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# General Description

## Features:

- Porting pattern to DIN 24 340, form G, ISO 6263, CETOP-RP 121H and NFPA 3.5.1 MR1
- Pressure compensator stroke limiter, optional
- Mechanical operation
- Start-up jump reduction
- Flow control in both directions using a rectifier sandwich plate

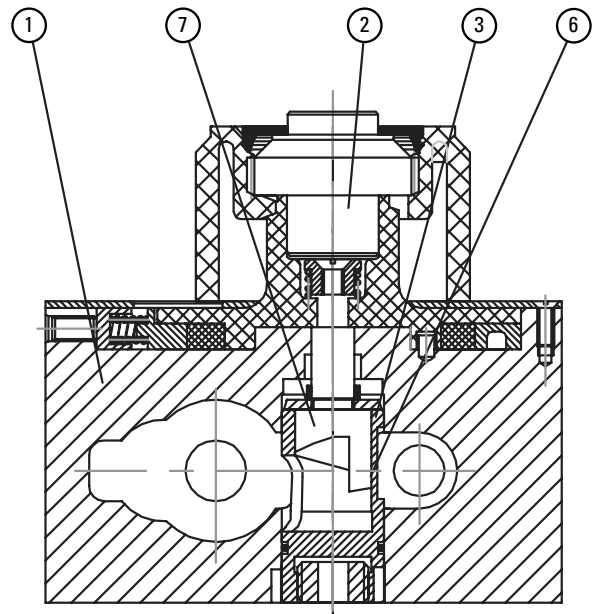
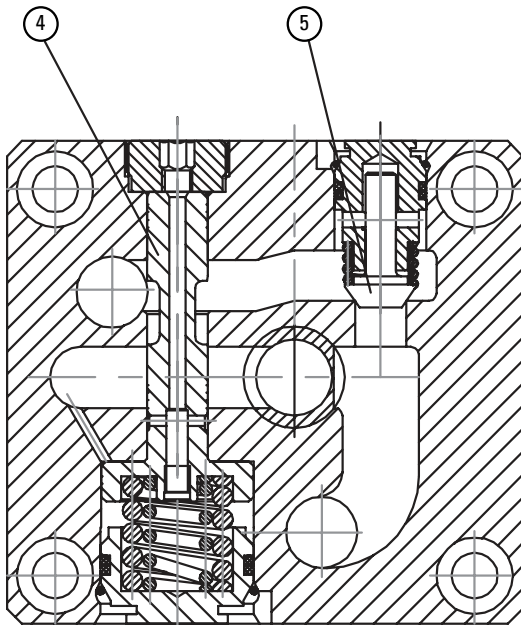
## General

Eaton's Vickers ® FCG flow control valves are used to maintain a flow constant largely independent of pressure and temperature.

The valves basically consist of the housing (1), orifice bushing(3), pressure compensator (4) with optional stroke limiter, check valve(5), adjustment element (2).

The flow from channel A to channel B is throttle at the orifice (6). In order to maintain the flow across the orifice constant, a pressure compensator is connected upstream of the orifice (6). The flow is maintained largely independent of temperature due to the orifice design. Free return flow from channel B to channel A is directed via

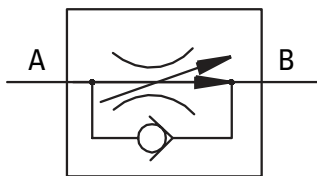
the check valve (5). The flow is only controlled from A to B. In order to control the flows in both directions a rectifier sandwich plate type DGMB can be installed below the flow control valve.



