

9.5 Appendix 5 - Hydraulic Component selection

In the following the different main components of the hydraulic system are presented.

Hydraulic manifold, EM103/238Y

EM103/238Y has NG6(CETOP3) connections [24]. Figure 9.7 shows the hydraulic manifold installed in the hydraulic system, marked with the red square.

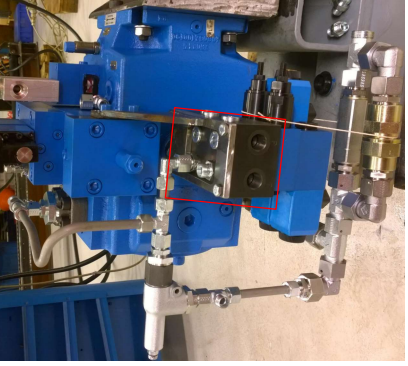
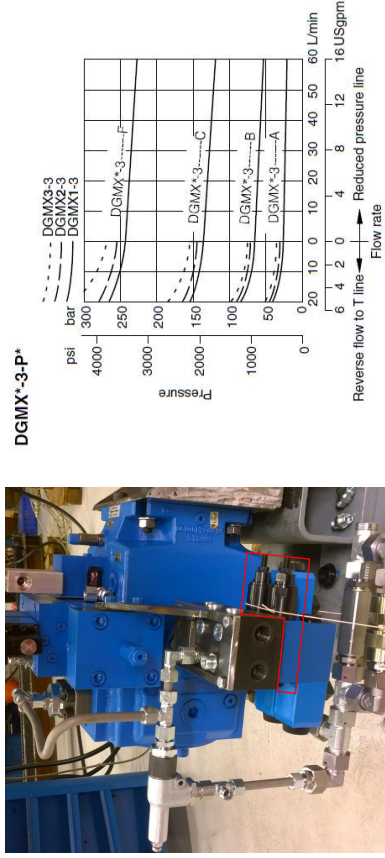


Figure 9.7: Hydraulic manifold, EM103/238Y.

Pressure Reducer, 870037

There are installed two pressure reducers, 870037, in the hydraulic system. The pressure reducers regulates the pressure to both the hydraulic pump and winch brake. Figure 9.8a, shows the two pressure reducers installed in the hydraulic system. Figure 9.8b, shows the pressure reducer flow vs. pressure performance.



(a) Pressure reducer, 870037.

(b) Flow curve, 870037 [25].

Figure 9.8: Pressure reducer, 870037.

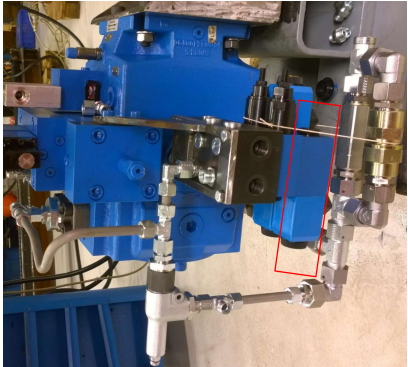
Directional Control Valve, 529760/64227 and 529762/64227

There are installed two DCV in the system. DCV, 529760/64227, is used to direct flow to the pump. DCV, 529762/64227, is used to direct flow to the winch brake. DCV 529760 has spool type

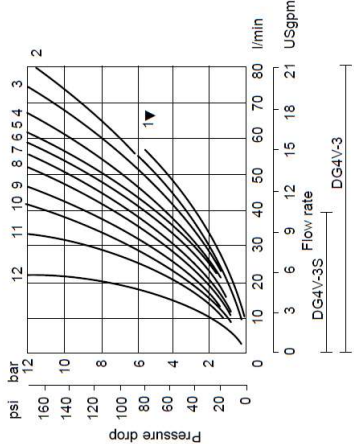
2C and DCV 529762 has spool type 2A. Table 9.12 gives the flow curve number found in Figure 9.9b that gives the relation between pressure and flow through the spool. Figure 9.9a shows both DCV placed in the hydraulic system.

Table 9.12: Spool type. [10]

Valve, spool	P→A,P→B	A→T, B→T
529762, 2A	6	5
529760, 2C	5	2



(a) Directional control valve.

