Test Report 8957775.

Carrs Billington Agriculture Ltd

Introduction.

This report has been prepared by Paul McGill and relates to the activity detailed below:

Job/Registration Details		Client Details
Job number:	**8957775**	Carrs Billington Agriculture (Sales) Ltd Montgomery Way Rosehill Estate Carlisle CA1 2UY United Kingdom
Job type:	Testing Samples Submitted	
Start Date:	25/06/2018	
Test type:	Direct	
Sample ID:	10178290	
Registration:	**NA**	
Protocol:	NA	
Quality system:	NA	
Registration:	**NA**	
Protocol:	NA	
Quality system:	NA	

The report has been approved for issue by Mark Manito – Team Manager

This issue supersedes all previous issues. The amendment giving rise to this issue of the report can be ascertained by contacting the authorizing signatory.

Approved For Issue	
M. Manito	Issue Date:28 September 2018

Objectives.

Direct test

Product Scope.

Certified Conformity aluminium tripod ladders

Report Summary.

The samples were received on 25 May 2018 and the testing was started on 25 June 2018.

The samples submitted complied with the requirements of the limited test work conducted.

Test Samples.

Sample Id	ER Number	Description
1	10178290	Standard tripod ladder (single rear leg adjust).
2	10178290	Three leg adjustable tripod ladder
3	10178290	Platform tripod ladder

Description of Test Samples.

Sample Description
1 off Standard tripod ladder (single rear leg adjust).
1 off Three leg adjustable tripod ladder
1 off Platform tripod ladder

Glossary of Terms.

PASS: Complies. Tested by BSI engineers at BSI laboratories.

PASS1: Complies. Witnessed by BSI engineers in manufacturers laboratory.

PASS2: Complies. Tests carried out by third party lab; results accepted by BSI.

PASS*: Report resulted in uncertainty and states that Compliance is more probable than non-compliance.

FAIL: Non compliance – Product does not meet the requirements of this clause.

FAIL*: Report resulted in uncertainty and states that Non-compliance is more probable than compliance.

N/A: Not applicable to design under consideration.

N/T: Not tested due to similarity to previously tested item; reference earlier test report.

Conditions of Issue.

This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

Should you wish to speak with BSI in relation to this report, please contact Customer Services on +44 (0)8450 80 9000.

BSI
Kitemark House
Maylands Avenue
Hemel Hempstead
Hertfordshire
HP2 4SQ

BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017 Testing, Examination and Assessment of Aluminium Tripod Ladders Submitted as Direct Test Samples.

Introduction.

At the request of BSI the aluminium tripod ladder detailed below, submitted on behalf of Certified Conformity Limited, was tested and assessed against requirements of BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017, as indicated on the following pages of this report. This request was made on BSI Services: Service Management Order No 8957775.

Test Item, sample one.

Sample - Standard tripod ladder (single rear leg adjust).

Summary of Results for BS EN 131-1:2015.

Clause	Comments	Result
4 Functional sizes		Pass
4.6 Standing step ladders		Pass

Test results for BS EN 131-1:2015.

CLAUSE	TITLE/REQUIREMENT	Specified*	Actual*	Assessment
4.6	**Standing step ladders.**			
	The legs are connected with hinge joints and shall be secured from sliding apart.			PASS
	During the use of ladder the steps shall be in horizontal position.			PASS
	The projection of the handrail onto the platform shall not go beyond the latter.			N/A
	The radius of the horizontal edges of a platform shall be max 15mm in order to avoid slipping at the edges of the platform.			N/A

Test results for BS EN 131-1:2015 (continued).

CLAUSE	TITLE/REQUIREMENT	Specified*		Actual*	Assessment
4.6	**Standing step ladders.**				
l_2	Length to the topmost rung/step.		Side 1		4880
			Side 2		N/A
l_4	Distance from upper edge of lowest rung to lower end of ladder (Min 0.5 l_5, Max l_5+15).	150.5-316	Side 1	285	PASS
			Side 2		N/A

Actual temperature (°C) 24.10 Actual humidity (%)47.4

l_5 Side 1 - Distance between rungs/steps (Measured using device with inventory number 9003547 which is calibrated before use with a digital Vernier caliper).

1.	301	7.	301	13.	300	19.	
2.	301	8.	302	14.	300	20.	
3.	301	9.	300	15.	300	21.	
4.	301	10.	302	16.		22.	
5.	301	11.	301	17.		23.	
6.	301	12.	300	18.		24.	

Rung spacing (range) ±2.	230min 300max.	300-302	PASS
Difference in rung spacing.	±2		
l_6[c] Width of platform ([c] It shall be possible to inscribe a square of 250mm x 250mm in the platform).	250min	2	PASS

Actual temperature (°C) 24.42 Actual humidity (%)46.4

Test results for BS EN 131-1:2015 (continued).

