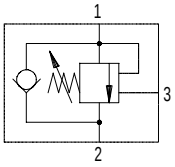
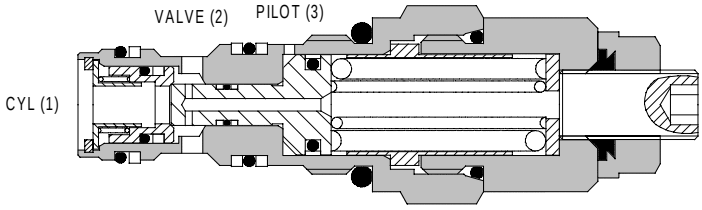
1CE SERIES OVERCENTRE VALVE

PILOT ASSISTED RELIEF WITH CHECK

1CE30





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 directional 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 pliot 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 cavity. Allows quick, easy field service - reduces down time. Directly interchangeable with 30 litres/min pilot check valve. See catalogue page 7-151.

PILOT RATIOS

2.5:1	Best suited for extremely unstable applications such as long booms or flexible frameworks.
5:1 (Standard)	Best suited for applications where load varies and machine structure can induce instability
10:1	Best suited for applications where the load remains relatively constant.

SPECIFICATIONS

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

Rated Flow	30 litres/min (8 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 zinc plated
Body Material	Standard aluminium Add suffix '377' for steel option
Mounting Position	Unrestricted
Cavity Number	A6610 (See Section 17)
Torque Cartridge into Cavity	45 Nm (33 lbs ft)
Weight	1CE30 0.15 kg (0.33 lbs) 1CE35 0.41 kg (0.90 lbs) 1CEE35 0.90 kg (1.98 lbs)
Seal Kit Number	SK395 (Nitrile) SK395V (Viton)
Recommended Filtration Level	BS5540/4 Class 18/13 (25 micron nominal)
Operating Temp	-20°C to +90°C
Leakage	0.3 millilitres/min nominal (5 dpm)
Nominal Viscosity Range	5 to 500 cSt

Integrated Hydraulics Limited Collins Road, Heathcote Industrial Estate, Warwick, CV34 6TF, England.
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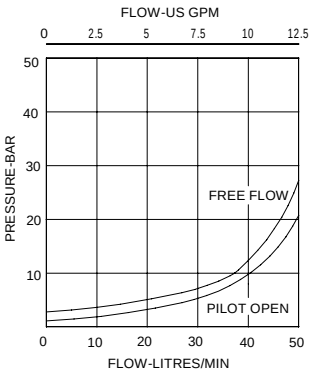
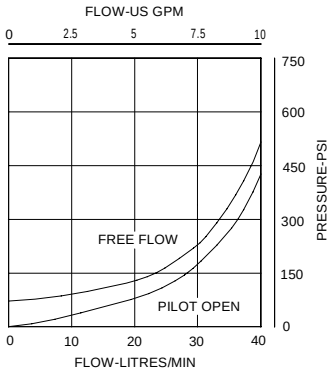
PRESSURE DROP

