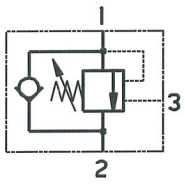
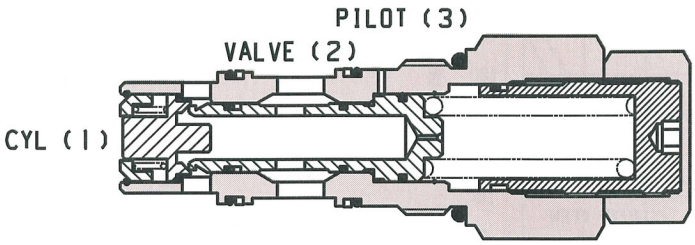
1CE SERIES OVERCENTRE VALVE

PILOT ASSISTED RELIEF WITH CHECK

1CE100





APPLICATION

Overcentre valves give static and dynamic control of loads by regulating the flow into and out of hydraulic actuators. When installed close to or within an actuator, the overcentre valve will stop runaway in the event of hose burst and if open centre directional control valves are used, will allow thermal expansion relief of the hydraulic fluid.

The overcentre cartridge is ideal for mounting directly into a cavity machined in the body of the cylinder, motor or rotary actuator. The cartridge can also be mounted directly to the ports via a specifically machined body as part of a Hydraulic Integrated Circuit or single unit, or contained within one of our standard line bodies.

Single overcentre valves are normally used when the load is unidirectional, for example an aerial platform or crane and dual overcentre valves are used for controlling loads in both directions for motor applications or for cylinders going over centre.

OPERATION

The check section allows free flow into the actuator then holds and locks the load against movement. The pilot assisted relief valve section will give controlled movement when pilot pressure is applied. The relief section is normally set to open at a pressure at least 1.3 times the maximum load induced pressure but the pressure required to open the valve and allow movement depends on the pilot ratio of the valve. For optimisation of load control and energy usage, a choice of pilot ratios is available.

The pressure required to open the valve and start actuator movement can be calculated as follows:

$$\text{Pilot Pressure} = \frac{\text{(Relief Setting) - (Load Pressure)}}{\text{Pilot Ratio}}$$

FEATURES

Cartridge is economical and fits simple 'dual purpose' cavity. Allows quick, easy field service - reduces down time. Overcentre is interchangeable with 120 litres/min pilot check cartridge. See page 7-15.

PILOT RATIOS

4:1	Best suited for applications where load varies and machine structure can induce instability.
8:1	Best suited for applications where the load remains relatively constant.

SPECIFICATIONS

Figures based on: Oil Temp = 40°C Viscosity = 40 cSt

Rated Flow	100 litres/min (26 US GPM)
Max Setting	Max Load Induced Pressure: 270 bar (4000 psi) Relief Setting: 350 bar (5000 psi)
Cartridge Material	Working parts hardened and ground steel. External surfaces electroless nickel plated
Body Material	Standard aluminium Add suffix '377' for steel option
Mounting Position	Unrestricted
Cavity Number	A877 (See page 17-03)
Torque Cartridge into Cavity	100 Nm (74 lbs ft)
Weight	1CE100 0.59 kg (1.30 lbs) 1CE150 1.46 kg (3.20 lbs) 1CEE150 2.58 kg (5.70 lbs)
Seal Kit Number	SK417 (Nitrile) SK417V (Viton)
Recommended Filtration Level	BS5540/4 Class 18/13 (25 micron nominal)
Operating Temp	-20°C to +90°C
Leakage	0.3 millilitres/min max (5 dpm)
Nominal Viscosity Range	5 to 500 cSt

