

## 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

- Convolute, 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<sup>①</sup>

- 4351 psig (300 bar) with PEEK seat
- 3600 psig (248 bar)

<sup>①</sup> Cylinder Connections and Hose accessories may limit inlet pressure ratings, see pages 856 and 859.

#### Pressure Control Ranges

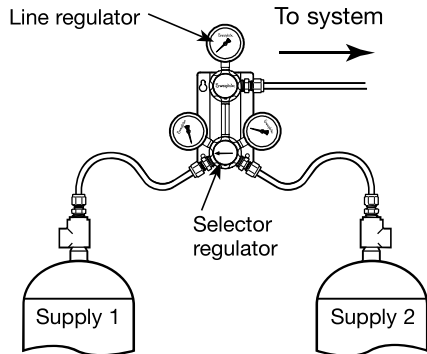
- 0 to 10 psig (0.68 bar) through 0 to 500 psig (34.4 bar)

### 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.



### Nominal Changeover Pressures

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

### Flow Coefficient (C<sub>v</sub>)

- 0.06

### Supply-Pressure Effect

Flow Coefficient (C <sub>v</sub> )	Pressure Control Range	
	Up to 100 psig (6.8 bar)	250 psig (17.2 bar) and Higher
	Supply Pressure Effect, %	
0.06	0.01	0.02

### Maximum Operating Temperature

- 176°F (80°C) with PCTFE seat
- 392°F (200°C) with PEEK seat
- 212°F (100°C) with PEEK seat and maximum inlet pressure greater than 3600 psig (248 bar)



Shown with Swagelok tube fittings, not included.

### Weight

- 7.25 lb (3.3 kg)

### Ports

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

### 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 809.

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

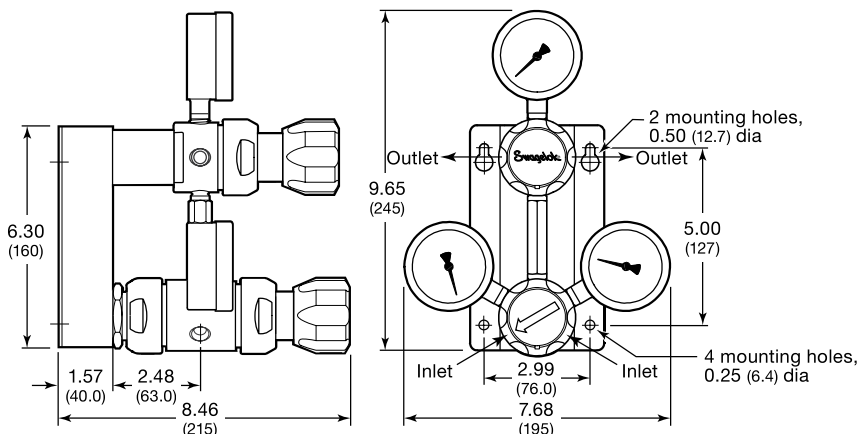
Nominal Changeover Pressure psig (bar)	Supply 1 Depletion Pressure psig (bar)	Supply 1 (300 bar) Depletion Pressure psig (bar)	Supply 2 Depletion Pressure psig (bar)
100 (6.8)	150 (10.3)	180 (12.4)	90 (6.2)
250 (17.2)	300 (20.6)	320 (22.1)	230 (15.8)
500 (34.4)	500 (34.4)	530 (36.6)	450 (31.0)

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.

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.

### 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)<sup>①</sup>
- J = 0 to 500 psig (0 to 34.4 bar)<sup>②</sup>

<sup>①</sup> Not available with 100 psig (6.8 bar) changeover pressure.  
<sup>②</sup> Only available with 500 psig (34.4 bar) changeover pressure.

#### 6 Nominal Changeover Pressure<sup>①</sup>

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

For 4351 psig (300 bar) inlet<sup>②</sup>

- 5 = 100 psig (6.8 bar)
- 6 = 250 psig (17.2 bar)
- 7 = 500 psig (34.4 bar)

<sup>①</sup> Inlet pressure must exceed changeover pressure for automatic switching to occur.  
<sup>②</sup> Only available with PEEK seat.

#### 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<sub>v</sub>)

- 2 = 0.06

#### 11 Sensing Mechanism, Vent

- A = Alloy X-750 diaphragm, no vent
- C = Alloy X-750 diaphragm, self vent<sup>①</sup>
- E = Alloy X-750 diaphragm, captured vent, no self vent<sup>①</sup>
- F = Alloy X-750 diaphragm, self and captured vent<sup>①</sup>

<sup>①</sup> 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 859.

#### 13 Isolation and Relief Valves

- 0 = No valves
- For isolation and relief valve options, see page 857.

#### 14 Cylinder Connections

- 0 = No connections
- Cylinder connections available only with hose option. For cylinder connection options and pressure ratings, see page 856.

#### 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 857.

#### 16 Options

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

For hose options and pressure ratings, see page 859.

<sup>①</sup> Not available for ASTM G93 Level E-cleaned regulators.

### Port Configurations

Configuration	Designator	Configuration	Designator	Configuration	Designator
	B		C		L

G<sub>o</sub> = Outlet gauge.  
 G<sub>o</sub>/R = Outlet gauge or relief valve.  
 R = Relief valve.  
 I = Isolation valve.