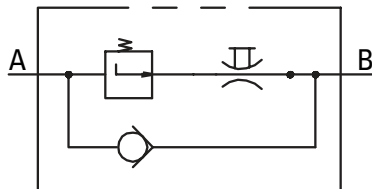
## Functional Symbols

Flow Control Valve

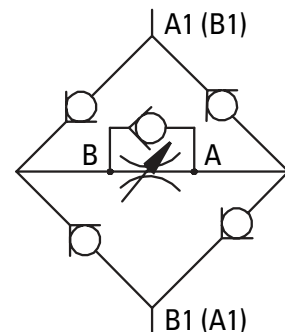
Simplified



Detailed



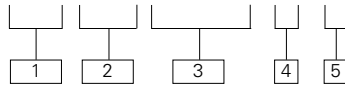
Rectifier sandwich plate



# Series FCG-H02-H03

## Model Code

### (F3)-FCG-H02-50-(B)-10



#### 1 Seal Options

**F3** – Fluorocarbon seals, for Phosphate Ester (class L\_HFD)

**Blank** – Nitrile, for Mineral oil Anti-wear hydraulic oil (class L-HFB), Water glycol (class L-HFC)

#### 2 Flow Control Valve

#### 3 Flow Range (A to B)

##### Size H02

**50** - 50 litres/min

**35** - 35 litres/min

**25** - 25 litres/min

**16** - 16 litres/min

**10** - 12 litres/min

**05** - 05 litres/min

**02** - 02 litres/min

##### Size H03

**160** - 160 litres/min

**125** - 125 litres/min

**100** - 100 litres/min

**80** - 80 litres/min

**60** - 60 litres/min

**40** - 40 litres/min

#### 4 Pressure Compensator Stroke Limiter

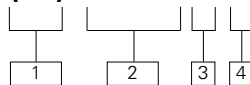
**Omit** – without

**B** – with

#### 5 Design Number

**10**

### (F3) DGMB-3-10



#### 1 Seal Options

**F3** – Fluorocarbon seals, for Phosphate Ester (class L\_HFD)

**Blank** – Nitrile, for Mineral oil Anti-wear hydraulic oil (class L-HFB), Water glycol (class L-HFC)

#### 2 Rectifier Sandwich Plate

#### 3 Size

**3** - Size 6 (NG6)

(Used with F(C)G-3 valve)

**02** - Size 10

**03** - Size 16

#### 4 Design Number

**10**

# Technical Data

## Hydraulic Technical Data

<b>Flow (L/min)</b>	Size 02 10    16    25    50	Size 03 60    100    160
<b>Δp with free return flow B→A (Bar)</b>	Size 02 2    2.5    3.5    6	Size 03 2.8    4.3    7.3
<b>Flow control</b>		
Temperature compensation -20 to +80	± 2% at max flow	
Pressure-compensation (up to Δp = 315 (Bar))	Size 02 ± 2% max	Size 03 ± 5% max
<b>Operating pressure, max. - port A (Bar)</b>	up to 315	
<b>Minimum pressure differential range (Bar)</b>	Size 02 3-7	Size 03 5-12
<b>Weight (Kg)</b>	Size 02 5.6	Size 03 11.3
<b>Hydraulic fluid</b>	Mineral oil (for NBR seal) or Phosphate ester (for FPM seal)	
<b>Fluid temperature range (°C)</b>	-30 up to + 80	
<b>Fluid viscosity range (mm<sup>2</sup>/s)</b>	10 to 800	
<b>Fluid cleanliness</b>	ISO 19/17/14	

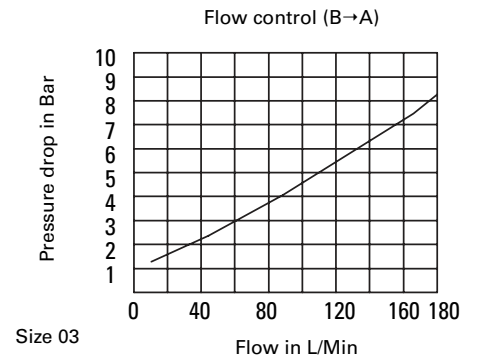
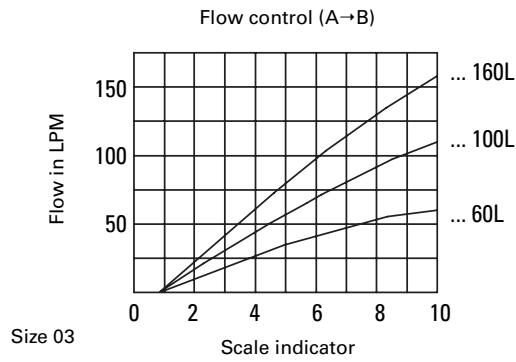
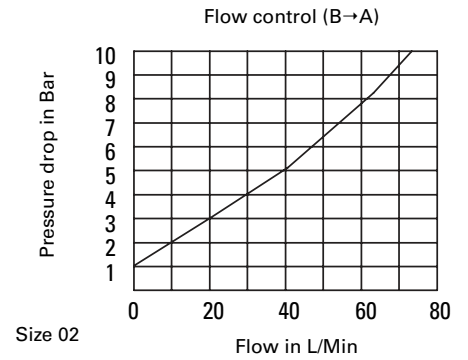
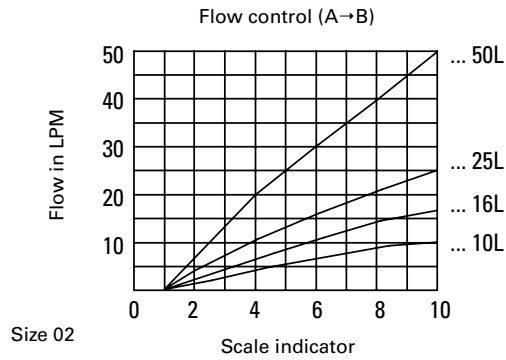
## Rectifier Sandwich Plate

