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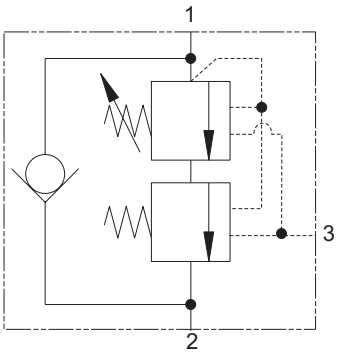
1CEL90 - Overcenter Valve

Counterbalance, pilot assisted relief with check
90 L/min (23 USgpm) • 280 bar (4000 psi)

Eaton 1CEL90F30S-220/60
Eaton 1CEL90F20S-160/60



Operation

The check section allows free flow and then locks the load against movement. The pilot assisted relief valve section will give controlled movement when pilot pressure is applied, maintaining a counterbalance pressure to prevent initial pressure loss and therefore instability. The total pressure setting will normally be set at 1.3 times the load induced pressure. The counterbalance pressure reduces as the pilot pressure increases.

Features

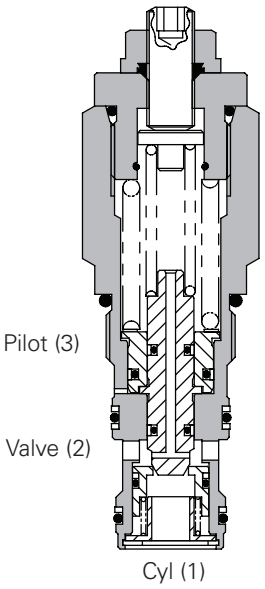
Cartridge is economical and fits simple cavity. Allows quick, easy field service - reduces down time. Interchangeable with pilot check valve of a similar size.

Pilot Ratio

Primary 5.6:1

Secondary 0.7:1

Sectional View



Performance Data

Ratings and Specifications

Figures based on: Oil Temp = 40˚C Viscosity = 32 cSt (150 SUS)	
Rated flow	90 L/min (23 USgpm)
Maximum setting	380 bar (5510 psi)
Max load induced pressure	280 bar (4000 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Standard housing material	Aluminum (up to 210 bar). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity number	A12336 (See Section M)
Torque cartridge into cavity	60 Nm (44 ft. lbs.)
Weight	1CEL90 0.29 kg (0.63 lbs.) 1CEL95 1.35 kg (2.97 lbs.) 1CEEL95 2.10 kg (4.62 lbs.)
Seal kit number	SK633 (Nitrile) SK633V (Viton®)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temperature	-30° C to +90° C (-22° to +194°F)
Internal leakage	0.3 milliliters/min nominal (5 dpm)
Nominal viscosity range	5 to 500 cSt

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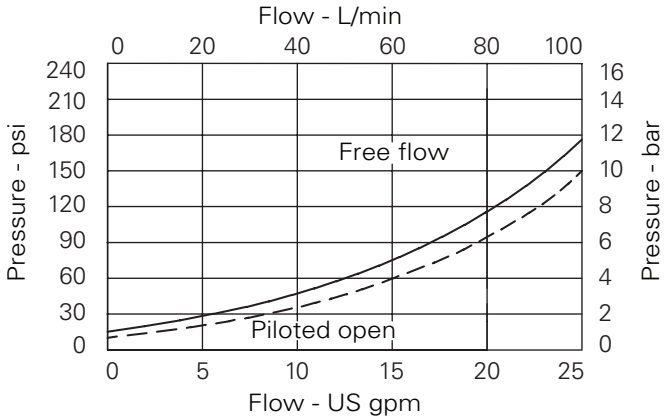
Description

The 1CEL overcenter valve performs all duties of a regular overcenter but maintains a counterbalance pressure to provide dampening of cylinders when there is a rapid loss in stored pressure. This counterbalance pressure reduces as the pilot pressure increases. Typical applications include extension cylinders on telescopic handlers where it is important to have a smooth operation when retracting from full extension.

Pressure Drop



Note: This valve has been designed to eliminate instability from flexible boom applications or where the load induced pressure varies greatly. To get the best results, the settings should be adjusted for each application and then factory set for production quantities. Please contact our Technical Department for more information.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

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Model Code

1CE***	–	F	4W	–	30	S	220	/	60
1		2	3		4	5	6		7

1 Function

1CEL90 - Cartridge Only
1CEL95 - Cartridge and Body
1CEEL95 - Cartridges and Dual Body

2 Adjustment Means Counterbalance Setting

F - Screw Adjustment
N - Fixed - State pressure setting required.

For fixed versions add setting in 10 bar increments to end of part number. Subject to a ±10% tolerance.