Integrated Hydraulics Limited
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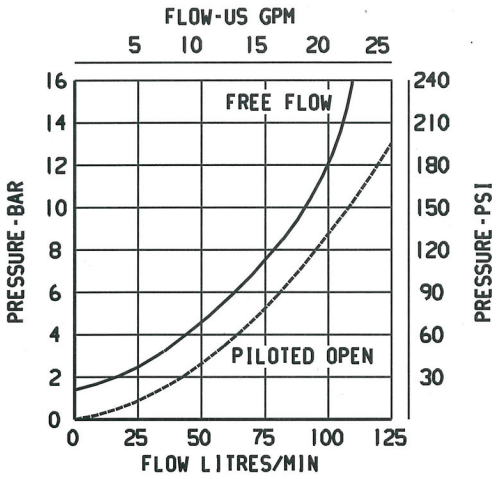
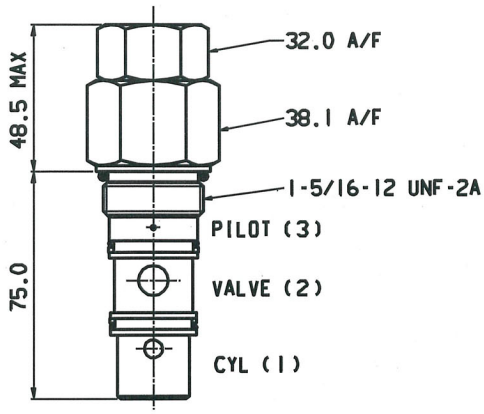
PRESSURE DROP



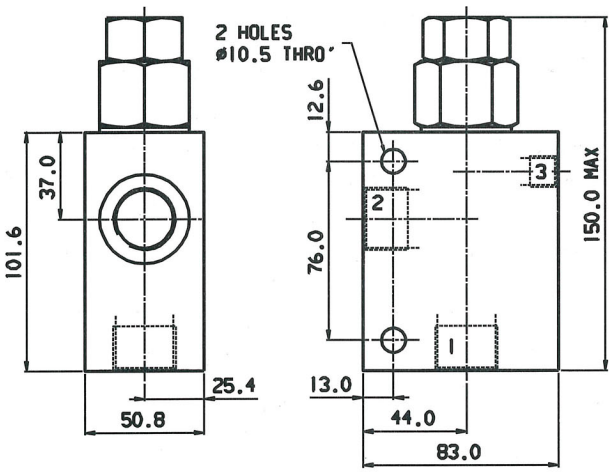
CARTRIDGE ONLY

BASIC CODE: 1CE100



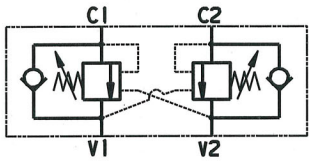
SINGLE VALVE 3/4" PORTS

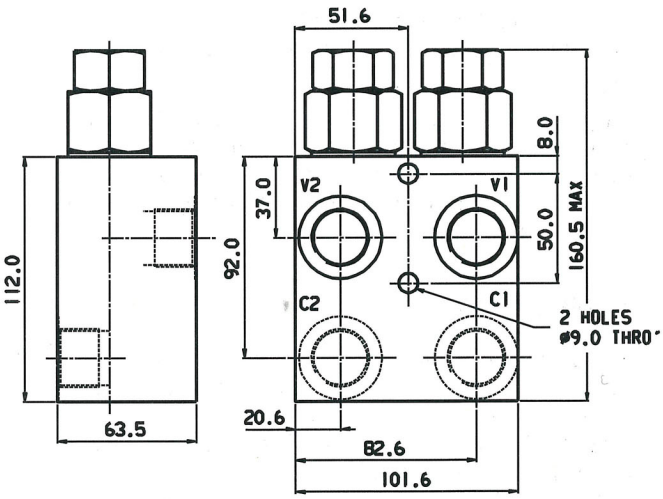
BASIC CODE: 1CE150



DUAL VALVE 3/4" PORTS

BASIC CODE: 1CEE150 (INTERNALLY CROSS PILOTED)





Where measurements are critical request certified drawings

ORDERING CODE EXAMPLE

1CE150	P	6W	35	S	4

Basic Code

Adjustment Means
P - Leakproof Screw Adjustment

Port Sizes - Bodied Valves Only
6W - 3/4" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
12T - 3/4" SAE Valve & Cyl Port. 1/4" SAE Pilot Port

Adjustable Pressure Range
35 = 70-350 bar. Std setting 210 bar
Std setting made at 14 litres/min

Seals
S - Nitrile (For use with most industrial hydraulic oils)
SV - Viton (For high temperature and most special fluid applications)

Pilot Ratio
4 - 4:1
8 - 8:1