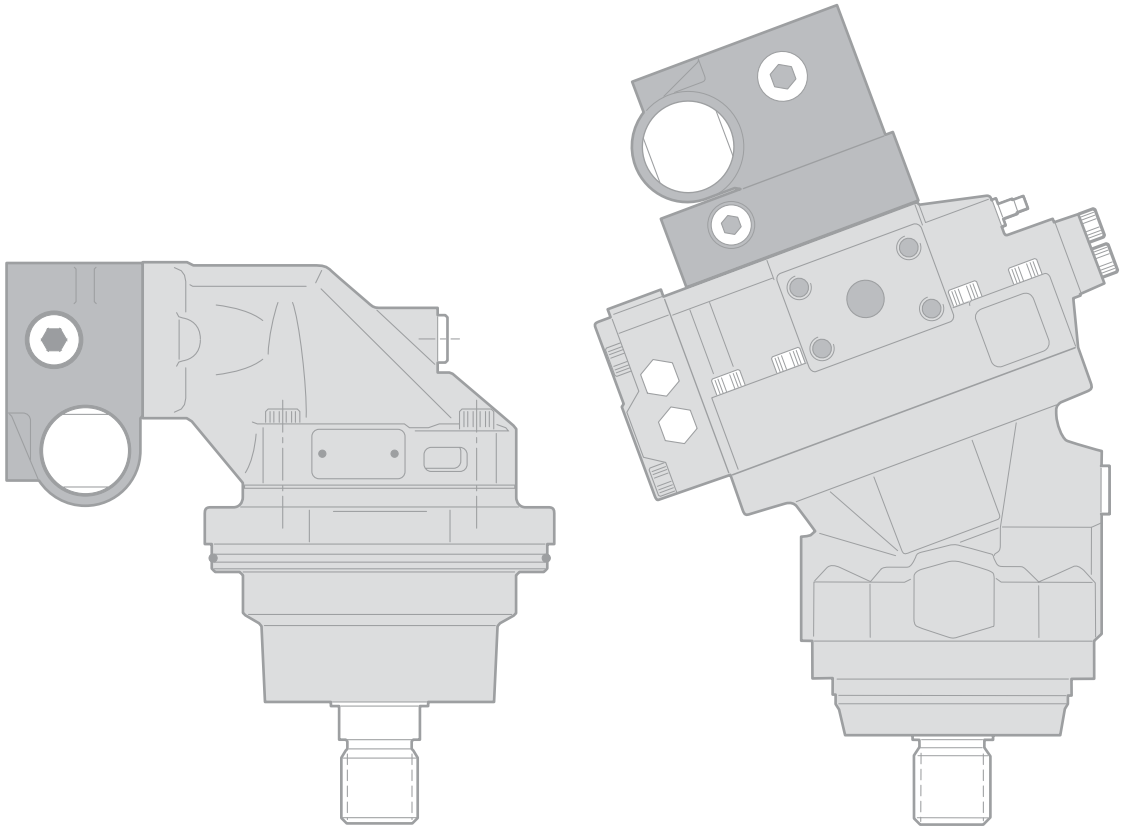
Mobile motor/pump accessories

Catalogue HY17- 8258/UK
November 2004



General information

- The BW2/SX2 brake/relief valve consists of two separate valve blocks, one containing the brake valve and the other pressure relief valves.
- The BW2 valve provides smooth braking on all V12 wheel driven vehicles and reduces the risk of motor cavitation when braking or coasting. Cavitation occurs when the speed of the motor corresponds to a higher flow than available. This, in turn, may lead to complete loss of hydraulic braking torque and motor deterioration.
- The BW2 also contains a brake defeat function, consisting of a shuttle valve. This function prevents the V12 motor from increasing its displacement when the vehicle is going downhill. Without this function, too hard braking and engine over-speed could be experienced.
- The brake valve spool is controlled by the differential pressure (supply pressure less return pressure). When the differential pressure drops below 35 bar the valve spool begins to close. This leads to pressure build-up on the return side of the motor, which in turn produces a braking torque.
- The BW2 brake valve makes sure the speed of the motor is in balance with the supplied flow. The valve characteristic and the residual area ensures smooth braking of the vehicle.