3 Port Sizes

Code	Port Size	Housing Number - Body Only			
		Aluminium Single	Steel Single	Aluminium Dual	Steel Dual
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

4 Pressure range bar @ 4.8 L/min

Note: Code based on pressure in bar.

20 - 170-350 Standard 220 (160/60)
30 - 210-380 Standard 280 (220/60).

Standard setting made at 4.8 L/min

5 Seals

S - Nitrile (for use with most industrial hydraulic coils)
SV - Viton (for high temperature and most special fluid applications)

6 High Pressure Setting Bar

(10 bar increments)
150 to 230 bar (2175 to 3335 psi)

7 Counterbalance Setting Bar

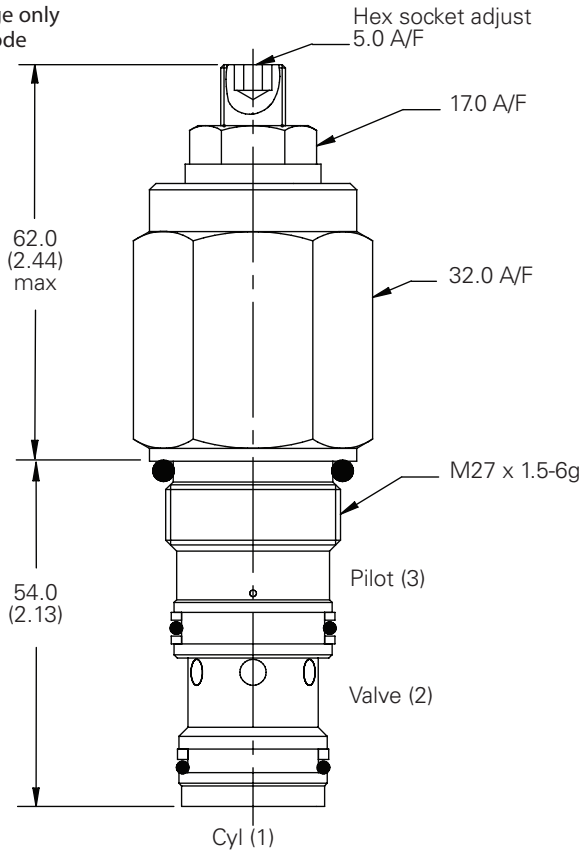
(10 bar increments)
20 to 170 bar (300 tp 250 psi)

F

Dimensions

mm (inch)

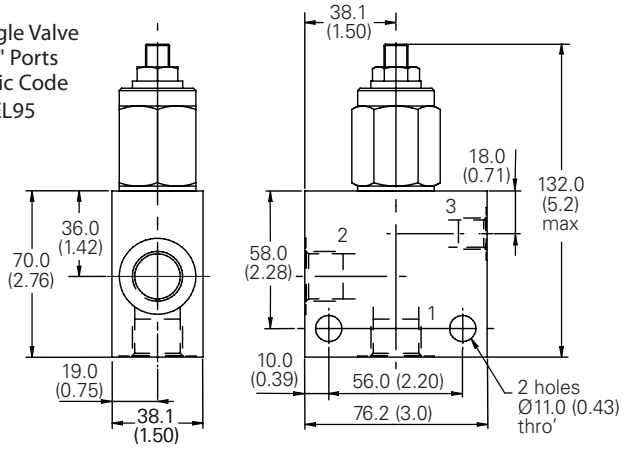
Cartridge only
Basic Code
1CEL90



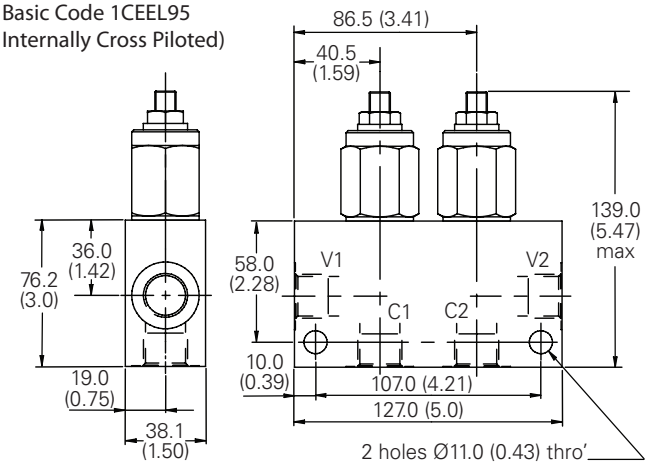
Note: For applications above 210 bar, please consult our technical department or use the steel body option.

Note: Tightening torque of "F" adjuster locknut - 20 to 25 Nm.

Single Valve
1/2" Ports
Basic Code
1CEL95



Dual Valve
1/2" Ports
Basic Code 1CEEL95
Internally Cross Piloted)



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