



TEST REPORT

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Date : 2024-10-08
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CUSTOMER NAME : CHANGSHA XIANGJIA METAL MATERIAL TRADING CO.,LTD
ADDRESS : 16F MINGCHENG INTL BLDG.CHANGSHA.HUNAN.CHINA

Sample Name : RINGLOCK SCAFFOLDING
Manufacturer : CHANGSHA XIANGJIA METAL MATERIAL TRADING CO.,LTD
Material : Q355/Q235

Above information and sample(s) was/were submitted and confirmed by the client, SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Other Ref. No. : Ref. Standard: AS 1576.3:2015+A1:2017 Section 3.2.2.2 & Appendix B
Date of Receipt : 2024-09-10
Testing Period : 2024-09-10 - 2024-10-08
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services (Tianjin) Co., Ltd.

Duke Gai

Duke Gai
Authorized signatory



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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Load Test on Prefabrication Modular Scaffold	AS 1576.3:2015+A1:2017 Section 3.2.2.2 & Appendix B	See Result	Pass

Note: Pass : Meet the requirements;
Fail : Does not meet the requirements;
N/A : Not Apply to the judgment.



Original Sample



SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.
Address: 16F MINGCHENG INTL BLDG, CHANGSHA, HUNAN, CHINA
Tel: +86-0854 83333333
Fax: +86-0854 83333333
Email: sgscstc@sgs.com.cn
Website: www.sgscstc.com.cn
Member of the SGS Group (SGS SA)



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Address: 16F MINGCHENG INTL BLDG, CHANGSHA, HUNAN, CHINA
Tel: +86-0854 83333333
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Test Item: Load Test on Prefabrication Modular Scaffold

Test Method: AS 1576.3:2015+A1:2017 Section 3.2.2.2 & Appendix B

Test Procedure:

(a) Apply to a pair of standards in the transverse direction one bay in from the end frame or pair of standards, as shown in below picture, a concentric axial setting load of 50% of the duty live load (0.5Q) on each standard for 300s. Reduce the setting load to a preload of 20% of the duty live load (0.2Q), and check that all relevant joints are fully bedded down.

On the loaded standards, measure and record the horizontal distance from the standard to a datum independent of the test assembly at each of the following locations:

- At the load application level
- At each lift height
- At mid-height between lifts
- At the top of the adjusting nut of the adjustable base

Measurements shall be made in the transverse direction of the scaffold. Except where standards are transversely connected, deflection measurements shall be taken at both loaded standards

(b) Working load test:

(i) Simultaneously increase the preload to the following test loads to the pair of standards specified in step (a) above for 300s:

At each of two standards-axial load of $P_{ax} = (G_{up}G_{d2} + 0.5Q)$

(ii) After 300s, measure and record the distance specified in step (a) above representing the deflection of each node under load.

(iii) Reduce the test load to the preload of 0.2Q and again measure and record the distance as specified in step (a) above.

(c) Design load test:

(i) Simultaneously increase the preload to the following test loads to the pair of standards specified in step (a) above for 300s:

At each of two standards-axial load of $P_{ax} = (1.5G_{up}G_{d2} + 1.5(0.5Q))$

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(ii) After 300s, reduce the test load to the preload of 0.2Q and again measure and record the distances specified in step (a) above.

(iii) Inspect the loaded standards and connecting components for cracks in the material or welds of individual components.

(d) Minimum strength load test:

(i) Simultaneously increase the preload to the following test loads to the pair of standards specified in step (a) above for 300s:

At each of two standards-axial load of $P_{ax} = (2.25G_{up}G_{d2} + 2.25(0.5Q))$

(ii) Remove the test load, including the preload, and inspect the loaded standards and connected components for cracks in the material or welds of individual components

Table 1 The weight of design bay, G_{up}^{nom}

Scaffold Components	Design Unit Mass (kg)	Number of Components in Design Bay (24m design height)	The Weight of Design Bay, G_{up}^{nom} (kg)
2000 Standard with Spigot	11.05	48	1730.29
1000 Standard without Spigot	4.70	4	
1088 Ledger	4.77	30	
2572 Ledger	10.26	52	
H2000 L1088 Brace	8.69	12	
H2000 L2572 Brace	11.61	12	
Screw Jack	5.65	4	
Base Collar	1.81	4	
Steel Deck	20.90	9	

Note: G_{up}^{nom} for one bay, the weight of the assembled scaffold at its maximum design height. This includes accessories normally used with the scaffold system.



