

EXTRA CO
INDUSTRIES L.L.C.

SCAFFOLDING AND FORMWORK
MS & ALUMINIUM



EXTRA CO LADDER FRAME SYSTEM

Robust – Rigid – up to standard – meets your requirement

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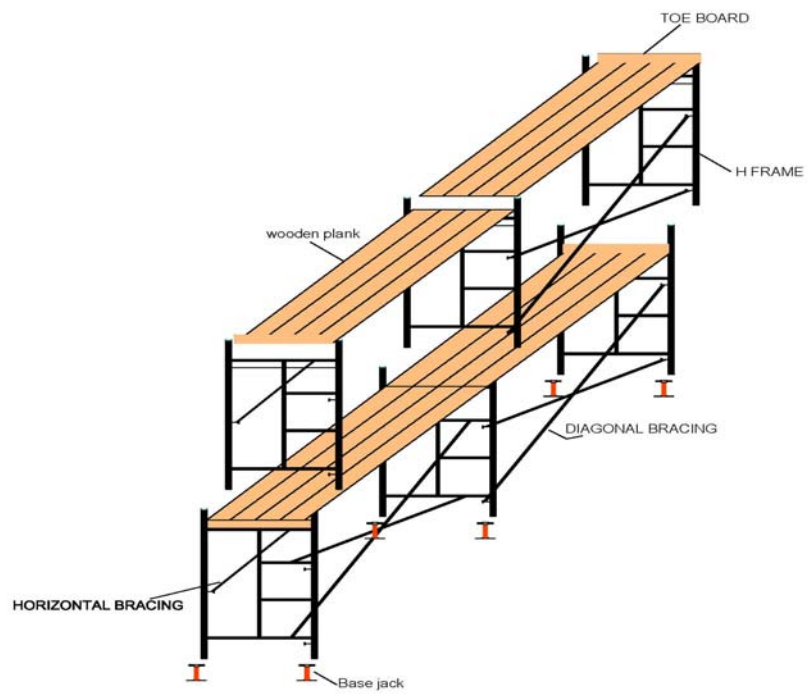
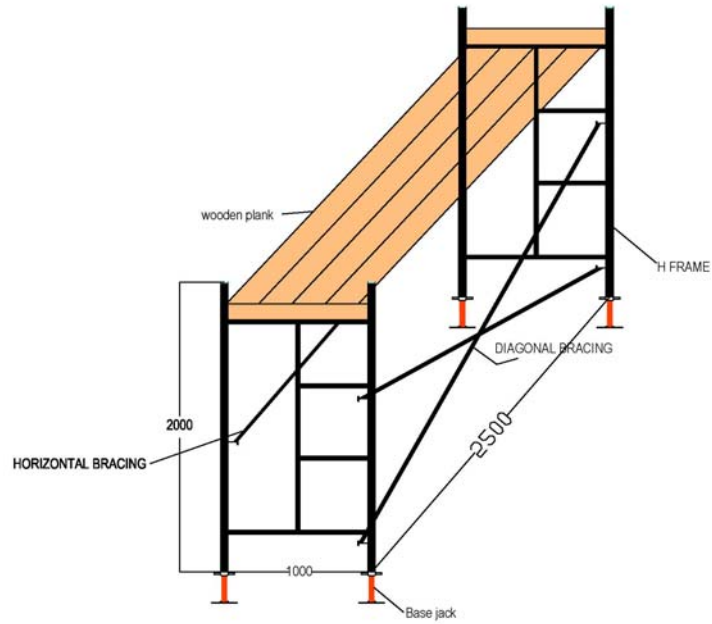
1. Introduction

Frames known in the market as ladder frames, have been in use in the UAE and more widely in the GCC for more than 40 years. The frames are used by leading contractors as we speak. They constitute, if properly erected and braced, an efficient way to access façade for all sorts of:

- Cladding works
- Plastering works
- Painting works
- Other façade works

In the following pages, we are going to explore the main components of the ladder frame system

2. Product overview



3. Components

The major components of the ladder frame system are:

