ENGINEERING TOMORROW

Counterbalance Valves Technical Information

Dual Counterbalance - w/ Makeup Checks, Catalog HIC

DCB12-MC

OPERATION

Dual counterbalance HIC, 12-size, hydraulic vent with make-up checks. This is an internally piloted, low leakage assembly. The DCB12-MC uses two CP441-1 cartridges and four CV10-NP check valves, allowing free flow from the V port to the C ports and blocks flow in the reverse direction until the relief setting is reached, or until adequate pilot pressure has been applied to the opposite V port. Connect the T port to a tank line to allow for make-up flow into the circuit.

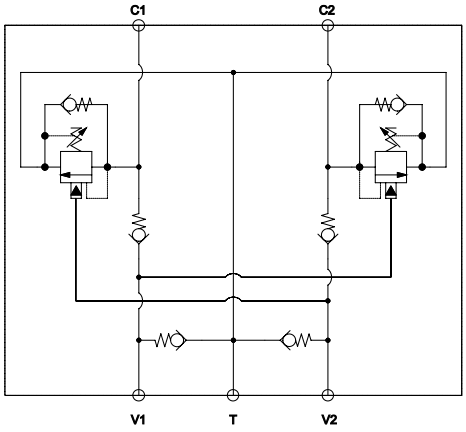
APPLICATIONS

Dual counterbalance HIC's are used for controlling loads in bidirectional motion such as wheel motor applications or for cylinders going over center. They are also suitable for use on the boom and dipper cylinder on an excavator. When make-up feature is needed, connect 'T' port to reservoir or charge system. This allows the load to be smoothly controlled with minimum energy loss. If load tries to run ahead of pump, pilot pressure will decrease and the relief section will throttle or close to prevent runaway. The T port is also useful in cylinder applications where directional valves (specifically proportional valves) are sensitive to flow intensification of powering the rod side. The DCB12-MC diverts flow directly to tank and bypasses the directional valve. This HIC technically replaces the 1EEC12-01.

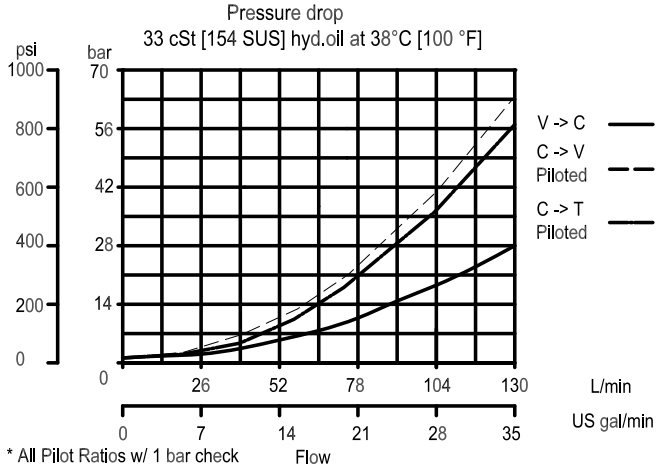
SPECIFICATIONS

Rated pressure	210 bar [3045 psi], Aluminum 350 bar [5075 psi], Ductile
Rated flow at 22 bar (319 psi)	95 l/min [25 US gal/min]
Weight	3.13 kg [6.90 lbs], Aluminum 6.98 kg [15.39 lbs], Ductile
Pilot ratio	3.0:1, 4.5:1, 10.0:1
Cavity	CIB