2.5:1 & 5:1 version

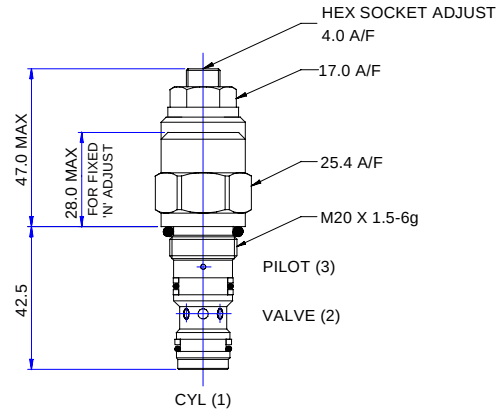


10:1 version



CARTRIDGE ONLY

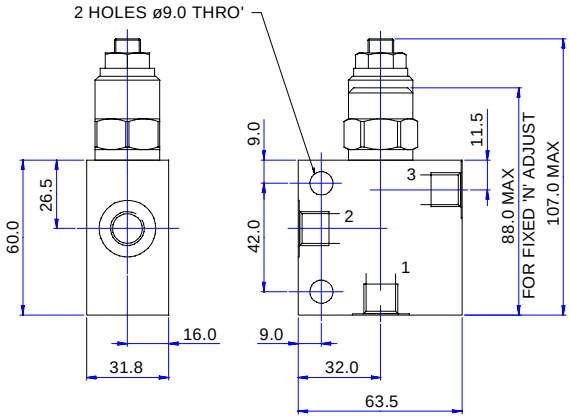
BASIC CODE: 1CE30



SINGLE VALVE

3/8" PORTS

BASIC CODE: 1CE35

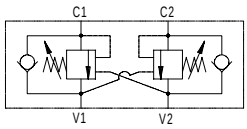


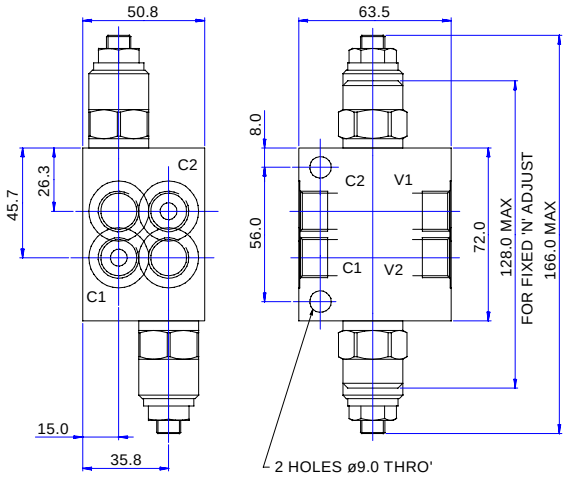
DUAL VALVE

3/8" PORTS

BASIC CODE: 1CEE35

(INTERNALLY CROSS PILOTED)





Where measurements are critical request certified drawings

ORDERING CODE EXAMPLE

1CE***	F	3W	35	S	5

Basic Code

Adjustment Means
F = Screw Adjustment
N = Fixed - State pressure setting required

Port Sizes - Bodied Valves Only
3W = 3/8" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
6T = 3/8" SAE Valve & Cyl Port. 1/4" SAE Pilot Port

Pressure Range @ 4.8 l/min
35 = (2.5:1 and 5:1): 70-350 bar. Std setting 210 bar
(10:1): 90-350 bar. Std setting 210 bar
Std setting made at 4.8 litres/min
Other pressure ranges available on request

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

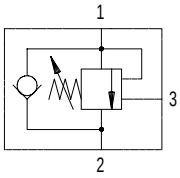
Pilot Ratio
2 = 2.5:1
5 = 5:1 (Standard)
10 = 10:1

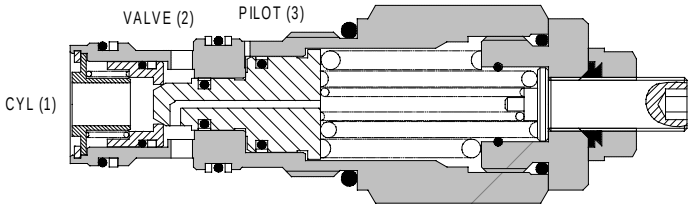
We reserve the right to change specifications without notice

1CE SERIES OVERCENTRE VALVE

PILOT ASSISTED RELIEF WITH CHECK

1CE90





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 pliot 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 cavity. Allows quick, easy field service - reduces down time.

PILOT RATIOS

4:1	Best suited for applications where the load remains relatively constant.
	Other ratios available upon request.

SPECIFICATIONS

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

Rated Flow	90 litres/min (23 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 zinc plated
Body Material	Standard aluminium Add suffix '377' for steel option
Mounting Position	Unrestricted
Cavity Number	A12336 (See Section 17)
Torque Cartridge into Cavity	60 Nm (44 lbs ft)
Weight	1CE90 0.29 kg (0.63 lbs) 1CE95 1.35 kg (2.97 lbs) 1CEE95 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 Temp	-20°C to +90°C
Leakage	0.3 millilitres/min nominal (5 dpm)
Nominal Viscosity Range	5 to 500 cSt

