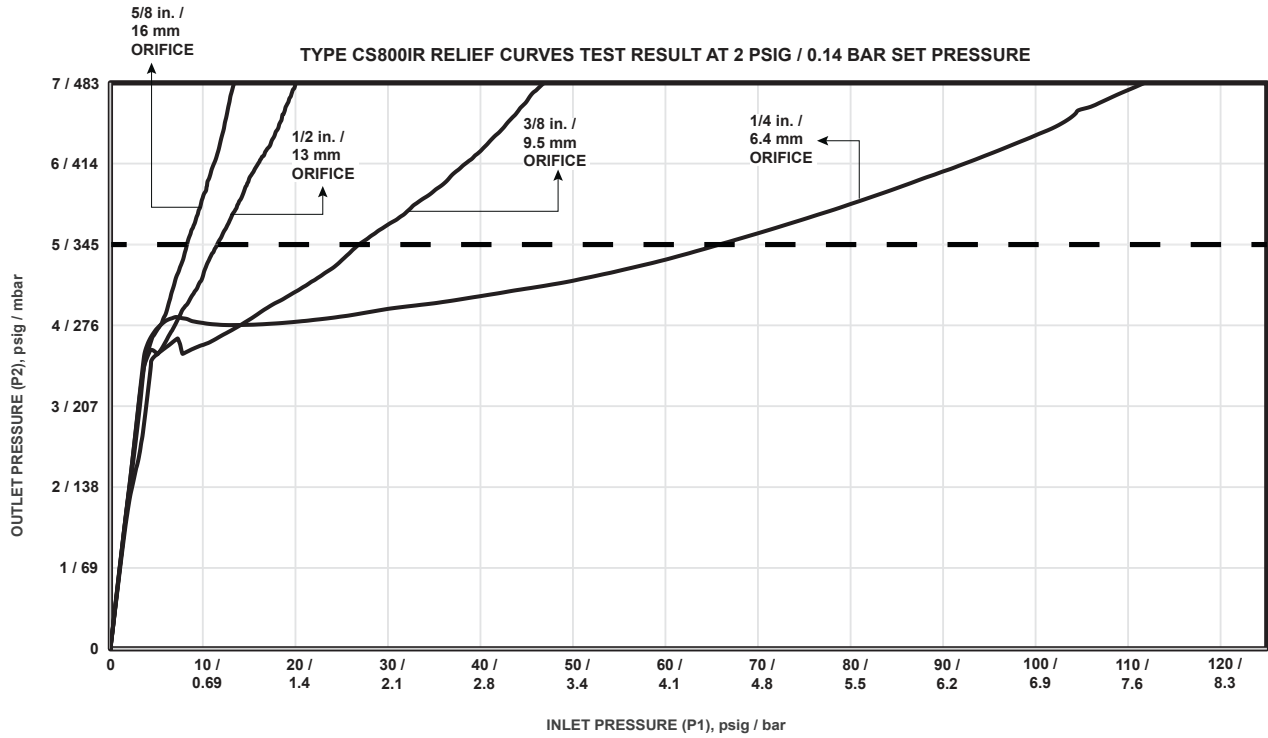


Figure 7. Type CS800IR Lever Disconnect with 2 psig / 0.14 bar Setpoint, 1.5 in. / 38 mm Body

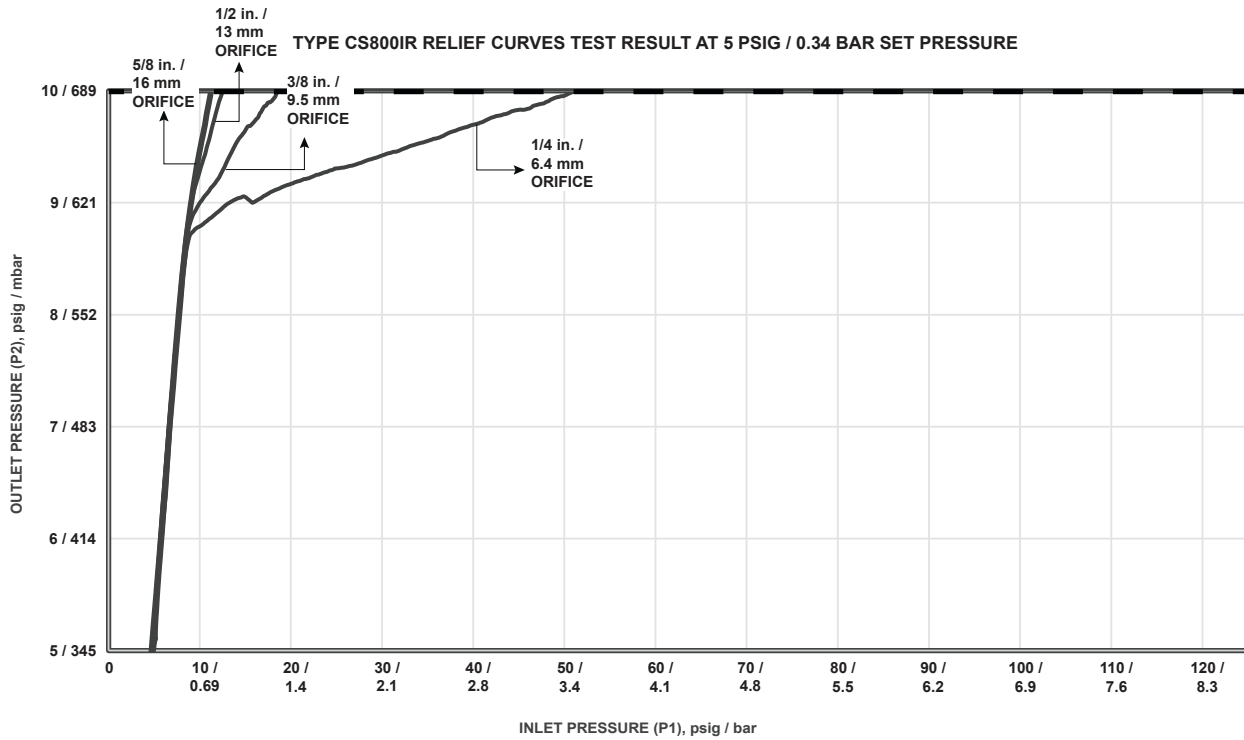


Figure 8. Type CS800IR Lever Disconnect with 5 psig / 0.34 bar Setpoint, 1.5 in. / 38 mm Body

ANSI B109.5 for CSR Products

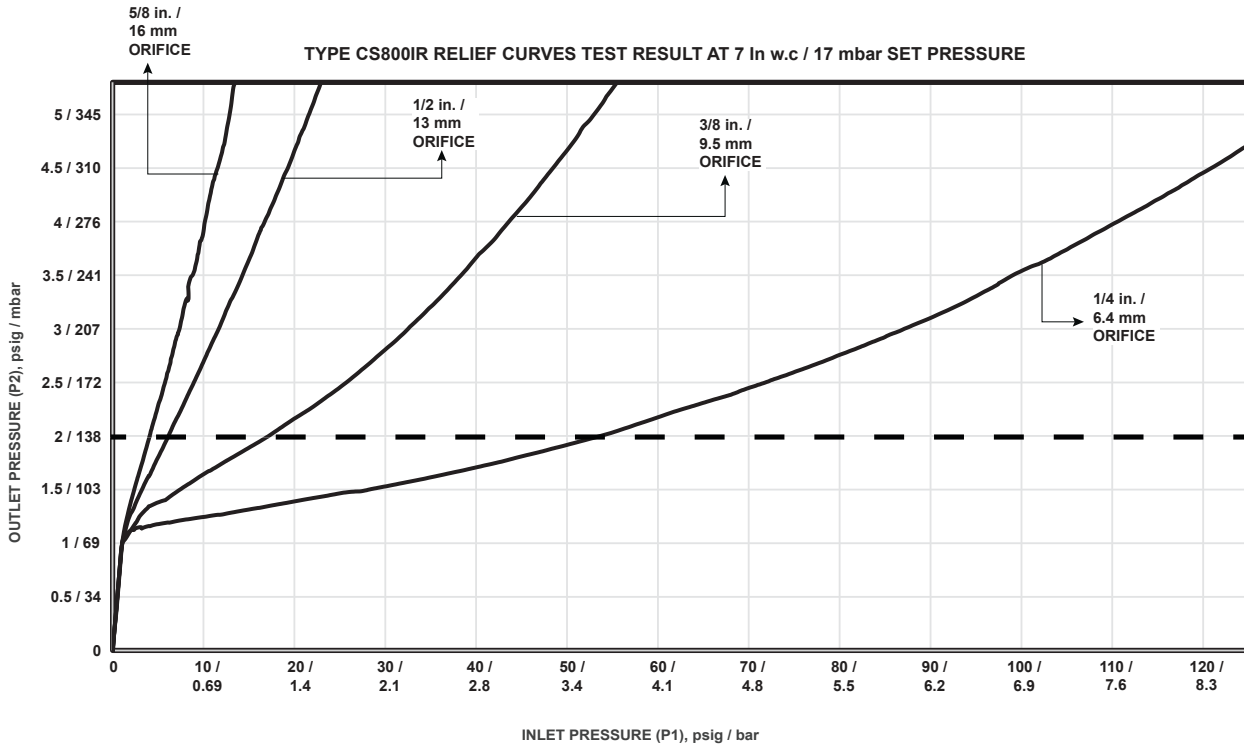


Figure 9. Type CS800IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 2 in. / 50 mm Body

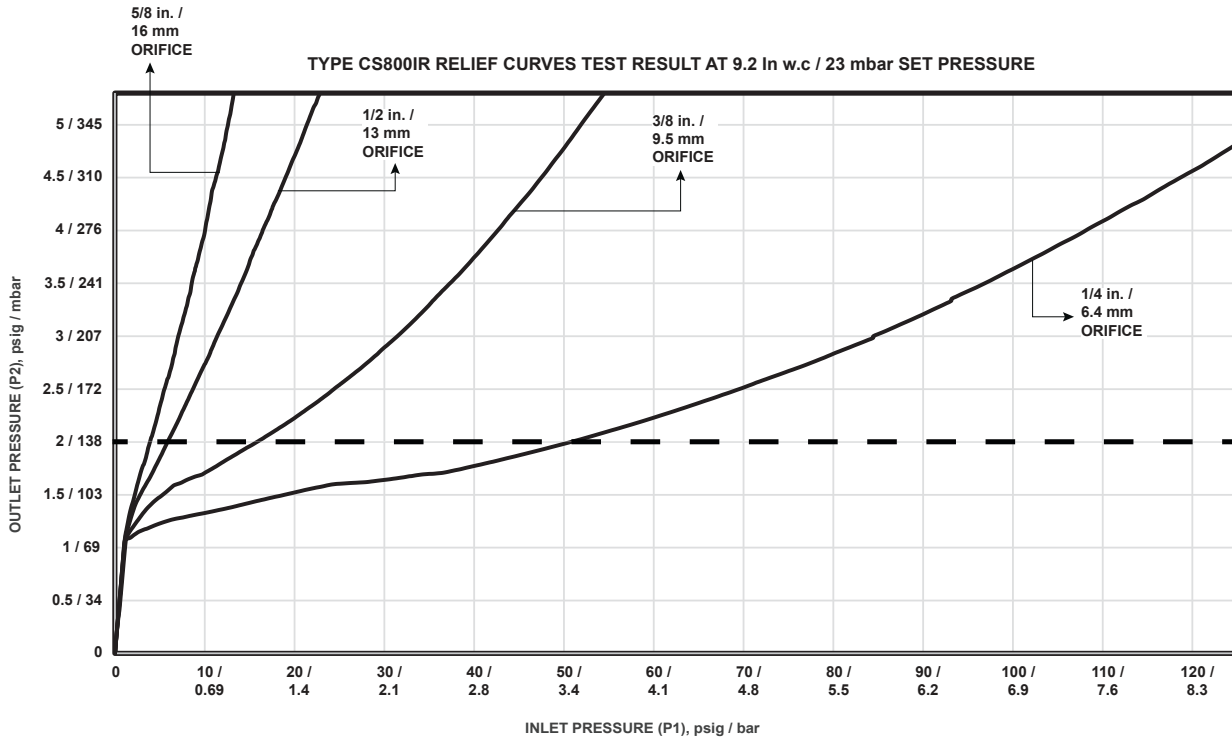


Figure 10. Type CS800IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 2 in. / 50 mm Body

