

HIGH PRESSURE WATER JETTING

BECAUSE TRAINING MATTERS

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**SKILLS
TRAINING
CENTRE**

HIGH PRESSURE WATER JETTING

Courses

INTRODUCTION

There are many commercial uses for high-pressure water jetting that make it a versatile, accurate, and efficient method for industrial tasks such as cleaning or concrete removal.

High Pressure water jetting has minimal vibrations coupled with a powerful water stream which allows for targeted cleaning and concrete cutting. The types of high-pressure applications include drain and sewer cleaning, surface preparation, hydro demolition, tube and pipe cleaning, vessel and tank cleaning and cold abrasive and waterjet cutting and pressure washing.

When correct practices are not followed the use of water at such high-pressured levels does mean that it can be extremely dangerous for operatives especially if there is:

- ▶ Misuse of equipment
- ▶ Failure to complete risk assessments
- ▶ Lack of operator knowledge and experience.

High-pressure injection injuries are serious with life and limb-threatening potential with the possible onset of infection after an injury. It is therefore essential that all staff that use this equipment receive appropriate and adequate training to eliminate risks and avoid the hazards associated with high pressure water jetting.

The health and safety legislation applicable to High-Pressure Water Jetting/Cleaning are:

- ▶ The Health and Safety at Work Act
- ▶ The Control of Substances Hazardous to Health Regulations (COSHH)
- ▶ The Provision and Use of Work Equipment Regulations
- ▶ The Personal Protective Equipment Regulations

Skills Training Centre are members of the Water Jetting Association (WJA) who are the reputable leaders of the UK's water jetting industry. The WJA sets the recognised standards for water jetting nationally and internationally. As a registered Centre, all our water jetting training adheres to WJA codes of practices' and are City and Guilds accredited. The training delivery comprises of both theoretical and practical learning to consolidate the key principles of water jetting alongside operatives gaining valuable experience from the practical stage with an experienced WJA instructor.

Work Activities that may use High-Pressure Water Jetting:

- ▶ Graffiti Removal
- ▶ High Level Building Exterior Cleaning
- ▶ Grounds/Car Park Cleaning
- ▶ Drain/Sewer Cleaning
- ▶ Stone Cleaning

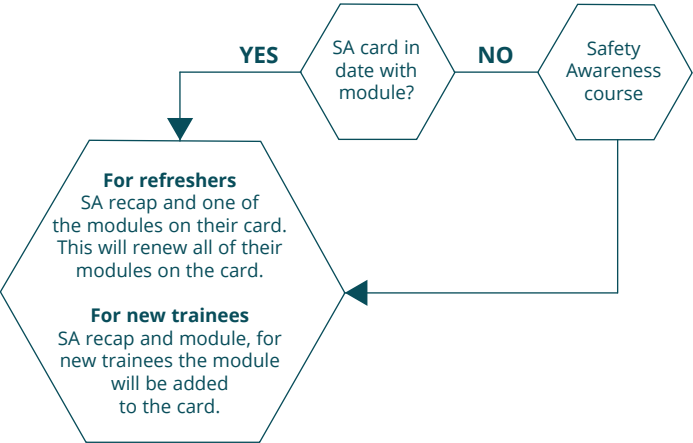
TRAINING

Health and Safety within the water jetting industry is of paramount importance, trained staff will have a greater awareness and appreciation of safe working practices with the use of high-pressure water jetting methods. Councils, insurance companies, water utilities, and major contractors all demand that staff have the correct training and hold valid certificates.

The minimum age for operatives to attend training is 16 years old if they are employed or on a structured training program or 18 years old if unemployed and not on a structured program.

All new and experienced operatives with expired cards must undertake the mandatory Water Jetting Safety Awareness (SA) classroom-based course.

COURSE SELECTION PROCESS



WHO SHOULD ATTEND

All new or experienced operatives that may be required to use High Pressure Water Jetting equipment as part of their job.