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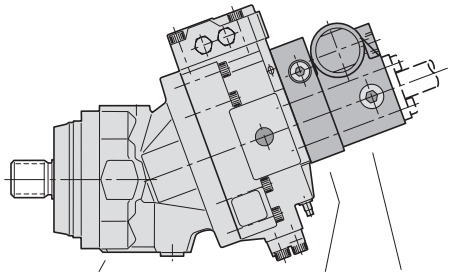

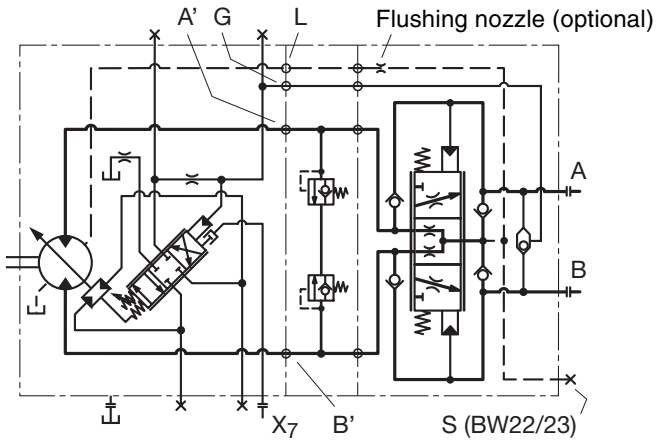

Hydraulic schematic (V12 with AH control).

BW2/SX2 ordering code

Example: **BW 2 1 - 15 15 - G L V5 - A N / SX 2 1 - 350/350 - G L - N**

Valve function
BW Brake valve (for wheel drives)

Version
2 Issued by VOAC

Main ports (SAE 6000 psi)
1 $^3/_4$" (for V12-60 and -80)
2 1" (for V12-110)
3 1" (for V12-160)

Spool configuration
15 Standard

Valve damping
15 Standard

Optional functions
G Brake defeat valve
L Flushing valve (and two digits for orifice size)
V5 Check valve (5 bar spring)

Spring cover location
A At port A (as shown on pages 3 and 4)
B At port B

Seals
N Nitrile
V FPM (optional)

Seals
N Nitrile
V Viton (optional)

Ports
G Brake defeat
L Flushing (optional)

Pressure settings (A/B ports) [bar]
280, 300, 350, 380, 400 or **420**

Main ports (SAE 6000 psi)
1 $^3/_4$" (V12-60/-80)
2 1" (V12-110)
3 $1^1/_4$" (V12-160)

Version
2 Issued by Mobile Controls Div.

Valve function
SX Relief valve

NOTE:
- The V12 motor must be ordered with a special end cap designated **TX** (e. g. V12-110-**TX**-IH-C- ... -AH).
- Each valve block has its own name plate with the corresponding ordering code.

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Additional protection against cavitation can be obtained by pressurizing port S on the BW2 valve block (refer to the schematic on page 1).

The pressure reliefs in the SX2 valve block protect the V12 motor against pressure peaks and provides sufficient braking torque to stop the vehicle in a steep downhill, should the need arise.

NOTE: Before designing a system with the BW2/SX2 brake/relief valve, Parker Hydraulics (Mobile Controls Div.) should be consulted.

BW 2 characteristics

The upper three diagrams to the right show the pressure drop, motor to return line (refer to the schematic on page 1), for the BW2 frame sizes when the brake valve is completely open.

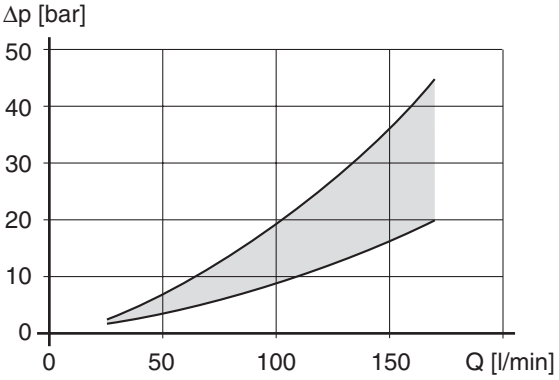
To keep the brake valve completely open, the pressure differential between ports A and B must be at least 35 bar *(500 psi)*.