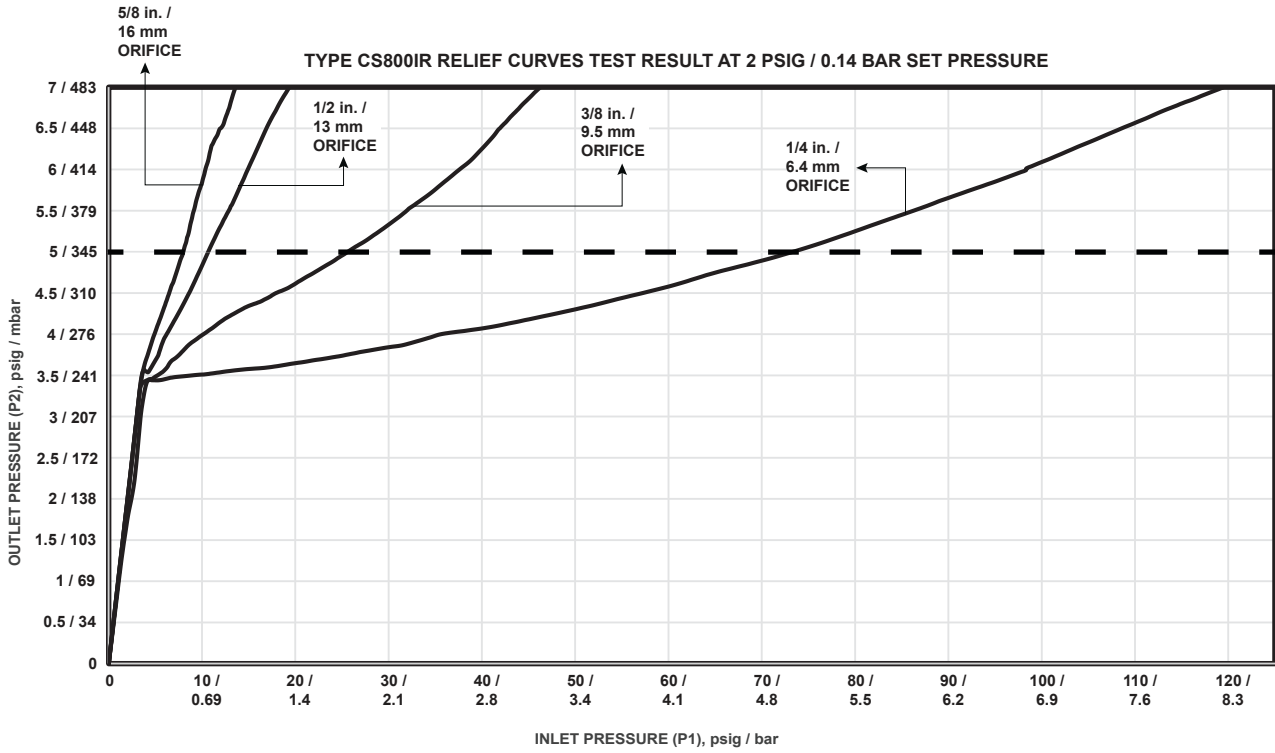


Figure 11. Type CS800IR Lever Disconnect with 2 psig / 0.14 bar Setpoint, 2 in. / 50 mm Body

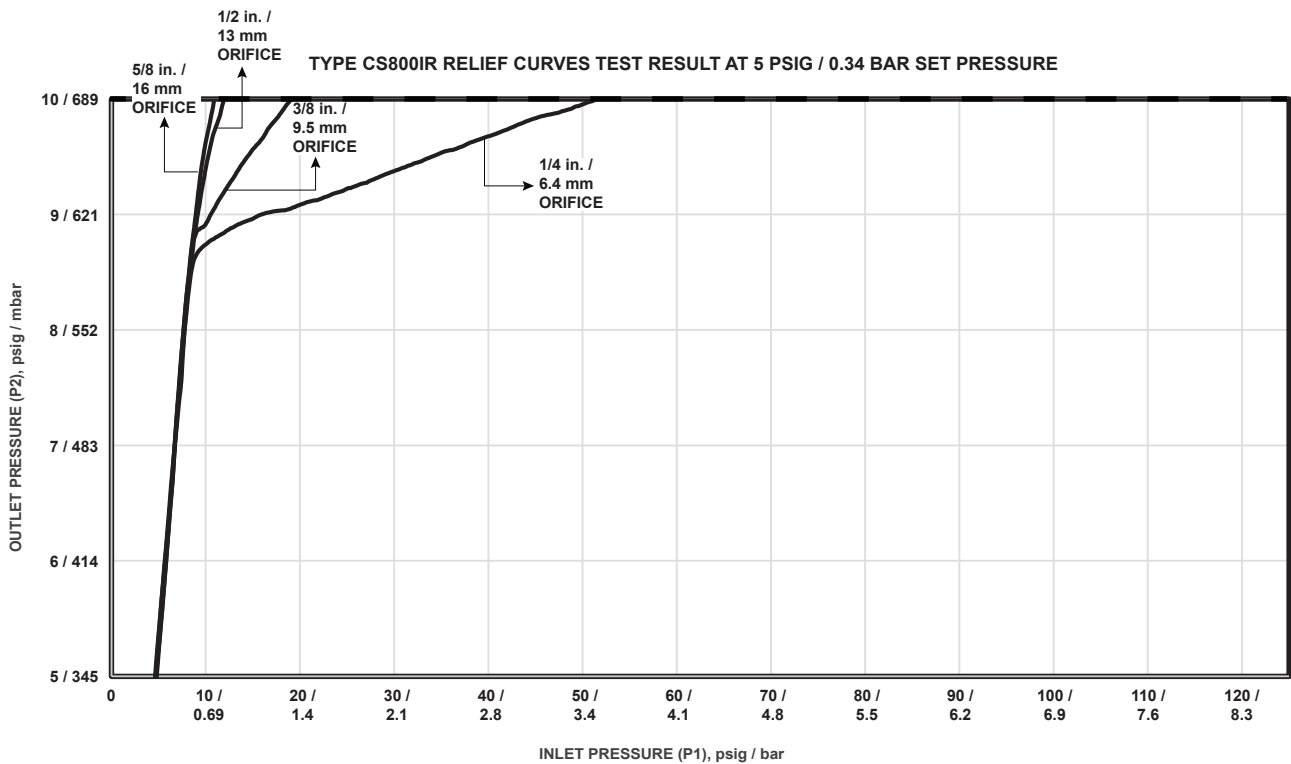


Figure 12. Type CS800IR Lever Disconnect with 5 psig / 0.34 bar Setpoint 2 in. / 50 mm Body

ANSI B109.5 for CSR Products

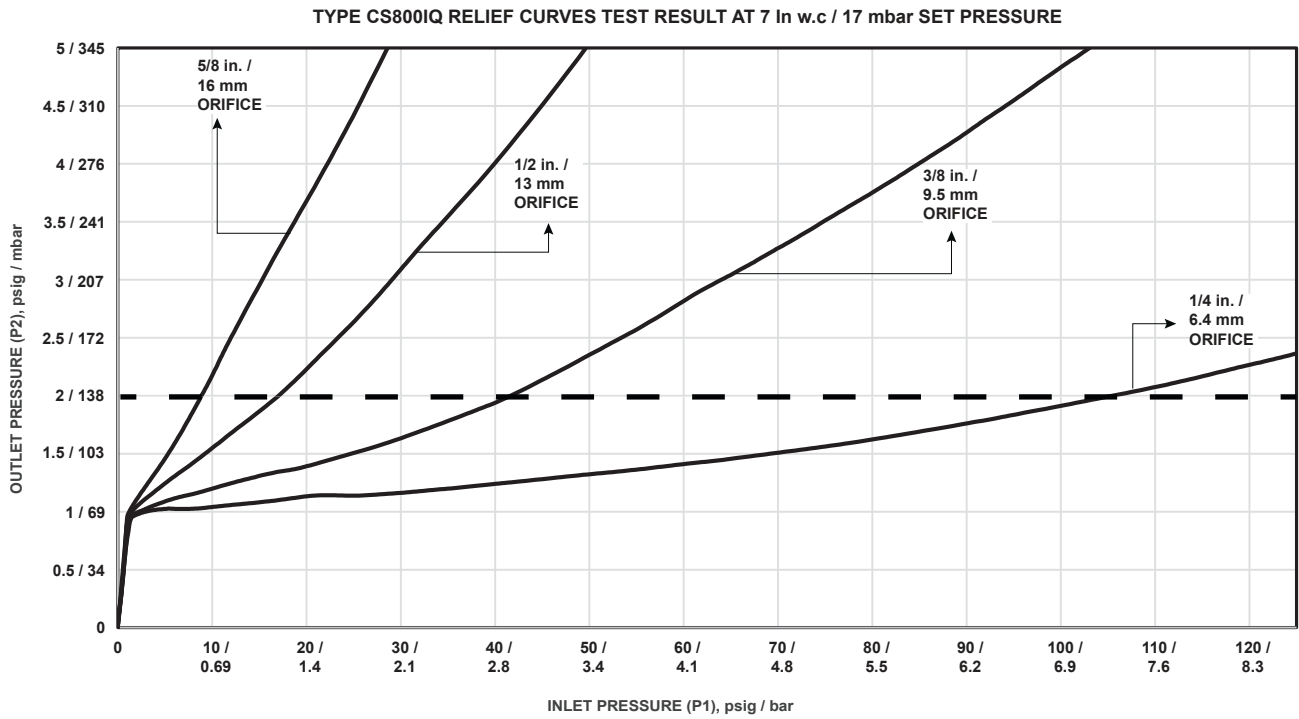


Figure 13. Type CS800IQ Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.25 in. / 32 mm Body

