



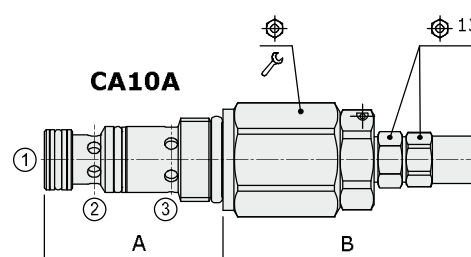
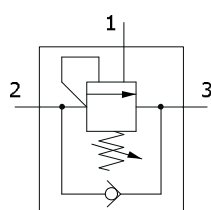
CA..A type counterbalance valves - 3 ways

- For open center
- Line mounting
- From SAE10 to SAE16 cavities

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

		CA10A	CA12A	CA16A
Nominal flow		30 l/min (7.9 US gpm)	60 l/min (16 US gpm)	90 l/min (23.8 US gpm)
Max. pressure		350 bar (5100 psi)		
Oil leakage	80% of max. pressure setting	0.25 cm³/min (0.015 in³/min)	0.25 cm³/min (0.015 in³/min)	0.25 cm³/min (0.015 in³/min)
Fluid		mineral based oil		
Viscosity		10-200 cSt		
Max level of contamination		20/18/14 ISO4406		
Fluid temperature	with NBR seals with FPM seals	from -20°C (-4°F) to 80°C (176°F) from -20°C (-4°F) to 100°C (212°F)		
Environmental temp. for working conditions		from -20°C (-4°F) to 50°C (122°F)		
Cavity		SAE 10/3	SAE 12/3	SAE 16/3
Weight		0.280 kg (0.62 lb)	0.280 kg (0.62 lb)	0.670 kg (1.48 lb)

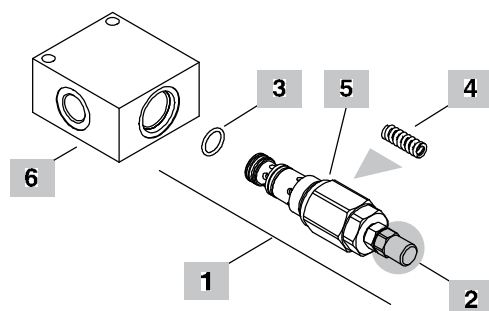
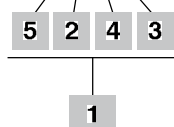
NOTE - For different conditions, please contact Walvoil Sales Dpt.



Valve type	A		B				Nm	lbf·ft
	mm	in	mm	in				
CA10A/	4S	47.2	1.86	68.5	2.70	27	50	37
	4W	47.2	1.86	68.5	2.70	27	50	37
CA12A/	4S	73.5	2.89	62.5	2.46	32	80	59
	4W	73.5	2.89	62.5	2.46	32	80	59
CA16A/	4S	75	2.95	69.9	2.74	41	100	74
	4W	75	2.95	69.9	2.74	41	100	74

Ordering codes and description composition

CA10A/4S2B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/3		
CA10A/4S2B	OCA10002007	Screw type adjustment, pilot ratio 1:4 pressure range 2
SAE cavity 12/3		
CA12A/4S2B	OCA12002000	Screw type adjustment, pilot ratio 1:4 pressure range 2
SAE cavity 16/3		
CA16A/4S2B	OCA16002001	Screw type adjustment, pilot ratio 1:4 pressure range 2

2 Adjustments

TYPE	DESCRIPTION
S	Screw
W	Copped adjustment

3 Seals

TYPE	DESCRIPTION
B	NBR (Buna) Std configuration without addition
V	For valve with FPM (Viton) o-ring seals, contact Sales Dept.

