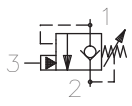
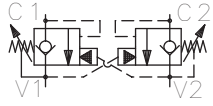
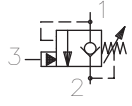
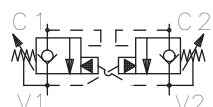
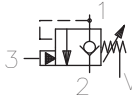
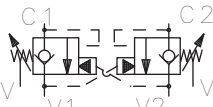
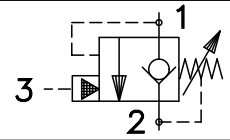


# Counterbalance Valves

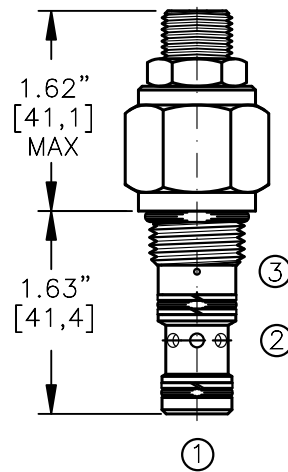
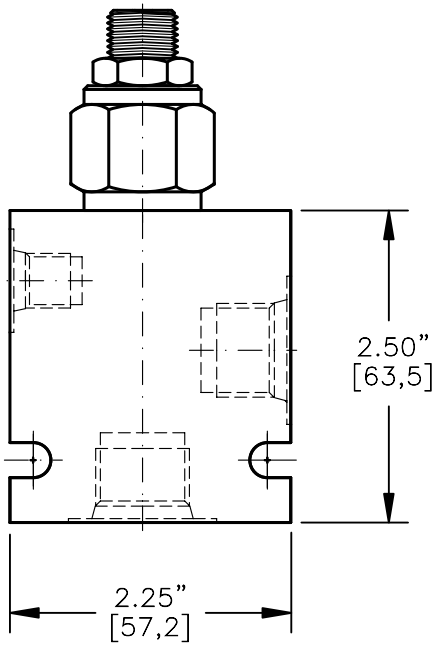
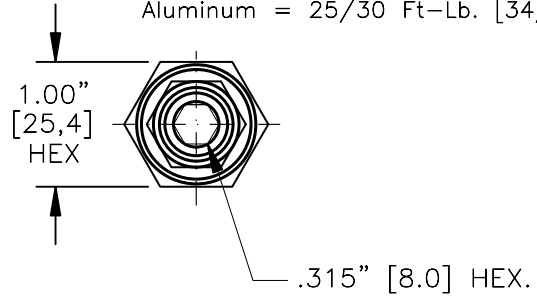
	MODEL	DESCRIPTION	FLOW	CAVITY	PAGE NO.
	CBPA-08	COUNTERBALANCE VALVE, FREE REVERSE	10 GPM	C0825	8-051.0
	CBPA-10		20 GPM	C1025	8-052.0
	CBPA-20M		20 GPM	T-11A	8-112.0
	CBPA-12		35 GPM	C1225	8-053.0
	CBPP-10		15 GPM	C1025	8-152.0
	CBPP-20M		15 GPM	T-11A	8-152.0
	DCBA-08	DUAL COUNTERBALANCE VALVE	10 GPM	C0825	8-061.0
	DCBA-10		20 GPM	C1025	8-062.0
	DCBA-12		35 GPM	C1225	8-063.0
	CBPS-08	COUNTERBALANCE, FREE REVERSE w/SEALS	10 GPM	C0825	8-071.0
	CBPS-10		20 GPM	C1025	8-072.0
	CBPS-20M		20 GPM	T-11A	8-122.0
	CBPS-12		35 GPM	C1225	8-073.0
	DCBS-08	DUAL COUNTERBALANCE, FREE REV. w/SEALS	10 GPM	C0825	8-081.0
	DCBS-10		20 GPM	C1025	8-082.0
	DCBS-12		35 GPM	C1225	8-083.0
	CBPG-08	COUNTERBALANCE, FREE REVERSE VENTED	10 GPM	C0825	8-091.0
	CBPG-10		20 GPM	C1025	8-092.0
	CBPG-20M		20 GPM	T-11A	8-132.0
	CBPG-12		35 GPM	C1225	8-093.0
	DCBG-08	DUAL COUNTERBALANCE, FREE REV. VENTED	10 GPM	C0825	8-101.0
	DCBG-10		20 GPM	C1025	8-102.0
	DCBG-12		35 GPM	C1225	8-103.0

COUNTERBALANCE VALVE  
POPPET TYPE WITH FREE REVERSE FLOW



TORQUE:

Steel = 35/40 Ft-Lb. [47/54 Nm]  
Aluminum = 25/30 Ft-Lb. [34/41 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-021-1.

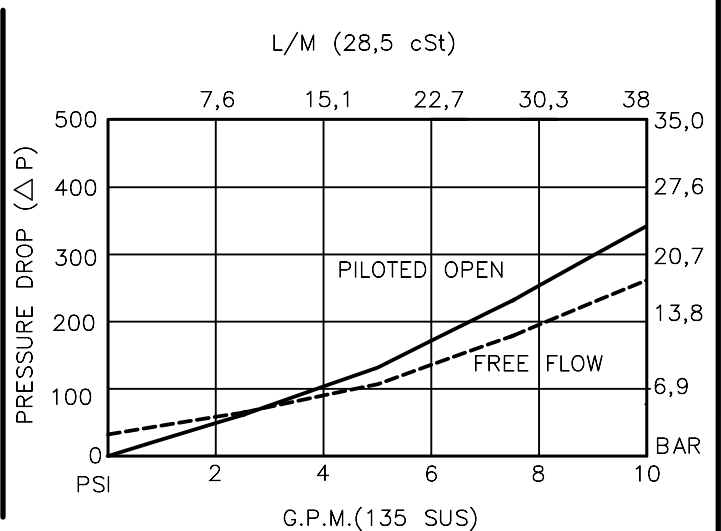
CBPA-08-X-X-X-XX

- BASIC
- SIZE  
08 = 3/4"-16 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF  
K = HANDKNOB  
M = METAL HANDKNOB

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 1500 TO 5000 PSI

- PORTS  
0 = CARTRIDGE ONLY  
03BX = G 3/8" BSPP  
08TX = SAE - #8  
"A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW.

### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum - Anodized.

5000 PSI [350 Bar] = Steel - Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-0828 for buna "N".

SKV-0828 for viton.

WEIGHT: 0.30 lb [.14 kg] cartridge only.

VALVE CAVITY: #C0825, See Page 0-021.0.

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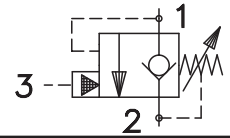
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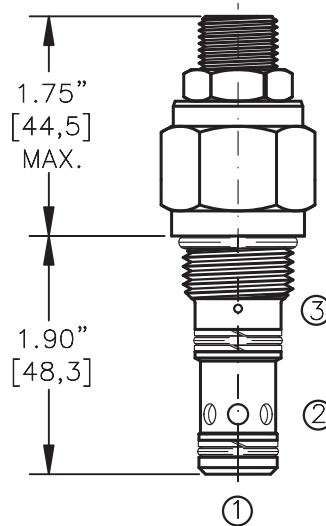
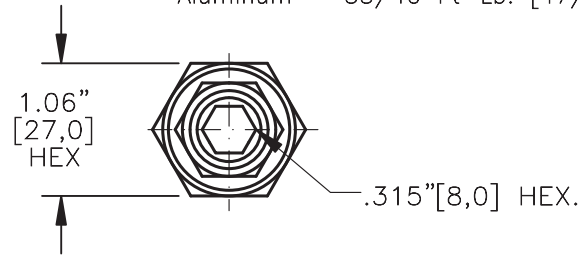
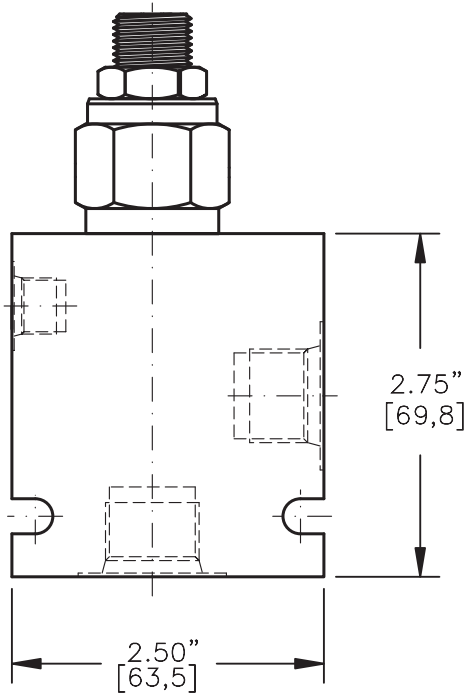
The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

COUNTERBALANCE VALVE  
POPPET TYPE WITH FREE REVERSE FLOW.



TORQUE:

Steel = 55/60 Ft-Lb. [74/81 Nm]  
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

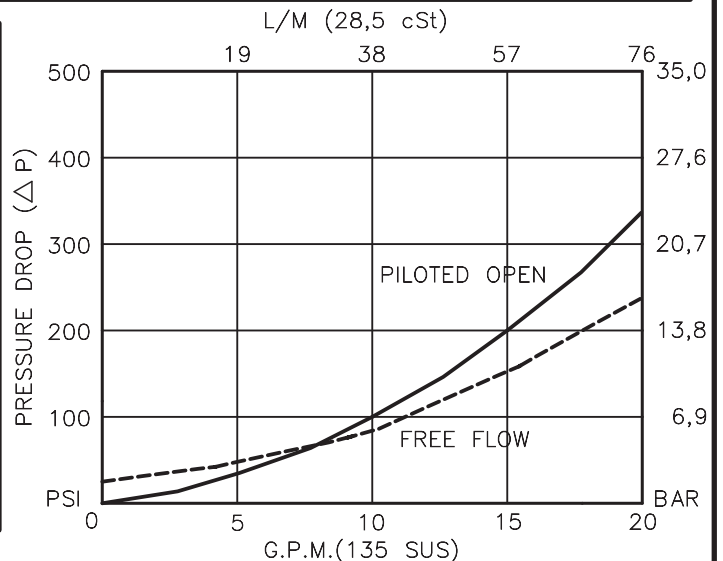


FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-022-1.

CBPA-10-X-X-X-XX

- BASIC
- SIZE  
10 = 7/8"-14 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF  
K = HANDKNOB  
M = METAL HANDKNOB
- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
0 = CARTRIDGE ONLY  
03BX = G 3/8" BSPP  
04BX = G 1/2" BSPP  
08TX = SAE - #8  
10TX = SAE - #10
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE

### POPPET TYPE WITH FREE REVERSE FLOW.

#### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

#### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

#### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

## COUNTERBALANCE VALVE

### POPPET TYPE WITH FREE REVERSE FLOW.

#### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".

SKV-1028 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: #C1025, See Page 0-022.0.

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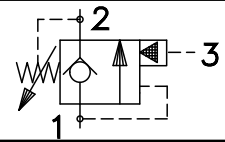
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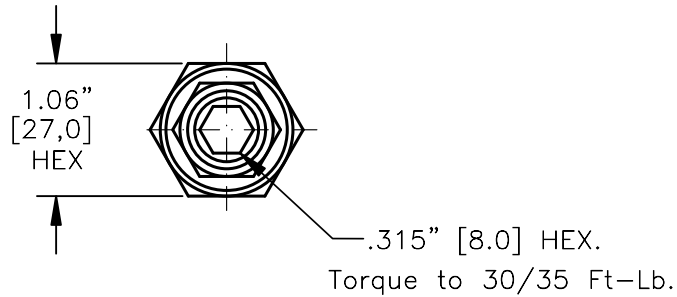
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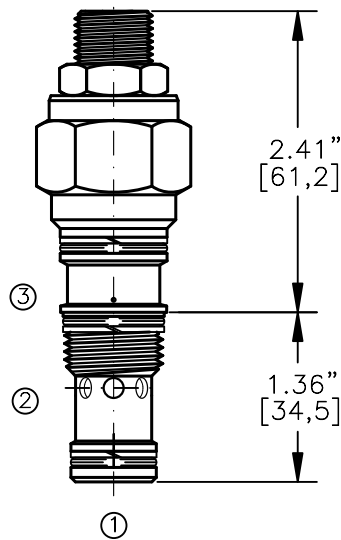
COUNTERBALANCE VALVE  
POPPET TYPE WITH FREE REVERSE FLOW.



FITS INTO SUN CAVITY #T-11A



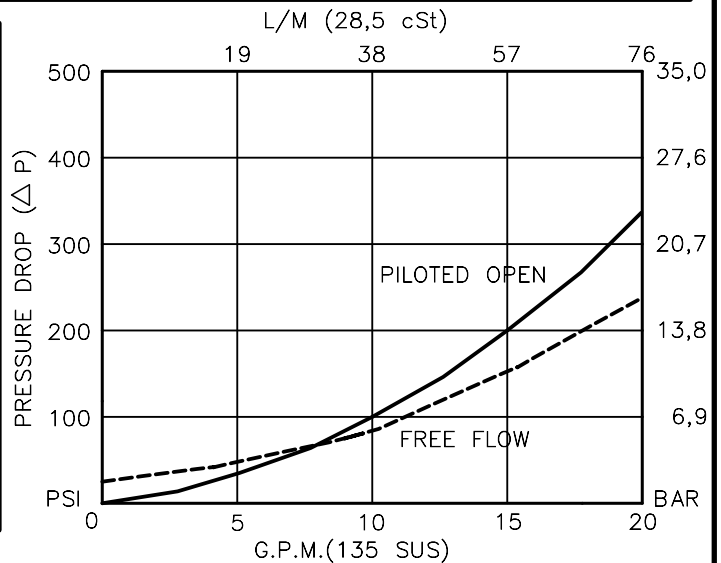
Turn screw clockwise to increase the pressure setting.



**CBPA-20M-X-X-X-XX**

- BASIC
- SIZE  
20M=20,0x1,5MM THD.
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF  
K = HANDKNOB  
M = METAL HANDKNOB
- FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
0 = CARTRIDGE ONLY





## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating out flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Fits in to SUN cavity # T-11A.

### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1029 for buna "N".

SKV-1029 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: SUN # T-11A.