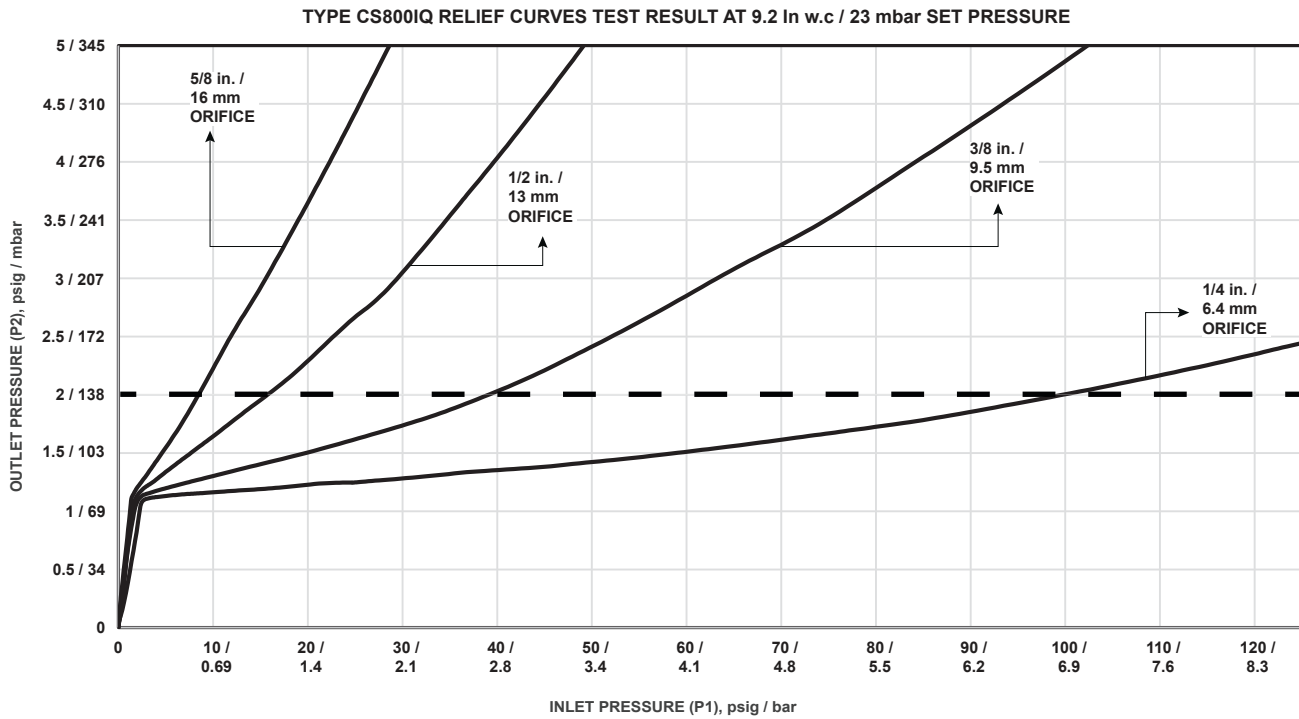


Figure 14. Type CS800IQ Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.25 in. / 32 mm Body

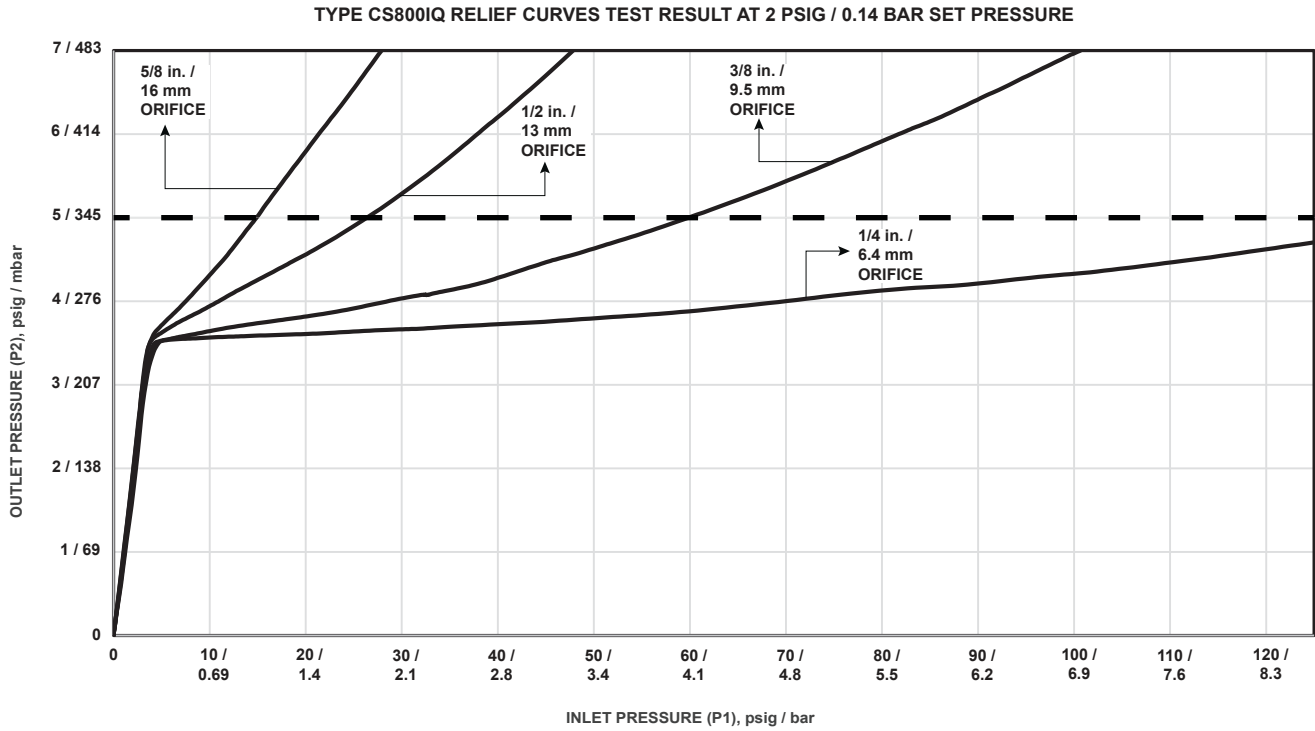


Figure 15. Type CS800IQ Lever Disconnect with 2 psig / 0.14 bar Setpoint, 1.25 in. / 32 mm Body

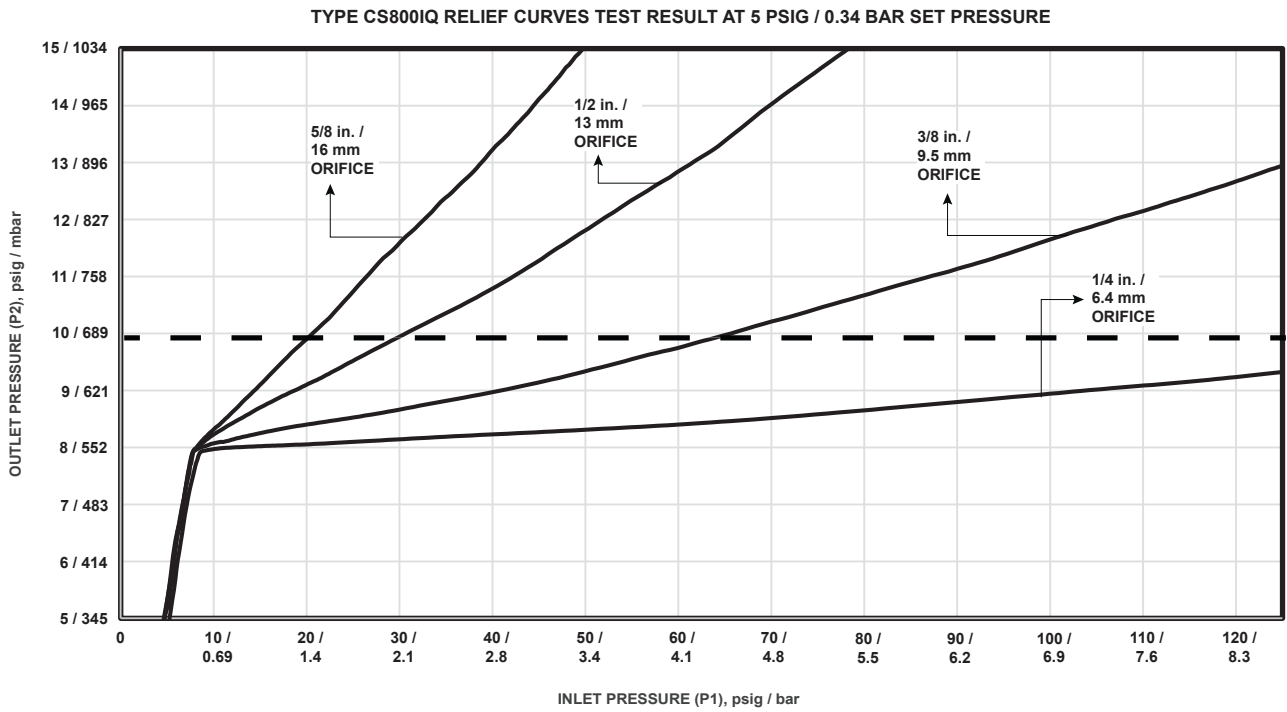


Figure 16. Type CS800IQ Lever Disconnect with 5 psig / 0.34 bar Setpoint 1.25 in. / 32 mm Body

ANSI B109.5 for CSR Products

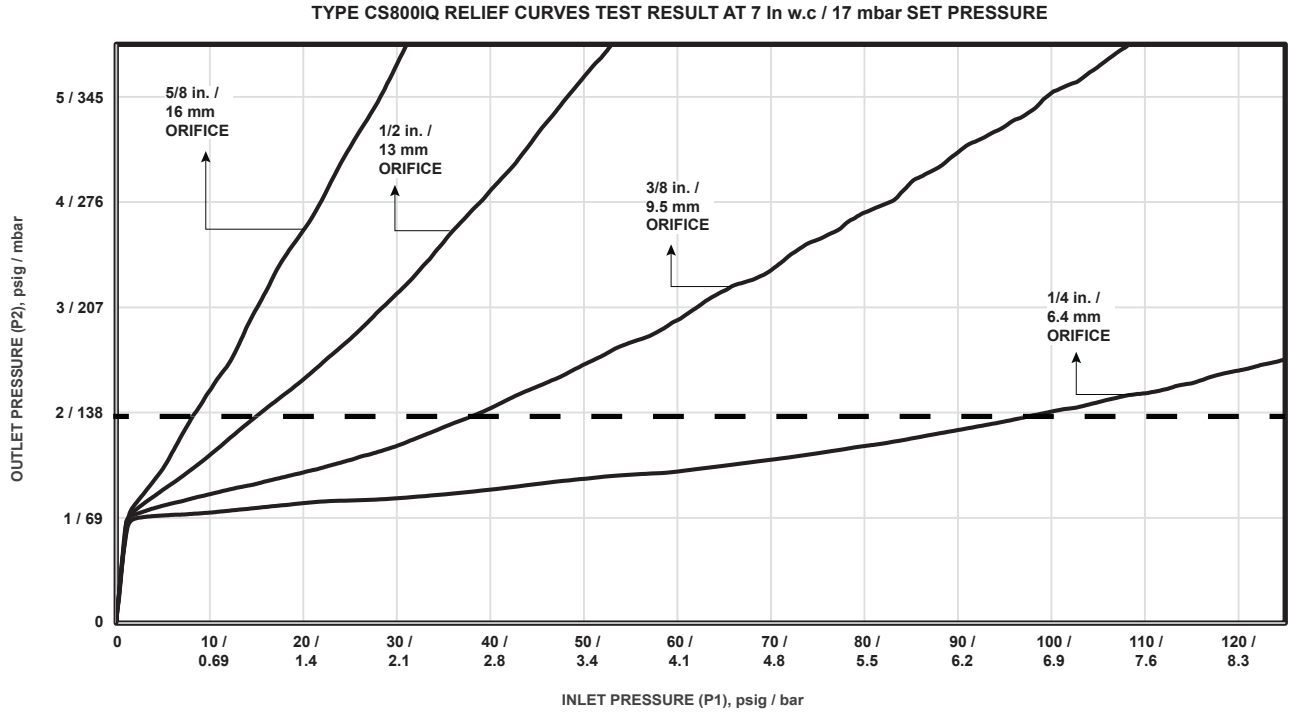


Figure 17. Type CS800IQ Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.5 in. / 38 mm Body

