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BRE Test Report

Testing of New Age Glass Access Hatches

Prepared for: Marc Parkinson
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1 Introduction

Following instructions from Marc Parkinson (New Age Glass Ltd), BRE have completed a set of slip resistance and load tests on a type of access hatch. The panels were delivered to BRE on the 23rd of March 2022. The panels were tested on the 28th and 29th of March 2022.

This report provides a factual account of the testing carried out.

2 Test programme

2.1 Slip resistance tests

The slip resistance testing was carried out using a TRRL Pendulum Tester and followed the method described in *"The assessment of floor slip resistance"*, The UK Slip Resistance Group Guidelines (UKSRG) Issue 5 2016. The test was carried out in both wet and dry conditions using the 'Slider 96' (standard pedestrian) type rubber. Photographs of the setup and equipment used for conducting these tests are shown in Figure 1. Testing was carried out by Ian Rance (BRE) on the 28th March 2022.

The results of the testing have allowed an assessment of potential for slip to be made based on Table 4 from the above publication reproduced below.

Table 4 Slip potential classifications for PTV

Slip Potential	PTV
High	0-24
Moderate	25-35
Low	36+

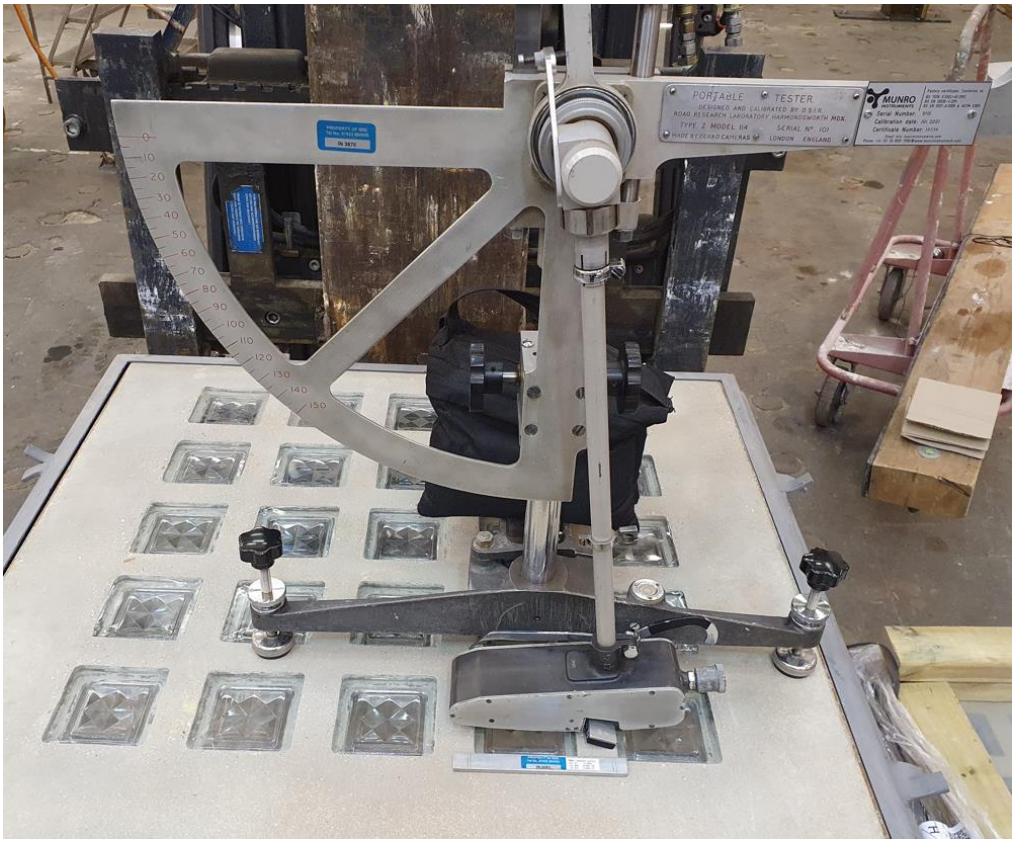


Figure 1. Showing BRE Pendulum tester.

