GLOSSARY OF LINED PIPE STANDARDS INCLUDING QUALITY ASSURANCE TESTS

Mechanical property test on all powder extrusion products to ASTM 792, 621 & 638

All liners are batch processed. On every batch a representative sample is prepared and a density, elongation and ultimate tensile test is conducted. This information is recorded and filed for future reference. Every liner tested has a unique serial number which enables Companies to trace the liner within a finished product.

Visual Cosmetic & Design Test. ASTM 1545-97

All liners are thoroughly examined for cracks, gouges, nicks or inclusions of foreign particles. If any of these faults are observed, and the defects measure greater than 10% of the liner thickness, the liner is subject to rejection. Final products are inspected for any defects, cosmetic irregularities and paint thickness tests are done to ensure that they comply with appropriate standards.

Weld Penetration Test

At an additional cost Companies can employ a welding test institution to conduct a full die penetration weld test and X-ray weld test where full penetration is required. Companies as a norm does not weld more than 85% penetration due to the liner being interference fitted into the steel housing, causing it to sheer when pulled in. All welders are certified and welding procedures, welder certification and weld preparation can be presented. All welding is performed by welders who are certified to ASME Boiler & Vessel Code Section IX.

Electrostatic Spark Test ASTM 1545-97

All liners are spark tested to a 10,000 – 15,000 volts non-destructible electrostatic test before and after lining. The test comprises of a brush probe and an electrical contact to the housing. If an audible or visual spark is detected, the current has passed to the housing.

Hydrostatic Pressure Test ASTM 1545-97

Hydro-static pressure testing is done in accordance to ASTM 1545-97. All fittings are hydrostatic pressure tested after lining to 425 PSI (29.3 Bar). For class 300 products higher pressure valves are required.

Vacuum Temperature Failure Test ASTM 1545-97

All recorded values in this data catalogue are based on a vacuum test at different temperature ranges as per the ASTM 1545 test methods. The temperature range varies between room temperature, to intermediate, to recommended service temperature. Full vacuum is defined as 29.6.in Hg corrected at sea level. The

vacuum rating shall be 80% of the failure threshold value. This test can be done at an additional charge on representative samples chosen.

Steam/Cold Water Cycling Test ASTM 1545-97

This test is done on representative production samples of pipe & fittings subjecting them to steam-cold water cycling to determine the ability of the lined component to withstand rapid temperature change. The sample should not give evidence of any leakage from the vent holes behind the liner during 100 cycles and on completion of the test the liner shall exhibit no buckling or cracking. On PFA, PTFE & FEP, formation of water blisters shall not be cause for rejection, as the blisters do not adversely affect the liner performance subsequent to steam being trapped and condensing in the liner. This test is only done at the request of the customer. Additional charges may be applicable.

Dimensional & Tolerance Check. ASTM 1545-97

All steel housings are measured and inspected to ensure they comply with dimensional tolerances prior to lining. A routing sheet is signed off clearing the way for a product to enter the lining section. Refer to the fabrication section for tolerance details.