<b>Flow, maximum (L/min)</b>	Size 3 up to 25	Size 02 up to 50	Size 03 up to 160
<b>Operating pressure (Bar)</b>	up to 315		
<b>Cracking pressure (Bar)</b>	15		
<b>Weight (Kg)</b>	Size 3 1	Size 02 3.2	Size 03 9.3

# FCG-H02-H03

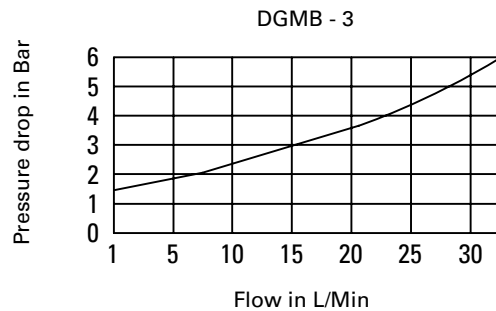
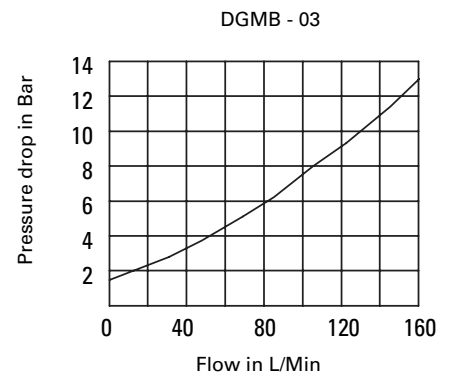
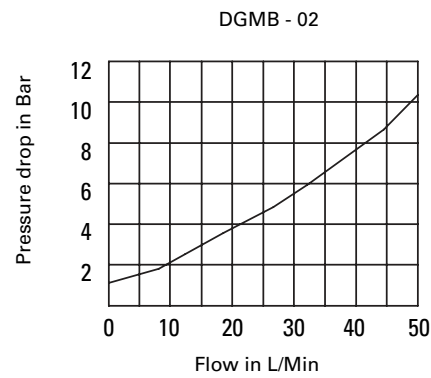
## Flow Curves:

(measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ\text{C}$ )



## Flow Curves: Rectifier Sandwich Plate

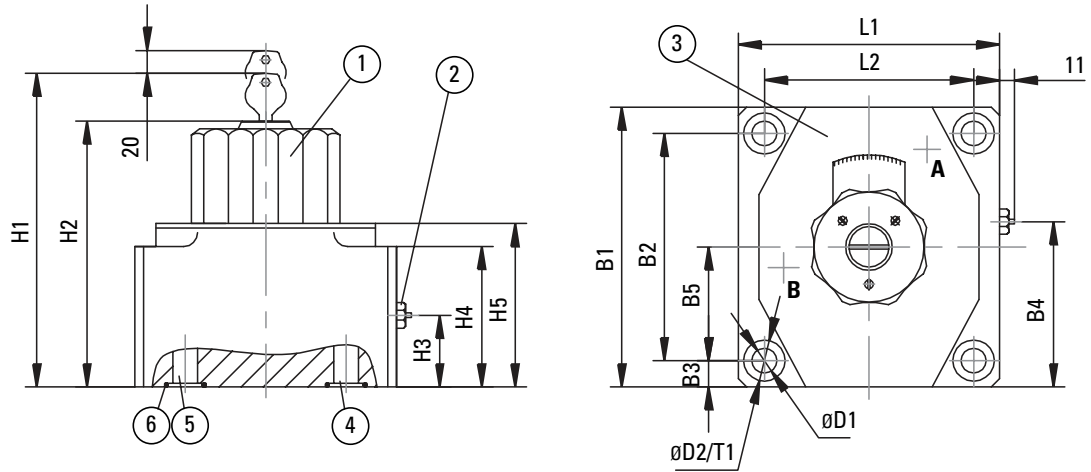
(measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ\text{C}$ )



