



Indian Society for Trenchless Technology

TTOQP 10

Operator

Level Structure Pneumatic/Static Pipe Bursting

Trenchless Technology Operator Qualification Programme

Trade Skill Evaluation at Competency level – 1

COMPETENCE:	TTOQP 10	PNEUMATIC/STATIC PIPE BURSTING
BASIC COMPETENCE	BC 10.1	BASIC OPERATOR

Background

Pipe bursting technique, which can be pneumatic, hydraulic expansion or static pull, is the most cost effective and preferred trenchless technique for the replacement of defective or overloaded gas, water and sewer pipelines with a new pipeline in the same location. In pipe replacement, the defective pipeline is burst, generally by brittle fracture and the fragments are forced into the surrounding ground or removed through the new pipeline that is pulled in. The technique being highly specialized requires suitably trained or qualified operator to operate machinery, instrument, or other equipment.

We propose competency standards for Qualifications of operators in this document. Persons desirous of operating Pneumatic/Static Pipe Bursting machines need to display the minimum qualifications for the pipe replacement successfully and reliably. Indian Society for Trenchless Technology, the apex organization to promote the application of Trenchless Technology under its Trenchless Technology Operator Qualification Programme is conducting this process in India and other South Asian Nations.

Any operator of these machines needs to undertake the prescribed competency tests at defined intervals to get the certification as a qualified operator. At no point of time any machine owner/operator would permit non-certified or persons with expired certificates to operate the Pneumatic/Static Pipe Bursting machines.

PRIOR ACHIEVEMENT EVIDENCE

Persons undergoing this certification should have a Degree/Diploma in Civil, Electrical, Mechanical or Trenchless Engineering from any recognized institution or 10th + 4 years relevant experience.

PERFORMANCE STANDARD

Qualified candidate should be able to display competence in the following sections of Pneumatic/Static Pipe Bursting works:

- Ability to consider the most important basics of jobsite preparation when planning the complete project.
- Awareness of general safety precautions and ability to use them at site.
- Awareness of electrical safety precautions and ability to use them at site.
- Ability to understand maps, plans and reports on existing networks such as GPR report.
- Ability to determine geometry, size and depth of pipe, ground conditions and condition of the existing pipe
- Ability to understand general description of the method and sequence of operations.
- Ability to assess the design needs of the insertion/receiving and lateral connection pits.
- Ability to evaluate the measures adopted to protect existing utilities and risks associated with the selected method of bursting.
- Capacity to assemble and set up pipe bursting equipment correctly under varying job site conditions.



Indian Society for Trenchless Technology

TTOQP 10

Operator

Level Structure Pneumatic/Static Pipe Bursting

- Ability to select the type and capacity of bursting equipment for the proposed work.
- Ability to anticipate problems in machine.
- Ability to carry out common maintenance and problem solving measurements independently.

MINIMUM PERFORMANCE STANDARDS

While executing the Pneumatic/Static Pipe Bursting operations the operators need to display the following minimum qualifications:

1. Safety during work

- i. General precautions necessary for safety of structure and operators;
- ii. General precautions necessary for safety of machine;
- iii. Necessary Aids for safety are used without fail;

2. Read working drawings / Sketches and proceed with work

- i. Given a set of drawings / sketch requirement of machine and related tooling worked out and the scope of work understood;
- ii. The work is executed as per drawings / sketches;

3. Knowledge and use of equipment and tooling

- i. Proper identification of equipment tools.
- ii. Proper parking/storage of equipment and tooling;
- iii. Proper use of tools.

4. Knowledge of machine operating procedure and sequence

- i. Machine is properly connected to desired power points and all related accessories are connected properly.
- ii. Voltage, frequency, current potential, and polarity are checked.

5. Knowledge about defects, their remedy and acceptance limit

- i. Identified the defects of machine.
- ii. Remedy to the defects is known.
- iii. Acceptance limit as per standard code is known.

PERFORMANCE EVIDENCE

1. Helmet, Hand Shields, Safety Goggles, Gloves etc. are used.
2. Operator's health is fit before he goes to job.
3. The machine operator identified the proper tools for work.
4. The machine operator knows the use of specific tool.
5. For a set of approved plan drawings comprising type, size and location of all machine tools demonstrated for all requirements as per performance criteria.
6. The work is done as per demand of drawings.
7. Operator knows how to make machine ready for use.



Indian Society for Trenchless Technology

TTOQP 10

Operator

Level Structure Pneumatic/Static Pipe Bursting

8. Proper earthing is provided.
9. Proper polarity is confirmed.
10. Loose connections are checked.
11. All the defects in different type of machine are clearly identified.
12. Possible remedy to the defects identified is given.
13. Variation allowed as per codes are very well known.

SUPPLEMENTARY (KNOWLEDGE) EVIDENCE

In addition to the prior achievement evidence a trainee needs to display the following supplementary knowledge evidence for the course completion and being permitted to operate the Pipe Bursting machines independently:

1. Reading and writing in vernacular language.
2. Ability to conduct area and volume calculations.
3. Understanding about required precautions in pipe bursting
4. Understanding about the methods of spoil storage and disposal
5. Possession of knowledge of various basic norms;
6. Possession of knowledge of basic electrical hazard prevention methods;
7. Awareness about basic operator's manual for Pipe Bursting machines required for site works.