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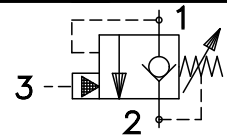
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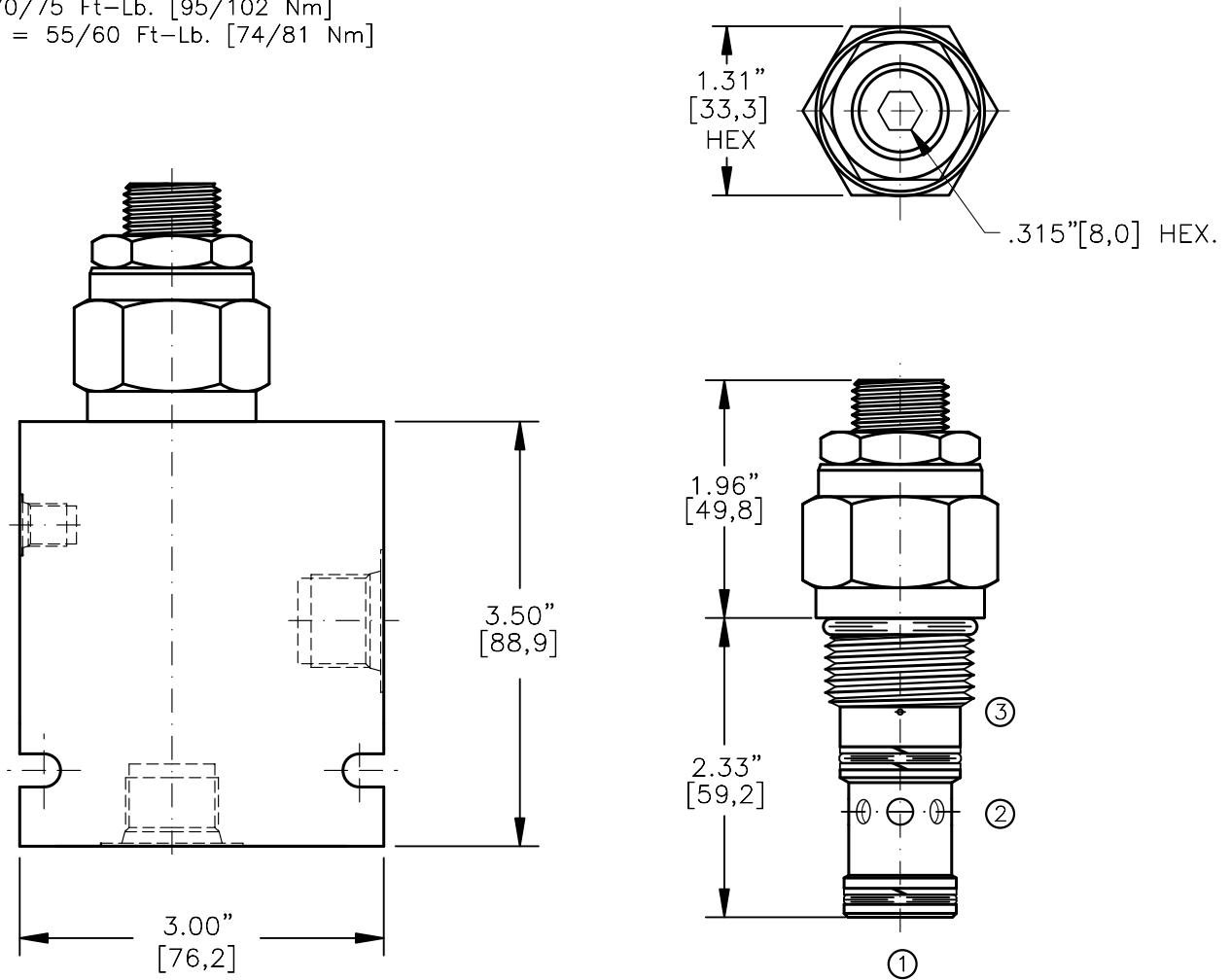
COUNTERBALANCE VALVE  
POPPET TYPE WITH FREE REVERSE FLOW.



TORQUE:

Steel = 70/75 Ft-Lb. [95/102 Nm]

Aluminum = 55/60 Ft-Lb. [74/81 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-023-1.

**CBPA-12-X-X-X-XX**

BASIC

SIZE

12 = 1.062"-12 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

40 = 600 TO 4000 PSI

PORTS

0 = CARTRIDGE ONLY

04BX = G 1/2" BSP

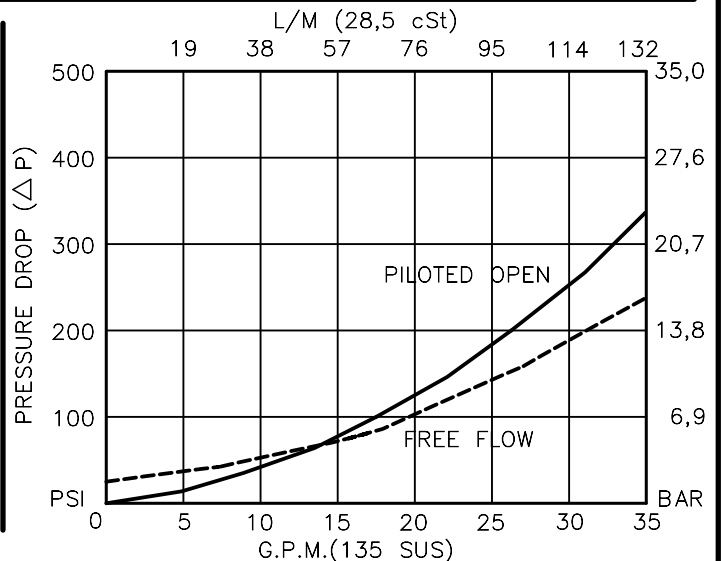
06BX = G 3/4" BSP

10TX = SAE - #10

12TX = SAE - #12

"A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE

### POPPET TYPE WITH FREE REVERSE FLOW.

#### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

#### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

#### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, and capped adjustments.

All cartridge valves are 100% functionally tested.

#### SPECIFICATIONS

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for Buna "N".

SKV-1228 for Viton.

WEIGHT: 0.84 lb [0,38 kg] cartridge only.

VALVE CAVITY: #C1225, See Page 0-023.0.

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# Counterbalance Valve, Poppet Type, SAE 10 / NG 8

$Q_{max} = 15.0 \text{ gpm (60 l/min)}$ ,  $p_{max} = 5000 \text{ psi (350 bar)}$   
direct acting, pilot assisted, poppet type, non-vented, adjustable  
Series CBPP-10... / CBPP-20M...



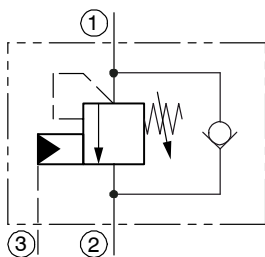
- Leak free and smooth-running pressure adjustment
- Adjustment screw can not be backed out of the valve
- Overset protection - spring can not go solid
- Hardened precision fitted piston & poppet provide reliable, long life
- A unibody adapter cage construction provides very reliable operation
- Low hysteresis - pilot piston not sealed towards the spring chamber
- Can be fitted in a line-mounting body

## 1 Description

The Counterbalance Valve model series CBPP... is a differential area, direct acting, screw in cartridge style, non-vented, poppet type, adjustable, pilot assisted, hydraulic counterbalance valve with thread 7/8-14 UNF (CBPP-10...) or 20 x 1.5 mm (CBPP-20M...) are size SAE 10 / NG 8. This valve controls a moving load, preventing it from running ahead of the pump. Locking the load in any position, it also provides static overload and thermal expansion protection. This valve is a modulating device that allows free flow from

port 2 to port 1, then blocks reverse flow until a pilot pressure inversely proportional to the load pressure is sensed at port 3 modulating flow from port 1 to port 2. Back pressure at port 2 adds to the spring setting (pilot ratio +1) x back pressure. All external parts of the cartridge are zinc plated and chromited (CrVI-free). If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section "Related data sheets".

## 2 Symbol



## 3 Technical data

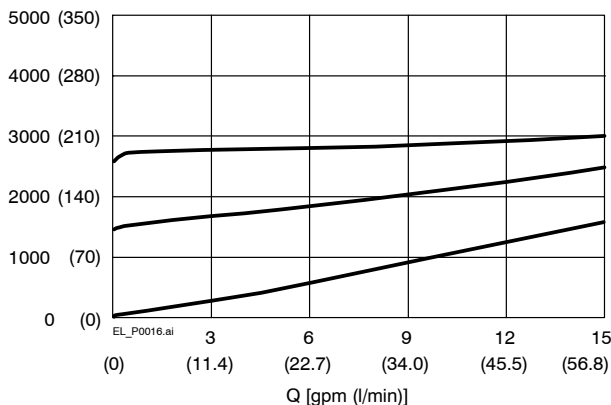
General characteristics	Description, value, unit
Designation	counterbalance valve, non-vented
Design	poppet type, free reverse flow, pilot assisted
Mounting method	screw-in cartridge 7/8-14 UNF or M20 x 1.5 mm
Size	SAE 10 / NG 8, cavity type C1025 or T-11A
Weight	0.62 lbs (0.28 kg)
Mounting attitude	design B: unrestricted design S,C,T: hanging or horizontal mounting position
Ambient temperature range	-40 °F ... +250 °F (-40 °C ... +120 °C)

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	5000 psi (350 bar)
Maximum flow rate <span style="float: right;">Standard</span>	15.0 gpm (60 l/min)
Nominal pressure ranges	1500, 3000, 5000 psi (100, 210, 350 bar) For further pressure ranges, please contact BUCHER
Pilot Ratio	2.3, 3.0, 4.5 to 1 – 1.5 and 10 to 1 on request For further pilot ratios, please contact BUCHER
Leakage flow rate	5 drops/min. @ 80 % of crack pressure
Definition of Crack	evident at 0.06 gpm (0,25 l/min)
Hydraulic fluid	Mineral-based or synthetics with lubricating properties. HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-13 °F ... +175 °F (-25 °C ... +80 °C)
Viscosity range	10...500 mm <sup>2</sup> /s (cSt), recommended 15...250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

#### 4 Performance graphs [measured with oil viscosity 33 mm<sup>2</sup>/s (cSt)]

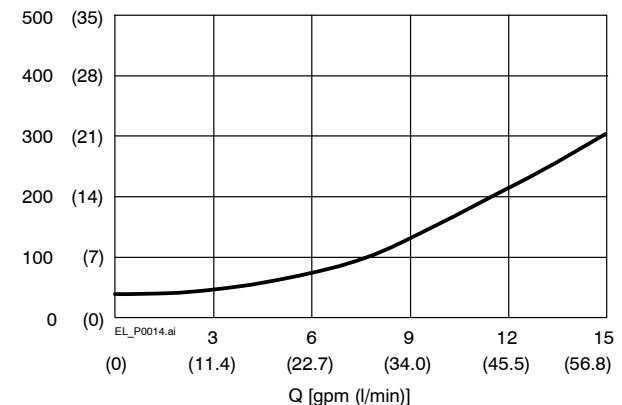
$\Delta p = f(Q)$  Relief Characteristic [pw = 5000 psi]  
unrestricted \*\*\*

$\Delta p$  [psi (bar)]



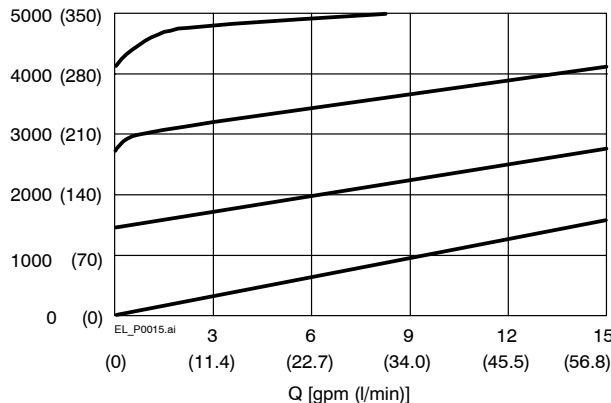
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic  
unrestricted \*\*\*

$\Delta p$  [psi (bar)]



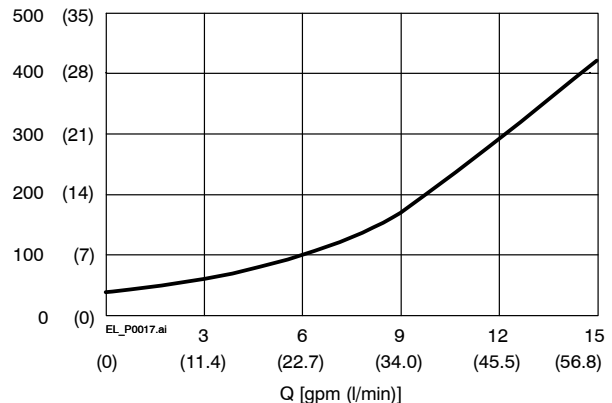
$\Delta p = f(Q)$  Relief Characteristic [pw = 5000 psi]  
restricted

$\Delta p$  [psi (bar)]



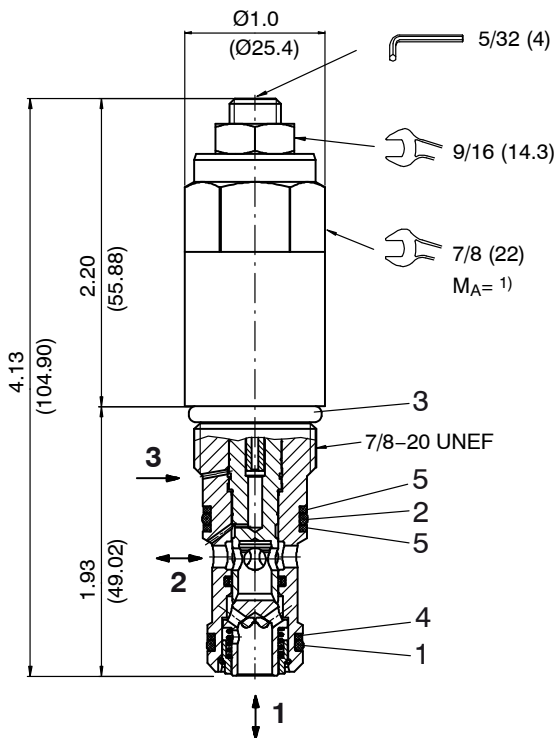
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic  
restricted

$\Delta p$  [psi (bar)]

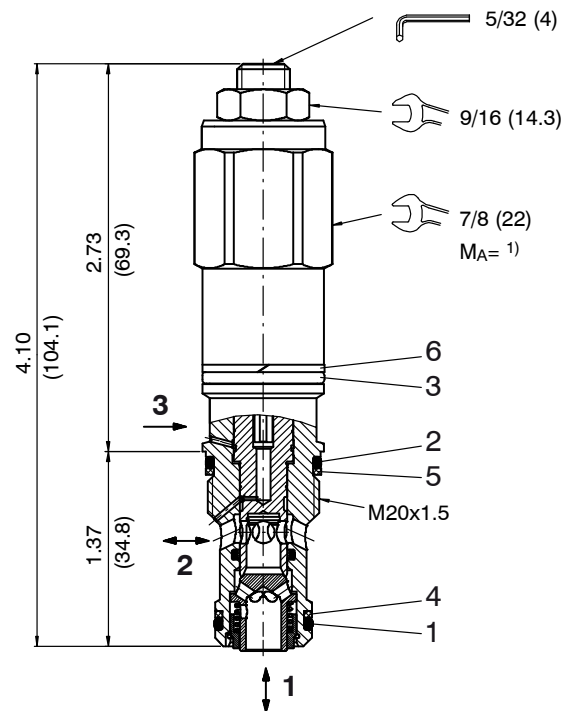


## 5 Dimensions & sectional view

### 5.1 Insertion in cavity type "C1025"

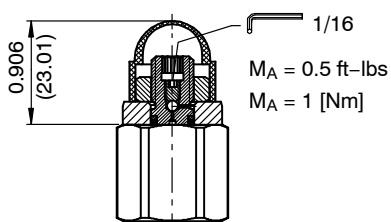


### 5.2 Insertion in cavity type "T-11A"

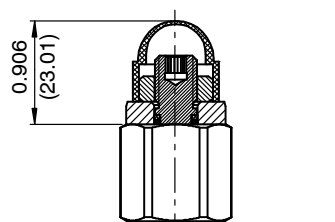


Tightening torque  $M_A$  <sup>1)</sup>

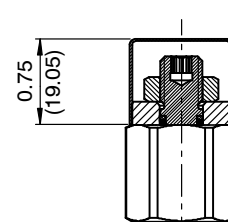
Cavity type	C1025		T-11A	
When fitted in steel	55...60 ft-lbs	75...81 [Nm]	30...35 ft-lbs	40...47 [Nm]
When fitted in aluminum	35...40 ft-lbs	47...54 [Nm]	30...35 ft-lbs	40...47 [Nm]



Air bleeding with capped adjustment screw "B"



With capped adjustment screw "C" \*\*



Adjusting screw with tamper-proof cap "T" \*\*  
(order separately in plain language)

\*\* recommended hanging or horizontal mounting position only.