3 Pressure range

Standard setting is referred to 5 l/min (1.32 US gpm) flow

TYPE	CODE	DESCRIPTION
For CA10A valve		
1	3ML1092502	Setting range 50-220 bar (725-3200 psi)
2	3ML1092300	Setting range 180-350 bar (2600-5100 psi)
3	3ML1002800	Setting range 300-700 bar (4350-10150 psi)

For CA12A valve

1	3ML1133201	Setting range 50-220 bar (725-3200 psi)
2	3ML1133200	Setting range 180-350 bar (2600-5100 psi)
3	3ML1133500	Setting range 300-700 bar (4350-10150 psi)

For CA16A valve

1	3ML1164000	Setting range 50-220 bar (725-3200 psi)
2	3ML1164001	Setting range 180-350 bar (2600-5100 psi)
3	3ML1164002	Setting range 300-700 bar (4350-10150 psi)

5 Pilot ratio

TYPE	DESCRIPTION
4	1:4

6 Valve body

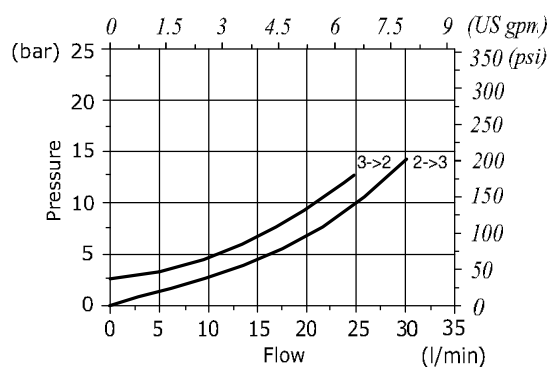
TYPE	CODE	DESCRIPTION
SAE 10/3-G 3/8	3CC1030C11	Aluminium body for cavity 10, valve G3/8 std thread
SAE 12/3-G 1/2	3CC1230D11	Aluminium body for cavity 12 valve, G1/2 std thread
SAE 16/3-G 3/4	3CC1630E11	Aluminium body for cavity 16 valve, G3/4 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)

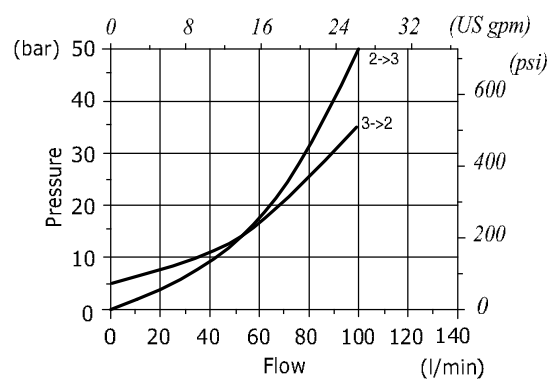
For steel bodies or different threading see from page 215

Rating diagrams

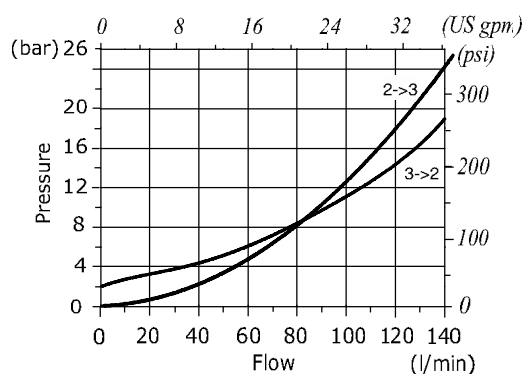
CA10A pressure drop vs flow



CA12A pressure drop vs flow



CA16A pressure drop vs flow





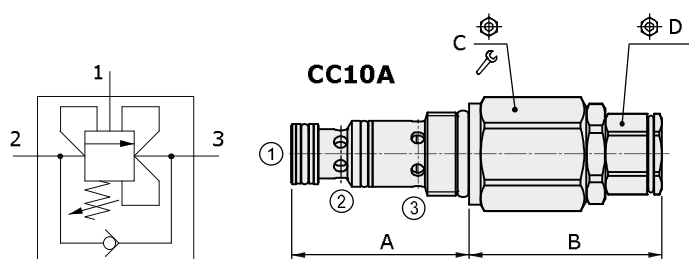
CC..A type counterbalance valves - 3 ways

