

Cartridge Valves Technical Information

Relief Valves

Application Notes

APPLICATIONS

Relief valves are used as pressure limiting devices to protect hydraulic systems and components. They are available in direct-acting poppet, differential area poppet, bi-directional poppet, and pilot-operated spool types.

Relief valves



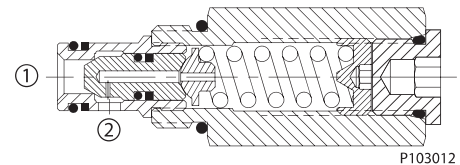
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OPERATION

Direct-acting poppet

The direct-acting poppet blocks flow from 1 to 2 until sufficient pressure is present at 1 to force the spring-opposed poppet from its seat. This pressure is commonly known as the crack pressure. The valve will remain open until the pressure drops to a level allowing the spring to close the valve. This pressure is known as the re-seat pressure and is typically 70-80% of the crack pressure. The difference between crack and re-seat pressure is commonly referred to as hysteresis.

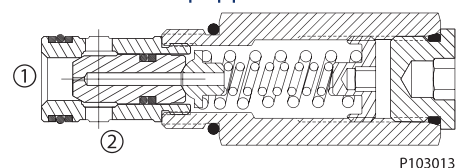
Direct acting poppet relief valve



Differential-area poppet

The differential area poppet operates in the same manner except flow is blocked from 2 to 1 until sufficient pressure is present at 2 to force the spring-opposed poppet from its seat.

Differential area poppet relief valve



Advantages of direct-acting poppet and differential area poppet relief valves are:

- Fast response
- Contamination tolerant
- Low leakage
- Low cost



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Direct Acting

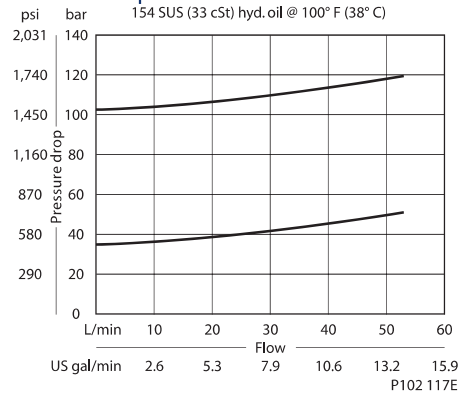
CP210-1

OPERATION

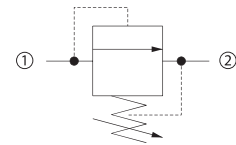
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

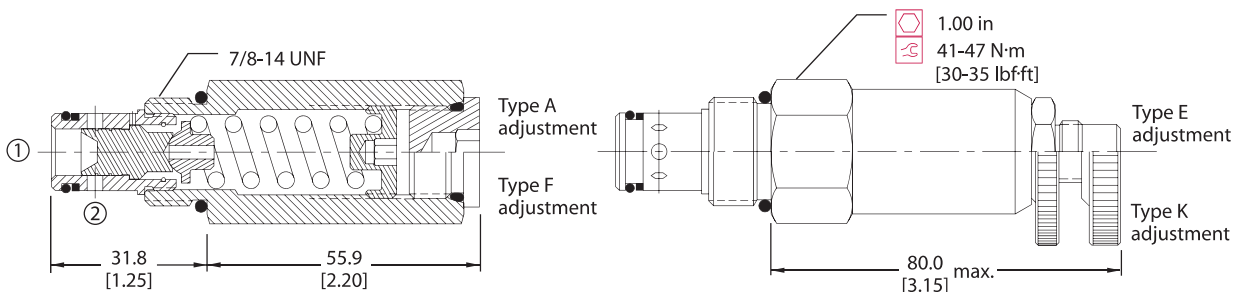
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow	45 l/min [12 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /min] @ 80% of pressure setting
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP210 - 1 - B - 6S - A - C - 075

Seals	B = Buna-N V = Viton	Seal kit	120015 120016	Crack pressure	Code x 10 = psi Example: 075 = 750 psi
Housing and ports	0 = No Housing DG3B = AI, 3/8 BSP DG4B = AI, 1/2 BSP 6S = AI, #6 SAE 8S = AI, #8 SAE Other housings available	Housing P/N	No Housing SDC10-2-DG-3B SDC10-2-DG-4B CP10-2-6S CP10-2-8S	Pressure range	bar [psi]
Adjustment option	A = Internal E = External F = Tamper resistant K = Knob			A = 3.4-28 [50-400] Standard 17 [250] B = 5.5-55 [80-800] Standard 28 [400] C = 6.9-97 [100-1400] Standard 52 [750] D = 34-166 [500-2400] Standard 103 [1500]	

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