pipe wall thickness.

iii. The difference between two single bead widths shall not exceed 10% of the double bead width.

iv. The weld beads shall be free from all contamination and have a smooth even surface with no evidence of distortion, holes or bubbles.

v. At the direction of the Engineer external beads shall be removed with an approved tool and inspected for contamination and defects. They shall also undergo bend back testing. Beads should be solid and rounded with a broad root as hollow beads with thin root and curled appearance can be indicative of excessive pressure or no heat soak.

vi. Each removed bead shall be numbered with its corresponding joint number clearly displayed and removed beads shall be retained for inspection by the Engineer.

vii. The width of each external bead width shall be measured using bead gauges and the width of the bead shall be within the range given by the pipe and / or welding equipment MANUFACTURER.

viii. No signs of damage (such as scratches or deep impressions caused by clamps) shall be visible on either side of the joint.

ix. Any joints the do not comply with the above requirements shall be cut out and a new joint made; the failed joint shall be handed over to the Engineer.

x. Records of all tests and inspections shall be maintained by the Contractor and made available for review and approval by the Engineer.

20.3.4 Testing of Joints

A. A minimum, 1 % of all butt fusion joints shall be cut out and destructively tested under laboratory conditions in accordance with ISO 13953 by an approved testing organization. The joints to be tested shall be selected by the Engineer immediately upon completion of the welding process, whereupon they shall be cut out and delivered for testing.

B. A minimum of 1 % of all electro-fusion fittings shall be cut out and destructively tested under laboratory conditions in accordance with ISO 13954 by an approved testing organisation. The fittings to be tested shall be selected by the Engineer immediately upon completion of the welding process, whereupon they