SystemStak™ Pilot Operated Check Valves

DGMPC
General Description

These valves are single or dual check units. Dual check units have identical check elements located in the "A" and "B" cylinder port lines. The check valve poppets are moved into the open position by a central pilot control spool which moves toward one check or the other, depending on which port is pressurized.

The check valve located in the return circuit is opened by the operating pressure in the primary circuit. When the pressure in the pilot line is vented, the check valve will remain closed.

The pilot spool area to valve seat ratio is 3:1 on standard models, and 20:1 on models with the decompression feature.

Check valve cracking (opening) pressures of 1 bar (15 psi), 2,5 bar (36 psi) and 5 bar (73 psi) are available. Please note that back pressure on the downstream or free-flow side of the pilot check valve may prevent the valve from opening in certain situations. (Back pressure opposes pilot pressure trying to open the valve.) In such cases, pilot pressure required to open the decompression poppet and valve can be calculated as follows:

To open valve or poppet in line A:

$$\text{Pressure at B}_1 = \frac{P_A + P_C - P_{A1}}{\text{Area ratio factor}} + P_{A1}$$

To open valve or poppet in line B:

$$\text{Pressure at A}_1 = \frac{P_B + P_C - P_{B1}}{\text{Area ratio factor}} + P_{B1}$$

Where:

P_A = Pressure at A

P_C = Cracking pressure

P_{A1} = Pressure at A1

P_B = Pressure at B

P_{B1} = Pressure at B1

In the above cases, substitute cracking pressure and area ratio from the following:

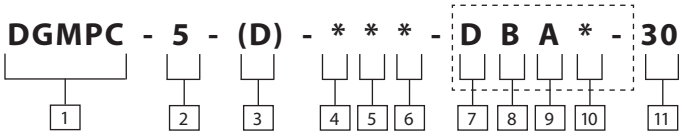
Cracking pressure: 1, 2.5 or 5 bar according to model code position 6 (and position 10 for second function).

Area ratio factors:

Standard valve: 3

Decompression poppet: 20

Model Code



1 Valve function

Manifold or subplate mounted check valve.

2 Interface

5 – ISO 4401-AC-05-4-A, CETOP RP35H, Size 5 ANSI/NFPA D05

3 Decompression feature

D – With decompression feature
Blank – Standard (no decompression)

4 Check port

A – Check in cylinder port "A"
B – Check in cylinder port "B" (single check models only)

5 Pilot port

A – Pilot port controlling the "B" port check (single check models only)
B – Pilot port controlling the "A" port check

6 Cracking pressure

K – 1,0 bar (15 psi)
M – 2,5 bar (35 psi)
N – 5,0 bar (75 psi)

7 Decompression feature

D – Decompression feature
Blank – Standard (no decompression)
Omit for single check models.

8 Check port: second function

B – Check in cylinder port "B"
Omit for single check models.

9 Pilot port: second function

A – Pilot port controlling the "B" port check (dual check models only)
Omit for single check models.

10 Cracking pressure: second function

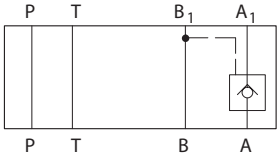
K – 1,0 bar (15 psi)
M – 2,5 bar (35 psi)
N – 5,0 bar (75 psi)
Omit for single check models.

11 Design number - 30 series

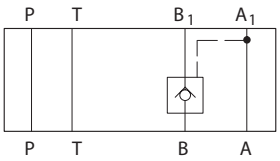
Subject to change. Installation dimensions unaltered for design numbers 30 to 39 inclusive.

Functional Symbols

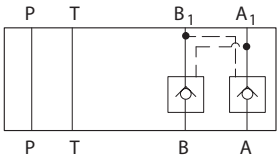
DGMPC-5- **AB** *-30



DGMPC-5- **BA** *-30



DGMPC-5- **AB** *- **BA** *-30



Operating Data

Basic Characteristics	
Maximum flow	120 l/min (32 USgpm)
Maximum operating pressure	315 bar (4500 psi)
Leakage @ 50°C (120°F) Poppet @ 35 bar (500 psi)	
Standard models	0.3 ml/min.
"D" models	1.0 ml/min.
Piston @315 bar (4500 psi)	20°C to 50 °C (70 to 120° F)
Operating temperature	20°C to 50°C (70° to 120°F)
Weights	2,9 kg (6.4 lbs)

Performance Data

DGMPC Pressure Drop

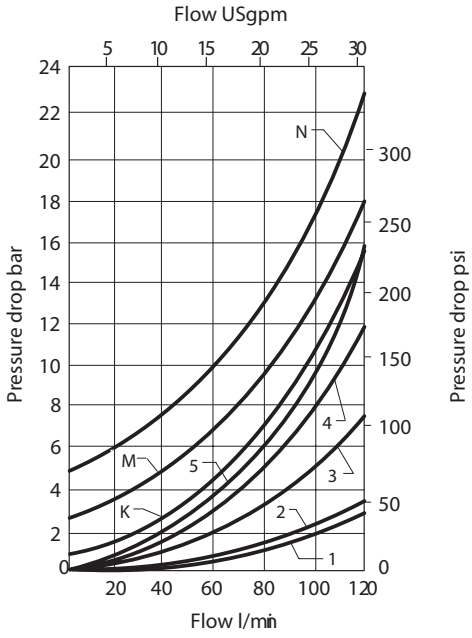
The curves below show pressure drop through each functional flow path in the valve. The total insertion loss for the valve must be calculated by summing the losses through the four applicable flow paths.

ModelType	Curve Number							
	P	**T**	**A**			**B**		
DGMPC-5-(D)-AB*-30	1	2	-	5	▲	• 3 ■ 4	-	-
DGMPC-5-(D)-BA*-30	1	2	• 3 ■ 4	-	-	-	5	▲
DGMPC-5-(D)-AB*-(D)-BA*-30	1	2	-	5	▲	-	5	▲

• Flow toward actuator without check – single check only

■ Flow from actuator without check – single check only

▲ Use K, M, or N cracking pressure curve as applicable



Installation Dimensions

DGMPC-5-30
Pilot Operated Check Valve
mm (inches)

See page 38 for interface dimensions.