January 2008

64 Series Pressure Reducing Regulators

W1943

Figure 1. *64 Series Regulator*

Introduction

The 64 Series regulators are spring-loaded, direct-operated devices typically used to deliver constant reduced pressure of gaseous fluids to pilot-operated controllers and other pneumatic instrumentation.

As shown in the Available Configuration section of the Specifications section, an assortment of regulators are available to meet diverse flow requirements. The Type 64R has internal relief capacity to minimize overpressure in small capacity systems. When the reduced pressure in these regulators rises above the pressure setting and lifts the diaphragm, excess pressure flows into the spring case through a drilled orifice in the diaphragm plate (Figure 2) and bleeds out through a screened vent (Figure 4) in the spring case.

Features

- **Versatility—**Although typically used for air regulation, the 64 Series product line can control a variety of gases including anhydrous ammonia (NH_3) and sour gas.
- **Body Side Connection—**A side outlet (shown in Figure 4) can be used as a convenient tap for a pressure gauge.
- **Easy Maintenance—**Trim parts can be easily removed for inspection without removing the regulator from the pipeline.
- **Sour Gas Service Capability—**Optional materials are available for applications handling sour gases. These constructions comply with the recommendations of National Association of Corrosive Engineers (NACE) MR-01-75.

D100113X012

Specifications

Available Configurations
Type 64: Basic regulator for 3 to 15 psig (0,21 to 1,03 bar) outlet pressures
Type 64R: Internal relief version of Type 64
Type 64B: NH_3 service version of Type 64

Connections
End: 1/2-inch NPT
Side Outlet: 1/4-inch NPT

Maximum Allowable Pressures
Inlet: 250 psig (17,2 bar)
Operating Outlet: 150 psig (10,3 bar)
Emergency Outlet: 220 psig (15,2 bar)

Outlet Pressure Ranges
See Table 1

Port Diameter
1/4-inch (6,35 mm)

Capacities
See Table 2 and Figure 3

Coefficients for Relief Valve Sizing
Wide Open C_g: 35.6
Wide Open C_1: 39.0

Temperature Capabilities
–20° to 150°F (–29° to 66°C)

Pressure Registration
Internal

Spring Case Vent
1/4-inch NPT with screen

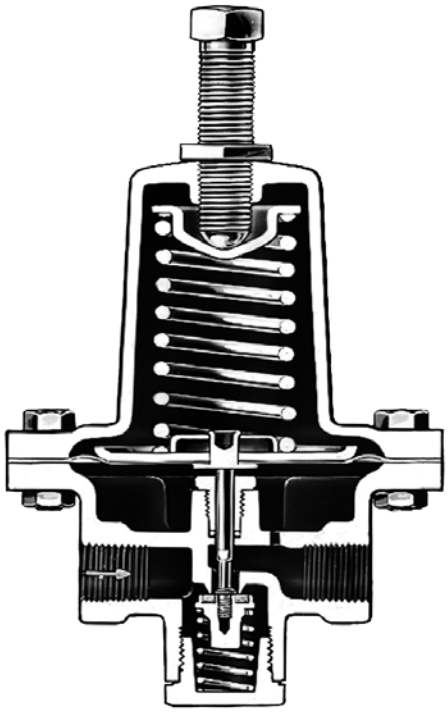
Outlet Pressure Gauge Connection
1/4-inch NPT

Weight
2.25 pounds (1,01 kg)

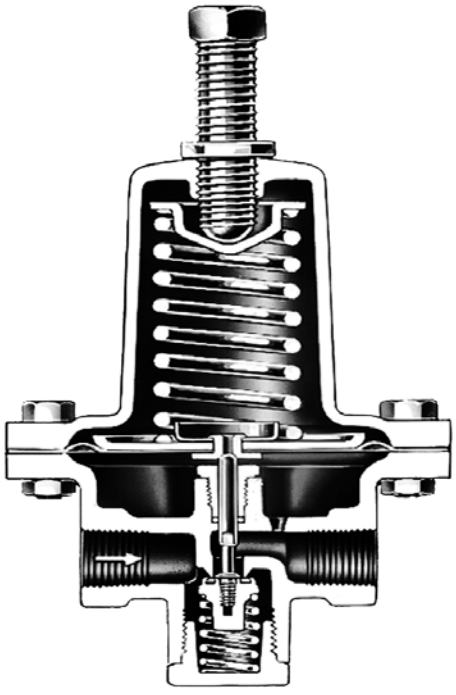
Options
- Closing cap for adjusting cap screw
- Triple scale outlet pressure gauge (brass or stainless steel)
- PTFE Diaphragm Protector

