

Product Load Test Report

Oxford Plastic Systems 12/8 Safe Cover

Test date: 10/5/2018

Summary

The Oxford Plastics 12/8 Safe Cover has been tested over a span of 700mm. It was tested in accordance with Highway Authorities & Utilities Committee (HAUC) advice note number 2018/01.

The performance required by the advice note is a maximum deflection of 5% of the span at a working load of 400kg and an ultimate load greater than 800kg.

A single product was tested which passed both requirements. The deflection at 400kg was 0.6% of span (4.5mm) and the ultimate load was 2420kg.

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Introduction

This document reports on the testing of the Oxford Plastics 12/8 Safe Cover.

Testing has been completed following the requirements specified in the Highway Authorities & Utilities Committee (HAUC) advice note 2018/01.

This advice note also specifies the following performance requirements in section A3.1.

When loaded at the centre, footway boards should be capable of supporting a working load of 400kg with a deflection of no more than 5% of the maximum allowable span over the design life of the board. The ultimate failure load should not be less than 800kg.

The 12/8 Safe Cover is specified for a maximum span of 700mm. Therefore the maximum deflection allowed under a load of 400kg is 35mm.

Product

Oxford Plastic Systems 12/8 Safe Cover (see Figure 1 below)

Length: 1225mm

Width: 820mm

Height: 36mm

Weight: 14.20kg

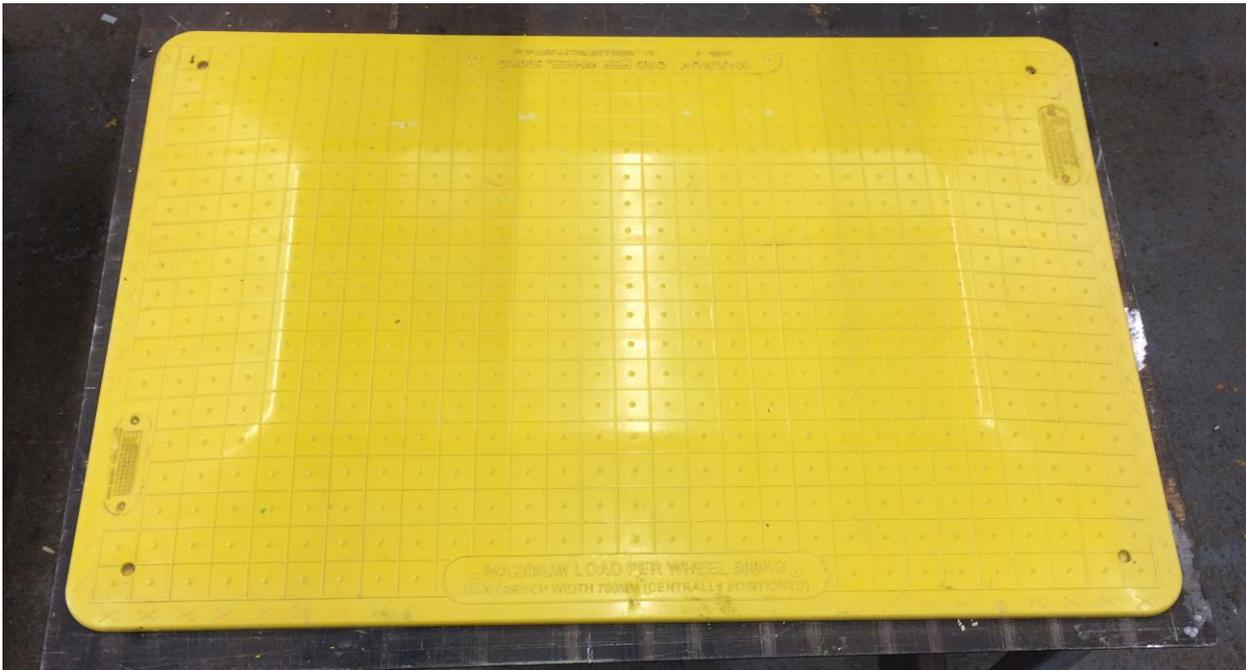


Figure 1: Oxford Plastic Systems 12/8 Safe Cover

Test Equipment

The testing equipment used is listed below:

Load Cell

PT Global Universal High Accuracy Load Cell

Displacement Sensor – reading from the centre of the underside of the product

PiL Ultrasonic distance sensor

Actuator

Power Team 229.5kN double acting hydraulic cylinder

Data logger

Pico Technology ADC-20

Test Setup

Section A2 of the HAUC advice note requires that product not be fixed and is loaded in the centre with a 250mm diameter load pad.

