



# Counterbalance Valves Technical Information

## Hydraulic Vent

### CB20-HV

### OPERATION

CB20-HV : Counterbalance valve, 20-size, hydraulic vent. This is a 3-ported, externally piloted, cartridge style, low leakage unit. The check section allows free flow from the directional valve (port 2) to the load (port 1), while normally blocking flow from port 1 to port 2. Reverse flow is blocked until pilot pressure is applied at port 3. When the load pressure at port 1 rises above the pressure setting, the integral relief valve is activated and pressure is relieved from port 1 to port 2.



### APPLICATIONS

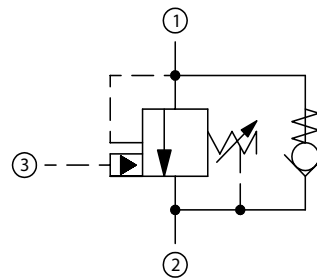
Single counterbalance valves are normally used when the load is unidirectional, such as aerial lifts, cranes, or winches. In load holding applications, they can be used as hose-break valves when installed near or within an actuator. Dual valves can be used for controlling loads bi-directionally in motor applications, or for cylinders going over center.

### SPECIFICATIONS

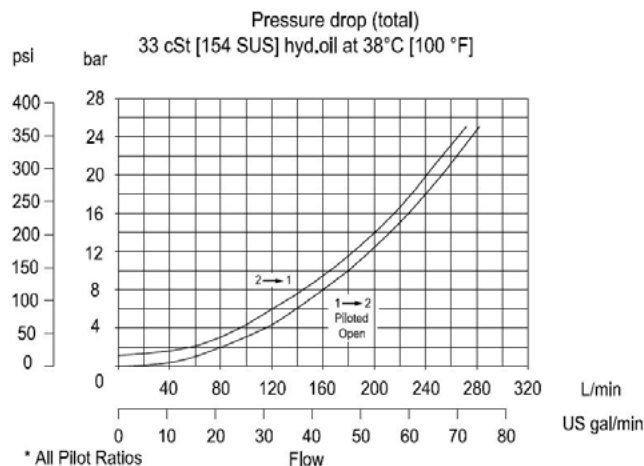
<b>Rated pressure</b>	345 bar [5000 psi]*
<b>Rated flow at 22 bar (319 psi)</b>	266 l/min [70 US gal/min]
<b>Leakage</b>	10 drops/min @ 70% of crack pressure
<b>Weight</b>	1.22 kg [2.69 lb]
<b>Pilot ratio</b>	3:1, 4.5:1, 10:1
<b>Cavity</b>	<b>CP20-3S</b>

