Motion Control Valves

1CEL30

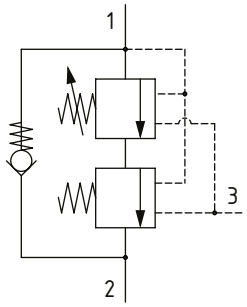
Overcenter Valve, Two Stage Counterbalance, Direct Acting, Port 3 Pilot

380 bar [5500 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting overcenter valve, which is a pilot assisted relief valve with a free flow check. With the total relief pressure setting (fixed pressure relief setting plus counterbalance pressure setting) set at around 1.3 times the maximum load induced pressure, the valve will prevent flow from taking place between ports 1 and 2. The relationship between the two settings will be application dependent. The more unstable the application, the higher the counterbalance pressure setting should be with the fixed pressure relief setting making up the remainder of the setting. When pilot pressure is applied to port 3, it acts on two separate areas, one gives a very low pilot ratio 0.4 to 1 and the other slightly higher 4.3 to 1. When piloted, the valve will meter the flow from port 1 to 2 compensating for any change in pilot pressure due to over-running or unstable loads. If the load pressure decays very quickly, then the lower pilot ratio poppet will return at a high pilot pressure preventing total loss of control and subsequent instability. As the pilot pressure increases, the counterbalance portion of the pressure will be removed allowing full cylinder force to ensue. Free flow from port 2 to port 1 can take place freely through the check portion of the valve. These valves are ideal in the most severe applications bringing stability, load holding, and hose failure protection to long slender booms and traditionally unstable applications. This is also available in a dual housing for bi-directional control.

SCHEMATIC

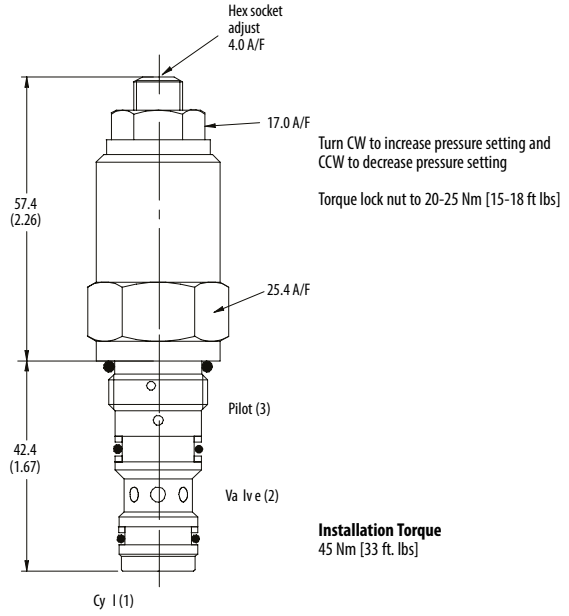


PERFORMANCE DATA

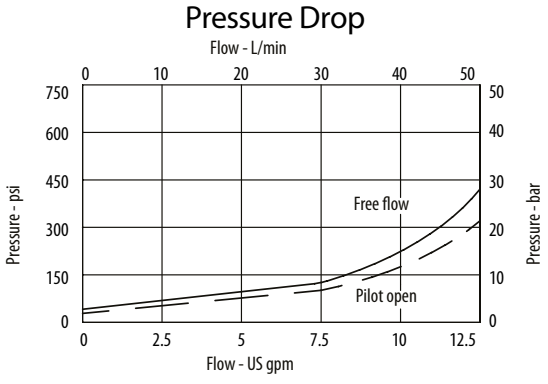
Rated pressure	**380 bar [5500 psi]**
Rated flow	**30 l/min [8 US gpm]**
Max total relief pressure	380 bar [5500 psi]
Max recommended load pressure at max setting	290 bar [4200 psi]
Pilot Ratio	4.3:1 (Primary); 0.4:1 (Secondary)
Leakage	0.3 ml/min [5 drops/min]
Weight	0.15 kg [0.33 lb]
Cavity	A6610

