

# Motion Control Valves

## 1CEL140

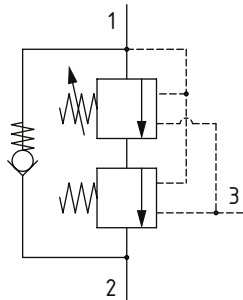
Overcenter Valve, Two Stage Counterbalance, Direct Acting, Port 3 Pilot

380 bar [5500 psi] • 140 l/min [37 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

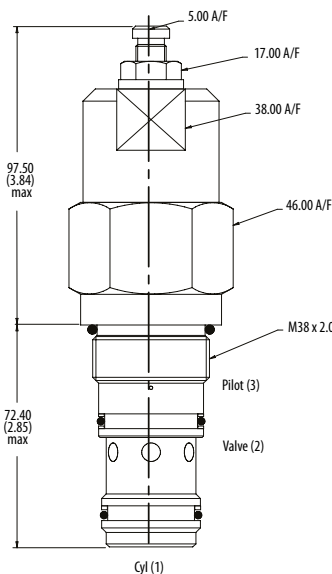


### PERFORMANCE DATA

<b>Rated pressure</b>	<b>380 bar [5500 psi]</b>
<b>Rated flow</b>	<b>140 l/min [37 US gpm]</b>
Max total relief pressure	380 bar [5500 psi]
Max recommended load pressure at max setting	280 bar [4000 psi]
Pilot Ratio	6.1:1 (Primary); 0.5:1 (Secondary)
Leakage	0.3 ml/min nominal [5 drops/min]
Weight	1.2 kg [2.6 lb]
Cavity	A20081

### DIMENSIONS

mm [in]

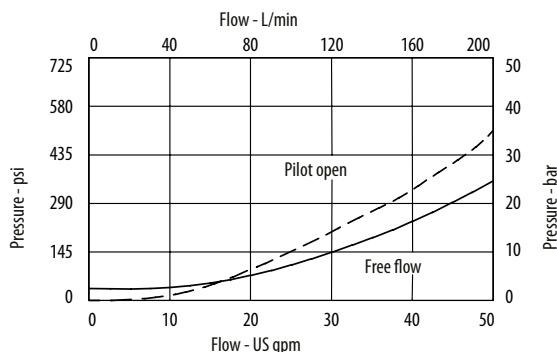


Turn CW to increase pressure setting and CCW to decrease pressure setting  
Torque lock nut to 20-25 Nm [15-18 ft lbs]

**Installation Torque**  
150 Nm [110 ft. lbs]

### PERFORMANCE CURVES

#### Pressure Drop



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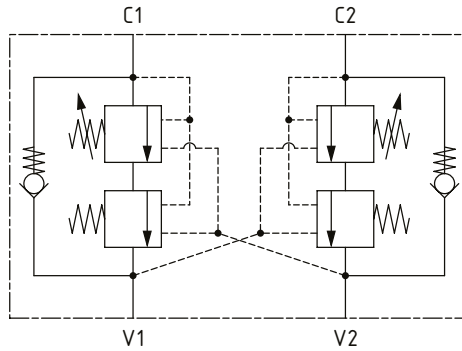
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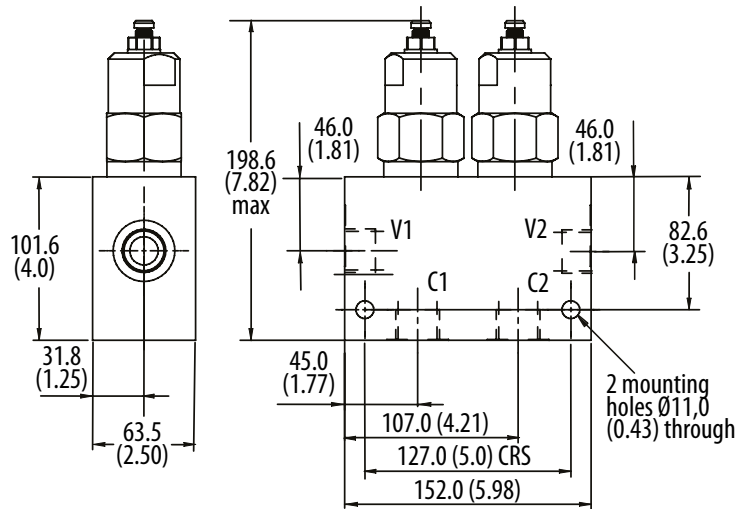
### SCHEMATIC

1CEEL145 (dual)



### DIMENSIONS

mm [in]



### MODEL CODE

**1CEL145 - F - 6W - 30 - S - 220 - 60 - 377**

#### Basic Code

1CEL140 - No housing  
1CEL145 - Cartridge and housing  
1CEEL145 - Cartridges and dual housing

#### Adjustment Option

F - External

#### Housing

Code	Ports	Aluminum single	Steel single	Aluminum dual	Steel dual
Omit	No housing				
6W	3/4" BSP Valve & Cyl Port. 1/4" BSP Pilot Port	B20105	B20106		
8W	1" BSP Valve & Cyl Port. 1/4" BSP Pilot Port	B20107	B20108	C20285	C20287
16T	1" SAE Valve & Cyl Port. 1/4" SAE Pilot Port	B11946	B11947	C30105	C30106

\* 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	SK1108
SV-Viton	SK1108V

#### Total Relief Pressure Range

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

Std setting made at 4.5 l/min