\* 345 bar with steel housing  
210 bar with aluminum housing

### SCHEMATIC



### PERFORMANCE



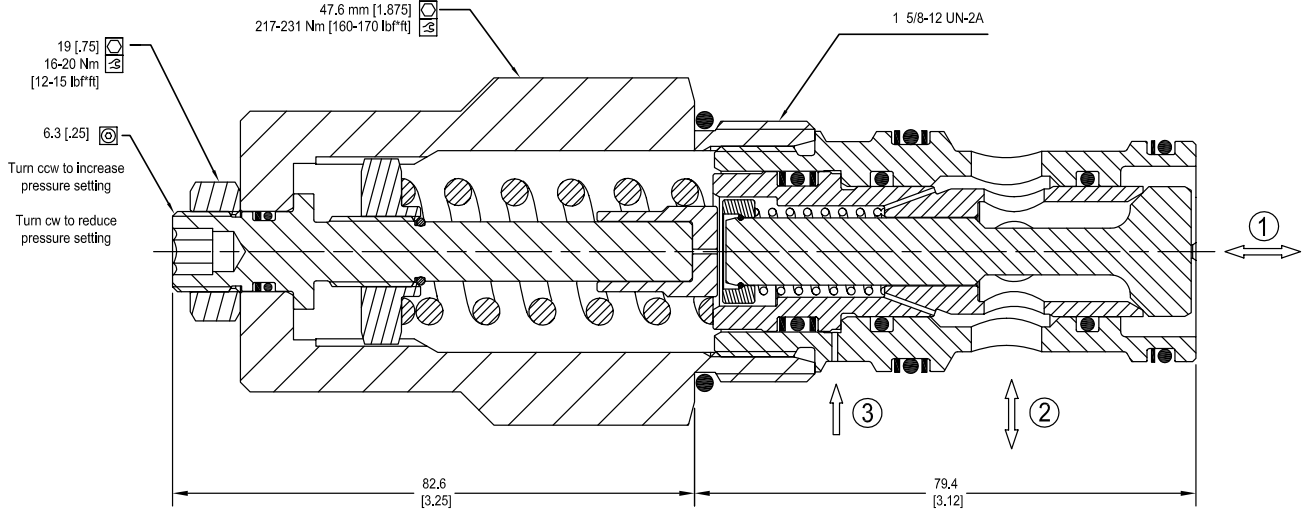


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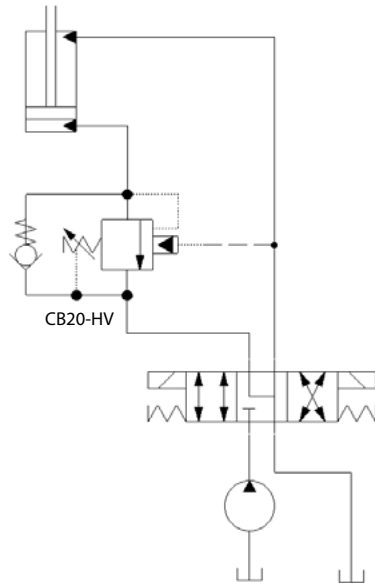
### DIMENSIONS

mm [in]

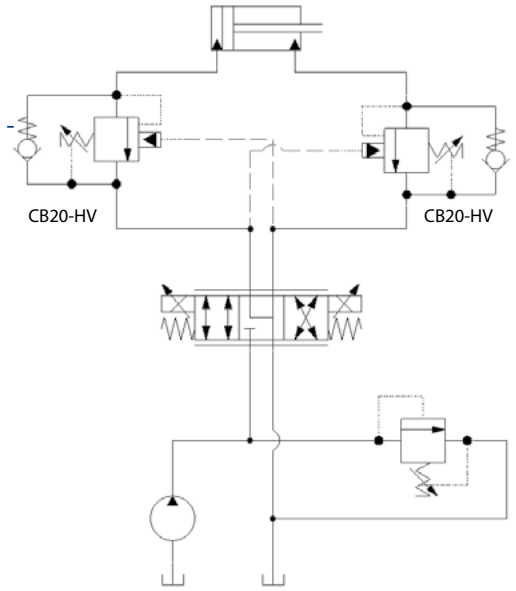


### EXAMPLE CIRCUITS

Load Holding - Single Actuator



Load Holding - Double Actuator



### ORDERING INFORMATION

**CB20 - HV - 1 - A - 1 - E - XXX - B - 00**

CB20-HV:  
Counterbalance valve,  
20-size, hydraulic vent

Code	Pilot Ratio
A	3 to 1
B	4.5 to 1
C	10 to 1

1: Check crack pressure in bar  
1 bar [14.5 psi]

Code	Seal	Seal Kit
B	Buna-N	120380
V	Viton	120381

Pressure Setting in bar  
XXX - Std. setting with no stamping

For customer specified settings, enter value in bar (Example 70 bar = 70; 125 bar = 125, etc.)

Pressure Range

Code	Pilot Ratio A (3:1) bar [psi]	Pilot Ratio B (4.5:1) bar [psi]	Pilot Ratio C (10:1) bar [psi]
1	35-110 [507-1595] Std. Setting 70 [1015]	35-140 [507-2030] Std. Setting 100 [1450]	70-345 [1015-5000] Std. Setting 170 [2465]
2	100-210 [1450-3045] Std. Setting 170 [2465]	100-345 [1450-5000] Std. Setting 200 [2900]	

Adjustment type  
E external adjustment

Body & Ports	Body Nomenclature
00 Cartridge Only	No Body
8B AL, 1 BSP	CP20-3S-8B/2B
S8B Steel, 1 BSP	CP20-3S-S8B/2B
10B AL, 1-1/4 BSP	CP20-3S-10B/2B
S10B Steel, 1-1/4 BSP	CP20-3S-S10B/2B
16S AL, #16 SAE	CP20-3S-16S/4S
S16S Steel, #16 SAE	CP20-3S-S16S/4S
20S AL, #20 SAE	CP20-3S-20S/4S
S20S Steel, #20 SAE	CP20-3S-S20S/4S