1. The ladder frame
2. The cross brace set
3. The horizontal brace
4. Base jack
5. Additional bracing and accessories
6. Props Jack

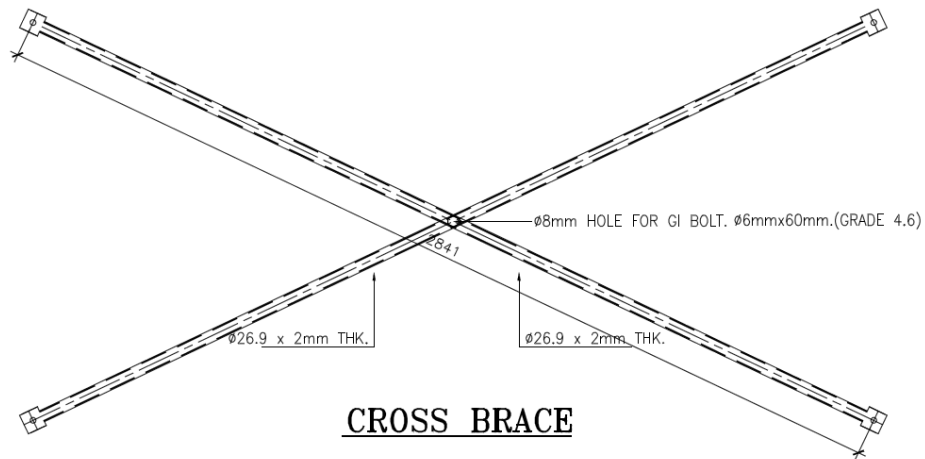
3.2. Cross Braces

Composed of MS Pipe $\text{Ø}26.9\text{mm} \times 2\text{mm}$ thick (Grade of Steel: 235 JR)

Dimensions: 3.16m or 2.841m (2 options available)

Bolt: Grade 4 & 6

One set (2 Nos.) of cross brace of length 2.841m or 3.16m is used to brace two Ladder frames together.

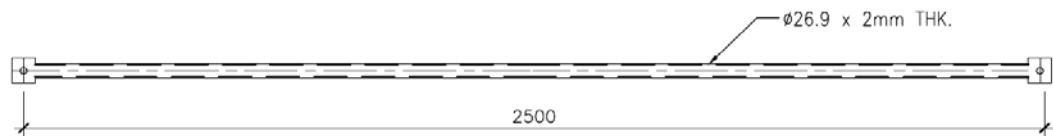


3.3. Horizontal Brace

Composed of MS Pipe $\text{Ø}26.9\text{mm} \times 2\text{mm}$ thick (Grade of Steel: 235 JR)

Dimensions: 3.0m or 2.5m (2 options available)

One horizontal brace of length 2.5m is used in between two Ladder frames, which will be the span of two frames.



HORIZONTAL BRACE



3.4. Base Jack

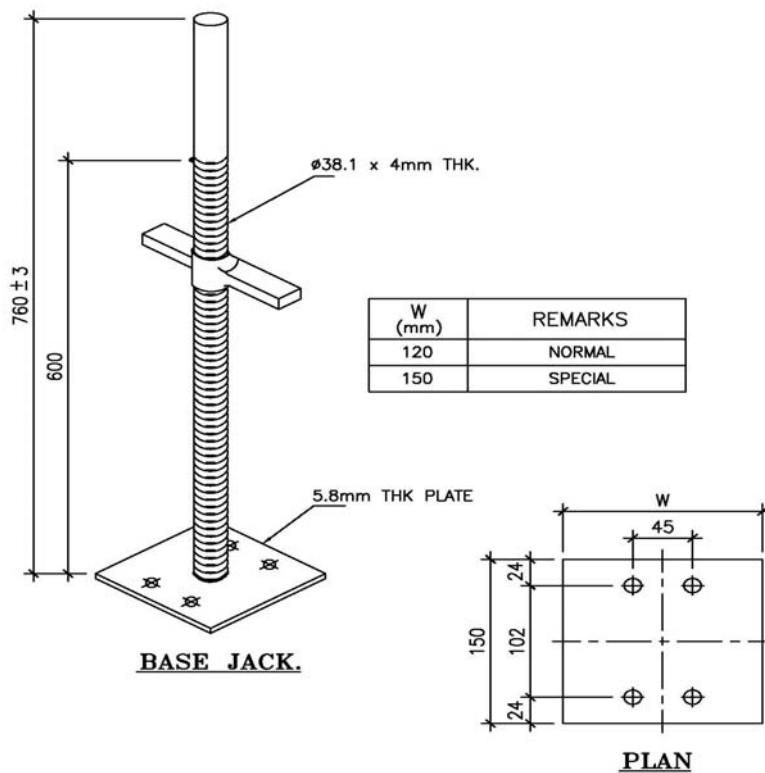
Composed of:

MS Pipe $\text{Ø}38.1\text{mm}$ x 4mm thick x 760mm long (Grade of Steel: 235 JR)

MS Plate 150 x 150 x 5.8mm thick with 4 holes of $\text{Ø}12\text{mm}$

Forged Jack Nut (made in India) – 400g minimum.

Please find attached Load test certificate



3.5. Scaffold Tubes/Additional bracing and accessories

Scaffolding tubes of Ø48.3mm x 3.2mm/2mm of different lengths 1m to 6m are used as additional bracings. (Grade of Steel: 235 JR)



Swivel Coupler

The role of the coupler is to couple the additional bracing to the access frame wherever is required.

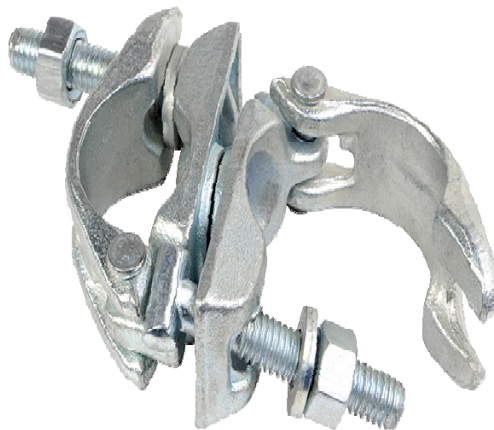
Material origin: India

Material: Forged steel

Standard: EN74-1:2005 Class A

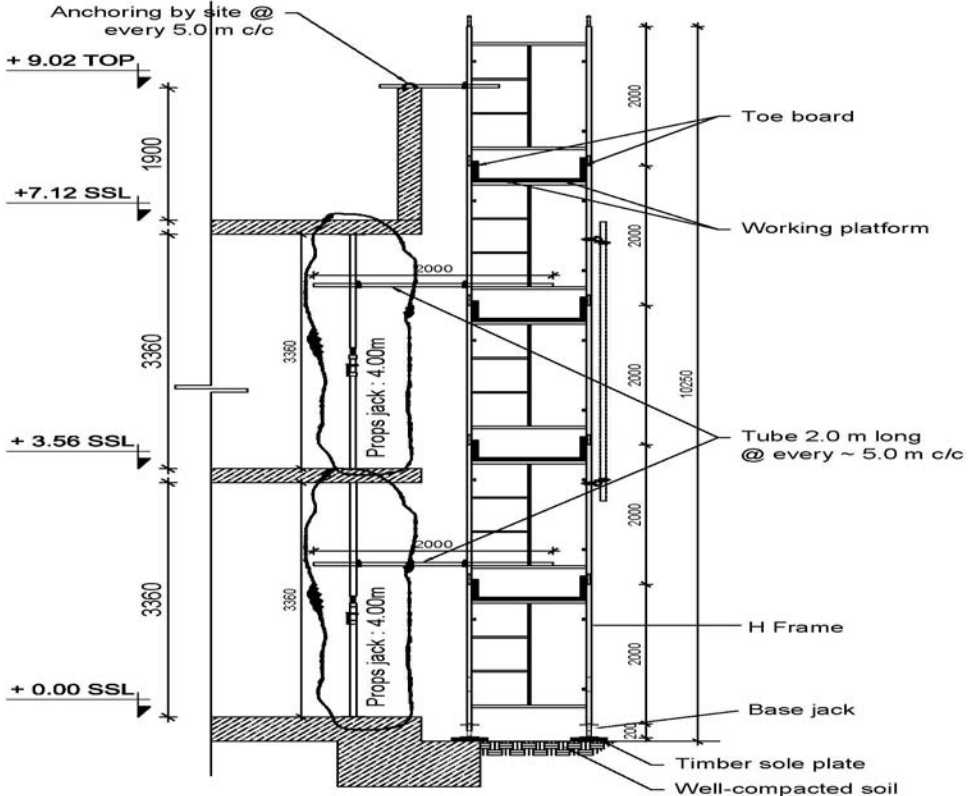
Weight: Minimum 1050g

Test Certificate attached



3.6. Props Jack

Props Jack is used for supporting the Ladder frame horizontally with the scaffolding es using Swivel couplers. Props Jack comes in various lengths from 2m to 6m



4. LOAD CHART

Allowable Load Chart for H-Frame Scaffolding System					
SYSTEM	NO OF FRAMES	TOTAL HEIGHT (M)	NO OF WORKING TIERS	ALLOWABLE LIVE LOAD PER TIER (KG/M ²)	DEFLECTION OF THE HEROZONTAL MEMBER (MM)
2.5 W X 4.0 H	2	4	1	440	2.5 mm
2.5 W X 6.0 H	3	6	2	440	2.5 mm
2.5 W X 8.0 H	4	8	3	440	2.5 mm
2.5 W X 10.0 H	5	10	4	360	2.5 mm
2.5 W X 12.0 H	6	12	5	225	2.5 mm

Note.

1. Capacity of pipe considered as per the strength check attached for single pipe and STAAD report for the H-Frame system
2. Miminum yield strength of material considered is 235 N/mm²
3. Dead load per tier considered as 35 kg/m² as per attached material weight table