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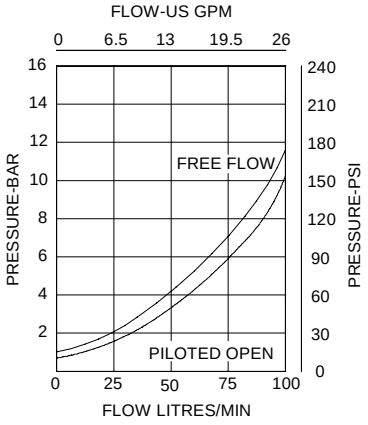
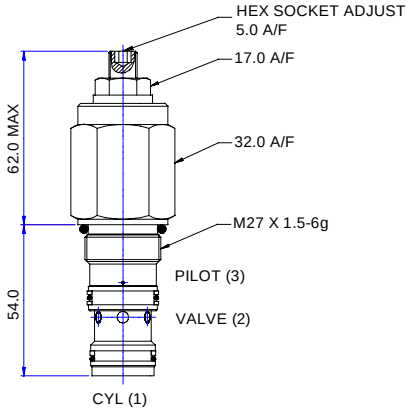
Integrated Hydraulics Limited

PRESSURE DROP



CARTRIDGE ONLY

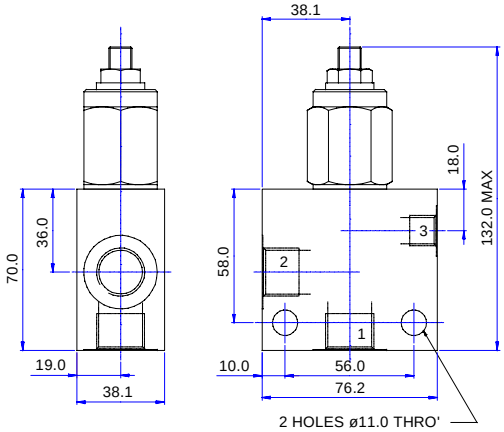
BASIC CODE: 1CE90



SINGLE VALVE

1/2" PORTS

BASIC CODE: 1CE95

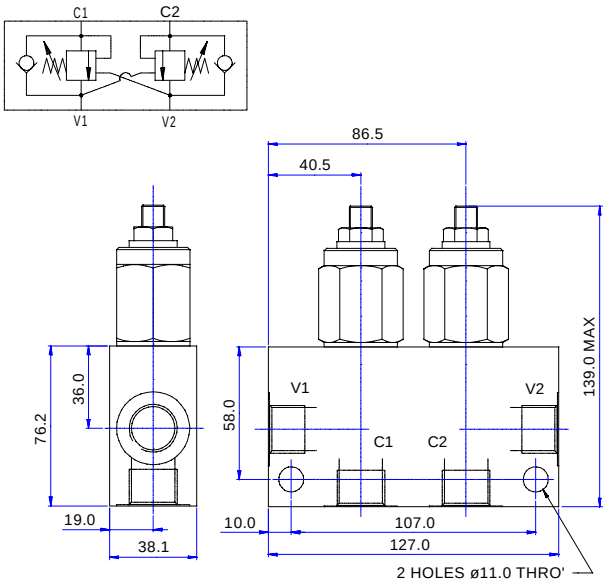


DUAL VALVE

1/2" PORTS

BASIC CODE: 1CEE95

(INTERNALLY CROSS PILOTED)



Where measurements are critical request certified drawings

6

ORDERING CODE EXAMPLE

1CE****	F	4W	35	S	4

Basic Code

Adjustment Means
F = Screw Adjustment
N = Fixed - State pressure setting required

Port Sizes - Bodied Valves Only
4W = 1/2" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
8T = 1/2" SAE Valve & Cyl Port. 1/4" SAE Pilot Port

Pressure Range @ 4.8 l/min
20 = 70-225 bar. Std setting 100 bar
35 = 175-350 bar. Std setting 210 bar
Std setting made at 4.8 litres/min

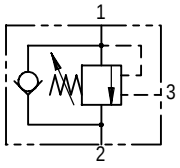
Seals
S = Nitrile (For use with most industrial hydraulic oils)
SV = Viton (For high temperature and most special fluid applications

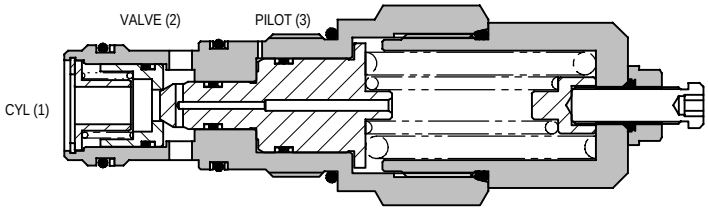
Pilot Ratio
4 = 4:1
Other ratios available upon request

1CE SERIES OVERCENTRE VALVE

PILOT ASSISTED RELIEF WITH CHECK

1CE140





6

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 pliot 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 cavity. Allows quick, easy field service - reduces down time.

