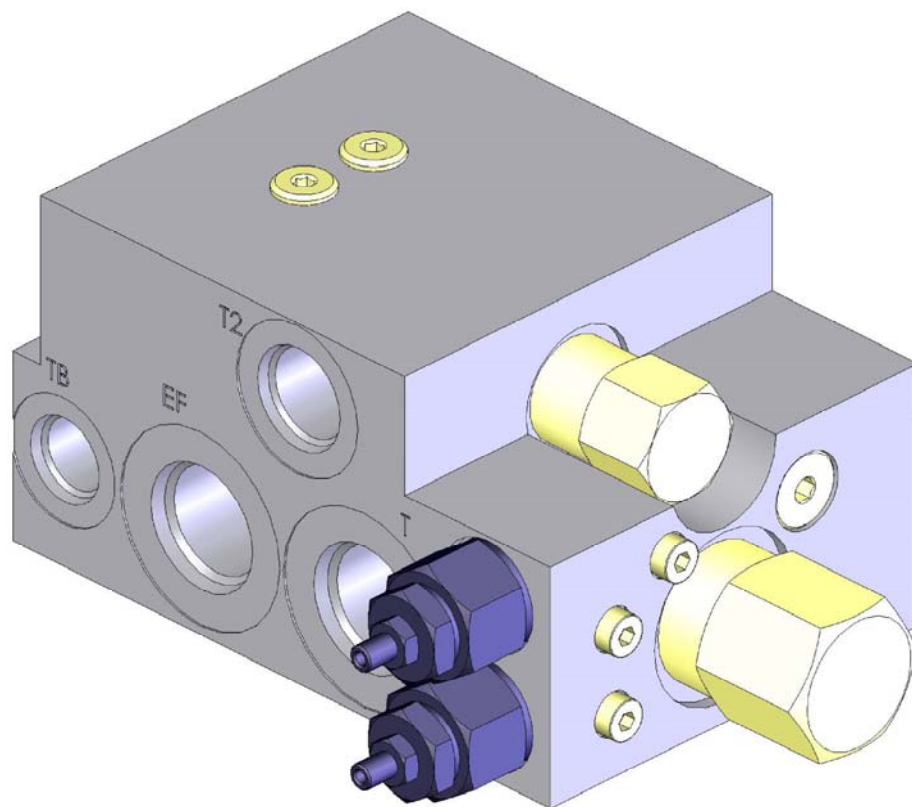


MASTER PRIORITY & TWO-PUMPS-COMBINING VALVE

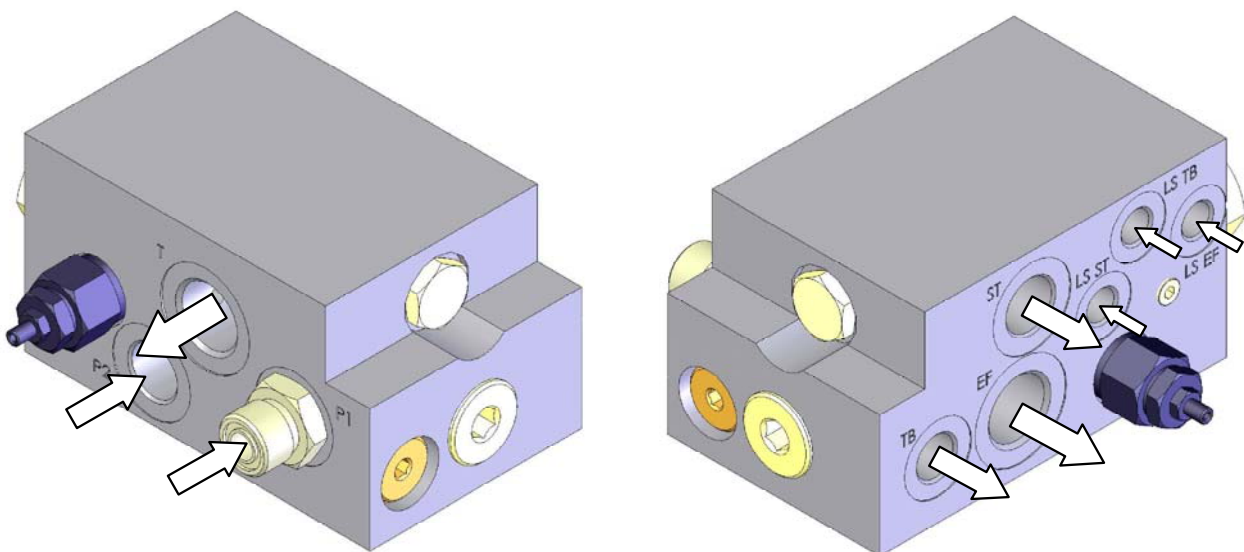


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MASTER PRIORITY & TWO-PUMPS-COMBINING VALVE

FUNCTIONING:

- Two pumps supply oil to the valve.
- Steering unit of load sensing type is fed first through the pressure compensator.
- The TB port is in a priority level respect to the main service (EF), but not in respect to the steering.
- The main service port (EF) is not on a priority level.
- All the valves (ST, TB, EF port) can receive all, or part of, the flow.
- All the valves (ST, TB, EF port) must be of close-center-LS type too.
- The flow not demanded from the combining LS valve is discharged to tank:
- If the first pump flow is enough to feed the service, the second pump is completely freed.
- If no oil is requested by the service the pump 1 is discharged but with a pressure step of 7-10 bar generated by the valve, which is the stand by pressure of the system.



WORKING CONDITIONS:

Inlet flow	160 l/min
Max pressure	280 bar
Master priority working pressure	7-11 bar
Steering compensator working pressure	14-18 bar
Temperature	-20 to 80 °C
Hydraulic fluid	Mineral oil
Viscosity range	10 to 380 mm ² /s
Filtration degree	10 micron / NAS 1638 class 9

MAIN FEATURE

The master priority & two-pumps-combining valve is of a load sensing piloted type.

The outlet flow of the valve will simulate a variable displacement LS pump.

The two-pumps-combining valve is fed by two pumps, pump 1 and pump 2.

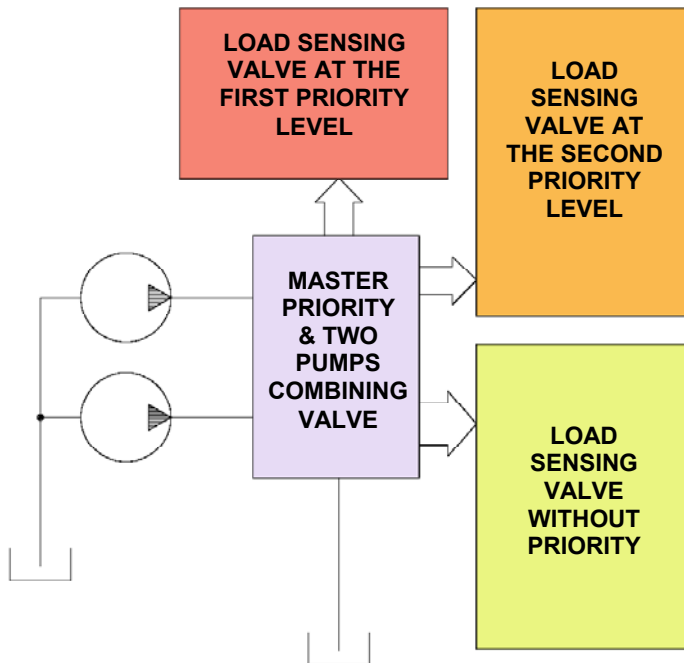
The unloading function is carried out by the valve itself.

If the oil of both pumps is more than abundant for all parallel users, the unloading valve releases part of (or all) the flow of pump 2.

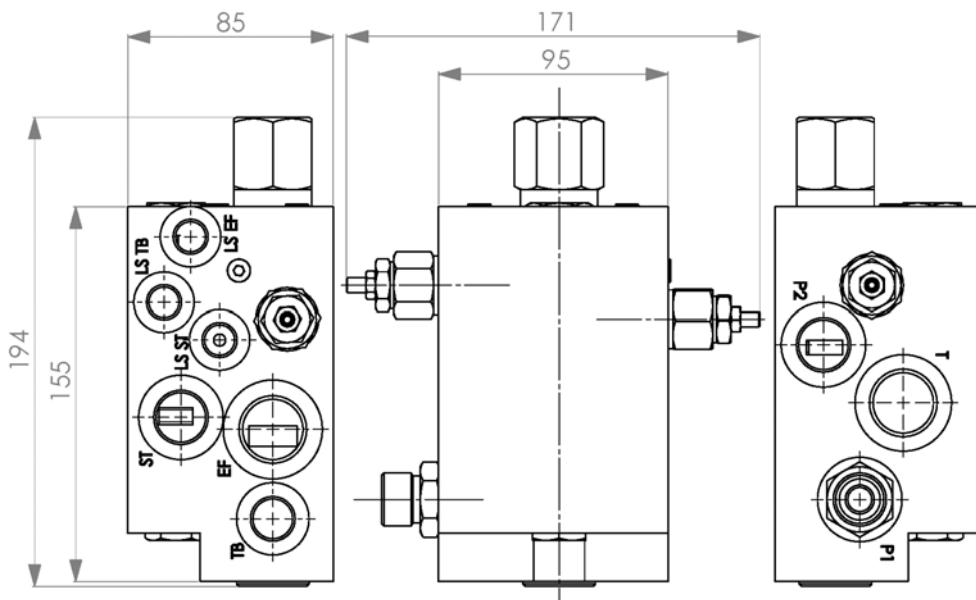
If even the oil of the first pump is more than abundant for all parallel users, the second unloading valve releases part of (or all) the flow of pump 1. At the same time, pump 2 is fully freed as it discharges to the tank.