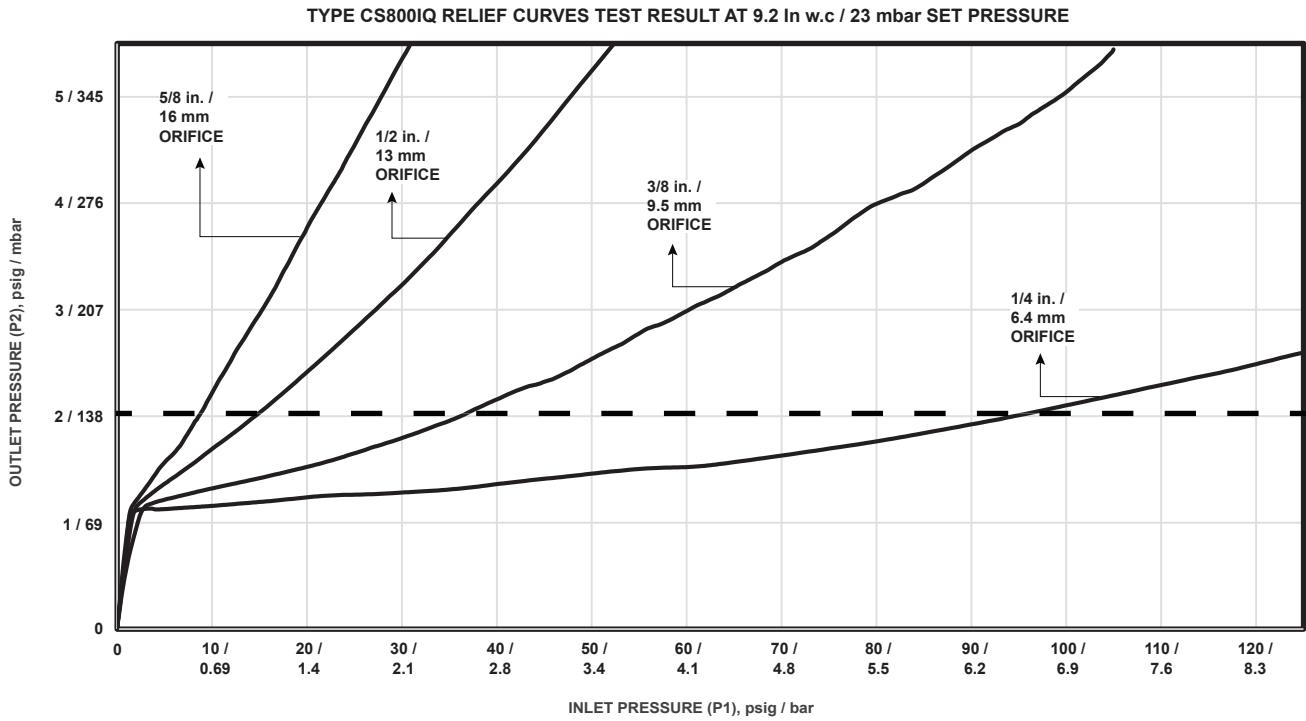


Figure 18. Type CS800IQ Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.5 in. / 38 mm Body

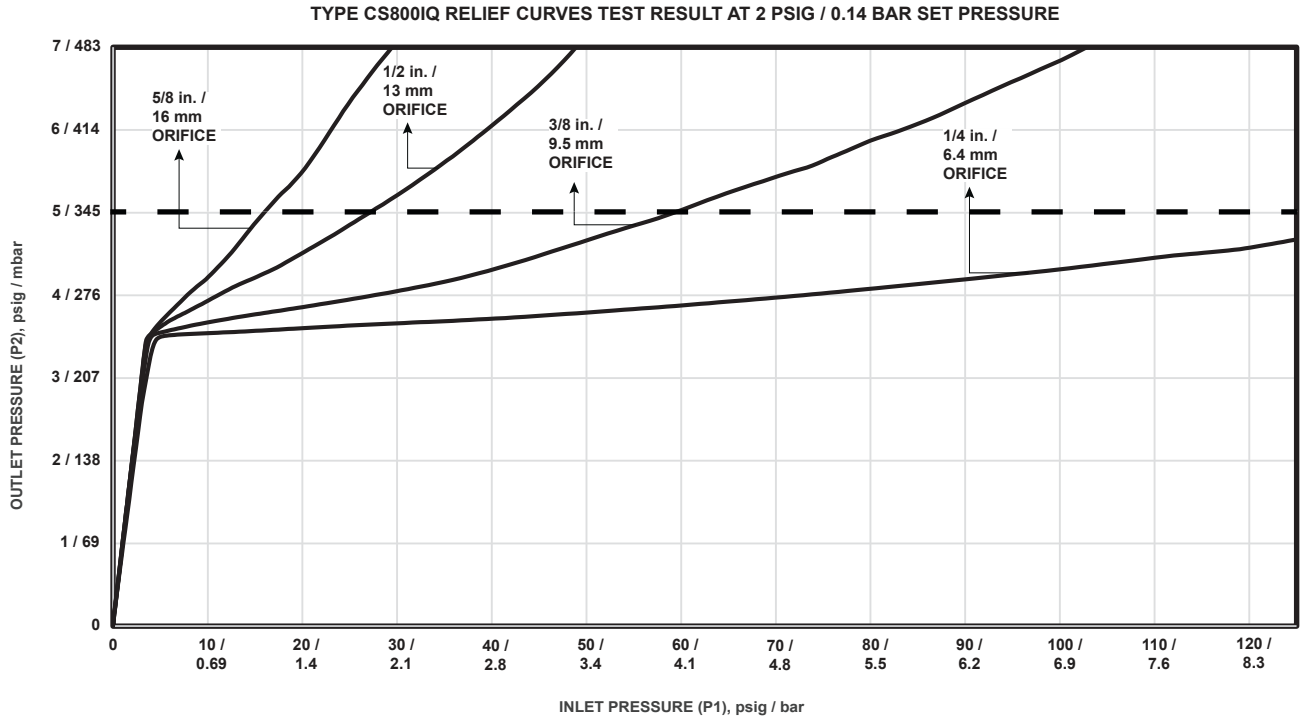


Figure 19. Type CS800IQ Lever Disconnect with 2 psig / 0.14 bar Setpoint, 1.5 in. / 38 mm Body

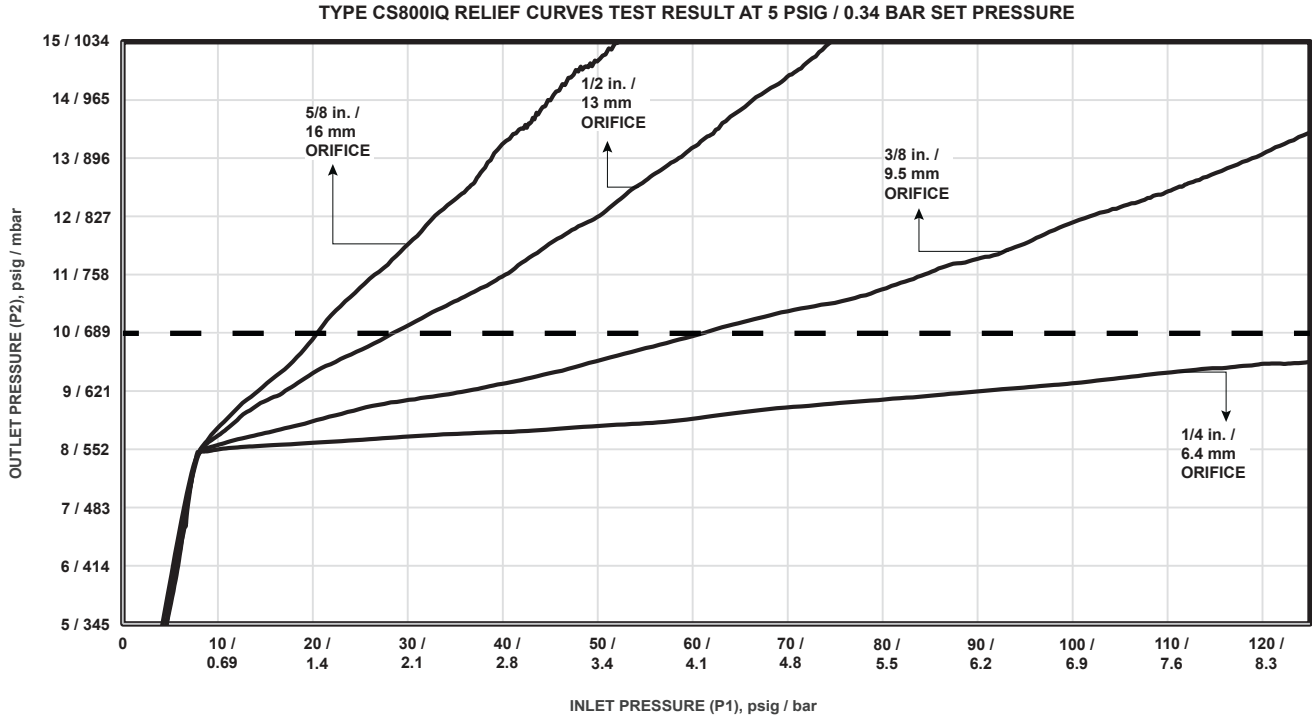


Figure 20. Type CS800IQ Lever Disconnect with 5 psig / 0.34 bar Setpoint, 1.5 in. / 38 mm Body

ANSI B109.5 for CSR Products

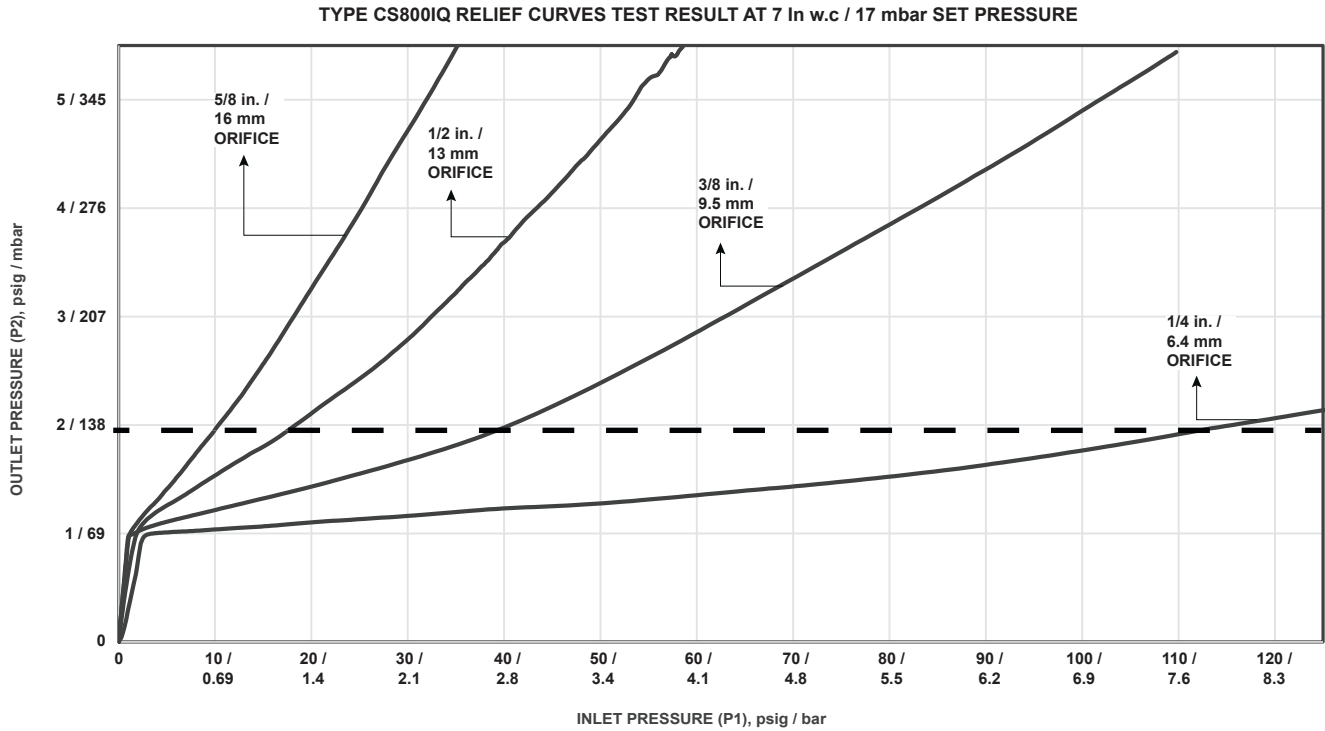


Figure 21. Type CS800IQ Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 2 in. / 50 mm Body