PILOT RATIOS

4:1	Best suited where the load varies and machine structure can induce instability.
6:1	Best suited for applications where the load remains relatively constant.
	Other ratios available upon request.

SPECIFICATIONS

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

Rated Flow	140 litres/min (37 US GPM)
Max Setting	Max Load Induced Pressure: 340 bar (4930 psi) Relief Setting: 420 bar (6090 psi)
Cartridge Material	Working parts hardened and ground steel. External surfaces zinc plated
Body Material	Standard aluminium Add suffix '377' for steel option
Mounting Position	Unrestricted
Cavity Number	A20081
Torque Cartridge into Cavity	150 Nm (110 lbs ft)
Weight	1CE140 1.2 kg (2.5 lbs) 1CE145 (aluminium) 2.2 kg (4.5 lbs) 1CE145 (steel) 4.0 kg (8.8 lbs) 1CEE145 (aluminium) 2.9 kg (6.4 lbs) 1CEE145 (steel) 6.0 kg (13.2 lbs)
Seal Kit Number	SK1108 (Nitrile) SK1108V (Viton)
Recommended Filtration Level	BS5540/4 Class 18/13 (25 micron nominal)
Operating Temp	-20°C to +90°C
Leakage	0.3 millilitres/min nominal (5 dpm)
Nominal Viscosity Range	5 to 500 cSt

Integrated Hydraulics Ltd
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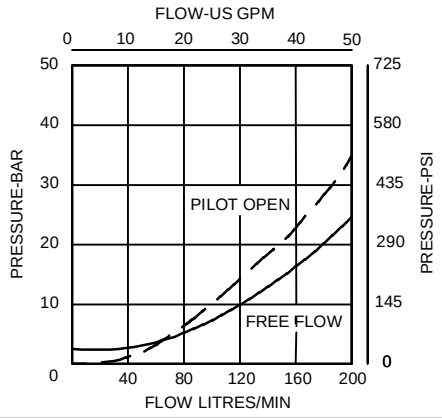
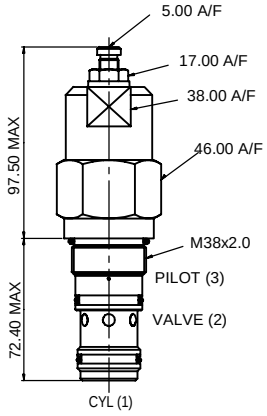
Integrated Hydraulics Inc
7047 Spinach Drive, Mentor, Ohio 44060, USA
Tel: (440) 974 3171 Fax: (440) 974 3170
Website: www.integratedhydraulics.com

PRESSURE DROP



CARTRIDGE ONLY

BASIC CODE: 1CE140



6

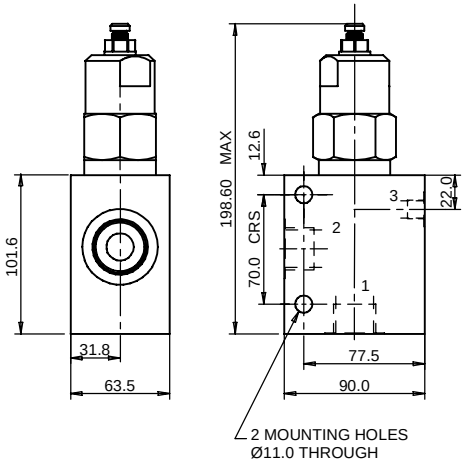
SINGLE VALVE

3/4" 1" PORTS

BASIC CODE: 1CE145

Body ONLY part numbers

BSP, aluminium		*SAE, aluminium*		*BSP, steel*		*SAE, steel*	
3/4"	B20105	3/4"	B11952	3/4"	B20106	3/4"	B11953
1"	B20107	1"	B11946	1"	B20108	1"	B11947