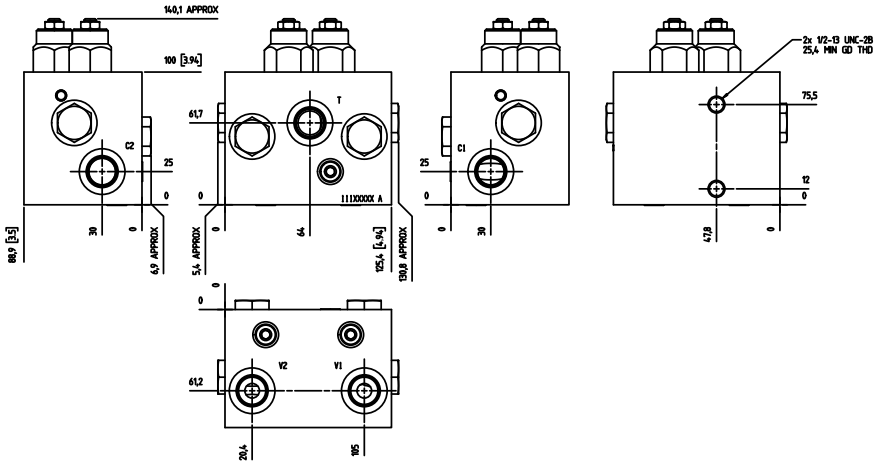
SCHEMATIC



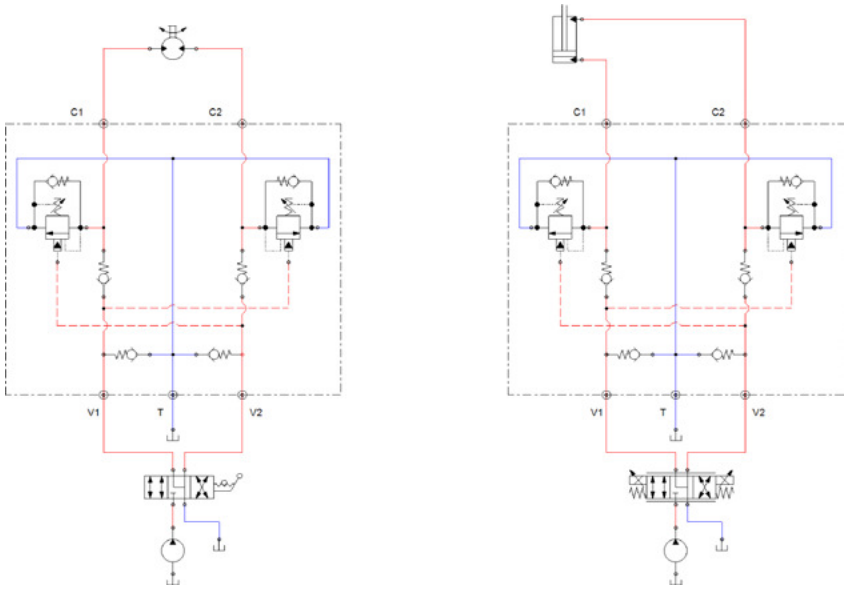
PERFORMANCE



DIMENSIONS



EXAMPLE CIRCUITS



ORDERING INFORMATION

DCB12-MC-1-A-1-E-70-B-12S

Dual Counterbalance HIC
#10 size, Make-up Checks

Code	Spring range
	For Pilot Ratio A (3.0:1)
1	34-103 bar [500-1500 psi]
2	103-207 bar [1500-3000psi]
	For Pilot Ratio B (4.5:1)
1	34-138 bar [500-2000 psi]
2	103-345 bar [1500-5000 psi]
	For Pilot Ratio C (10:1)
1	69-345 bar [1000-5000 psi]

Code	Pilot ratio
A	3.0:1
B	4.5:1
C	10.0:1

Code	Free flow check crack pressure
1	1 bar [15 psi]
.03	.03 bar [5 psi]

Adjustment
E : External

Code	Seal Material
B	Buna
V	Viton

Code	Ports	Material
6B	G3/4 BSP	Aluminum
S6B	G3/4 BSP	Ductile Iron
10S	#10 SAE	Aluminum
12S	#12 SAE	Aluminum
S10S	#10 SAE	Ductile Iron
S12S	#12 SAE	Ductile Iron

*Consult factory for other available housings.

Code	Cracking pressure
XXX	Standard Setting in bar
70	70 bar [1015 psi]
100	100 bar [1450 psi]
175	175 bar [2537 psi]
210	210 bar [3045 psi]
240	240 bar [3480 psi]
275	275 bar [3988 psi]
310	310 bar [4495 psi]