



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

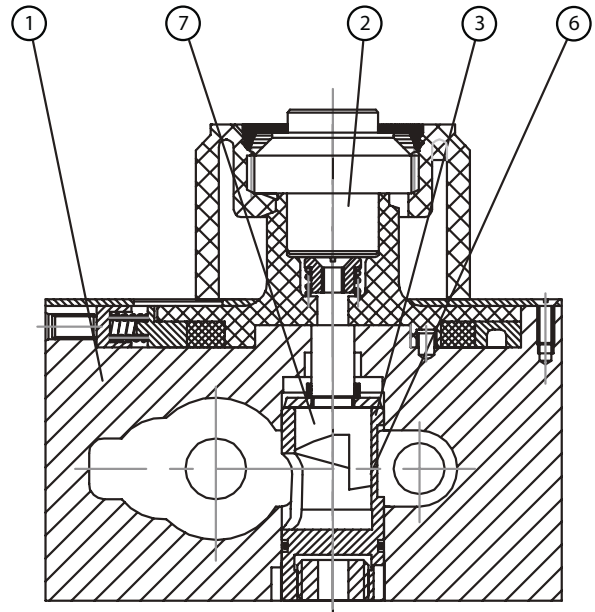
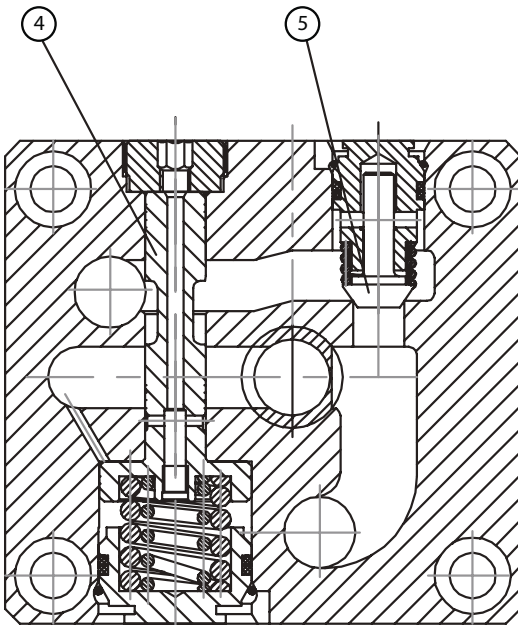
General

Danfoss' 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).

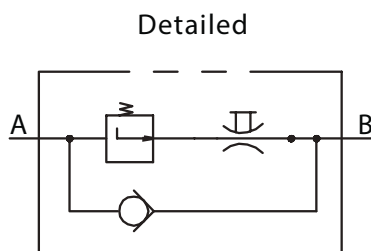
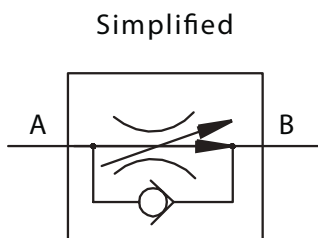
The flow from channel A to channel B is throttle at the orifice (6). In order to maintain the flow across the orifice constant, a pressure compensator is connected upstream of the orifice (6). The flow is maintained largely independent of temperature due to the orifice design. Free return flow from channel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

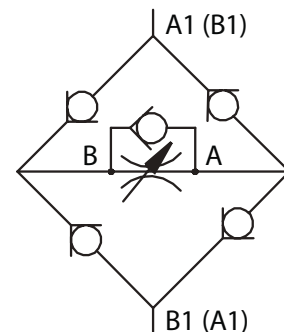


Functional Symbols

Flow Control Valve

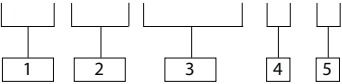


Rectifier sandwich plate



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

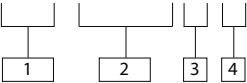
4 Pressure Compensator Stroke Limiter

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 $\Delta p = 315$ (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	

