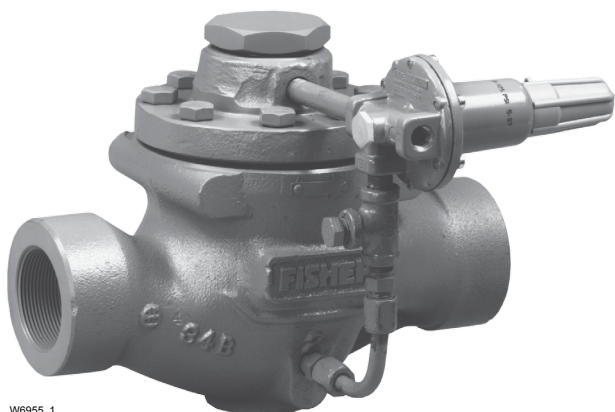


September 2016

Type 63EG Relief Valve or Backpressure Regulator



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Figure 1. Type 63EG

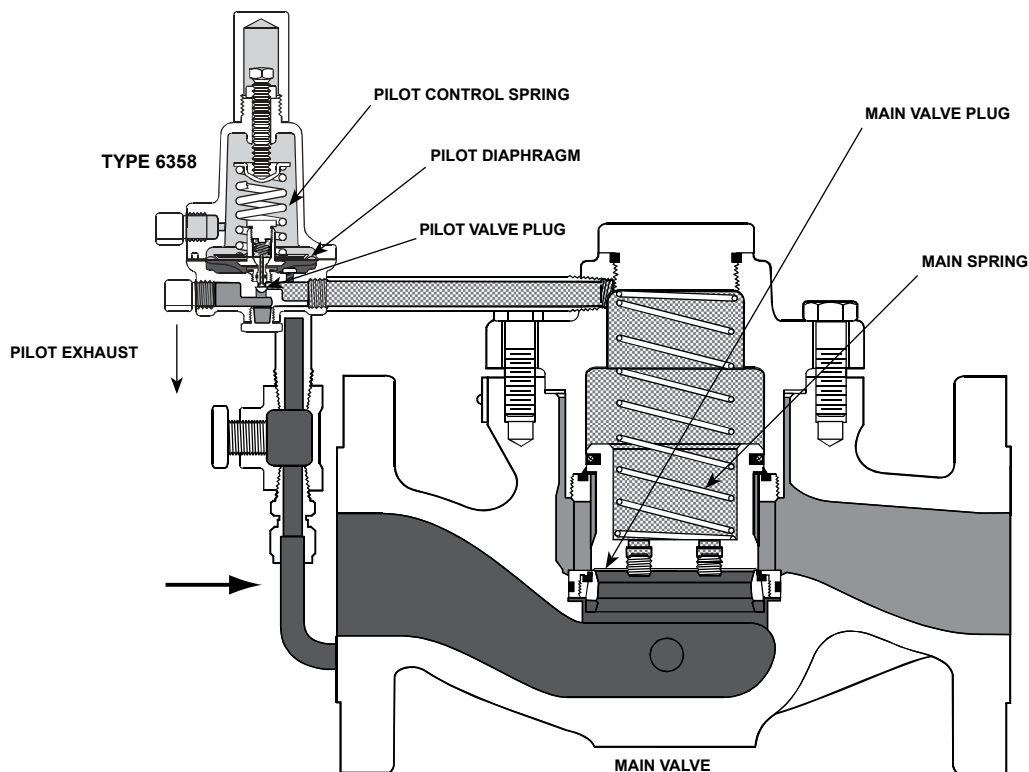


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Figure 2. Type 1098-63EGR

- **Noise Reduction Capability**—The Whisper Trim™ cage can reduce noise from high-velocity gas by as much as 10 decibels. Whisper Trim equipped regulators are especially engineered for high-pressure applications where sonic gas velocities are often encountered at relief valve outlets.
- **Easy In-Line Maintenance**—Top entry design reduces maintenance time. Trim parts can be inspected, cleaned and replaced without removing the body from the pipeline. If actuator is used, its stem need not be disconnected.
- **Stable Startup**—The unique hollow valve stem in the pilot provides quick pressure registration on top of the main valve plug preventing main valve unseating during normal system startup.
- **Fast Pilot Reseat**—The fixed restriction in the Types 6358B, 6358EB and 6358EBH pilots allows the valve plug to quickly reseal after operation.
- **Low Buildup**—6358 Series relief valve pilots reduce the buildup required for main valve to go wide-open, as shown in the capacity tables.

Type 63EG



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■ INLET PRESSURE
 ■ OUTLET PRESSURE/EXHAUST
 ■ ATMOSPHERIC PRESSURE
 ■ LOADING PRESSURE

Figure 3. Type 63EG Backpressure Regulator Operational Schematic

- Full Usable Capacity**—Fisher™ relief valves and backpressure regulators are laboratory tested. One hundred percent of the published capacities can be used with confidence.
- In-Service Travel Inspection**—The travel indicator allows inspection of plug travel without removing relief valve from service and simplifies system troubleshooting.
- Versatility in Both Liquid and Gas Service**—Pilot exhaust port and standard tapped pilot spring case each come with removable vent for remote piping when necessary. The standard tapped pilot spring case comes with an optional gasketed closing cap that permits pressure loading for remote pneumatic adjustment of the set pressure. For remote upstream registration, the pilot supply tubing may be disconnected at the 1/4 NPT main valve body tapping and this tapping plugged.
- Thorough Laboratory Testing**—Emerson state-of-the-art flow laboratory allows thorough testing of all new designs. Emerson conducts performance tests, such as flow, shutoff, material compatibility and noise abatement.
- Versatile**—Excellent performance in a wide range of overpressure and backpressure applications such as natural gas transmission and distribution stations, oilfield separators and pump recirculation. The 63EG Series is available in materials suitable for many applications such as NACE, Oxygen Service, natural gas and liquids.

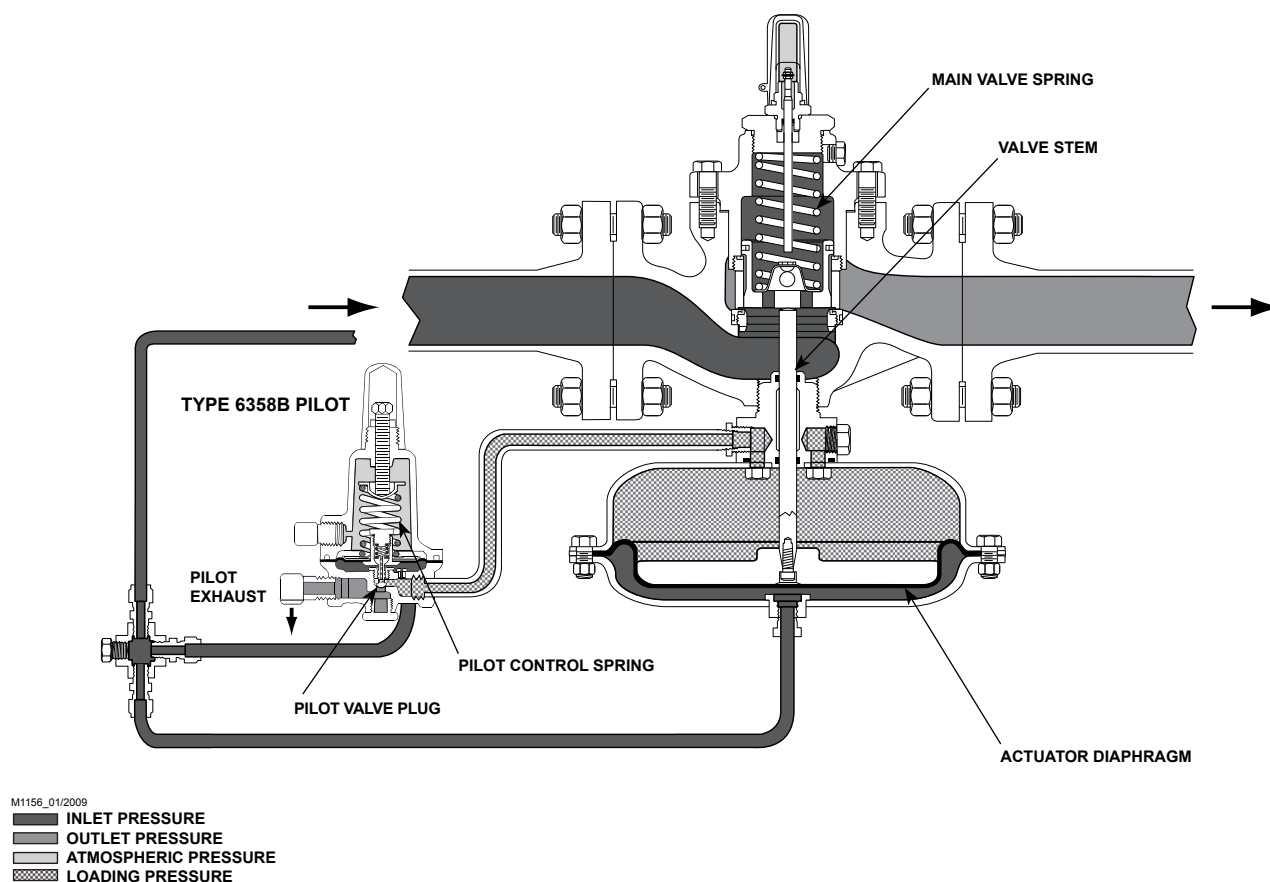


Figure 4. Type 1098-63EGR Relief Valve Operational Schematic

Introduction

Types 63EG and 1098-63EGR pilot-operated relief valves or backpressure regulators are suitable for both liquid and gas service and may also be used for throttling backpressure applications, such as on oilfield separators. These relief valves are combined with the 6358 Series pilots to result in the configurations shown in the Specifications section.

