



Table of Contents

General Description.....	2
Functional Symbols.....	2
Model Codes.....	3
Technical Data.....	4
Flow Curves.....	5
Dimensions.....	6
Released Part Numbers.....	8
Seal Kit Part Numbers.....	8

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

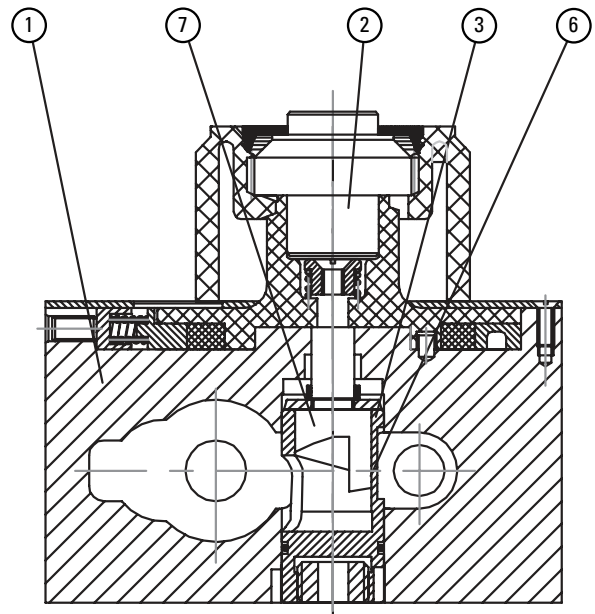
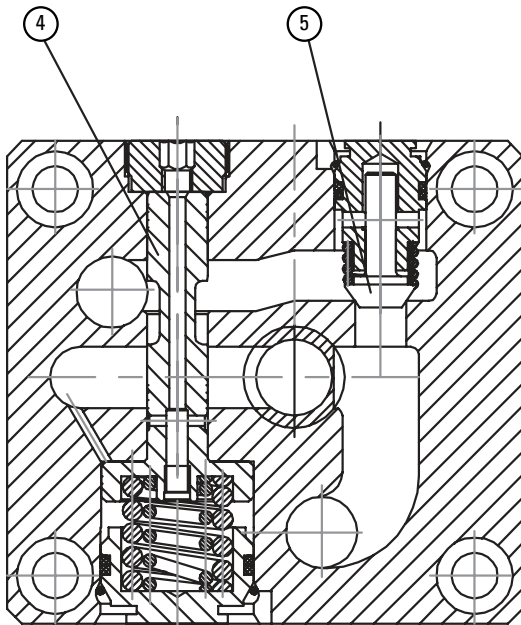
General

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

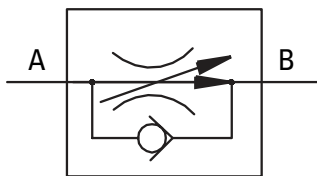
the check valve (5). The flow is only controlled from A to B. In order to control the flows in both directions a rectifier sandwich plate type DGMB can be installed below the flow control valve.