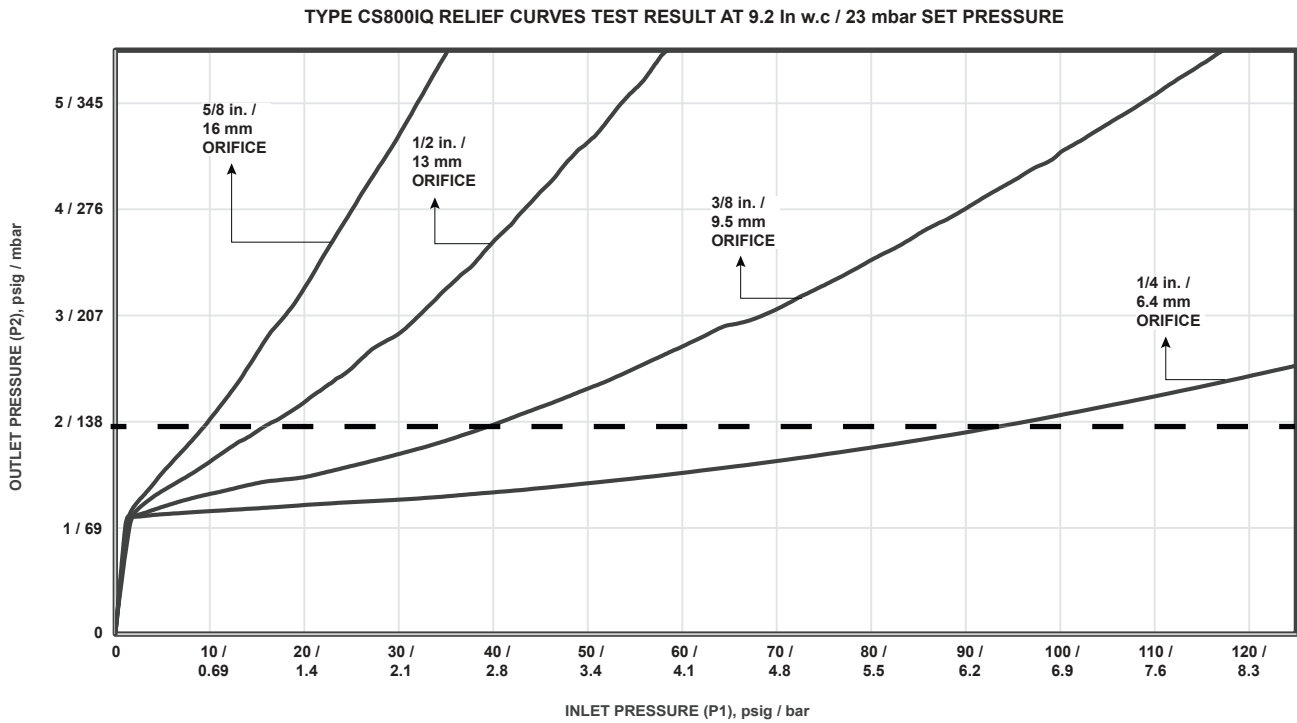


Figure 22. Type CS800IQ Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 2 in. / 50 mm Body

ANSI B109.5 for CSR Products

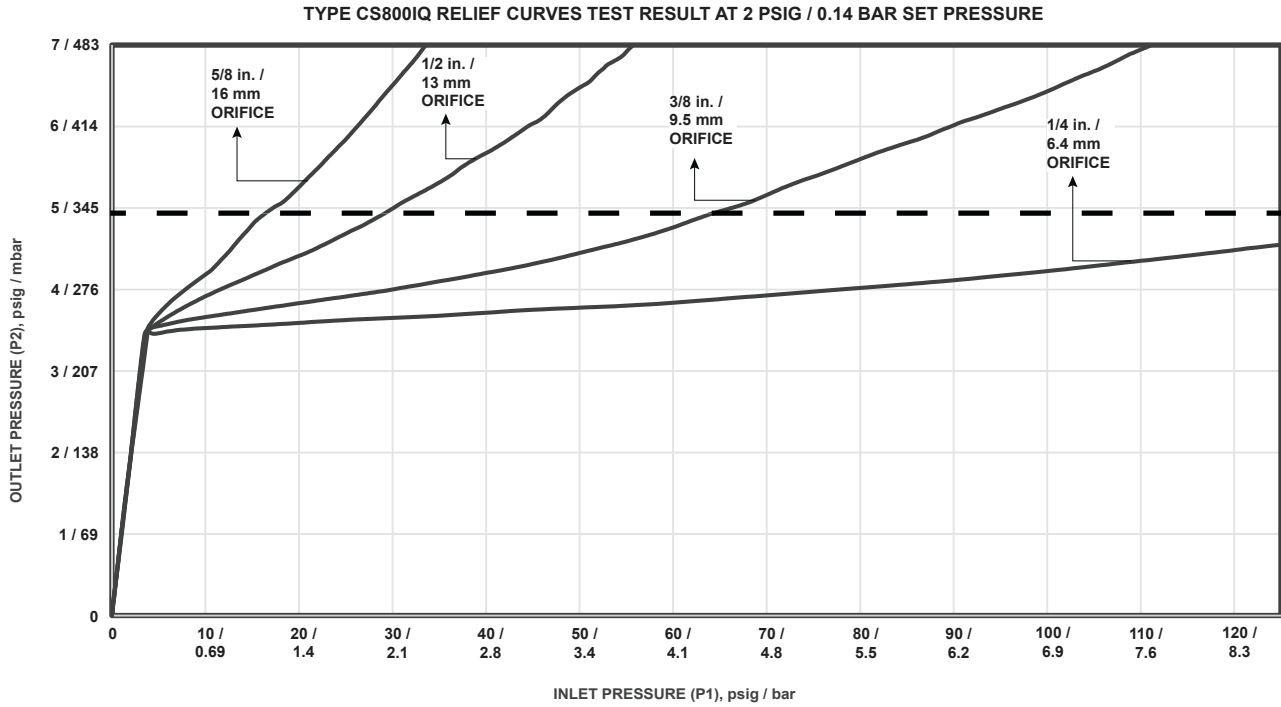


Figure 23. Type CS800IQ Lever Disconnect with 2 psig / 0.14 bar Setpoint, 2 in. / 50 mm Body

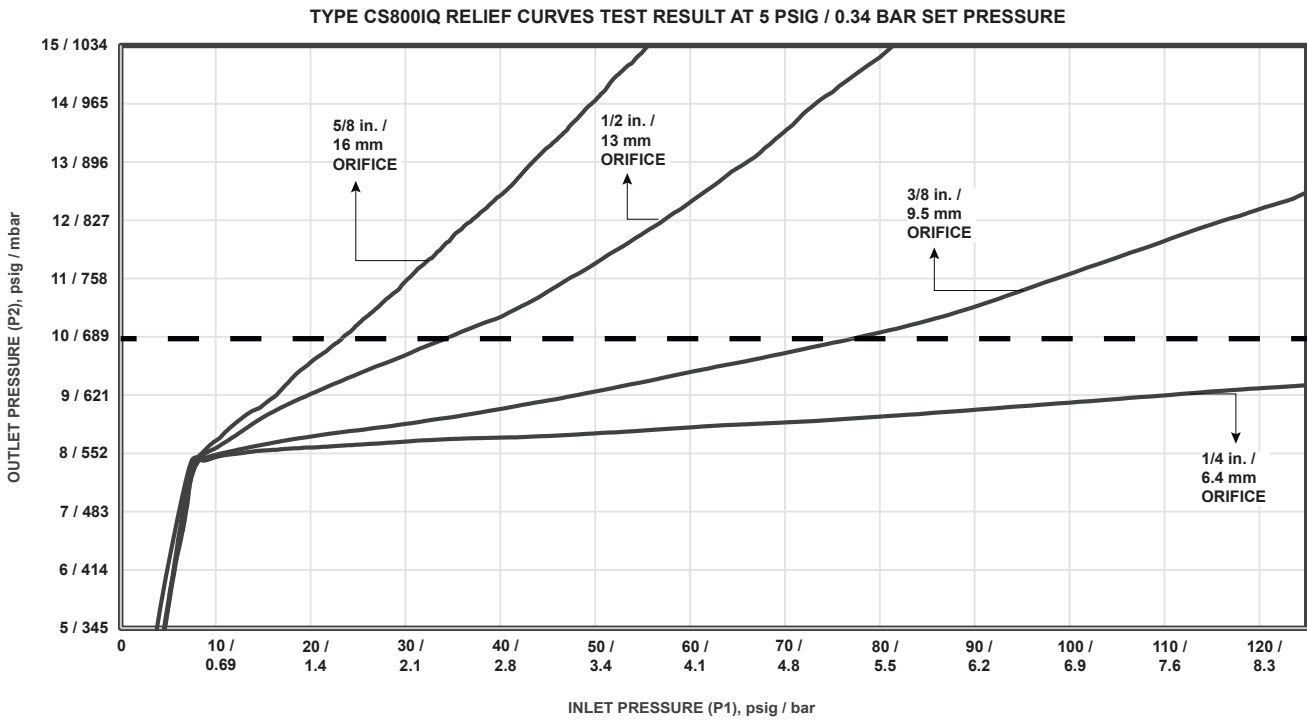


Figure 24. Type CS800IQ Lever Disconnect with 5 psig / 0.34 bar Setpoint, 2 in. / 50 mm Body

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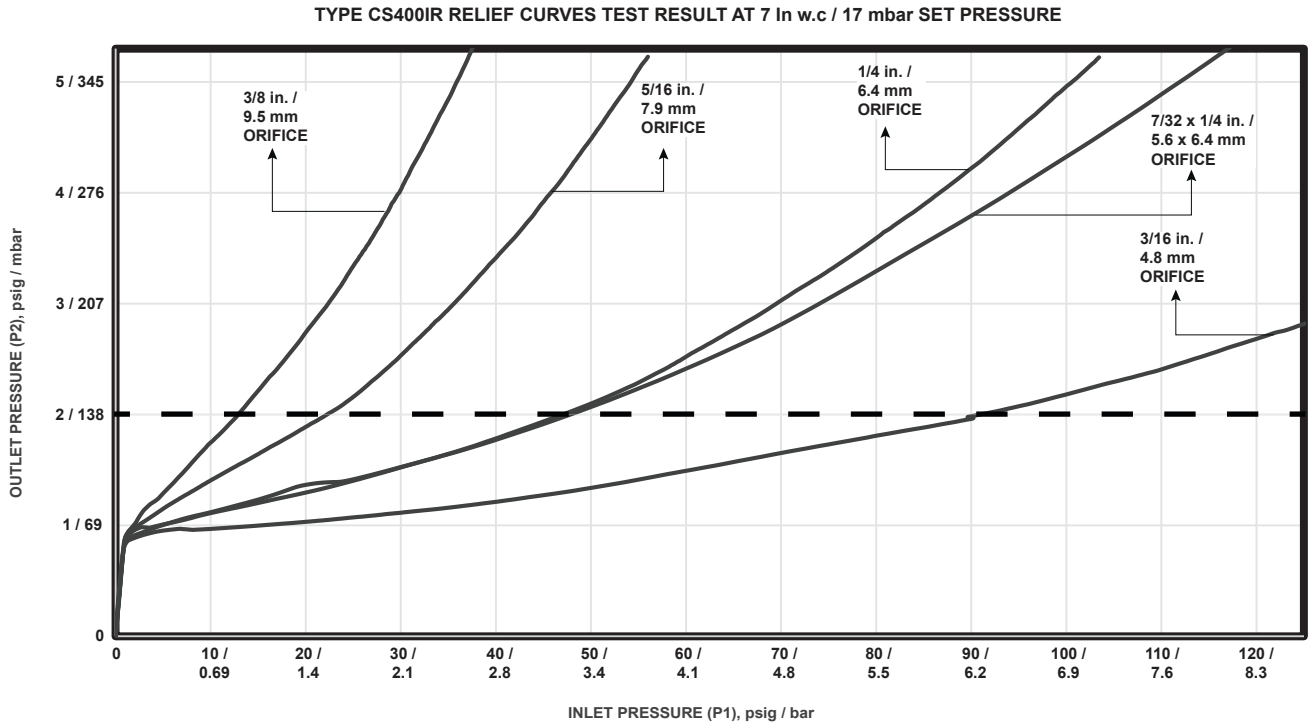


