

测试报告

编号 : SHIN2007043449CM_CN

日期 : 2020-08-27

页码 : 1 of 10

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SHIN2007043449CM

客户名称: 开平天盛卓越机械设备有限公司
客户地址: 中国广东省开平市百合镇乌金新圩 26 号 1 座

样品名称 : 盘扣式脚手架
材质牌号 : 低合金结构钢 (Q345B)

以上信息及样品由客户提供及确认, SGS 不承担证实客户提供信息的准确性、适当性和(或)完整性的责任。

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收样日期 : 2020-07-17
测试开始时间 : 2020-07-17
测试结束时间 : 2020-08-27
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刘莉

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结果总结:

序号	测试项目	测试方法	结果	结论
1	调节底座	EN 12811-1:2003 第 5.7.1 节和 第 5.7.3 节	见结果	合格
2	组合载荷	EN 12811-1:2003 第 6.2.9 节	见结果	合格

备注: 合格: 达到要求
不合格: 未达到要求
/: 不下判定



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1. 测试项目: 调节底座

测试方法: EN 12811-1:2003 第 5.7.1 节和第 5.7.3 节

测试条件:

试样: 150mm×150mm×612mm×Φ38.0mm (长×宽×高×外径), 1 个

测试结果:

测试项目	测试结果	测试要求	结论
调节底座	底盘面积 218 cm ² , 宽度 150 mm	底盘面积应不小于 150 cm ² , 宽度应不小于 120 mm	合格
	立杆到可调节底座的丝杆的轴线的倾斜度 1.5%	从立杆到可调节底座的丝杆的轴线的倾斜度不超过 2.5%	合格
	调节丝杆的最小重叠长度 152mm	调节丝杆任意位置的最小重叠长度应是总长度的 25%或 150mm, 取较大者: 150mm	合格
	底板厚度 6.10mm	底盘厚度不小于 6 mm	合格

样品照片:



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2. 测试项目: 组合载荷

测试方法: EN 12811-1:2003 第 6.2.9 节

测试条件: 见附录 A

测试结果:

1) 平行于脚手架跨度方向的水平工作载荷

测试项目	测试高度	载荷值		测试结果	结论
		自重			
组合载荷 (工作状态)	6.575m	自重	2393.64kgf	脚手架整体能承受最不利组合载荷而不出 现可见变形	合格
		均布载荷	462kgf		
		50%均布载荷	/		
		水平工作载荷	170kgf		

2) 垂直于脚手架跨度方向的水平工作载荷

测试项目	测试高度	载荷值		测试结果	结论
		自重			
组合载荷 (工作状态)	6.575m	自重	2393.64kgf	脚手架整体能承受最不利组合载荷而不出 现可见变形	合格
		均布载荷	462kgf		
		50%均布载荷	/		
		水平工作载荷	170kgf		



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附录 A

1. 样品信息

表 1 设计高度下的自重, G_d 备注

脚手架组件	单位重量(kg)	设计高度下组件数量 (设计高度 36.575m)	设计组件重量, G_d (kg)
底座	3.80	4	2887.60
脚套	1.80	4	
2.0m 立杆	10.70	72	
1.0m 立杆	6.50	4	
横杆 1.572m	5.40	140	
斜杆 1.572m×2.0m	8.90	72	
踏板 1.572m×0.32m	10.40	13	
挂梯 2.0m×0.35m	5.50	18	
U 型托	4.60	4	
外扶手 1.572m×2.0m	12.10	18	
内扶手 1.572m×2.0m	11.20	18	

备注: G_d =一个跨度内, 最大设计高度下组装脚手架的自身重量, 包括脚手架系统通常使用的配件如钢踏板、立柱、起始座等。



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表 2 测试高度下的自重 G_t ^{备注}

脚手架组件	实际单位重量(kg)	测试高度下组件数量 (测试高度 6.575m)	测试组件重量, G_t (kg)
底座	3.82	4	493.96
脚套	1.80	4	
2.0m 立杆	11.06	12	
横杆 1.572m	5.47	16	
斜杆 1.572m×2.0m	8.87	12	
踏板 1.572m×0.32m	10.14	11	
挂梯 2.0m×0.35m	5.54	3	
U 型托	4.15	4	

备注: G_t = 一个跨度内, 测试高度下组装脚手架的重量, 包括所有组件。

表 3 工作平台上的工作载荷

EN 12811-1:2003 规定, 等级为 Class 4 的工作平台的额定均布载荷为 3.0kN/m²。

工作平台等级	Class 4
设计跨距内工作平台数量	1 个工作平台
均布载荷 q_1 (kN/m ²)	3.0



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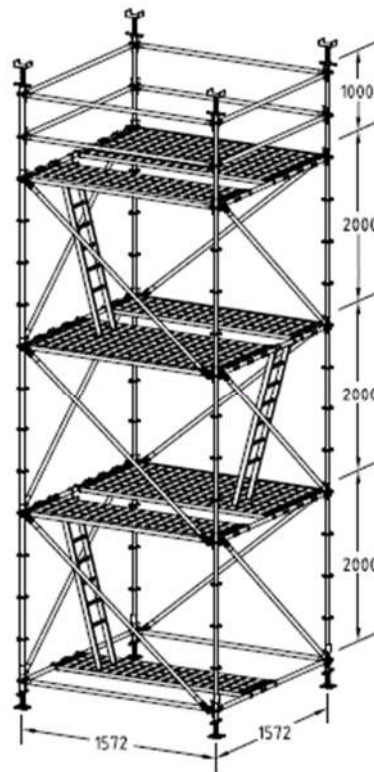
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2. 测试中的脚手架样品安装