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Email: sgscstc@sgs.com.cn
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Table 2 The weight of test bay, G_k

Scaffold Components	Actual Unit Mass (kg)	Number of Components Used in Test Bay (5.61m test height)	The Weight of Test Bay, G_k (kg)
2000 Standard with Spigot	10.14	10	406.94
2000 Standard without Spigot	9.36	2	
1088 Ledger	4.37	11	
2572 Ledger	9.15	14	
H2000 L1088 Brace	7.75	3	
H2000 L2572 Brace	11.39	0	
Screw Jack	5.51	4	
Base Collar	1.76	4	406.94
Steel Deck	19.44	3	

Note: G_k for one bay, the weight of the assembled scaffold as erected to the height for the test.

Table 3 Live load of bay, Q

AS/NZS 1576.1:2019 stipulates that the live load applied to Three working platform for a heavy-duty working level shall be 6.9kN.

Working Platform Level	Heavy Duty
The number of working platforms in design bay	Three working platform
Live load of bay, Q	19.8kN



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Table 4 Test loads during the test procedure

Calculation of axial test load at each of the two standards:

Test Load	Calculate Method	Load Value (kN)
Working load (P_w)	$P_w = (G_k + Q_k) / 2 + (0.5Q_k)$	16.38
Design load (P_d)	$P_d = (1.5G_k + Q_k) / 2 + 1.5(0.5Q_k)$	25.57
Minimum strength load (P_s)	$P_s = (2.25G_k + Q_k) / 2 + 2.25(0.5Q_k)$	39.36

Acceptance Criteria:

The following criteria shall apply:

- The load on scaffold assembly shall reach the specified for the three load cases.
- The scaffold assembly shall support the test loads for the specified time.
- Following removal of the loads specified in step (b) and (c) of the test procedure, any measured permanent deformation of the loaded standards shall not exceed 0.1% of the height of the topmost lift of the test assembly to the foundation.
- Following removal of the loads specified in step (b) and (c) of the test procedure, components of the scaffold assembly shall not show any visible cracks in the material or welding of an individual component and there shall not be a failure of any connection between components or visible permanent deformation of any component.
- Following the removal of the loads in step (d) of the test procedure, there shall not be a failure of any connection between components.



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Test Result

Table 5: Permanent deformation after removal of load specified in the test procedure

Measured point ^{mm}	Permanent deformation (mm), $\leq 6.61mm^{mm-2}$		Conclusion
	After working load test	After design load test	
1	0.0	0.0	Pass
2	0.0	0.0	
3	0.0	0.0	
4	3.0	3.0	
5	0.0	0.0	
6	0.0	1.0	
7	0.5	0.5	
8	0.5	0.5	
9	0.0	0.0	
10	0.0	0.0	
11	1.0	1.0	
12	0.0	0.0	
13	0.5	0.0	
14	0.5	0.5	

Note 1: The locations of measured points 1, 10 are at the load application level of the load standards.

The locations of measured points 2, 4, 6, 8 are at each lift height of the load standards.

The locations of measured points 3, 5, 7, 11, 12, 13 are at mid-height between lifts.

The locations of measured points 9, 14 are at the top of the adjusting nut of the adjustable base.

Note 2: The height H of the topmost lift of the test assembly to the foundation is 6610mm. The permanent deformation shall not exceed 0.1% of the height H.



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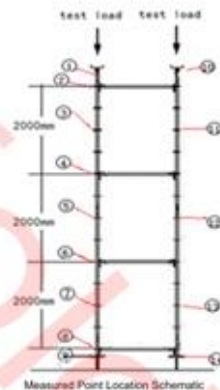
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After remove the load specified in step (b) and (c) of the test procedure, components of the scaffold assembly showed no visible cracks in the material or welding of an individual component and there was no failure of any connection between components or visible permanent deformation of any component. After remove the minimum strength load, there was no failure of any connection between components.

Summary: The supplied prefabricated modular scaffold assembly complies with the vertical load requirement of AS 1576.3:2015+A1:2017 Section 3.2.2.2 & Appendix B and by calculation may be used at design height of 24m, three working platform with heavy duty working level.



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