6. TEST REPORTS

AL HOTY - STANGER LABORATORIES
Independent Testing Laboratories
and Materials Consultants



مختبرات الحوطي ستانجر
مختبرات فحص مستقلة -
مستشارو المواد

TEST REPORT

EXTRA CO INDUSTRIES L.L.C.

LOAD TEST ON 'H' FRAME

Report date: 24.01.18

Report number	D18 - 289560 - 1
Project name	Quality Assurance
Client ref./ request no.	Not given
Sample description as identified by client	'H' Frame.
Source / Local supplier	Not given
Sampled by	Client.
Date/time sample received	24.01.18/ 1255 Hrs.
Date tested	24.01.18
Tested by, name/location	PP, ABS / DXB

Result:

Peak load (kN)	Observation
63.4	Buckling of 'H' Frame



Remarks: None

Test method variation: None

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Alquinn Lapuz
DHOD- Civil Department, Dubai.



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/H/

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TEST REPORT

EXTRA CO INDUSTRIES L.L.C.

LOAD TEST ON MS PIPE

Report date: 24.01.18

Report number	D18 - 289559 - 1
Project name	Quality Assurance
Client ref./ request no.	Not given
Sample description as identified by client	MS PIPE 48.3mmØ X 2mm Thick X 2m Length.
Source / Local supplier	Not given
Sampled by	Client .
Date/time sample received	24.01.18/ 1255 Hrs.
Date tested	24.01.18
Tested by, name/location	PP, ABS / DXB

Result:


Peak load (kN)	Observation
48.4	Buckling of MS Pipe.



Remarks: None

Test method variation: None

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TEST REPORT

EXTRA CO INDUSTRIES L.L.C.

