

Method Statement for Chilled Water Pipe Welding

1.0 Purpose:

To define the Method of Welding Pipe Lines.

2.0 Scope:

The Method is applicable to all ERW, Black Steel, Schedule 40, Grade 'B' and fittings, in accordance with Specification for pipe sizes 65mm dia. and above.

3.0 Method:

3.1 Preparation:

Before commencement of any welding the following works are required to be carried out.

3.1.1 Check materials to be used have approved material submittals.

3.1.2 Check work areas are clean and safe ensuring that the area is free of all flammable or volatile material.

3.1.3 All welding work shall be carried out in open or ventilated areas.

3.1.4 Welders qualification will be verified as per requirement.

3.2 Welding Procedure:

3.2.1 Measure length of pipe required, making due allowance for any pipe fittings to be used. Cut the pipe to the measured length and ensure that the ends are cut square.

3.2.2 Prepare the end of the pipe to be welded to the right angle of level and the size of the root face in accordance with procedure Specification. The surfaces to be welded shall be smooth, uniform and free from tears, scale, slag, grease, paint and other materials that might affect the quality of welding. Power tools or hand tools will be used for cleaning, grinding or both.

3.2.3 The two prepared ends to be welded, pipe to pipe or pipe to fitting, shall be aligned as accurately as is practical and ensuring that the spacing between the abutting ends is in accordance with the procedure specification used. The alignment of the abutting ends shall minimize any offset between the surfaces caused by dimensional variations and will equally distribute around the circumference of the pipe any such offset. Hammering of the pipe to obtain proper lineup will be kept to a minimum.

3.2.4 The two prepared ends shall be tack welded together in four positions at ninety degrees. After tacking, the alignment shall be checked to confirm the integrity of the

alignment has been preserved. During the welding process the tacks shall be removed by grinding.

3.2.5 The welding process will commence, ensuring that the correct filler metal, electrical current, polarity, voltage, amperage and number of passes is in accordance with the welding procedure. All slag or foreign matter shall be removed from each pass of welding, including the repair of any visible defects, such as crack, cavities, etc., prior to commencing the succeeding passes. Any such impurities shall be removed using a grinder.

3.2.6 On completion of the welding process the welders designated identification mark will be placed adjacent to the weld. This weld will also be given a unique joint number as indicated on the drawings.

3.2.7 The weld shall be visually inspected to check for inadequate penetration, excessive undercutting, burn-through, and to ensure the weld is free from cracks.

3.2.8 The weld shall not be cooled by water.

3.3 Welding Electrode Storage and Handling:

3.3.1 The welding electrodes upon delivery are stored in an air-conditioned area. The electrodes are transferred to a welding rod holding oven when space in the oven available. The oven is thermostatically controlled and maintains a constant 100° F (38°C). The shelves are vented to allow an even heat distribution in the oven. All welding electrodes will be placed in the oven for a minimum of 48 hours before they are transferred to site for use.

3.3.2 Once transferred to the site the electrodes are stored in each welding operative's heated quiver. Operatives are instructed to take only the quantity they require to carry out the welding work presently undertaken. However, any surplus electrodes will be checked and stored back in the oven.

4.0 Inspection & Testing:

4.1 100% visual inspection will be carried of all welded joints.

4.2 All weld joints will be subjected to hydrostatic testing to a minimum of 1.5 times the operating pressure.

4.3 Inspection requests will be raised for Consultants visual inspection and witness testing.

4.4 Non-destructive test on selected joints will be conducted.

4.5 Sample welding test will be organized for all welders.

5.0 Reference Documents:

5.1 Applicable approved drawing.

5.2 Welding Procedure Specification and PQR

5.3 Welders Certificates (Welder's Qualification Certificate)

6.0 Safety:

6.1 Safety items to be provided shall include fire extinguishers and welding screens.

6.2 Welding cables to be checked regularly for visual signs of damage. Joints to be sheathed and taped.

6.3 Prior to commencement of work check welding M/C, current, voltage, earthing, etc., for safety.

6.4 Safety equipment (Example: Hardhats, Safety shoes, Overalls, Gloves, Goggles as necessary) to be worn at all times. Standard welding Safety kit of shields, gloves, etc. to be provided for each welder. Glasses to be checked for cracks / weld spatter.

6.5 Hot work permit to be obtained as per the site safety procedures prior to the commencement of work.

6.6 Site safety office will check and ensure all safety precautions are taken prior to commencement of welding.

7.0 Attachments:

7.1 Welding procedure specification (WPS).

7.2 Procedure qualification record (PQR).

7.3 Welders qualification records (for 10 persons).