Managers and supervisors who are responsible for water jetting personnel
Health and Safety managers

For those who are involved with smaller, lower power jetting machines e.g. for vehicle washing, or small plant cleaning, or general clean-up jobs there is a standalone Pressure Washing course.

On completion, of the Water jetting Safety Awareness course candidates can be trained on the practical elements on specific courses:

TRAINING NEED	DURATION	COMMENT
Safety Awareness (SA) for New Operatives	1 day	No practical module allowed
Safety Awareness (SA) for Experienced Operatives with 1 practical module	1 day	Refresher SA completed with one practical module.
Tube and Pipe module including practical assessment providing SA recap is not being delivered	Minimum of half day	Can do up to two modules in one day
Surface Preparation including practical assessment providing SA recap is not being delivered	Minimum of half day	Can do up to two modules in one day
Drain and sewer including practical assessment providing SA recap is not being delivered	Minimum of half day	Can do up to 2 modules in one day
Hydro-demolition including practical assessment	1 day	No other courses allowed
Pressure Washer including practical assessment	1 day	No other courses allowed

Candidates who only hold the Safety Awareness module will have cards that say “non-operational”. Those holding both the Safety Awareness and a practical module will have cards that say “Operational”.

Modules can be added to cards at any time as long as the Safety Awareness module is in date.

REFRESHER TRAINING

The renewal period begins three months before the expiry date with a grace period of three months after the expiry date.

If renewed during this period, the new expiry date on the card will be three years from the current expiry date.

If renewed earlier than three months before, the new expiry date will be three years from the date of the

refresher course – losing an operative some validity time on their qualification.

After the three-month grace period, if a refresher course is not done, the operative will lose modules and will be considered as new trainee.

A one-day refresher course consists of the Safety Awareness recap and one practical module in full.

Refresher candidates cannot do a practical module that they do not already hold. E.g. Candidate holds Safety Awareness and Surface Preparation – they cannot do the SA Recap and Drain and Sewer practical to renew their card. However, if they hold both Surface Preparation and Drain and Sewer, they can do either practical to renew the whole card.

HIGH PRESSURE WATER JETTING

Course Outlines

SAFETY AWARENESS TRAINING : 1 DAY

COURSE CONTENT

- ▶ Applications and machines
 - ▶ Cleaning and surface preparation
 - ▶ Jet cutting – precision and volume removal
- ▶ Legislation and the WJA Codes of Practice
 - ▶ Health & Safety at Work Act
 - ▶ WJA Codes of Practice
- ▶ Jetting equipment – nozzles
 - ▶ Jet principles
 - ▶ Types of nozzle
- ▶ Jetting equipment – pumps
 - ▶ Pump configuration
 - ▶ Water supply/delivery features
 - ▶ Pressure safety release options
- ▶ Jetting equipment – pressure controls
 - ▶ Dump and dry shut controls
 - ▶ Pressure regulators
- ▶ Jetting equipment – high pressure hose
 - ▶ Hose construction and pressure ratings
 - ▶ Hose end fittings
 - ▶ Connectors and hose end couplings
- ▶ Water jetting hazards
 - ▶ Directly from the water jet
 - ▶ From the operational regime
- ▶ Water jetting injuries
 - ▶ Effects of impact by high pressure water jet
 - ▶ Use of WJA medical card
- ▶ Personal protective equipment
- ▶ Operational procedures
 - ▶ Routine care and inspection
 - ▶ Safety points during operation