Principle of Operation

A pressure relief valve is a throttling pressure control device that opens and closes to ensure the upstream pressure does not rise above a predetermined pressure. A backpressure regulator is a device that controls and responds to changes in the upstream pressure. It functions the same as a relief valve in that it opens on increasing upstream pressure.

The Types 63EG and 1098-63EGR relief valves are not ASME safety relief valves.

Type 63EG

Relief Valve

As long as the inlet pressure is below the set pressure, the Type 6358B, 6358EB or 6358EBH pilot control spring keeps the pilot valve plug closed. Inlet pressure passes through the pilot restriction and through the hollow passage of the valve plug then registers as loading pressure on top of the main valve plug. Force from the main spring, in addition to pilot loading pressure, provides downward loading pressure to keep the main valve plug tightly closed.

When the inlet pressure rises above the set pressure, the pressure on the pilot diaphragm overcomes the control spring and opens the valve plug. The pilot then exhausts the loading pressure from the top of the main valve plug. The pilot continuously exhausts gas while inlet pressure is above the set pressure. The inlet pressure unbalance overcomes the main spring force and opens the main valve plug.

Type 63EG

Specifications

This section lists the specifications for Type 63EG relief valves or backpressure regulators. Factory specification is stamped on the nameplate fastened on the regulator at the factory.

Available Constructions

Type 63EG with a 6358 Series Pilot

Type 1098-63EGR with a Type 6358B Pilot

Main Valve Body and End Connection Styles⁽¹⁾⁽²⁾

MAIN VALVE BODY SIZE		END CONNECTION STYLES AND RATINGS	
NPS	DN	Cast Iron	Steel or Stainless Steel
1, 2	25, 50	NPT; CL125 FF or CL250 RF flanged	NPT; BWE; SWE; CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 flanged
3, 4, 6	80, 100, 150	CL125 FF or CL250 RF flanged	BWE; CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 flanged
8 x 6 or 12 x 6	200 x 150 or 300 x 150	----	CL150, CL300, CL600 or BWE

Maximum Relief (Inlet⁽³⁾) Pressure⁽²⁾

Type 63EG: 400 psig / 27.6 bar or body rating, whichever is lower

Type 1098-63EGR: 82 psig / 5.6 bar

Maximum Actuator Pressures⁽²⁾ (Standard Size 40 with Type 1098-63EGR Only)

Set Pressure⁽⁴⁾: 65 psig / 4.5 bar

Operating Pressure⁽³⁾: 75 psig / 5.2 bar

Emergency Casing Pressure: 82 psig / 5.6 bar

Relief Set Pressure/Backpressure Control Ranges⁽⁴⁾

See Table 1

Flow Coefficients at Maximum Rated Travels

See Table 2

IEC Sizing Coefficients

See Table 3

Minimum and Maximum Differential Pressures⁽²⁾

See Table 4

Flow Capacities

Tables 5 and 6; and Capacity Information section

Main Valve Port Diameters and Valve Plug Travels

BODY SIZE		PORT DIAMETER		VALVE PLUG TRAVEL	
NPS	DN	In.	mm	In.	mm
1	25	1.31	33	0.75	19
2	50	2.38	60	1.13	29
3	80	3.38	86	1.50	38
4	100	4.38	111	2.00	51
6, 8 x 6 and 12 x 6	150, 200 x 150 and 300 x 150	7.19	183	2.00	51

Main Valve Flow Characteristic

Linear (**standard**) or Whisper Trim™ III (Optional)

Main Valve Flow Direction

Up through seat ring and out through cage

Dimensions and Pilot Connections

See Figure 7

Temperature Capabilities⁽²⁾

Nitrile (NBR):

-20 to 180°F / -29 to 82°C

Fluorocarbon (FKM):

0 to 300°F / -18 to 149°C

Water is limited to 0 to 180°F / -18 to 82°C

Ethylene propylene (EPR):

-20 to 275°F / -29 to 135°C

Perfluoroelastomer (FFKM):

0 to 425°F / -18 to 218°C

Options

- Aluminum or Stainless steel Type 252 pilot supply filter
- Brass Type P594-1 filter
- Pressure gauges⁽⁵⁾
- NACE Construction

Approximate Weights (including pilot)

Type 63EG

NPS 1 / DN 25: 35 lbs / 16 kg

NPS 2 / DN 50: 55 lbs / 25 kg

NPS 3 / DN 80: 95 lbs / 43 kg

NPS 4 / DN 100: 145 lbs / 66 kg

NPS 6 / DN 150: 330 lbs / 150 kg

NPS 8 x 6 / DN 200 x 150: 670 lbs / 304 kg

NPS 12 X 6 / DN 300 X 6: 1150 lbs / 521 kg

Type 1098-63EGR

NPS 1 / DN 25: 65 lbs / 29 kg

NPS 2 / DN 50: 85 lbs / 39 kg

NPS 3 / DN 80: 125 lbs / 57 kg

NPS 4 / DN 100: 175 lbs / 79 kg

NPS 6 / DN 150: 360 lbs / 163 kg

NPS 8 x 6 / DN 200 x 150: 700 lbs / 318 kg

NPS 12 X 6 / DN 300 X 6: 1180 lbs / 535 kg

1. EN (or other) ratings and end connections can usually be supplied; contact your local Sales Office for availability.

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

3. Includes buildup.

4. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

5. Consult your local Sales Office for information on available gauges and units of measurement.

- continued -

Specifications (continued)

Construction Materials

Type 1098 Actuator*Bonnet:* Steel or Stainless steel*Diaphragm Case:* Steel or 304 Stainless steel*Diaphragm Plate:* Cast iron or Stainless steel*Diaphragm and O-rings:* Nitrile (NBR) **(standard)**, Fluorocarbon (FKM), Ethylenepropylene (EPDM) or Perfluoroelastomer (FFKM)*Stem:* 17-4 PH Stainless steel **(standard)** or 316 Stainless steel**Type 63EG Main Valve***Body and Body Flange:* WCC steel, Cast iron or CF8M Stainless steel*Cage:* Stainless steel (standard linear), 416 or 316 Stainless steel (Whisper Trim™ III)*Seat Ring and Valve Plug:* 410/416 Stainless steel **(standard)**, 316 Stainless steel*Spring:* Zinc-plated steel **(standard)** or Inconel® X750*Piston Ring:* Polytetrafluoroethylene (PTFE)*O-rings, Gaskets and Other Elastomer Parts:* Nitrile (NBR) **(standard)**, Fluorocarbon (FKM) or Ethylenepropylene (EPR)

Construction Materials (continued)

Type 63EG Main Valve*Indicator Stem:* 18-8 Stainless steel **(standard)** or 316 Stainless steel (NACE)*Lower Indicator Fitting:* Zinc-plated steel*Stem O-Ring:* Nitrile (NBR) **(standard)**, Fluorocarbon (FKM) or Ethylenepropylene (EPR)**6358 Series Pilots***Body and Spring Case:* CF8M Stainless steel or Aluminum (for Types 6358 and 6358B only)*Body Plug:* 303 Stainless steel or Aluminum*Valve Plug/Stem Assembly:* Nitrile (NBR) **(standard)** or Fluorocarbon (FKM) (high temperature) plug with stainless steel stem or UHMWPE*Spring:* Zinc-plated steel*Diaphragm:* Nitrile (NBR) **(standard)** or Fluorocarbon (FKM) (high temperature)*Spring Seat:* Zinc-plated steel*Gaskets:* Fluorocarbon (FKM) or Composition*Stem Guide and Valve Spring:* Stainless steel*Adjusting Screw:* Zinc-plated steel*O-rings:* Nitrile (NBR) or Fluorocarbon (FKM)*Locknut:* Zinc-plated steel

Table 1. Relief Set Pressure and Backpressure Control Ranges

TYPE	PILOT TYPE	RELIEF SET PRESSURE RANGE ⁽¹⁾		SPRING PART NUMBER	SPRING COLOR	SPRING WIRE DIAMETER		SPRING FREE LENGTH	
		psig	bar			In.	mm	In.	mm
63EG	6358	10 to 40	0.69 to 2.8	1E392527022	Yellow	0.148	3.76	2.00	50.8
		35 to 125	2.4 to 8.6	1K748527202	Red	0.187	4.75	2.19	55.6
	6358B	10 to 30	0.69 to 2.1	1B788327022	Silver	0.142	3.61	2.13	54.1
		30 to 60	2.1 to 4.1	1B788427022	Blue	0.182	4.62	1.94	49.3
	6358EB	60 to 125	4.1 to 8.6	1K748527202	Red	0.187	4.75	2.19	55.6
1098-63EGR	6358EBH	85 to 140	5.9 to 9.6	17B1261X012	Green	0.225	5.72	3.70	94.0
		130 to 200	9.0 to 13.8	17B1263X012	Blue	0.262	6.65	3.85	97.8
		180 to 350	12.4 to 24.1	17B1264X012	Red	0.294	7.47	4.22	107
		250 to 400	17.2 to 27.6	17B1263X012	Blue	0.262	6.65	3.85	97.8
		3 to 18	0.21 to 1.2	1B986027212	Green	0.120	3.05	2.12	53.8
	6358B	15 to 40	1.0 to 2.8	1E392527022	Yellow	0.148	3.76	2.00	50.8
		35 to 65	2.4 to 4.5	1K748527202	Red	0.187	4.75	2.19	55.6

1. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

Table 2. Flow Coefficients at Maximum Rated Travels

BODY SIZE		PIPING STYLE													
		Line Size Equals Body Size							2:1 Line Size to Body Size						
		Linear Cage			Whisper Trim III Cage			K _m	Linear Cage			Whisper Trim III Cage			K _m
NPS	DN	C _g	C _v	C _i	C _g	C _v	C _i		C _g	C _v	C _i	C _g	C _v	C _i	
1	25	600	17.2	35.7	576	17.0	33.7	0.71	568	16.8	33.0	529	15.5	34.0	0.71
2	50	2280	63.3	36.0	1970	54.7	36.0	0.71	2050	59.6	34.4	1830	52.2	35.0	0.71
3	80	4630	132	35.1	3760	107	35.0	0.71	4410	128	34.4	3630	106	34.2	0.71
4	100	7320	202	36.2	6280	180	34.8	0.71	6940	198	35.0	6020	171	35.2	0.71
6	150	12,900	397	32.5	9450	295	32.0	0.71	12,100	381	31.7	9240	291	31.7	0.71
8 x 6	200 x 150	17,800	556	32.0	10,500	300	35.0	0.71	17,100	534	32.0	10,270	293	35.0	0.71

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Type 63EG

Table 3. IEC Sizing Coefficients

BODY SIZE		X_T	F_D	F_L
NPS	DN			
1	25	0.81	0.43	0.84
2	50	0.82	0.35	0.84
3	80	0.78	0.30	0.84
4	100	0.83	0.28	0.84
6 or 8 x 6	150 or 200 x 150	0.67	0.28	0.84

As the inlet pressure drops below the set pressure, the pilot control spring closes the pilot valve plug and the exhaust to atmosphere stops. Force from the main spring, along with pilot loading pressure, pushes the main valve plug onto the seat, producing tight shutoff.

Backpressure Regulator

As long as inlet pressure remains below set pressure, the Type 6358 pilot control spring keeps the pilot valve plug closed. Inlet pressure bleeds around the upper portion of the pilot valve plug and then through the hollow passage of that valve plug to produce loading pressure on the main valve plug. This loading pressure along with force from the main spring provides the pressure to keep the main valve plug tightly closed.

When inlet pressure rises above the set pressure, the pressure on the pilot diaphragm overcomes the control spring to close the upper portion of the valve plug and stroke the valve plug to open the lower port. The pilot exhausts loading pressure from the top of the main valve plug. Inlet pressure unbalance overcomes the main spring force to open the plug.

While the main valve is throttling, the upper port of the pilot stays closed. The pilot exhausts only when it repositions the main valve. As inlet pressure drops below setpoint, the pilot control spring overcomes the diaphragm force to stroke the valve plug down to close the lower port and open the upper port. Force from the main spring, along with pilot loading pressure, builds up to close the main valve plug.

Type 1098-63EGR Relief Valve

As long as inlet pressure remains below set pressure, the Type 6358B pilot control spring keeps the pilot valve plug closed. Inlet pressure bleeding through the pilot restriction and the hollow passage of the valve stem loads the stem side of the actuator diaphragm, balancing the actuator and letting the main valve spring keep the main valve plug tightly shutoff.

An inlet pressure rise above the set pressure overcomes the pilot control spring and opens the pilot valve plug. Loading pressure bleeds out the pilot exhaust faster than it can be replaced through the pilot restriction. The pilot continuously exhausts gas while inlet pressure is above the set pressure. This permits inlet pressure to unbalance the actuator diaphragm and push the actuator stem against the main valve plug causing it to open.

As inlet pressure drops back to set pressure, the pilot control spring closes the pilot valve plug. Loading pressure again builds up to balance the actuator and let the main valve plug close.

Pilot Descriptions

The following pilot configurations are available.

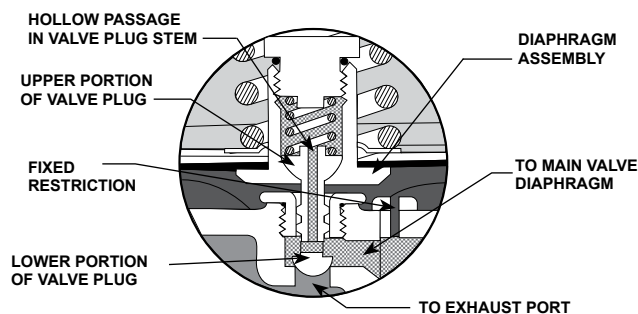
Relief Valve

For relief valve application use a Type 6358B, 6358EB or 6358EBH relief pilot. The pilot bleeds constantly while the relief valve is in operation. The pilot does not bleed when inlet pressure is below set pressure. The pilot exhaust can be connected directly to the main valve vent stack if the pilot connection and the exhaust vent stack are designed to prevent significant backpressure buildup during full-flow conditions.

Type 6358B—Set pressure range from 10 to 125 psig / 0.69 to 8.6 bar in two ranges. This pilot is available with a high, medium or low-gain restriction.

Type 6358EB—Set pressure range of 85 to 350 psig / 5.9 to 24.1 bar in three ranges. This pilot is available with a high or low-gain restriction.

Type 6358EBH—Set pressure range of 250 to 400 psig / 17.2 to 27.6 bar in two ranges. This pilot is available with a high or low-gain restriction.

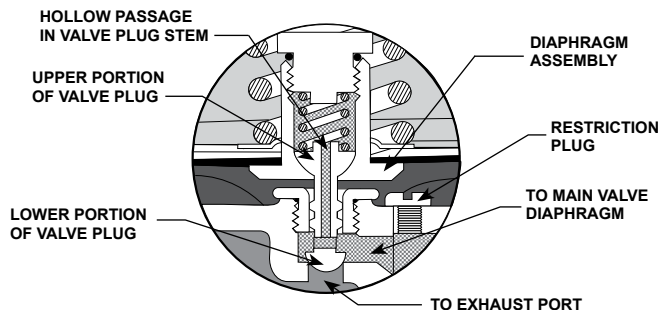


EXPANDED VIEW OF THE TYPE 6358B RELIEF PILOT DIAPHRAGM ASSEMBLY AND VALVE PLUG

A2787_3_11/2008

INLET PRESSURE
OUTLET (EXHAUST) PRESSURE
ATMOSPHERIC PRESSURE
LOADING PRESSURE

Figure 5. Type 6358B Operational Schematic



EXPANDED VIEW OF THE TYPE 6358 BACKPRESSURE PILOT DIAPHRAGM ASSEMBLY AND VALVE PLUG

A2787_4_11/2008

INLET PRESSURE
OUTLET (EXHAUST) PRESSURE
ATMOSPHERIC PRESSURE
LOADING PRESSURE

Figure 6. Type 6358 Operational Schematic

Backpressure Regulator

The Type 6358 is a low bleed pilot, so it only exhausts while it is repositioning the main valve. There is no constant bleed with this construction which is useful for backpressure applications where minimizing emissions is important and the pilot exhaust can not be piped to the downstream piping. This also minimizes dirt buildup in the pilot. The Type 6358 has a set pressure range of 10 to 125 psig / 0.69 to 8.6 bar in two ranges. The Types 6358B, 6358EB and 6358EBH relief pilots can also be used in backpressure applications but they will exhaust any time inlet pressure is above setpoint.

Optional Pilot Supply Filter

A Type 252 or P590 Series pilot supply filter prevents pipeline debris from entering the pilot; a primary cause of pilot clogging. When the upstream system is free of debris, a filter is not necessary. Pilot supply filters are not typically used in relief applications because filter plugging may hamper pilot operation.

Installation

On both the Types 63EG and 1098-63EGR relief valves, normal pressure drop assists shutoff. Therefore, leakage may result during any reverse pressure drop condition.

These valves may be installed in any position desired as long as the flow through the main valve complies with the flow arrow on the body. An upstream control line is not required because of the integral pilot supply tubing, although this tubing may be disconnected for remote upstream registration and the main valve body tapping plugged.

For safety during shutdown, vent valves will be required immediately upstream and downstream of the main valve on backpressure or bypass installations.

Dimensions are shown in Figure 7.

