**HOT VULCANISED LAGGING - TEST PIECE PROCEDURE**

Test Pieces are to be prepared and tested for each pulley. The following process ensures that the testing is reflective of the lagging application for each pulley, as both the pulley and the test pieces are prepared the same way, at the same time. This test piece process is also designed to avoid performing destructive tests on the actual pulley after the lagging process has been completed, which can create a weak point.

**Mild Steel Test Piece**

These should be made as per the below dimensions. The steps to prepare the steel surfaces of both the pulley and the test pieces must be done concurrently, and this also applies for each subsequent step of the lagging process. This means when the pulley shell surface is blasted, so are the steel test pieces. When the pulley shell is primed, so are the test pieces and so on. A Lagging Application Procedure should be supplied by the lagging manufacturer, as well as a QA Procedure which includes the preparation of test pieces.

A pair of metal plates with holes

Description automatically generated with low confidenceA close-up of a check

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**Lagging Sample**

To prepare the lagging samples for the test pieces, cut the required number of sample pieces from the same batch of lagging that is being applied to the pulley. These can be cut from the end of the lagging strips. Each sample piece should be 30mm (1 ¼”) wide and 250mm (10”) long. Ensure that the sample is cleanly cut with no nicks or areas that would concentrate stress during testing.



Apply tape around one end of the steel test piece. This will prevent the lagging sample from adhering to this section which is required for the pull test. When applying the lagging sample to the steel test piece, ensure that the opposite end to the taped section of the steel piece has the hole uncovered which is also needed for the pull test.

A picture containing tool, nail, person, hand

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The recommended number of test pieces per pulley is dependent on the size of the pulley. The reference to ‘Top’ and ‘Bottom’ refer to the positioning of the test pieces when the pulley is positioned in the autoclave for curing.

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**Testing Process**

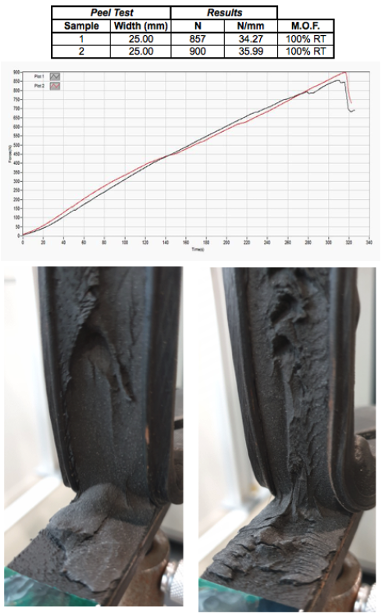
After the pulley has been cured, unwrap the samples from the pulley and allow a minimum of 24 hours before completing the adhesion testing.

To complete the testing, clamp down the sample using the through-holes and apply a load to overhung end of the sample. This is a 90 degree pull test, and the recommended pull speed is 50mm per minute. Measure and record the maximum force at which the lagging separates from the steel test piece. From the results achieved, calculate the final bond strength results in the form of N/mm (Newtons per millimetre). To do this, convert the force recorded to Newtons and divide by the steel test piece width (25mm).

**Test Results**

To pass the Hot Vulcanised adhesion test, the results must be:

|  |  |
| --- | --- |
| Adhesion Test Result | >20N/mm |
| Test Failure Mode | 100% Rubber Tear |

If you don’t have access to the required testing equipment, contact the lagging manufacturer for assistance.