

PUMP Brief

Hydraulic Pump Division

AS-0020

Gold Cup Solution Series: Part 6

Remote Control of the Compensator

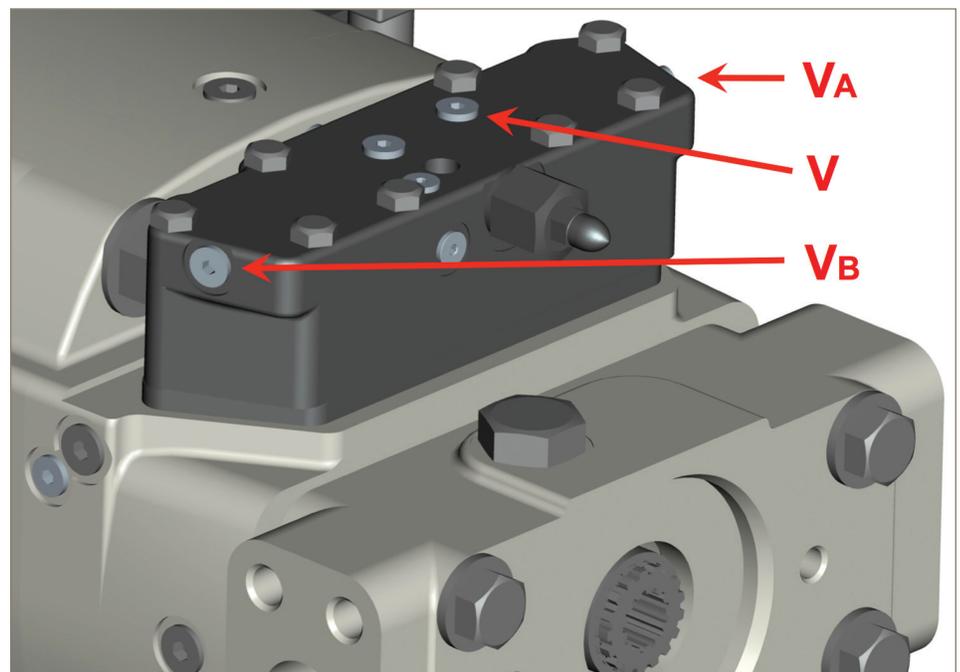
In certain applications and circumstances the compensator has to be controlled remotely to achieve low, or reduced pressures below the maximum system pressure setting of the compensator.

Example: Control of the rotational torque on a drilling machine

In operating a drilling machine, it is often necessary to add or remove drill steels to increase the depth, or remove the drill from the hole. This requires a higher torque in reverse than in the forward drilling mode to ensure that the drill head will release from the drill steel. In this case, a remote pilot valve is fitted to the VA or VB connection on the valve block and set to a lower pressure than the compensator. *Figure 1* shows forward rotation on the “B” side. A minimum 10% differential from the compensator setting is usually necessary to achieve this.

Example: Safe start up, or start up after a power failure

For safety reasons, in some applications it is necessary to ensure that the pump is reduced to a low power condition (minimum pressure & flow) when the pump is started. In such an instance,



it is necessary to vent the compensator to the minimum pressure possible (boost/replenishment pressure). A valve on the V port of the valve block, which is spring offset to tank, will provide this start up function.

This also applies when a power failure has caused the pump to stop on full displacement and needs to be

restarted. This is a common problem in many developing countries due to inadequate power supply. In this situation, the star delta starter cannot generate enough power to start the pump due to overload. By venting the pump to minimum pressure at start, the servo pressure will bring the pump back to close to zero flow and enable the electric motor to start.

Note that this may take one or two starting attempts depending on the motor and pump swash position.

Figure 2 shows the valve addition for safe start up, or start up after a power failure.

Example: Emergency stop

If the application requires that system pressure be taken to the minimum setting as quickly as possible, this can be achieved by venting the compensator from the V port. When frequently operating under these circumstances, it is necessary to slow down the response of the pump from the usual compensator response of 50 – 180 msec to avoid damage to the pump. This can be accomplished by installing an orifice as shown in Figure 3 shows the emergency stop circuit.

In all instances, the flow from the “V”, “VA”, or “VB” port is no more than 10l/min. As such, the valves have to be sized accordingly.

Support

Have a question on remote control of the compensator? Call the Technical Support Team at 937.644.3915, or contact pumptechsupport@parker.com for assistance.

