

BYPASS ARRANGEMENT FOR OIL COOLER PROTECTION

Bypass

We strongly recommend protecting the cooling unit with a bypass arrangement / bypass valve if a cooler is connected in the return line of a hydrostatic application.

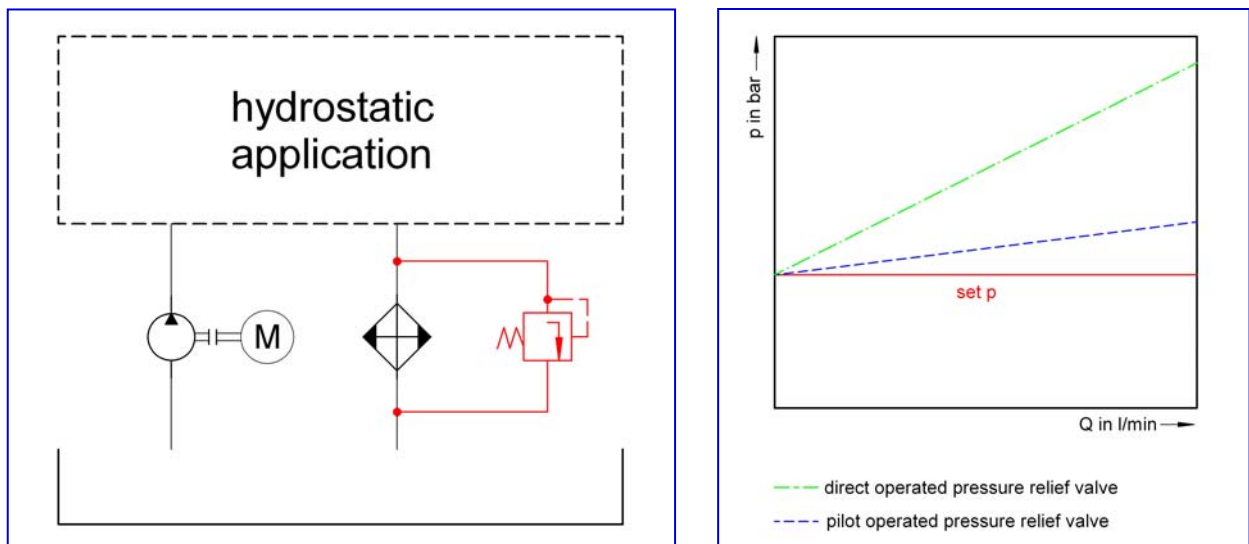
The bypass valve will open at certain conditions allowing the excess oil flow to use an auxiliary passage omitting the cooler. There are various kinds of bypass valves that are designed to open at predetermined conditions to protect the cooler from pressures exceeding specified limits.

The piping/hosing diameter must be selected appropriately to take especially sudden higher oil flows that would otherwise be pressed through the cooler, which could reduce the cooler lifespan significantly.

Particularly at start up conditions (cold, viscous oil) with high flow resistance the cooler is to be protected from pressures beyond the specified working pressure.

Pressure Relief Valve

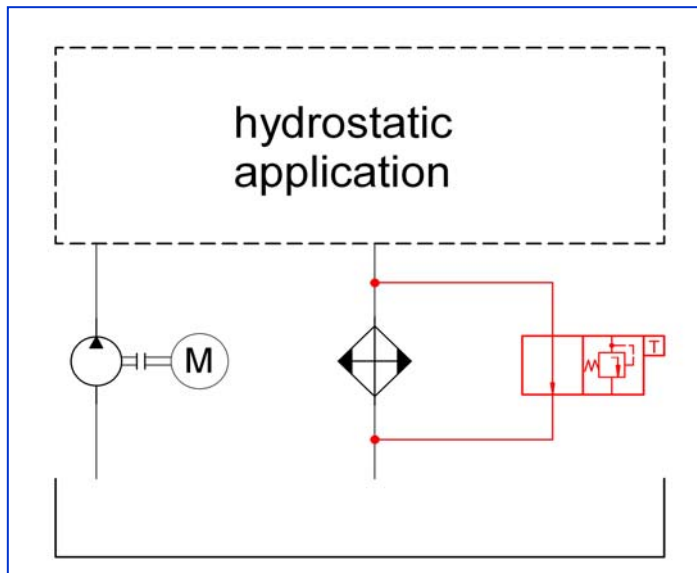
This type of valve is pressure controlled only. It is closed non-operated and will open at a certain (set) pressure.



Short-term pressure peaks above specified limits can occur in the cooler when using a simple *direct operated relief valve* through the inertia of this type of valve.

This is why we recommend the use of a ***pilot operated relief valve***. Because of the pilot actuation the pressure difference between onset of valve opening and end of opening is much smaller than in ***direct operated relief valves***.

Thermostatic Bypass Valve



This type of valve is
temperature
AND
pressure
controlled.

At start up conditions (cold oil) the valve is open at smallest flow resistance. The oil flow returns to the tank without passing the cooler – the fastest way to warm up the hydrostatic circuit.

Reaching a specified temperature the valve starts closing the bypass line. Completely closed the valve acts like a relief valve. Pressure peaks from additional flow are injected directly back into the tank bypassing the cooler.

Recommendation

The use of suitable hosing instead of piping is recommended because of the appreciated side effect as a predetermined breaking point.

That means employment of hosing with a design pressure below than the specified cooler limit.

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