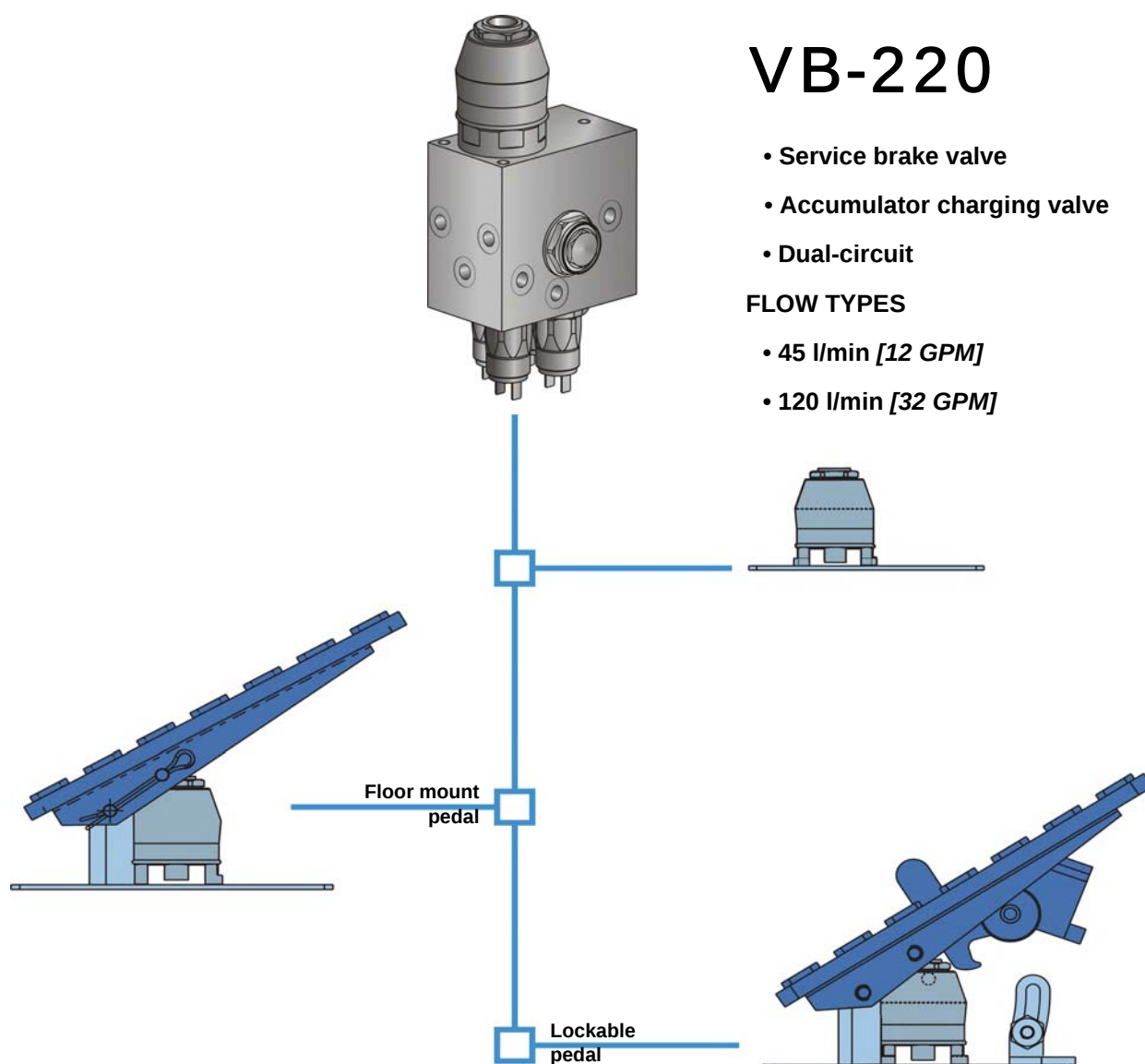


VB-220

- Service brake valve
- Accumulator charging valve
- Dual-circuit

FLOW TYPES

- 45 l/min [12 GPM]
- 120 l/min [32 GPM]

Emergency /
Parking brakeService
brakeService brake
+ inchingSteering
assist brakeAccumulator
chargingFull power
brake

Relay Valve

Options

Installation

Applications

VB-220 service brake valve is a mechanically-controlled, three way, graduated release dual pressure reducing valve. The Poclain Hydraulics VB-220 braking assembly contains the following components in a single manifold:

- A dual-circuit accumulator charging valve,
- A mechanically controlled dual-circuit service brake valve,
- Two isolating valves for the braking circuits.

