

TEST CERTIFICATE

Ref: 2015 33 07
Client: Turbo Scaffolding
1 Lennox Pl Wetherill Park NSW 2164
Product: T-Stage Galvanise Modular System Scaffold
Test Methods AS/NZS 1576.3:2015 Appendix B
Maximum Height 45m
No of platform 12 platforms
Maximum Live Load 1 working platform x 675kg

Comment:

Galvanise T-stage Modular System Scaffold are capable to take the load requirements above as guided by AS/NZS 1576.3:2015 with the following conditions:

- Scaffold shall be erected per the guidance of AS/NZS 4576
- Scaffold shall be braced and tied to solid structure and consider for scaffold stability per AS/NZS 1576.1
- A suitable qualified engineer should be consulted when scaffold are subjected to more than 1 level hop up bracket, higher than 45m high, cantilevered, suspended, lifted, more than 675kg per vertical bay and when scaffold are mixed with other suppliers

This certificate only relates to the equipment described and tested in report 2015 33 07

Jim Suhartono

Jim Suhartono BE MIEAust

Scaffold (Mechanical/Structural) Engineer



T-Stage Modular Scaffolding System

Objective

The objective of these tests are to undergo verification works of the prefabricated components to ensure its capability and compliances to AS/NZS 1576.3:2015. With the guidance of AS/NZS 1576.3:2015 we tested prefabricated unit for Vertical Test Capability
The product had been previously tested in 2010 for stiffness test, load bearing capacity and decking component

Test Location

Customer	Turbo Scaffolding Pty Ltd
Location of Testing	1 Lennox Place Wetherill Park NSW 2164
Person 1 (In Charge)	Jimmi Suhartono
Qualification	Mechanical & Structural Engineer
Person 2 conducting test	Shyansheng Mu
Qualification	Mechanical & Electrical Engineer
Date of test	Friday, 14 th August 2015
Time of Test	12:30 – 16:45

Scaffold Identification

Prior to conducting the load test; each individual item used in construction of the scaffold was visually inspected for markings. There was stamp of product code on the product located on the wedge and star of the vertical. No other identifying marks were noted.

Supplier Trading Name:	Turbo Scaffolding Pty Ltd
Identification of the Assembly:	T-Stage Modular Scaffolding System
Width of the scaffold	0.76m – 2.44m (modular 0.76–1.28–1.83–2.44)
Length of the scaffold	1.28m – 2.44m (modular 1.28-1.83-2.44)
Height of the scaffold	up to 45m (subject to stability)
Design Height	45m* (subject to stability)



Vertical Load Test of a prefabricated modular scaffold

Test Synopsis

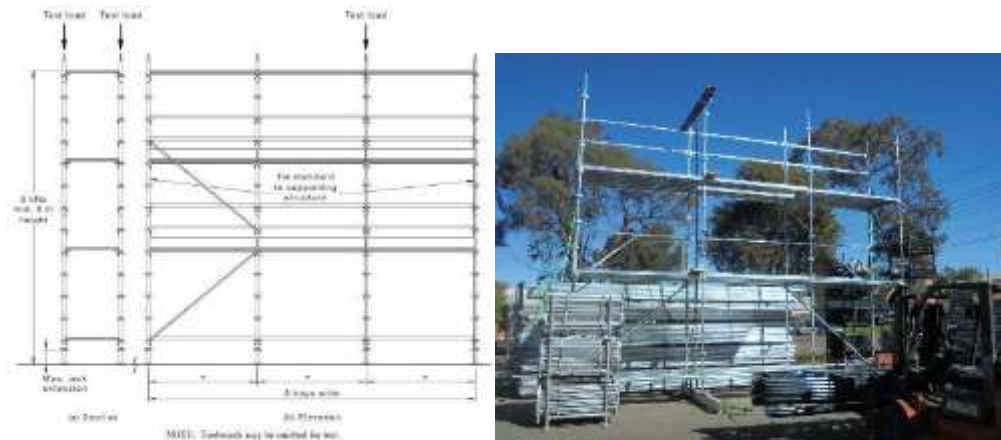
A modular scaffold assembly supplied by Turbo Scaffolding was load tested to determine the vertical load carrying capacity of the assembled frame. Testing was to be conducted in accordance with the guidance of Appendix B from AS/NZS 1576.3-2015 Scaffolding Part 3 – Prefabricated and Tube & Coupler Scaffolding.

