



FOUNDATION COURSE IN WORKING SAFELY WITH HYDRAULIC HOSE AND CONNECTORS



BRITISH FLUID POWER ASSOCIATION

COURSE OVERVIEW



ABOUT THE COURSE

This is a one day course and is designed to show the correct practices needed to work safely with and around Hydraulics. Designed as either an excellent induction course for someone new to the industry or a superb safety course for people who are not primarily hydraulic or fluid power technicians but work from time to time on machinery containing hydraulic components. The day contains video presentation examples of safe working practices involving associated dangers of fluid injection injuries and examples of hose being manufactured from the raw components. A high quality personalised course book, certification of attendance and registration on the BFFPA national data base, give both

the attendee and employer confidence that the correct methods and culture are being adopted and used.

WHY SHOULD YOU ATTEND THE COURSE

“The recent training by the BFFPA for KPM employees was excellent and I would recommend it to any company in the Hydraulic field, if you would like a testimonial at any time I am more than happy to do this for you, please pass on my thanks to the BFFPA trainer for his excellent training and thank you for your support.”

[Kawasaki Precision Machinery \(UK\) Ltd](#)

CHAPTER ONE

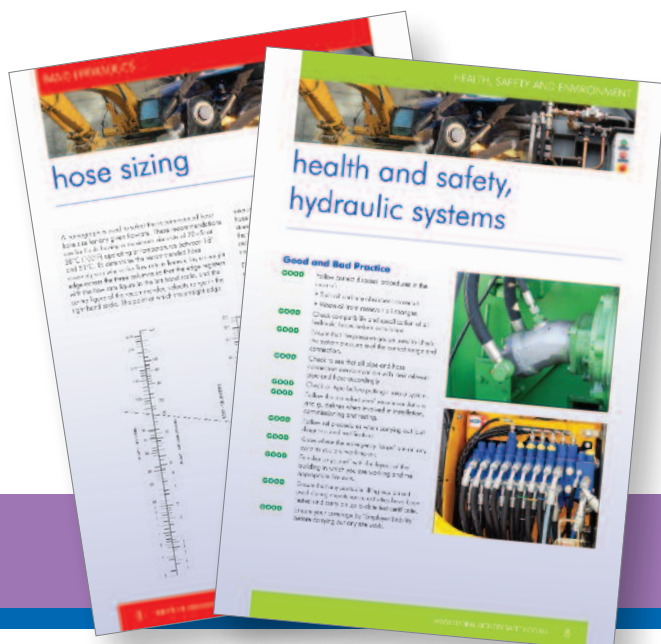
BASIC HYDRAULICS

- 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 TWO

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 and installation safety consideration and 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



FOUNDATION COURSE IN WOR

CHAPTER THREE

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 FOUR

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
- 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 of hose assemblies prior to supplying to the customer

CHAPTER FIVE

INSTALLATION

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

CHAPTER SIX

HOSE & 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



OTHER COURSES AVAILABLE

BFPA HOSE ASSEMBLY SKILLS TRAINING PROGRAMME



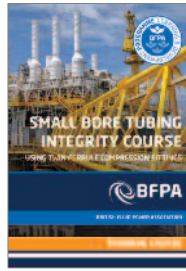
The skills course will take the candidate through the many techniques and considerations essential for the safe production of a quality hose assembly and ultimately leading to installation. This two day course involves both the theoretical and practical elements in working with hose and connectors. During the 2 days the attendees will be trained and practically assessed to an industry level of ability in working with hose and connectors.

HOSE INTEGRITY, INSPECTION AND MANAGEMENT



In this one day BFPA training course the key themes covered include: hose life expectancy; risk analysis; competence by way of a robust competence assurance system; identify, inspect & record; hose register – recording of a hose assembly prior to it going into service; and visual hose assembly (installation) inspection check list. The attendees will be assessed during the day through a question paper requiring a 70% pass rate.

SMALL BORE TUBING INTEGRITY COURSE



This one day course has been developed by BFPA technical experts to give candidates a valuable understanding of the complexity surrounding small bore tubing and compression fittings. The training course covers generic manufacturers' twin ferrule compression fittings, thread awareness, tube and pipe differences and the preparation process, tube manipulation (bending) principles, common installation and routing techniques. Attendees are assessed through a number of practical tasks and a theory question paper.

BFPA HYDROSTATIC PROOF PRESSURE TESTING COURSE



This one day pressure testing course has been developed by the BFPA to enable the attendee to hydrostatically test a given component. The course centres around the testing of flexible hose and rigid tube and during the day attendees will receive both theoretical understanding and practical experience of procedures.



**ON COMPLETION
OF ANY OF THESE COURSES
YOU CAN APPLY FOR THE BFPA
TRAINING PASSPORT CARD**

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