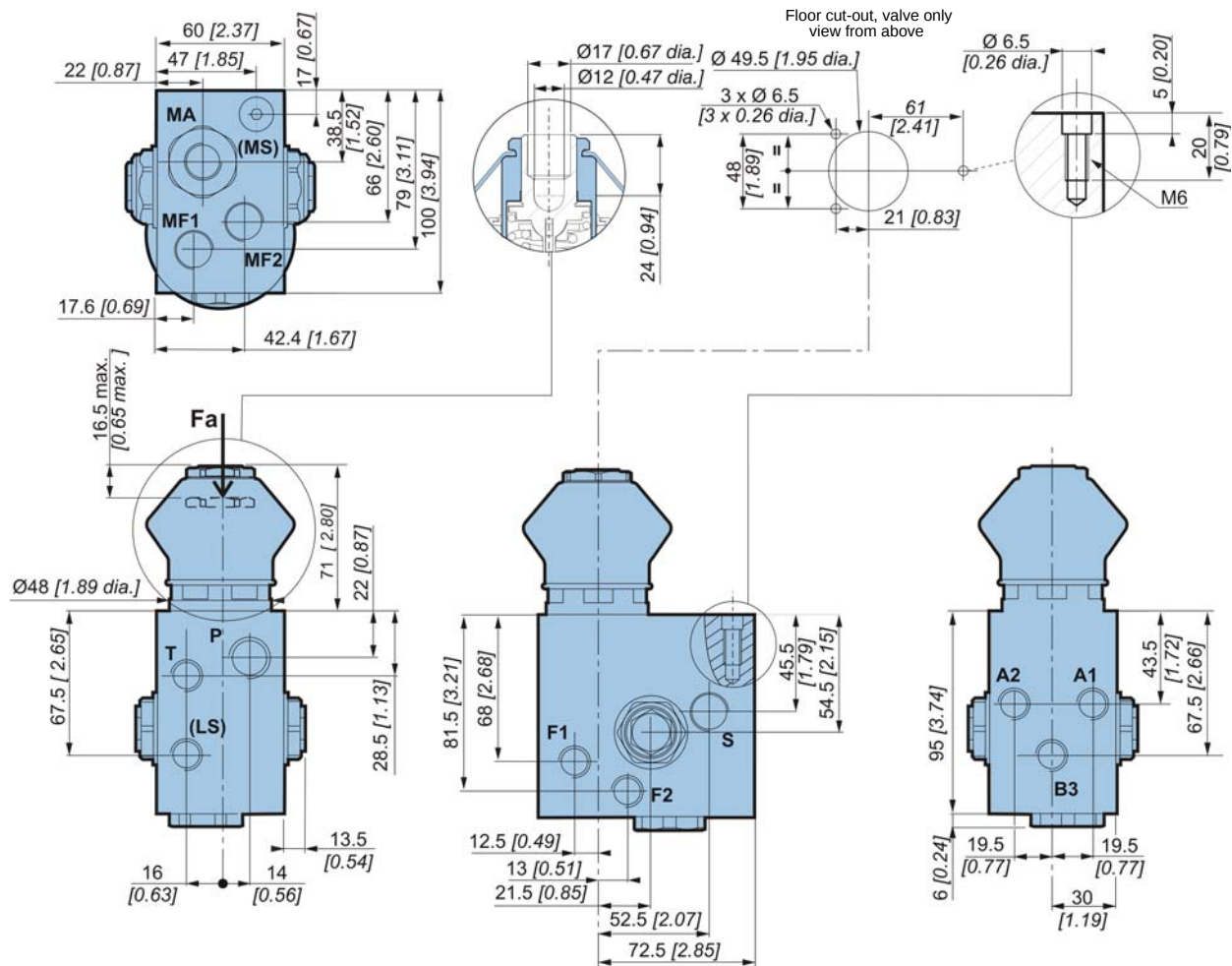
The output pressures (at F1 and F2), for the braking circuits, can be equal or different according to a ratio $F2/F1 = 0.64$ (VB-2E0) or 0.44 (VB-2F0).

