

# HYDROSTATIC PROOF PRESSURE TESTING



BRITISH FLUID POWER ASSOCIATION

COURSE OVERVIEW



## ABOUT THE COURSE

This one day course covers the theoretical and practical aspect of pressure testing with each delegate being trained to an assessed level.

## CHAPTER ONE

### ASSOCIATED DANGERS

- dangers associated with pressure testing
- fluid injection injuries
- a typical situation of trapped pressure
- different types of pressure tests and their definitions
- commonly referred to publications relating to pressure testing
- legionella and the possible contamination of pressure testing equipment when water is the test medium



## WHY SHOULD YOU ATTEND THE COURSE

“The recently attended BFPA Proof Pressure Testing Course was well received by Clover Tool Europe employees. The balance between verbal instruction and hands on involvement was well structured. The detail on fittings and thread identification was of great value as it is an area that is not often covered in this level of detail in previous training courses attended. All attendees would highly recommend this course to future delegates”

Clover Tool Europe Ltd

## CHAPTER TWO

### A SAFE SYSTEM OF WORK

- what duty holders (the employer) involved in pressure testing must comply with under the Health & Safety at Work Act
- a safe system of work
- hierarchy for segregating items under test as identified in HSE document GS4
- examples of typical ‘good practice’ when undertaking a pressure test
- identification of ‘controls measures’ as identified in HSE document GS4 covering; test procedures, the maintenance and selection of pressure test equipment, test fittings, test hose assemblies, and physical safeguarding
- inspection of test hose assemblies (including common failure modes and discard criteria)
- air hose connections
- whip checks
- burst sleeving





## CHAPTER THREE

### EQUIPMENT AND SUPPORTING INFORMATION

- typical pressure test rigs
- methods of pressure generation
- the elements included within a typical pressure test rig
- pressure gauges, including what factors should be considered in order to select the correct pressure gauge
- recording the test results; chart recorders and data loggers

## CHAPTER FOUR

### SELECTION, STORAGE AND MAINTENANCE OF COMPONENTS

- 'good and bad practice' for the storage of hose assemblies used for pressure testing purposes
- examples of factors that can adversely affect hose and hose assemblies in storage
- inspection of hose assemblies used for pressure testing purposes
- storage of test adaptors and related components
- pressure rating of test adaptors and related components
- damage to test adaptors and related components through repeated use

## CHAPTER FIVE

### THREADED CONNECTORS AND SEALING

- methods of sealing and O-ring selection including; adjustable elbows with no 'retaining ring', adjustable elbows with a 'retaining ring', bonded seals with self centralising web, bonded seal without self centralising web, O-ring, copper washer and elastomeric seal
- correct measuring of O-rings
- bonded seals including factors which influence their burst pressure
- understanding how to correctly identify an end termination by following 8 steps using 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
- the differences between NPT/NPTF and BSPT threads
- application of PTFE Sealing Tapes, thread sealants and anaerobic adhesives
- 'medium pressure' (20k) and high pressure (up to 60k) cone and threaded connectors; tubing, sealing methods, identification, and assembly

## CHAPTER SIX

### THE PRESSURE TEST

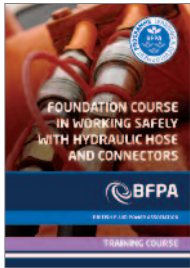
- International Standard and scope relating to pressure testing
- Containment (GS4)
- hierarchy of control measures (GS4)
- testing of hose assemblies having a volumetric capacity greater than that of the pressure test rig reservoir
- typical durations of the pressure test
- common pressure test ratios (based on working pressure of the hose/hose assembly)
- common test fluids
- pressure testing procedure, including a practical element for each delegate
- reporting the results



# HYDROSTATIC PROOF PRESSURE TESTING

## OTHER COURSES AVAILABLE

### BFPA HOSE ASSEMBLY SKILLS TRAINING PROGRAMME



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.

### 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.



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

**BRITISH FLUID POWER ASSOCIATION,**  
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