Vickers® by Danfoss
Pressure Relief Valves

CG2V-10, CG5V-10
350 Bar
Subplate Mount

BC444977510656en-000101

Table of Contents

General Information

Features

- Subplate mounting
- Porting pattern to DIN 24 340, form E, ISO 6264, CETOP-RP 121H and NFPA/ANSI
- Three adjustment elements:
  - Rotary knob
  - Hex. head screw with protective cap
  - Lockable rotary knob with scale
- Solenoid operated unloading

General

CG2V and CG5V pressure valves are pilot operated pressure relief valves. They are used for the limitation (CG2V) or limitation and solenoid actuated unloading (CG5V) of the control pressure.

The pressure relief valves (CG2V) consist mainly of the main valve (1) with main spool assembly (3) and pilot operated valve (2) with pressure adjustment element.

Pressure relief valve type CG2V

The pressure present in port P acts on the main spool (3). At the same time pressure is applied via the control lines (6) and (7), which are fitted with orifices (4) and (5), on the spring loaded side of the main spool (3) and at the ball (8) in the pilot control valve (2). If the pressure in port P exceeds the valve set at the spring (9), the ball (8) opens against the spring (9).

The signal for this comes internally via the control lines (10) and (6) from port P. The pressure fluid on the spring loaded side of the main spool (3) now flows via the control line (7) orifice bore (11) and ball (8) into the spring chamber (12). In type CG2V it flows internally via the control line (13) to tank, or in type CG2V...Y externally via the control line (4). Due to the orifices (4) and (5) a pressure drop occurs at the main spool (3), the connection from port P to port T is open.

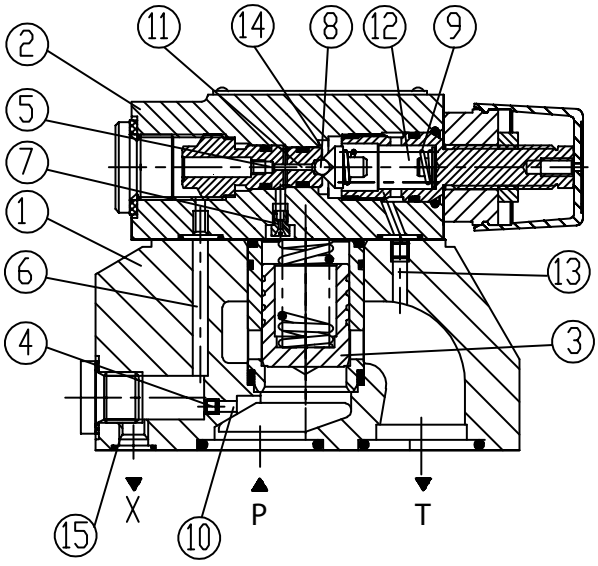
Now the pressure fluid flows from port P to port T whilst maintaining the set operating pressure.

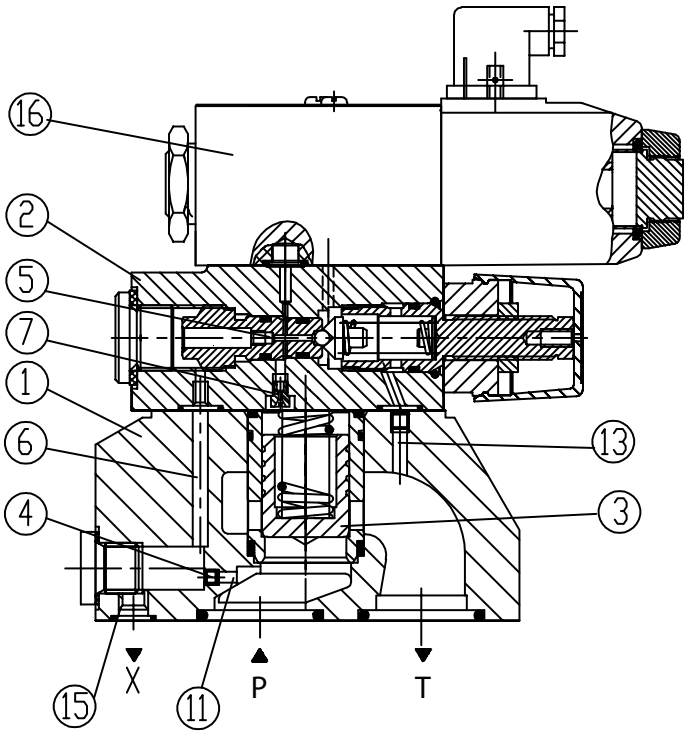
The pressure relief valve may be unloaded or switched over to a different pressure (second pressure stage) via port X (15).

