Fluid Power Design Solutions are delighted to announce that they are authorised by the British Fluid Power Association (BFPA) to deliver on their behalf a one day, '**Foundation Course in Working Safely with Hydraulic Hose and Connectors**'.

During the one day course the following elements are covered so that on completion of the course the candidate has received a good basic grounding to enable that person to work safely with hydraulic hose and connectors.

Chapter 1 – Basic Hydraulics

- understanding what is meant by the terms, 'pressure', 'force' and 'area' and how these 3 factors are important
- how to determine hose size, comparing how changing the 3 variables; flow rate, hose bore size and fluid velocity affect one another. The difference caused by a change of fluid temperature and fluid viscosity are also considered
- a basic hydraulic circuit diagram is used to show typical components used to make up a simple circuit
- contamination - why cleanliness is important to your customer and what steps can be taken to minimize contamination levels

Chapter 2 – Health, Safety & Environment

- health & safety legislation, duties of the employer and employee
- competency – how is it defined
- risk assessment – 5 steps to risk assessment
- hose assembly & installation safety consideration & the dangers of hose failure
- site/workshop safety
- good & bad practice for health & safety when working with hydraulic systems
- high pressure injection injuries – detecting pinhole leaks in a hydraulic system (this is supported by 3 short DVDs showing the dangers of injection injuries, the importance of correct and prompt diagnosis and subsequent treatment)
- how to avoid injection and burn injuries and what other safety matters should also be considered

Chapter 3 – Hose & Connector Identification

- the importance of understanding the application, useful factors to consider
- hose sizes
- industry standards for hose – EN, ISO & SAE
- hose selection

- hose end terminations, material types and end terminations commonly used in the fluid power industry
- hydraulic fluid types

Chapter 4 – Hose Assembly

- the industry standard method of measuring hose assembly overall length
- cutting the hose to length – the importance of a good, clean cut
- skiving – internal and external
- preassembly of one piece and two piece couplings, pros and cons of each coupling type
- angular orientation and hose bias when the hose assembly has two angled connectors
- crimping/swaging. Covering all aspects from correct die selection, machine setting, correct positioning of the hose assembly within the machine, measuring the crimp diameter, reducing the crimp diameter if necessary and ensuring that the operation has been completed correctly
- typical sample inspection plan for volume hose assembly manufacture
- pressure testing of hose assemblies – ratios based on working pressure and application
- cleaning and protecting hose assemblies prior to supplying to the customer

Chapter 5 – Installation

- correct installation of adaptors and hose assemblies
- environmental conditions which can cause hose and connector degradation
- good & bad practice when tightening up connectors
- good & bad practice for installation, considering issues such as bend radius, natural hose bias and reducing damage caused by abrasion, heat, kinking and twisting

Chapter 6 – Hose and Connector Failure

- reasons for hose and connector failure. How to reduce/eliminate the likelihood of failure occurring
- re-ending hydraulic hose assemblies – DON'T & don't mix and match. The stance of the BFPA and other bodies within the fluid power industry on these two important topics

On completion of the course each candidate receives a copy of the spiral bound course material, a certificate of attendance and is registered with the BFPA as having completed the course.