Laboratory Test Report

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In Confidence to the Client:
REPEAT PLASTICS AUSTRALIA PTY LTD
Attention: Frant Seter
50 Elsworth Street East
Canadian VIC 3350

COMPRESSION LOAD TESTING OF PLASTIC BAR CHAIRS

Date of Testing: 6 May 2024

TEST SYNOPSIS:

A consignment of plastic bar chairs for reinforced concrete was delivered by the client, REPEAT PLASTICS AUSTRALIA, to the MTS laboratory for compression load testing (see Fig.1). The aim of the testing was to determine the load performance and strength grade of the products in accordance with the normative load and deflection requirements of AS/NZS 2425:2015 BAR CHAIRS IN REINFORCED CONCRETE – PRODUCT REQUIREMENTS AND TEST METHODS.

Specifically, the scope of work was to conduct load testing in accordance with the procedure outlined in AS/NZS 2425 CLAUSE 6.3. A total of two (2) bar chair sizes were provided by the client in a condition ready-to-test.

Upon arrival at the laboratory, the following details and nominal dimensions were recorded:

FIG. 1
TEST SAMPLES
AS DELIVERED

Bar Chair Type: *Plastic Bar Chair*
Number of Samples: *2 per Size (or Batch)*

Bar Chair Size 50 × 65:
Bar Chair Total Height: *76 mm (Nom.)*
Height at Load Point: *50 mm (Nom.)*
Base Diameter: *98.5 mm (Nom.)*

Bar Chair Size 75 × 90:
Bar Chair Total Height: *102 mm (Nom.)*
Height at Load Point: *75 mm (Nom.)*
Base Diameter: *98.5 mm (Nom.)*

TEST PROCEDURE:

Compression load testing of the four (4) delivered plastic bar chairs was to be conducted individually using a calibrated Universal Testing Machine (UTM).

In accordance with AS/NZS 2425 CLAUSE 6.3, the bar chair subjected to testing was to be placed onto a dry, clean and unpolished steel plate. The chair was to be positioned directly beneath the crosshead of the UTM with a 16 mm diameter steel pin load applicator (see Fig.2).

An initial load of 20kg was to be applied and the datum test deflection to be established. Additional compressive force was then to be applied until the target classification test load was reached and was maintained for a minimum of 60 seconds. Deflection measurements of each sample were to be recorded throughout testing, as specified in AS/NZS 2425 TABLE 1.

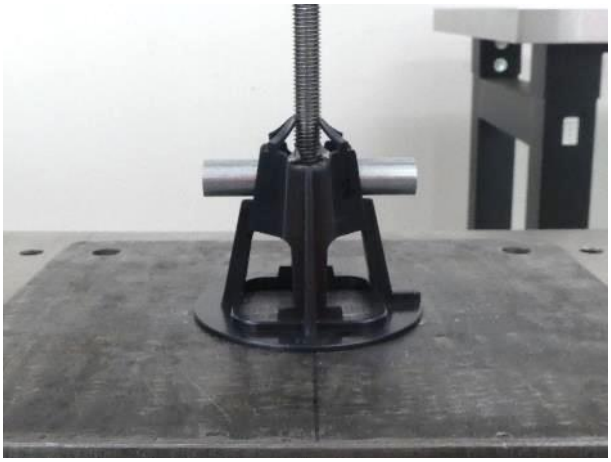

FIG.2
TEST SET-UP

TEST DATA:

Deflection data for each test sample at pre-load, test load and permanent set are provided in Table 1.

Test No.	Sample Size (mm)	Deflection at 20kg pre-load (mm)	Strength Grade Test Load (kg)	Deflection at 120kg Test Load (mm)	Permanent Set at 20kg (mm)
1	50 × 65	0.6	120	2.6	1.4
2	50 × 65	1.0	120	2.2	1.2
3	75 × 90	0.6	120	1.4	0.6
4	75 × 90	0.6	120	1.6	0.6
Mean:		**0.7**		**2.0**	**1.0**
Maximum:		**1.0**		**2.6**	**1.4**
Allowable:		**1.0 (Height < 75mm)** **2.0 (Height ≥ 75mm)**		**3.0**	**2.0**

Note: All deflection readings have been rounded to 0.2mm, as required by AS/NZS 2425:2015 Clause 6.3

TABLE 1
TEST DATA

TEST OBSERVATIONS:

Bar chairs were recorded to have a measured deflection within 1 mm at the 20kg pre-load, as required by TABLE 1 of AS/NZS 2425.

Bar chairs successfully supported a test load of 120 kg with loaded vertical deflections less than 3.0 mm recorded and permanent set observed to be less than 2.0 mm, as required by AS/NZS 2425 TABLE 1.

At the completion of testing, 50 × 65 size bar chair samples were observed with minor plastic deformation at the loading point and no obvious visible defects/deformation were observed on 75 × 95 size bar chair samples.

TEST SUMMARY:

The plastic bar chairs of sizes 50 × 65 mm and 75 × 95 mm, as tested and reported herein, were found to comply with the deflection requirements of AS/NZS 2425:2015 TABLE 1 and CLAUSE 6.3 for a STRENGTH GRADE of **120 kg**.

50 × 65 mm size bar chair samples were observed with minor plastic deformation at the loading point upon completion of testing.

75 × 95 mm size bar chairs did not exhibit obvious evidence of defects or deformation upon completion of testing.

Notes:

1. Melbourne Testing Services (MTS) Pty Ltd shall not be liable for loss, cost, damages or expenses incurred by the client or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall MTS be liable for consequential damages including, but not limited to, lost profit, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested.
2. It remains the responsibility of the client to ensure that the samples tested are representative of the entire product batch.
3. MTS shall take no responsibility for the procurement and authenticity of the test product as described herein.
4. This report is specific to the test items in their state at the time of testing. It should not be taken as a statement that all products in all states of repair, would also perform in the same manner.
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7. The number of specimens tested herein is not necessarily statistically significant. It remains the responsibility of the reader to conduct rigorous statistical analyses and employ appropriate load reduction safety factors as required.
8. Load testing of the plastic bar chairs as reported herein confirms the products as supplied to MTS have met the specific requirements for load capacity and deflection as specified by AS/NZS 2425:2015 TABLE 1 and CLAUSE 6.3. MTS advises the reader that this report is limited to compliance for load capacity and therefore may not validate or certify the products with all clauses of Australian or International standards that may apply.

NISHA DEVARAJ
Authorised Signatory

DEEPAK ELANGOVAN
Test Engineer