Figure 25. Type CS400IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.25 in. / 32 mm Body

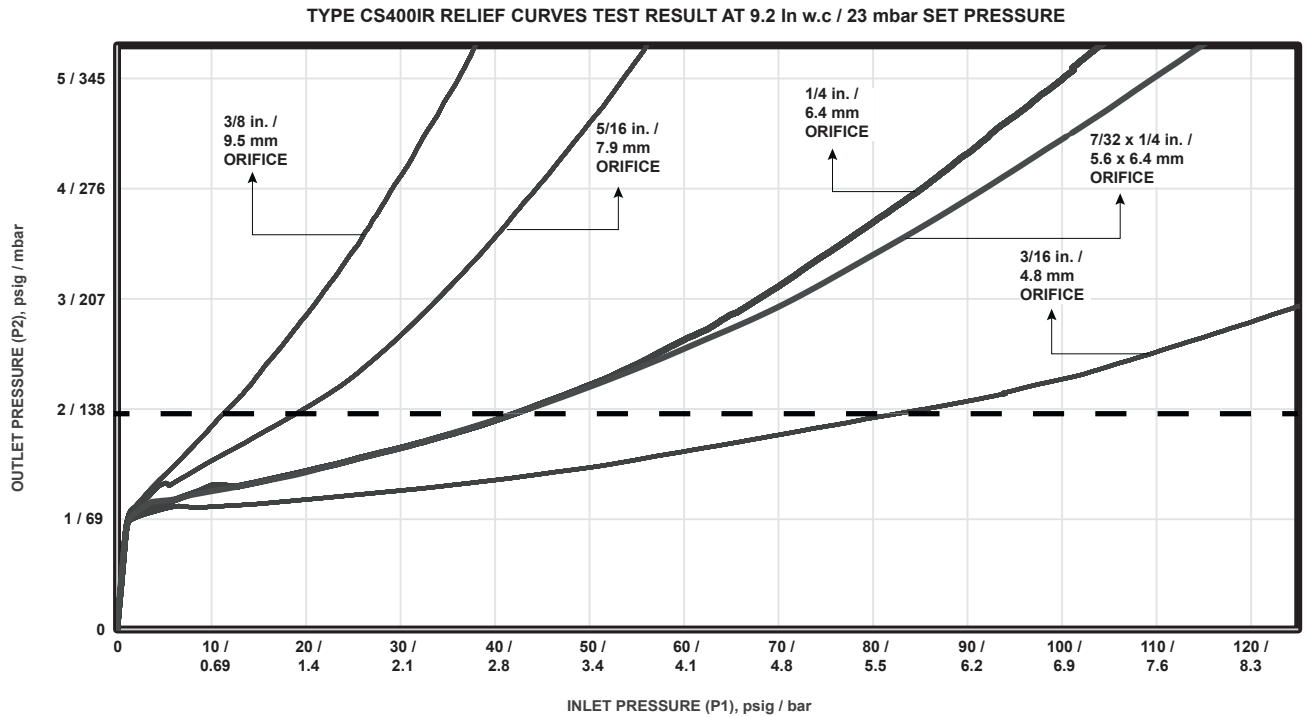


Figure 26. Type CS400IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.25 in. / 32 mm Body

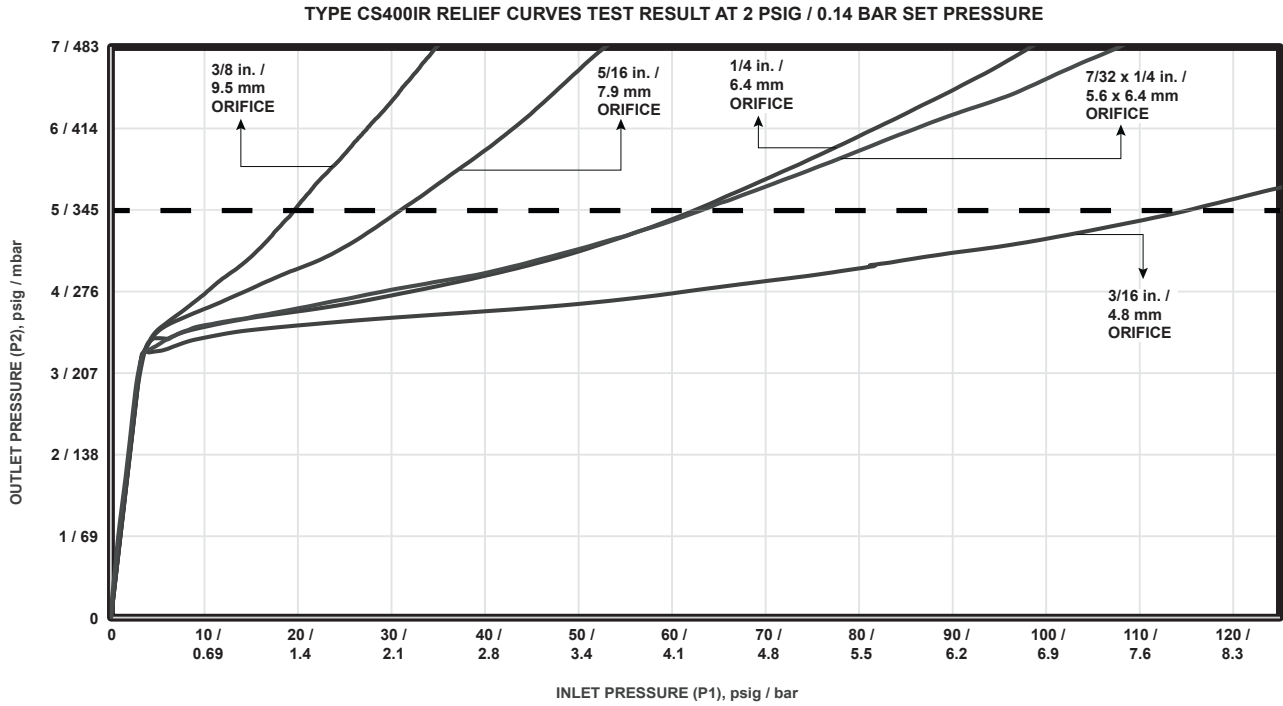


Figure 27. Type CS400IR Lever Disconnect with 2 psig / 0.14 bar Setpoint, 1.25 in. / 32 mm Body

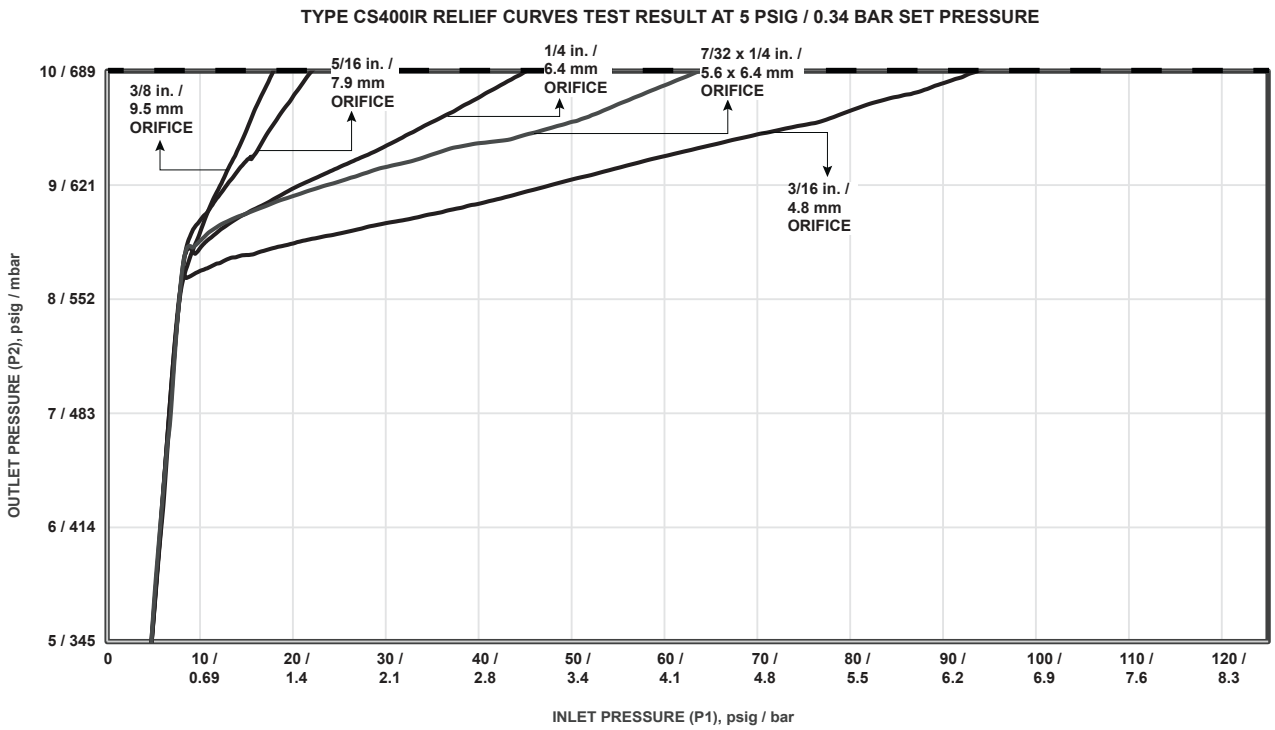


Figure 28. Type CS400IR Lever Disconnect with 5 psig / 0.34 bar Setpoint, 1.25 in. / 32 mm Body

ANSI B109.5 for CSR Products

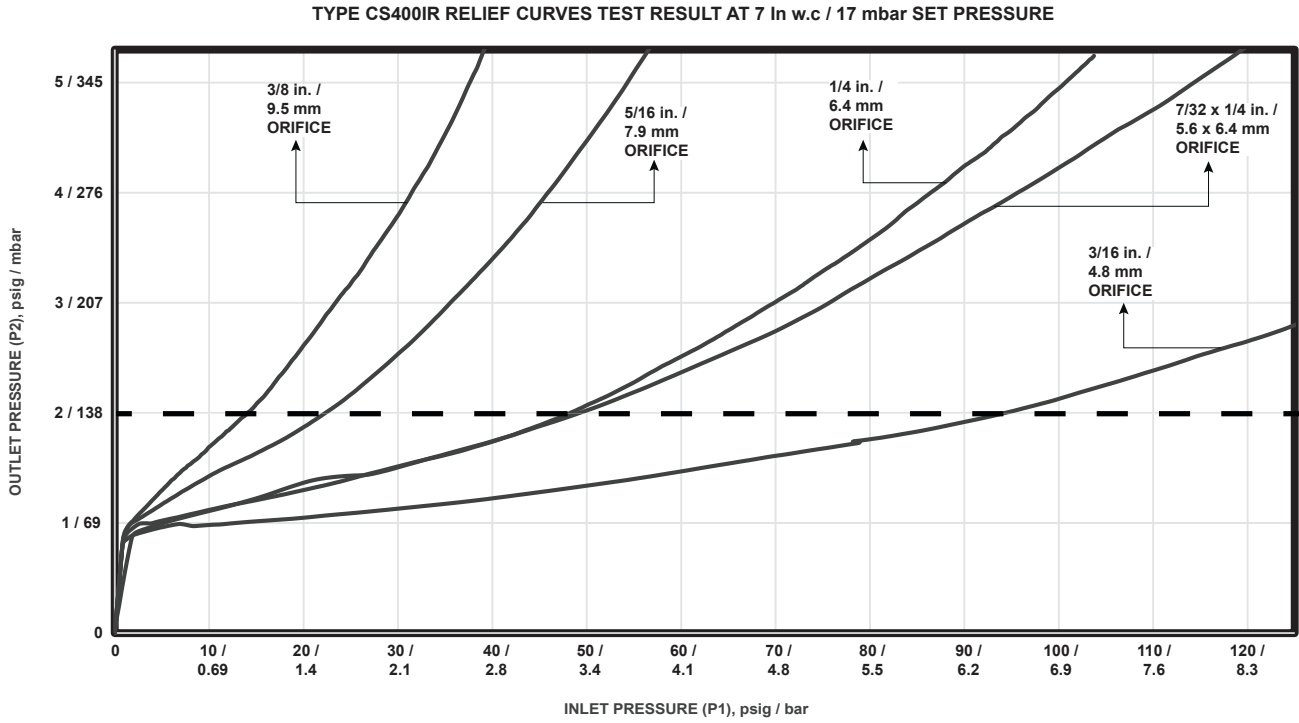


Figure 29. Type CS400IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 1.5 in. / 38 mm Body