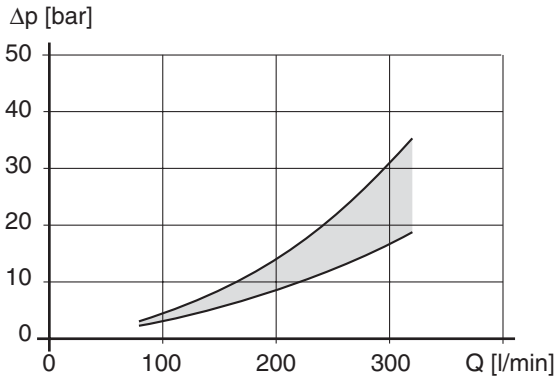
If this differential tends to decrease, i.e. when the vehicle is going downhill or when the driver decides to decrease the speed, the valve closes sufficiently to maintain or slow down the speed, and the Ðp will be higher than what is shown in the diagrams.

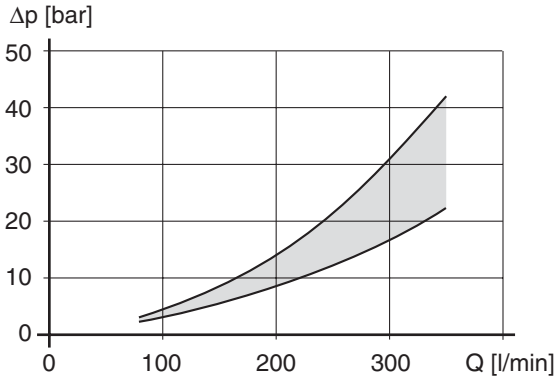
To give the vehicle the desired braking performance, Parker Hydraulics (Mobile Controls Div.) will assist in optimizing the brake valve characteric (within the shaded areas shown) as well as giving the valve a suitable response time for a forceful but smooth vehicle braking.

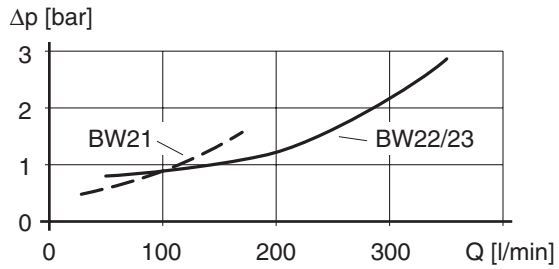
The check valve characteristics of the BW2 are shown in the bottom diagram.

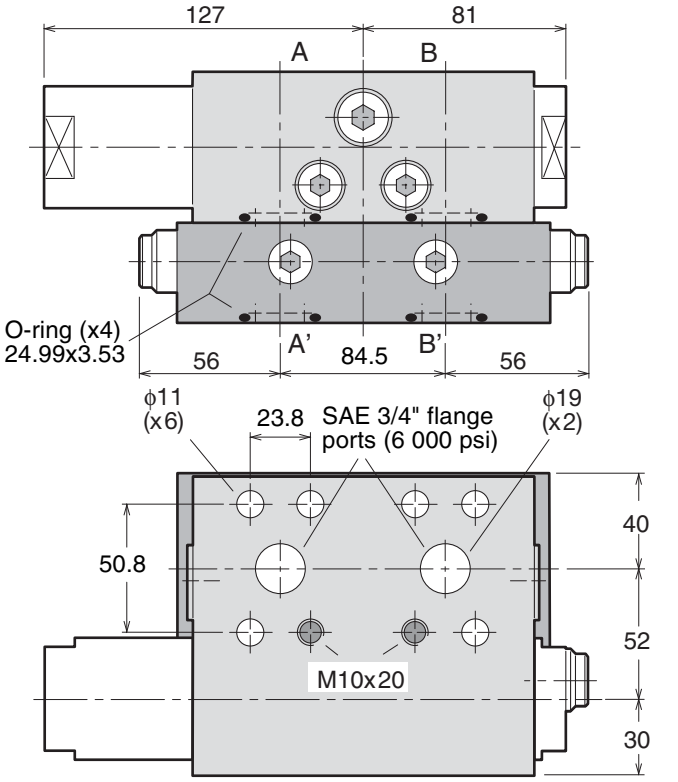
IMPORTANT
The vehicle must be provided with a mechanical braking system which is independent of the **open loop type** hydrostatic transmission.