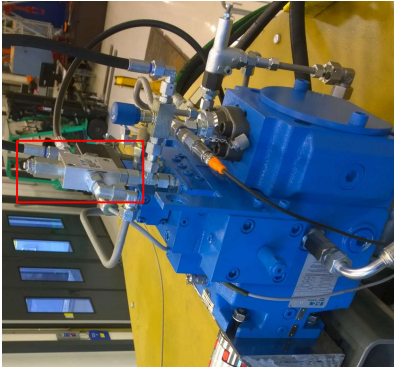


(b) Flow curve, 64227 [10].

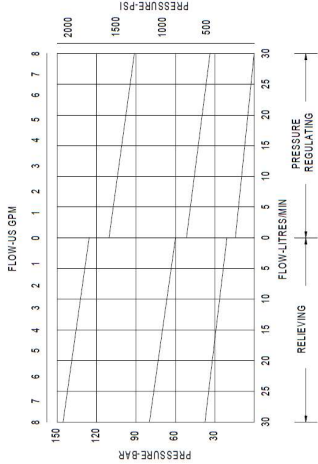
Figure 9.9: Directional control valve, 64227.

Pressure Reducer, 1PD25-P3W-6S

The pressure reducer, 1PD25-P3W-6S, is an inline pressure reducer and it is regulating the pressure to the PDCV, KBSDG4V-3, to 60 bar. Figure 9.10a shows the pressure reducer valve installed in the hydraulic system. Figure 9.10b shows the relation between pressure drop and flow through the valve.



(a) Pressure reducer, 1PD25.

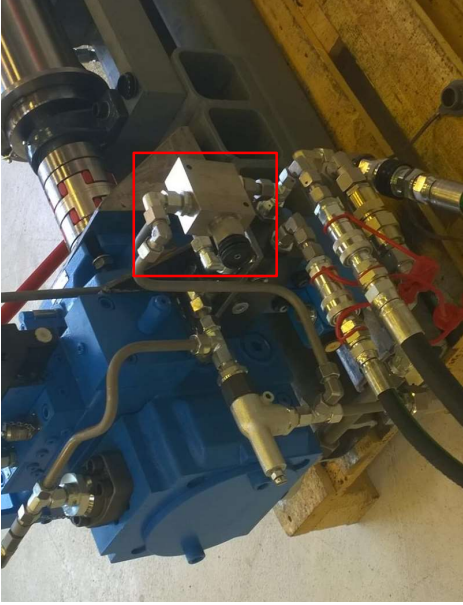


(b) Flow curve, 1PD25 [26].

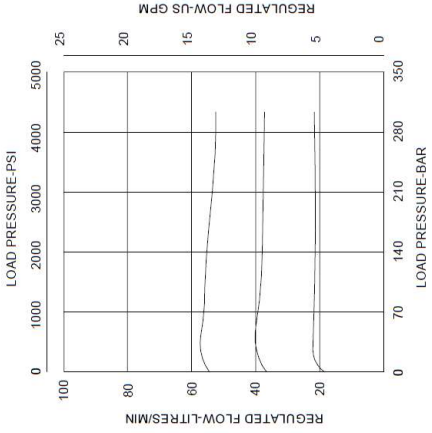
Figure 9.10: Pressure reducer, 1PD25.

Flow Control Valve, AD970700006

The flow control valve, AD970700006, is used to ensure that the pump always have hydraulic fluid available, at the port B. The flow control valve have been adjusted to give a flow of approximately 18 l/min. Figure 9.11a shows the flow control valve installed in the hydraulic system. Figure 9.11b shows the relation between pressure drop and flow through the flow control valve.



(a) Flow control valve.

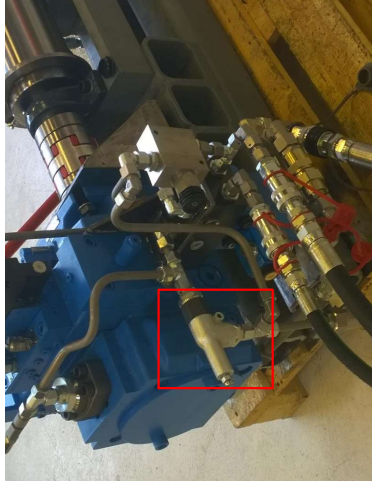


(b) Flow curve, AD97 [27].