Construction Materials
Body: Die-cast aluminum
Spring Case: Die-cast aluminum or cast iron
Disk Holder Assembly: Brass, neoprene and FKM or stainless steel and neoprene
Stem Guide: Brass or stainless steel
Diaphragm: Nitrile, FKM
Valve Stem: Stainless steel
Regulator Spring: Steel or Inconel X750 (Type 64R only)
Relief Valve Seat (Type 64R): Stainless steel or brass

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



TYPE 64



TYPE 64R

Figure 2. *Typical Constructions*

Overpressure Protection

Like most regulators, the 64 Series regulators have outlet pressure ratings lower than their inlet pressure rating. Although the internal relief valve provides limited downstream overpressure protection, complete downstream protection is needed if the actual inlet pressure exceeds the outlet pressure rating.

Overpressuring any portion of a 64 Series regulator may cause regulator leakage, damage to regulator parts, or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas. Provide appropriate overpressure protection devices to ensure that none of the limits in the Specifications section or Table 1 will be exceeded.

Regulator operation below these limits does not preclude the possibility of damage from external sources or from debris in the gas line. The regulator should be inspected for damage after any overpressure condition.

Installation

These regulators may be installed in any position as long as the screened vent (shown in Figure 4) is protected from debris, weather, or anything else that might clog it. Figure 4 shows the dimensions of the 64 Series regulators in both inches and millimeters.

Table 1. *Outlet Pressure Ranges and Spring Selections*

OUTLET PRESSURE RANGE, Psig (bar)	SPRING PART NUMBER	SPRING COLOR
3 to 15 (0,2 to 1,0) 3 to 20 (0,2 to 1,4)	1D892327022 1D751527022	Red Silver
5 to 35 (0,34 to 2,4) 30 to 60 (2,1 to 4,1) 35 to 100 (2,4 to 6,9)	1D665927022 1D745527142 1E543627142	Blue Green Yellow
80 to 150 (5,5 to 10,3)(1)	1P901327142	Brown
1. Cannot be used in anhydrous ammonia (NH_3) applications.		