2.2 Ultimate load tests

After the slip testing was undertaken, ultimate load tests were undertaken on three panels of an NAG Access Hatch (technical drawing in Appendix A). For testing, the access hatches were installed in a bespoke rig in BRE's Structural Laboratory (Figure 2 and Figure 3).

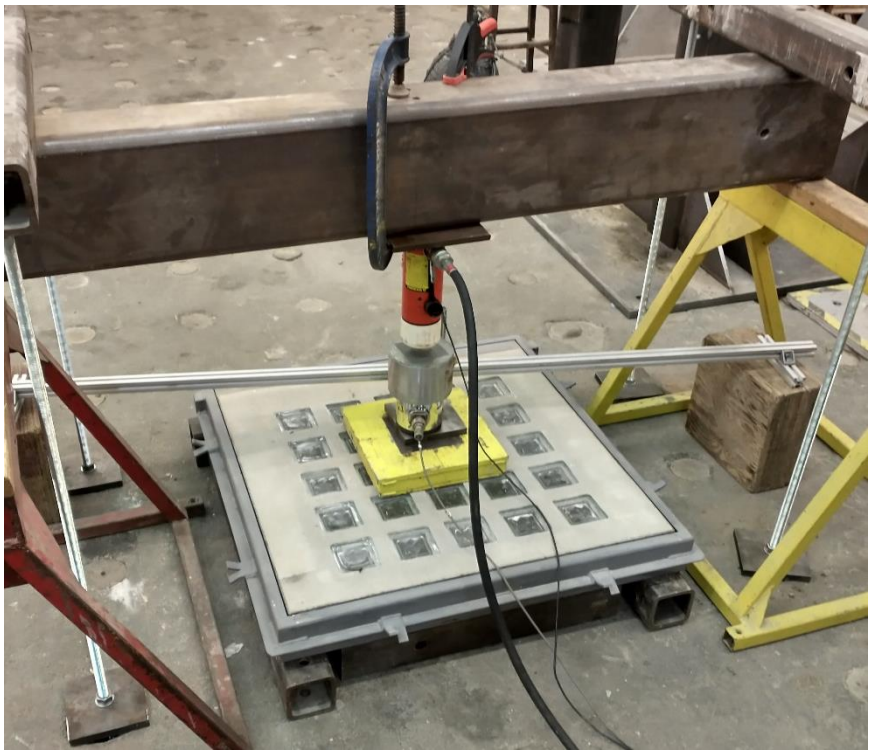


Figure 2. Ultimate load test setup

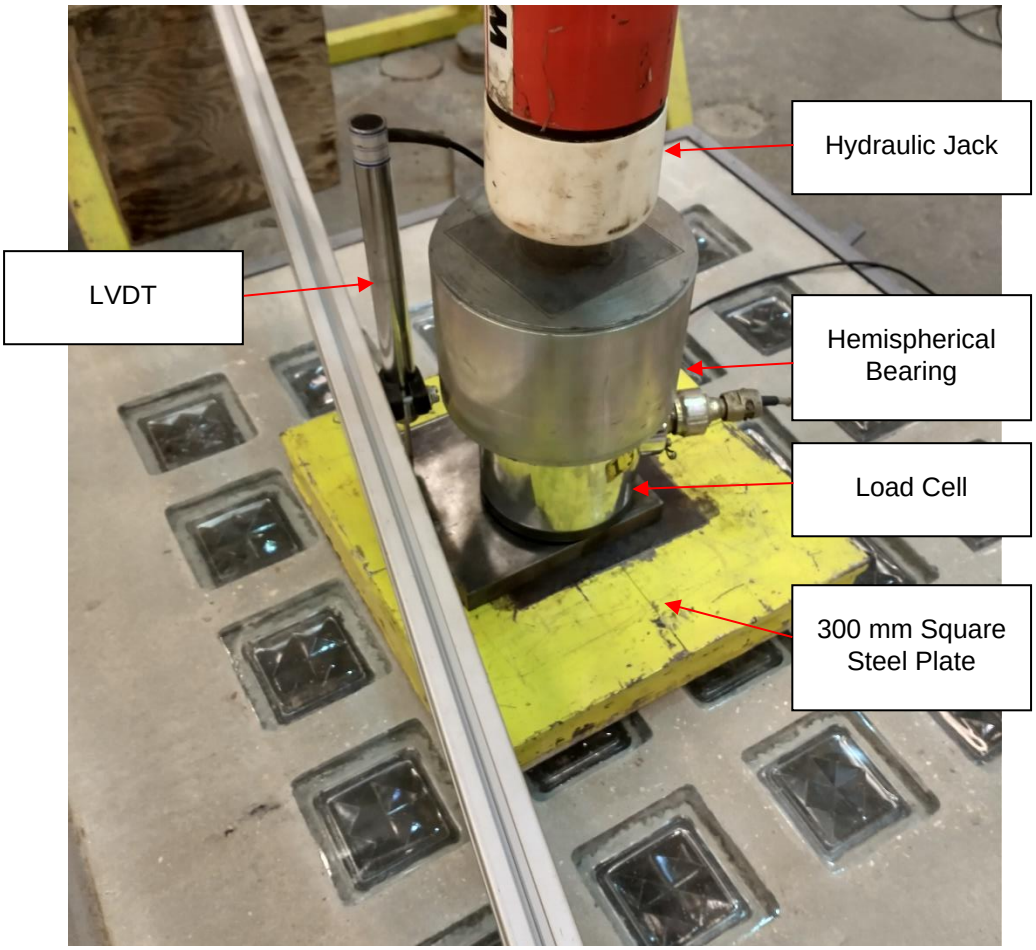


Figure 3. Ultimate load test setup (close-up)

The steel frame of the specimen was raised off the floor of the lab on 100 mm square hollow sections. The load was applied using an hydraulic jack and hand pump, and measured using a 300 kN NCB Type 403 load cell. The load was applied to the centre of the specimen via a hemispherical bearing and 300 mm square plate. During testing, the deflection of the steel plate was measured using a Linear Variable Differential Transformer (LVDT).

3 Test results

3.1 Slip Resistance Test Results

Table 1 shows a summary of the slip resistance test results.

Location	Panel 1	Mean PTV dry	Potential for slip dry	Mean PTV wet	Potential for slip wet
L1	Clear glass	60	Low	30	Moderate
L2	Clear Glass – concrete – Clear Glass	64	Low	51	Low
L3	Concrete Finish	67	Low	57	Low
Location	**Panel 2**	**Mean PTV dry**	**Potential for slip dry**	**Mean PTV wet**	**Potential for slip wet**
L1	Frosted glass	66	Low	48	Low
L2	Frosted Glass – concrete – Frosted Glass	68	Low	50	Low
L3	concrete Finish	70	Low	63	Low

Table 1. Summary of slip resistance test results

3.2 Ultimate Load Test Results

Figure 4 to Figure 6 show the Load Vs. Deflection graphs for the testing undertaken. It should be noted that during Test 2 it was apparent that the bar carrying the LVDT had been caught during testing by the hemispherical bearing. As such the graph stops at the point the deflection data is no longer deemed correct, however the load does increase to the maximum load stated in Table 2.