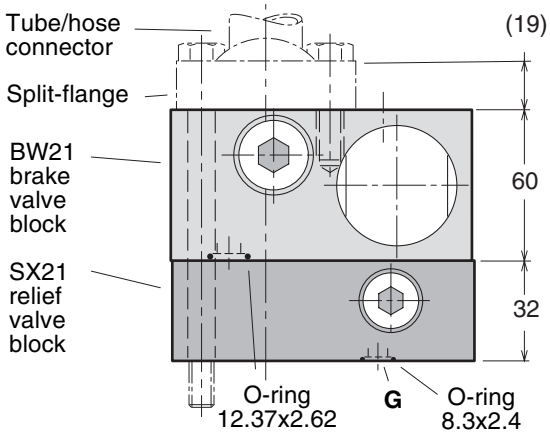








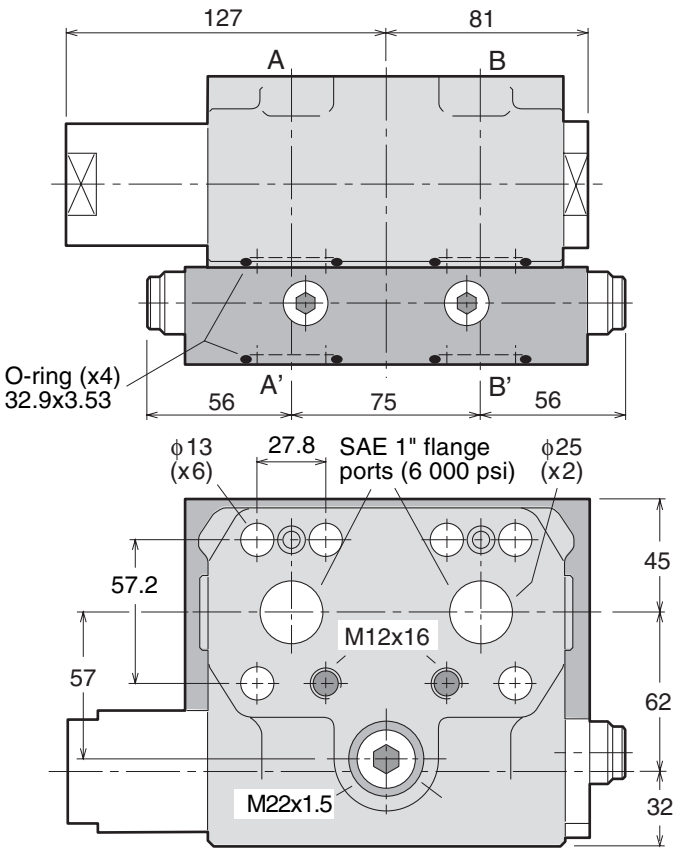


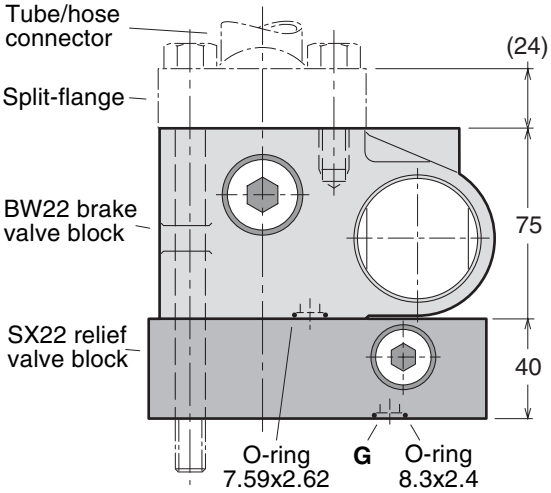


Installation information

1) The BW21/SX21 brake/relief valve blocks sandwich mount between the split-flange tube/hose connections and the V12-060/-080 motor utilizing six M10x140 and two M10x40 screws (with 19 mm spli-flanges).
   O-rings are provided (but no screws, split-flanges or tube/hose connectors).
   Make sure port G connects with the corresponding port on the motor end cap.
2) When factory mounted, the BW21/SX21 brake/relief valve blocks are attached to the V12-060/-080 motor with two M10x110 screws.