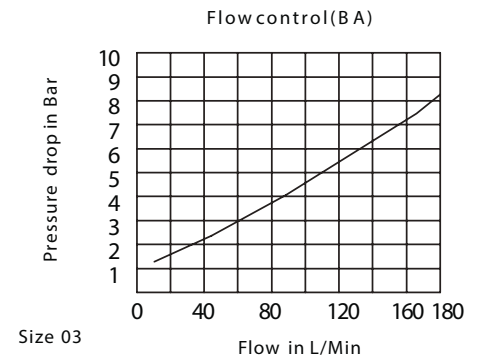
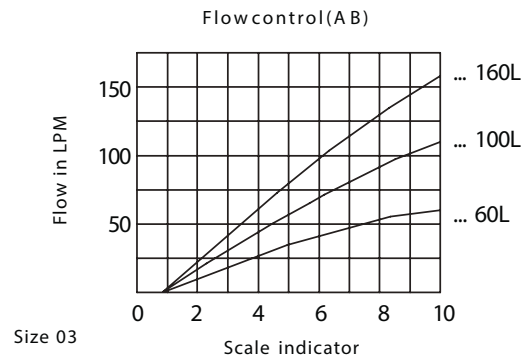
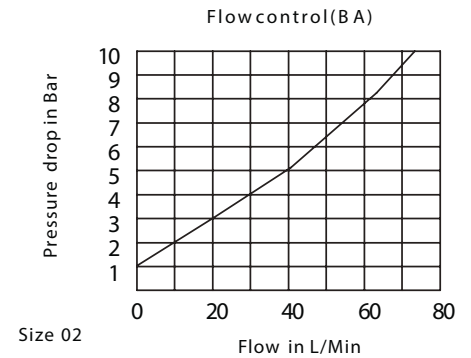
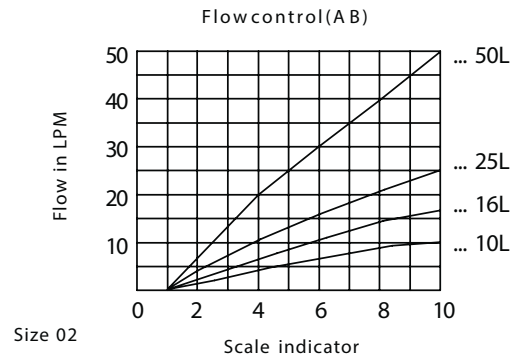
Rectifier Sandwich Plate

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

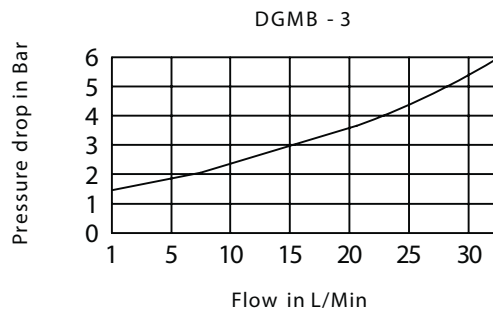
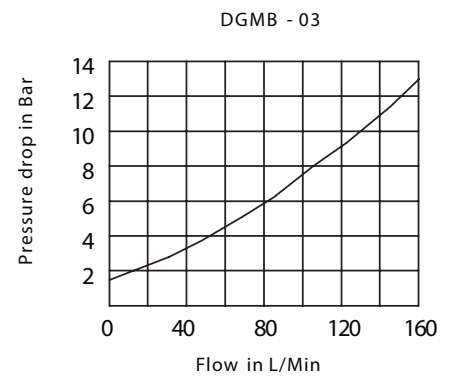
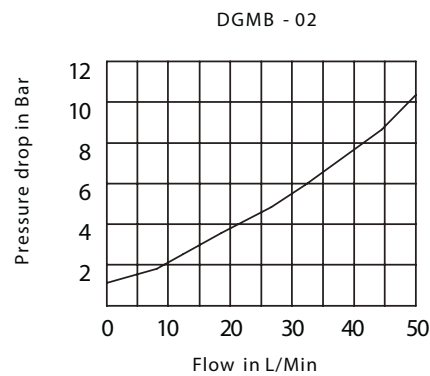
Flow Curves:

(measured at $v = 41$ mm²/s and $t = 50^{\circ}\text{C}$)