CLAUSE	TITLE/REQUIREMENT	Specified*		Actual *	Assessment
4.6	**Standing step ladders.**				
l_7	Depth of platform.	250min			N/A
b_1	Inner width at upper edge of topmost rung/step.	280min	Side 1	348	PASS
			Side 2		N/A
b_2	Outside width at lower end of ladder (b_1+0.1 l_2+2t min)	924.24	Side 1	1540	PASS
			Side 2		N/A
c	Platform overhang.	30max			N/A
d	Hand/kneel rail height ([b] Measured vertically).	600[b]min			N/A
h_2	Height to upper edge of rung/step/platform.			4640	
α	Inclination of ascending leg (°).	60-70	ADJUSTABLE 60-70		PASS
β	Inclination for supporting leg (°).	65-75	ADJUSTABLE 65-75		PASS
t	Thickness of stile.		Side 1	27.97	
			Side 2	16.15	

Actual temperature (°C) 24.5 Actual humidity (%)46.1

Note.
All units are in millimetres unless otherwise stated.

Summary of Results for BS EN 131-2:2010+A2:2017.

Clause	Comments	Result
4 Requirements		Pass
4.3 Design		Pass
4.4 Surface finish		Pass
4.5 Hinges turning points		Pass
4.6 Opening restraints		Pass
4.7 Rungs/steps/platforms		Pass
5 Testing		Pass
5.3 Bending test of the stiles		Pass
5.4 Lateral deflection		Pass
5.3 Bending test		Pass
5.2 Strength test		Pass
5.7 Torsion test of rungs and steps		Pass
5.6.2 Rungs and steps		Pass
5.21 Torsion test for leaning ladders		Pass
5.11.2 Feet pull test		Pass
6 Marking and user instructions		Pass

Note. Assessments were only made against clauses relevant to the product. Non-relevant clauses have been omitted from this report.

Test Results for BS EN 131-2:2010+A2:2017.

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4	**Requirements.**			
4.1	General.			
	The requirements are based upon a maximum total load of 1471 N (150 kg).			
	Ladders are determined to be used by one person at a time but this excludes any person footing (stabilising) the ladder.			
4.2	**Materials.**			
4.2.1	**Aluminium-alloy.**			
	All load bearing parts made of aluminium alloy shall have an elongation A5 at rupture measured according to EN ISO 6892-1 of minimum 5 %.			N/A
	All load bearing parts made of aluminium alloy shall have a thickness of at least 1.2 mm.			PASS
4.3	**Design.**			
	The design shall seek to minimize the existence of shearing and squeeze points and where they do exist to minimize the shearing and squeezing effects as far as practicable.			PASS
	NOTE: Shear or squeeze points exist if the distance between two accessible parts relative to each other is less than 18mm and more than 7mm in any position during movement (see EN 581-1).			
	All connections should be durable and strong.			PASS
	The connections should be designed in a manner that arising notch tensions remain low.			PASS
	Screws and nuts shall be secured against loosening, e.g. by means of self-locking or mechanically locked safety devices.			N/A
	Welding of joints is permitted if welding procedures and welding personnel are suitable. EN ISO 14731 and EN ISO 3834-1 to EN ISO 3834-4 have to be observed.			N/A
4.4	**Surface finish.**			
	In order to avoid injuries accessible edges, corners, and protruding parts shall be free of burrs, for example chamfered or rounded.			PASS
	Metal parts susceptible to corrosion shall be protected by means of a paint coating or other coating.			PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4.4	**Surface finish (continued).**			
	Wooden parts shall be smoothed and coated on all sides.			N/A
	The coating shall be transparent and permeable to water vapour.			N/A
Actual temperature (°C)26.8			Actual humidity (%)39.2	
4.5	**Hinges (Turning points).**			
	Hinges shall connect the legs of the standing rung ladders and the standing step ladders durably.			PASS
	Hinges shall be designed in such a manner that no abutment of the ladder parts over the hinges is formed during use of the ladder.			PASS
	The hinge pin shall be secured against unintentional loosening.			N/A
	Pins shall have at least the same strength as M6 (5,3 mm) pins of steel 8.8. (If the pin has several shearing points (piano hinge) there is no restriction as to the hinge pin diameter. The hinges shall satisfy the tests according to 5.8.)			N/A
4.6	**Opening restraints.**			
	The legs of the standing ladders shall be prevented from opening beyond the normal use configuration by means of opening restraints. (If chains are used, all chain links with the exception of the first and the last one shall be free to move. The opening restraints shall satisfy the tests according to 5.8.)			PASS
4.7	**Rungs/steps/platforms.**			
	Rungs, steps and platforms made of metal or plastics shall have a textured surface on the working face to reduce slipping.			PASS
	The contact surface of the coverings shall adhere firmly to the rungs or steps.			N/A
	Rungs and steps shall be firmly and durably connected to the stiles. (For wooden rungs please refer to BS EN 131-2:2010+A2:2017, clause 4.7			PASS
Actual temperature (°C) 27.04			Actual humidity (%) 38.1	