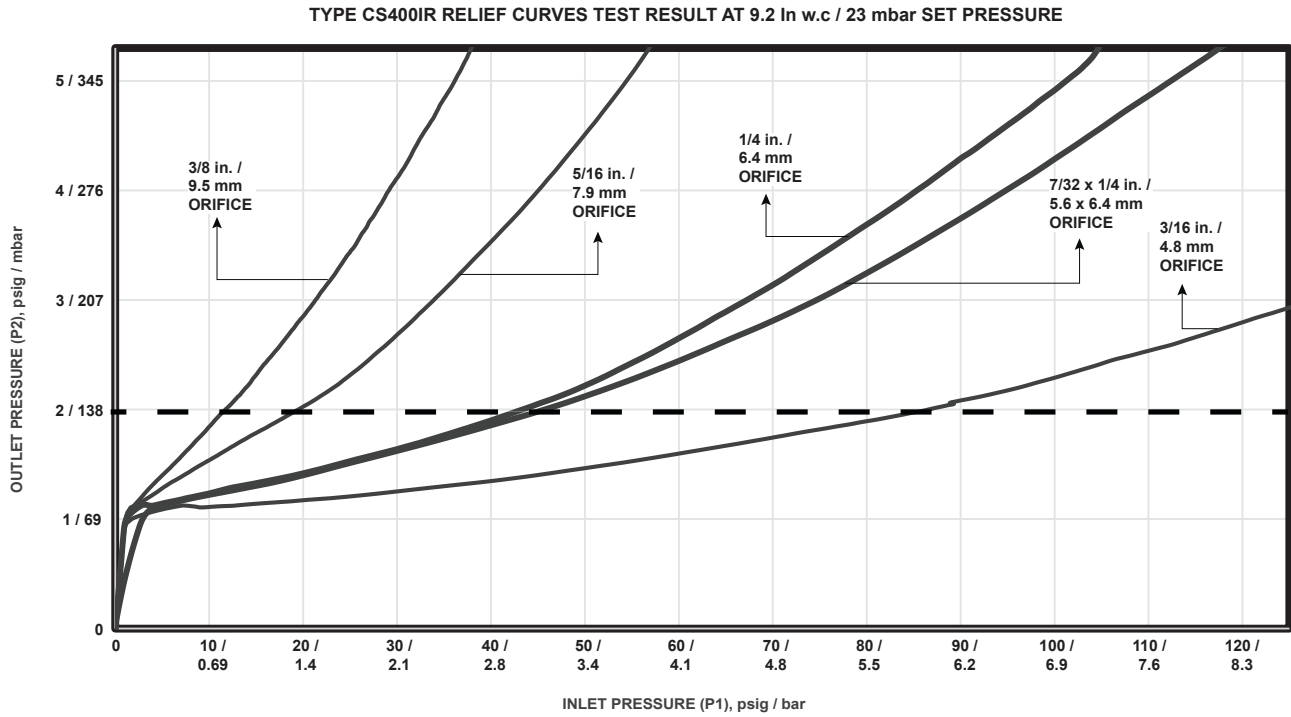


Figure 30. Type CS400IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 1.5 in. / 38 mm Body

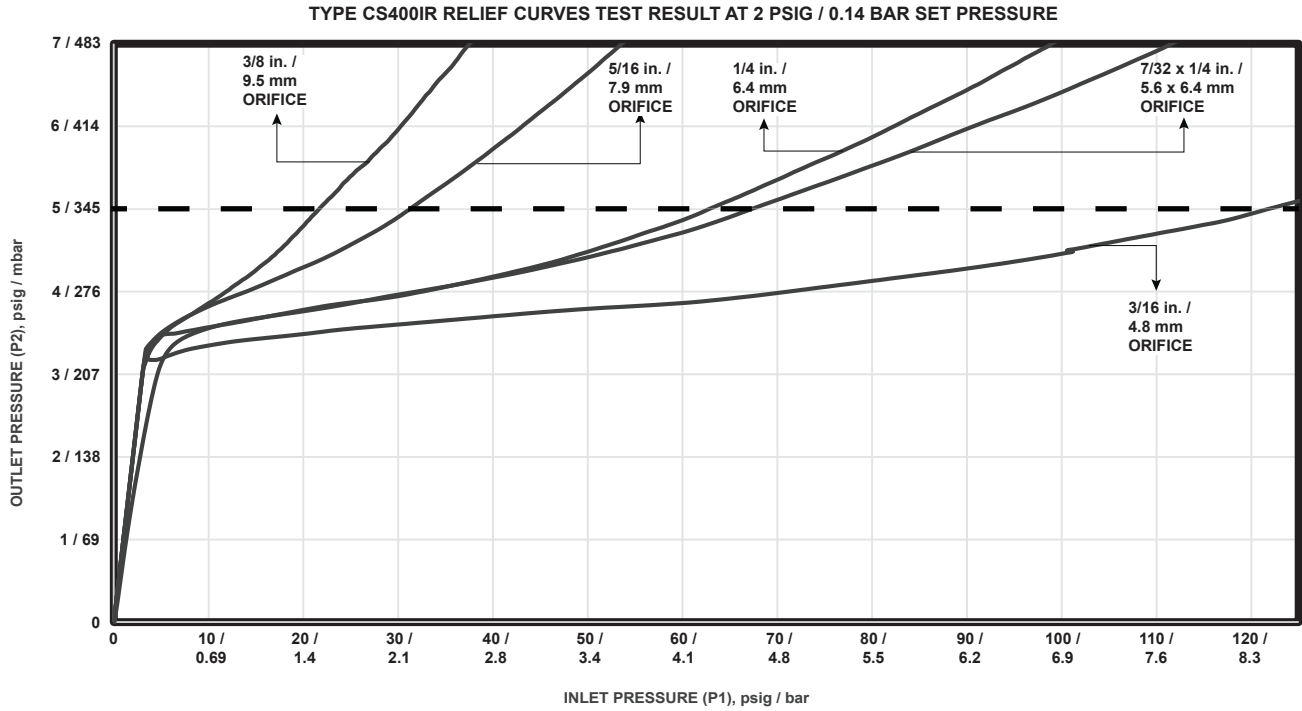


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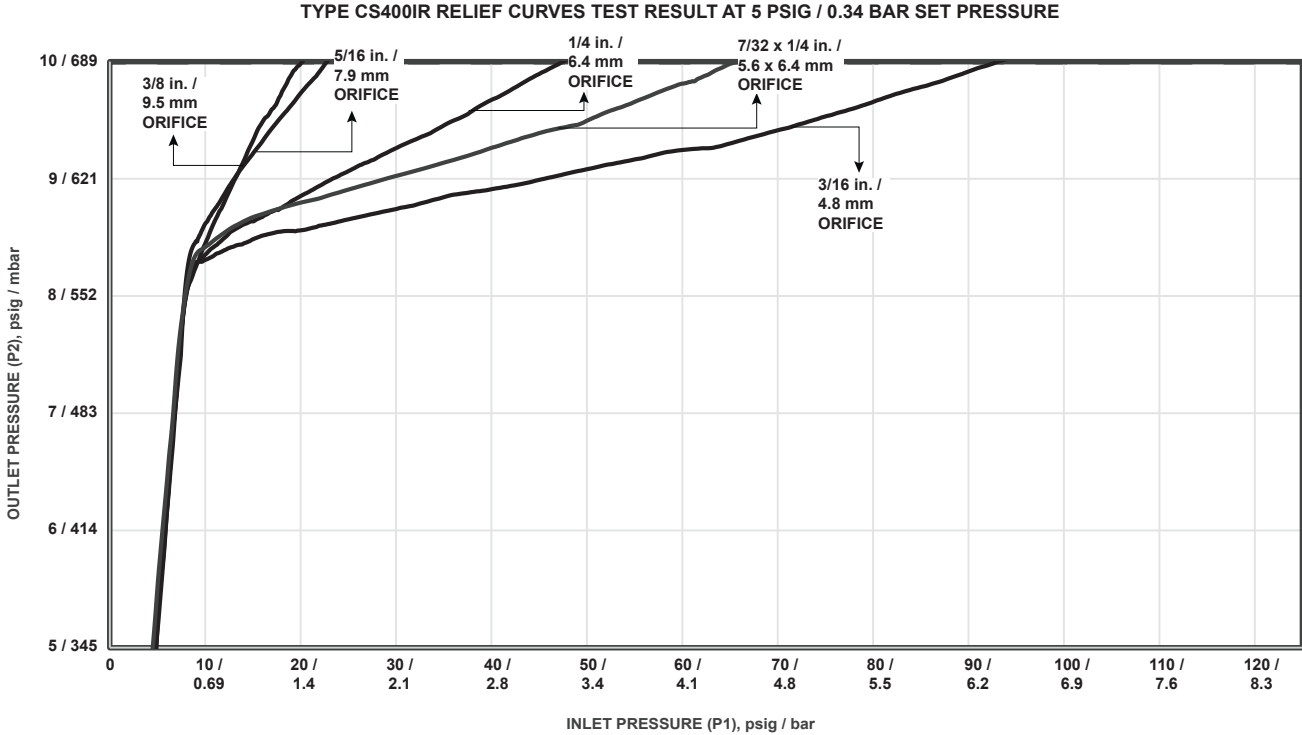


Figure 32. Type CS400IR Lever Disconnect with 5 psig / 0.34 bar Setpoint, 1.5 in. / 38 mm Body

