Why do you need to Control the Temperature of your Hydraulic System?

High oil temperatures can cause serious problems in hydraulic systems, with a potentially long repair period.

There are two main reasons for controlling your oil temperature:

1. Hot hydraulic fluid is a safety risk.
2. Hydraulic mineral oil heated continually, breaks down.

The picture above shows a hydraulic valve that has a yellow- brown colour. This is varnish and is the result of hydraulic mineral oil breaking down. Varnish causes sludge which blocks filters and can also cause valves to jam. The other feature of high hydraulic system temperatures are seal failures; they become brittle and fail to provide a proper seal.

The main causes of oil overheating are:

1. Too much flow through the main relief valve due to a change in the system performance or failure of the valve.
2. Extra leakage through the pump due to wear.
3. Failure or degradation of the cooler.

All systems should have a temperature switch to warn of high oil temperature and a switch to shut down the system when it gets too hot, usually around 60 °C. besides looking after your oil, this is a safety consideration as oil at 54 °C can cause serious burns.

If you see warnings of elevated hydraulic system temperature, what do you do?

- Undertake a fault finding exercise. If the system is getting slower, is it the pump or is the pressure relief valve passing?
- Most probably the cooling system has not been maintained.
    - Check the water flow and temperature into the cooler and out for water/oil heat exchangers.
    - For air blast coolers, is the matrix blocked with dirt?

If you maintain your hydraulic system, you can avoid high oil temperatures. Keeping your oil clean will reduce hydraulic component wear and reduce the leakage of high pressure oil and the creation of heat. Regularly check that you temperature switches work and keep your coolers clean.