TENSILE TESTING OF METALLIC MATERIALS

Report date: 18.01.18

Report no.	: D17 - 288997- 1	Source	: Extra Co Industries LLC
Project number	: Not given	Sample location	: Not given
Project name	: Quality Assurance	Sampled by	: Client Rep.
Client ref./ request no.	: Not given	Sampling date/time	: 14.01.18 / Not given.
Client	: Extra Co Industries LLC.	Sample delivered by	: Client Rep.
Sample description as identified by the client	: Scaffolding H Frame	Date/time sample received	: 18.01.18 / 0930 Hrs.
Grade	: Not given	Date tested	: 18.01.18
Local supplier	: Extra Co Industries LLC	Tested by, name/ location	: PP, ABS / DXB
		Test method	: BS EN 10002-1:2001

Results:

SPECIMEN NO.		D17 - 284498- 1
Area	mm ²	308.9
Yield strength	MPa	335
Tensile strength	MPa	379
Elongation	%	30

Remarks: None

Test method variation: None

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Alquinn Lapuz
DHOD- Civil Department, Dubai.



TEST REPORT

EXTRA CO INDUSTRIES L.L.C.

FLATTENING TEST OF MS PIPE
BS EN 39:2001

Report date: 18.01.18

Report no.	: D17 - 288997- 2	Source	: Extra Co Industries LLC.
Project number	: Not given	Sample location	: Not given
Project name	: Quality Assurance	Sampled by	: Client Rep.
Client ref./ request no.	: Not given	Sampling date/time	: 14.01.18 / Not given.
Client	: Extra Co Industries LLC.	Sample delivered by	: Client Rep.
Sample description as identified by the client	: Scaffolding H Frame	Date/time sample received	: 18.01.18 / 0930 Hrs.
Grade	: Not given	Date tested	: 18.01.18
Local supplier	: Extra Co Industries LLC.	Tested by, name/ location	: PP, ABS / DXB
		Test method	: BS EN 39 : 2001

Results:

FLATTENING TEST		
Step	48.3mm OD Pipe	Result
1	OD 36.2mm (75% of the original OD)	Passed
2	OD 29.0mm (60% of the original OD)	Passed

Remarks: None.

Test Method Variation: None

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DHOD- Civil Department, Dubai.

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EXTRA CO INDUSTRIES L.L.C

AL HOTY STANGER		MAGNETIC PARTICLE EXAMINATION REPORT	
Project client	: Not Given	Report date	: 20.01.18
Project name	: Quality Assurance	Report No.	: D18-288997-3
Project number	: Not Given	Test date	: 20.01.18
Project location	: Not Given	Page No.	: 1 of 2
Consultant	: Not Given		
Contractor	: Not Given		
Sub-contractor	: Not Given		
Source/Supplier	: Not Given		
Sampling location	: Scaffolding H Frame		
Magnetic Technique	:	AC Electromagnetic Yoke Technique	
Method Examination	:	Continuous	
Examination Medium	:	Wet-non-fluorescent ferromagnetic particles	
Procedure	:	AHS/GEN – MT/01 Rev 01	
Acceptance Criteria	:	AWS D1.1/D1. 1M : 2015	
Equipment for Magnetization	:	230 Volts – 1.9 Amps Johnson & Allen	
Lifting Power of Yoke	:	AC Electromagnetic Yoke	
		10 lbs (4.55 kg.)	
Manufacturer		Magna flux	
Examination Medium		7 HF	
Contrast Paint		WCP – 2	
Solvent Cleaner		SKC - S	
Component Description	: Welded joint		
Material	: Carbon Steel		
Type of Weld	: Fillet Weld		
Surface Condition	: As Welded		