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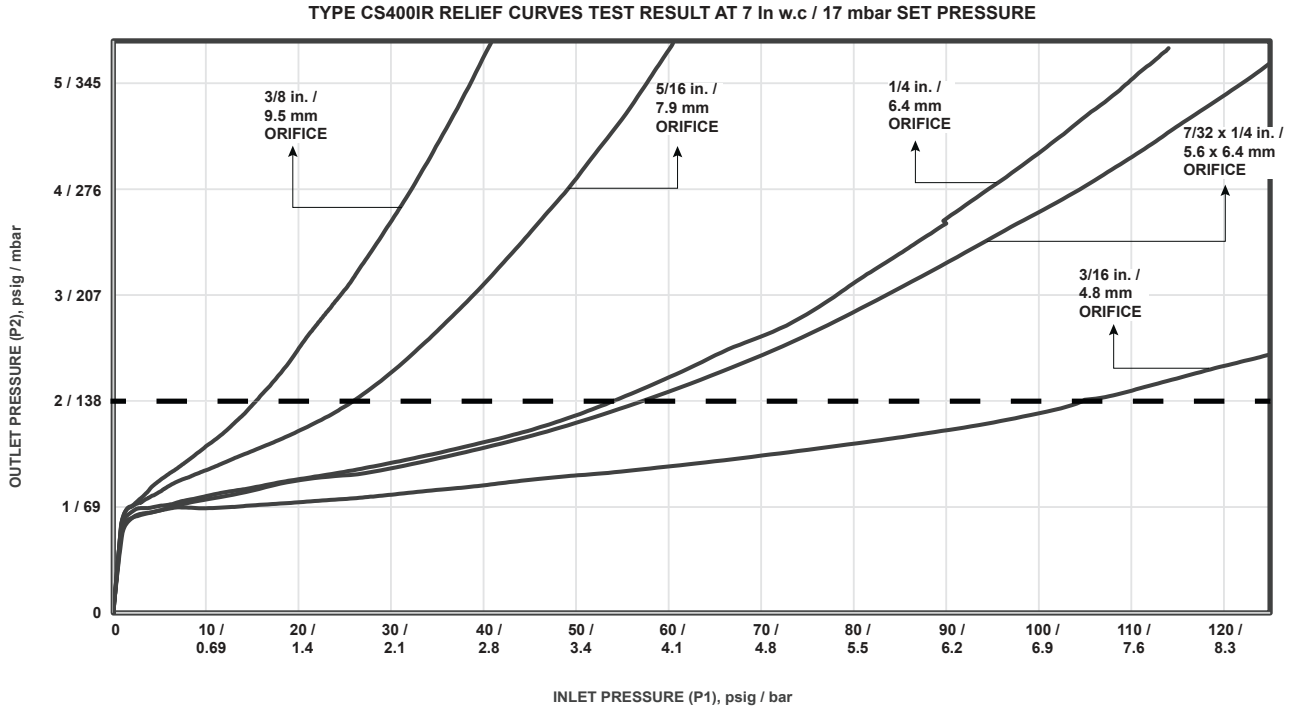


Figure 33. Type CS400IR Lever Disconnect with 7 in. w.c / 17 mbar Setpoint, 2 in. / 50 mm Body

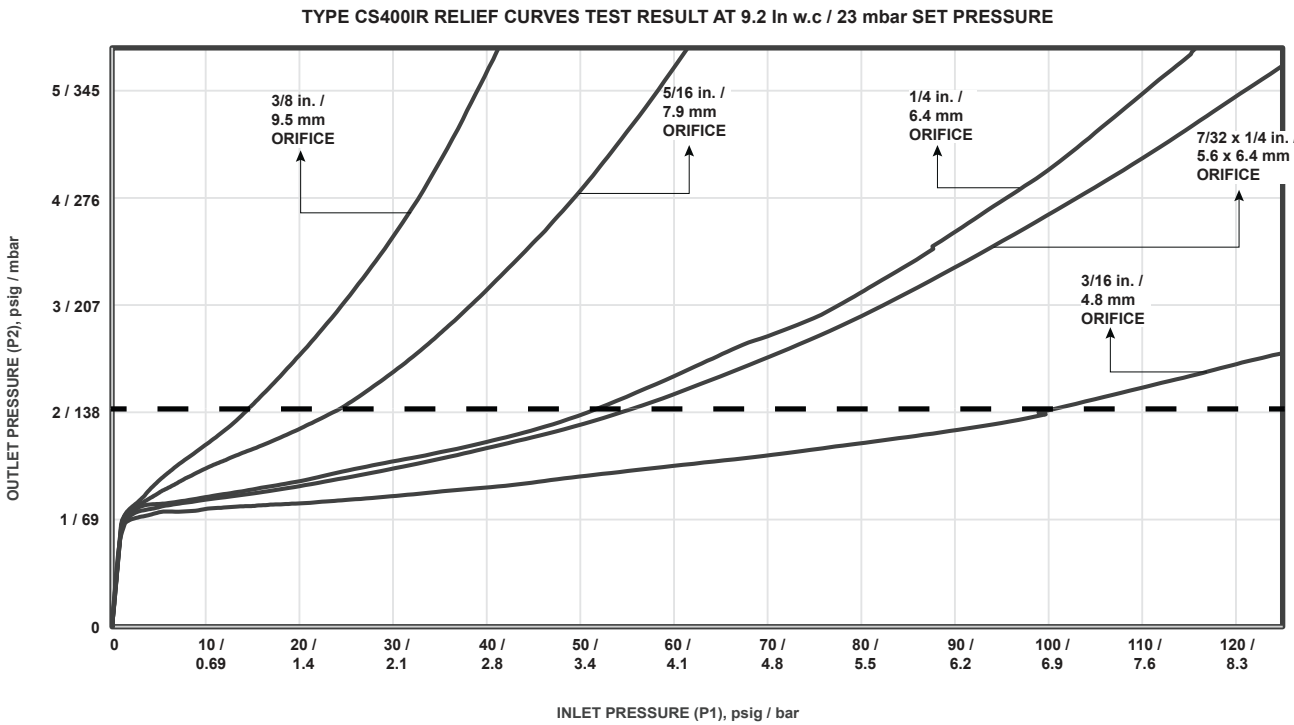


Figure 34. Type CS400IR Lever Disconnect with 9.2 in. w.c / 23 mbar Setpoint, 2 in. / 50 mm Body

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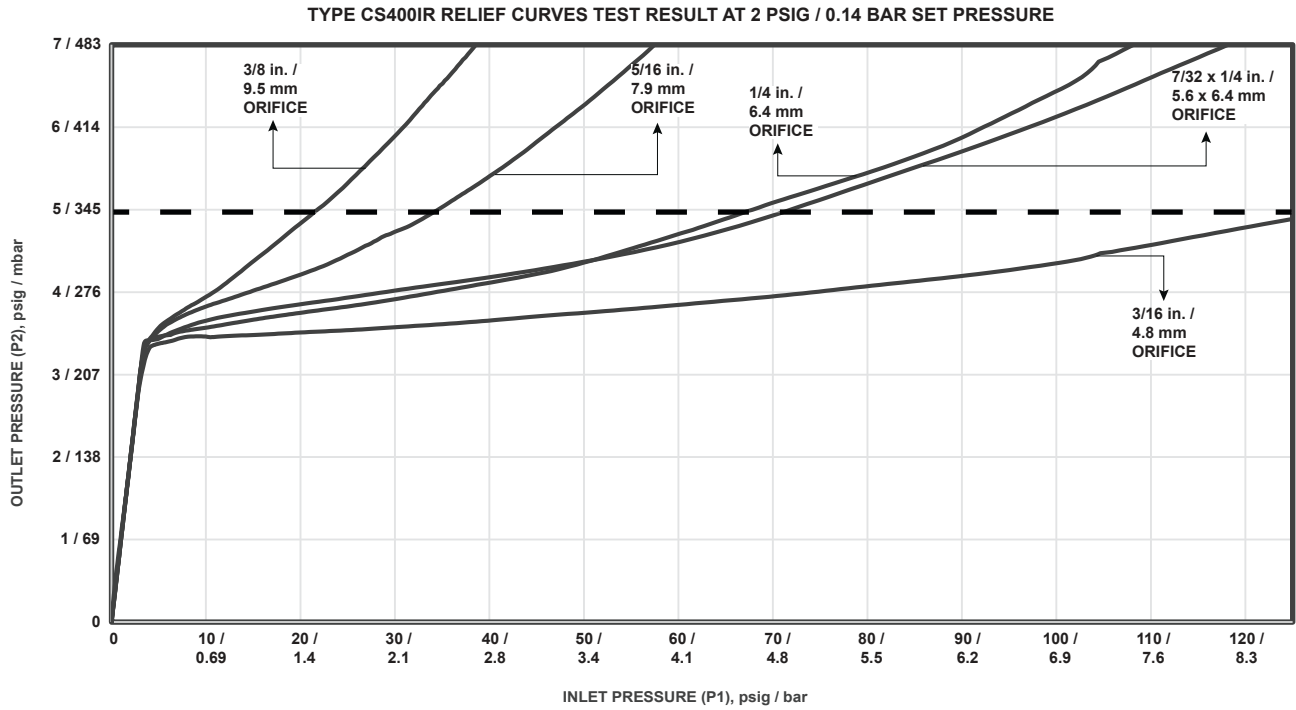


Figure 35. Type CS400IR Lever Disconnect with 2 psig / 0.14 bar Setpoint, 2 in. / 50 mm Body

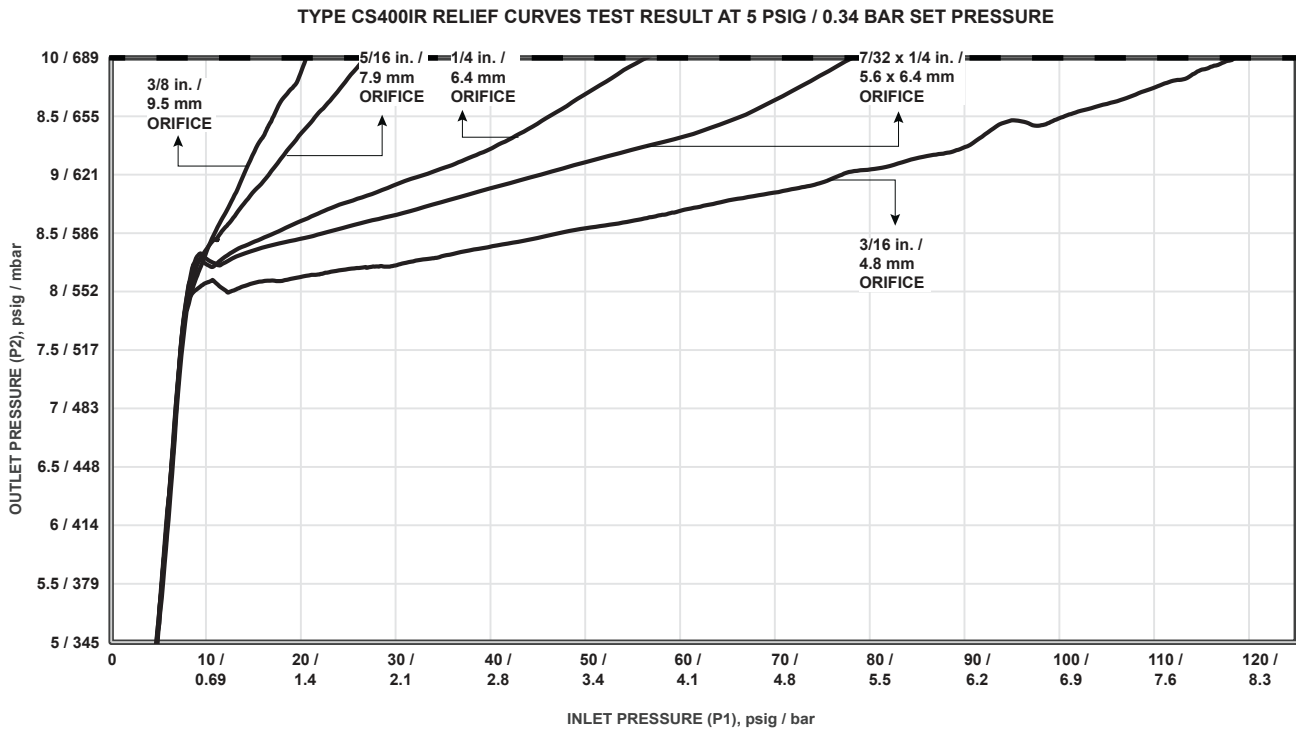


Figure 36. Type CS400IR Lever Disconnect with 5 psig / 0.34 bar Setpoint, 2 in. / 50 mm Body

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