- For closed center
- Line mounting
- Non affected by back pressure
- From SAE10 to SAE20 cavities

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

		CC10A	CC12A	CC16A	CC20A
Nominal flow		30 l/min (7.9 US gpm)	60 l/min (16 US gpm)	90 l/min (24 US gpm)	150 l/min (39.6 US gpm)
Max. pressure		350 bar (5100 psi)			
Oil leakage	80% of max. pressure setting	0.25 cm ³ /min (0.015 in ³ /min)	0.25 cm ³ /min (0.015 in ³ /min)	0.25 cm ³ /min (0.015 in ³ /min)	0.25 cm ³ /min (0.015 in ³ /min)
Fluid		mineral based oil			
Viscosity		10-200 cSt			
Max level of contamination		20/18/14 ISO4406			
Fluid temperature	with NBR seals with FPM seals	from -20°C (-4°F) to 80°C (176°F) from -20°C (-4°F) to 100°C (212°F)			
Environmental temp. for working conditions		from -20°C (-4°F) to 50°C (122°F)			
Cavity		SAE 10/3	SAE 12/3	SAE 16/3	SAE 20/3
Weight		0.280 kg (0.62 lb)	0.380 kg (0.84 lb)	0.720 kg (1.59 lb)	1.200 kg (2.64 lb)

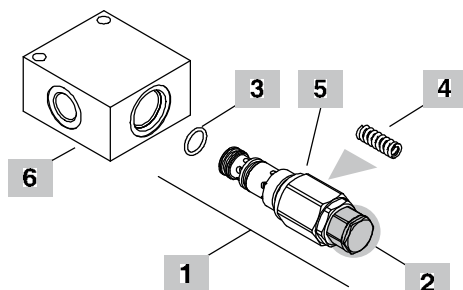
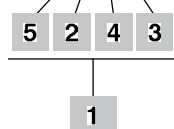
NOTE - For different conditions, please contact Walvoil Sales Dpt.



Valve type		A		B		C		D	
		mm	in	mm	in	mm	in	mm	in
CC10A/	4S	47.2	1.86	51	2.01	27	50	37	19
	W	47.2	1.86	51	2.01	27	50	37	19
CC12A/	4S	73.5	2.89	60	2.36	32	80	59	24
	4W	73.5	2.89	60	2.36	32	80	59	24
CC16A/	4S	75	2.95	69	2.72	41	100	74	27
	4W	75	2.95	69	2.72	41	100	74	27
CC20A/	4S	99.5	3.92	83.5	3.29	46	100	74	36
	4W	99.5	3.92	83.5	3.29	46	100	74	36

Ordering codes and description composition

CC10A/4S2B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/3		
CC10A/4S2B	OCC10002001	Screw type adjustment, pilot ratio 1:4 pressure range 2
SAE cavity 12/3		
CC12A/4S2B	OCC12002000	Screw type adjustment, pilot ratio 1:4 pressure range 2
SAE cavity 16/3		
CC16A/4S2B	OCC16002001	Screw type adjustment, pilot ratio 1:4 pressure range 2
SAE cavity 20/3		
CC20A/4S0B	OCC20002001	Screw type adjustment. Setting range 20-85 bar (290-1230 psi) and standard setting 50 bar (725) at 5 l/min (1.3 US gpm)
CC20A/4S1B	OCC20002000	Screw type adjustment. Pilot ratio 1:4 Setting range 50-220 bar (725-3200 psi) and standard setting 150 bar (2170) at 5 l/min (1.3 US gpm)
CC20A/4S2B	OCC20002002	Screw type adjustment. Pilot ratio 1:4 Setting range 100-300 bar (1450-4350 psi) and std. setting 150 bar (2170) at 5 l/min (1.3 US gpm)

2 Adjustments

TYPE	DESCRIPTION
S	Screw
W	Copped adjustment

3 Seals

TYPE	DESCRIPTION
B	NBR (Buna) Std configuration without addition
V	For valve with FPM (Viton) o-ring seals, contact Sales Dept.

