

Gas Cylinder Changeover Regulator (KCM Series)

The KCM series is a two-stage gas delivery system that ensures continuous flow of gases in critical applications. When one supply drops below the changeover pressure, the selector regulator automatically switches the gas feed from the depleted supply to an alternate supply. The automatic operation of the KCM series eliminates costly system downtime and maintenance expense of continuously monitoring the gas supply.

Features

- Convoluted, nonperforated diaphragm for strength and improved pressure response
- Metal-to-metal diaphragm seals on all stages
- Supply-pressure effect of approximately 0.01 %
- Bracket mount

Technical Data

Maximum Inlet Pressure

- 3600 psig (248 bar)
- 3000 psig (206 bar) with hose and cylinder connection option

Pressure Control Ranges

- 0 to 10 psig (0.68 bar) through 0 to 500 psig (34.4 bar)

Nominal Changeover Pressures

- 100, 250, and 500 psig (6.8, 17.2, and 34.4 bar)

Flow Coefficient (C_v)

- 0.06

Maximum Operating Temperature

- 176°F (80°C) with PCTFE seat
- 392°F (200°C) with PEEK seat

Weight

- 7.25 lb (3.3 kg)

Ports

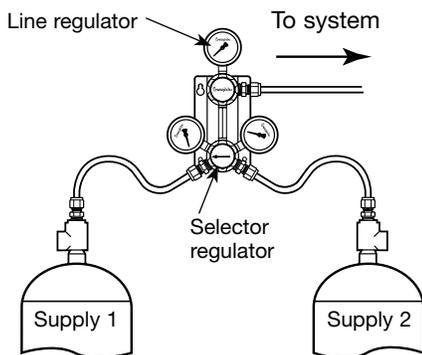
- 1/4 in. female NPT inlet, outlet, and gauge ports



Shown with Swagelok tube fittings, not included.

Operation

The KCM series can be ordered to switch from one supply to another at one of three different inlet pressures—100, 250, and 500 psig (6.8, 17.2, and 34.4 bar)—called changeover pressures.



The selector regulator (first stage) is factory-set to reduce the supply pressure to the nominal changeover pressure ordered. The line regulator (second stage) can be adjusted with the handle to achieve the required system pressure. This two-stage arrangement minimizes the supply-pressure effect caused by depleting gas supplies (cylinders, tank farm, etc.).

When one supply drops below the changeover pressure, the selector regulator automatically switches the gas feed from the depleted supply to an alternate supply. If both supplies drop below the changeover pressure, the assembly functions as a single-stage regulator, depleting both supplies at the same time. See the **Approximate Supply Depletion Pressures** table at right for pressures at which this occurs.

The Swagelok KCA series continuous gas delivery system is a panel-mounted gas changeover assembly that can be configured for many applications. For more information, see the *Swagelok KCA Series Continuous Gas Delivery System* catalog, MS-18-01.

Materials of Construction

The KCM series gas changeover uses Swagelok KPR series pressure-reducing regulators. For more information, see **General-Purpose Diaphragm Sensing, Pressure-Reducing Regulators (KPR Series)**, page 6.

The table below lists additional components not shown in the KPR series section.

Component	Material
<i>Interstage fitting</i>	316 SS with PTFE tape
Line-regulator mounting block	Aluminum
Line-regulators mounting screws, mounting bracket	316 SS

Wetted components listed in *italics*.