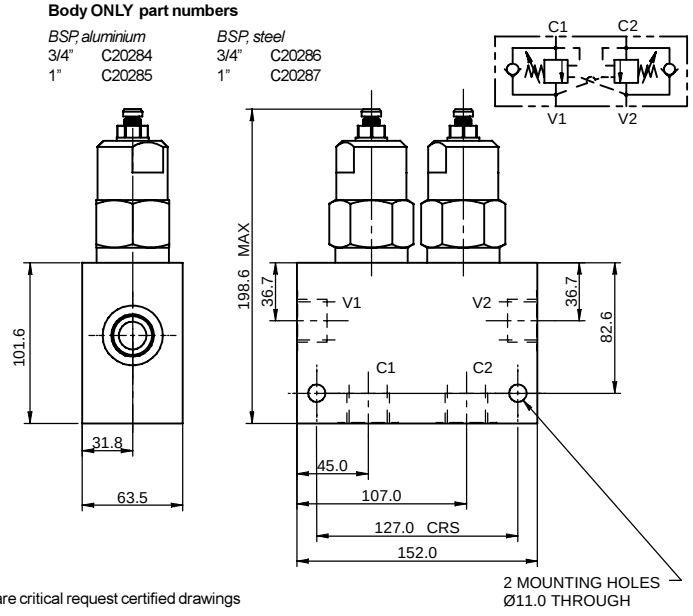
DUAL VALVE

3/4" 1" PORTS

BASIC CODE: 1CEE145 (INTERNALLY CROSS PILOTED)

Body ONLY part numbers

BSP, aluminium		*BSP, steel*	
3/4"	C20284	3/4"	C20286
1"	C20285	1"	C20287



Where measurements are critical request certified drawings

ORDERING CODE EXAMPLE

1CE****	F	6W	40	S	4

Basic Code
1CE140 = Cartridge Only
1CE145 = Cartridge and Body
1CEE145 = Cartridges and Body

Adjustment Means
F = Screw Adjustment
N = Fixed - State pressure setting required

Port Sizes - Bodied Valves Only
6W = 3/4" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
8W = 1" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
12T = 3/4" SAE Valve & Cyl Port. 1/4" SAE Pilot Port
16T = 1" SAE Valve & Cyl Port. 1/4" SAE Pilot Port

Pressure Range @ 4.8 l/min
20 = 140-250 bar. Std setting 190 bar
30 = 220-330 bar. Std setting 270 bar
40 = 310-420 bar. Std setting 370 bar
Std setting made at 4.8 litres/min

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

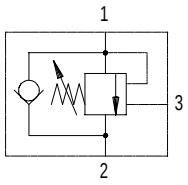
Pilot Ratio
4 = 4:1
6 = 6:1
Other ratios available upon request

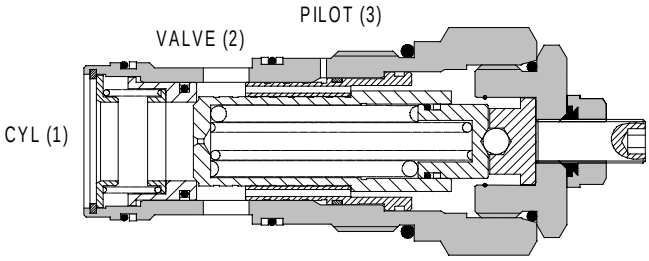
We reserve the right to change specifications without notice

1CE SERIES OVERCENTRE VALVE

PILOT ASSISTED RELIEF WITH CHECK

1CE300





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.

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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

Allows quick, easy field service - reduces down time. Smooth, sure performance.

PILOT RATIOS

3:1 (Standard)	Best suited for applications where load varies and machine structure can induce instability.
8:1	Best suited for applications where load remains relatively constant.