DIMENSIONS

mm [in]



PERFORMANCE CURVES



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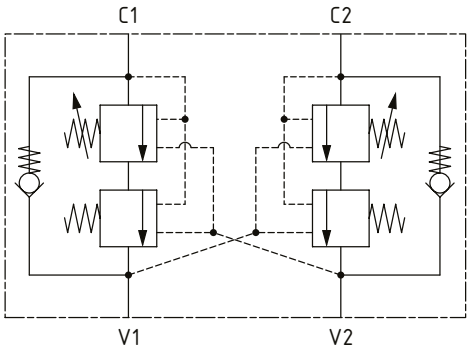
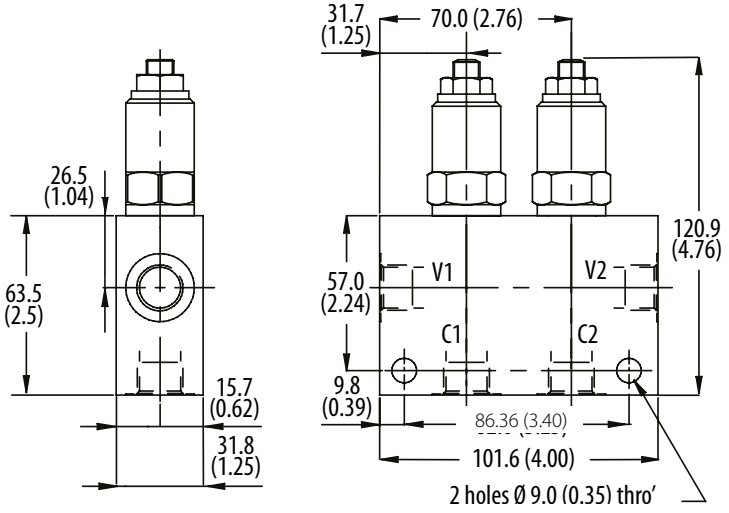
SCHEMATIC

1CEEL34 (dual)



DIMENSIONS

mm [in]



MODEL CODE

1CEL35 - F - 3W - 30 - S - 230 - 50 - 377

Basic Code

1CEL30 -No housing
1CEL35 -Cartridge and housing
1CEEL34 -Cartridge and dual housing

Adjustment Option

F - External

Housing

Code	Ports	Aluminum single	Steel single	Aluminum dual	Steel dual
Omit	No housing				
3W	3/8" BSP valve & cylinder port. 1/4" BSP pilot port	B6743	B12823	B6836	B13803
6T	3/8" SAE valve & cylinder port. 1/4" SAE pilot port	B10536	B10805		
8T	1/2" SAE valve & cylinder port. 1/4" SAE pilot port	B7884	B11811	B30237	B11812

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Housing Material

Omit - Aluminum/No housing
377 - Steel

Counterbalance Pressure Setting

Code - Pressure setting in bar (10 bar increments within specified Pressure Range)

Code	Bar	Psi
50	50	[725]

Fixed Pressure Setting

Code - Pressure setting in bar (10 bar increments within specified Pressure Range)

Code	Bar	Psi
230	230	[3335]

Seal Option

Code	Seal Kit
S-Buna-N	SK395
SV-Viton	SK395V

Total Relief Pressure Range

			Fixed Pressure Range		Counterbalance Pressure Range	
Code	**Bar**	**Psi**	**Bar**	**Psi**	**Bar**	**Psi**
20	170-300	[2465-4350]	150-200	[2175-2900]	20-120	[290-1740]
Standard Setting	220	[3190]	170	[2465]	50	[725]
30	240-370	[3480-5370]	210-280	[3000-4060]	20-120	[290-1740]
Standard Setting	280	[4060]	230	[3330]	50	[725]
40	270-380	[3900-5500]	290-310	[4200-4500]	20-120	[290-1740]
Standard Setting	350	[5000]	300	[4350]	50	[725]

Std setting made at 4.5 l/min