Pressure relief valve type CG5V

The function of this valve is basically same as the valve type CG2V.

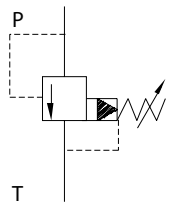
The unloading at the main spool (3), however, is achieved by the built-in directional valve (16).



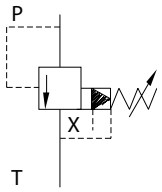


Functional Symbols

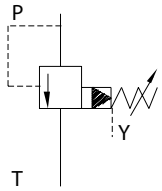
CG2V



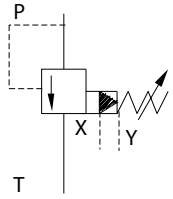
CG2V... X



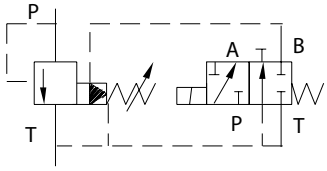
CG2V...Y



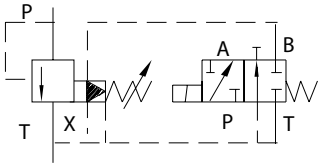
CG2V... XY



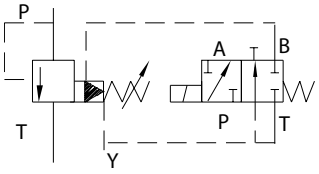
CG5V
Normally closed



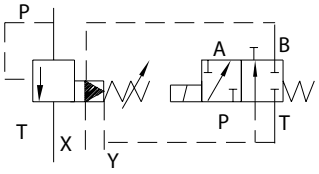
CG5V
Normally closed



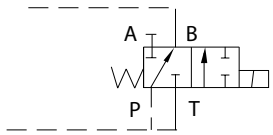
CG5V
Normally closed



CG5V
Normally closed



Normally open



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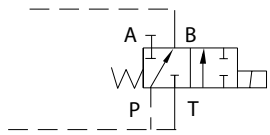

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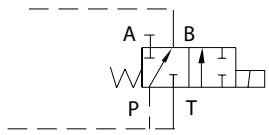
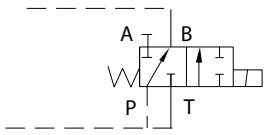


Normally open



Series CG2V
Model Code

(F3) CG2V 10 * * (*) (*) (*) 10

1 2 3 4 5 6 7 8 9

1 O-Ring Material
Blank – Nitrile
F3 – Fluorocarbon

2 Subplate Mounted Relief Valve

3 Size
ISO6264 -10
NFPA/ANSI R10
10 - Cetop 10

4 Pressure Range
B – 50 bar
C – 100 bar
F – 200 bar
G – 315 bar
H – 350 bar

5 Adjustment
W – Wrench and cover
H – Knob
K – Lockable knob

6 Port Thread
F – Metric
B – BSP

7 Cracking Pressure
Blank – Standard
U – Minimum (not available with 350 bar range)

8 Pilot & Drain
Blank – Internal Pilot & Drain
X – Internal Drain, External Pilot
Y – Internal Pilot, External Drain
XY – External Pilot & Drain