### 6 Installation information

#### Seal kit NBR Nr. SKN-1028 <sup>2)</sup>

Item	Qty.	Description
1	1	O-ring no. 910 $\varnothing$ 0.755 x 0.097 N90
2	1	O-ring no. 016 $\varnothing$ 0.614 x 0.070 N70
3	1	O-ring Nr. 015 $\varnothing$ 0.551 x 0.070 N70
4	2	Backup ring $\varnothing$ 0.643 x 0.053 x .048
5	1	Backup ring $\varnothing$ 0.580 x 0.053 x .048



#### IMPORTANT!

##### <sup>2)</sup> Seal kit SKV-1028 (Viton "V")

Item no. 5207300016 = Seal kit NBR (Buna)

Item no. 5207300065 = Seal kit FKM (Viton)

#### Seal kit NBR Nr. SKN-1029 <sup>3)</sup>

Item	Qty.	Description
1	1	O-ring Nr. 015 $\varnothing$ 0.551 x 0.070 N70
2	1	O-ring no. 016 $\varnothing$ 0.614 x 0.070 N70
3	1	O-ring no. 017 $\varnothing$ 0.676 x 0.07 N70
4	1	Backup ring $\varnothing$ 0.580 x 0.053 x .048
5	2	Backup ring $\varnothing$ 0.697 x 0.052 x .047
6	2	Backup ring $\varnothing$ 0.750 x 0.054 x .048



#### IMPORTANT!

##### <sup>3)</sup> Seal kit SKV-1029 (Viton "V")

Item no. 52073000.. = Seal kit NBR (Buna)

Item no. 5207300066 = Seal kit FKM (Viton)



#### IMPORTANT!

When fitting the cartridges, use the specified tightening torque. The recommended relief pressure setting is 30 % above operating pressure.



#### ATTENTION!

Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

## 7 Ordering code

Ex. CBPP - 10 - N - S - 0 - 3.0 - 50 / - A

CBPP	= counterbalance, non-vented, pilot assisted	
10	= size SAE 10 / NG 8, cavity C1025	
20M	= size SAE 10 / NG 8, cavity T-11A *	
N	= NBR (Nitrile) seals (standard)	
V	= FKM (Viton) seals (special seals - please consult BUCHER)	
S	= adjustment screw **	
C	= capped adjustment screw **	
T	= tamperproof adjustment screw **	
B	= air bleeding with capped adjustment screw	
0	= cartridge only (standard) *	
03BA	= line-mounting body G3/8 BSPP	aluminum
03BS	= line-mounting body G3/8 BSPP	steel
04BA	= line-mounting body G1/2 BSPP	aluminum
04BS	= line-mounting body G1/2 BSPP	steel
08TA	= line-mounting body SAE-#8	aluminum
08TS	= line-mounting body SAE-#8	steel
10TA	= line-mounting body SAE-#10	aluminum
10TS	= line-mounting body SAE-#10	steel
1.5	= pilot ratio 1.5 : 1 (on request)	
2.3	= pilot ratio 2.3 : 1	
3.0	= pilot ratio 3.0 : 1	
4.5	= pilot ratio 4.5 : 1	
10	= pilot ratio 10 : 1 (on request)	
15	= pressure range 500 - 1500 psi ( 35 - 103 bar)	
30	= pressure range 1000 - 3000 psi ( 70 - 207 bar)	
50	= pressure range 1500 - 5000 psi (103 - 345 bar) (standard)	
without	= without pressure setting (standard)	
...	= pressure setting in 100 psi steps (setting value 100 psi = /1 or 500 psi = /5)	
A	= opening pressure check valve 20 psi (1.4 bar) ***	
B	= opening pressure check valve 5 psi (0.4 bar) ***	
C	= opening pressure check valve 20 psi (1.4 bar), restricted (standard)	
D	= opening pressure check valve 5 psi (0.4 bar), restricted	

- \* Cavity T-11A available as cartridge only. (no line-mounting body available)  
 \*\* recommended hanging or horizontal mounting position only.  
 \*\*\* recommended up to 3000 psi or non-overcenter applications only.

## 8 Related data sheets

Reference	(Old no.)	Description
520-P-000050		Form tools
520-P-000220	(0-022.0)	Cavity type C1025
520-P-000221	(0-022.1)	Line-mounting body, 10 Series – 2.5-way (with C1025)

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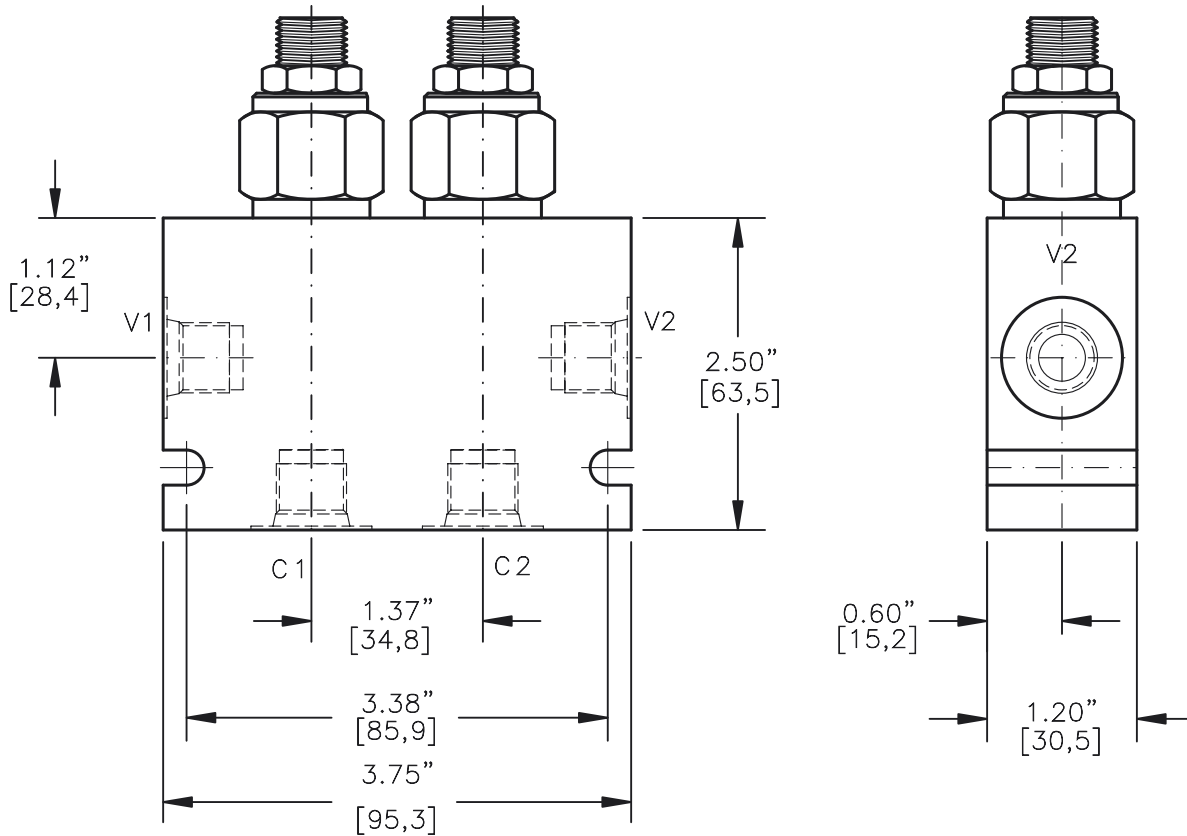
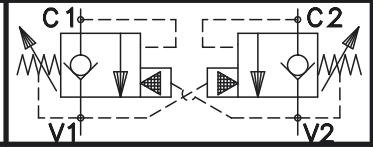
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Classification: 430.325.360.305.315



DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS



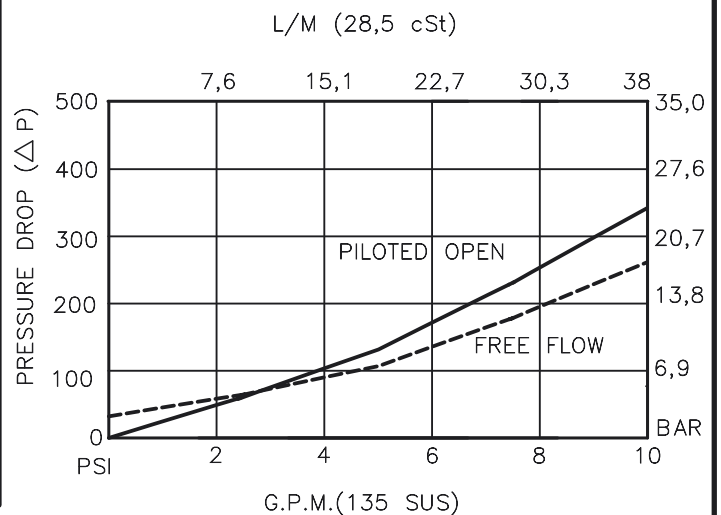
FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-026.0

DCBA-08-X-X-X-XX

- BASIC
- SIZE  
08 = 3/4"-16 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
0 = CARTRIDGE ONLY  
03BX = G 3/8" BSPP  
06TX = SAE - #6  
08TX = SAE - #8
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH CROSS-LINE PILOTS

### DESCRIPTION

This unit consists of two CBPA cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as

MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-0828 for buna "N".

SKV-0828 for viton.

WEIGHT: 1 lb [0.4536 kg] Aluminum. 3.15 lbs [1.43 kg] Steel.

VALVE CAVITY: #C0825, See Page 0-021.0.

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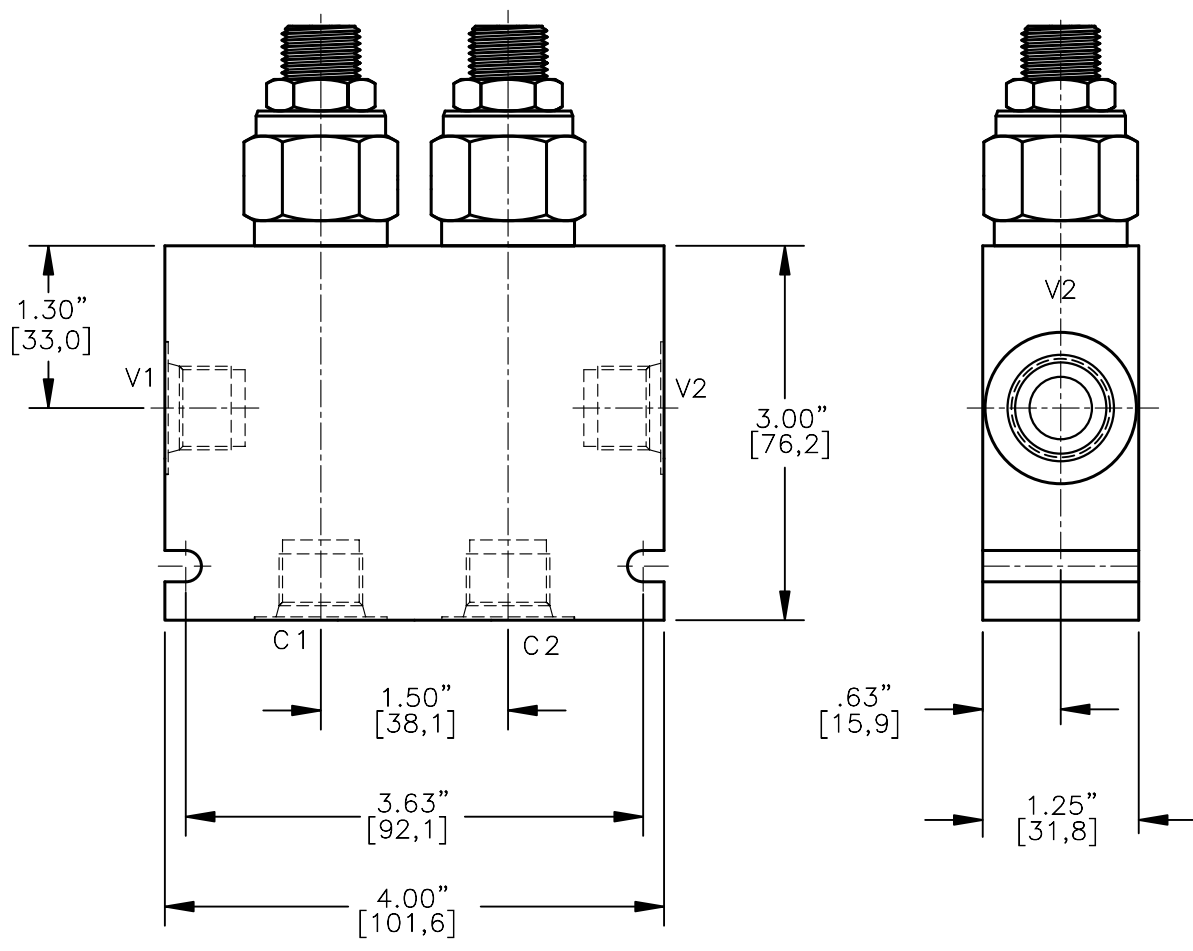
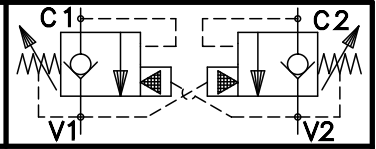
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS.

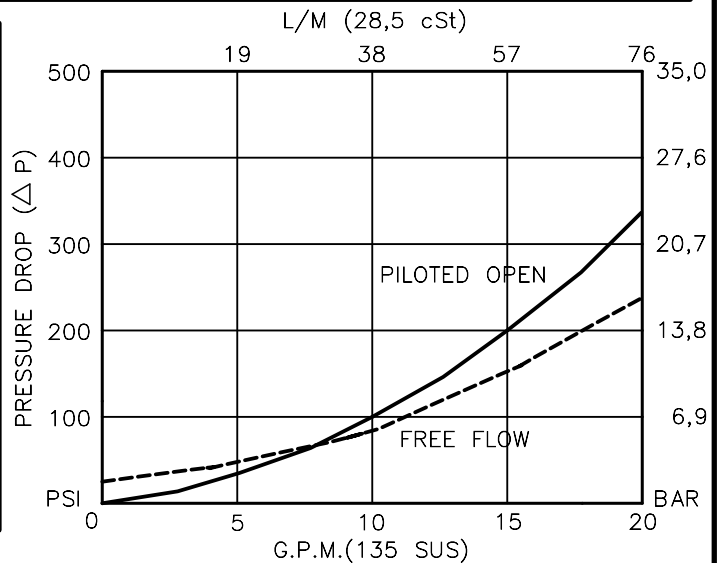


**DCBA-10-X-X-X-XX**

- BASIC
- SIZE  
10 = 7/8"-14 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
04BX = G 1/2" BSPF  
08TX = SAE - #8  
10TX = SAE - #10
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH CROSS-LINE PILOTS.

### DESCRIPTION

This unit consists of two CBPA cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**DUAL COUNTERBALANCE VALVE POPPET  
TYPE, FREE REVERSE FLOW WITH CROSS-LINE PILOTS.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.  
5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".  
SKV-1028 for viton.

WEIGHT: 2.65 lbs [1.21 kg] Aluminum. 5.25 lbs [2,38] Steel.

VALVE CAVITY: #C1025, See Page 0-022.0.