Type 63EG

Table 4. Minimum and Maximum Differential Pressures

BODY SIZE		MAIN VALVE SPRING RANGE		MAIN VALVE SPRING PART NUMBER	MAIN VALVE SPRING COLOR	TYPE 63EG				TYPE 63EG WITH TYPE 1098 SIZE 40 ACTUATOR			
						Minimum Differential Pressure Required For Full Stroke		Maximum Differential Pressure		Minimum Differential Pressure Required For Full Stroke		Maximum Differential Pressure	
						psig	bar	psig	bar	psig	bar	psig	bar
1	25	30 to 125	2.1 to 8.6	14A9687X012 14A9679X012	Green Red	70	4.8	125	8.6	2.5	0.17	60	4.1
		85 to 400	5.9 to 27.6			150	10.3	400	27.6	----	----	----	----
2	50	10 to 40	0.69 to 2.8	14A6768X012 14A6626X012 14A6628X012	Yellow Green Red	22	1.5	40	2.8	2	0.14	20	1.4
		30 to 125	2.1 to 8.6			30	2.1	125	8.6	3	0.21	60	4.1
		85 to 400	5.9 to 27.6			90	6.2	400	27.6	----	----	----	----
3	80	10 to 40	0.69 to 2.8	14A6771X012 14A6629X012 14A6631X012	Yellow Green Red	19	1.3	40	2.8	2.5	0.17	20	1.4
		30 to 125	2.1 to 8.6			25	1.7	125	8.6	4	0.28	60	4.1
		85 to 400	5.9 to 27.6			60	4.1	400	27.6	----	----	----	----
4	100	10 to 40	0.69 to 2.8	14A6770X012 14A6632X012 14A6634X012	Yellow Green Red	16	1.1	40	2.8	3.5	0.24	20	1.4
		30 to 125	2.1 to 8.6			20	1.4	125	8.6	5	0.34	60	4.1
		85 to 400	5.9 to 27.6			55	3.8	400	27.6	----	----	----	----
6, 8 x 6, 12 x 6	150, 200 x 150, 300 x 150	10 to 40	0.69 to 2.8	15A2253X012 14A9686X012 15A2615X012	Yellow Green Red	16	1.1	40	2.8	6	0.41	20	1.4
		30 to 125	2.1 to 8.6			20	1.4	125	8.6	9.5	0.66	60	4.1
		85 to 400	5.9 to 27.6			55	3.8	400	27.6	----	----	----	----

Capacity Information

Gases

Tables 5 and 6 give relief capacities at selected set pressures for the Types 63EG and 1098-63EGR respectively. Flows are in SCFH (at 60°F and 14.7 psia) and Nm³/h (at 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 given capacity by the appropriate conversion factor: 0.775 for air, 0.625 for propane, 0.547 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.

To determine relief capacities at set pressures or build-ups not provided in the capacity tables, use one of the following formulas. Then, if capacity is desired in normal cubic meters per hour at 0°C and 1.01325 bar, multiply SCFH by 0.0268.

Critical Pressure Drops

For critical pressure drops (absolute outlet pressure equal to or less than one-half of absolute inlet pressure), use the following formula:

$$Q = (P_1 + \text{Buildup})_{\text{abs}} C_g \sqrt{\frac{520}{GT}}$$

where,

- Q = flow capacity in SCFH
- (P₁ + buildup)_{abs} = set pressure (absolute pressure = gauge in psi + buildup in psi + 14.7)
- C_g = gas sizing coefficient from Table 2
- G = gas specific gravity (air = 1.0)
- T = absolute temperature of gas in °Rankine (°Rankine = °F + 460)

Note

Buildup must be at least the minimum buildup required to fully open the valve.

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING	
NPS	DN				psig	bar	psig	bar	psig	bar	psig	bar	SCFH	Nm ³ /h
1	25	6358	Green	35 to 125 / 2.4 to 8.6 1K748527202 Red	60 80 100 125	4.1 5.5 6.9 8.6	8.5 3.0 2.5 2.5	0.59 0.21 0.17 0.17	10.0 3.0 3.5 3.5	0.69 0.21 0.24 0.24	5.0	0.34	62,000 72,000 87,000 105,000	1662 1930 2332 2814
				60 to 125 / 4.1 to 8.6 1K748527202 Red	60 80 100 125	4.1 5.5 6.9 8.6	2.7	0.19	10.0 3.0 3.5 3.5	0.69 0.21 0.24 0.24			62,000 72,000 87,000 105,000	1662 1930 2332 2814
				85 to 140 / 5.9 to 9.6 17B1261X012 Green	85 100 125 140	5.7 6.9 8.6 9.6			72.0 57.0 32.0 17.0	5.0 3.9 2.2 1.2	2.0	0.14	126,000	3377
				130 to 200 / 9.0 to 13.8 17B1263X012 Blue	140 150 175 200	9.6 10.3 12.1 13.8			17.0 14.0 12.0 12.0	1.2 0.97 0.83 0.83			126,000 131,000 148,000 166,000	3377 3511 3966 4449
		6358EB	Red	180 to 350 / 12.4 to 24.1 17B1264X012 Red	200 250 300 350	13.8 17.2 20.7 24.1	6.0	0.41	12.0 12.0 12.0 12.0	0.83 0.83 0.83 0.83	3.0	0.21	166,000 203,000 239,000 276,000	4449 5440 6405 7397
				250 to 400 / 17.2 to 27.6 ⁽⁵⁾ 17B1263X012 Blue	300 350 375	20.7 24.1 25.9			13.0 13.0 14.0	0.90 0.90 0.97			240,000 277,000 296,000	6432 7424 7933
		6358EBH	Red											

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).
2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.
3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.
4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.
5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

- continued -

Non-Critical Pressure Drops

For pressure drops lower than critical (absolute outlet pressure greater than one-half of absolute inlet pressure), use the following formula:

$$Q = \sqrt{\frac{520}{GT}} C_g (P_1 + \text{Buildup})_{\text{abs}} \sin \left[\frac{3417}{C_1} \sqrt{\frac{\Delta P}{P_1}} \right] \text{DEG}$$

where,

- Q = flow capacity in SCFH
- $(P_1 + \text{buildup})_{\text{abs}}$ = set pressure (absolute pressure = gauge in psi + buildup in psi + 14.7)
- C_g = gas sizing coefficient from Table 2
- G = gas specific gravity (air = 1.0)
- T = absolute temperature of gas in °Rankine (°Rankine = °F + 460)
- C_1 = C_g/C_v from Table 2
- ΔP = pressure drop across valve (psig)

Liquids

To determine flow capacity for liquid relief valves, use the following equation in conjunction with the appropriate liquid sizing coefficient (C_v) from Table 2:

$$Q = C_v \sqrt{\frac{\Delta P}{G}}$$

where,

- Q = liquid flow rate, GPM
- C_v = liquid sizing coefficient
- ΔP = pressure drop across the regulator, psi
- G = specific gravity (specific gravity of water is 1)

If capacity is desired in liters per minute, multiply GPM by 3.785 or if capacity is desired in cubic meters per hour, multiply GPM by 0.2271.

Type 63EG

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots (continued)

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING	
NPS	DN				psig	bar	psig	bar	psig	bar	psig	bar	SCFH	Nm ³ /h
2	50	6358	Yellow	10 to 40 / 0.69 to 2.8	10	0.69	5.5	0.38	12.0	0.83	5.0	0.34	95,000	2546
				1E392527022	15	1.0	2.0	0.14	7.0	0.48			95,000	2546
				Yellow	20	1.4	1.7	0.12	2.5	0.17			96,000	2573
					30	2.1	1.7	0.12	2.0	0.14			122,000	3270
			Green	35 to 125 psig / 2.4 to 8.6	40	2.8	2.0	0.14	2.5	0.17			151,000	4047
				1K748527202	50	3.5	2.0	0.14	2.5	0.17			178,000	4770
				Red	60	4.1	2.0	0.14	2.5	0.17			204,000	5467
					80	5.5	2.4	0.17	3.0	0.21			258,000	6914
					100	6.9	2.4	0.17	3.0	0.21			311,000	8335
					125	8.6	2.4	0.17	3.0	0.21			377,000	10,104
		6358B	Yellow	10 to 30 / 0.69 to 2.1	10	0.69	5.5	0.38	12.0	0.83	1.0	0.07	95,000	2546
				1B788327022	15	1.0	2.0	0.14	7.0	0.48			95,000	2546
				Silver	20	1.4	1.7	0.12	2.5	0.17			96,000	2573
					30	2.1	1.7	0.12	2.0	0.14			122,000	3270
			Green	30 to 60 / 2.1 to 4.1	30	2.1	1.7	0.12	2.5	0.17			124,000	3323
				1B788427022	40	2.8	1.7	0.12	2.0	0.14			149,000	3993
				Blue	50	3.4	1.7	0.12	2.0	0.14			176,000	4717
					60	4.1	1.7	0.12	2.0	0.14			203,000	5440
		6358EB	Green	60 to 125 / 4.1 to 8.6	60	4.1	2.0	0.14	2.5	0.17			204,000	5467
				1K748527202	80	5.5	2.4	0.17	3.0	0.21			258,000	6914
				Red	100	6.9	2.4	0.17	3.0	0.21			311,000	8335
					125	8.6	2.4	0.17	3.0	0.21			377,000	10,104
			Red	85 to 140 / 5.9 to 9.6	85	5.9	1.7	0.12	10.0	0.69	2.0	0.14	290,000	7772
				17B1261X012	100	6.9	1.7	0.12	4.0	0.28			314,000	8415
				Green	125	8.6	2.2	0.15	4.0	0.28			380,000	10,184
					140	9.6	2.2	0.15	4.0	0.28			420,000	11,256
				130 to 200 / 9.0 to 13.8	140	9.6	4.0	0.28	7.0	0.48	3.0	0.21	428,000	11,470
				17B1263X012	150	10.3	4.0	0.28	7.0	0.48			454,000	12,167
				Blue	175	12.1	5.0	0.34	8.0	0.55			523,000	14,016
					200	13.8	5.0	0.34	8.0	0.55			589,000	15,785
			Red	180 to 350 / 12.4 to 24.1	200	13.8	5.0	0.34	8.0	0.55			589,000	15,785
				17B1264X012	250	17.2	5.0	0.34	8.0	0.55			721,000	19,323
				Red	300	20.7	5.5	0.38	8.5	0.59			855,000	22,914
					350	24.1	5.5	0.38	8.5	0.59			987,000	26,452
		6358EBH	Red	250 to 400 / 17.2 to 27.6 ⁽⁵⁾	300	20.7	6.0	0.41	10.0	0.69	6.0	0.41	859,000	23,021
				17B1263X012	350	24.1	6.0	0.41	10.0	0.69			991,000	26,559
				Blue	375	25.9	7.0	0.48	11.0	0.76			1,060,000	28,408