DRAIN AND SEWER CLEANING : 1 DAY

COURSE CONTENT

- ▶ Key safety awareness issues
 - ▶ Nozzles and jets
 - ▶ Pumps and ancillaries
 - ▶ Operational procedures
- ▶ Applications and machines
 - ▶ Scope of drain and sewer cleaning applications
 - ▶ Range of cleaning requirements and standards
- ▶ Jetting equipment – nozzles and ancillaries
 - ▶ Review nozzle principles
- ▶ Jetting equipment – high pressure hose
 - ▶ Hose used in drain and sewer applications
 - ▶ Bore size and flow capabilities
- ▶ Jetting equipment – machines
 - ▶ Range of jetting machines used
 - ▶ Pump pressure controls
 - ▶ Water supply/delivery features
- ▶ Job assessment and planning
 - ▶ Information and assessment
 - ▶ Selection of equipment and manning levels
 - ▶ Safe system of work
- ▶ Operational procedures
 - ▶ Daily checks
 - ▶ Setting up
 - ▶ Nozzle entry and advance into pipe
- ▶ Practical exercises
 - ▶ Jetting machine and equipment
 - ▶ Job assessment
 - ▶ Discussion of options

SURFACE CLEANING AND PREPARATION TRAINING : 1 DAY

COURSE CONTENT

- ▶ Key safety awareness issues
 - ▶ Nozzles and jets
 - ▶ Pumps and ancillaries
 - ▶ Hazards and injuries
- ▶ Applications and machines
 - ▶ Scope of surface cleaning and preparation applications
 - ▶ Range of tasks
 - ▶ Range of jetting machines suitable for surface cleaning/preparation
- ▶ Jetting equipment – nozzles and ancillaries
 - ▶ Review nozzle principles
 - ▶ Associated ancillary equipment
- ▶ Jetting equipment – high pressure hose
 - ▶ Hose used in surface cleaning and preparation applications
 - ▶ Damage and wear possibilities
 - ▶ Hose ancillaries
- ▶ Jetting equipment – machines
 - ▶ Range of jetting machines used
 - ▶ Engine controls and instruments
 - ▶ Auto engine speed control systems
 - ▶ Pressure safety relief
 - ▶ Water supply/delivery features
 - ▶ Filtration requirements
 - ▶ Boost feed pumps
- ▶ Job assessment and planning
 - ▶ Information and assessment
 - ▶ Base material and contaminants
 - ▶ Selection of equipment and manning levels
 - ▶ Safe system of work
- ▶ Operational procedures
 - ▶ Daily checks
 - ▶ Setting up
 - ▶ Monitoring of operation
 - ▶ Job completion
- ▶ Practical exercises
 - ▶ Jetting machine and equipment
 - ▶ Job assessment
 - ▶ Site preparation
 - ▶ Team talk
 - ▶ Demonstrate all procedures





PRESSURE WASHING : 1 DAY

WHO SHOULD ATTEND

This 1 day *stand alone* Pressure Washing course is designed for those who are involved with the smaller, lower power jetting machines. Maybe for vehicle washing, or small plant cleaning, or just general clean-up jobs. The machines can be electric, diesel, petrol or PTO driven.

Your machine can be of any make, as long as it does not exceed 3000psi @ 5gpm or (200 Bar @ 22lpm) then this is the course for you.

INTRODUCTION

This course does not require you to have a Safety Awareness Certificate before attending. The certificate and photo card are valid for 3 years and are issued by the Water Jetting Association (WJA), are recognised by the HSE and also have City & Guilds Accreditation.

The morning of the course consists of issuing each trainee with the latest WJA Code of Practice for them to use during and after the course, followed by the theory which covers safety, injuries, legislation, PPE etc. with the afternoon for the practical session.

Certificates and photo cards are issued to those candidates who reach the required standards and these need to be renewed every 3 years.