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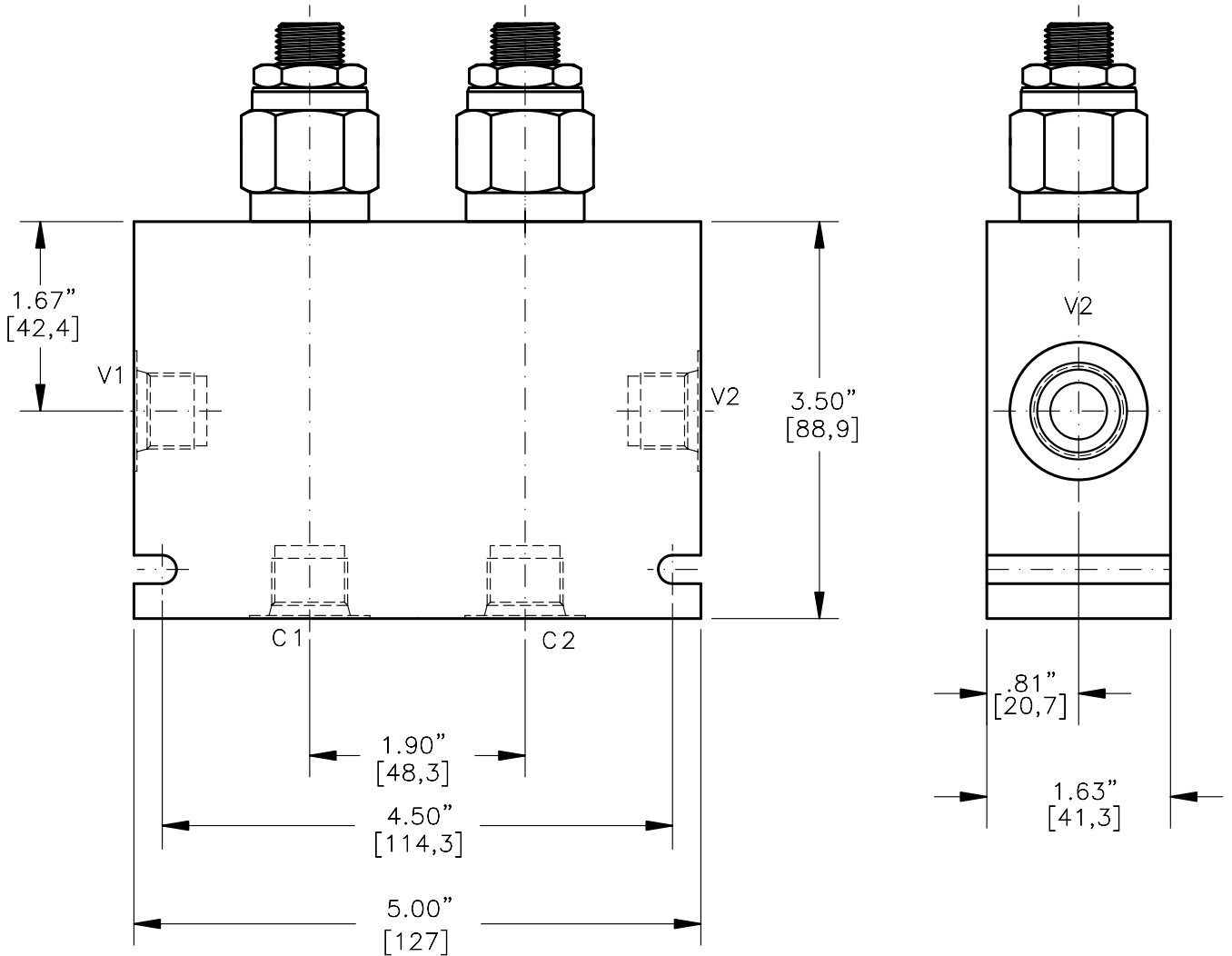
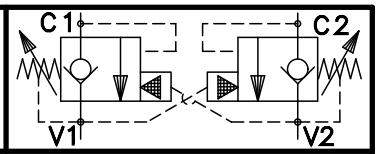
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS

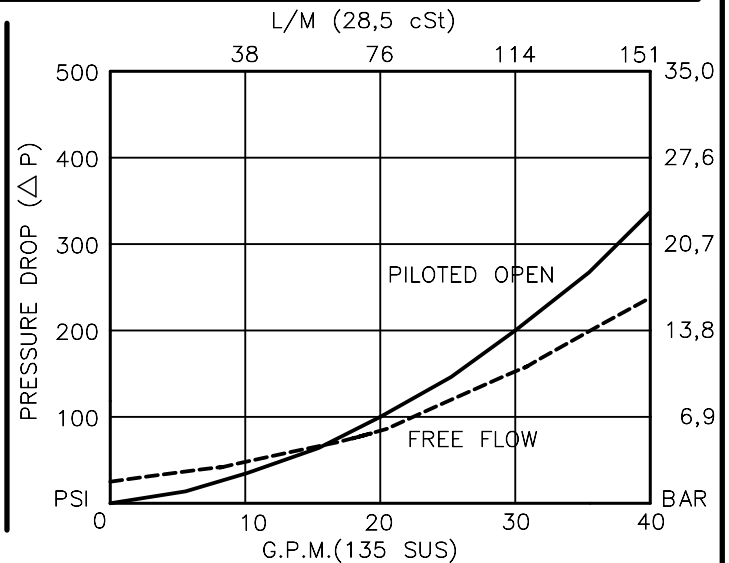


DCBA-12-X-X-X-XX

- BASIC
- SIZE  
12 = 1.062"-12 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
40 = 600 TO 4000 PSI
- PORTS  
06BX = G 3/4" BSPF  
10TX = SAE - #10  
12TX = SAE - #12
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH CROSS-LINE PILOTS.

### DESCRIPTION

This unit consists of two CBPA cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof and capped adjustments.

All cartridge valves are 100% functionally tested.

### SPECIFICATIONS

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.  $\hat{J}$

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for Buna "N".

SKV-1228 for Viton.

WEIGHT: 2.65 lbs [1.21 kg] Aluminum. 5.25 lbs [2.38 kg] Steel.

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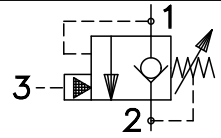
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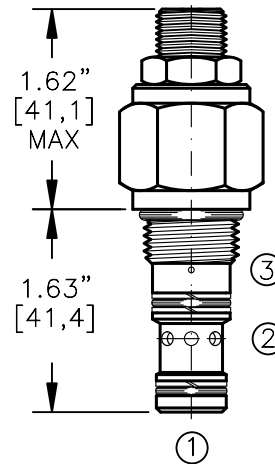
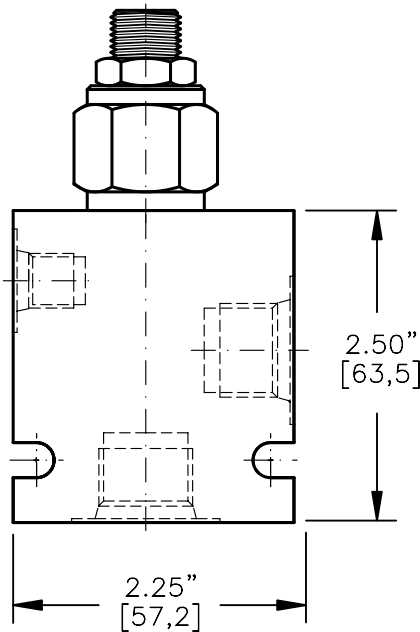
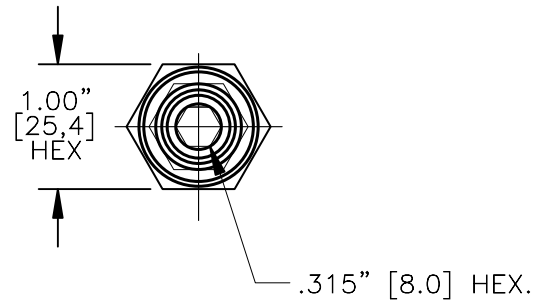
COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & SEALS ON THE PISTON



TORQUE:

Steel = 35/40 Ft-Lb. [47/54 Nm]

Aluminum = 25/30 Ft-Lb. [34/41 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-021-1.

CBPS-08-X-X-X-XX

BASIC

SIZE

08 = 3/4"-16 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

K = HANDKNOB

M = METAL HANDKNOB

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

50 = 1500 TO 5000 PSI

PORTS

0 = CARTRIDGE ONLY

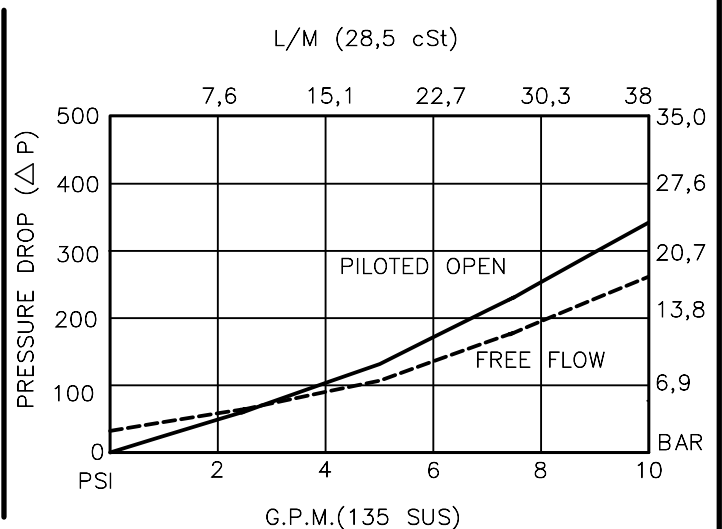
03BX = G 3/8" BSP

08TX = SAE - #8

"A" - ALUM. HOUSING

"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & SEALS ON THE PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no interflow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & SEALS ON THE PISTON.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure. <sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-0828 for buna "N".

SKV-0828 for viton.

WEIGHT: 0.30 lb [.14 kg] cartridge only.

VALVE CAVITY: #C0825, See Page 0-021.0.

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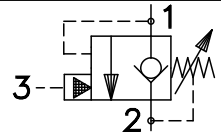
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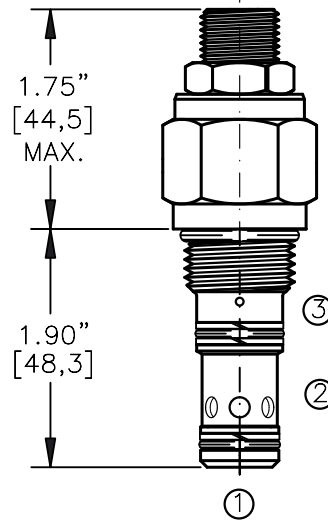
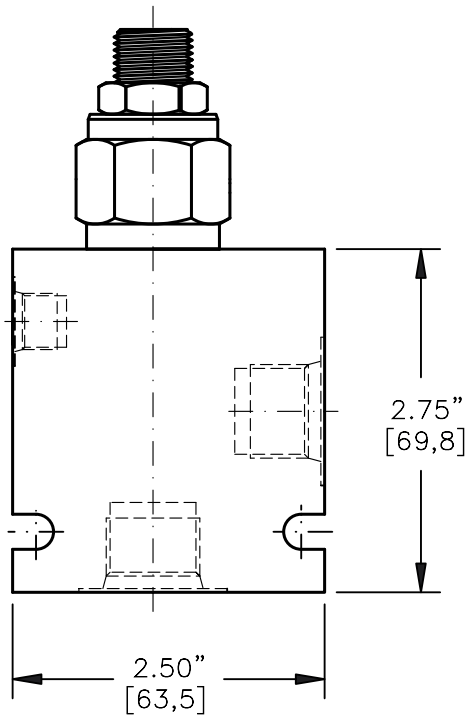
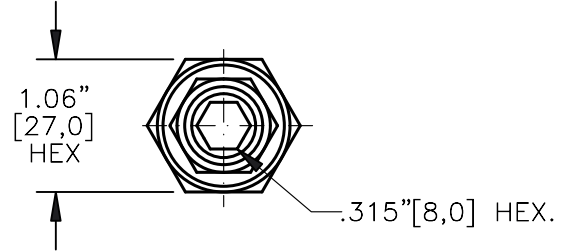
COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW & SEALS ON THE PISTON.



TORQUE:

Steel = 55/60 Ft-Lb. [74/81 Nm]

Aluminum = 35/40 Ft-Lb. [47/54 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-022-1.

CBPS-10-X-X-X-XX

BASIC

SIZE

10 = 7/8"-14 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

K = HANDKNOB

M = METAL HANDKNOB

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

50 = 500 TO 5000 PSI

PORTS

0 = CARTRIDGE ONLY

03BX = G 3/8" BSP

04BX = G 1/2" BSP

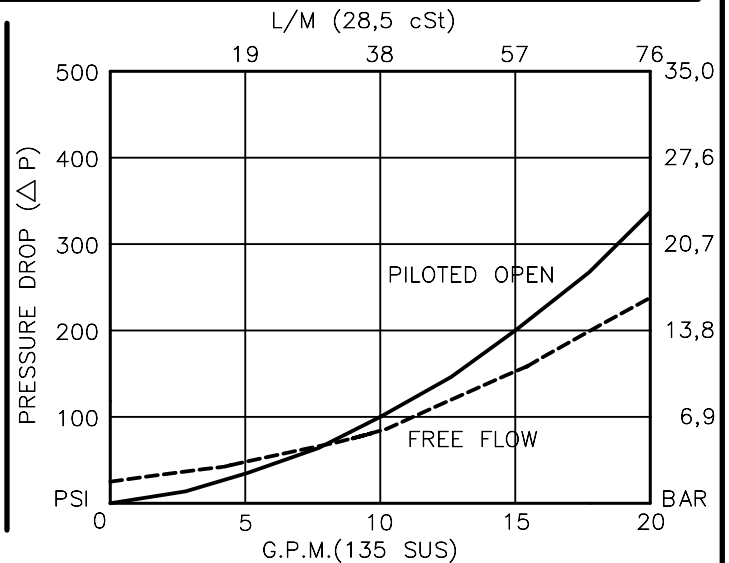
08TX = SAE - #8

10TX = SAE - #10

"A" - ALUM. HOUSING

"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & SEALS ON THE PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no interflow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**COUNTERBALANCE VALVE POPPET TYPE  
WITH FREE REVERSE FLOW & SEALS ON THE PISTON.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum - Anodized.

5000 PSI [350 Bar] = Steel - Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".

SKV-1028 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: #C1025, See Page 0-022.0.

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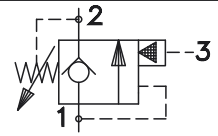
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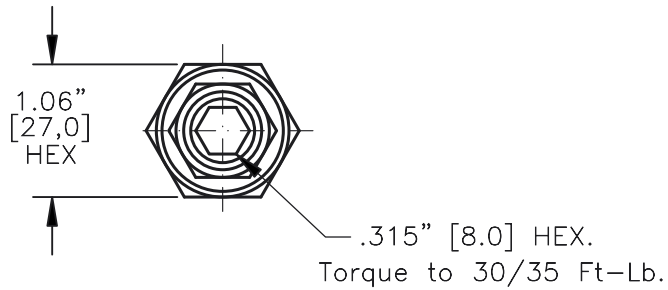
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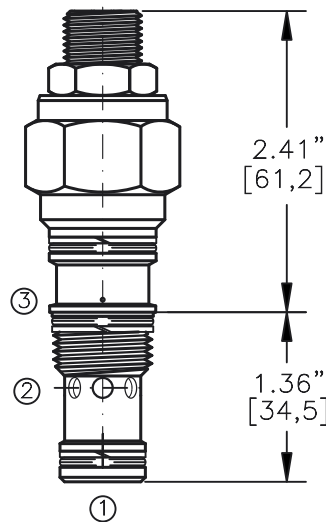
COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW & SEALS ON THE PILOT PISTON



FITS INTO SUN CAVITY # T-11A



Turn screw clockwise to increase the pressure setting.



**CBPS-20M-X-X-X-XX**

BASIC  
SIZE  
20M=20,0x1,5MM THD.

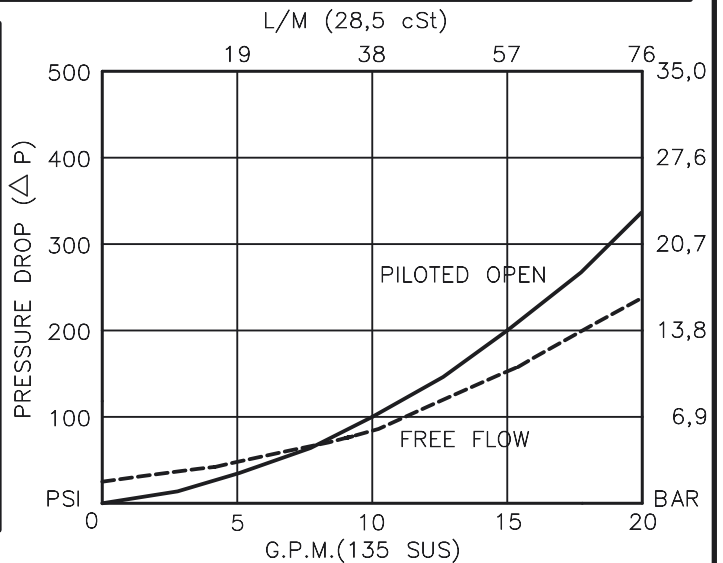
SEALS  
N = BUNA "N"  
V = VITON

ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF  
K = HANDKNOB  
M = METAL HANDKNOB

PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI

PORTS  
0 = CARTRIDGE ONLY

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW & SEALS ON THE PILOT PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating out flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no flow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Fits in to SUN cavity # T-11A.

### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1029 for buna "N".

SKV-1029 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: SUN # T-11A.

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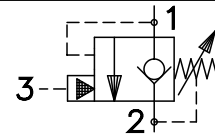
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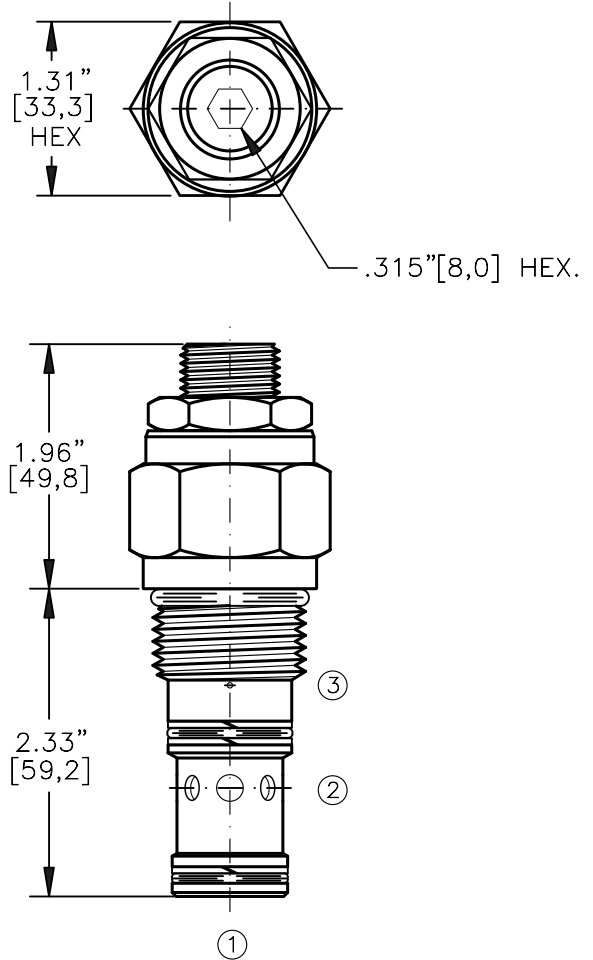
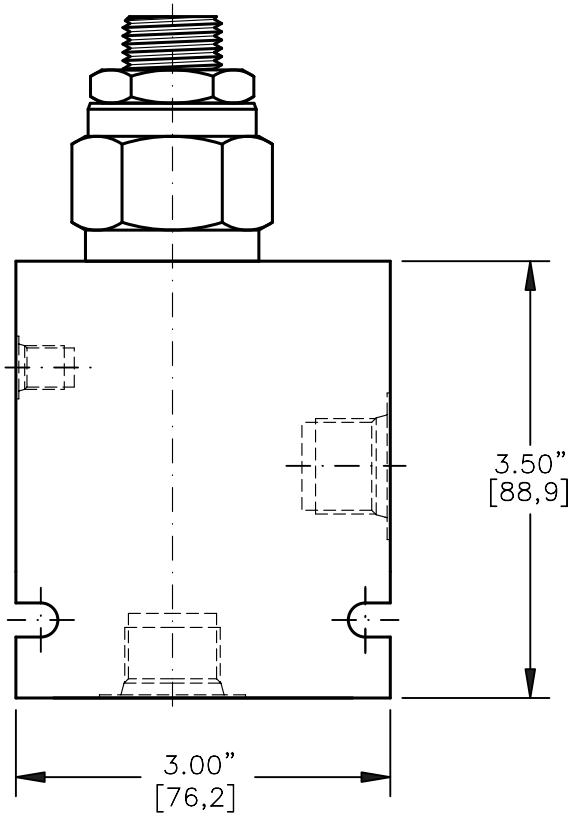
COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW & SEALS ON THE PISTON



TORQUE:

Steel = 70/75 Ft-Lb. [95/102 Nm]

Aluminum = 55/60 Ft-Lb. [74/81 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-023-1.

**CBPS-12-X-X-X-XX**

BASIC

SIZE

12 = 1.062"-12 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

40 = 600 TO 4000 PSI

PORTS

0 = CARTRIDGE ONLY

04BX = G 1/2" BSP

06BX = G 3/4" BSP

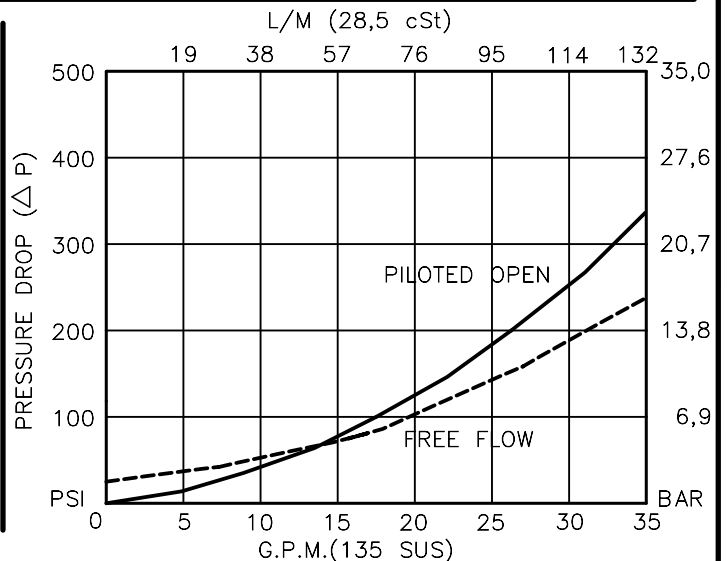
10TX = SAE - #10

12TX = SAE - #12

"A" - ALUM. HOUSING

"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & SEALS ON THE PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no interflow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof and capped adjustments.

All cartridge valves are 100% functionally tested.

### SPECIFICATIONS

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for Buna "N".

SKV-1228 for Viton.

WEIGHT: 0.84 lb [0,38 kg] cartridge only.

VALVE CAVITY: #C1225, See Page 0-023.0.

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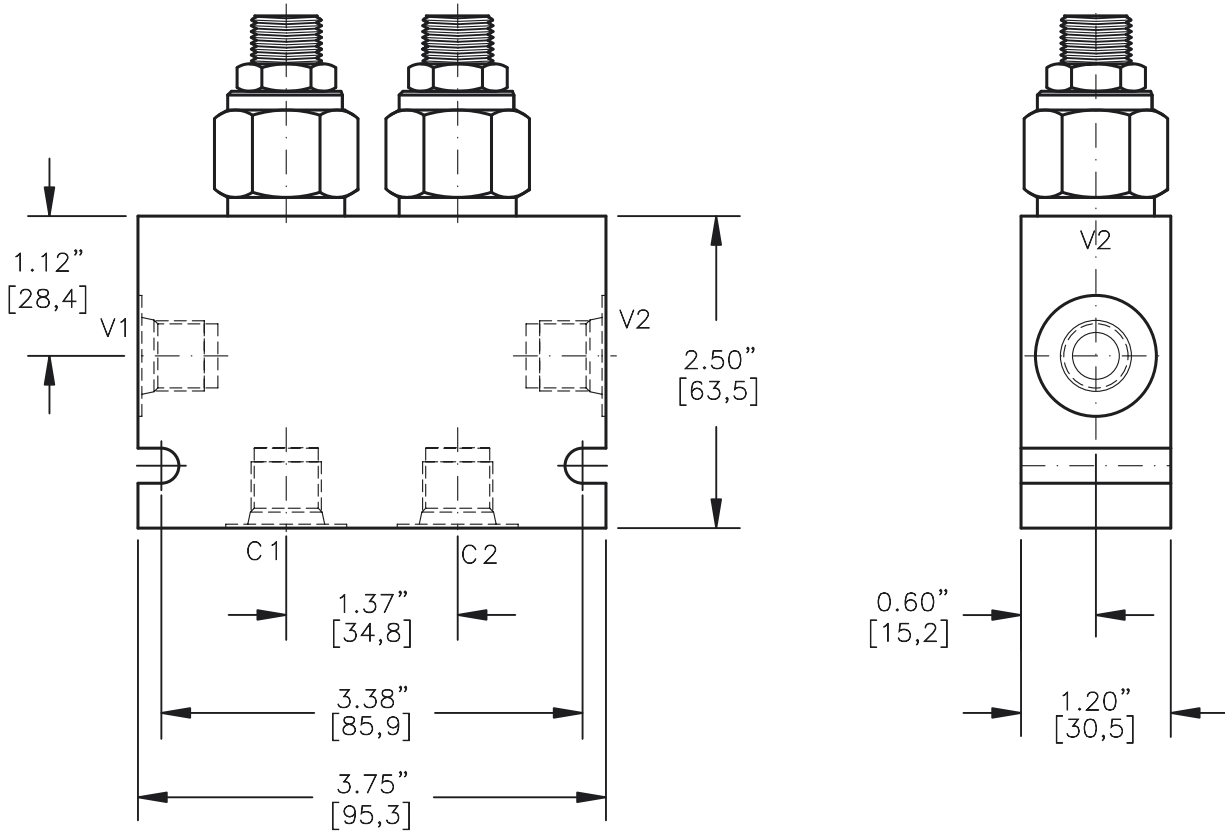
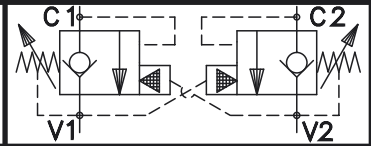
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COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & SEALS ON THE PISTON.

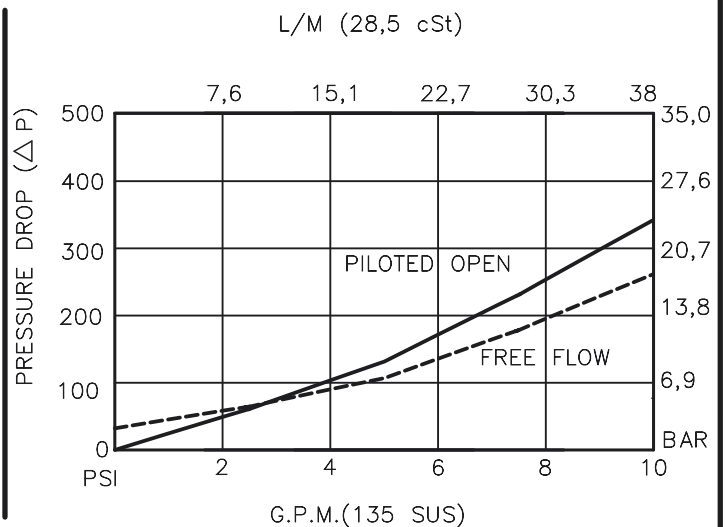


**DCBS-08-X-X-X-XX**

- BASIC
- SIZE  
08 = 3/4"-16 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 1500 TO 5000 PSI
- PORTS  
03BX = G 3/8" BSPP  
06TX = SAE - #6  
08TX = SAE - #8
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & SEALS ON THE PISTON.

### DESCRIPTION

This unit consists of two CBPS cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & SEALS ON THE PISTON.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]  
PROOF PRESSURE: 10,000 PSI [700 Bar]  
FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.  
PILOT RATIO: 4 to 1  
INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>  
DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]  
VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.  
5000 PSI [350 Bar] = Steel – Unplated.  
OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]  
OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.  
INSTALLATION: No restriction.  
FILTRATION: 25 microns or better.  
SEAL KIT NUMBER: SKN-0828 for buna "N".  
SKV-0828 for viton.  
WEIGHT: 1 lb [0.4536 kg] Aluminum. 3.15 lbs [1.43 kg] Steel.  
VALVE CAVITY: #C0825, See Page 0-021.0.

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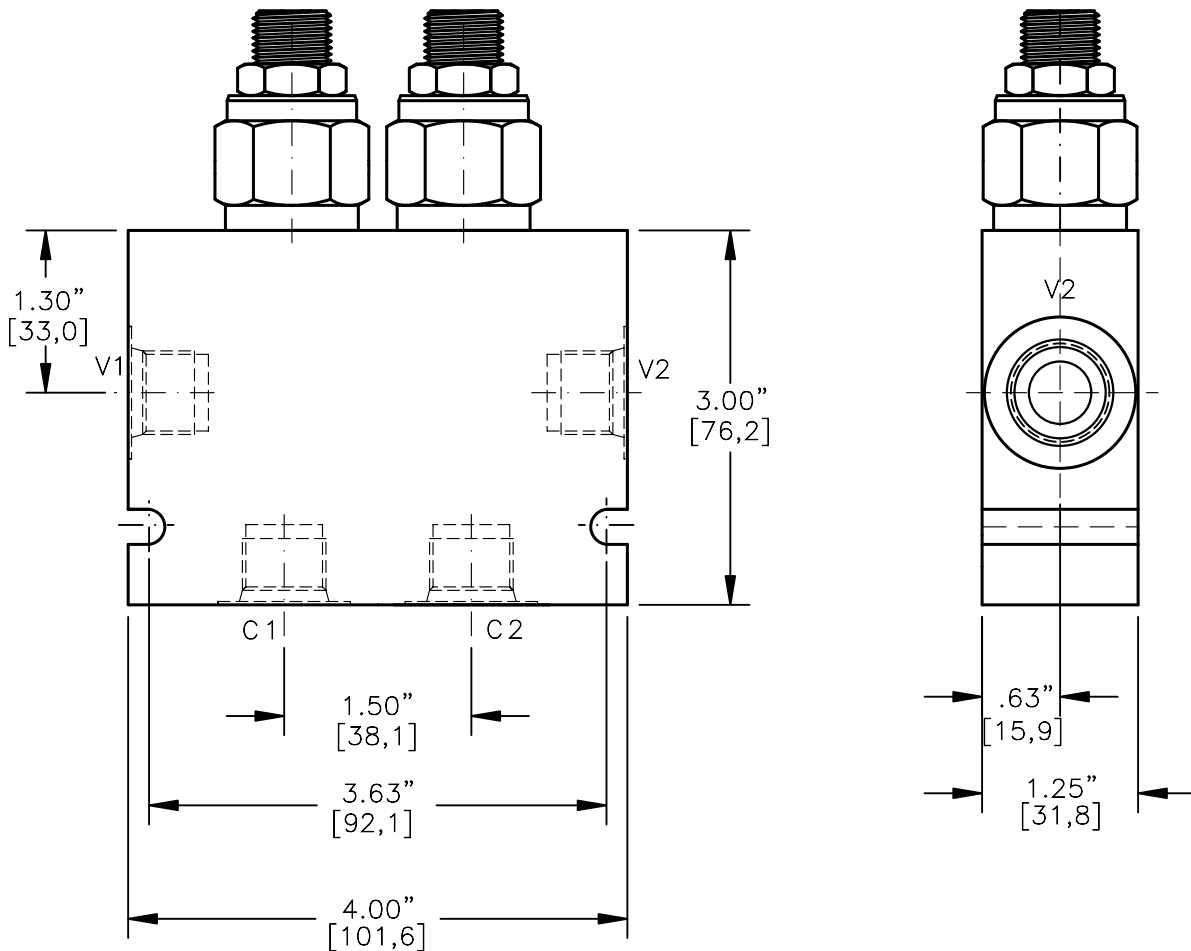
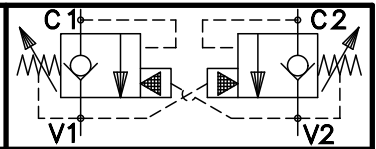
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS

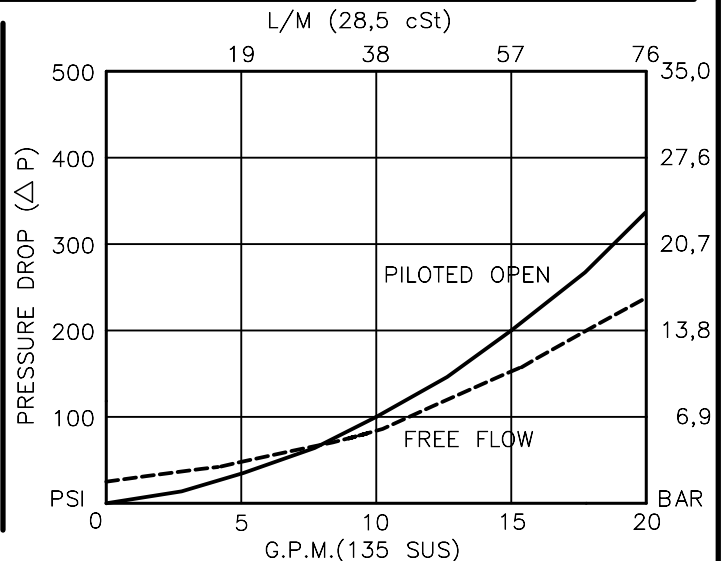


DCBS-10-X-X-X-XX

- BASIC
- SIZE  
10 = 7/8"-14 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
04BX = G 1/2" BSPP  
08TX = SAE - #8  
10TX = SAE - #10
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH CROSS-LINE PILOTS.