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5	**Testing.**			
5.1	**General.**			
	For all tests, unless otherwise stated, the following tolerances apply:			
•	± 1 mm for longitudinal measurements;			
•	± 5 mm for the measurement of the distance between the supports and the overhanging length;			
•	± 1° for the measurement of angles;			
•	± 1 % for static forces and torque.			
5.12	**Test on hand-/kneerails.**			
5.12.1	**Standing ladder top hand-/kneerails.**			
	After the test, the hand-/kneerail shall not show any visible permanent deformation, which does impair the fitness for use of the ladder.			PASS
5.3	**Bending test of the styles.**			
	Test Span (l).		4450	
	fmax=	0.043X4450-90		
	Deflection (fmax).	101.35	35.21	PASS

- fmax = 5 × l 2 × 10-6 for ladders of length less than or equal to 5m
- fmax = 0,043 × l – 90mm for ladders of length more than 5m and less than or equal to 12m
- fmax = 0,06 × l – 294mm for ladders of length more than 12m.

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.2	**Strength test for all ladders.**			
	The ladder shall be erected in position of use. Leaning ladders should be fully extended, leaning against a smooth vertical surface at 65° ±0.5°, the base must be restrained to prevent slippage. The test load (2250N for non-professional, 2700N for professional) shall be applied to the rung/tread nearest the centre of the ladder, 50mm from the inside of one stile over a length of 100mm for a period of 1 minute.			
	The ladder shall remain functional with no fracture or visible cracks.		2700N	PASS
	The ladder shall sustain the load without ultimate failure.		2700N	PASS
Actual temperature (°C)	25		Actual humidity (%)	39.5
5.7	**Torsion test of rungs and steps.**			
	During testing there shall be no relative movement in the connection between stile and rung/step.			PASS
	After the test a permanent deformation shall be 1° at maximum with a tolerance of ± 0,2°		0.21	PASS
5.6	**Vertical load on rungs, steps and platforms.**			
5.6.1	**General**			
	A pre-load F of 200 N shall be applied for the duration of one minute. The position of the rung/step/platform after removal of the pre-load is the origin for measurement.			
5.6.2	**Rungs and steps.**			
	Inner width of rung/step (b1).		820	
	Allowable permanent deformation (0.5% of b1).		4.1	
	Permanent deformation of rung/step.	4.1	3.05	PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.15	**Torsion test for standing ladders.**			
	The front stile of the ladders that is not clamped to the floor shall not move more than 25 mm from its datum position whilst the horizontal load is applied.			PASS
5.8	**Test of opening restraints and hinges of standing ladders.**			
5.8.1	**General.**			
	After removal of the loads after the tests according to 5.8.2 to 5.8.4 no visible permanent deformation shall occur on the hinge joints, opening restraint devices and their attachments.			PASS
	The ladder shall not show any visible damages such as cracks, indentations, etc. Permanent deformation is acceptable only if it does not impair the fitness for use of the ladder.			PASS
6	**Marking and user instructions.**			
	Only ladders that are in compliance with EN 131-1 and EN 131-2 or EN 131-4 may be marked "EN 131".			N/A
	The marking shall be in accordance with EN 131-3.			PASS
	Marking shall be durable.			PASS

Actual temperature (°C) 18.19 Actual humidity (%) 62.9

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
6	**Marking and user instructions (continued).**			
	The durability of the marking shall be checked by inspection and by rubbing the marking lightly, first for 15s with a cloth soaked in water and then for 15s with a cloth soaked in petroleum spirit.			PASS
	There shall be no reduction in legibility at the conclusion of the test.			PASS
	Adhesive labels, where used, shall not have worked loose or become curled at the edges.			PASS
	User instructions in accordance with EN 131-3 shall be provided.			PASS
5.16	**Test methods for plastic ladders.**			
	If the client already holds a licence for a product using the same type of plastics used in these samples then an email must be sent to the client for verification that the materials used in the production of the plastics used in this sample haven't changed. If this is verified then these tests do not need to be completed. If the client is new and doesn't hold a licence then these tests must be completed.			N/A

Actual temperature (°C) 18.19 Actual humidity (%) 62.9

Note: * All measurements are in millimetres unless otherwise stated

BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017 Testing, Examination and Assessment of Aluminium Tripod Ladders Submitted as Direct Test Samples.