Flow Curves: Rectifier Sandwich Plate

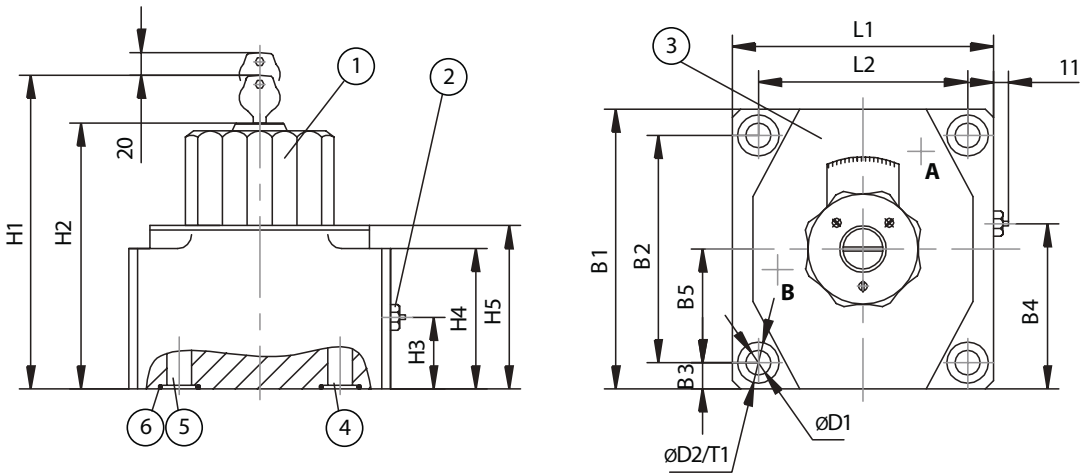
(measured at $v = 41$ mm²/s and $t = 50^{\circ}\text{C}$)



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"-18UNC x 2"

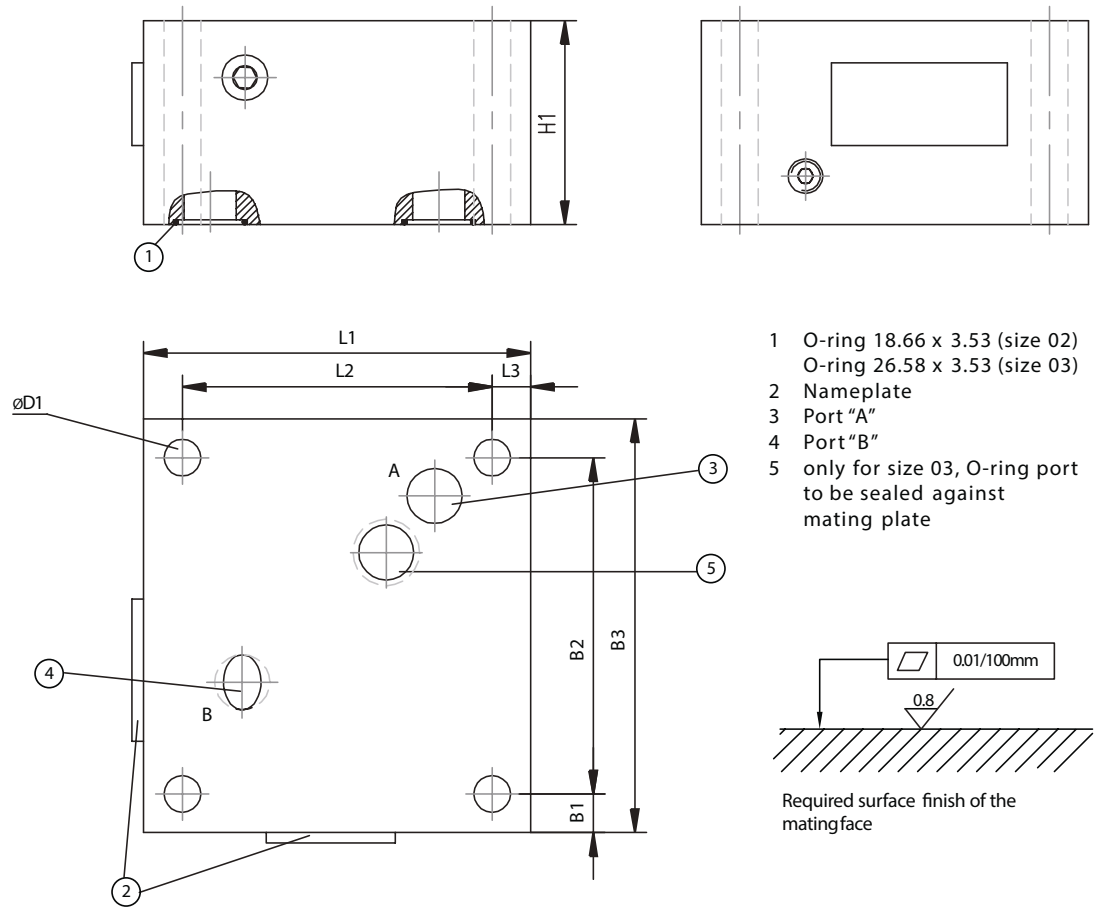
Size 03
(4)M10 x 80mm or 3/8"-16UNC x 3"

