

Motion Control Valves

1CEL90

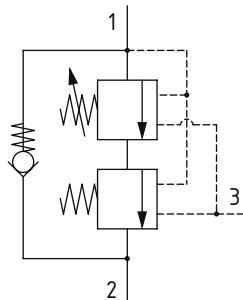
Overcenter Valve, Two Stage Counterbalance, Direct Acting, Port 3 Pilot

380 bar [5500 psi] • 90 l/min [24 US gpm]

DESCRIPTION AND OPERATION

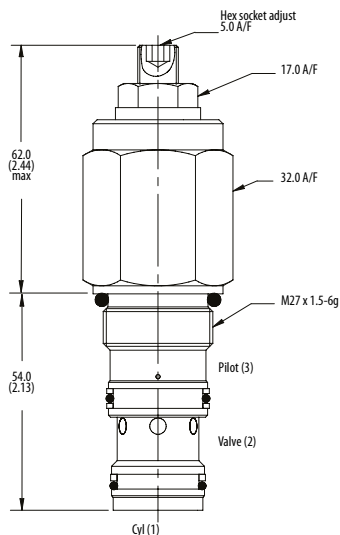
This is a direct acting overcenter valve, which is a pilot assisted relief valve with a free flow check. With the total relief pressure setting (fixed pressure relief setting plus counterbalance pressure setting) set at around 1.3 times the maximum load induced pressure, the valve will prevent flow from 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



DIMENSIONS

mm [in]



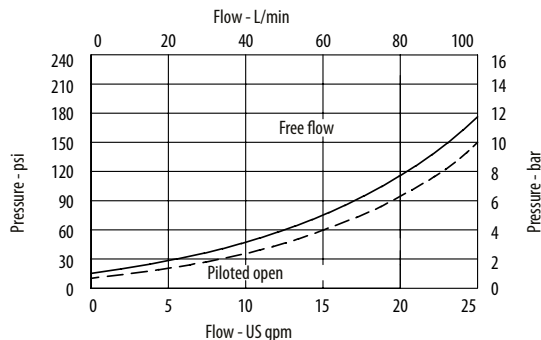
Turn CW to increase pressure setting and CCW to decrease pressure setting

Torque lock nut to 20-25 Nm [15-18 ft lbs]

Installation Torque
60 Nm [44 ft. lbs]

PERFORMANCE CURVES

Pressure Drop



Motion Control Valves

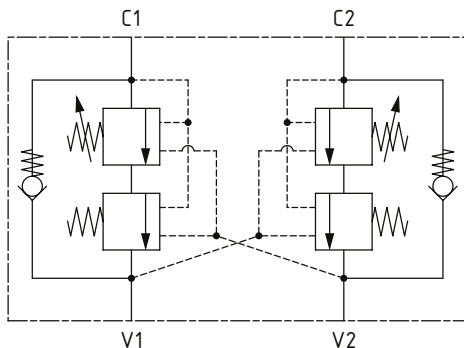
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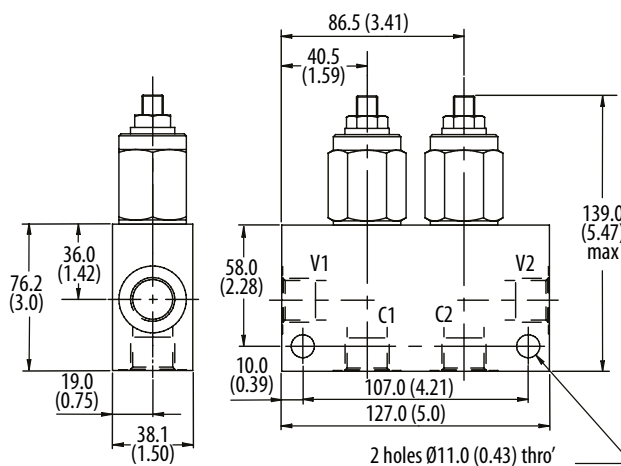
SCHEMATIC

1CEEL95 (dual)



DIMENSIONS

mm [in]



MODEL CODE

1CEL95 - F - 4W - 30 - S - 220 - 60 - 377

Basic Code

1CEL90 - No housing
1CEL95 - Cartridge and housing
1CEEL95 - Cartridges and dual housing

Adjustment Option

F - External
N - Non-adjustable option, contact technical support

Housing

Code	Ports	Aluminum single	Steel single	Aluminum dual	Steel dual
Omit	No housing				
4W	1/2" BSP Valve & Cyl Port 1/4" BSP Pilot Port	B13625	B13626	C13627	C13628
8T	1/2" SAE Valve & Cyl Port 1/4" SAE Pilot Port	B10806	B10922	C10807	C11561

* 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

Fixed Pressure Setting

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

Code	Bar	Psi
220	220	[3190]

Counterbalance Pressure Setting

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

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
S-Buna-N	SK633
SV-Viton	SK633V

Total Relief Pressure Range

Code	Bar	Psi	Fixed Pressure Range		Counterbalance Pressure Range	
			Bar	Psi	Bar	Psi
20	170-350	[2465-5000]	150-170	[2175-2465]	20-180	[290-2610]
			Standard Setting	220	[3190]	160
30	210-380	[3000-5500]	190-230	[2755-3330]	20-180	[290-2610]
			Standard Setting	280	[4060]	220

Std setting made at 4.5 l/min