按照客户的安装说明, 该圆盘脚手架系统最大设计高度为 36.575m。测试中搭建的样品尺寸为一个跨度长 (1572mm), 一个跨度宽 (1572mm), 三层高, 层高均为 2000mm; 调节底座的最大调节高度为 460mm。



脚手架结构



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3. 载荷计算:

1) 脚手架自重:

模拟脚手架最大设计高度下自重对立杆的作用力, 对测试中的脚手架立杆施加垂直载荷, 载荷通过加载梁均布施加在 4 根立杆上。

$$F_v = G_d - G_t = 2887.60 - 493.96 = 2393.64 \text{kgf},$$

2) 在最不利高度的工作平台上施加额定均布载荷, 载荷大小参照表 3 第 2 列要求。

工作平台踏板尺寸: 1572mm (长) × 320mm (宽)

一个工作平台的踏板总数: 3pcs

$$F_u = q_1 \times L \times W = 3.0 \times 1.572 \times 0.32 \times 3 \times 1000 / 9.8 = 462 \text{kgf}$$

3) 若脚手架系统有不止一个工作平台, 要在条款 2) 中指定的工作平台上方或者下方平台上施加 50% 的均布载荷。

备注: 设计跨度内工作平台数量只有 1 个

4) 条款 6.2.3 指定的水平工作载荷:

水平工作载荷:

$$F_{dh1} = F_u \times 2.5\% = 113 \text{N};$$

$$F_{dh2} = 300 \text{N};$$

$F_{dh} = 300 \text{N}$ (每个跨度脚手架受到的水平工作载荷不能低于表 3 规定的额定均布载荷 q_1 的 2.5%, 或者 0.3kN 中的较大值。)

$$F_{th} = H_d \times F_{dh} / H_t = 36.575 \times 300 / 6.575 / 9.8 = 170 \text{kgf}$$



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4. 测试步骤:

对组装好的脚手架施加组合载荷, 观察加载过程中脚手架能否承受最不利组合载荷。要分别在平行于脚手架跨度方向和垂直与脚手架跨度方向施加水平工作载荷。

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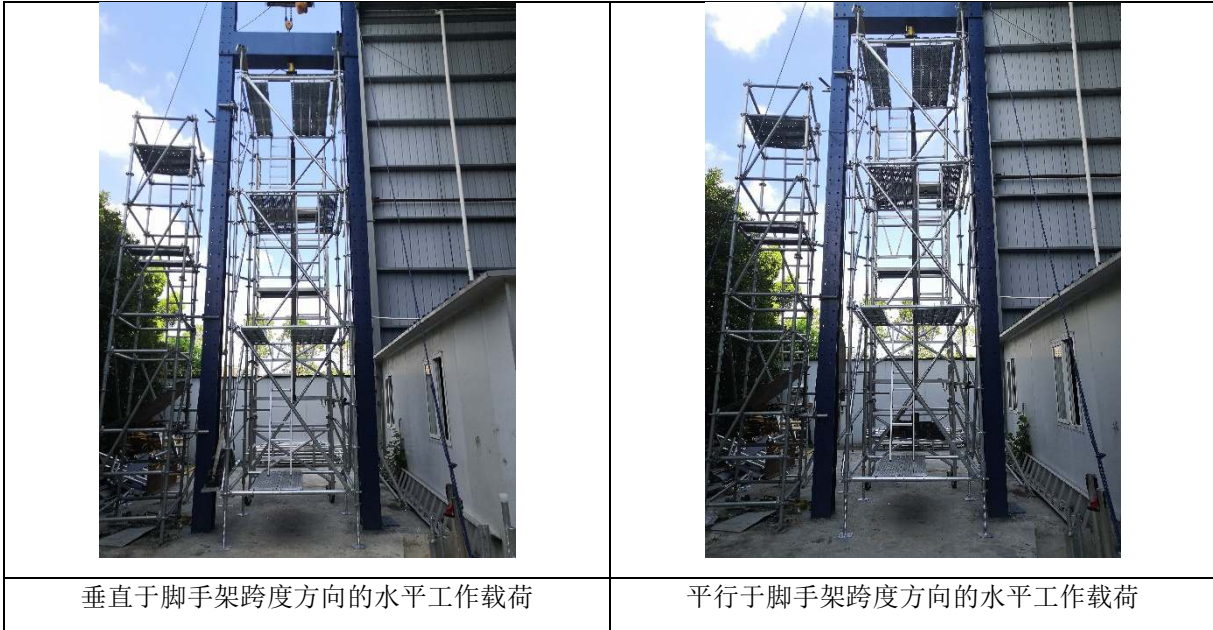
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