

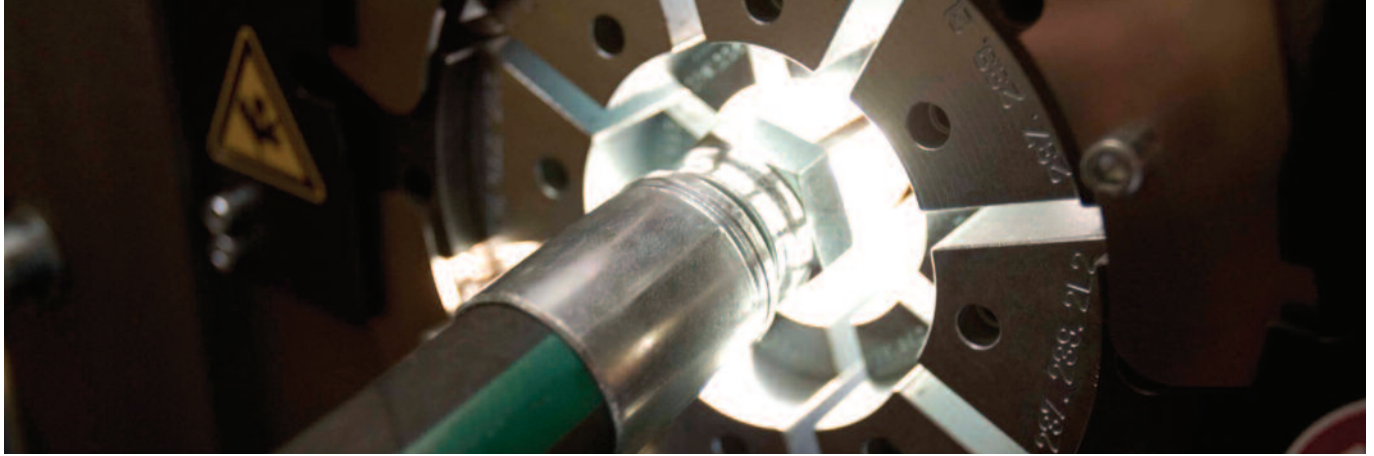


# BFPA HOSE ASSEMBLY SKILLS TRAINING PROGRAMME



BRITISH FLUID POWER ASSOCIATION

COURSE OVERVIEW



## ABOUT THE COURSE

This is a two day course and is carried out in both a classroom environment for the theoretical element and shop floor environment for the practical element. The training programme is designed to bring the attendee up to a sound level of appreciation which will enable them to development into a quality hydraulic hose technician. The Hose Assembly Skills training course also includes an practical assessment of the candidates' skills and understanding. A high quality personalised course book, certification of skills achievement and registration on the BFPA National data base, give both the attendee and employer confidence that the correct methods and culture are being adopted and used.

## CHAPTER ONE

### 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° cone 'o' ring and non 'o' ring, elastomeric and metal to metal sealing), BSPT, JIC, SAE 45° 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

## WHY SHOULD YOU ATTEND THE COURSE

“We just wanted to convey our thanks for what was received as incredibly informative and most useful course for us. All attendees were extremely happy with the content and information which they will apply in future use of hose manufacturing and also fittings and hose information in general.

Your knowledge and experience on the subject was very clear, and we simply want to extend our conveyance of thanks to you for an excellent couple of days training.”

[Hydac Technology Limited](#)

## CHAPTER TWO

### 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 overall length
- 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 THREE

### 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 FOUR

### 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 FIVE

### 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 SIX

### HOSE MANAGEMENT

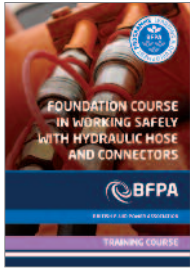
- recommended storage life for bulk hose, hose assemblies and stored equipment
- understand how long a hose should last in service considering the application, the environment, damage, application history and hose management schemes
- maintenance and reworking of hose assemblies
- examples of actual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

The spiral bound course book is supported by a worksheet which is completed by the candidate. This worksheet forms the basis of the assessment.



## OTHER COURSES AVAILABLE

### BFPA FOUNDATION COURSE IN WORKING SAFELY WITH HYDRAULIC HOSE AND CONNECTORS



This one day course has been developed to provide an introduction into hydraulic hose, connectors and the safe assembly of these components for industry use. The course is classroom based, during the day the attendee will gain a knowledge and understanding of safe hose assembly and if applied will only enhance the safety within the hydraulic industry and that of the attendee.

### 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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