The incorporation of these functions in a compact unit reduces the risk of leaks and makes the overall size more compact.

Operation

During the accumulator charging phase, the built-in divider taps a constant flow from the valve supply flow and diverts it to the accumulator. When the accumulator reaches maximum (cut-out) pressure, charging stops, and the entire supply flow is directed to output S (auxiliary circuit or tank return).

When the operator actuates the pedal, the pressure in the accumulator drops. When minimum (cut-in) pressure is reached, the valve recharges the accumulator to cut-out pressure. It is used for the precision dosing of the output pressures (at F1 and F2) proportionally to the angular displacement of the pedal, and therefore to the force applied to the pedal. This provides a feeling of braking. When the pedal is at rest ('up' position), the output pressures (at F1 and F2) are zero and the brake receptors are connected to the tank (F1 and F2 to T). When the pedal is depressed, the output pressures (at F1 and F2) increase proportionally to the angular displacement of the pedal. When the pedal is fully depressed, the output pressures (at F1 and F2) are limited to the preset pressure of the valve irrespective of the supply pressure. When a failure occurs in one of the braking circuits, the other circuit is immediately isolated by its safety valve. The circuit that remains operative can then be used as an emergency brake thanks to the energy stored in its accumulator.

overall dimensions of VB-220 (45l/min) brake valve**Connections**

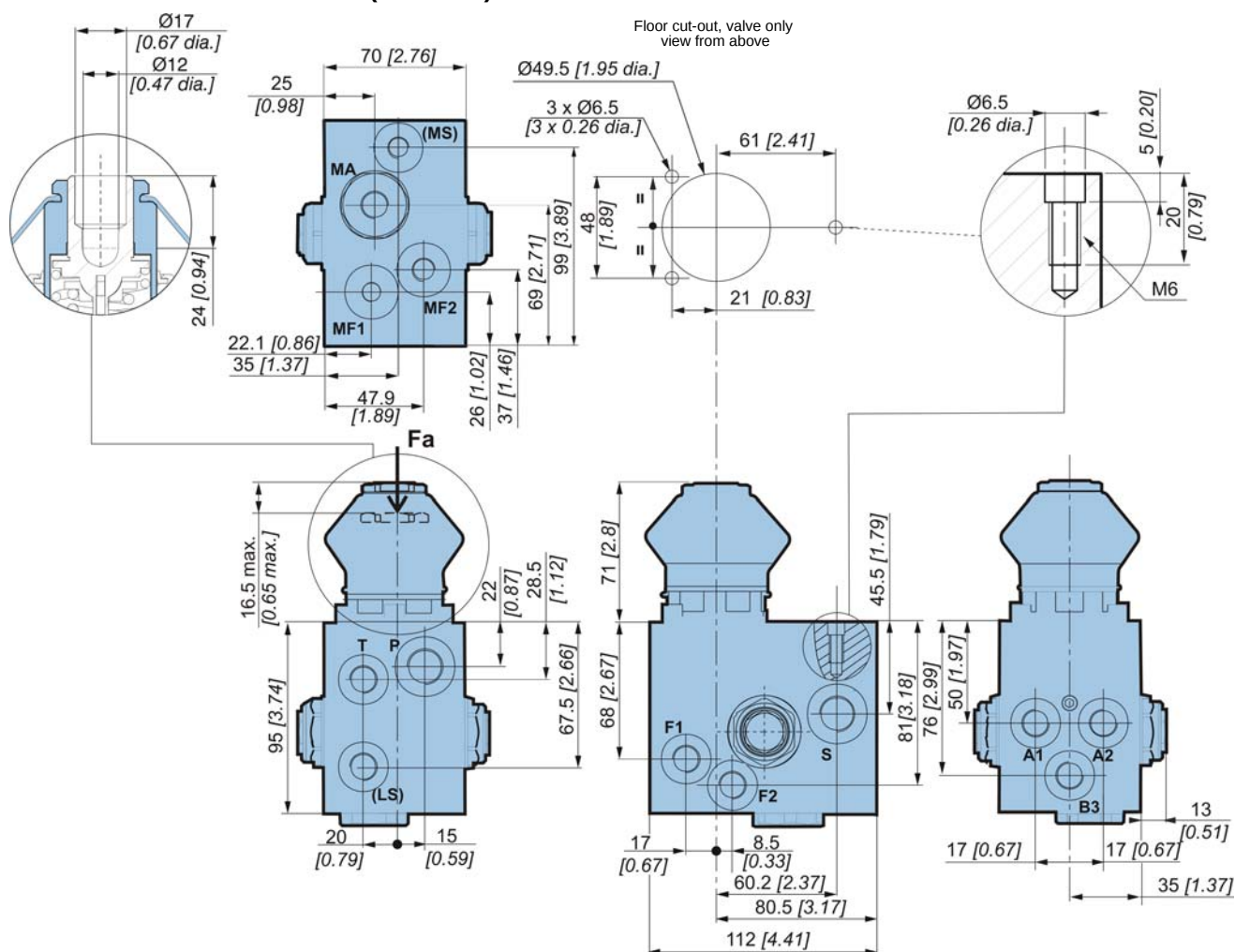
Port	Max. pressure bar [PSI]	Connection		Function	 kg [lbs]	Loss of head (P to S) bar [PSI]
		VB-220 (45l/min)	VB-220 (120 l/min)			
P	250 [3 626]	M18x1.5	M18x1.5 3/4-16 UNF-2B	Input	VB-110 (45l/min) 4,7 [10.3]	VB-110 (45 l/min) 10 [145] at Q=30l/min [8 GPM]
S	Cut-out pressure			Auxiliary circuit		
T	1 [14.5]	M14x1.5	M14x1.5 9/16-18 UNF-2B	Tank		
F1 - F2	120 [1 740] *			Service braking		
A1 - A2	Cut-out pressure **			Service braking accumulator		
B3				Parking brake connection		
MA		1/4 BSPP	1/4 BSPP	Accumulator min. pressure switch	VB-110 (120l/min) 6 [13.2]	VB-110 (120 l/min) 4 [58] at Q=60l/min [16 GPM]
MF1		M10x1	M10x1 (VB-220) M12x1 (VB-2E0) M14x1 (VB-2F0)	Service pressure switch		
MF2						
LS ***		M14x1.5	M14x1.5 9/16-18 UNF-2B	Load sensing		
MS ***		M12x1.5	M12x1.5	MS pressure switch		

* Please consult your Poclain Hydraulics application engineer for higher pressure option.

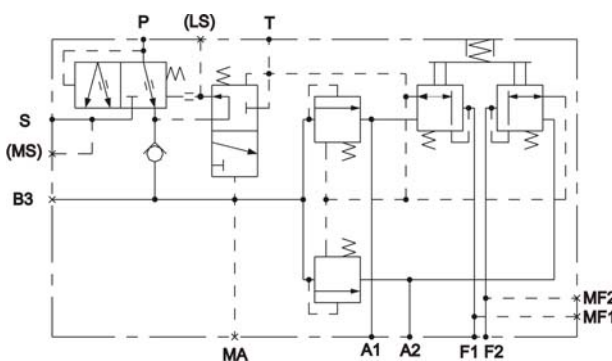
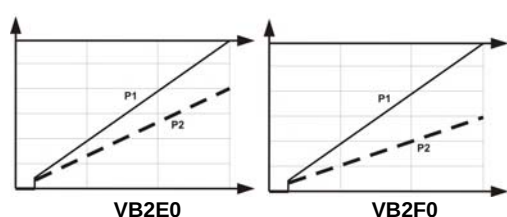
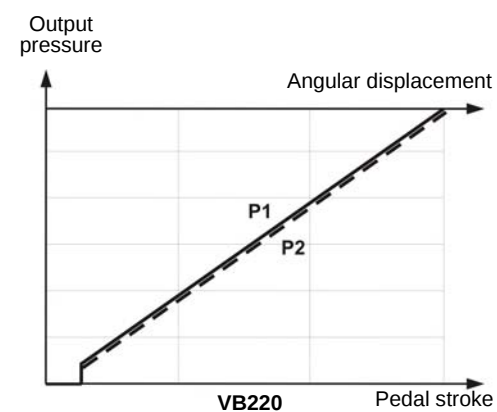
** Or max. allowable pressure for the accumulator.