Introduction.

At the request of BSI the aluminium tripod ladder detailed below, submitted on behalf of Certified Conformity Limited, was tested and assessed against requirements of BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017, as indicated on the following pages of this report. This request was made on BSI Services: Service Management Order No 8957775.

Test Item, sample two.

Sample - Three leg adjustable step ladder.

Summary of Results for BS EN 131-1:2015.

Clause	Comments	Result
4 Functional sizes		Pass
4.6 Standing step ladders		Pass

Test results for BS EN 131-1:2015.

CLAUSE	TITLE/REQUIREMENT	Specified*	Actual*	Assessment
4.6	**Standing step ladders.**			
	The legs are connected with hinge joints and shall be secured from sliding apart.			PASS
	During the use of ladder the steps shall be in horizontal position.			PASS
	The projection of the handrail onto the platform shall not go beyond the latter.			N/A
	The radius of the horizontal edges of a platform shall be max 15mm in order to avoid slipping at the edges of the platform.			N/A

Test results for BS EN 131-1:2015 (continued).

CLAUSE	TITLE/REQUIREMENT	Specified*		Actual*	Assessment
4.6	**Standing step ladders.**				
l_2	Length to the topmost rung/step.		Side 1	3293	
			Side 2		N/A
l_4	Distance from upper edge of lowest rung to lower end of ladder (Min 0.5 l_5, Max l_5+15).	150-315	Side 1	250	PASS
			Side 2		N/A

Actual temperature (°C) 23.28 Actual humidity (%)51.0

l_5 Side 1 - Distance between rungs/steps (Measured using device with inventory number 9003547 which is calibrated before use with a digital Vernier caliper).

1. 300	7. 301	13.	19.
2. 301	8. 301	14.	20.
3. 301	9. 300	15.	21.
4. 300	10. 299	16.	22.
5. 301	11. 300	17.	23.
6. 301	12.	18.	24.

Rung spacing (range) ±2.	230min 300max.	299-301	PASS
Difference in rung spacing.	±2	2	

l_6[c] Width of platform ([c] It shall be possible to inscribe a square of 250mm x 250mm in the platform). n/a

Actual temperature (°C) 23.28 Actual humidity (%)51.0

Test results for BS EN 131-1:2015 (continued).

CLAUSE		TITLE/REQUIREMENT	Specified*		Actual *	Assessment
4.6		**Standing step ladders.**				
	l_7	Depth of platform.	250min			N/A
	b_1	Inner width at upper edge of topmost rung/step.	280min	Side 1	328	PASS
				Side 2		N/A
	b_2	Outside width at lower end of ladder (b_1+0.1 l_2+2t min)	753.78	Side 1	1242	PASS
				Side 2		N/A
	c	Platform overhang.	30max			N/A
	d	Hand/kneel rail height ([b] Measured vertically).	600[b]min			N/A
	h_2	Height to upper edge of rung/step/platform.			3420	
	α	Inclination of ascending leg (°).	60-70	ADJUSTABLE	60-70	PASS
	β	Inclination for supporting leg (°).	65-75	ADJUSTABLE	65-75	PASS
	t	Thickness of stile.		Side 1	32.14	
				Side 2	16.10	

Actual temperature (°C) 23.8 Actual humidity (%)48.4

Note.
All units are in millimetres unless otherwise stated.

Summary of Results for BS EN 131-2:2010+A2:2017.

Clause	Comments	Result
4 Requirements		Pass
4.3 Design		Pass
4.4 Surface finish		Pass
4.5 Hinges turning points		Pass
4.6 Opening restraints		Pass
4.7 Rungs/steps/platforms		Pass
5 Testing		Pass
5.3 Bending test of the stiles		Pass
5.4 Lateral deflection		Pass
5.3 Bending test		Pass
5.2 Strength test		Pass
5.7 Torsion test of rungs and steps		Pass
5.6.2 Rungs and steps		Pass
5.21 Torsion test for leaning ladders		Pass
5.11.2 Feet pull test		Pass
6 Marking and user instructions		Pass

Note. Assessments were only made against clauses relevant to the product. Non-relevant clauses have been omitted from this report.

Test Results for BS EN 131-2:2010+A2:2017.