9 Design Number
10

Series CG5V
Model Code

(F3) CG5V 10 * * (*) (U) (*) (*) 1 M U H7 10

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1 O-Ring Material
Blank – Nitrile
F3 – Fluorocaron

2 Subplate Mounted Relief Valve with unloading function

3 Size
ISO6264-10
NFPA/ANSI R10
10 – Cetop 10

4 Pressure Range
B – 50 bar
C – 100 bar
F – 200 bar
G – 315 bar
H – 350 bar

5 Adjustment
W – Wrench and cover
H – Knob
K – Lockable knob

6 External Connection
F – Metric
B – BSP

7 Minimum Cracking Pressure
Blank – Stadard
U – Minimum Cracking Pressure (not available with 350 bar rage)

8 Pilot & Drain
Blank – Internal Pilot & Drain
X – Internal Drain, External Pilot
Y – Internal Pilot, External Drain
XY – External Pilot & Drain

9 Pilot Override
Blank – Manual Override
Z – No Manual Override
H – Weatherproof

10 Valve State
1 – Normally Closed
2 – Normally Open

11 Flag
M

12 Connector
U – No Connector
U1 – Connector included
U6 – Connector with lights
FTWL – Box with lights and 1/2" NPT conduit thread

13 Coil Voltage
H7 – 24 VDC
G7 – 12 VDC
B6 – 110V50Hz/120V60Hz
D6 – 220V50Hz/240V60Hz

14 Design Number
10

HydraulicTechnical Data

Maximum operating pressure at ports P, T, X (Bar)	up to 350 (port P, X); 315 (port T)	
Maximum back pressure at port Y	CG2V (Bar) CG5V (Bar)	up to 315 up to 210
Pressure Range	Minimum (Bar) Maximum (Bar)	flow dependent (see flow curves) 50, 100, 200, 315, 350
Weight	CG2V	4.4 Kg
	CG5V	5.6 Kg
Maximum Flow	650 Lpm	
Fluid	Mineral oil (for Nitrile seal) or phosphate ester (for Fluorocarbon seal)	
Fluid temperature range(C)	-30 to + 80 (Temperature limit for DG4V3 is 70ºC)	
Fluid Viscosity range (mm²/s)	10 to 800	
Fluid Cleanliness Level	ISO 19/17/14	

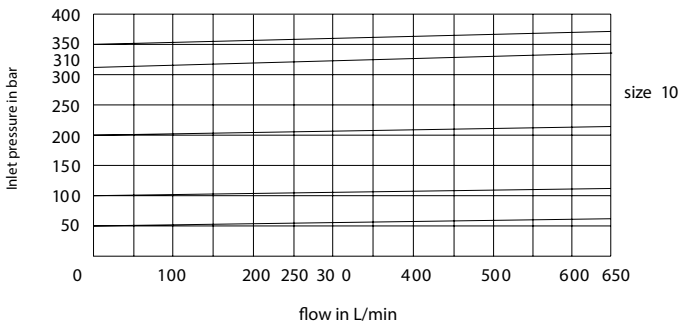
Flow Curves
(measured at v = 41 mm²/s and t = 50° (C)

The characteristic curves were measured with pilot externally drained.

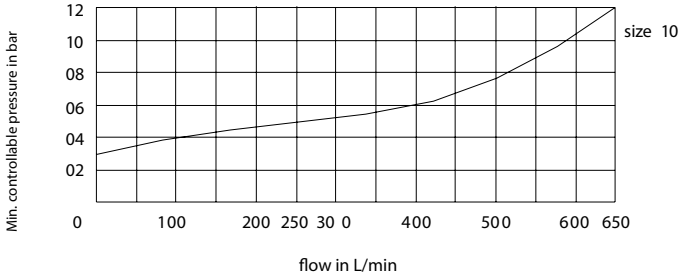
For internal pilot oil drain the inlet pressure increase by the outlet pressure present at port T.

