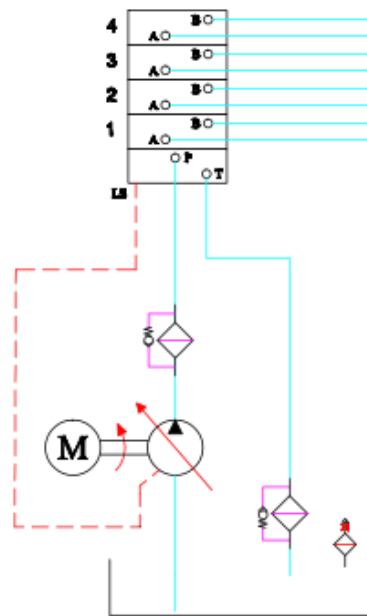


**Denfoss PVG 32 Control Valve:**

- Slice 1 - Electrical On/Off for Sewage Pump
- Slice 2 - Electrical On/Off for Bilge Water Pump
- Slice 3 - Electrical Proportional for Aft Winch
- Slice 4 - Electrical Proportional for Fwd. Winch

Manual Control Valves fitted adjacent to the winch. These could be replaced with Electrical control joysticks if required to give true proportional control.

Hydraulic Pump (Driven from Main Engine 2)  
Load sensing, variable displacement.  
Capacity - 100cc/rev (70 L/min @ 750 rpm)  
Pressure - Dependant on bilge and sewage pump requirements.  
Speed - 750 - 2200 rpm



Bilge Water Pump  
Max. Pressure - Not known  
Max. Flow - Not known

Sewage Pump  
Max. Pressure - Not known  
Max. Flow - Not known

Forward Anchor & Mooring Winch  
Max. Pressure - 29 Bar  
Max. Flow - 40 L/min

Aft Anchor Winch  
Max. Pressure - 31 Bar  
Max. Flow - 31 L/min

Counterbalance Valves  
Required for load control.

It should be noted that the winches require high flows at very low pressures to achieve relatively low pulling forces. This would appear to be because the winches chosen have a much higher capacity than is being used in this application. A winch having a lower drive ratio could achieve the same pull and a higher line speed for a lower hydraulic flow rate but a correspondingly higher pressure. This would be much more efficient and would considerably reduce the cost of the hydraulic system.