*** Option

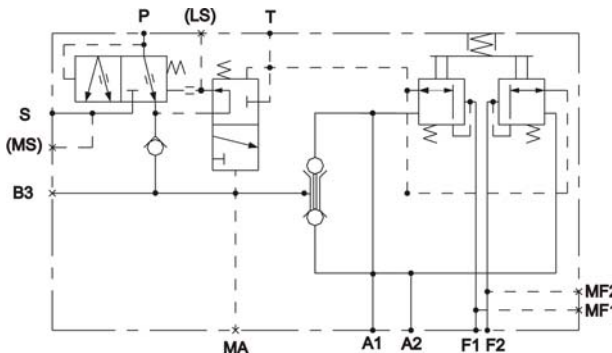
Overall dimensions of VB-220 (120 l/min) brake valve



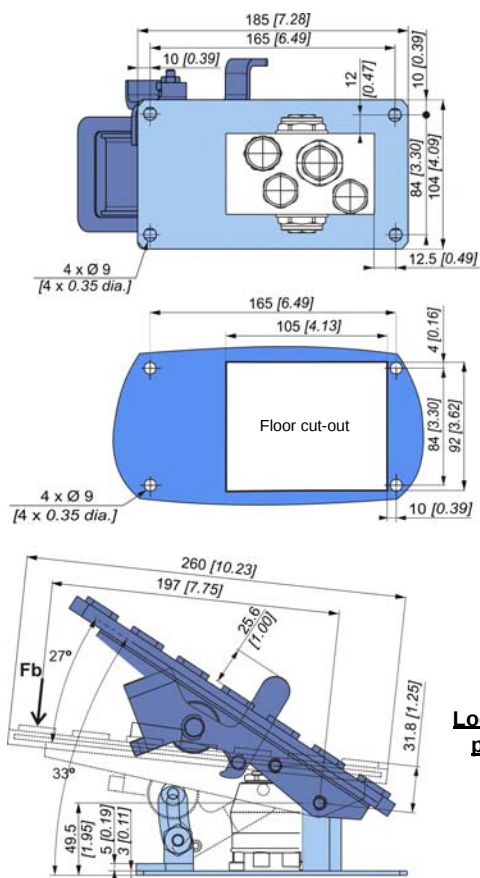
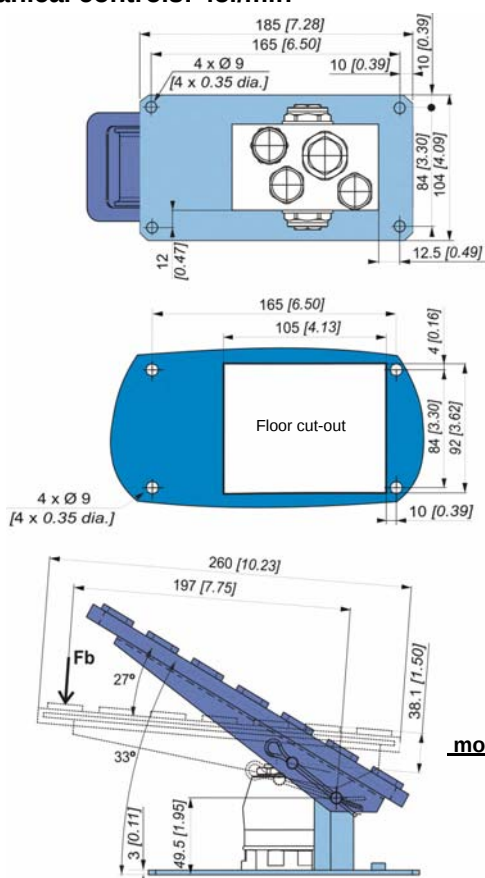
Hydraulic diagram and characteristic curves



