Priority Valve MP

- load-independent supply to the priority function
- safe and reliable supply to the priority circuit
- compact design and construction

7 Description

7.1 Brief description

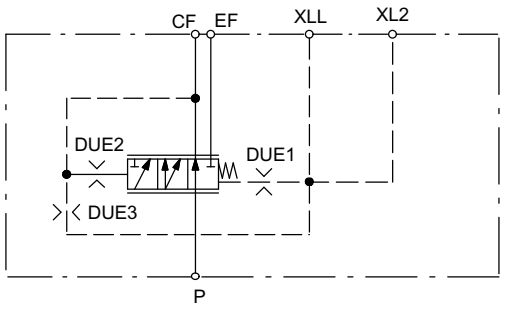
Priority valves are used to provide a hydraulic function in a load sensing system with a priority flow (CF = Control Flow). In principle, they operate like a 3-way flow control valve that always supplies the actuator that has priority with the required flow rate, and passes the remaining flow (EF = Excess Flow) to other actuators. In an under-supply situation (when the flow rate from the pump is less than the priority flow requirement), the actuators without priority are no longer supplied.

The priority valve operates load-independently of the priority pressure and independently of the pressure of the external actuators. The control pressure difference Δp (p_{CF} - p_{XLL}) for the priority function is approx. 12 ... 15 bar.

7.2 Application

- Construction equipment
- Forestry machines
- Agricultural equipment
- for example in hydraulic steering systems

8 Symbols



9 Technical data

General characteristics	Unit	Description, value
Operating pressure	bar	350
Flow rate, max. Q_p	l/min	250
Flow rate, max. Q_{CF}	l/min	70
Flow rate, max. Q_{EF}	l/min	250
Hydraulic fluid temperature range	°C	-20 … +80 (other values on application)
Viscosity range	mm^2/s	15 … 250

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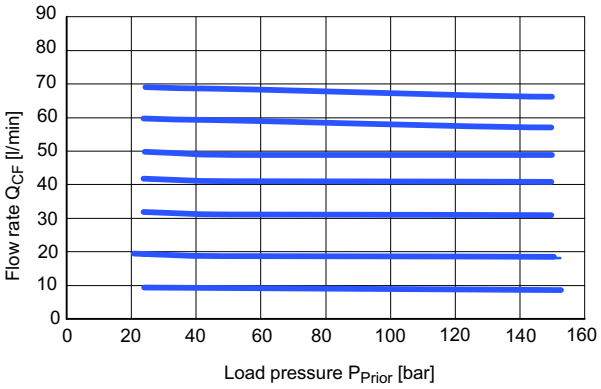
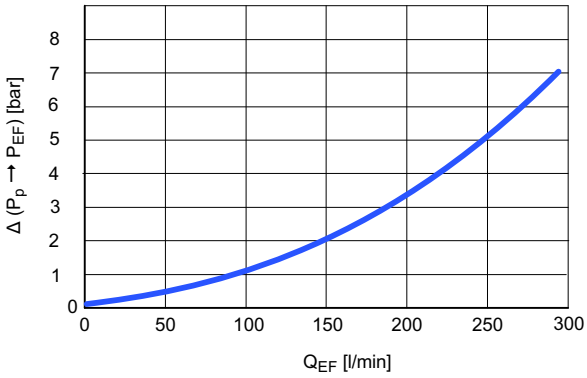
General characteristics	Unit	Description, value
Maximum admissible level of contamination of the hydraulic fluid		ISO 4406 class 20/18/15
Seals		NBR (Nitrile Butadene Rubber)