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

- continued -

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots (continued)

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING		
					psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	SCFH
3	80	6358	Yellow	10 to 40 / 0.69 to 2.8	10	0.69	3.5	0.24	9.0	0.62	5.0	0.34	185,000	4958	
				1E392527022	15	1.0	1.3	0.09	4.0	0.28			185,000	4958	
				Yellow	20	1.4	1.2	0.08	2.0	0.14			203,000	5440	
					30	2.1	1.2	0.08	1.5	0.10			260,000	6968	
			Green	35 to 125 psig / 2.4 to 8.6	40	2.8	2.0	0.14	2.5	0.17			324,000	8683	
				1K748527202	50	3.4	2.0	0.14	2.5	0.17			382,000	10,238	
				Red	60	4.1	2.0	0.14	2.5	0.17			439,000	11,765	
					80	5.5	2.0	0.14	2.5	0.17			555,000	14,874	
				100	6.9	2.4	0.17	3.0	0.21	670,000	17,956				
				125	8.6	2.4	0.17	3.0	0.21	812,000	21,762				
			6358B	Yellow	10 to 30 / 0.69 to 2.1	10	0.69	3.5	0.24	9.0	0.62	1.0	0.07	185,000	4958
					1B788327022	15	1.0	1.3	0.09	4.0	0.28			185,000	4958
		Silver			20	1.4	1.2	0.08	2.0	0.14	203,000			5440	
					30	2.1	1.2	0.08	1.5	0.10	260,000			6968	
		Green		30 to 60 / 2.1 to 4.1	30	2.1	1.6	0.11	2.0	0.14	263,000			7048	
				1B788427022	40	2.8					322,000			8630	
				Blue	50	3.4					379,000			10,157	
					60	4.1					436,000			11,685	
			60 to 125 / 4.1 to 8.6	60	4.1	2.0	0.14	2.5	0.17	439,000	11,765				
			1K748527202	80	5.5	2.0	0.14	2.5	0.17	553,000	14,820				
			Red	100	6.9	2.4	0.17	3.0	0.21	670,000	17,956				
				125	8.6	2.4	0.17	3.0	0.21	812,000	21,762				
		6358EB	Red	85 to 140 / 5.9 to 9.6	85	5.9	1.7	0.12	3.0	0.21	2.0	0.14	584,000	15,651	
				17B1261X012	100	6.9	1.7	0.12	3.0	0.21			670,000	17,956	
				Green	125	8.6	2.2	0.15	3.5	0.24			815,000	21,842	
					140	9.6	2.2	0.15	3.5	0.24			900,000	24,120	
				130 to 200 / 9.0 to 13.8	140	9.6	4.0	0.28	6.0	0.41			914,000	24,495	
				17B1263X012	150	10.3	4.0	0.28	6.0	0.41			971,000	26,023	
Blue	175			12.1	5.0	0.34	7.0	0.48	1,119,000	29,989					
	200			13.8	5.0	0.34	7.0	0.48	1,261,000	33,795					
	180 to 350 / 12.4 to 24.1		200	13.8	5.0	0.34	7.0	0.48	1,261,000	33,795					
	17B1264X012		250	17.2	5.0	0.34	7.0	0.48	1,546,000	41,433					
	Red		300	20.7	5.5	0.38	7.5	0.52	1,833,000	49,124					
			350	24.1	5.5	0.38	7.5	0.52	2,117,000	56,736					
6358EBH	Red	250 to 400 / 17.2 to 27.6 ⁽⁵⁾	300	20.7	6.0	0.41	8.5	0.59	6.0	0.41	1,839,000	49,285			
		17B1263X012	350	24.1	6.0	0.41	8.5	0.59			2,123,000	56,896			
		Blue	375	25.9	7.0	0.48	9.5	0.66			2,271,000	60,863			

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

- continued -

Type 63EG

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots (continued)

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING			
					psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	SCFH	Nm³/h
4	100	6358	Yellow	10 to 40 / 0.69 to 2.8	10	0.69	1.5	0.10	6.0	0.41	5.0	0.34	259,000	6941		
				1E392527022	15	1.0	1.2	0.08	2.0	0.14			269,000	7209		
				Yellow	20	1.4	1.2	0.08	1.5	0.10			313,000	8388		
					30	2.1	1.2	0.08	1.5	0.10			408,000	10,934		
			Green	35 to 125 psig / 2.4 to 8.6	40	2.8	1.6	0.11	2.5	0.17			509,000	13,641		
				1K748527202	50	3.4	1.6	0.11	2.5	0.17			600,000	16,080		
				Red	60	4.1	1.6	0.11	2.5	0.17			691,000	18,519		
					80	5.5	2.0	0.14	2.5	0.17			873,000	23,396		
				100	6.9	2.4	0.17	3.0	0.21	1,054,000	28,247					
				125	8.6	2.4	0.17	3.0	0.21	1,278,000	34,250					
			6358B	Yellow	10 to 30 / 0.69 to 2.1	10	0.69	1.5	0.10	6.0	0.41	1.0	0.07	259,000	6941	
					1B788327022	15	1.0	1.2	0.08	2.0	0.14			269,000	7209	
		Silver			20	1.4	1.2	0.08	1.5	0.10	313,000			8388		
					30	2.1	1.2	0.08	1.5	0.10	408,000			10,934		
		Green		30 to 60 / 2.1 to 4.1	30	2.1	1.2	0.08	1.5	0.10				408,000	10,934	
				1B788427022	40	2.8								500,000	13,400	
				Blue	50	3.4								591,000	15,839	
					60	4.1								682,000	18,278	
			60 to 125 / 4.1 to 8.6	60	4.1	1.6	0.11	2.0	0.14	686,000	18,385					
			1K748527202	80	5.5	2.0	0.14	2.5	0.17	870,000	23,316					
			Red	100	6.9	2.4	0.17	3.0	0.21	1,054,000	28,247					
				125	8.6	2.4	0.17	3.0	0.21	1,278,000	34,250					
		6358EB	Red	85 to 140 / 5.9 to 9.6	85	5.9	1.7	0.12	2.7	0.19	2.0	0.14	917,000	24,576		
				17B1261X012	100	6.9	1.7	0.12	2.7	0.19			1,051,000	28,167		
				Green	125	8.6	2.2	0.15	3.2	0.22			1,279,000	34,277		
					140	9.6	2.2	0.15	3.2	0.22			1,414,000	37,895		
					130 to 200 / 9.0 to 13.8	140	9.6	4.0	0.28	5.5	0.38	3.0	0.21	1,434,000	38,431	
				17B1263X012	150	10.3	4.0	0.28	5.5	0.38	1,524,000			40,843		
				Blue	175	12.1	5.0	0.34	6.5	0.45	1,757,000			47,088		
					200	13.8	5.0	0.34	6.5	0.45	1,980,000			53,064		
				180 to 350 / 12.4 to 24.1	200	13.8	5.0	0.34	6.5	0.45	1,980,000	53,064				
				17B1264X012	250	17.2	5.0	0.34	6.5	0.45	2,428,000	65,070				
				Red	300	20.7	5.5	0.38	7.0	0.48	2,880,000	77,184				
					350	24.1	5.5	0.38	7.0	0.48	3,328,000	89,190				
		6358EBH	Red	250 to 400 / 17.2 to 27.6 ⁽⁵⁾	300	20.7	6.0	0.41	8.0	0.55	6.0	0.41	2,889,000	77,425		
17B1263X012	350			24.1	6.0	0.41	8.0	0.55	3,337,000	89,432						
Blue	375			25.9	7.0	0.48	9.0	0.62	3,569,000	95,649						

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

- continued -

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots (continued)