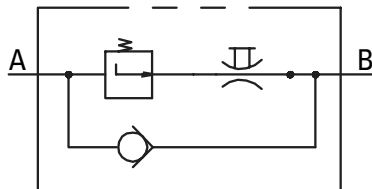
Functional Symbols

Flow Control Valve

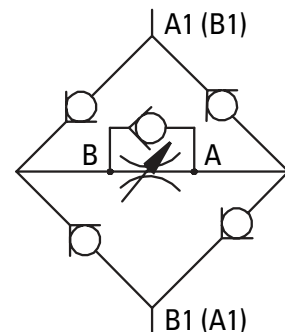
Simplified



Detailed



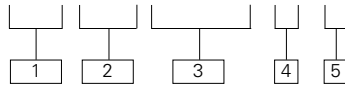
Rectifier sandwich plate



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

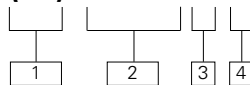
Omit – without

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

Flow (L/min)	Size 02 10 16 25 50	Size 03 60 100 160
Δp with free return flow B→A (Bar)	Size 02 2 2.5 3.5 6	Size 03 2.8 4.3 7.3
Flow control		
Temperature compensation -20 to +80	± 2% at max flow	
Pressure-compensation (up to Δp = 315 (Bar))	Size 02 ± 2% max	Size 03 ± 5% max
Operating pressure, max. - port A (Bar)	up to 315	
Minimum pressure differential range (Bar)	Size 02 3-7	Size 03 5-12
Weight (Kg)	Size 02 5.6	Size 03 11.3
Hydraulic fluid	Mineral oil (for NBR seal) or Phosphate ester (for FPM seal)	
Fluid temperature range (°C)	-30 up to + 80	
Fluid viscosity range (mm²/s)	10 to 800	
Fluid cleanliness	ISO 19/17/14	

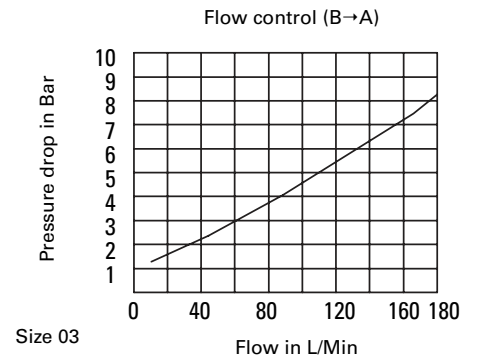
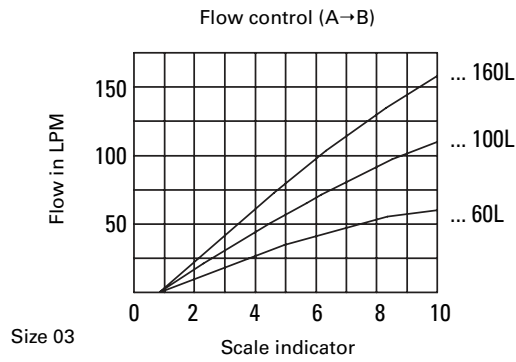
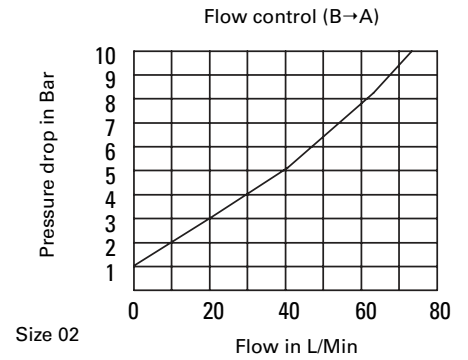
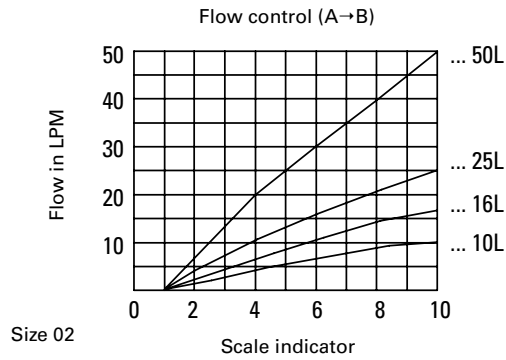
Rectifier Sandwich Plate