The scope of the test was to determine the maximum limits including the assembled height. Number of platform and number of working platforms.

Three load cases is applied for working load, design load and minimum strength load.

Test Preparation & Set Up

Three bays of modular scaffold were assembled as below with the height of top most lift higher than 6m.



Scaffold layout

Test Scenarios

- Apply to a pair of standards in the transverse direction one bay in from the end frame with a concentric axial settling load of 50% of duty live load (0.5Q) on each standard for 300s then reduce the settling load to a preload of 20% of the duty live load (0.2Q) and check that all relevant joints are fully bedded down. On loaded standards, measure and record the horizontal distance from a datum independent of the test assembly. Location required
 - At load application (6m)
 - At each lift (4m) & (2m)
 - At mid height between lift (5m), (3m) & (1m)
 - At top of adjusting nut (0.4m)
- Working load test
 - Simultaneously increase preload to the following to each of two standards $P_w = (G_d - G_t)/2 + (0.5Q)$ for 300s and record distance and
 - reduce the load to 0.2Q and re-measure

- Design load test
 - Simultaneously increase preload to the following to each of two standards
 $P_d = (1.5G_d - G_t)/2 + 1.5(0.5Q)$ for 300s and record distance and
 - reduce the load to 0.2Q and re-measure
- Minimum strength load test
 - Simultaneously increase preload to the following to each of two standards
 $P_m = (2.25G_d - G_t)/2 + 2.25(0.5Q)$ for 300s and record distance and
 - reduce the load to 0.2Q and re-measure

Acceptable Criteria

- The load on scaffold assembly shall reach the specified loads for the three cases above
- The scaffold shall support the test load for specified time
- Following removal load specified in working load and design load of scaffold, permanent deformation should be less than 0.1% of the height of topmost lift of the test assembly and no visible cracks in the material or welding
- Following removal load specified in minimum strength load of scaffold, there should be no failure of any connection between components

Test

$$G_t = 420 \text{ kg}$$

$$G_d = 4020 \text{ kg}$$

$$Q = 675\text{kg} \times 1$$

$$P_w = 2,137.5\text{kg} / \text{standard}$$

$$P_d = 3,311.25 \text{ kg} / \text{standard}$$

$$P_m = 5,071.88 \text{ kg} / \text{standard}$$

Each stillage weight approx. 900kg - 1000kg

Since our load cell is only capable to take 3Tonne, we are using load to help with vertical load



Initial – proof test





Work Load Test Pw

Point	0.2Q	Pw Load Test 4.3t min (combined)	0.2Q	Summary
0.4m	398	398	398	-
2.0m	2102	2102	2102	-
3.0m	3102	3102	3102	-
4.0m	4102	4101	4102	1mm
5.0m	5102	5100	5102	2mm
6.0m	6102	6098	6102	4mm
Summary	PASS with deflection under 0.06%			





Design Load Test Pd

Point	0.2Q	Pd Load Test 6.6t	0.2Q	Summary
0.4m	398	398	398	-
2.0m	2102	2102	2102	-
3.0m	3102	3101	3102	1mm
4.0m	4102	4099	4102	3mm
5.0m	5102	5098	5102	4mm
6.0m	6102	6095	6102	7mm
Summary	PASS with deflection approx. 0.1% but not permanent deflection			



Minimum Strength Load Test Pm with approx. 10.2tonne



After all testing

Testing Result:

I did not see any product failure or any permanent deformation on any component or any welding crack after scaffold test

Scaffold was tested vertically in accordance to AS/NZS 1576.3:2015 and resulted in pass without any failure recorded

The End of Report