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4	**Requirements.**			
4.1	General.			
	The requirements are based upon a maximum total load of 1471 N (150 kg).			
	Ladders are determined to be used by one person at a time but this excludes any person footing (stabilising) the ladder.			
4.2	**Materials.**			
4.2.1	**Aluminium-alloy.**			
	All load bearing parts made of aluminium alloy shall have an elongation A5 at rupture measured according to EN ISO 6892-1 of minimum 5 %.			N/A
	All load bearing parts made of aluminium alloy shall have a thickness of at least 1.2 mm.			PASS
4.3	**Design.**			
	The design shall seek to minimize the existence of shearing and squeeze points and where they do exist to minimize the shearing and squeezing effects as far as practicable.			PASS
	NOTE: Shear or squeeze points exist if the distance between two accessible parts relative to each other is less than 18mm and more than 7mm in any position during movement (see EN 581-1).			
	All connections should be durable and strong.			PASS
	The connections should be designed in a manner that arising notch tensions remain low.			PASS
	Screws and nuts shall be secured against loosening, e.g. by means of self-locking or mechanically locked safety devices.			N/A
	Welding of joints is permitted if welding procedures and welding personnel are suitable. EN ISO 14731 and EN ISO 3834-1 to EN ISO 3834-4 have to be observed.			N/A
4.4	**Surface finish.**			
	In order to avoid injuries accessible edges, corners, and protruding parts shall be free of burrs, for example chamfered or rounded.			PASS
	Metal parts susceptible to corrosion shall be protected by means of a paint coating or other coating.			PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4.4	**Surface finish (continued).**			
	Wooden parts shall be smoothed and coated on all sides.			N/A
	The coating shall be transparent and permeable to water vapour.			N/A
Actual temperature (°C)18.42			Actual humidity (%)62.6	
4.5	**Hinges (Turning points).**			
	Hinges shall connect the legs of the standing rung ladders and the standing step ladders durably.			PASS
	Hinges shall be designed in such a manner that no abutment of the ladder parts over the hinges is formed during use of the ladder.			PASS
	The hinge pin shall be secured against unintentional loosening.			N/A
	Pins shall have at least the same strength as M6 (5,3 mm) pins of steel 8.8. (If the pin has several shearing points (piano hinge) there is no restriction as to the hinge pin diameter. The hinges shall satisfy the tests according to 5.8.)			N/A
4.6	**Opening restraints.**			
	The legs of the standing ladders shall be prevented from opening beyond the normal use configuration by means of opening restraints. (If chains are used, all chain links with the exception of the first and the last one shall be free to move. The opening restraints shall satisfy the tests according to 5.8.)			PASS
4.7	**Rungs/steps/platforms.**			
	Rungs, steps and platforms made of metal or plastics shall have a textured surface on the working face to reduce slipping.			PASS
	The contact surface of the coverings shall adhere firmly to the rungs or steps.			N/A
	Rungs and steps shall be firmly and durably connected to the stiles. (For wooden rungs please refer to BS EN 131-2:2010+A2:2017, clause 4.7			PASS
Actual temperature (°C) 18.43			Actual humidity (%) 62.6	

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5	**Testing.**			
5.1	**General.**			
	For all tests, unless otherwise stated, the following tolerances apply:			
•	± 1 mm for longitudinal measurements;			
•	± 5 mm for the measurement of the distance between the supports and the overhanging length;			
•	± 1° for the measurement of angles;			
•	± 1 % for static forces and torque.			
5.12	**Test on hand-/kneerails.**			
5.12.1	**Standing ladder top hand-/kneerails.**			
	After the test, the hand-/kneerail shall not show any visible permanent deformation, which does impair the fitness for use of the ladder.			PASS
5.3	**Bending test of the styles.**			
	Test Span (l).		2900	
	fmax=	$5x2900^2x10^{-6}$		
	Deflection (fmax).	42.05	16.59	PASS

- fmax = 5 × l 2 × 10-6 for ladders of length less than or equal to 5m
- fmax = 0,043 × l – 90mm for ladders of length more than 5m and less than or equal to 12m
- fmax = 0,06 × l – 294mm for ladders of length more than 12m.