Table 2. *Air Capacities*

OUTLET PRESSURE RANGE, PSIG (bar)	OUTLET PRESSURE SETTING, PSIG (bar)	INLET PRESSURE, PSIG (bar)	CAPACITIES IN SCFH (Nm^3/h) OF AIR		
			5% Offset	10% Offset	20% Offset
3 to 15 (0,2 to 1,0)	5 (0,34)	10 (0,69) 15 (1,0) 25 (1,7) 50 (3,4)	400 (10,7) 450 (12,1) 475 (12,7) 600 (16,1)	525 (14,1) 750 (20,1) 1100 (29,5) 1400 (37,5)	650 (17,4) 900 (24,1) 1325 (35,5) 2200 (59,0)
		100 (6,9) 150 (10,3) 250 (17,2)	1200 (32,2) 1400 (37,5) 1400 (37,5)	1800 (48,2) 1800 (48,2) 1800 (48,2)	2300 (61,6) 2300 (61,6) 2300 (61,6)
	10 (0,69)	15 (1,0) 25 (1,7) 50 (3,4)	525 (14,1) 700 (18,8) 1300 (34,8)	700 (18,8) 1175 (31,5) 2100 (56,3)	800 (21,4) 1300 (34,8) 2300 (61,6)
		100 (6,9) 150 (10,3) 250 (17,2)	1700 (45,6) 2000 (53,6) 2200 (59,0)	2400 (64,3) 2600 (69,7) 2600 (69,7)	2700 (72,4) 2800 (75,0) 2800 (75,0)
	15 (1,0)	25 (1,7) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,2)	700 (18,8) 1000 (26,8) 2100 (56,3) 2400 (64,3) 2600 (69,7)	1100 (29,5) 2100 (56,3) 2600 (69,7) 2700 (72,4) 2800 (75,0)	1200 (32,2) 2200 (59,0) 2800 (75,0) 3000 (80,4) 3000 (80,4)
3 to 20 (0,2 to 1,4)	5 (0,34)	15 (1,0) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,2)	350 (9,38) 575 (15,4) 1200 (32,2) 1600 (42,9) 1600 (42,9)	550 (14,7) 1100 (29,5) 1800 (48,2) 2100 (56,3) 1750 (46,9)	810 (21,7) 1800 (48,2) 2200 (59,0) 2500 (67,0) 2400 (64,3)
	10 (0,69)	20 (1,4) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,2)	450 (12,1) 900 (24,1) 1400 (37,5) 1800 (48,2) 2000 (53,6)	800 (21,4) 1700 (45,6) 2100 (56,3) 2300 (61,6) 2400 (64,3)	1050 (28,1) 2200 (59,0) 2600 (69,7) 2700 (72,4) 2800 (75,0)
	20 (1,4)	25 (1,7) 30 (2,1) 35 (2,4) 50 (3,4)	600 (16,1) 800 (21,4) 900 (24,1) 1300 (34,8)	900 (24,1) 1200 (32,2) 1375 (36,9) 2100 (56,3)	1050 (28,1) 1350 (36,2) 1560 (41,8) 2200 (59,0)
		100 (6,9) 150 (10,3) 250 (17,2)	2200 (59,0) 2400 (64,3) 2400 (64,3)	2500 (67,0) 2700 (72,4) 2800 (75,0)	2800 (75,0) 2900 (77,7) 3000 (80,4)
5 to 35 (0,34 to 2,4)	5 (0,34)	15 (1,0) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,2)	300 (8,04) 400 (10,7) 600 (16,1) 900 (24,1) 1200 (32,1)	375 (10,1) 650 (17,4) 1100 (29,5) 1350 (36,2) 2100 (56,3)	550 (14,7) 1100 (29,5) 1800 (48,2) 2200 (59,0) 2500 (67,0)
	15 (1,0)	25 (1,7) 50 (3,4) 100 (6,9) 150 (10,3) 200 (13,8)	500 (13,4) 700 (18,8) 1200 (32,2) 1800 (48,2) 2400 (64,3)	750 (20,1) 1300 (34,8) 2200 (59,0) 2400 (64,3) 2600 (69,7)	1100 (29,5) 2000 (53,6) 2500 (67,0) 2800 (75,0) 3000 (80,4)
	25 (1,7)	35 (2,4) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,2)	650 (17,4) 900 (24,1) 1500 (40,2) 2200 (59,0) 2400 (64,3)	1100 (29,5) 1600 (42,9) 2000 (53,6) 2400 (64,3) 2700 (72,4)	1400 (37,5) 2000 (53,6) 2600 (69,7) 2800 (75,0) 3000 (80,4)
	35 (2,4)	45 (3,1) 50 (3,4) 100 (6,9) 150 (10,3) 250 (17,3)	800 (21,4) 1050 (28,1) 2100 (56,3) 2200 (59,0) 2600 (69,7)	1400 (37,5) 1600 (42,9) 2300 (61,6) 2400 (64,3) 2800 (75,0)	1650 (44,2) 2000 (53,6) 2600 (69,7) 2800 (75,0) 3000 (80,4)