Pump 1 discharges to the tank too, with a minimum pressure drop (stand-by pressure). All users receive this stand-by pressure.

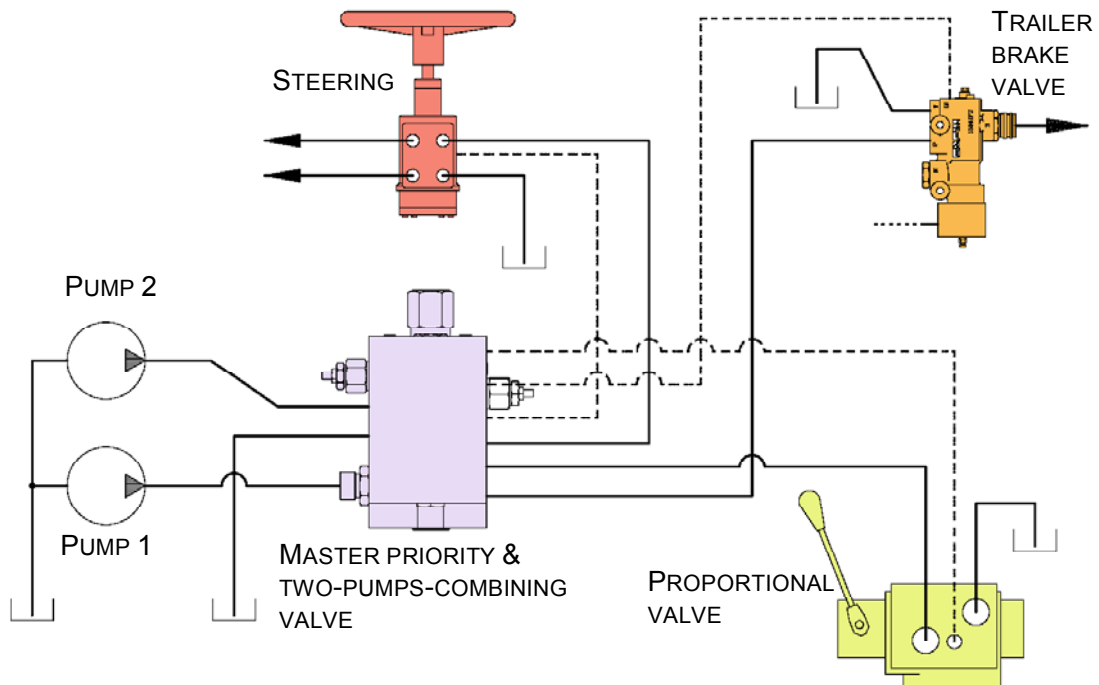
The two-pumps-combining valve is built with master priority valve function. The flow of the pumps is delivered with up to three priority levels to feed the steering (ST port), brake (TB port) and main service (EF port).



DIMENSIONAL DATA



PORT		
P1	Pump 1	M22x1.5
P1	Pump 2	M22x1.5
ST	Steering	M22x1.5
TB	Brake system	M18x1.5
EF	Main service	M27x2
T	Tank	M27x2
LS ST	LS from steering	M14x1.5
LS TB	LS from brake system	M14x1.5
LT EF	LS from main service	M14x1.5



The main relief valve RV will limit max pressure required by the pumps.

It is possible to add a second relief valve (RV2) to limit the maximum pressure at which the two pumps are used together.

At high working pressures (higher than RV2 calibration) only pump 1 supplies the services, pump 2 is connected to tank.

In case the first pump gets broken, the second pump is able to supply oil until calibration pressure of the RV2 valve only. Therefore, it is recommended to regulate the RV2 in order to be able to feed the steering system in case of emergency.

This sequence valve does not protect users from overpressure, when these users must not receive all the pressure of the pump (for example steering) it is necessary to protect them by using a pressure compensator (indicated as SPC).

The system uses the pumps as if they were two independent feeding units.

This two-pumps-combining valve is the best system to save energy and to decrease oil heating as it reduce the work of pump 1.