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.2	**Strength test for all ladders.**			
	The ladder shall be erected in position of use. Leaning ladders should be fully extended, leaning against a smooth vertical surface at 65° ±0.5°, the base must be restrained to prevent slippage. The test load (2250N for non-professional, 2700N for professional) shall be applied to the rung/tread nearest the centre of the ladder, 50mm from the inside of one stile over a length of 100mm for a period of 1 minute.			
	The ladder shall remain functional with no fracture or visible cracks.		2700N	PASS
	The ladder shall sustain the load without ultimate failure.		2700N	PASS
Actual temperature (°C)	19.17		Actual humidity (%)	61.7
5.7	**Torsion test of rungs and steps.**			
	During testing there shall be no relative movement in the connection between stile and rung/step.			PASS
	After the test a permanent deformation shall be 1° at maximum with a tolerance of ± 0,2°		0.17	PASS
5.6	**Vertical load on rungs, steps and platforms.**			
5.6.1	**General**			
	A pre-load F of 200 N shall be applied for the duration of one minute. The position of the rung/step/platform after removal of the pre-load is the origin for measurement.			
5.6.2	**Rungs and steps.**			
	Inner width of rung/step (b1).		390	
	Allowable permanent deformation (0.5% of b1).		1.95	
	Permanent deformation of rung/step.	1.95	0.61	PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.15	**Torsion test for standing ladders.**			
	The front stile of the ladders that is not clamped to the floor shall not move more than 25 mm from its datum position whilst the horizontal load is applied.			PASS
5.8	**Test of opening restraints and hinges of standing ladders.**			
5.8.1	**General.**			
	After removal of the loads after the tests according to 5.8.2 to 5.8.4 no visible permanent deformation shall occur on the hinge joints, opening restraint devices and their attachments.			PASS
	The ladder shall not show any visible damages such as cracks, indentations, etc. Permanent deformation is acceptable only if it does not impair the fitness for use of the ladder.			PASS
6	**Marking and user instructions.**			
	Only ladders that are in compliance with EN 131-1 and EN 131-2 or EN 131-4 may be marked "EN 131".			N/A
	The marking shall be in accordance with EN 131-3.			PASS
	Marking shall be durable.			PASS

Actual temperature (°C) 19.80 Actual humidity (%) 61.4

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
6	**Marking and user instructions (continued).**			
	The durability of the marking shall be checked by inspection and by rubbing the marking lightly, first for 15s with a cloth soaked in water and then for 15s with a cloth soaked in petroleum spirit.			PASS
	There shall be no reduction in legibility at the conclusion of the test.			PASS
	Adhesive labels, where used, shall not have worked loose or become curled at the edges.			PASS
	User instructions in accordance with EN 131-3 shall be provided.			PASS
5.16	**Test methods for plastic ladders.**			
	If the client already holds a licence for a product using the same type of plastics used in these samples then an email must be sent to the client for verification that the materials used in the production of the plastics used in this sample haven't changed. If this is verified then these tests do not need to be completed. If the client is new and doesn't hold a licence then these tests must be completed.			N/A

Actual temperature (°C) 19.80 Actual humidity (%) 661.4

Note: * All measurements are in millimetres unless otherwise stated

BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017 Testing, Examination and Assessment of Aluminium Tripod Ladders Submitted as Direct Test Samples.

Introduction.

At the request of BSI the aluminium tripod ladder detailed below, submitted on behalf of Certified Conformity Limited, was tested and assessed against requirements of BS EN 131-1:2015 & BS EN 131-2:2010+A1:2017, as indicated on the following pages of this report. This request was made on BSI Services: Service Management Order No 8957775.

Test Item, sample three.

Sample - Platform ladder (single rear leg adjust).

Summary of Results for BS EN 131-1:2015.

Clause	Comments	Result
4 Functional sizes		Pass
4.6 Standing step ladders		Pass

Test results for BS EN 131-1:2015.

CLAUSE	TITLE/REQUIREMENT	Specified*	Actual*	Assessment
4.6	**Standing step ladders.**			
	The legs are connected with hinge joints and shall be secured from sliding apart.			PASS
	During the use of ladder the steps shall be in horizontal position.			PASS
	The projection of the handrail onto the platform shall not go beyond the latter.			N/A
	The radius of the horizontal edges of a platform shall be max 15mm in order to avoid slipping at the edges of the platform.			N/A

Test results for BS EN 131-1:2015 (continued).

CLAUSE	TITLE/REQUIREMENT	Specified*		Actual*	Assessment
4.6	**Standing step ladders.**				
l_2	Length to the topmost rung/step.		Side 1	2810	
			Side 2		N/A
l_4	Distance from upper edge of lowest rung to lower end of ladder (Min 0.5 l_5, Max l_5+15).	150-315	Side 1	310	PASS
			Side 2		N/A

Actual temperature (°C) 24.69 Actual humidity (%)45.1

l_5 Side 1 - Distance between rungs/steps (Measured using device with inventory number 9003547 which is calibrated before use with a digital Vernier caliper).

1. 300	7. 299	13.	19.
2. 300	8. 300	14.	20.
3. 300	9.	15.	21.
4. 300	10.	16.	22.
5. 300	11.	17.	23.
6. 299	12.	18.	24.

Rung spacing (range) ±2.	230min 300max.	299-300	PASS
Difference in rung spacing.	±2		
l_6[c] Width of platform ([c] It shall be possible to inscribe a square of 250mm x 250mm in the platform).	250min	1	PASS

Actual temperature (°C) 26.64 Actual humidity (%)40.0

Test results for BS EN 131-1:2015 (continued).