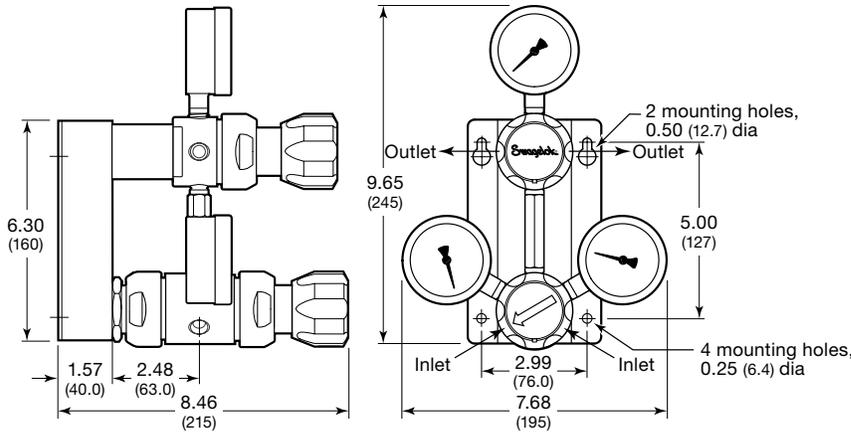
Approximate Supply Depletion Pressures

Nominal Changeover Pressure psig (bar)	Supply 1 Depletion Pressure psig (bar)	Supply 2 Depletion Pressure psig (bar)
100 (6.8)	150 (10.3)	90 (6.2)
250 (17.2)	300 (20.6)	230 (15.8)
500 (34.4)	500 (34.4)	450 (31.0)

Supply 2 can deplete below some of the available pressure control range limits. Setting the line regulator near the nominal changeover pressure will cause flow to the system to decrease or stop as the supply nears depletion.

Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change.



Ordering Information

Build a KCM series regulator ordering number by combining the designators in the sequence shown below.

4 5 6 7 8 9 10 11 12 13 14 15 16
KCM 1 F F B 4 1 2 A D 0 0 1 0

4 Body Material

- 1 = 316 SS
- A = 316 SS, ASTM G93 Level E-cleaned

5 Pressure Control Range

- C = 0 to 10 psig (0 to 0.68 bar)
- D = 0 to 25 psig (0 to 1.7 bar)
- E = 0 to 50 psig (0 to 3.4 bar)
- F = 0 to 100 psig (0 to 6.8 bar)
- G = 0 to 250 psig (0 to 17.2 bar)^①
- J = 0 to 500 psig (0 to 34.4 bar)^②

^① Not available with 100 psig (6.8 bar) changeover pressure.
^② Only available with 500 psig (34.4 bar) changeover pressure.

6 Nominal Changeover Pressure^①

- F = 100 psig (6.8 bar)
- G = 250 psig (17.2 bar)
- J = 500 psig (34.4 bar)

^① Inlet pressure must exceed changeover pressure for automatic switching to occur.

7 Port Configuration

- B, C, L
- See **Port Configurations**, below.

8 Ports

- 4 = 1/4 in. female NPT

9 Seat Material

- 1 = PCTFE
- 2 = PEEK

10 Flow Coefficient (C_v)

- 2 = 0.06

11 Sensing Mechanism, Vent

- A = Alloy X-750 diaphragm, no vent
- C = Alloy X-750 diaphragm, self vent^①
- E = Alloy X-750 diaphragm, captured vent, no self vent^①
- F = Alloy X-750 diaphragm, self and captured vent^①

^① Self and captured vent options on line regulator only.

12 Line Regulator Handle

- D = Knob
 - E = 316 SS antitamper nut
- Selector regulator has knob handle. For knob handle color options, see page 56.

13 Isolation and Relief Valves

- 0 = No valves
- For isolation and relief valve options, see page 54.

14 Cylinder Connections

- 0 = No connections
- Cylinder connections available only with hose option. For CGA cylinder connection options, see page 53.

15 Gauge Scale

- 1 = psig (bar) (North America only)
- 2 = bar (psig)
- 3 = psig (bar)
- 4 = MPa
- 5 = psig (kPa)

For more information, see page 54.

16 Options

- 0 = No options
- 3 = 3 ft, 1/4 in. FM series metal flexible hose, 1/4 in. female NPT inlet^①
- 4 = 3 ft, 1/4 in. TH series PTFE-lined, stainless steel braided hose, 1/4 in. female NPT inlet^①

For more information about hoses, see page 56.

^① Hoses are not available for ASTM G93 Level E-cleaned regulators.

Port Configurations

Configuration	Designator	Configuration	Designator	Configuration	Designator
	B		C		L

G_o = Outlet gauge.
 G_o/R = Outlet gauge or relief valve.
 R = Relief valve.
 I = Isolation valve.