Test ID	Maximum Load (kN)
Test 1	80
Test 2	102
Test 3	96

Table 2. Maximum loads achieved during testing

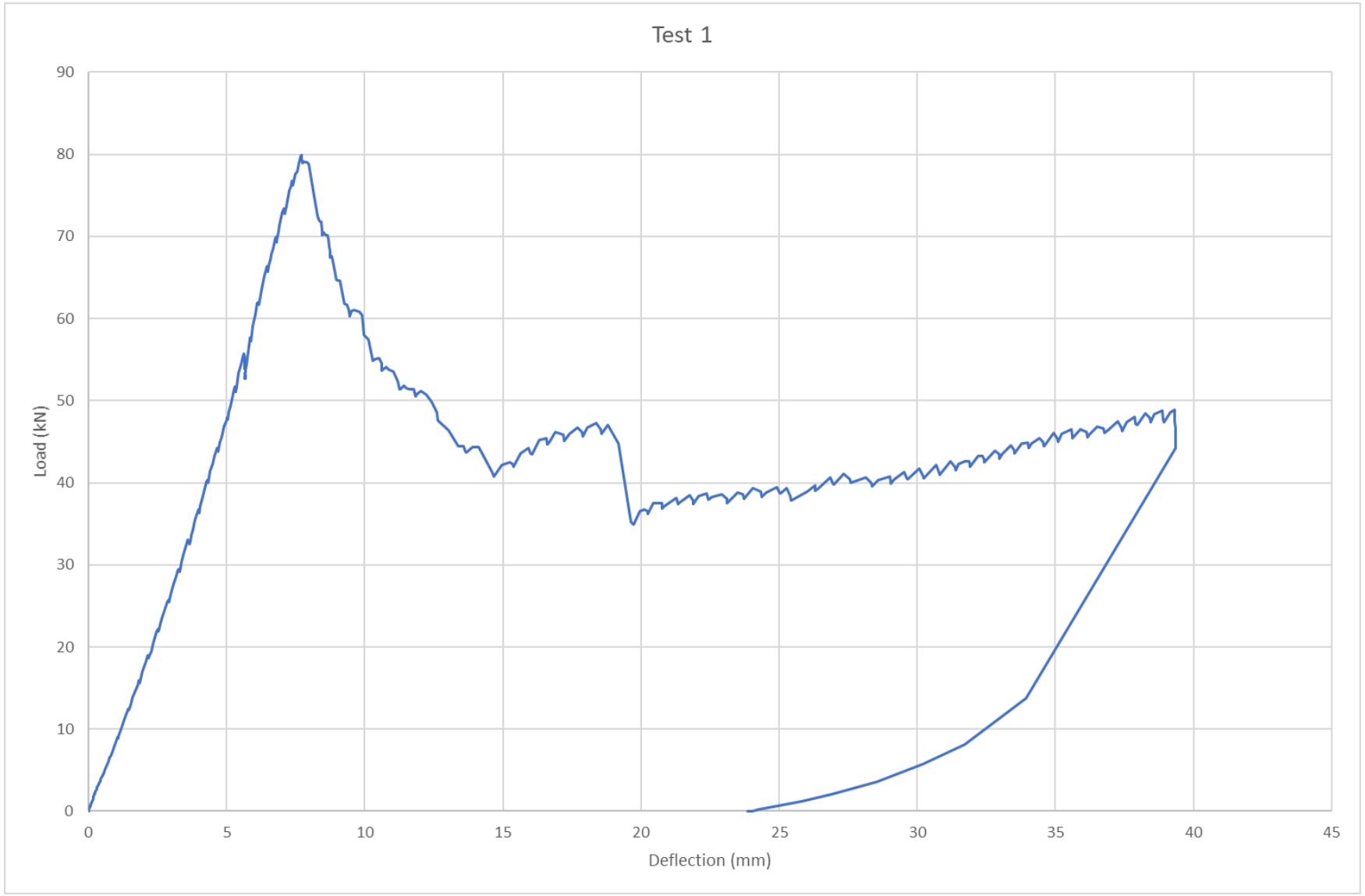


Figure 4. Load Vs. Deflection graph for Test 1

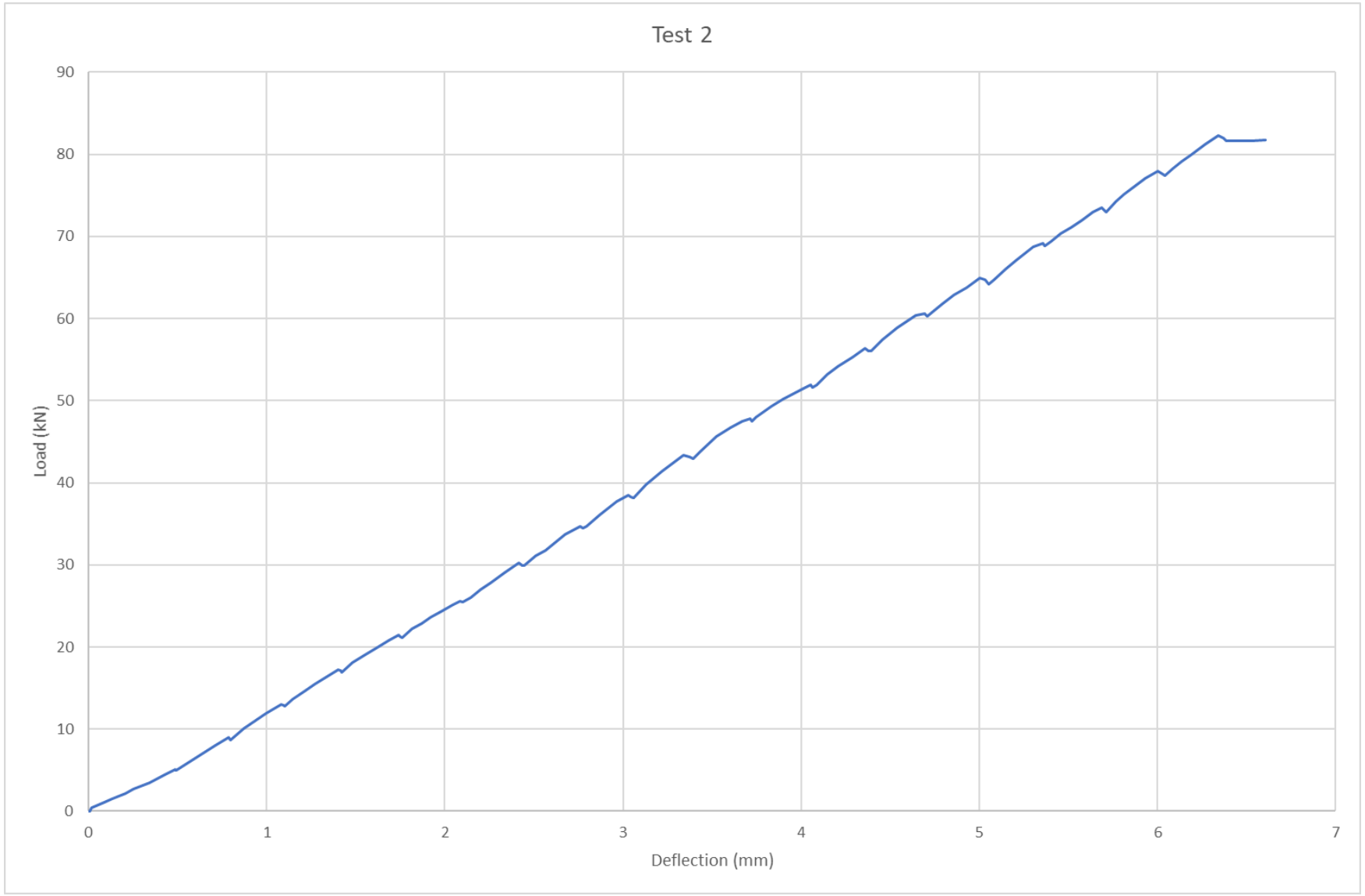


Figure 5. Load Vs. Deflection graph for Test 2

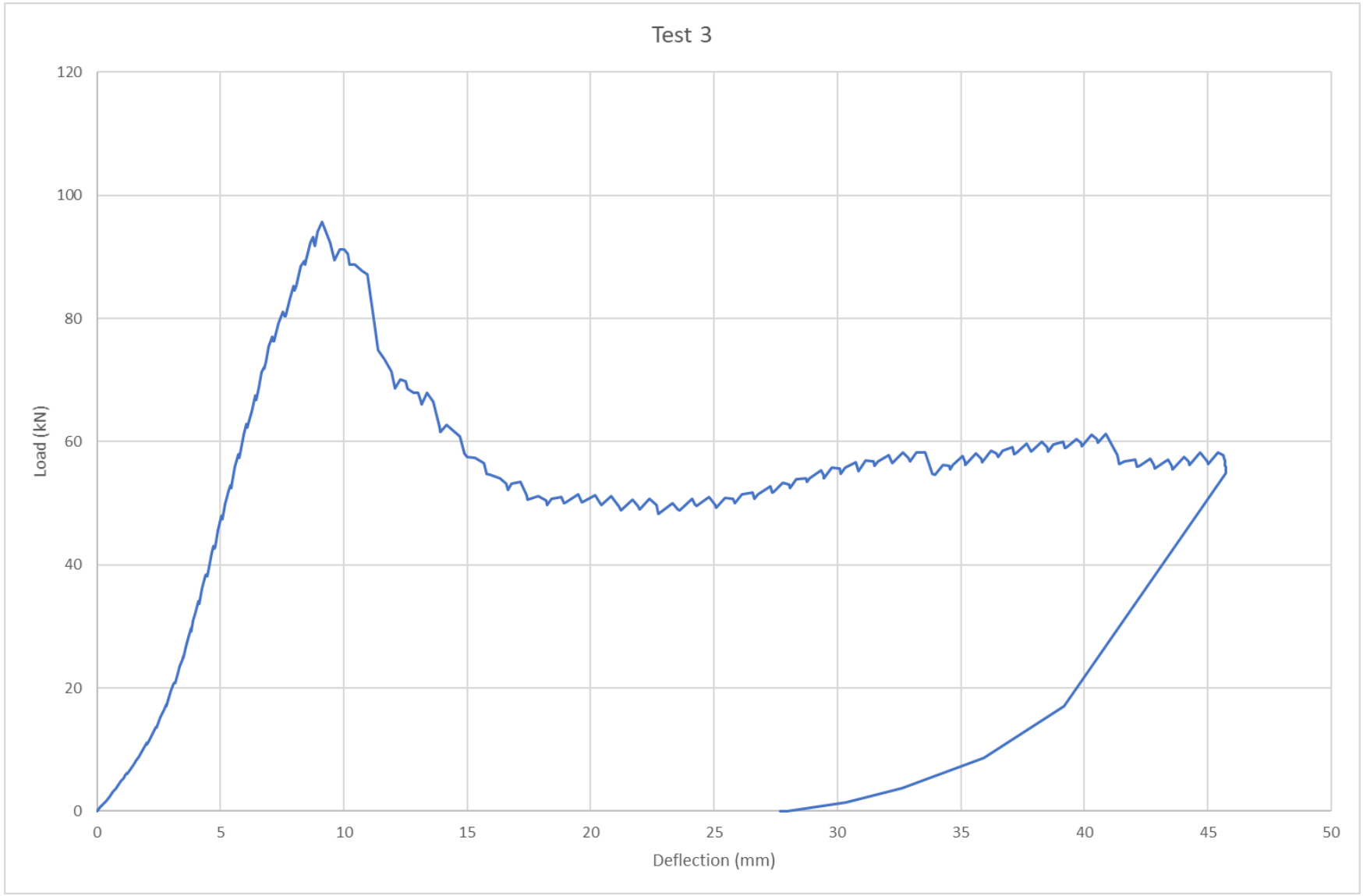