COURSE CONTENT

- ▶ Applications & machines:
 - ▶ Effect of varying pressure/flow at the nozzle
 - ▶ Range of jetting machines
- ▶ Legislation & the WJA codes of practice:
 - ▶ Health & safety and risk assessment
 - ▶ WJA codes of practice
- ▶ Nozzles:
 - ▶ Jet pressure/flow characteristic
 - ▶ Types of nozzle – forward facing, fixed and spinning jets, multi-jet fixed & spinning nozzles.
- ▶ Pumps:
 - ▶ Pump configuration
 - ▶ Water supply/delivery features
- ▶ Pressure controls:
 - ▶ Dump & dry shut controls
- ▶ Water jetting hose:
 - ▶ Hose construction and pressure ratings, external & internal damage possibilities, hazards arising from damaged hoses, inspection requirements.
 - ▶ Hose end fittings, construction/assembly/testing.
- ▶ Hazards:
 - ▶ Hazards arising directly from the water jet – from operational regime – from site environment.
- ▶ Injuries:
 - ▶ Effects of impact by high pressure water jet – nature of internal injuries caused – action in event of a jetting injury – awareness of possible absence of visual injury and use of WJA medical card.
- ▶ Personal Protective Equipment:
 - ▶ General principles regarding use of PPE as a last resort; main body protection – limits on effectiveness against direct impact of water jet. Protection of head, hands, feet, hearing, respiration.
- ▶ Operational Procedures:
 - ▶ Routine care and inspection – site preparations – preparations for operation – team operation.
 - ▶ Use of do/do not guide.
- ▶ Summary:
 - ▶ Review of course content as above – with opportunity for any further discussion before questionnaire.

WJA HYDRODEMOLITION APPLICATION : 1 DAY

REVIEW KEY SAFETY AWARENESS ISSUES

Nozzles and jets - pumps & ancillaries - pressure controls - water jetting hose - hazards and injuries - PPE - operational procedures.

APPLICATIONS & MACHINES

Scope of hydrodemolition applications.
Range of hydrodemolition tasks. Range of jetting machines suitable for hydrodemolition.

JETTING EQUIPMENT

- ▶ Nozzles and Ancillaries
- ▶ Water Jetting Hose
- ▶ Machines

JOB ASSESSMENT & PLANNING

Information and assessment – site location, access to work area and layout; material to be removed, work piece and task features, water provision, waste disposal hazards. Selection of equipment and manning levels – jetting machine/nozzles/accessories, number and duties of operators, single person operation. Determine job method, based on safe system of work.

OPERATIONAL PROCEDURES

- ▶ Daily checks
- ▶ Setting up
- ▶ Monitoring of operation.
- ▶ Work standard
- ▶ Job completion.

PRACTICAL EXERCISES

- ▶ Jetting machine and equipment
- ▶ Job assessment
- ▶ Work piece
- ▶ Site preparation.
- ▶ Disconnect equipment and clear site

WJA TUBE, PIPE & BUNDLE JETTING APPLICATION : 1 DAY

REVIEW KEY SAFETY AWARENESS ISSUES

Nozzles and jets - pumps and ancillaries - pressure controls - water jetting hose - hazards and injuries - PPE operational procedures.

APPLICATIONS & MACHINES

Scope of tube and pipe cleaning applications; differentiate between tubes and pipes.
Range of cleaning requirements and standards. Range of jetting machines suitable for tube and pipe cleaning.

JETTING EQUIPMENT

- ▶ Nozzles and Ancillaries
- ▶ Hose
- ▶ Machines

JOB ASSESSMENT & PLANNING

- ▶ Information and assessment
- ▶ Base material and nature of contaminants
- ▶ Selection of equipment and manning levels
- ▶ Determine job method based on safe system of work

OPERATIONAL PROCEDURES

- ▶ Daily checks
- ▶ Setting up
- ▶ Nozzle entry and removal, control and monitoring during cleaning
- ▶ Job completion.

PRACTICAL EXERCISES

- ▶ Jetting machine and equipment – review features and demonstrate daily checks, start/run/stop
- ▶ Job assessment
- ▶ Site preparation
- ▶ Final review
- ▶ Disconnect equipment and clear site





ABOUT US

Our Accreditations
Specialist Facilities
Legislation / Code of Practice



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