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING			
					psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	SCFH	Nm³/h
6	50	6358	Yellow	10 to 40 / 0.69 to 2.8	10	0.69	2.5	0.17	6.0	0.41	5.0	0.34	479,000	12,837		
				1E392527022	15	1.0	1.2	0.08	2.0	0.14			496,000	13,293		
				Yellow	20	1.4	1.2	0.08	1.5	0.10			573,000	15,356		
					30	2.1	1.2	0.08	1.5	0.10			736,000	19,725		
			Green	35 to 125 psig / 2.4 to 8.6	40	2.8	1.6	0.11	2.5	0.17	5.0	0.34	911,000	24,415		
				1K748527202	50	3.4	1.6	0.11	2.5	0.17			1,071,000	28,703		
				Red	60	4.1	1.6	0.11	2.5	0.17			1,230,000	32,964		
					80	5.5	2.0	0.14	2.5	0.17			1,553,000	41,620		
					100	6.9	2.4	0.17	3.0	0.21			1,875,000	50,250		
					125	8.6	2.4	0.17	3.0	0.21			2,273,000	60,916		
		6358B	Yellow	10 to 30 / 0.69 to 2.1	10	0.69	2.5	0.17	6.0	0.41	1.0	0.07	479,000	12,837		
				1B788327022	15	1.0	1.2	0.08	2.0	0.14			496,000	13,293		
				Silver	20	1.4	1.2	0.08	1.5	0.10			573,000	15,356		
					30	2.1	1.2	0.08	1.5	0.10			736,000	19,725		
			Green	30 to 60 / 2.1 to 4.1	30	2.1	1.2	0.08	1.5	0.10			736,000	19,725		
				1B788427022	40	2.8							895,000	23,986		
				Blue	50	3.4							1,055,000	28,274		
					60	4.1							1,214,000	32,535		
				60 to 125 / 4.1 to 8.6	60	4.1	1.6	0.11	2.0	0.14			1,222,000	32,750		
				1K748527202	80	5.5	2.0	0.14	2.5	0.17			1,549,000	41,513		
				Red	100	6.9	2.4	0.17	3.0	0.21			1,875,000	50,250		
					125	8.6	2.4	0.17	3.0	0.21			2,273,000	60,916		
		6358EB	Red	85 to 140 / 5.7 to 9.6	85	5.9	1.7	0.12	2.7	0.19	2.0	0.14	1,598,000	42,826		
				17B1261X012	100	6.9	1.7	0.12	2.7	0.19			1,832,000	49,098		
				Green	125	8.6	2.2	0.15	3.2	0.22			2,231,000	59,791		
					140	9.6	2.2	0.15	3.2	0.22			2,465,000	66,062		
			Red	130 to 200 / 9.6 to 13.8	140	9.6	4.0	0.28	5.5	0.38	3.0	0.21	2,501,000	67,027		
				17B1263X012	150	10.3	4.0	0.28	5.5	0.38			2,657,000	71,208		
				Blue	175	12.1	5.0	0.34	6.5	0.45			3,062,000	82,062		
					200	13.8	5.0	0.34	6.5	0.45			3,453,000	92,540		
				180 to 350 / 12.4 to 24.1	200	13.8	5.0	0.34	6.5	0.45			3,453,000	92,540		
				17B1264X012	250	17.2	5.0	0.34	6.5	0.45			4,233,000	113,444		
				Red	300	20.7	5.5	0.38	7.0	0.48			5,021,000	134,563		
					350	24.1	5.5	0.38	7.0	0.48			5,802,000	155,494		
		6358EBH	Red	250 to 400 / 17.2 to 27.6 ⁽⁵⁾	300	20.7	6.0	0.41	8.0	0.55	6.0	0.41	5,037,000	134,992		
				17B1263X012	350	24.1	6.0	0.41	8.0	0.55			5,817,000	155,896		
				Blue	375	25.9	7.0	0.48	9.0	0.62			6,223,000	166,776		

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

- continued -

Type 63EG

Table 5. Type 63EG Relief Capacities⁽¹⁾ to Atmosphere with Types 6358, 6358B, 6358EB and 6358EBH Pilots (continued)

MAIN VALVE SIZE		PILOT TYPE	MAIN VALVE SPRING COLOR	PILOT SPRING RANGE, PART NUMBER AND COLOR, psig / bar	SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 2:1 LINE SIZE TO BODY SIZE PIPING		
					psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	SCFH
8 x 6	200 x 150	6358	Yellow	10 to 40 / 0.69 to 2.8	10	0.69	2.5	0.17	6.0	0.41	5.0	0.34	660,000	17,688	
				1E392527022	15	1.0	1.2	0.08	2.0	0.14			684,000	18,331	
				Yellow	20	1.4	1.2	0.08	1.5	0.10			791,000	21,199	
					30	2.1	1.2	0.08	1.5	0.10			1,019,000	27,309	
			Green	35 to 125 psig / 2.4 to 8.6	40	2.8	1.6	0.11	2.5	0.17			1,262,000	33,822	
				1K748527202	50	3.4	1.6	0.11	2.5	0.17			1,482,000	39,718	
				Red	60	4.1	1.6	0.11	2.5	0.17			1,703,000	45,640	
					80	5.5	2.0	0.14	2.5	0.17			2,144,000	57,459	
		6358B	Yellow	10 to 30 / 0.69 to 2.1	10	0.69	2.5	0.17	6.0	0.41	1.0	0.07	660,000	17,688	
				1B788327022	15	1.0	1.2	0.08	2.0	0.14			684,000	18,331	
				Silver	20	1.4	1.2	0.08	1.5	0.10			791,000	21,199	
					30	2.1	1.2	0.08	1.5	0.10			1,019,000	27,309	
			Green	30 to 60 / 2.1 to 4.1	30	2.1	1.2	0.08	1.5	0.10			1,019,000	27,309	
				1B788427022	40	2.8							1,240,000	33,232	
				Blue	50	3.4							1,460,000	39,128	
					60	4.1							1,681,000	45,051	
				60 to 125 / 4.1 to 8.6	60	4.1	1.6	0.11	2.0	0.14			1,692,000	45,346	
				1K748527202	80	5.5	2.0	0.14	2.5	0.17			2,144,000	57,459	
				Red	100	6.9	2.4	0.17	3.0	0.21			2,596,000	69,573	
					125	8.6	2.4	0.17	3.0	0.21			3,148,000	84,366	
		6358EB		85 to 140 / 5.9 to 9.6	85	5.9	1.7	0.12	2.7	0.19	2.0	0.14	2,259,000	60,541	
				17B1261X012	100	6.9	1.7	0.12	2.7	0.19			2,590,000	69,412	
				Green	125	8.6	2.2	0.15	3.2	0.22			3,152,000	84,474	
					140	9.6	2.2	0.15	3.2	0.22			3,483,000	93,344	
			Red	130 to 200 / 9.0 to 13.8	140	9.6	4.0	0.28	5.5	0.38	3.0	0.21	3,534,000	94,711	
				17B1263X012	150	10.3	4.0	0.28	5.5	0.38			3,754,000	100,607	
				Blue	175	12.1	5.0	0.34	6.5	0.45			4,328,000	115,990	
					200	13.8	5.0	0.34	6.5	0.45			4,879,000	130,757	
				180 to 350 / 12.4 to 24.1	200	13.8	5.0	0.34	6.5	0.45	6.0	0.41	4,879,000	130,757	
				17B1264X012	250	17.2	5.0	0.34	6.5	0.45			5,982,000	160,318	
				Red	300	20.7	5.5	0.38	7.0	0.48			7,096,000	190,173	
					350	24.1	5.5	0.38	7.0	0.48			8,199,000	219,733	
		6358EBH	Red	250 to 400 / 17.2 to 27.6 ⁽⁶⁾	300	20.7	6.0	0.41	8.0	0.55	6.0	0.41	7,118,000	190,762	
				17B1263X012	350	24.1	6.0	0.41	8.0	0.55			8,221,000	220,323	
				Blue	375	25.9	7.0	0.48	9.0	0.62			8,795,000	235,706	

1. Capacities based on set pressure plus buildup to achieve full opening using a standard linear cage and standard high-gain pilot restriction (or restriction plug on Type 6358).

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

5. Set pressure plus buildup should not exceed maximum differential pressure of 400 psig / 27.6 bar.

Table 6. Type 1098-63EGR Relief Capacities⁽¹⁾ to Atmosphere with a Type 6358B Pilot, Size 40 Actuator and Green Main Spring