Pressure drop is the same for both directions of flow from A to B or B to A through rectifier sandwich plate.

# FCG-H02-H03 Unit

Dimensions mm



- 1 Lockable rotary knob(may be locked in any position)
- 2. Pressure compensator stroke limiter, optional
- 3 Nameplate
- 4 Port "A"
- 5 Port "B"

- 6 O-ring 18.66 x 3.53 (size 02)  
O-ring 26 x 3 (size 03)

**Mounting bolts:**

Size 02  
(4)M8 x 50mm or 5/16"-18 UNC x 2"

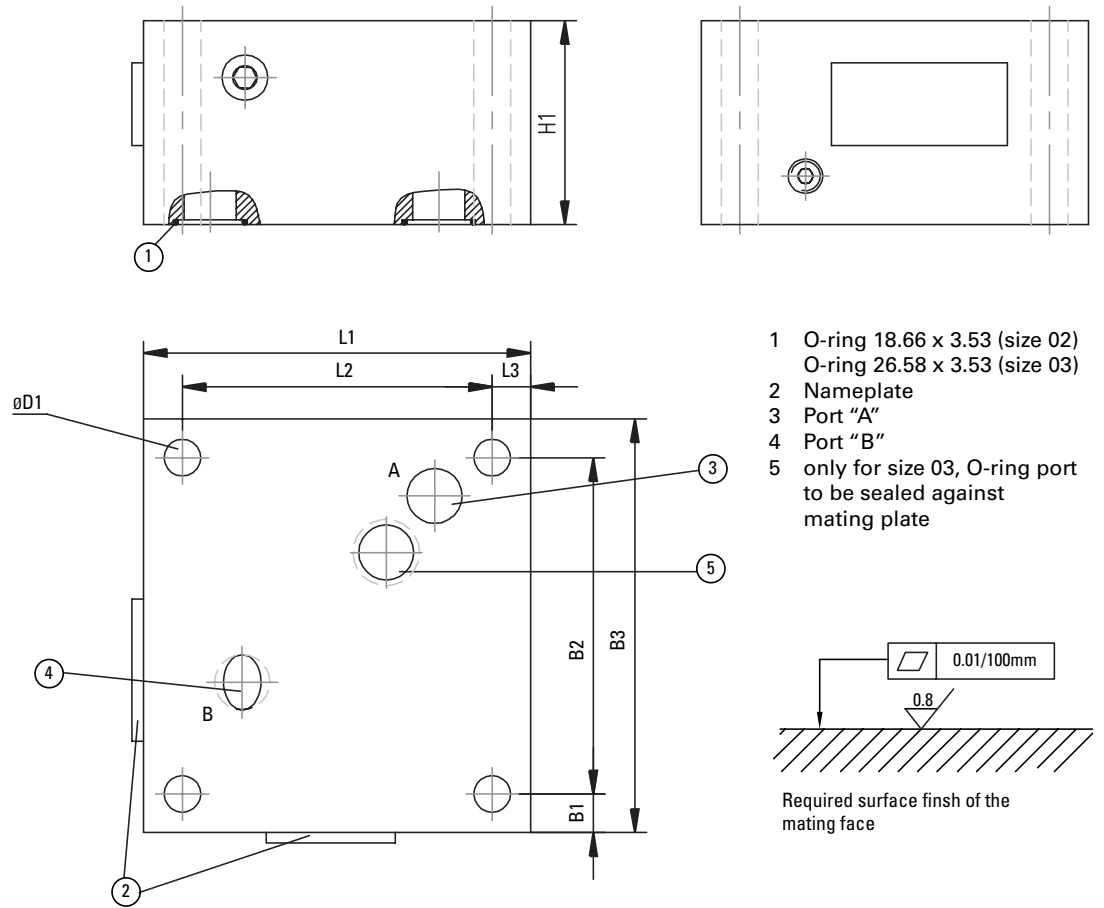
Size 03  
(4)M10 x 80mm or 3/8"-16 UNC x 3"