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

FCG-H02-H03

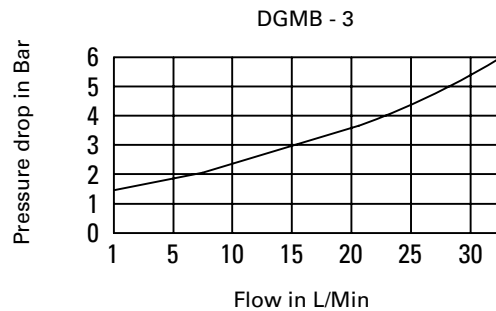
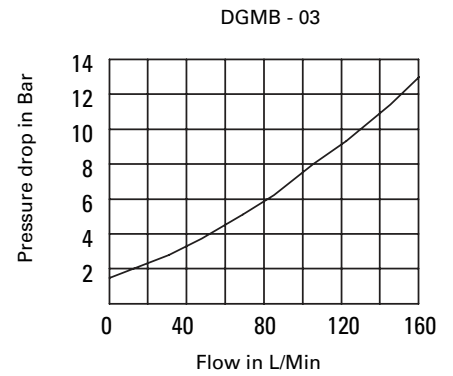
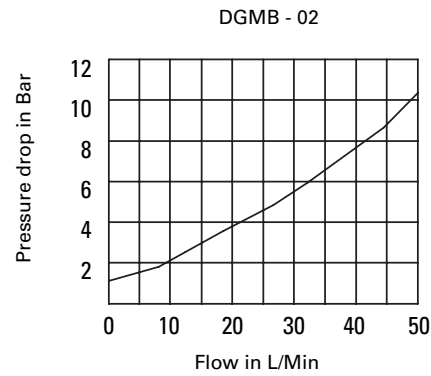
Flow Curves:

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



Flow Curves: Rectifier Sandwich Plate

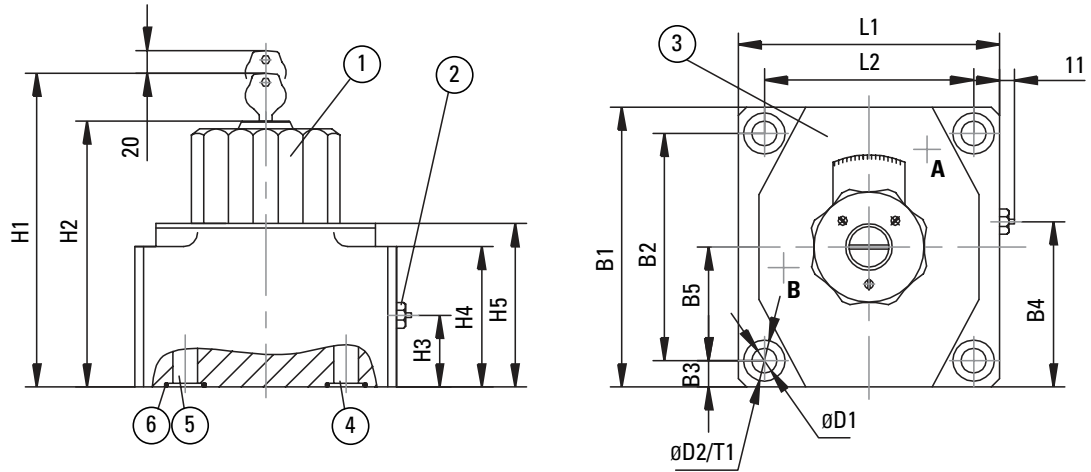
(measured at $v = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)



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"