EXTRA CO INDUSTRIES L.L.C

AL HOTY STANGER		MAGNETIC PARTICLE EXAMINATION REPORT	
Project client	: Not Given	Report date	: 20.01.18
Project name	: Quality Assurance	Report No.	: D18-288997-3
Project number	: Not Given	Test date	: 20.01.18
Project location	: Not Given	Page No.	: 1 of 2
Consultant	: Not Given		
Contractor	: Not Given		
Sub-contractor	: Not Given		
Source/Supplier	: Not Given		
Sampling location	: Scaffolding H Frame		
Magnetic Technique	:	AC Electromagnetic Yoke Technique	
Method Examination	:	Continuous	
Examination Medium	:	Wet-non-fluorescent ferromagnetic particles	
Procedure	:	AHS/GEN – MT/01 Rev 01	
Acceptance Criteria	:	AWS D1.1/D1. 1M : 2015	
Equipment for Magnetization	:	230 Volts – 1.9 Amps Johnson & Allen AC Electromagnetic Yoke	
Lifting Power of Yoke	:	10 lbs (4.55 kg.)	
Manufacturer		Magna flux	
Examination Medium		7 HF	
Contrast Paint		WCP – 2	
Solvent Cleaner		SKC - S	
Component Description	: Welded joint		
Material	: Carbon Steel		
Type of Weld	: Fillet Weld		
Surface Condition	: As Welded		



TEST REPORT

EXTRA CO INDUSTRIES LLC.

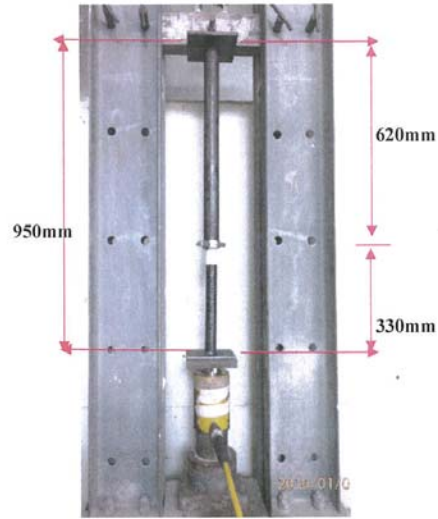
LOAD TEST ON BASE JACK

Report date: 05.01.16

Report number	D16 - 225056 - 1
Project name	Quality Assurance
Client ref./ request no.	Not given
Sample description as identified by client	Base Jack
Source / Local supplier	Extra Co. Industries LLC.
Sampled by	Extra Co. Industries LLC.
Date/time sample received	26.12.15/ 1240 Hrs.
Date tested	05.01.16
Tested by, name/location	ABS/ DXB

Results :

Peak load, (kN)	Observation
85.4	Bending of base jack



Test witnessed by: Mr. Muhsin - Extra Co. Industries

Remarks : None

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Joseph Mathew
Head of Physical/Mechanical Dept.




O. Mathew, Laboratories Manager
For Al Hoty-Stanger Laboratories.

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TEST REPORT

EXTRA CO INDUSTRIES

LOAD TEST ON SCAFFOLDING PROPS
BS 5507 : Part 3 : 1982

Report date: 08.05.17

Report number	D17 - 266681 - 1
Project name	Quality Assurance
Client ref./ request no.	Not given
Sample description as identified by client	Heavy Duty Prop (4.0m)
Source/Local supplier	Extra Co
Sampled by	Extra Co
Date/time sample received	27.04.17/ 1600 Hrs.
Date tested	07.05.17
Tested by	ABS/ DXB

Result:

Open position - 4.00 m

Load at Failure (kN)	Mode of Failure
24.3	Buckling of Prop

Remarks: None

Test method variation: None

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Joseph Mathew
Head of Physical/Mechanical Dept.

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CLIENT :

EXTRA CO. INDUSTRIES LLC.