- continued -

Table 2. *Air Capacities (continued)*

OUTLET PRESSURE RANGE, PSIG (bar)	OUTLET PRESSURE SETTING, PSIG (bar)	INLET PRESSURE, PSIG (bar)	CAPACITIES IN SCFH (Nm³/h) OF AIR		
			5% Offset	10% Offset	20% Offset
30 to 60 (2,1 to 4,1)	30 (2,1)	40 (2,8)	700 (18,8)	1100 (29,5)	1500 (40,2)
		50 (3,4)	900 (24,1)	1450 (38,9)	2050 (54,9)
		100 (6,9)	1500 (40,2)	2000 (53,6)	2600 (69,7)
		150 (10,3)	2250 (60,5)	2400 (64,3)	2800 (75,0)
		250 (17,2)	2400 (64,3)	2500 (67,0)	3000 (80,4)
	40 (2,8)	50 (3,4)	900 (24,1)	1450 (38,9)	1900 (50,9)
		100 (6,9)	1700 (45,6)	2200 (59,0)	2700 (72,4)
		150 (10,3)	2500 (67,0)	2700 (72,4)	3000 (80,4)
		250 (17,2)	2800 (75,0)	3000 (80,4)	3300 (88,4)
	50 (3,4)	60 (4,1)	1000 (26,8)	1700 (45,6)	2100 (56,3)
		100 (6,9)	2000 (53,6)	2500 (67,0)	3000 (80,4)
		150 (10,3)	2600 (69,7)	3000 (80,4)	3400 (91,1)
		250 (17,2)	3000 (80,4)	3300 (88,4)	3800 (102)
	60 (4,1)	70 (4,8)	1300 (34,8)	2000 (53,6)	2400 (64,3)
		100 (6,9)	2300 (61,6)	2700 (72,4)	3200 (85,8)
		150 (10,3)	2800 (75,0)	3200 (85,8)	3600 (96,5)
		250 (17,2)	3200 (85,8)	3600 (96,5)	4000 (107)
35 to 100 (2,4 to 6,9)	40 (2,8)	50 (3,4)	600 (16,1)	1000 (26,8)	1400 (37,5)
		100 (6,9)	1500 (40,2)	2000 (53,6)	2400 (64,3)
		150 (10,3)	2200 (59,0)	2400 (64,3)	2600 (69,7)
		200 (13,8)	2400 (64,3)	2600 (69,7)	2800 (75,0)
		250 (17,2)	2600 (69,7)	2800 (75,0)	3100 (83,1)
	60 (4,1)	70 (4,8)	800 (21,4)	1300 (34,8)	1800 (48,2)
		100 (6,9)	2100 (56,3)	2500 (67,0)	3000 (80,4)
		150 (10,3)	2400 (64,3)	2700 (72,4)	3200 (85,8)
		200 (13,8)	2700 (72,4)	3000 (80,4)	3500 (93,8)
		250 (17,2)	3000 (80,4)	3300 (88,4)	3800 (102)
	80 (5,5)	90 (6,2)	1400 (37,5)	1900 (50,9)	2200 (59,0)
		100 (6,9)	2200 (59,0)	2500 (67,0)	3000 (80,4)
		150 (10,3)	2400 (64,3)	2700 (72,4)	3200 (85,8)
		200 (13,8)	2900 (77,7)	3100 (83,1)	3600 (96,5)
		250 (17,2)	3200 (85,8)	3500 (93,8)	4000 (107)
	100 (6,9)	110 (7,6)	1600 (42,9)	2400 (64,3)	2600 (69,7)
		150 (10,3)	2500 (64,0)	2900 (77,7)	3400 (91,1)
		200 (13,8)	3000 (80,4)	3300 (88,4)	3800 (102)
		250 (17,2)	3400 (91,1)	3700 (99,2)	4200 (113)
80 to 150 (5,5 to 10,3)	90 (6,2)	100 (6,9)	1500 (40,2)	2100 (56,3)	2500 (67,0)
		150 (10,3)	2400 (64,3)	2700 (72,4)	3200 (85,8)
		200 (13,8)	2900 (77,7)	3100 (83,1)	3600 (96,5)
		250 (17,2)	3200 (85,8)	3500 (93,8)	4000 (107)
	110 (7,6)	120 (8,3)	1700 (45,6)	2400 (64,3)	2900 (77,7)
		150 (10,3)	2500 (67,0)	2900 (77,7)	3400 (91,1)
		200 (13,8)	3000 (80,4)	3300 (88,4)	3800 (102)
		250 (17,2)	3400 (91,1)	3700 (99,2)	4200 (113)
	130 (9,0)	140 (9,7)	1900 (50,9)	2900 (77,7)	3400 (91,1)
		150 (10,3)	3200 (85,8)	3500 (93,8)	4000 (107)
		200 (13,8)	3400 (91,1)	3700 (99,2)	4200 (113)
		250 (17,2)	3600 (96,5)	3900 (105)	4400 (118)
	150 (10,3)	160 (11,0)	2100 (56,3)	3300 (88,4)	3800 (102)
		200 (13,8)	3500 (93,8)	3900 (105)	4400 (118)
		250 (17,2)	3800 (102)	4100 (110)	4600 (123)