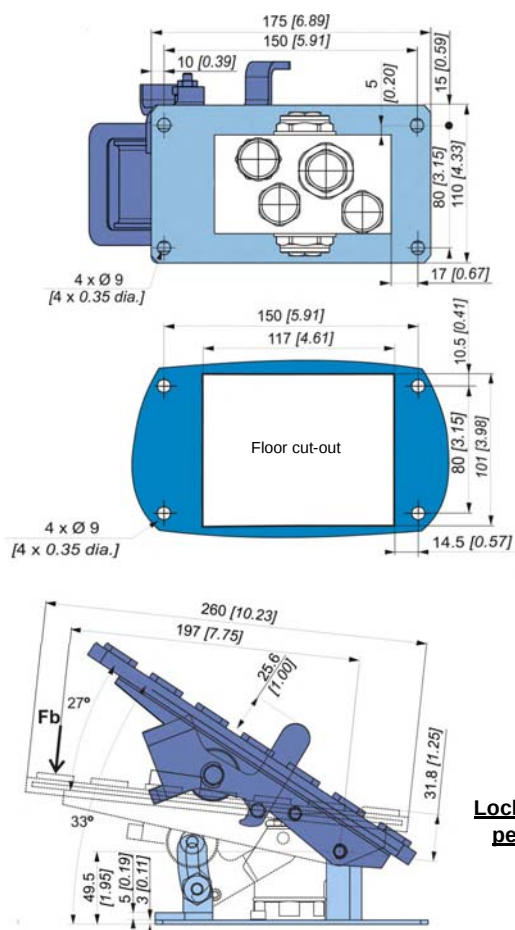
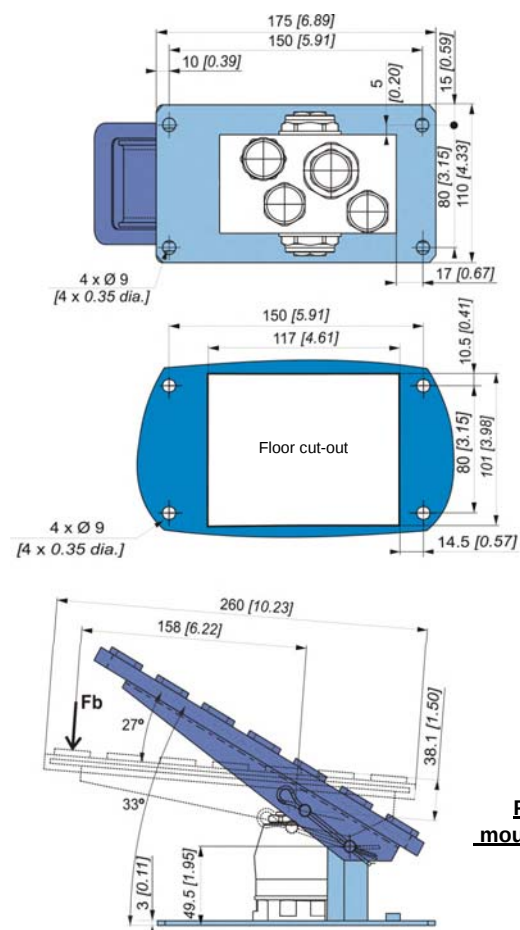
Isolating ball valves



Mechanical controls: 45l/min



Mechanical controls: 120l/min



Estimated max. actuator force as a function of output pressure

- Force on pedal (Fa) : $F_a \text{ (daN)} \approx 0.5 \times \text{max. output pressure (bar)} + 35$
- Force on pedal (Fb) : $F_b \text{ (daN)} \approx F_a/5$