BW22/SX22 installation





Installation information

1) The BW22/SX22 brake/relief valve blocks sandwich mount between the split-flange tube/hose connections and the V12-110 motor utilizing six M12x160 and two M12x40 screws (with 24 mm split-flanges).
   O-rings are provided (but no screws, split-flanges or tube/hose connectors).
   Make sure port G connects with the corresponding port on the motor end cap.
2) When factory mounted, the BW22/SX22 brake/relief valve blocks are attached to the V12-110 motor with two M12x130 screws.

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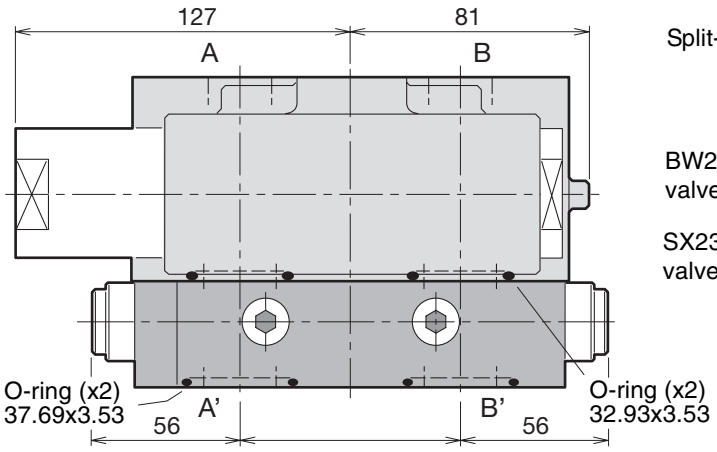

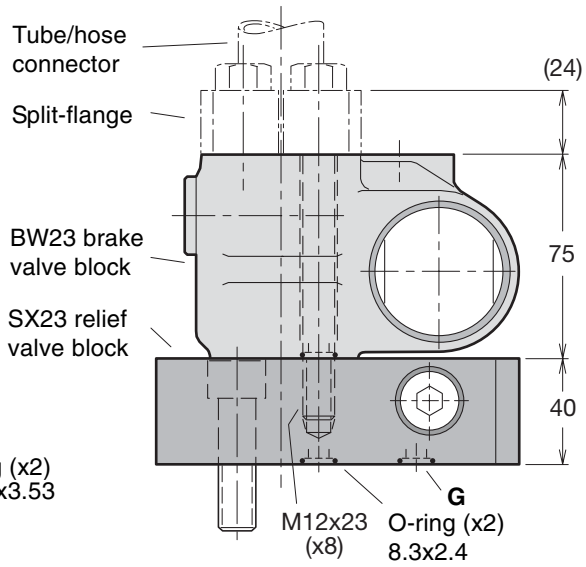

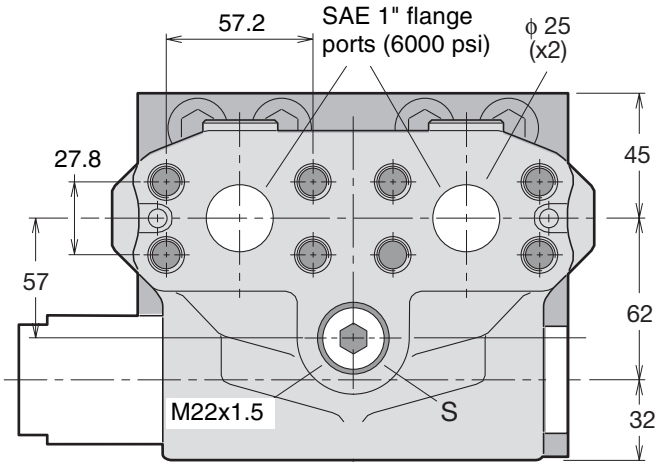

Installation information

1) Install the relief valve block on the V12-160 motor; M14x50 mounting screws and O-rings are included. Make sure port G connects with the corresponding port on the motor end cap.
2) The brake valve block sandwich mounts between the split-flange tube/hose connections and the relief valve block utilizing eight M12x120 screws (with 24 mm split-flanges).

   O-rings are provided (but no screws, split-flanges or tube/hose connectors).
3) When factory mounted on the V12-160 motor, the BW23 brake valve block is attached to the SX23 relief valve block with two M12x90 screws.