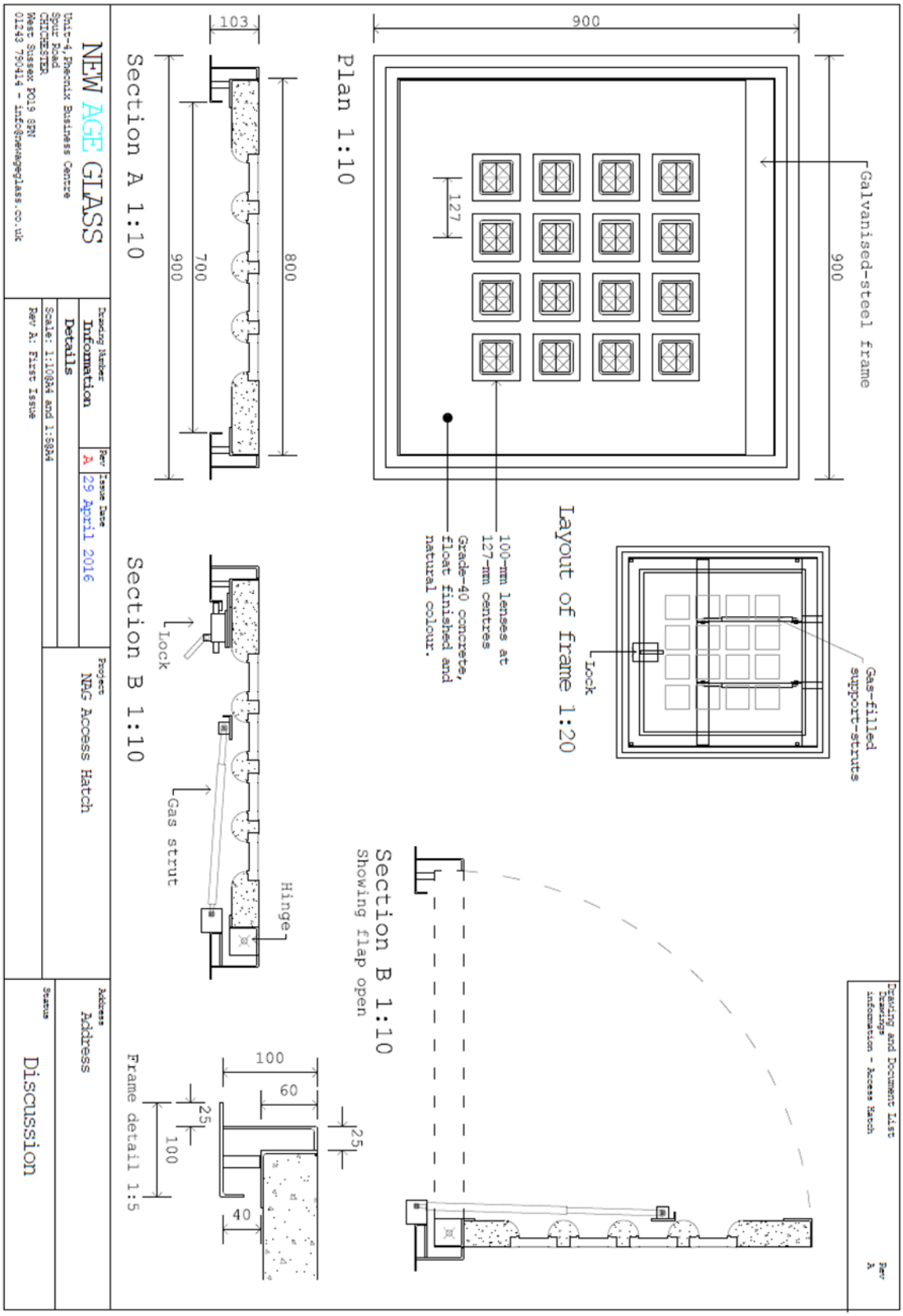


Figure 6. Load Vs. Deflection graph for Test 3

Appendix A Technical Drawing of NAG Access Hatch

This appendix contains the technical drawing of the NAG Access Hatch supplied by New Age Glass. It should be noted that the specimens were supplied without the gas filled support struts and lock.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Drawing Number
Information
Details
Rev
A
Issue Date
29 April 2016
Scale: 1:10@A4 and 1:5@A4
Rev A: First Issue
Project
NAG Access Hatch
Address
Address
Status
Discussion
Drawing and Document List
Drawings
Information - Access Hatch
Rev
A
Plan 1:10
900
900
127
Galvanised-steel frame
100-mm lenses at
127-mm centres
Grade-40 concrete,
float finished and
natural colour.
Layout of frame 1:20
Lock
Gas-filled
support-struts
Section A 1:10
103
800
900
700
Section B 1:10
Lock
Gas strut
Hinge
Section B 1:10
Showing flap open
Frame detail 1:5
100
60
25
25
100
40