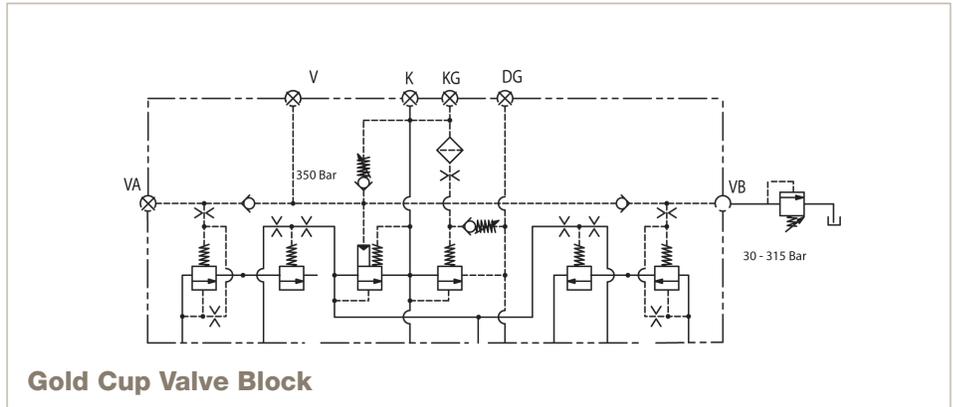


Figure 1: Forward rotation on “B” side

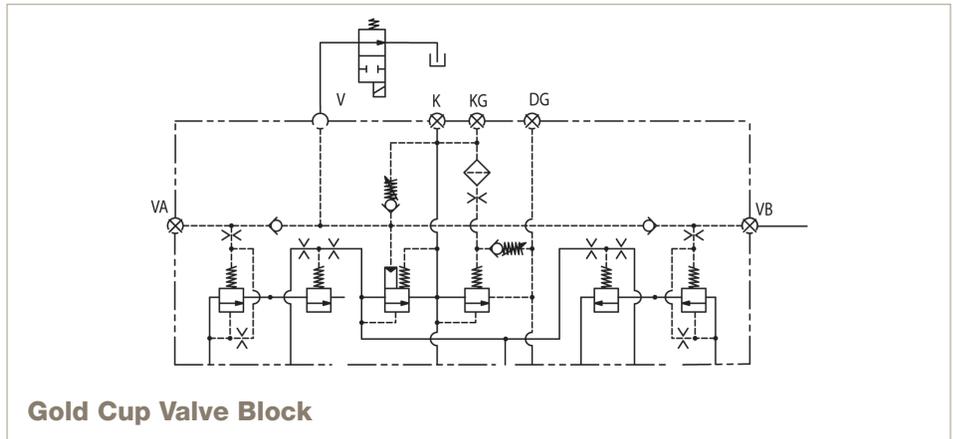


Figure 2: Safe start or start up after power failure

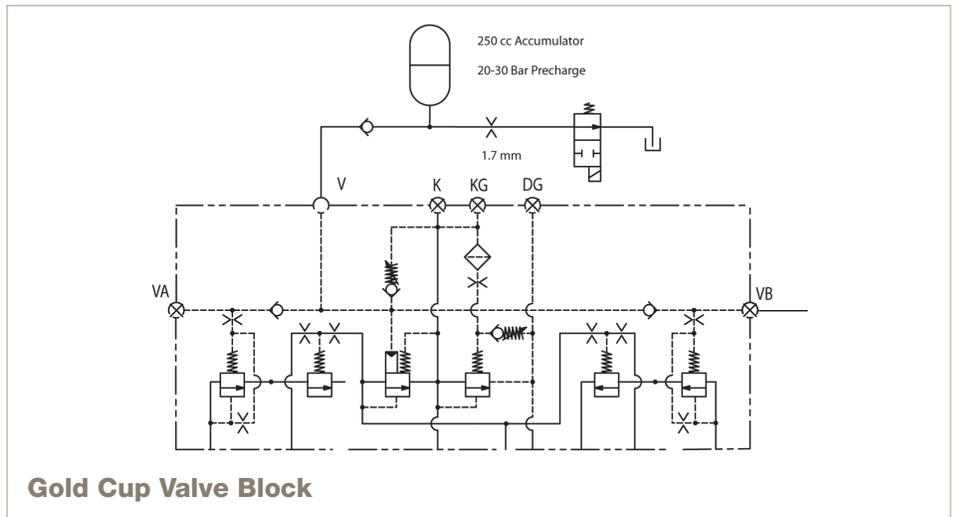


Figure 3: Emergency stop