SPECIFICATIONS

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

Rated Flow	300 litres/min (80 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 zinc plated
Body Material	Standard aluminium Add suffix '377' for steel option
Mounting Position	Unrestricted
Cavity Number	A6935 (See Section 17)
Torque Cartridge into Cavity	150 Nm (110 lbs ft)
Weight	1CE300 0.91 kg (2.00 lbs) 1CE350 2.71 kg (5.96 lbs) 1CEE350 5.42 kg (11.92 lbs)
Seal Kit Number	SK437 (Nitrile) SK437V (Viton)
Recommended Filtration Level	BS5540/4 Class 18/13 (25 micron nominal)
Operating Temp	-20°C to +90°C
Leakage	4 millilitres/min nominal (60 dpm)
Nominal Viscosity Range	5 to 500 cSt

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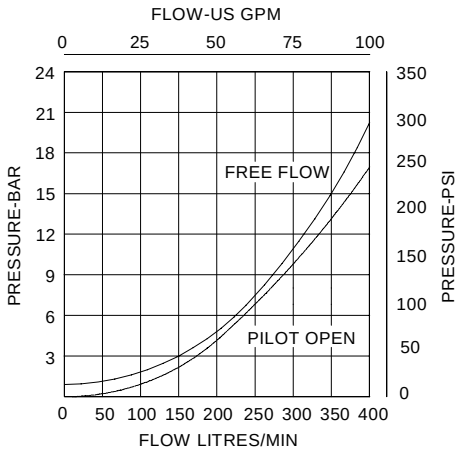
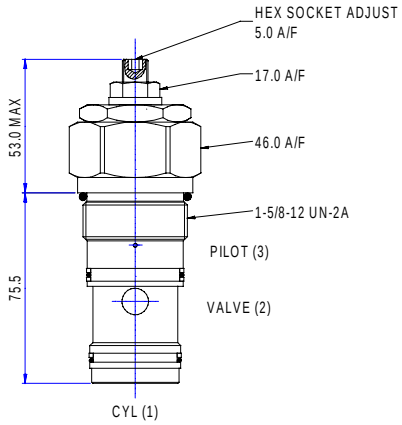
PRESSURE DROP



CARTRIDGE ONLY

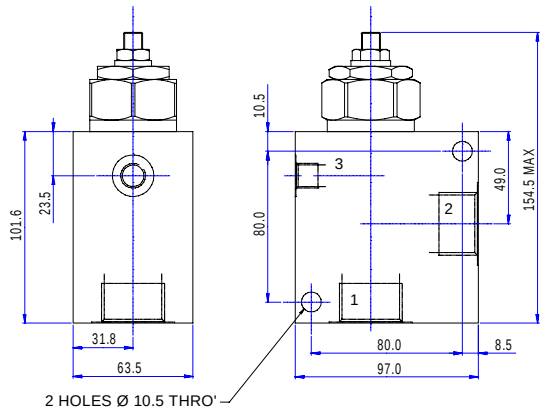
BASIC CODE: 1CE300



SINGLE VALVE

1 1/4" PORTS

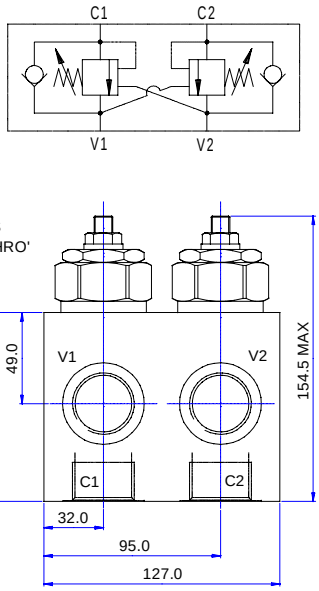
BASIC CODE: 1CE350



DUAL VALVE

1 1/4" PORTS

BASIC CODE: 1CEE350 (INTERNALLY CROSS PILOTED)



Where measurements are critical request certified drawings

6

ORDERING CODE EXAMPLE

1CE****	F	10W	35	S	3

Basic Code

Adjustment Means
F = Screw Adjustment

Port Sizes - Bodied Valves Only
10W = 1 1/4" BSP Valve & Cyl Port. 1/4" BSP Pilot Port
20T = 1 1/4" SAE Valve & Cyl Port. 1/4" SAE Pilot Port

Pressure Range @ 4.8 l/min
35 = 70-350 bar. Std setting 210 bar
Std setting made at 4.8 litres/min

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

Pilot Ratio
3 = 3:1 (Standard)
8 = 8:1