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## **Tests on the Turnlok 355 System Scaffolding**

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## 1. Introduction

This report describes a range of tests carried out on components of the Turnlok proprietary scaffolding system. A set of four drawings that describe the primary components of the system are given in Appendix E.

This series of tests was carried out generally in accordance with the recommendations contained in BS EN12811-3:2002 entitled “Temporary works equipment Part 3 Load testing”.

The following tests were made:

- Cyclic load tests on Ledger to standard connections.
- Cyclic load tests on omega transom to standard connections.
- Cyclic load tests on façade bracing.
- Vibration tests on ledger to standard connections.
- Tensile and hardness tests on samples cut from the test pieces.

The tensile tests were made on samples cut from the test pieces in order to be able to adjust the test results back to the specified minimum yield strengths, and to establish the mechanical properties of the tested components where such adjustments are not practicable. For some of the samples, tensile testing was not practicable and hardness tests were made instead, from which the ultimate tensile properties were derived.

## 2. Cyclic tests on ledger to standard connections

The test arrangement for these tests is shown in Figure 1. The ledger to standard connection is connected into a short length of the standard mounted in the test rig, and a vertical load applied to the ledger at 400mm from the centreline of the standard, putting the connection into bending. In the arrangement shown, referred to in this report as “normal”, the load and the corresponding rotation are taken to be positive. The arrangement for negative loading and rotation is shown in Figure 2. This arrangement is referred to as “inverted”.

In these assemblies the standard is clamped to a rigid support and a ledger attached to it. The wedging ring is given a firm blow with a soft hammer to lock it into place. The load is applied hydraulically on a line 400mm from the centreline of the standard. The free end of the ledger is set between greased guides to ensure vertical displacement only.

The rotation of the ledger relative to the standard is measured by observing the difference in the movement of two displacement transducers mounted 50mm apart on a bracket fixed to the ledger. From each test a Graph of the applied moment against the observed joint rotation has been prepared.

Two pilot tests, one in each direction, were made on the connection to give an estimate of the characteristic moment. The results of these tests have been plotted in Graph 1.