1. For capacities in SCFH of 0.6 specific gravity gas, multiply tabulated values by 1.29.

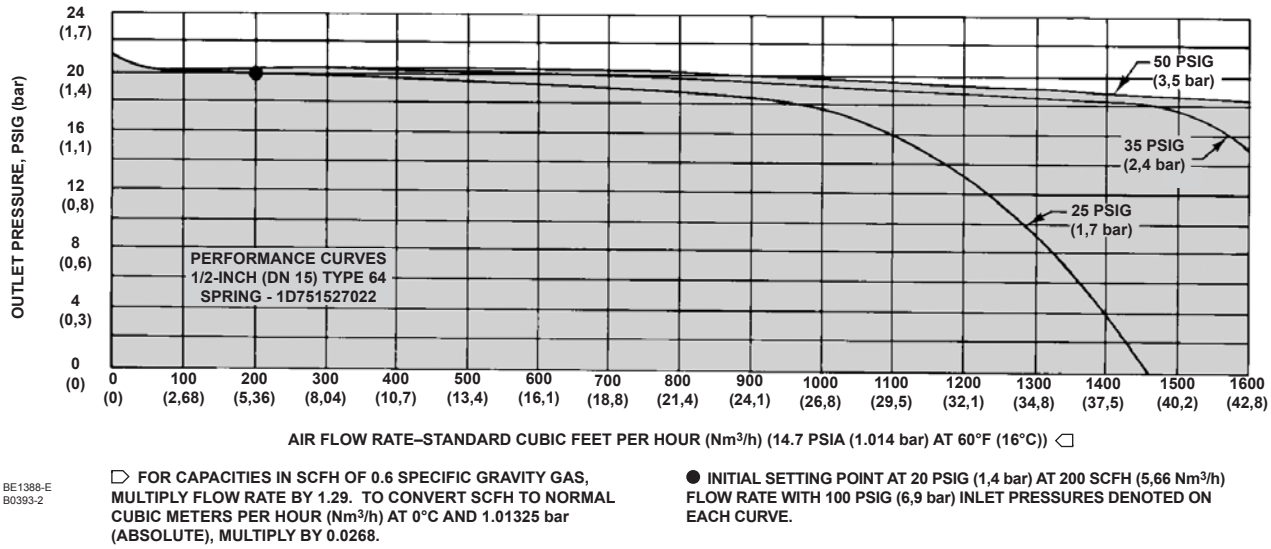


Figure 3. *Typical 64 Series Performance Curves*

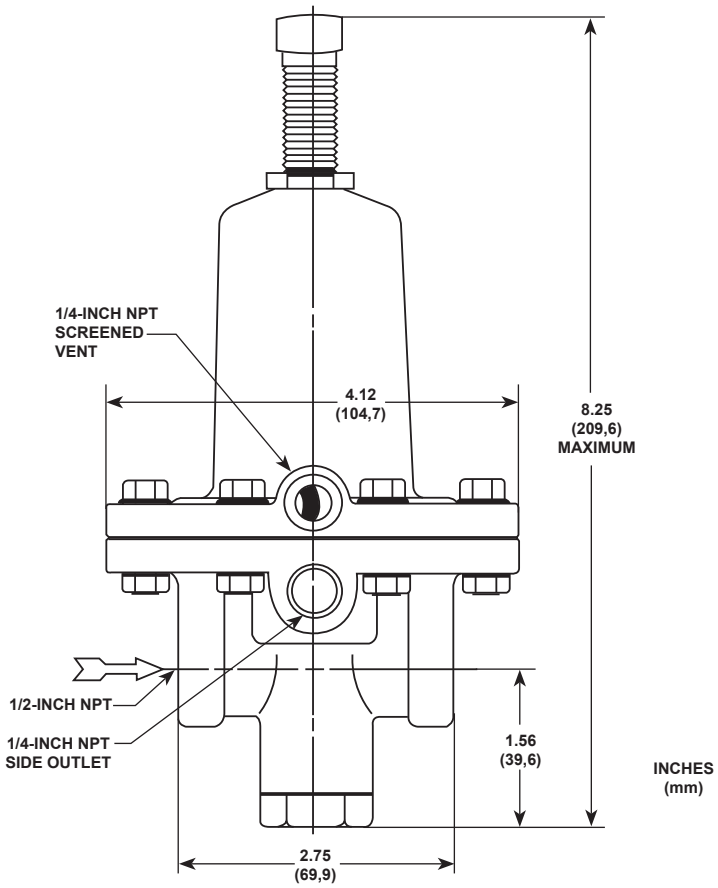


Figure 4. *Dimensions*

Ordering Information

Application Information

When ordering, specify:

1. Type of gas being controlled (air, ammonia, natural gas, nitrogen, etc.); list any factors such as impurities in the gas that may affect the compatibility of the gas with the regulator trim parts
2. Specific gravity of the gas
3. Temperature of the gas
4. Range of flowing inlet pressures to regulator
5. Outlet pressure setting or range
6. Flow rates
   a. Minimum controlled flow
   b. Normal flow
   c. Maximum flow
7. Line size and end connection size of adjacent piping

Regulator Information

Refer to the Specifications section and carefully review the description to the right of each specification and specify your choice whenever a selection is offered. Always specify the type number as identified in the Available Configurations specification. For information on UL-listed constructions, consult your Fisher Sales Representative or Sales Office.

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