BODY SIZE		SET PRESSURE RANGE, SPRING PART NUMBER AND COLOR, psig / bar	PILOT SET PRESSURE ⁽²⁾		BUILDUP OVER SET PRESSURE NEEDED TO BEGIN OPENING MAIN VALVE ⁽³⁾		BUILDUP OVER SET PRESSURE NEEDED TO FULLY OPEN MAIN VALVE ⁽⁴⁾		PRESSURE DROP BELOW SET PRESSURE NEEDED TO RESEAT PILOT		CAPACITIES ⁽¹⁾ OF 0.6 SPECIFIC GRAVITY NATURAL GAS WITH 1:1 LINE SIZE TO BODY SIZE PIPING	
NPS	DN		psig	bar	psig	bar	psig	bar	psig	bar	SCFH	Nm ³ /h
1	25	3 to 18 / 0.21 to 1.2 1B986027212 Green	3 5 10 15	0.21 0.34 0.69 1.0	0.7	0.048	1.0	0.07	1.0	0.07	10,000 13,000 18,000 22,000	268 348 482 590
		15 to 40 / 1.0 to 2.8 1E392527022 Yellow	15 20 30 40	1.0 1.4 2.1 2.8	0.8	0.055	1.1	0.076			22,000 27,000 35,000 43,000	590 724 938 1152
		35 to 65 / 2.4 to 4.5 1K748527202 Red	40 50 60 65	2.8 3.4 4.1 4.5	1.2	0.08	1.6	0.11			43,000 51,000 59,000 63,000	1152 1367 1581 1688
2	50	3 to 18 / 0.21 to 1.2 1B986027212 Green	3 5 10 15	0.21 0.34 0.69 1.0	0.9 0.7 0.7 0.7	0.062 0.048 0.048 0.048	1.3 1.0 1.0 1.0	0.09 0.07 0.07 0.07			40,000 47,000 67,000 84,000	1072 1260 1796 2251
		15 to 40 / 1.0 to 2.8 1E392527022 Yellow	15 20 30 40	1.0 1.4 2.1 2.8	0.8	0.055	1.1	0.076			84,000 101,000 132,000 162,000	2251 2707 3538 4342
		35 to 65 / 2.4 to 4.5 1K748527202 Red	40 50 60 65	2.8 3.4 4.1 4.5	1.3	0.09	1.7	0.12			164,000 194,000 224,000 239,000	4395 5199 6003 6405
3	80	3 to 18 / 0.21 to 1.2 1B986027212 Green	3 5 10 15	0.21 0.34 0.69 1.0	0.9 0.7 0.7 0.7	0.062 0.048 0.048 0.048	1.5 1.0 1.0 1.0	0.10 0.07 0.07 0.07			84,000 98,000 138,000 173,000	2251 2626 3698 4636
		15 to 40 / 1.0 to 2.8 1E392527022 Yellow	15 20 30 40	1.0 1.4 2.1 2.8	0.8	0.055	1.1	0.076			173,000 206,000 270,000 331,000	4636 5521 7236 8871
		35 to 65 / 2.4 to 4.5 1K748527202 Red	40 50 60 65	2.8 3.4 4.1 4.5	1.3	0.09	1.7	0.12			335,000 396,000 456,000 486,000	8978 10,613 12,221 13,025
4	100	3 to 18 / 0.21 to 1.2 1B986027212 Green	3 5 10 15	0.21 0.34 0.69 1.0	1.3 0.8 0.8 0.8	0.09 0.055 0.055 0.055	2.3 1.3 1.1 1.1	0.16 0.09 0.076 0.076			142,000 156,000 215,000 270,000	3806 4181 5762 7236
		15 to 40 / 1.0 to 2.8 1E392527022 Yellow	15 20 30 40	1.0 1.4 2.1 2.8	0.9	0.062	1.2	0.08			271,000 323,000 424,000 521,000	7263 8656 11,363 13,963
		35 to 65 / 2.4 to 4.5 1K748527202 Red	40 50 60 65	2.8 3.4 4.1 4.5	1.4	0.097	1.8	0.12			527,000 624,000 719,000 767,000	14,124 16,723 19,269 20,556
6	150	3 to 18 / 0.21 to 1.2 1B986027212 Green	3 5 10 15	0.21 0.34 0.69 1.0	1.7 0.8 0.8 0.8	0.12 0.055 0.055 0.055	6.4 4.4 1.2 1.1	0.44 0.30 0.08 0.076			365,000 365,000 403,000 497,000	9782 9782 10,800 13,320
		15 to 40 / 1.0 to 2.8 1E392527022 Yellow	15 20 30 40	1.0 1.4 2.1 2.8	0.9	0.062	1.2	0.08			499,000 590,000 763,000 930,000	13,373 15,812 20,448 24,924
		35 to 65 / 2.4 to 4.5 1K748527202 Red	40 50 60 65	2.8 3.4 4.1 4.5	1.5	0.10	1.9	0.13			942,000 1,108,000 1,275,000 1,358,000	25,246 29,694 34,170 36,394

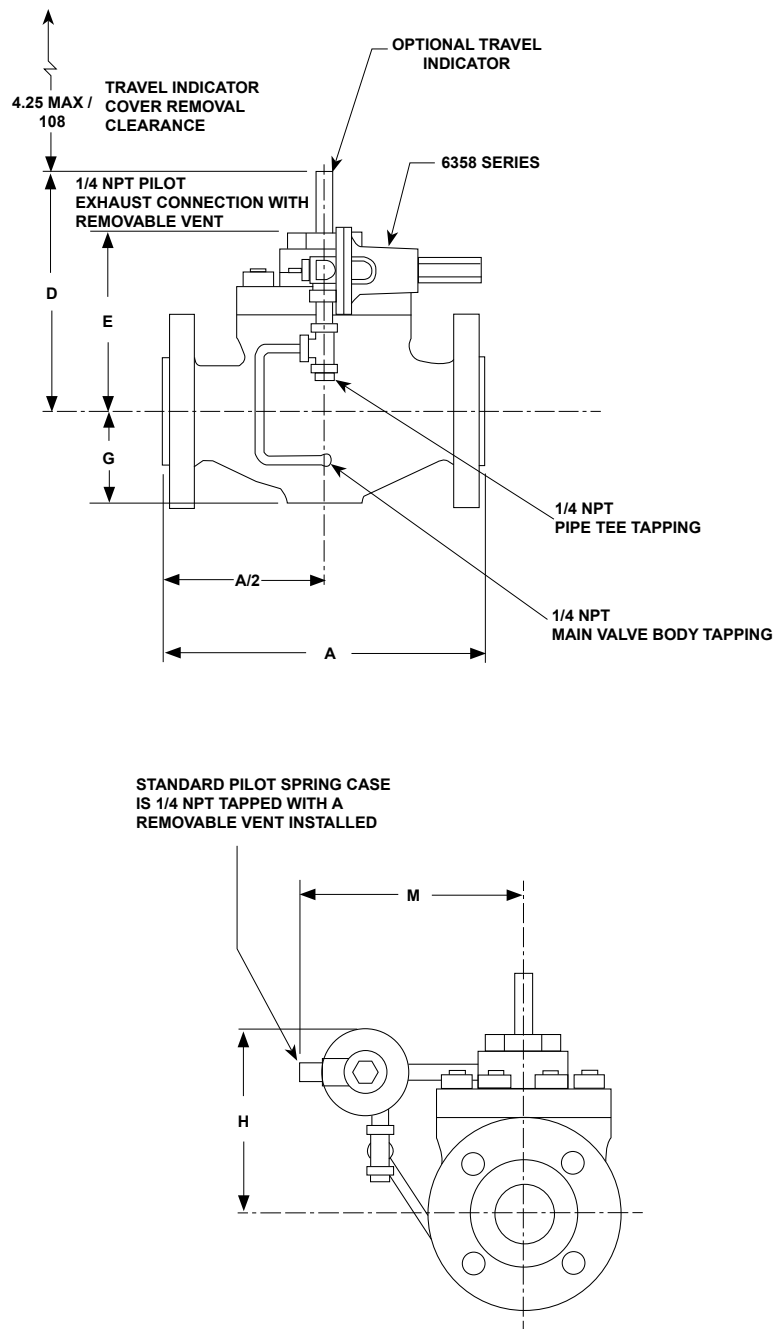
1. Capacities based on set pressure plus buildup to achieve full opening using a size 40 actuator, green main spring, standard linear cage and standard high-gain pilot restriction.

2. Set pressure is defined as the pressure at which the pilot starts-to-discharge.

3. Crack point of the main valve is the inlet pressure buildup over the set pressure at which the main valve starts audible flow.

4. Inlet pressure buildup over the set pressure for the main valve to achieve wide-open capacity.

Type 63EG



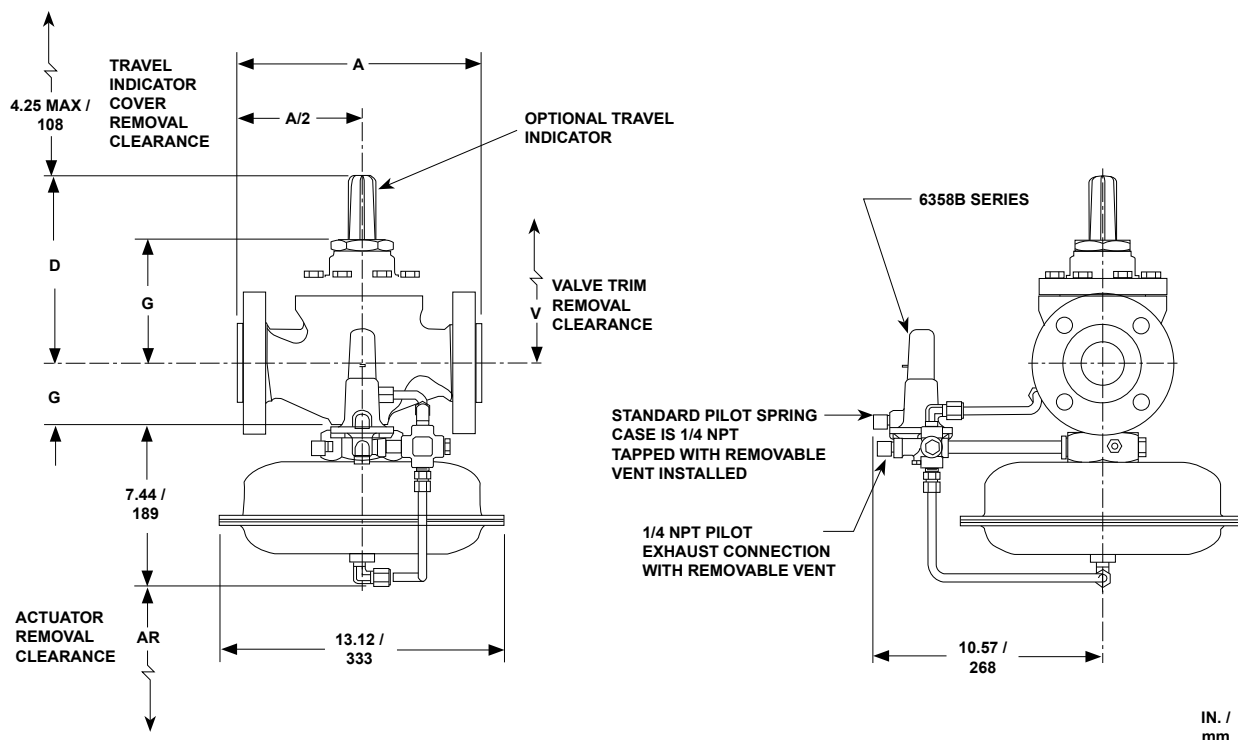
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IN. /
mm

TYPE 63EG WITH 6358 SERIES PILOT

Note: For dimensions of relief valves with EN (or other) end connections, consult the local Sales Office.