CLAUSE	TITLE/REQUIREMENT	Specified*		Actual *	Assessment
4.6	**Standing step ladders.**				
l_7	Depth of platform.	250min			N/A
b_1	Inner width at upper edge of topmost rung/step.	280min	Side 1	329	PASS
			Side 2		N/A
b_2	Outside width at lower end of ladder (b_1+0.1 l_2+2t min)	642.64	Side 1	1260	PASS
			Side 2		N/A
c	Platform overhang.	30max			N/A
d	Hand/kneel rail height ([b] Measured vertically).	600[b]min			N/A
h_2	Height to upper edge of rung/step/platform.			2635	
α	Inclination of ascending leg (°).	60-70	ADJUSTABLE	60-70	PASS
β	Inclination for supporting leg (°).	65-75	ADJUSTABLE	65-75	PASS
t	Thickness of stile.		Side 1	28.22	
			Side 2	16.32	

Actual temperature (°C) 26.7 Actual humidity (%)41.0

Note.
All units are in millimetres unless otherwise stated.

Summary of Results for BS EN 131-2:2010+A2:2017.

Clause	Comments	Result
4 Requirements		Pass
4.3 Design		Pass
4.4 Surface finish		Pass
4.5 Hinges turning points		Pass
4.6 Opening restraints		Pass
4.7 Rungs/steps/platforms		Pass
5 Testing		Pass
5.3 Bending test of the stiles		Pass
5.4 Lateral deflection		Pass
5.3 Bending test		Pass
5.2 Strength test		Pass
5.7 Torsion test of rungs and steps		Pass
5.6.2 Rungs and steps		Pass
5.21 Torsion test for leaning ladders		Pass
5.11.2 Feet pull test		Pass
6 Marking and user instructions		Pass

Note. Assessments were only made against clauses relevant to the product. Non-relevant clauses have been omitted from this report.

Test Results for BS EN 131-2:2010+A2:2017.

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4	**Requirements.**			
4.1	General.			
	The requirements are based upon a maximum total load of 1471 N (150 kg).			
	Ladders are determined to be used by one person at a time but this excludes any person footing (stabilising) the ladder.			
4.2	**Materials.**			
4.2.1	**Aluminium-alloy.**			
	All load bearing parts made of aluminium alloy shall have an elongation A5 at rupture measured according to EN ISO 6892-1 of minimum 5 %.			N/A
	All load bearing parts made of aluminium alloy shall have a thickness of at least 1.2 mm.			PASS
4.3	**Design.**			
	The design shall seek to minimize the existence of shearing and squeeze points and where they do exist to minimize the shearing and squeezing effects as far as practicable.			PASS
	NOTE: Shear or squeeze points exist if the distance between two accessible parts relative to each other is less than 18mm and more than 7mm in any position during movement (see EN 581-1).			
	All connections should be durable and strong.			PASS
	The connections should be designed in a manner that arising notch tensions remain low.			PASS
	Screws and nuts shall be secured against loosening, e.g. by means of self-locking or mechanically locked safety devices.			N/A
	Welding of joints is permitted if welding procedures and welding personnel are suitable. EN ISO 14731 and EN ISO 3834-1 to EN ISO 3834-4 have to be observed.			N/A
4.4	**Surface finish.**			
	In order to avoid injuries accessible edges, corners, and protruding parts shall be free of burrs, for example chamfered or rounded.			PASS
	Metal parts susceptible to corrosion shall be protected by means of a paint coating or other coating.			PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
4.4	**Surface finish (continued).**			
	Wooden parts shall be smoothed and coated on all sides.			N/A
	The coating shall be transparent and permeable to water vapour.			N/A
Actual temperature (°C)26.93			Actual humidity (%)39.6	
4.5	**Hinges (Turning points).**			
	Hinges shall connect the legs of the standing rung ladders and the standing step ladders durably.			PASS
	Hinges shall be designed in such a manner that no abutment of the ladder parts over the hinges is formed during use of the ladder.			PASS
	The hinge pin shall be secured against unintentional loosening.			N/A
	Pins shall have at least the same strength as M6 (5,3 mm) pins of steel 8.8. (If the pin has several shearing points (piano hinge) there is no restriction as to the hinge pin diameter. The hinges shall satisfy the tests according to 5.8.)			N/A
4.6	**Opening restraints.**			
	The legs of the standing ladders shall be prevented from opening beyond the normal use configuration by means of opening restraints. (If chains are used, all chain links with the exception of the first and the last one shall be free to move. The opening restraints shall satisfy the tests according to 5.8.)			PASS
4.7	**Rungs/steps/platforms.**			
	Rungs, steps and platforms made of metal or plastics shall have a textured surface on the working face to reduce slipping.			PASS
	The contact surface of the coverings shall adhere firmly to the rungs or steps.			N/A
	Rungs and steps shall be firmly and durably connected to the stiles. (For wooden rungs please refer to BS EN 131-2:2010+A2:2017, clause 4.7			PASS
Actual temperature (°C) 26.94			Actual humidity (%) 39.7	