* The characteristic curves are valid for outlet pressure T = 0 over the entire flow range!

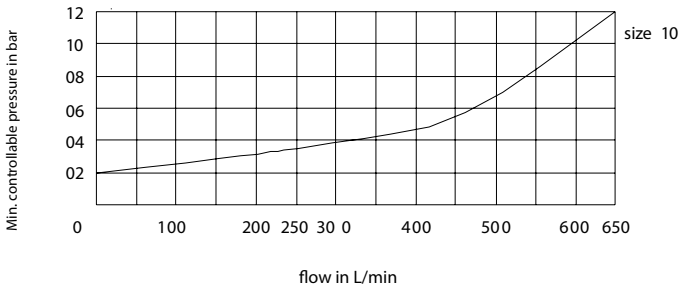
Inlet pressure vs. flow



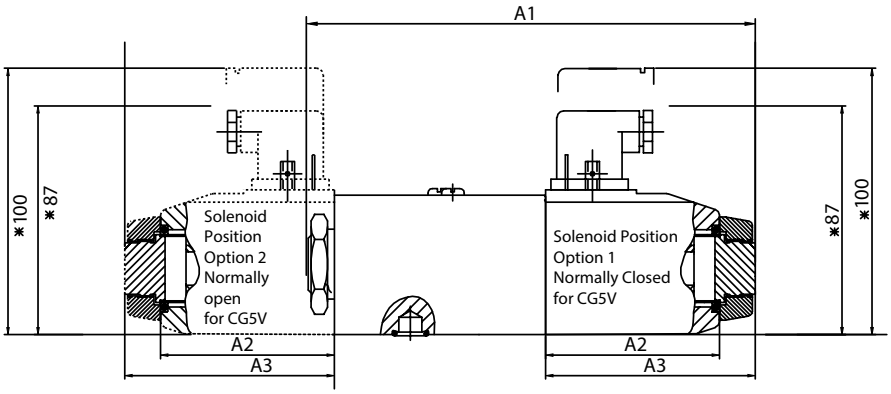
Minimum controllable pressure and bypass pressure in relation to the flow. *



Minimum controllable pressure and bypass pressure in relation to the flow Version U *