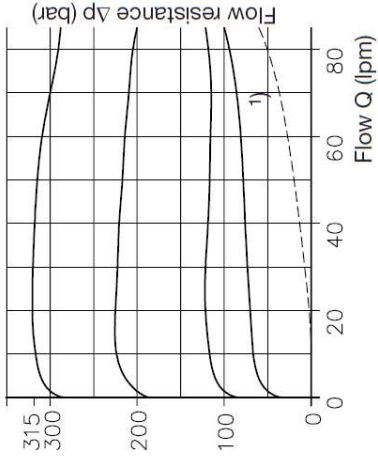
Figure 9.11: Flow control valve, AD97.

Pressure Relief Valve, HW92100061

The pressure relief valve, HW92100061, act as a safety against high pressure build up over the pump. It also gives the possibility to lower the load. Figure 9.12a shows the pressure relief valve in the system and Figure 9.12b shows the flow relation.



(a) Pressure relief valve.



(b) Flow curve, HW921 [28].

Figure 9.12: Pressure relief valve, HW92100061.

Needle valves, NV-A and NV-B

There are installed two needle valves in the hydraulic system. Needle valve, NV-A, is used for damping the pressure build up at the brake disc. Needle valve, NV-B, is used to create a continuous

flow through the pressure reducer, 1PD25. Figure 9.13 shows needle valves NV-A and NV-B installed in the hydraulic system.

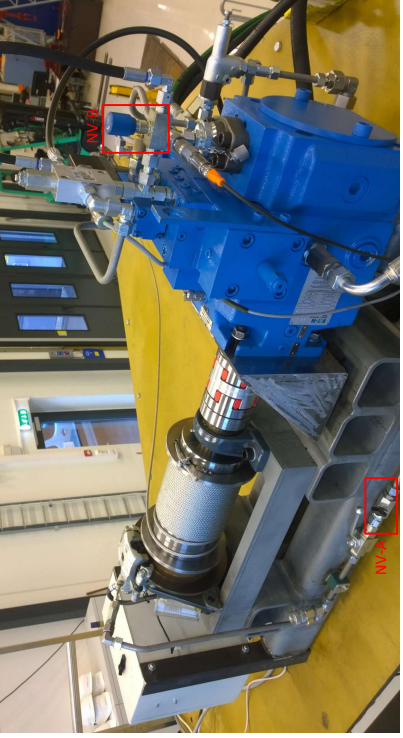


Figure 9.13: Needle valves, NV-A and NV-B.

Eaton Hydrokraft PVWS180 axial piston pump and Eaton proportional directional control valve (PDCV) KBSDG4V-3

The Eaton Hydrokraft PVWS180 is a variable axial piston pump. The pump has the possibility to vary the displacement between -180cm^3 and 180cm^3 . Information is only available through Eaton development team. Figure 9.14 shows the pump and proportional directional control valve, KBSDG4V-3 [3], installed in the system.

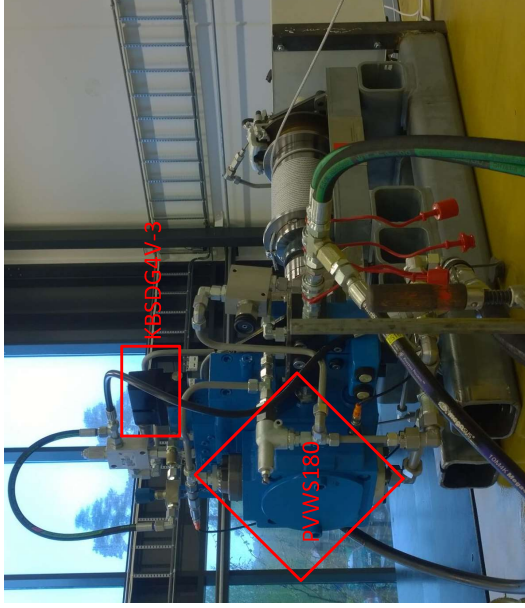


Figure 9.14: PVWS180 and KBSDG4V-3 [3].