Figure 7. Dimensions



TYPE 1098-63EGR WITH 6358B SERIES PILOT

Note: For dimensions of relief valves with EN (or other) end connections, consult the local Sales Office.

Figure 7. Dimensions (continued)

Table 7. Dimensions

COMMON DIMENSION, IN. / mm											DIMENSION SPECIFIC FOR TYPE 63EG, IN. / mm		DIMENSION SPECIFIC FOR TYPE 1098-63EGR, IN. / mm
BODY SIZE, NPS / DN	A						D (With Travel Indicator)	E (Without Travel Indicator)	G	V			
	NPT	Cast Iron		Steel/Stainless Steel									
		CL125 FF	CL250 RF	CL150 RF	CL300 RF	CL600 RF					H	M	AR
1 / 25	8.25 / 209	7.25 / 184	7.75 / 197	7.25 / 184	7.75 / 197	8.25 / 209	8.19 / 208	4.94 / 125	2.19 / 55.6	11.38 / 289	5.44 / 138	7.25 / 184	3.00 / 76.2
2 / 50	11.25 / 286	10 / 254	10.5 / 267	10 / 254	10.5 / 267	11.25 / 286	8.69 / 221	5.44 / 138	2.84 / 72.1	12.62 / 320	5.94 / 151	7.69 / 195	3.12 / 79.2
3 / 80	----	11.75 / 298	12.5 / 317	11.75 / 298	12.5 / 317	13.25 / 337	11.25 / 286	7.00 / 178	3.5 / 88.9	16.25 / 413	7.25 / 184	8.19 / 208	3.88 / 98.6
4 / 100	----	13.88 / 353	14.5 / 368	13.88 / 353	14.5 / 368	15.5 / 394	12.62 / 321	8.38 / 213	4.81 / 122	18.88 / 479	8.62 / 219	8.88 / 226	5.12 / 130
6 / 150	----	17.75 / 451	18.62 / 473	17.75 / 451	18.62 / 473	20 / 508	13.44 / 341	9.19 / 233	5.19 / 132	20 / 508	8.81 / 224	14.56 / 370	6.62 / 168
8 x 6 / 200 x 150	----	----	----	21.38 / 543	22.38 / 568	24 / 610	15.00 / 381	10.75 / 273	7.19 / 183	23.5 / 597	10.5 / 267	14.56 / 370	6.62 / 168
12 x 6 / 300 x 150	----	----	----	29 / 737	30.5 / 775	32.3 / 820	17.72 / 450	13.47 / 342	10 / 254	23.5 / 597	13.2 / 335	14.56 / 370	6.62 / 168

Type 63EG

Ordering Information

Use the Specifications section on pages 4 and 5 and carefully review the description to the right of each specification. Use this information to complete the Ordering Guide on pages 18 and 19. Specify the

desired selection wherever there is a choice to be made. Then send the Ordering Guide to your local Sales Office.

Ordering Guide

Type (Select One)

- ☐ 63EG***
- ☐ 1098-63EGR**

Body Size (Select One)

- ☐ NPS 1 / DN 25***
- ☐ NPS 2 / DN 50***
- ☐ NPS 3 / DN 80***
- ☐ NPS 4 / DN 100***
- ☐ NPS 6 / DN 150***
- ☐ NPS 8 x 6 / DN 200 x 150***
- ☐ NPS 12 x 6 / DN 300 x 150

End Connection Style (Select One)

Cast Iron

- ☐ NPT [available in 1 or 2 body size only]***
- ☐ CL125 FF***
- ☐ CL250 RF***

Steel, Stainless Steel and Other Alloys

- ☐ NPT [available in 1 or 2 body size only]***
- ☐ SWE [available in 1 or 2 body size only]**
- ☐ CL150 RF***
- ☐ CL300 RF***
- ☐ CL600 RF***
- ☐ BWE**
- ☐ PN 16/25/40 _____ (please specify)*

Body Material (Select One)

- ☐ Cast iron***
- ☐ Steel***
- ☐ Stainless steel***

Body Flange Material (Select One)

- ☐ Cast iron***
- ☐ Steel***
- ☐ Stainless steel***

Cage Material (Select One)

- ☐ Linear, Stainless steel***
- ☐ Whisper Trim™, 416 Stainless steel***
- ☐ Whisper Trim™, 316 Stainless steel***

Seat Ring and Valve Plug Material (Select One)

- ☐ 410/416 Stainless steel***
- ☐ 316 Stainless steel***

Gasket and O-Ring Material (Select One)

- ☐ Nitrile (NBR)***
- ☐ Fluorocarbon (FKM)***
- ☐ Ethylenepropylene (EPR)

Main Valve Spring (Select One)

Type 63EG

- ☐ Yellow [NPS 1 / DN 25 not available]
- ☐ Green
- ☐ Red

Type 1098-63EGR

- ☐ Green
- ☐ Yellow

- continued -

Ordering Guide (continued)

Set Pressure Range (Select One)

Type 63EG

Type 6358 Backpressure

- ☐ 10 to 40 psig / 0.69 to 2.8 bar, Yellow
- ☐ 35 to 125 psig / 2.4 to 8.6 bar, Red

Type 6358B Relief

- ☐ 10 to 30 psig / 0.69 to 2.1 bar, Silver
- ☐ 30 to 60 psig / 2.1 to 4.1 bar, Blue
- ☐ 60 to 125 psig / 4.1 to 8.6 bar, Red

Type 6358EB Relief

- ☐ 85 to 140 psig / 5.9 to 9.6 bar, Green
- ☐ 130 to 200 psig / 9.0 to 13.8 bar, Blue
- ☐ 180 to 350 psig / 12.4 to 24.1 bar, Red

Type 6358EBH Relief

- ☐ 250 to 400 psig / 17.2 to 27.6 bar, Blue

Type 1098-63EGR

Type 6358B

- ☐ 3 to 18 psig / 0.21 to 1.2 bar, Green
- ☐ 15 to 40 psig / 1.0 to 2.8 bar, Yellow
- ☐ 35 to 65 psig / 2.4 to 4.5 bar, Red

Pilot Body Material (for Types 6358 and 6358B only) (Select One)

- ☐ Aluminum (for Types 6358 and 6358B only)***
- ☐ Stainless steel***

Pilot Diaphragm and O-Ring Material (Select One)

- ☐ Nitrile (NBR)***
- ☐ Fluorocarbon (FKM)**

Travel Indicator (Optional)

- ☐ Yes**

Tubing and Fittings (Select One)

- ☐ Stainless steel tubing and steel fittings***
- ☐ Stainless steel tubing and stainless steel fittings***

Pilot Supply Filter (Optional)

Type 252

Aluminum Construction

- ☐ Standard length without drain valve
- ☐ Standard length with drain valve
- ☐ Extended length without drain valve
- ☐ Extended length with drain valve

Stainless Steel Construction

- ☐ Standard length without drain valve
- ☐ Standard length with drain valve
- ☐ Extended length without drain valve
- ☐ Extended length with drain valve

P590 Series Pilot Supply Filter

- ☐ Type P594-1 brass filter

Pressure Gauges (Optional)

- ☐ Pressure gauge for Type 63EG
- ☐ Pressure gauge for Type 1098-63EGR

Special Cleaning Services (Optional)

- ☐ Pure Gas
- ☐ Oxygen

NACE Construction (Optional)

- ☐ Yes

Quick Change Trim Package (Optional)

- ☐ Yes, send one trim package to match this order.

Main Valve Parts Kit (Optional)

- ☐ Yes, send one parts kit to match this order.

Pilot Parts Kit (Optional)

- ☐ Yes, send one parts kit to match this order.

Wireless Position Monitor Mounting Kit (Optional)

- ☐ Yes, send one mounting kit for mounting the Topworx™ 4310 or the Fisher™ 4320 wireless position monitor (requires Travel Indicator option)

- continued -

Type 63EG

Ordering Guide (continued)

Regulators Quick Order Guide	
***	Standard - Readily Available for Shipment
**	Non-Standard - 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	
Application:	
Specific Use	_____
Line Size	_____
Gas Type and Specific Gravity	_____
Gas Temperature	_____
Relief Valve Size:	
Brand of upstream regulator?	_____
Orifice size of the upstream regulator?	_____
Wide-open coefficient of the upstream regulator?	_____
Pressure:	
Maximum Inlet Pressure (P_{1max})	_____
Minimum Inlet Pressure (P_{1min})	_____
Downstream Pressure Setting(s) (P_2)	_____
Maximum Flow (Q_{max})	_____
Performance Required:	
Accuracy Requirements?	_____
Need for Extremely Fast Response?	_____
Other Requirements: _____	

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