The supports are unspecified and have been selected to simulate trench sides. The test setup can be seen in the diagram below (Figure 2). The black in the diagram indicates the location of the load pad and the supports.

Span: 700mm

Load pad: 250mm diameter steel plate, cushioned with 8mm PVC

Supports: Steel I-beams to simulate trench sides

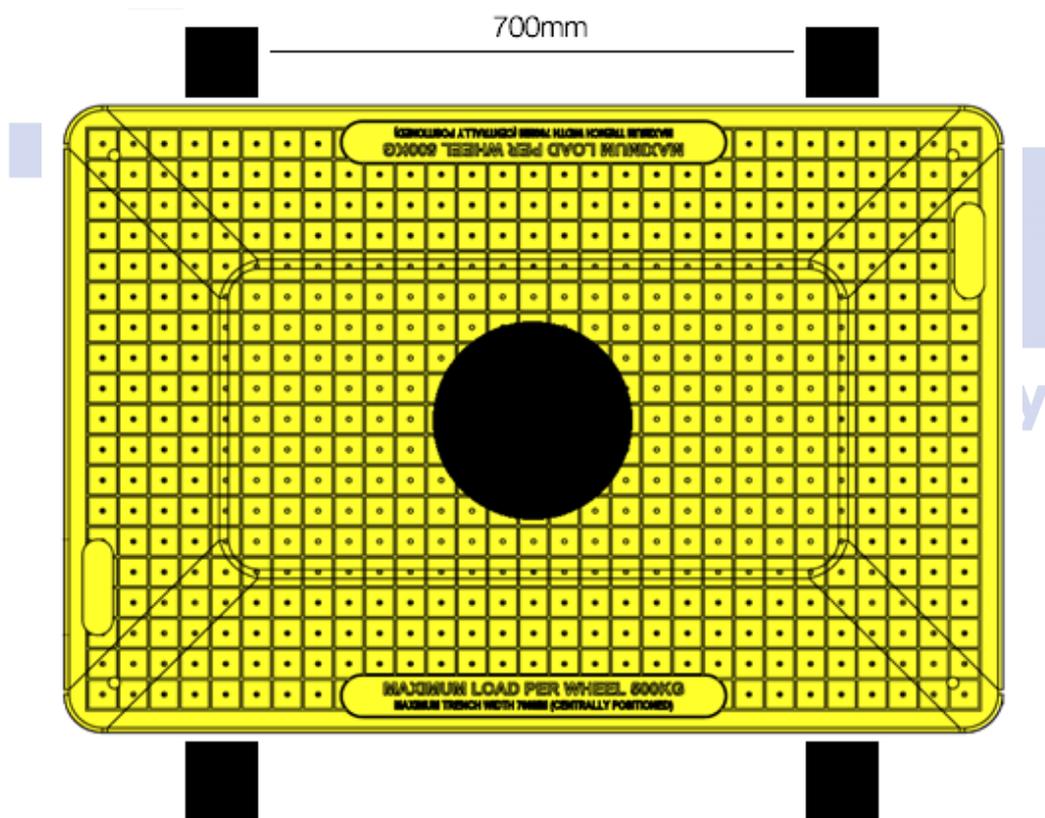


Figure 2: Test load footprint and location

Testing Process

The load was applied at a rate of approximately 100N/s. Loading was increased until the ultimate load was achieved which defined as when the force decreased over an extended period as deflection increased.

Figure 3 below shows the product at the beginning of the test. An accompanying video of the test is also available.