Size	B1	B2	B3	B4	B5	D1	D2	H1	H2	H3	H4	H5	L1	L2	T1
02	101.5	82.5	9.5	68	35.5	9	15	125	95	26	51	60	95.0	76.0	13
03	123.5	101.5	11.0	81.5	41.5	11	18	147	117	34	72	82	123.5	101.5	12

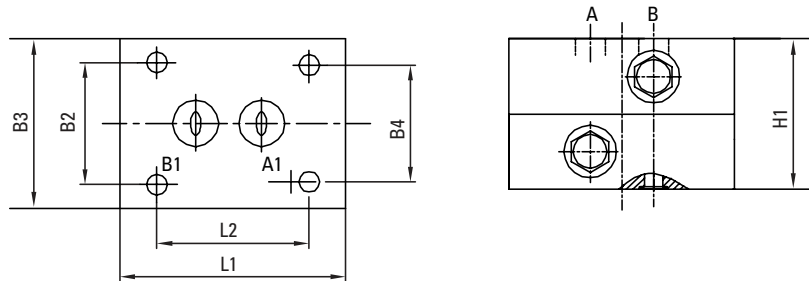
# Rectifier sandwich plate

Dimensions mm

## DGMB - 02 & 03



## DGMB - 3



Size	B1	B2	B3	B4	D1	H1	L1	L2	L3
02	9.50	82.50	101.50		9	50	95.00	76.00	9.50
03	11.00	101.50	123.50		11	85	123.50	101.50	11.00
3		31.00	45.00	32.50		40	60.00	45.00	N/A

Mounting Bolts	Size 3	Size 02	Size 03
<b>FCG Valve only</b>	M5x60mm (2) #10-24x2" (2)	M8x50mm (4) 5/16"-18 UNC x 2" (4)	M10x80mm (4) 3/8"-16 UNC x 3" (4)
<b>FCG Valve with rectifier sandwich plate</b>	M5x100mm (2) #10-24x4" (2)	M8x100mm (4) 5/16"-18 UNC x 4-1/4" (4)	M10x160mm (4) 3/8"-16 UNC x 6-1/4" (4)
<b>Bolt torque value</b>	9 Nm	37 Nm	75 Nm



## Released Part Numbers

<b>Eaton Model Code</b>	<b>Assembly Number</b>
F3-FCG-H02-2-B-10	02-413776
F3-FCG-H02-5-B-10	02-413777
F3-FCG-H02-10-B-10	02-413778
F3-FCG-H02-16-B-10	02-413779
F3-FCG-H02-25-B-10	02-413780
F3-FCG-H02-35-B-10	02-413781
F3-FCG-H02-50-B-10	02-413782
FCG-H02-16-B-10	02-413815
FCG-H02-50-B-10	02-413817
F3-FCG-H03-40-B-10	02-413783
F3-FCG-H03-60-B-10	02-413784
F3-FCG-H03-80-B-10	02-413785
F3-FCG-H03-100-B-10	02-413786
F3-FCG-H03-125-B-10	02-413787
F3-FCG-H03-160-B-10	02-413788
F3-DGMB-3-10	02-413796
F3-DGMB-02-10	02-413797
F3-DGMB-03-10	02-413798
DGMB-3-10	02-413799
DGMB-02-10	02-413800
DGMB-03-10	02-413801
FCG-H03-100-B-10	02-413819
FCG-H03-160-B-10	02-413789

## Seal Kit Part Numbers

<b>Eaton Model Code</b>	<b>Assembly Number</b>
FCG-H02 Seal Kit	02-413809
FCG-H03 Seal Kit	02-413810
DGMB-3 Seal Kit	02-413811
DGMB-02 Seal Kit	02-413812
DGMB-03 Seal Kit	02-413813
F3-FCG-H02 Seal Kit	02-413821
F3-FCG-H03 Seal Kit	02-413822
F3-DGMB-3 Seal Kit	02-413820
F3-DGMB-02 Seal Kit	02-413823
F3-DGMB-03 Seal Kit	02-413824

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