### DESCRIPTION

This unit consists of two CBPS cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH CROSS-LINE PILOTS.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".

SKV-1028 for viton.

WEIGHT: 2.65 lbs [1.21 kg] Aluminum. 5.25 lbs [2,38] Steel.

VALVE CAVITY: #C1025, See Page 0-022.0.

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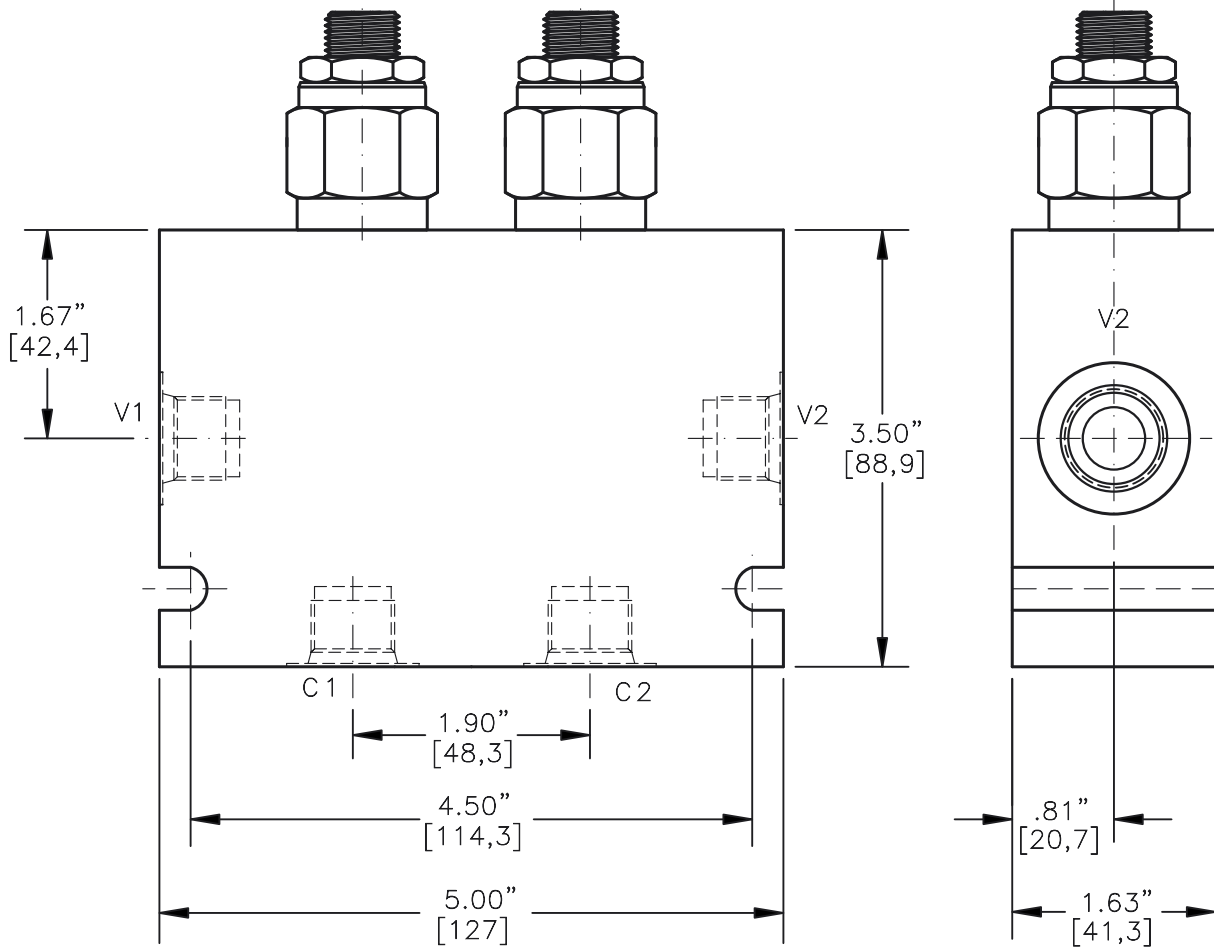
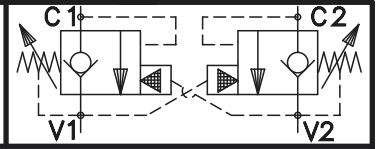
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH SEALS ON PISTON

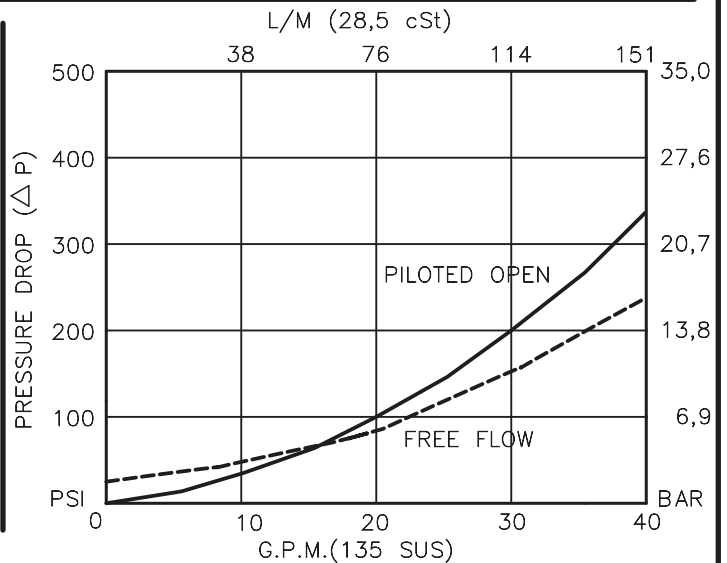


**DCBS-12-X-X-X-XX**

- BASIC
- SIZE  
12 = 1.062"-12 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
40 = 600 TO 4000 PSI
- PORTS  
06BX = G 3/4" BSPP  
10TX = SAE - #10  
12TX = SAE - #12
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH SEALS ON PISTON.

### DESCRIPTION

This unit consists of two CBPS cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no interflow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

### SPECIFICATIONS

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for Buna "N".

SKV-1228 for Viton.

WEIGHT: 2.65 lbs [1,21 kg] Aluminum. 5.25 lbs [2,38] Steel.

VALVE CAVITY: #C1225, See Page 0-023.0.

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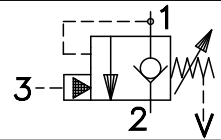
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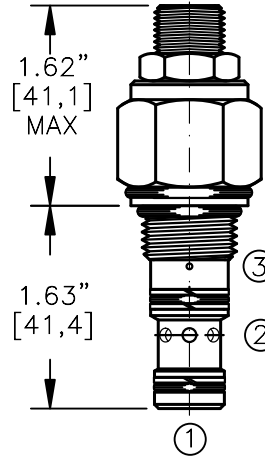
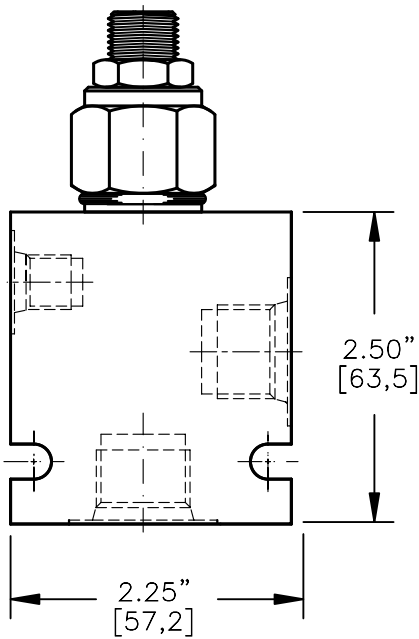
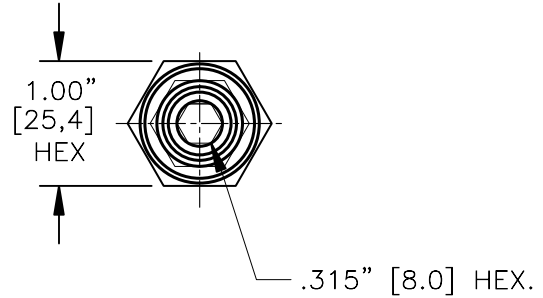
COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & VENTED PISTON



TORQUE:

Steel = 35/40 Ft-Lb. [47/54 Nm]

Aluminum = 25/30 Ft-Lb. [34/41 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-021-1.

CBPG-08-X-X-X-XX

BASIC

SIZE

08 = 3/4"-16 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

K = HANDKNOB

M = METAL HANDKNOB

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

50 = 1500 TO 5000 PSI

PORTS

0 = CARTRIDGE ONLY

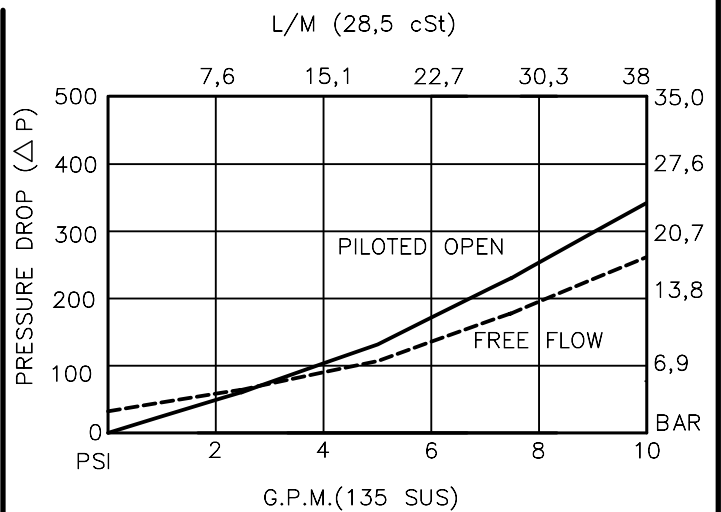
03BX = G 3/8" BSP

08TX = SAE - #8

"A" - ALUM. HOUSING

"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & VENTED PISTON

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Seals on the pilot piston assures no interflow of fluid between port #2 and port #3.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & VENTED PISTON****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-0828 for buna "N".

SKV-0828 for viton.

WEIGHT: 0.30 lb [.14 kg] cartridge only.

VALVE CAVITY: #C0825, See Page 0-021.0.

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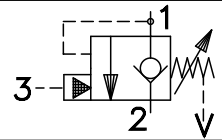
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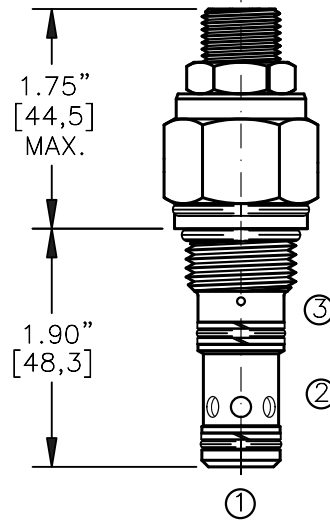
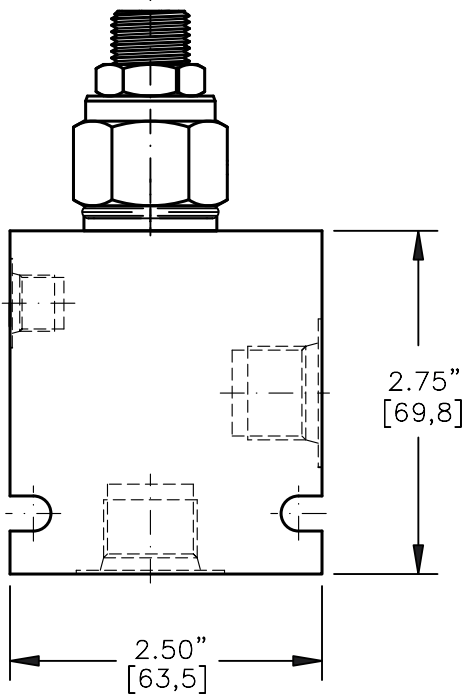
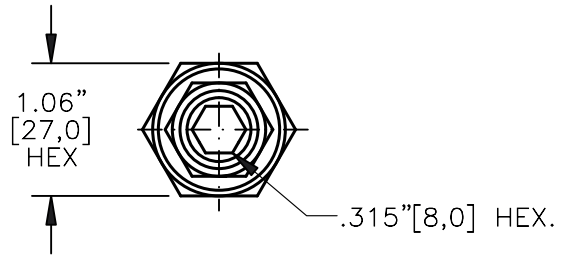
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COUNTERBALANCE VALVE POPPET TYPE,  
WITH FREE REVERSE FLOW & VENTED PISTON



TORQUE:

Steel = 55/60 Ft-Lb. [74/81 Nm]  
Aluminum = 35/40 Ft-Lb. [47/54 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-022-1.

**CBPG-10-X-X-X-XX**

BASIC

SIZE

10 = 7/8"-14 UNF

SEALS

N = BUNA "N"

V = VITON

ADJUSTMENT

S = ADJUSTING SCREW

C = CAPPED

T = TAMPERPROOF

K = HANDKNOB

M = METAL HANDKNOB

PRESSURE RANGE

15 = 100 TO 1500 PSI

30 = 300 TO 3000 PSI

50 = 500 TO 5000 PSI

PORTS

0 = CARTRIDGE ONLY

03BX = G 3/8" BSP

04BX = G 1/2" BSP

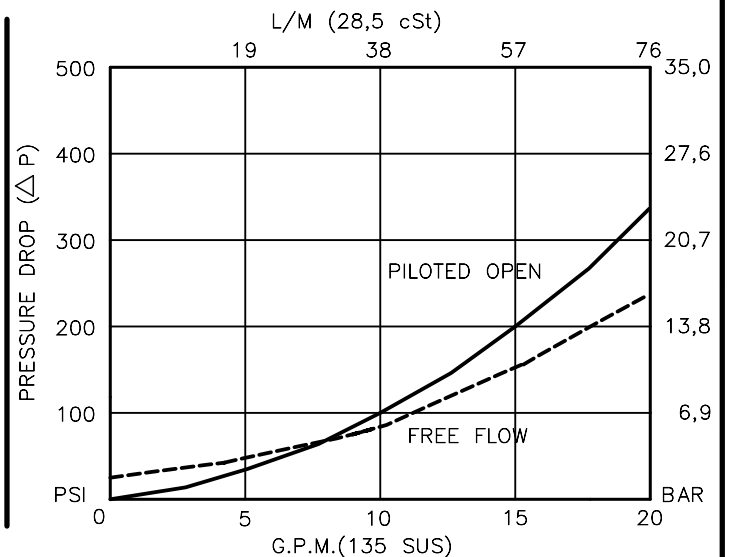
08TX = SAE - #8

10TX = SAE - #10

"A" - ALUM. HOUSING

"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE, WITH FREE REVERSE FLOW & VENTED PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Vented pilot piston spring chamber to atmosphere allows this valve to be used with a closed center valve or re-generative circuit.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**COUNTERBALANCE VALVE POPPET TYPE,  
WITH FREE REVERSE FLOW & VENTED PISTON.****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".