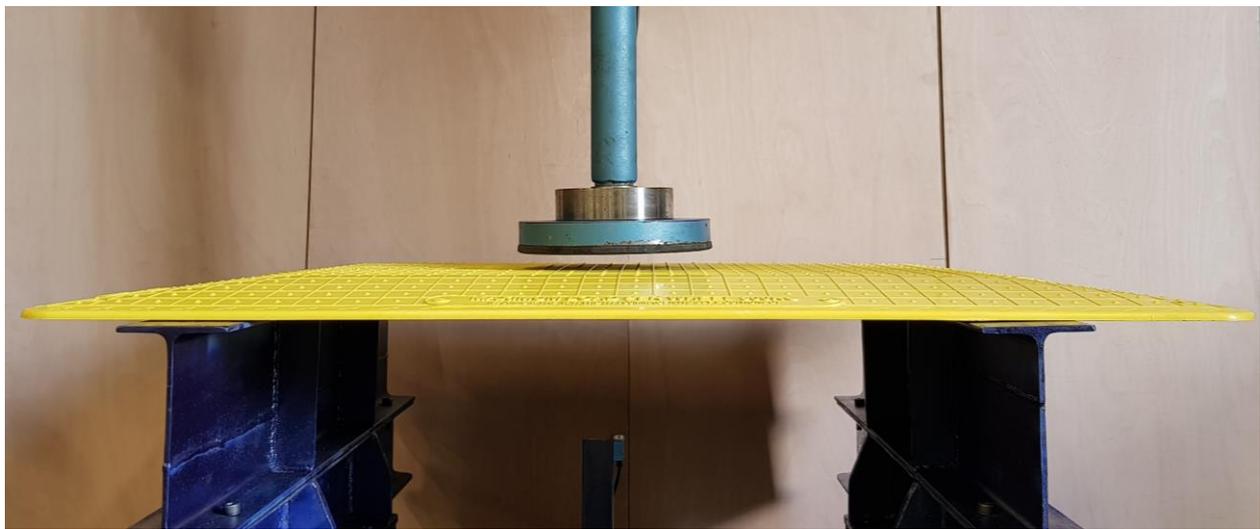


Figure 3: Screen shot just prior to testing

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Results:

Load and displacement were recorded and graphed. The results are displayed in Figure 4 below.

At a working load of 400kg a deflection of 4.5mm was recorded. This equates to 0.6% of the span. The ultimate failure load was recorded as 2420kg.

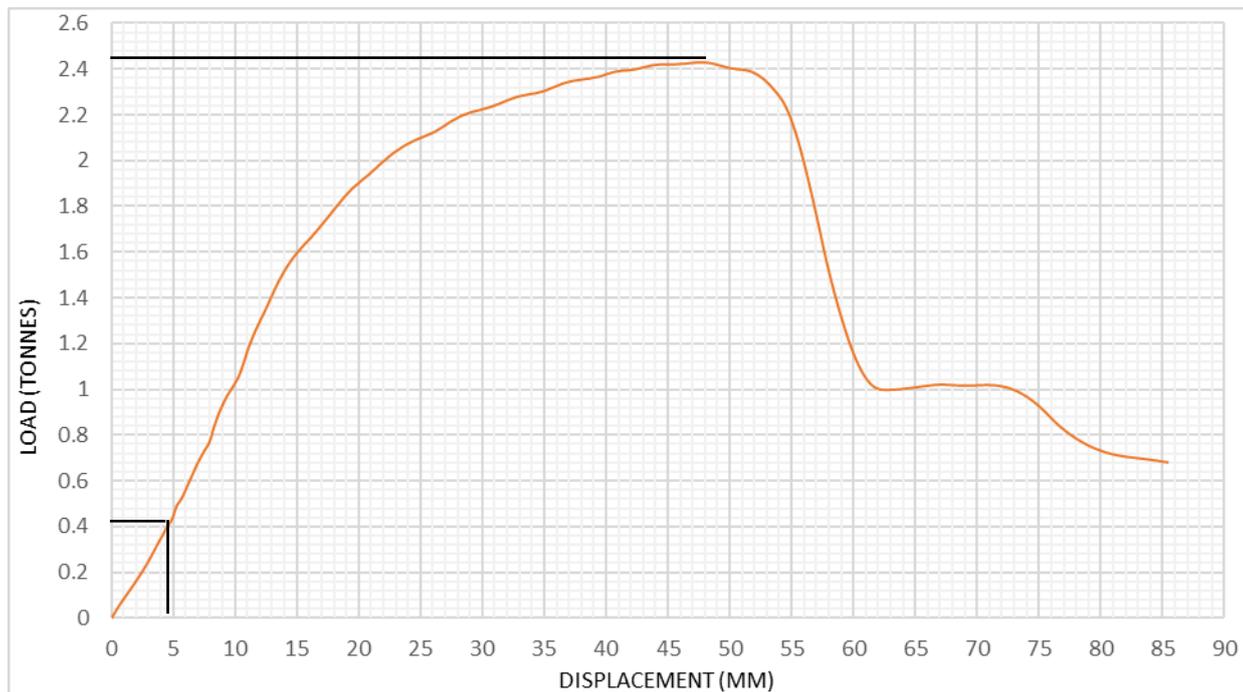


Figure 4: Test Results 12/8 Safe Cover Load vs. displacement