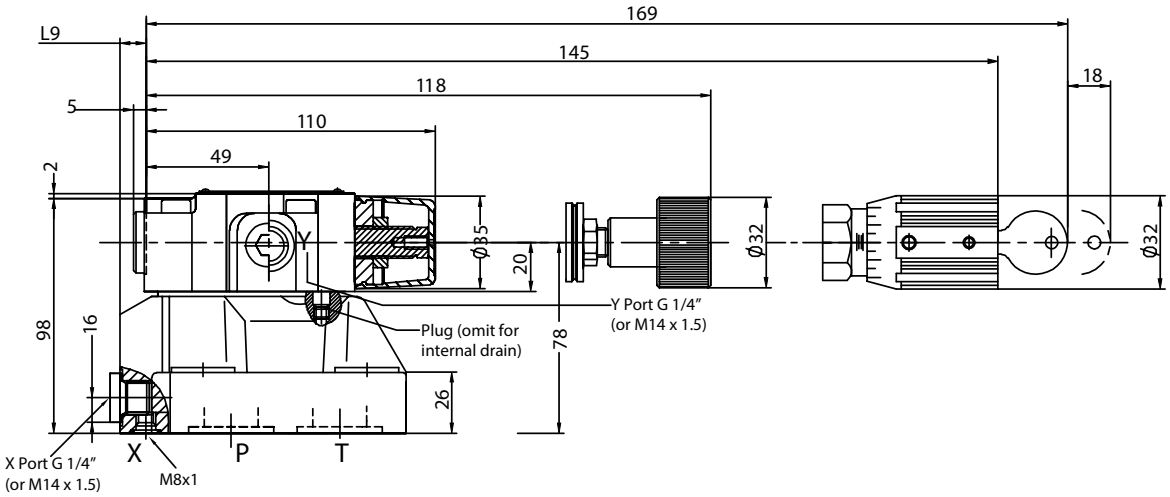


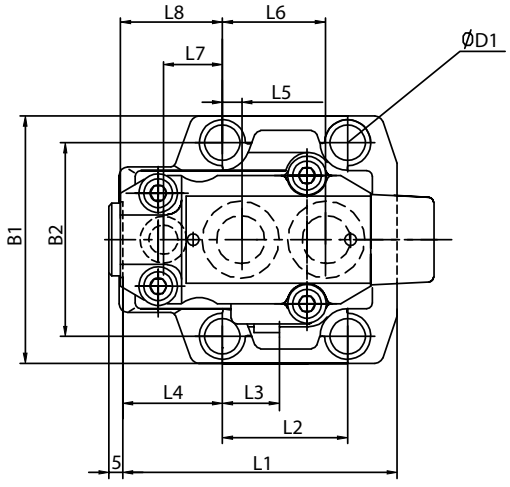
CG2V/CG5V
Dimensions mm (inch)



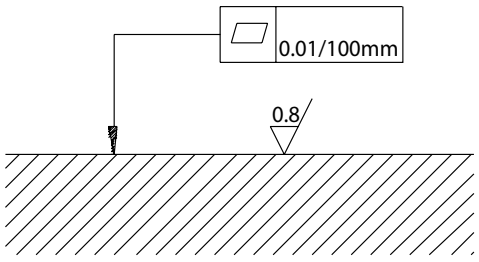
Coil	AC	DC
A1	161 (6.34)	151 (5.95)
A2	61 (2.4)	51 (2.0)
A3	73 (2.87)	63 (2.48)

* This dimension can vary depend on source of plug ("U" option); See DG4V-3 Catalog for "FTWL" option.





Re quired surface finish of mating face



Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	ØD1	Ports P,T	Port X
CG2V/CG5V-10	147.5	88.9	44.5	41	12.7	76.2	31.8	20	21	115	82.6	20	34.52 x 3.53	9.25 x 1.78
	(5.81)	(3.5)	(1.75)	(1.61)	(0.5)	(3.0)	(1.27)	(0.79)	(0.83)	(4.53)	(3.25)	(0.79)	(1.36 x 0.14)	(0.36 x 0.07)

Application Notes

1. The fluid must be filtered. The required fluid cleanliness level is ISO 19/17/14.
2. Surface finish of mating piece is required to 0.01/100mm.
3. Interface Seal Kit # for
   CG2V/5V-10
   02-412610, Nitrile
   02-412609, Fluorocarbon
4. Bolt kit for CG2V/5V-10
   (4) M18x50 (1.97 inch)
   (4) 3/4"-10x2" UNC,
   MA=430 Nm (317 lb-ft)
5. Mounting bolts must be to DIN 912-10.9 class, or Class 12.9 (ISO898)

Released Part Numbers

CG2V-10 Released Part Numbers

Assembly Number	Model Code
02-412579	CG2V-10-B-W-B-U-10
02-412580	CG2V-10-F-W-B-10
02-412581	CG2V-10-G-W-B-U-10
02-412582	CG2V-10-G-W-B-10
02-412583	CG2V-10-H-W-B-10
02-412584	CG2V-10-F-W-B-Y-10

Bold items have better lead-time

CG5V-10 Released Part Numbers

Assembly Number	Model Code
02-412649	CG5V-10-B-W-B-U-2-M-U-H7-10
02-412650	CG5V-10-G-W-B-1-M-U-H7-10
02-412651	CG5V-10-G-W-B-2-M-U-H7-10
02-412652	CG5V-10-H-W-B-2-M-U-H7-10
02-412653	CG5V-10-F-W-B-1-M-U-H7-10
02-412654	CG5V-10-F-W-B-2-M-U-H7-10

Bold items have better lead-time

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