SKV-1028 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: #C1025, See Page 0-022.0.

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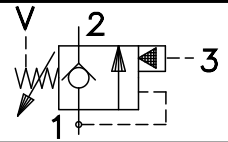
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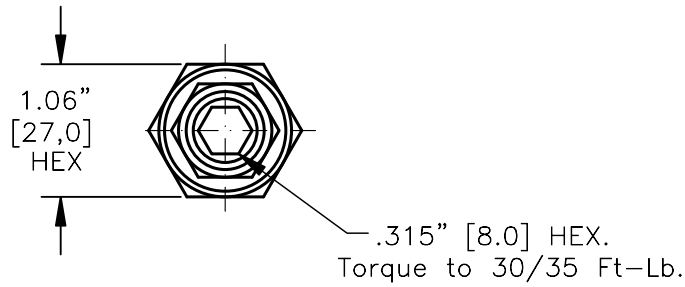
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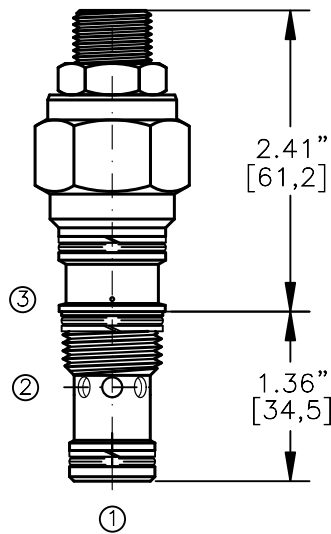
COUNTERBALANCE VALVE POPPET TYPE,  
WITH FREE REVERSE FLOW & VENTED PISTON.



FITS INTO SUN CAVITY # T-11A



Turn screw clockwise to increase the pressure setting.

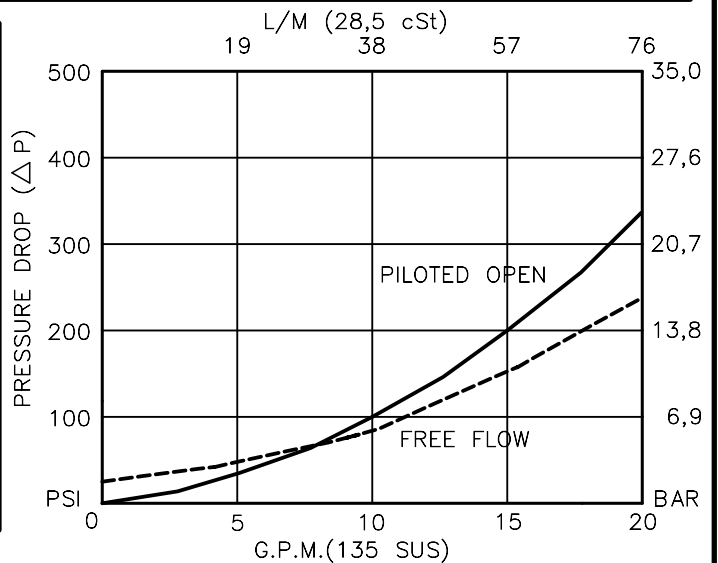


**CBPG-20M-X-X-X-XX**

- BASIC
- SIZE  
20M = 20,0x1,5MM THD.
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF  
K = HANDKNOB  
M = METAL HANDKNOB

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
0 = CARTRIDGE ONLY

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE, WITH FREE REVERSE FLOW & VENTED PISTON.

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating out flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Vented pilot piston spring chamber to atmosphere allows this valve to be used with a re-generative circuit.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Fits in to SUN cavity # T-11A.

### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1029 for buna "N".

SKV-1029 for viton.

WEIGHT: 0.46 lb [.21 kg] cartridge only.

VALVE CAVITY: SUN # T-11A.

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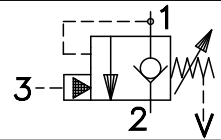
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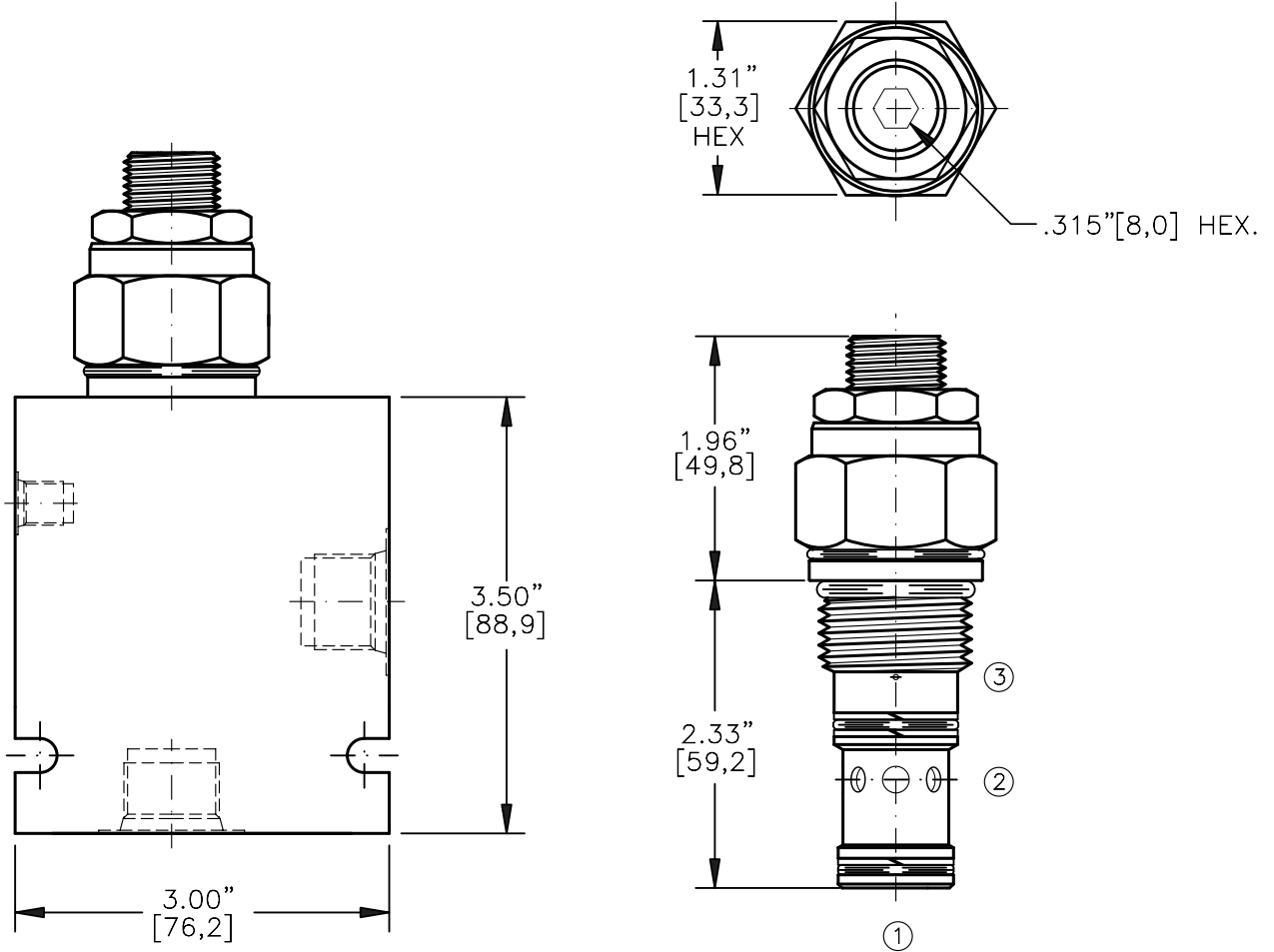
COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW & SEALS ON THE PISTON



TORQUE:

Steel = 70/75 Ft-Lb. [95/102 Nm]

Aluminum = 55/60 Ft-Lb. [74/81 Nm]



FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-023-1.

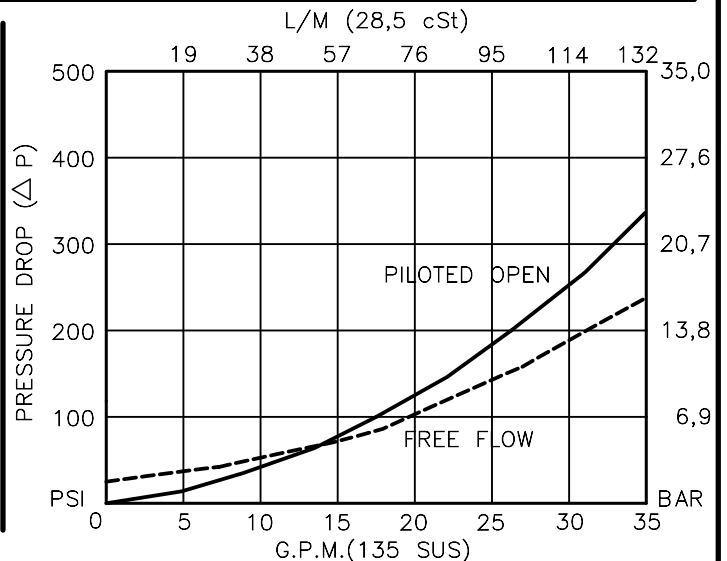
**CBPG-12-X-X-X-XX**

- BASIC
- SIZE  
12 = 1.062"-12 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
40 = 600 TO 4000 PSI

- PORTS  
0 = CARTRIDGE ONLY  
04BX = G 1/2" BSPP  
06BX = G 3/4" BSPP  
10TX = SAE - #10  
12TX = SAE - #12
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## COUNTERBALANCE VALVE POPPET TYPE, WITH FREE REVERSE FLOW & VENTED PISTON

### DESCRIPTION

This unit is a DIRECT ACTING, SCREW IN CARTRIDGE STYLE, POPPET TYPE, ADJUSTABLE, PILOT ASSISTED, HYDRAULIC COUNTERBALANCE VALVE.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port 2 to port 1 and then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at port 3 modulating flow from port 1 to port 2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Vented pilot piston spring chamber to atmosphere allows this valve to be used with a re-generative circuit.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof and capped adjustments.

All cartridge valves are 100% functionally tested.

**COUNTERBALANCE VALVE POPPET TYPE,  
WITH FREE REVERSE FLOW & VENTED PISTON****SPECIFICATIONS**

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure. <sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as  
MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for Buna "N".

SKV-1228 for Viton.

WEIGHT: 0.84 lb [0,38 kg] cartridge only.

VALVE CAVITY: #C1225, See Page 0-023.0.

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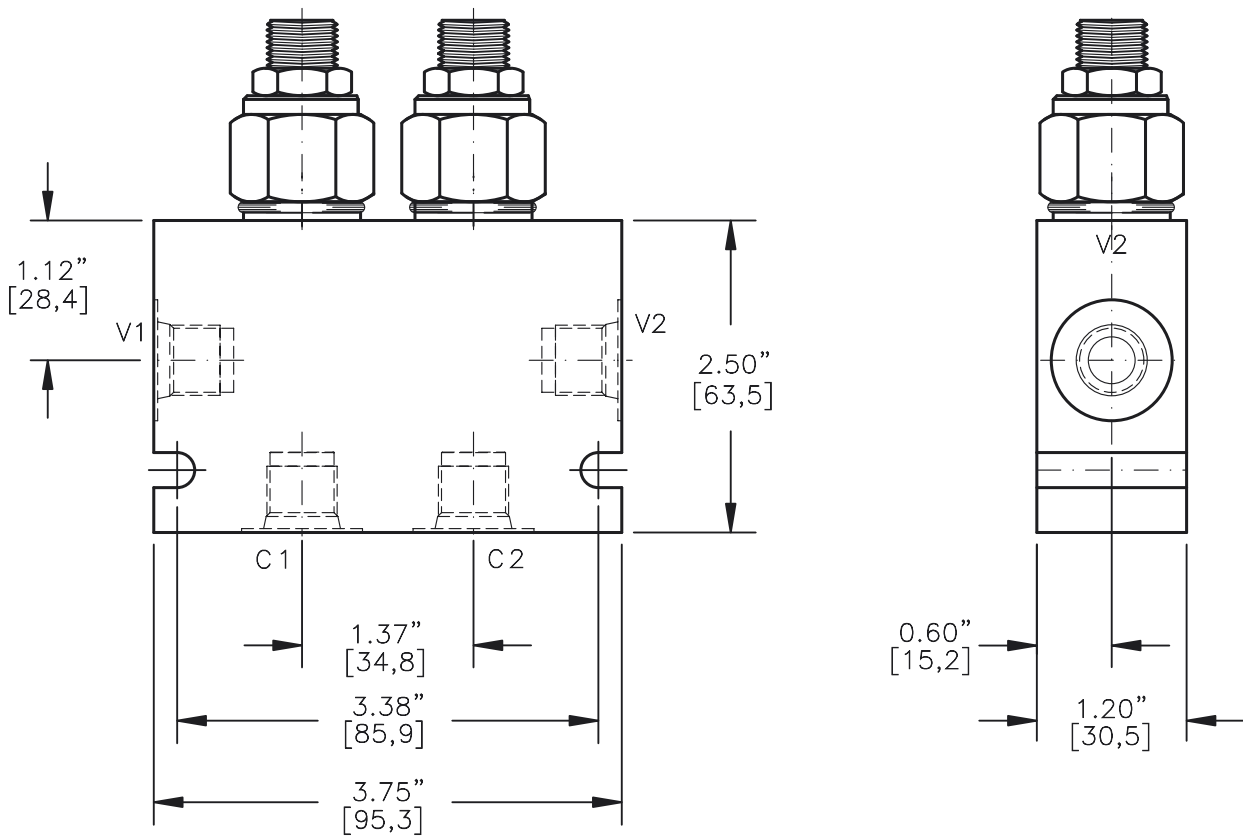
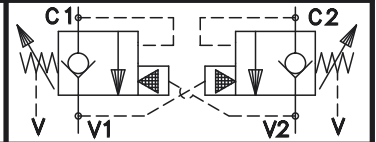
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DUAL COUNTERBALANCE VALVE POPPET TYPE  
WITH FREE REVERSE FLOW & VENTED PISTON



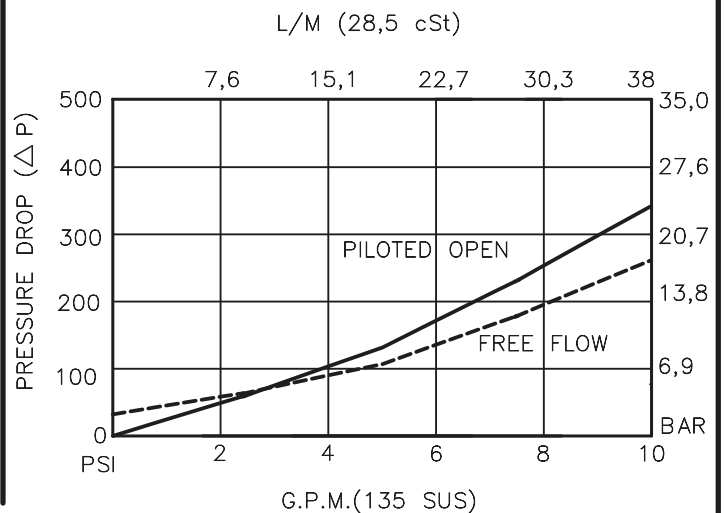
FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-026.0

DCBG-08-X-X-X-XX

- BASIC
- SIZE  
08 = 3/4"-16 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
03BX = G 3/8" BSPP  
06TX = SAE - #6  
08TX = SAE - #8
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE WITH FREE REVERSE FLOW & VENTED PISTON

### DESCRIPTION

This unit consists of two CBPG cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody cage construction and with no dynamic seals on all moving parts provides very low hysteresis (1.5%) and reliable operation.