4 Pressure setting springs

Standard setting is referred to 5 l/min (1.32 US gpm) flow

TYPE	CODE	DESCRIPTION
For CC10A valve		
1	3ML1092502	Setting range 50-220 bar (725-3200 psi)
2	3ML1092300	Setting range 180-350 bar (2600-5100 psi)
3	3ML1002800	Setting range 300-700 bar (4350-10150 psi)
For CC12A valve		
1	3ML1133201	Setting range 50-220 bar (725-3200 psi)
2	3ML1133200	Setting range 180-350 bar (2600-5100 psi)
3	3ML1133500	Setting range 300-700 bar (4350-10150 psi)
For CC16A valve		
1	3ML1164000	Setting range 50-220 bar (725-3200 psi)
2	3ML1164001	Setting range 180-350 bar (2600-5100 psi)
3	3ML1164002	Setting range 300-700 bar (4350-10150 psi)

5 Pilot ratio

TYPE	DESCRIPTION
4	1:4

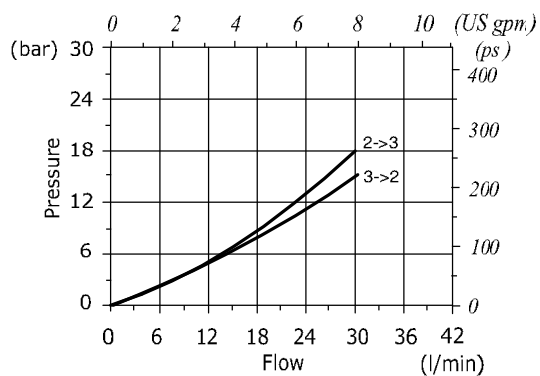
6 Valve body

TYPE	CODE	DESCRIPTION
SAE 10/3-G 3/8	3CC1030C11	Aluminium body for cavity 10 valve, G3/8 std thread
SAE 12/3-G 1/2	3CC1230D11	Aluminium body for cavity 12 valve, G1/2 std thread
SAE 16/3-G 3/4	3CC1630E11	Aluminium body for cavity 16 valve, G3/4 std thread
SAE 20/3-G 1	3CC2030F21	Steel body for cavity 20 valve, G1 std thread

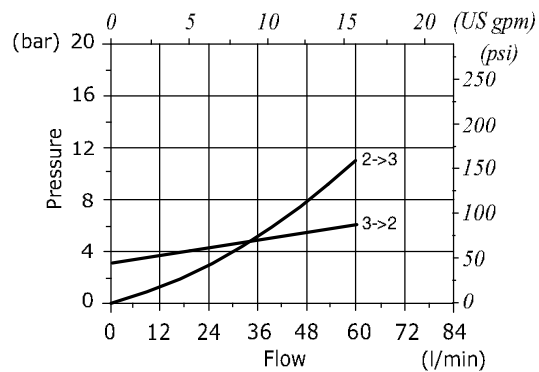
Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

Rating diagrams

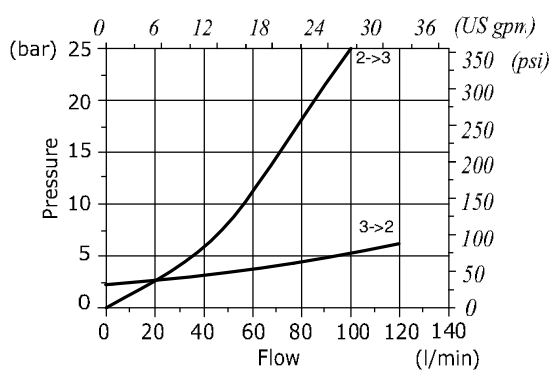
CC10A pressure drop vs flow



CC12A pressure drop vs flow



CC16A pressure drop vs flow



CC20A pressure drop vs flow

