LECTURE 5- DISTRIBUTION OF FLUID POWER

FREQUENTLY ASKED QUESTIONS

1. What is the purpose of fluid distribution system?

The purpose of fluid distribution system is to take the oil from the oil tank to the various components of the systems and bring oil back to the reservoir. -

2. Why should copper not be used in conductors or fitting

Oxidation of the copper with the steel is major problem so copper is not used

3. What metals cannot be used with glycol fluid?

Cadmium, zinc and magnesium must not be used with glycol fluid. water glycol fluid reacts with cadmium, zinc and magnesium and corrode very rapidly leading leakage and unsafe working

4. Why should the conductor have greater strength than the system working pressure

Sometime pressure may raise very rapidly due to sudden closure etc. to handle high peak pressure and prevent bursting conductor strength should be higher.

6. What are the major disadvantages of steel pipes?

Pipes are rigid they cannot be bent like hoses. Steel pipes are expensive and steel pipe joints is cumbersome and may leak if properly not done with good sealant and thread.

7. What is the recommended factor of safety for fluid power system design ?

FOS = 8 for pressures from 0 – 70 bar

FOS = 6 for pressures from 70 – 180 bar

FOS = 4 for pressures above 180 bar

8. Why is malleable iron used for steel pipe fittings?

Malleable iron comparatively cheaper and can be used for low pressure applications

11. Why is steel tubing used more often than steel pipe?

Tubing can be bent easily to any shape and thus it reduces the number of fitting. It is reusable without any sealing problem.

12 How can steel tube fittings be used with plastic tubing?

Pipes are rigid they cannot be bent like hoses. Steel pipes are expensive and steel pipe joints is cumbersome and may leak if properly not done with good sealant and thread.

13 what major advantages does plastic tubing have over steel tubing

- Easily we can bend it to any shape
- Cheaper
- Storage is easy, we can roll and store it
- Transparent especially useful in pharmaceutical and chemical industry
- Light weight
- Less force is enough to connect parts, no expensive threaded tooling etc.

15 Describe how the quick connect coupling works.

Quick release couplings usually comprise a plug and socket arrangement which provides a leak proof joint when two parts are connected together, and which can be released easily without the use of tools. Each half of the coupling contains a spring loaded ball or poppet which automatically closes on disconnection, so that two completely leak free end results. Leaking during the process of disconnecting or connecting coupling is negligible. A typical quick release coupling is shown in Figure 1 and in this example the two halves are released by sliding the spring loaded outer sleeve in the direction of the arrow.