Minor internal leakage past the pilot piston purges the air from the pilot line thus improving stability.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

**DUAL COUNTERBALANCE VALVE POPPET TYPE WITH  
FREE REVERSE FLOW & VENTED PISTON****SPECIFICATIONS**

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 10.0 GPM [38 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure.<sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as

MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-0828 for buna "N".

SKV-0828 for viton.

WEIGHT: 1 lb [0.4536 kg] Aluminum. 3.15 lbs [1.43 kg] Steel.

VALVE CAVITY: #C0825, See Page 0-021.0.

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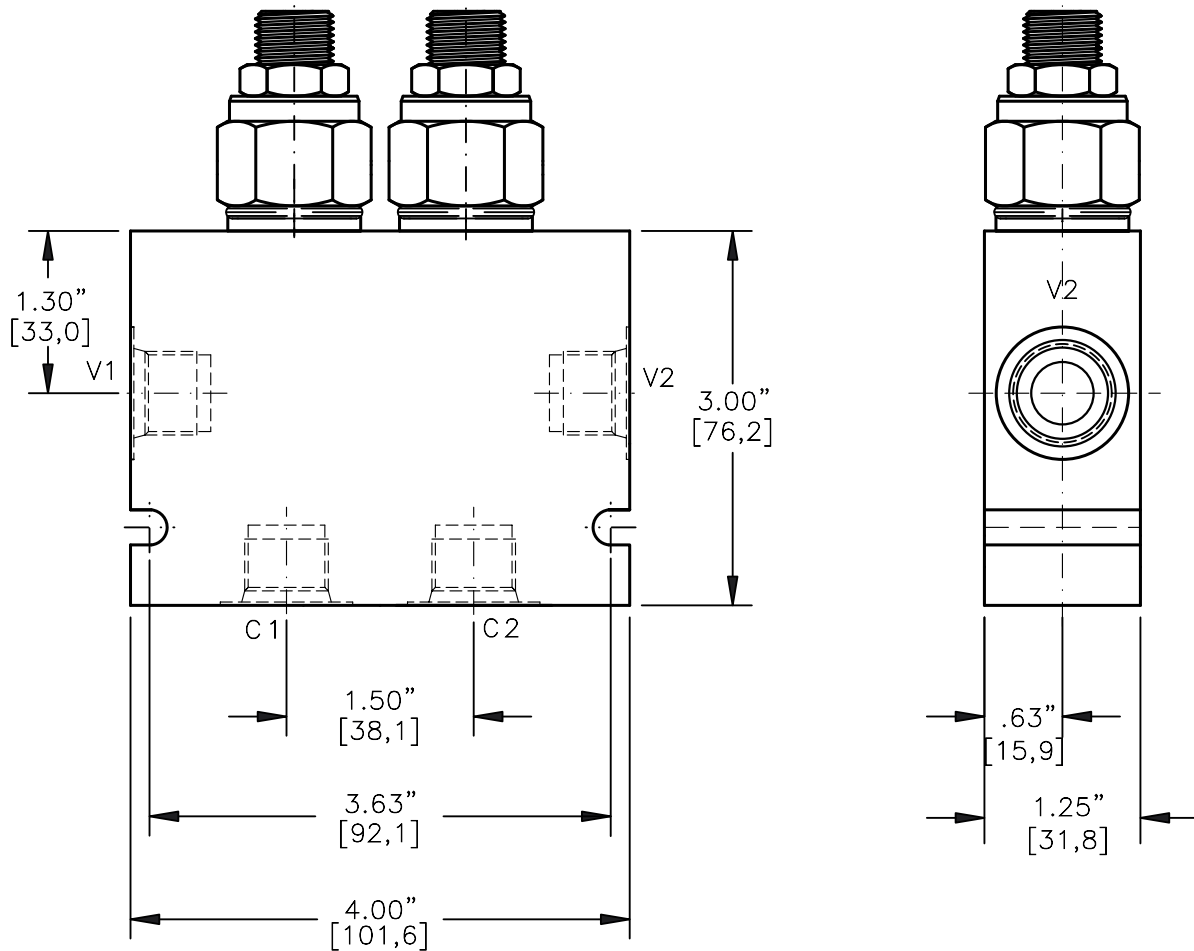
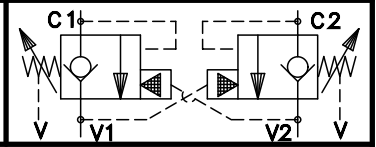
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH VENTED PISTON

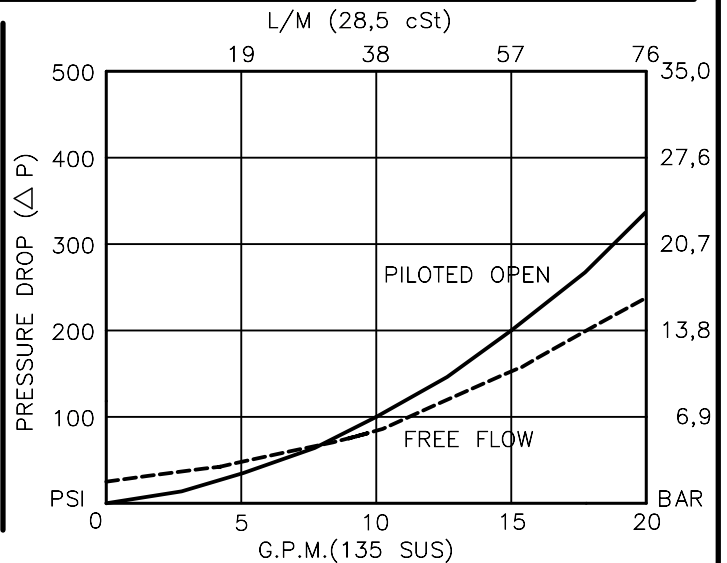


DCBG-10-X-X-X-XX

- BASIC
- SIZE  
10 = 7/8"-14 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
50 = 500 TO 5000 PSI
- PORTS  
04BX = G 1/2" B SPP  
08TX = SAE - #8  
10TX = SAE - #10
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH VENTED PISTON

### DESCRIPTION

This unit consists of two CBPG cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Vented pilot piston spring chamber to atmosphere allows this valve to be used with a re-generative circuit.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof, capped and handknob adjustments.

All cartridge valves are 100% functionally tested.

Industry common cavity.

### SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 20.0 GPM [76 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure. <sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1028 for buna "N".

SKV-1028 for viton.

WEIGHT: 2.65 lbs [1.21 kg] Aluminum. 5.25 lbs [2,38] Steel.

VALVE CAVITY: #C1025, See Page 0-022.0.

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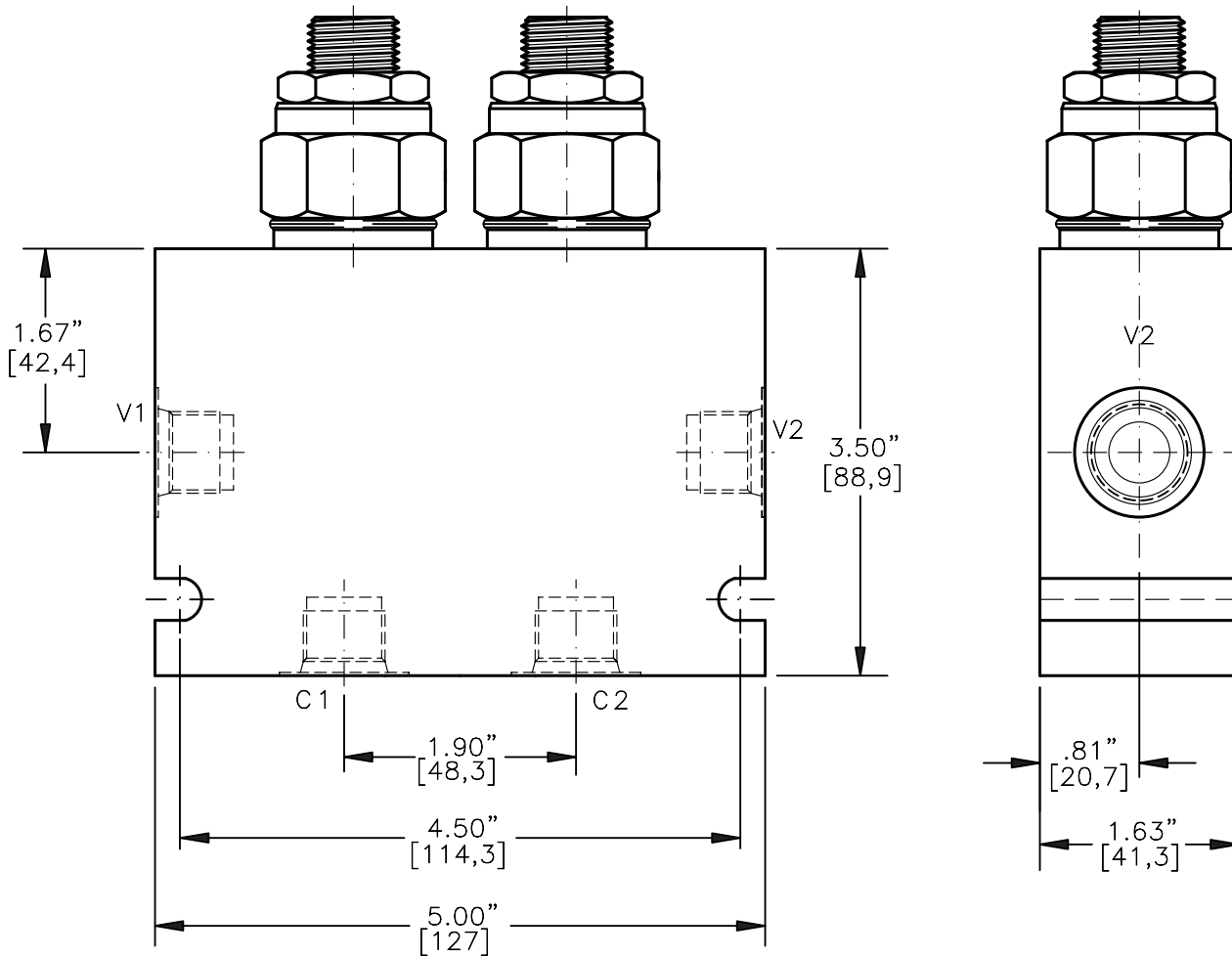
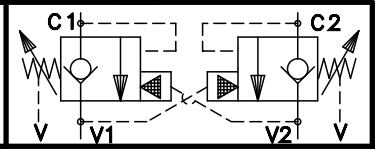
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DUAL COUNTERBALANCE VALVE POPPET TYPE,  
FREE REVERSE FLOW WITH VENTED PISTON

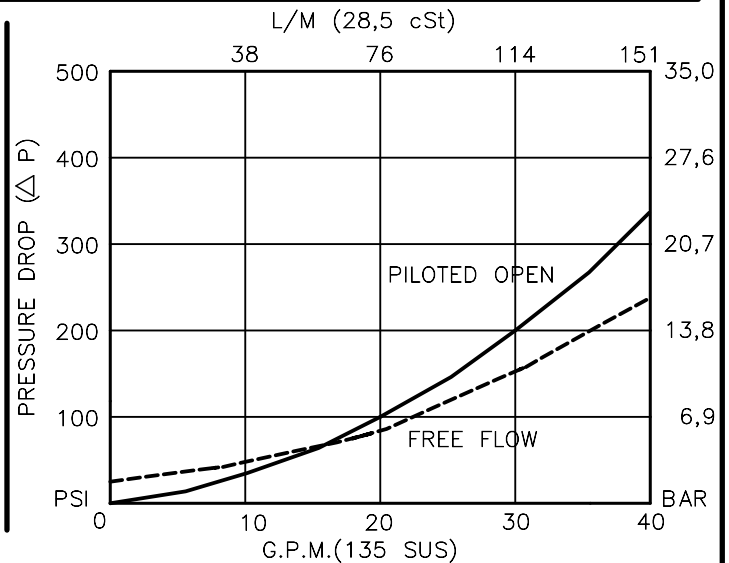


**DCBG-12-X-X-X-XX**

- BASIC
- SIZE  
12 = 1.062"-12 UNF
- SEALS  
N = BUNA "N"  
V = VITON
- ADJUSTMENT  
S = ADJUSTING SCREW  
C = CAPPED  
T = TAMPERPROOF

- PRESSURE RANGE  
15 = 100 TO 1500 PSI  
30 = 300 TO 3000 PSI  
40 = 600 TO 4000 PSI
- PORTS  
06BX = G 3/4" BSPF  
10TX = SAE - #10  
12TX = SAE - #12
- "A" - ALUM. HOUSING  
"S" - STEEL HOUSING

FOR ADJUSTMENT CONTROL  
OPTIONS SEE PAGE 0-050.0



## DUAL COUNTERBALANCE VALVE POPPET TYPE, FREE REVERSE FLOW WITH VENTED PISTON

### DESCRIPTION

This unit consists of two CBPG cartridges in an inline housing. The cartridges are direct acting, screw in cartridge style, poppet type, adjustable, pilot assisted, hydraulic counterbalance valves.

### OPERATIONS

This valve controls moving load and preventing it from running ahead of the pump, locking the load in any position, it also provides static overload and thermal expansion protection.

This valve is a MODULATING DEVICE that allows free flow from port V1 to port C1 and V2 to C2 then blocks reverse flow until a pilot pressure INVERSELY PROPORTIONAL to the load pressure is sensed at pilot ports which are connected to ports V1 and V2 therefore modulating flow from port C1 or port C2.

### FEATURES AND BENEFITS

Leakproof screw adjustment.

Adjustment screw can not be backed out of the valve.

Overset protection – spring can not go solid.

Hardened precision fitted poppet & cage provides reliable, long life.

A unibody adapter cage construction provides very reliable operation.

Vented pilot piston spring chamber to atmosphere allows this valve to be used with a re-generative circuit.

All external carbon steel parts are plated for longer life against the elements.

Valve is available with screw, tamperproof and capped adjustments.

All cartridge valves are 100% functionally tested.

### SPECIFICATIONS

OPERATING PRESSURE: 4,000 PSI [276 Bar]

PROOF PRESSURE: 10,000 PSI [700 Bar]

FLOW: 35.0 GPM [132 L/M] nominal. See performance chart.

PILOT RATIO: 4 to 1

INTERNAL LEAKAGE: 5 drops/min @ 90% of crack pressure. <sup>^J</sup>

DEFINITION OF CRACK: evident at 0.06 GPM [0.25 LPM]

VALVE HOUSINGS: 2500 PSI [175 Bar] = Aluminum – Anodized.

5000 PSI [350 Bar] = Steel – Unplated.

OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]

OPERATING MEDIA: All general purpose hydraulic fluids such as

MIL-H-5606, SAE-#10, SAE-#20, etc.

INSTALLATION: No restriction.

FILTRATION: 25 microns or better.

SEAL KIT NUMBER: SKN-1228 for buna "N".

SKV-1228 for viton.

WEIGHT: 2.65 lbs [1,21 kg] Aluminum. 5.25 lbs [2,38] Steel.

VALVE CAVITY: #C1225, See Page 0-023.0.

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