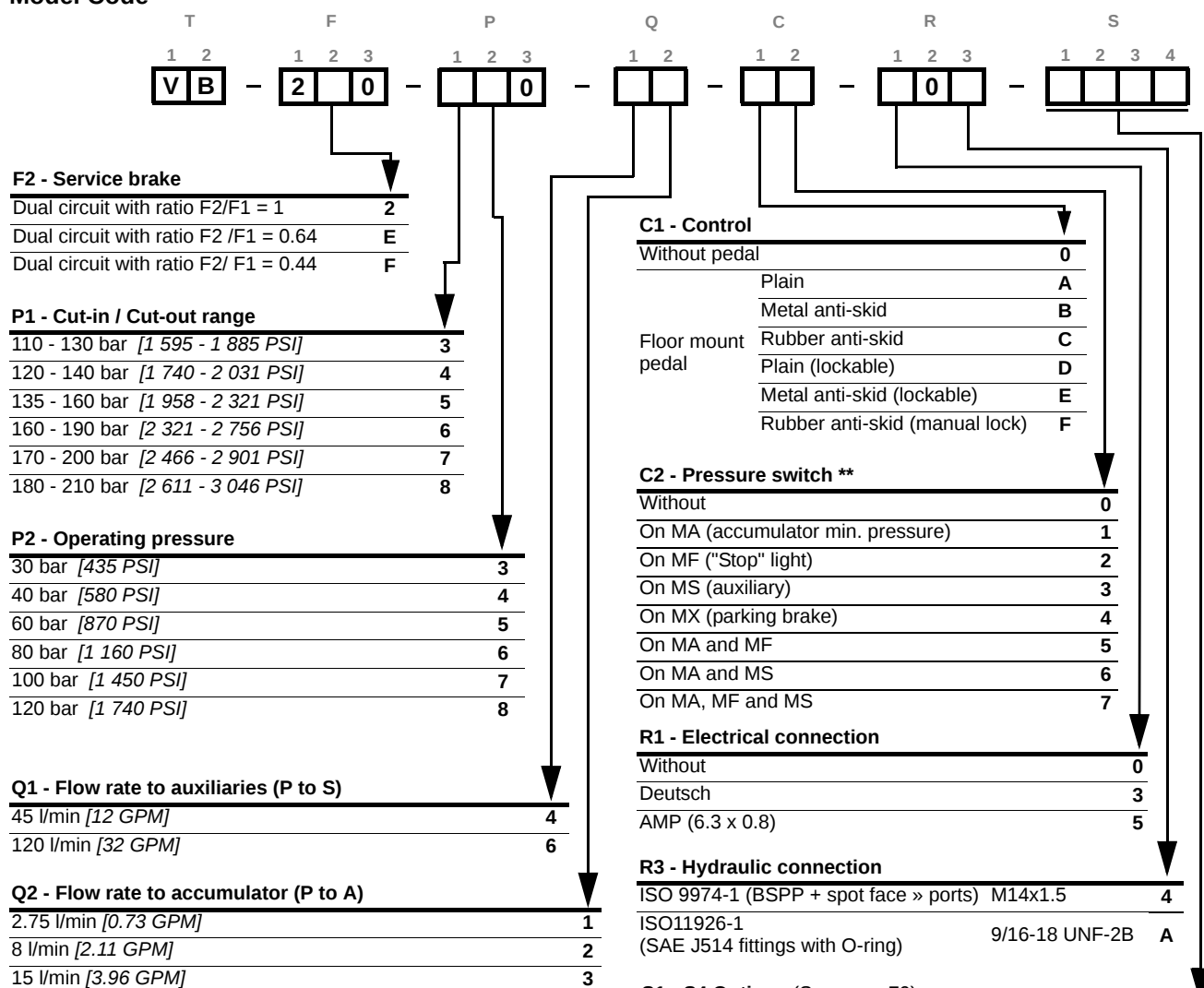


To obtain the forces in lbf, convert the final result.



For information concerning special operating conditions (environment, temperatures, etc.), please contact your Poclain Hydraulics application engineer.

Model Code



For other operating pressures, please consult your Poclain Hydraulics application engineer.

** Limitations

Pressure rise	< 1 bar [14.5 PSI] / ms
Current	min. 100 mA to assure contact
	max. 4 A for Resistor load
Voltage	max. 2,5 A for Inductive load

* Please consult your Poclain Hydraulics application engineer.