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5	**Testing.**			
5.1	**General.**			
	For all tests, unless otherwise stated, the following tolerances apply:			
•	± 1 mm for longitudinal measurements;			
•	± 5 mm for the measurement of the distance between the supports and the overhanging length;			
•	± 1° for the measurement of angles;			
•	± 1 % for static forces and torque.			
5.12	**Test on hand-/kneerails.**			
5.12.1	**Standing ladder top hand-/kneerails.**			
	After the test, the hand-/kneerail shall not show any visible permanent deformation, which does impair the fitness for use of the ladder.			N/A
5.3	**Bending test of the styles.**			
	Test Span (l).		3100	
	fmax=	$5X3100^2X10^{-6}$		
	Deflection (fmax).	48.05	25.89	PASS

- fmax = 5 × l 2 × 10-6 for ladders of length less than or equal to 5m
- fmax = 0,043 × l – 90mm for ladders of length more than 5m and less than or equal to 12m
- fmax = 0,06 × l – 294mm for ladders of length more than 12m.

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.2	**Strength test for all ladders.**			
	The ladder shall be erected in position of use. Leaning ladders should be fully extended, leaning against a smooth vertical surface at 65° ±0.5°, the base must be restrained to prevent slippage. The test load (2250N for non-professional, 2700N for professional) shall be applied to the rung/tread nearest the centre of the ladder, 50mm from the inside of one stile over a length of 100mm for a period of 1 minute.			
	The ladder shall remain functional with no fracture or visible cracks.		2700N	PASS
	The ladder shall sustain the load without ultimate failure.		2700N	PASS
Actual temperature (°C)	29.0		Actual humidity (%)	31.6
5.7	**Torsion test of rungs and steps.**			
	During testing there shall be no relative movement in the connection between stile and rung/step.			PASS
	After the test a permanent deformation shall be 1° at maximum with a tolerance of ± 0,2°		0.02	PASS
5.6	**Vertical load on rungs, steps and platforms.**			
5.6.1	**General**			
	A pre-load F of 200 N shall be applied for the duration of one minute. The position of the rung/step/platform after removal of the pre-load is the origin for measurement.			
5.6.2	**Rungs and steps.**			
	Inner width of rung/step (b1).		380	
	Allowable permanent deformation (0.5% of b1).		1.9	
	Permanent deformation of rung/step.	1.9	0.67	PASS

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
5.15	**Torsion test for standing ladders.**			
	The front stile of the ladders that is not clamped to the floor shall not move more than 25 mm from its datum position whilst the horizontal load is applied.			PASS
5.8	**Test of opening restraints and hinges of standing ladders.**			
5.8.1	**General.**			
	After removal of the loads after the tests according to 5.8.2 to 5.8.4 no visible permanent deformation shall occur on the hinge joints, opening restraint devices and their attachments.			PASS
	The ladder shall not show any visible damages such as cracks, indentations, etc. Permanent deformation is acceptable only if it does not impair the fitness for use of the ladder.			PASS
6	**Marking and user instructions.**			
	Only ladders that are in compliance with EN 131-1 and EN 131-2 or EN 131-4 may be marked "EN 131".			N/A
	The marking shall be in accordance with EN 131-3.			PASS
	Marking shall be durable.			PASS

Actual temperature (°C) 28.13 Actual humidity (%) 30.9

Test Results (Continued).

CLAUSE	TITLE/REQUIREMENT	SPECIFIED	ACTUAL	ASSESSMENT
6	**Marking and user instructions (continued).**			
	The durability of the marking shall be checked by inspection and by rubbing the marking lightly, first for 15s with a cloth soaked in water and then for 15s with a cloth soaked in petroleum spirit.			PASS
	There shall be no reduction in legibility at the conclusion of the test.			PASS
	Adhesive labels, where used, shall not have worked loose or become curled at the edges.			PASS
	User instructions in accordance with EN 131-3 shall be provided.			PASS
5.16	**Test methods for plastic ladders.**			
	If the client already holds a licence for a product using the same type of plastics used in these samples then an email must be sent to the client for verification that the materials used in the production of the plastics used in this sample haven't changed. If this is verified then these tests do not need to be completed. If the client is new and doesn't hold a licence then these tests must be completed.			N/A

Actual temperature (°C) 28.13 Actual humidity (%) 30.9

Note: * All measurements are in millimetres unless otherwise stated

*** End of Report ***