10 Performance graphs

10.1 Flow control characteristics Priority function

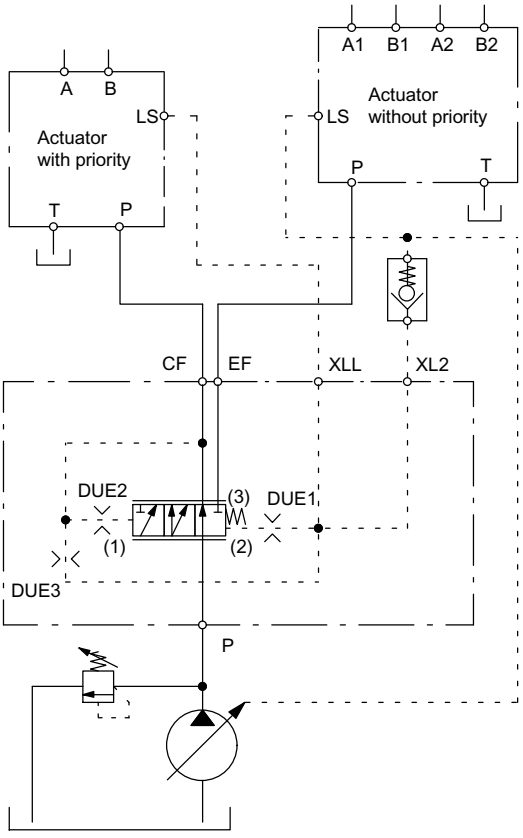


10.2 Flow rate characteristics Excess flow



11 Circuit diagram

11.1 Circuit example



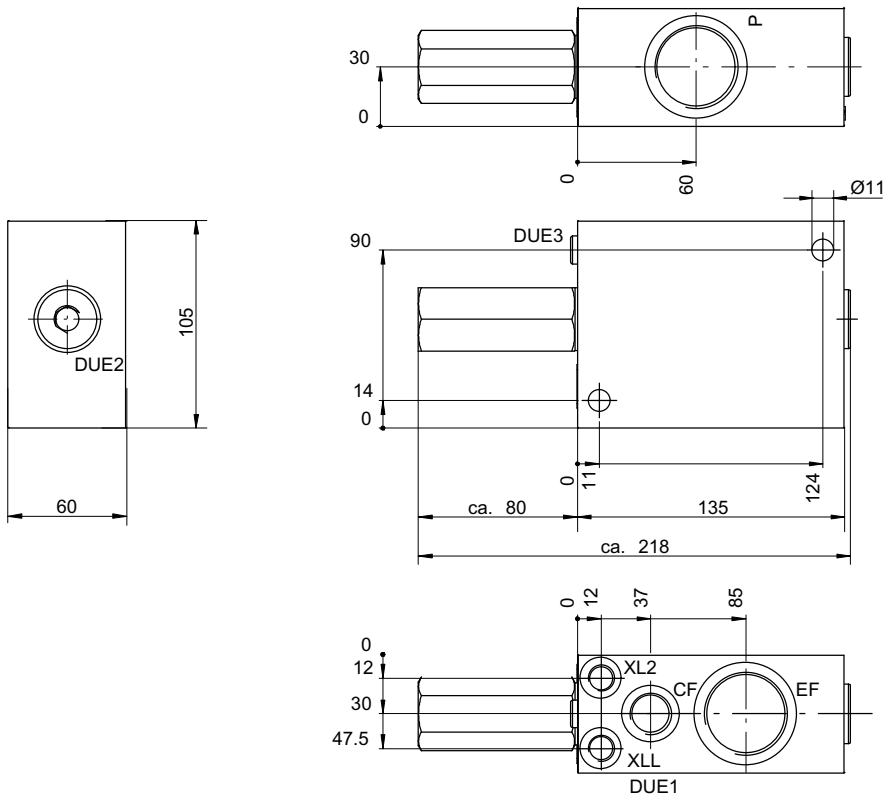
11.2 Function

In the starting condition, the pump flow is supplied to the priority function (flow P -> CF). The pressure p_{CF} at the priority actuator is signalled internally to the priority valve. The control pressure p_{XLL} is fed to the opposite side of the spool (2) and, assisted by a spring (3), pushes against the pressure (1).

If the priority actuator needs less oil than the pump is supplying, the pressure p_{CF} (1) rises. As soon as the force on the spool from CF becomes greater than the sum of the spring force (3) and the load pressure force XLL (2), the spool is actuated and opens the connection from P to EF. The excess oil now flows via port EF to the external actuators.

In the case that the priority function now requires the full flow, the pressure (1) in P falls.
If the sum of the spring force (3) and the load pressure force p_{XLL} (2) on the spool is now greater than the force from PL, the spool is moved back and the oil once again flows to the actuator with priority.

12 Dimensions



Port size	ISO 1179 Part 1
P, EF	G1¼“
CF	G½“
XLL, XL2	G¼“

13 Ordering code

Description	Part number
Priority Valve MP	301RC018040

14 Fluid

Priority valves require fluids with a minimum cleanliness level of ISO 4406 code 20/18/15.
We recommend the use of fluids that contain anti-wear additives for mixed-friction operating conditions. Fluids without appropriate additives can reduce the service life of the valve. The user is responsible for maintaining and regularly checking the fluid quality.

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Classification: 450..