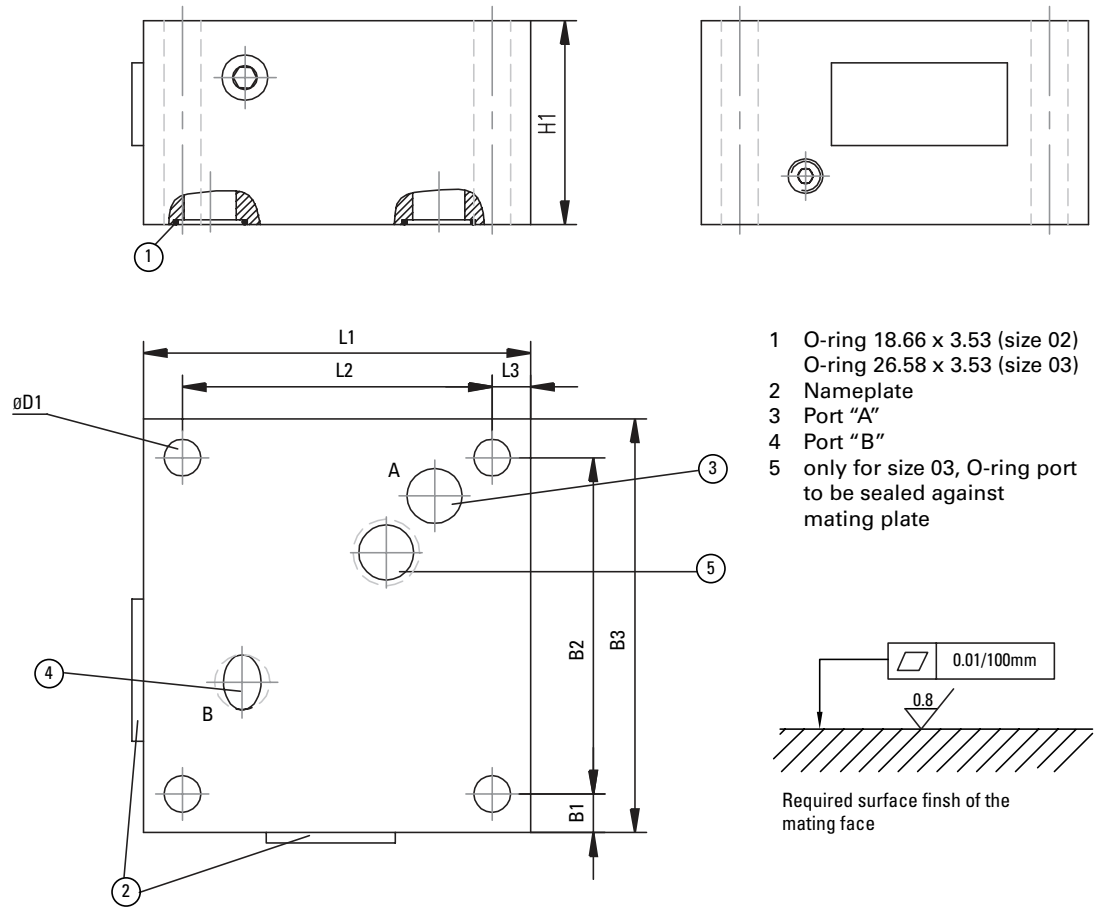
Size 03
(4)M10 x 80mm or 3/8"-16 UNC x 3"

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

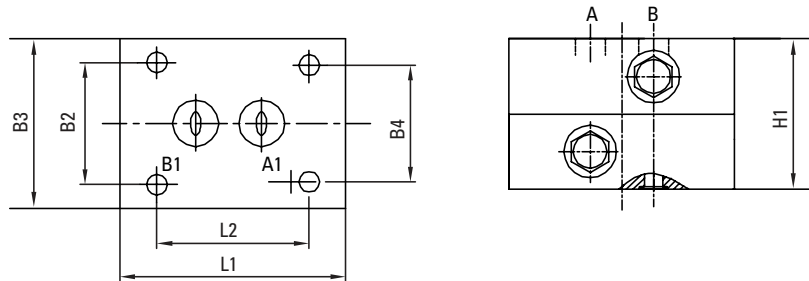
Rectifier sandwich plate

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
FCG Valve only	M5x60mm (2) #10-24x2" (2)	M8x50mm (4) 5/16"-18 UNC x 2" (4)	M10x80mm (4) 3/8"-16 UNC x 3" (4)
FCG Valve with rectifier sandwich plate	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)
Bolt torque value	9 Nm	37 Nm	75 Nm

Released Part Numbers

Eaton Model Code	Assembly Number
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

Eaton Model Code	Assembly Number
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

Eaton
Hydraulics Group USA
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952-937-9800
Fax: 952-294-7722
www.eaton.com/hydraulics

Eaton
Hydraulics Group Europe
Route de la Longeraie 7
1110 Morges
Switzerland
Tel: +41 (0) 21 811 4600
Fax: +41 (0) 21 811 4601

Eaton
Hydraulic Group Asia Pacific
11th Floor Hong Kong New World Tower
300 Huaihai Zhong Road
Shanghai 200021
China
Tel: 86-21-6387-9988
Fax: 86-21-6335-3912



Powering Business Worldwide

© 2009 Eaton Corporation
All Rights Reserved
Printed in USA
Document No. V-VLSU-MC006-E
April 2009