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 two day, '**Hose Assembly Skills Training Programme**'. This course is the successor to the 'Foundation Course in Working Safely with Hydraulic Hose and Connectors' which **Fluid Power Design Solutions** have been delivering since early 2010.

This course covers the theoretical and practical aspect of manufacturing hose assemblies. Each candidate is trained to an assessed level in working safely with hydraulic hose and connectors, the following elements are covered:

Chapter 1 – Thread Awareness

- understanding how to correctly identify an end termination by following 8 steps
- use a range of measuring instruments and gauges in conjunction with tabulated data to positively identify a range of end terminations
- understand the main characteristics and geometry of the male and female end termination along with how it seals for a range of end terminations including BSP (60^{o} cone 'o' ring and non 'o' ring, elastomeric and metal to metal sealing), BSPT, JIC, SAE 45^{o} flare, flange, ORFS, Metric (light and heavy), Metric port/stud end, French GAZ, NPT/NPTF, BSP – Japanese, SAE port/stud end, Metric – Komatsu and Staple type connectors
- discuss the various positive and negative features (both technical and commercial) for each end termination

Chapter 2 – Hose Assembly

- understand the production equipment and their associated requirements (including calibration) for the successful production of quality hose assemblies
- selecting and cutting the hose to length – the importance of a good, clean cut
- the industry standard method of measuring hose assembly lengths
- coupling selection
- work through the theoretical and practical aspects of manufacturing hydraulic hose assemblies using a combination of verbal and written instructions
- 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
- pressure testing of hose assemblies – ratios based on working pressure and application
- cleaning and protecting hose assemblies prior to supplying to the customer

Chapter 3 – Contamination

- cleanliness – why it is important
- hose cutting
- visually compare samples of cut and cleaned hose
- cleaning a hose assembly by flushing
- using a projectile to clean a hose
- storage and handling to reduce contamination
- understand the 3 principle methods established by ISO to measure contamination levels

Chapter 4 – Tightening of Connectors

- tightening of adjustable style adaptors
- tightening of hose connectors - straights and elbows
- understand some of the common methods used within the industry to ensure connectors are correctly tightened

Chapter 5 – Hose Assembly Routing & Installation

- hose assembly routing, good and bad practice considering ISO and BFPA recommendations
- protecting hoses in service
- typical installation and application problems

Chapter 6 – Hose Management

- recommended storage life for bulk hose, hose assemblies and stored equipment
- understand how long a hose should last in service considering the application, the environment, damage, application history and hose management schemes
- maintenance and reworking of hose assemblies
- examples of actual failure resulting from improper use - classifications, symptoms, mode of and cause of failure

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.