



Fins have been observed on finished linings. They are raised localized ridges which appear to involve only the coated layer, but the underlying felt may also be involved in some circumstances.

Causes: Reasons for the formation of longitudinal fins on the internal surfaces of liners. The occurrence of longitudinal fins may be associated with the difficulties of measuring the perimeter of the host pipe resulting in an oversized liner.

This is most likely to occur in irregular shaped pipes, for example in egg-shapes, flat topped or flat bottomed conduits. Another reason may be the unintentional relative movement of coated and underlying layers which can occur at any stage of manufacture, impregnation or installation. Once a local excess of coated material has been induced it is unlikely that it can be pulled out and will remain as a fin. A common location for a longitudinal fin is along the edge of the layflat, often at 90 degrees from seam. (See Figures below).



Figure 1 :: Small longitudinal fin.



Figure 2 :: Large longitudinal fin.



Figure 3 :: Another example of a large longitudinal fin.

Solutions: Longitudinal fins are difficult to avoid completely, but careful handling—avoiding the movement of layers relative to each other—would be one strategy. Closely observe the performance of the impregnation equipment, identifying locations where shear stresses might be occurring and plan to eliminate these locations by re-design or re-arrangement as required. During installation avoid situations where excessive longitudinal temporary tensile loads are applied to the lining which may cause relative movement of the layers causing longitudinal fins to arise.