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

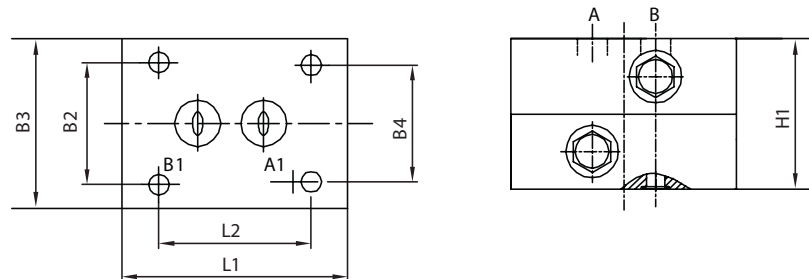
Rectifier sandwich plate

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)	M8x50mm (4)	M10x80mm (4)
	#10-24x2" (2)	5/16"-18 UNC x 2" (4)	3/8"-16 UNC x 3" (4)
FCG Valve with rectifier sandwich plate	M5x100mm (2)	M8x100mm (4)	M10x160mm (4)
	#10-24x4" (2)	5/16"-18 UNC x 4-1/4" (4)	3/8"-16 UNC x 6-1/4" (4)
Bolt torque value	9 Nm	37 Nm	75 Nm

Released Part Numbers

Danfoss 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

Danfoss Model Code	Assembly Number
FCG-H02Seal Kit	02-413809
FCG-H03Seal Kit	02-413810
DGMB-3 Seal Kit	02-413811
DGMB-02 Seal Kit	02-413812
DGMB-03 Seal Kit	02-413813
F3-FCG-H02Seal Kit	02-413821
F3-FCG-H03Seal Kit	02-413822
F3-DGMB-3 Seal Kit	02-413820
F3-DGMB-02 Seal Kit	02-413823
F3-DGMB-03 Seal Kit	02-413824

Products we offer:

- Cartridge valves
- DCV directional control valves
- Electric converters
- Electric machines
- Electric motors
- Gear motors
- Gear pumps
- Hydraulic integrated circuits (HICs)
- Hydrostatic motors
- Hydrostatic pumps
- Orbital motors
- PLUS+1® controllers
- PLUS+1® displays
- PLUS+1® joysticks and pedals
- PLUS+1® operator interfaces
- PLUS+1® sensors
- PLUS+1® software
- PLUS+1® software services, support and training
- Position controls and sensors
- PVG proportional valves
- Steering components and systems
- Telematics

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electric components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market as well as the marine sector. Building on our extensive applications expertise, we work closely with you to ensure exceptional performance for a broad range of applications. We help you and other customers around the world speed up system development, reduce costs and bring vehicles and vessels to market faster.

Danfoss Power Solutions – your strongest partner in mobile hydraulics and mobile electrification.

Go to www.danfoss.com for further product information.

We offer you expert worldwide support for ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide you with comprehensive global service for all of our components.

Local address:

Hydro-Gear

www.hydro-gear.com

Daikin-Sauer-Danfoss

www.daikin-sauer-danfoss.com

**Danfoss
Power Solutions (US) Company**
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

**Danfoss
Power Solutions GmbH & Co. OHG**
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

**Danfoss
Power Solutions ApS**
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

**Danfoss
Power Solutions Trading
(Shanghai) Co., Ltd.**
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 2080 6201