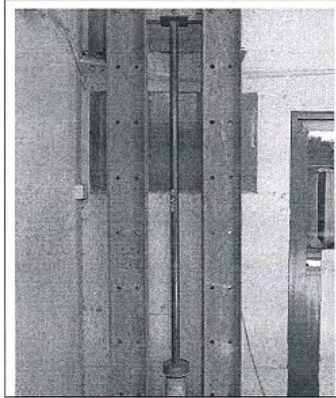
LOAD TEST ON SCAFFOLDING TUBE

Report date : 13.12.11

Report number	: A11 - 187248-1	Source	: Not given
Project number	: Not given	Sample location	: Site
Project name	: Quality Assurance	Sampled by	: Client
Project location	: Not given	Sampling date/time	: 09.12.11/ Not given
Consultant	: Not given	Sampling method	: Random
Client ref./request no.	: Not given	Sample delivered by	: Client
Sample description as identified by the client	: Scaffolding tube (48.3mmØ x 3.2mm thick x 2.0m long)	Date/time sample received	: 09.12.11
		Date tested	: 09.12.11
Local supplier	: Not given	Marking of sample	: Not given
Nominal size	: 48.3mmØ	Tested by, name/location	: JMR/ DXB

Test method :

The Scaffolding tube was arranged as shown in the photograph. The test load was applied through a hydraulic jack gradually at a uniform rate. Observations made during the test were recorded.



Results :

Peak load (kN)	: 75
Observation	: Bending of scaffolding tube

Remarks : None

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Zubair Ahmad
Zubair Ahmad
Head of Physical / Mechanical Department
/sm



Mohammed Mansoor
Mohammed Mansoor
Laboratory Manager
For Al Hoty Stanger Laboratories



RESEARCH & DEVELOPMENT CENTRE FOR BICYCLE & SEWING MACHINE
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Tel. : 2672096-97, 2676286-87 Fax : 91-161-2672098 E-mail : bsmc@satyam.net.in Website : www.bsrdindia.org

No. 2K14/11 **136193**

Labs & Testing Deptt.

TEST CERTIFICATE

Date : **13/03/2017**

Name of Party : **M/S.SALEX SALES CORP.**
LUDHIANA
 Work Order No. : **15JU-286/15JUN-49NN**
 Lab Section : **MECHANICAL TEST LAB**

Sample Receipt Date : **10/03/2017**
 Date of Testing : **13/03/2017**
 Ref. Document : **EN74-1988**
 Sample/Test Detail : **SWIVEL COUPLER**

SLIP LOAD TEST FOR SWIVEL COUPLER(DROP FORGED) EN-74 CLASS-A

<u>TEST DESCRIPTION</u>	<u>SPECIFIED VALUE</u>	<u>OBSERVED VALUE</u>
TIGHTENING TORQUE	50Nm(Min.)	50Nm
INITIAL FORCE	1.0KN in 15 sec.and hold for 1Min.('0+15sec.)	1.0KN
RETIGHTENING TORQUE	50Nm(Min.)after releasing the force	50Nm
FORCE APPLIED FOR SLIP TEST	6.0KN in 30 sec.and hold it for 1Min.('0+15sec.) Amount of slip ' Δ 1,(7.0mmMax.)	6.0KN 1.90mm
FORCE APPLIED FOR SLIP TEST	8.5KN in 30 sec.and hold it for 1Min.('0+15sec.) Amount of slip ' Δ 2,(0.5mm Max.)	8.5KN 0.20mm

REMARKS:- GIVEN RESULTS CONFORMS AS PER EN74:1988



LTF05

This report is issued for the submitted samples only.

7. ERECTION AND DISMANTLING

Basic Hints:

- Install the H frames and stabilizing diagonals in one vertical tower plane alternately from one lift to another.
- Adjust the base jack at rough extension lengths
- Base jacks may only stand on a sturdy foundation. The allowable inclination can be of up to a maximum of 3%
- Install bracings (scaffold tubes with couplers) if required for statically reasons or some other purpose. Connect the bracings to the erected props inside the building.
- It is advisable to provide the tube bracings as close as possible to existing walls or columns (piers, etc.) for transmitting forces. Single towers must be stabilized to the ground by tubes and couplers.
- All aspects of the approval have to be adhered to. Furthermore the safety rules and requirements for protection of health in false work and formwork construction as well as other relevant national or local regulations must be paid attention.

Dismantling

- It is advisable to check the full system for anything dislocated prior to dismantling. Start by dismantling the system from top to the bottom. Remove bracings gradually. This also applies to the additional bracings. Remove props in the last step. Stack the elements next to each other by type.

