Class A Aluminium Box Rail - Technical Datasheet

15mm Box Rail

20mm Box Rail

25mm Box Rail

The Wallbarn Aluminium Box Rails are made from high grade extruded aluminium. They were designed by Wallbarn and made here in the United Kingdom. They are suited to both paving and decking applications and work seamlessly with our plastic and non-combustible pedestals.

PHYSICAL AND CHEMICAL PROPERTIES

	15mm	20mm	25mm
Profile			
Material	Aluminium 6063 T6	Aluminium 6063 T6	Aluminium 6063 T6
Weight	0.90kg/m	0.99kg/m	1.99kg/m
Height	15mm	20mm	25mm
Width	60mm	60mm	60mm
Length	2,500mm	2,500mm	2,500mm
Fire Classification	**Class A BS EN 13501-1 2018**		

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Recommended Pedestal Placement - Box Rail

Wallbarn Aluminium Box Rails/Joists are designed to achieve large spans despite their minimal height and lightweight. These products were independently tested for weight tolerance by Specialist Technical Services (U.K) Limited (STS- Group). See the Test Certificate : Appendix A

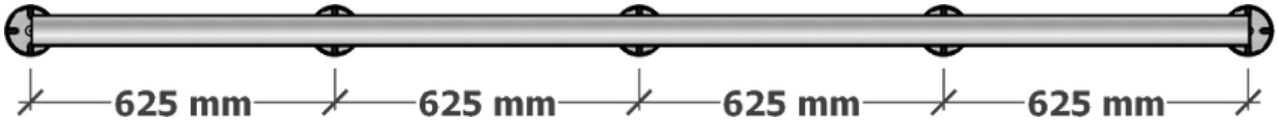
The testing was conducted in accordance with BS 8579:2020, using the test standard method BS 8527:2020, targeting a load resulting in a 5mm deflection. The recommended spacings provided ensure even distribution of the pedestals along the chosen rail, effectively distributing the weight and reducing point loading.

Rail/Joist Height	Recommended maximum distance between pedestals	Tested maximum distance between pedestals
15mm	500mm	600mm
20mm	500mm	600mm
25mm	625mm	800mm

15mm Box Rail/Joist

20mm Box Rail/Joist

25mm Box Rail/Joist



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Load Testing - Box Rail

Wallbarn Aluminium Box Rails/Joists have been independently tested by Specialist Technical Services (U.K) Limited to determine destructive load possible. The lengths of each rail were clamped on each end and a vertical compressive load was applied to the centre. (See Test : Appendix B)

Starting with a 1.05kN force (approximately 107Kg), the 15mm & 20mm Box Rails bent to over 64mm without breaking. It was observed by the tester, that not only did the rails not break under this force but also regained their original shape after test had finished.

Test Product	STS UK Test - Load Obtained (kN)	STS UK Test - Maximum Displacement (mm)
15mm	1.05 (Approx. 107Kg)	68.77
20mm	1.06 (Approx. 108Kg)	65.87
*25mm	5.14 (Approx. 524Kg)	62.66
1 Kilonewton (kN) is approximately equal to 101.9716213 kilograms		

***The 25mm Box Rail was redesigned in late 2024 making it much stronger than it's predecessor. Refer to the test done on the earlier version in Appendix B versus the current version in Appendix C**

Appendix B Snapshot

25mm Rail	1.58	64.63

Appendix C Snapshot

Test Product	Load Achieved (kN)	Displacement (mm)
25mm rail	5.14	62.66

15mm Box Rail

20mm Box Rail

25mm Box Rail

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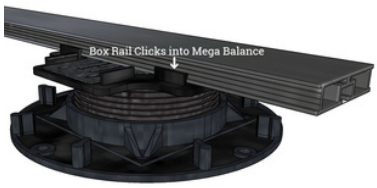
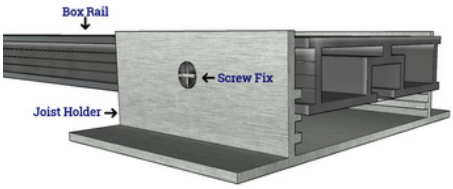
Wallbarn - Technical Datasheet

Compatible Pedestals & Components

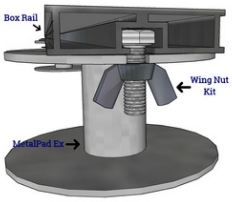
Mega Balance Non-Fire Rated Pedestal



Class A Joist Holder



Class A MetalPad Ex Pedestal



Connecting Brackets

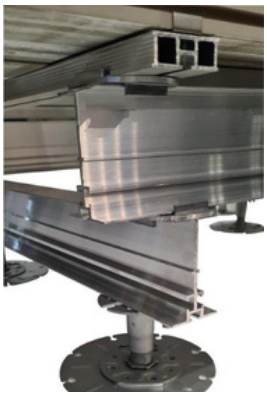
Stainless Steel Straight Brackets

Stainless Steel Right Angle Brackets

Headpieces

Paving Headpiece

Rail to Rail Headpiece



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Appendix A:

TEST CERTIFICATE

LOAD TESTING IN ACCORDANCE WITH BS 8579:2020

On Wallbarn Limited,
3 Hagley Court North, The Waterfront, Dudley, West Midlands, DY5 1XF

PROOF LOAD TESTING
STS LABORATORY

TEST DESCRIPTION: A weight tolerance test was conducted on various aluminium rails fitted to steel pedestals, increasing in 100mm spans from the centre of the rail. Testing was completed using a jack to apply a vertical compressive load centre to the product, to confirm structural performance. Loading results obtained were recorded at the limit of 5mm deflection. All testing was carried out in accordance with the client's specification.

REF NO.:	DR-5744	**DATE TESTED:**	15th May 2024
JOB NO.:	P10259	**CERTIFICATE DATE:**	24th May 2024
CERTIFICATE NO.:	IC11716	**SUPPLIER/SOURCE:**	Client

TEST DETAILS:

Product Tested:	Aluminium Rail with Steel Pedestal	Item Condition:	New
Target Loads:	5mm Deflection	Ambient Temperature:	18°C
Test Location:	STS Laboratory	Procedure or Method:	BS 8527:2020

TEST RESULTS:

Test Product	Load Achieved (kN)											
	100mm from Centre	200mm from Centre	300mm from Centre	400mm from Centre	500mm from Centre	600mm from Centre	700mm from Centre	800mm from Centre	900mm from Centre	1000mm from Centre	1100mm from Centre	1200mm from Centre
15mm Rail	2.04	2.08	2.01	1.13								
20mm Rail	2.02		2.03	1.98								
50mm Rail			2.10	1.54	1.43	1.40	1.28					
75mm Rail			2.26	2.03	2.01	1.97	1.90	1.88	1.78	1.28		
100mm Rail			2.02	2.05	2.05	2.05	2.05	2.02	2.00	2.05	2.02	1.90

ANALYSIS:
Testing was completed with each individual rail obtaining various loads before reaching 5mm deflection. The 15mm & 20mm rail reached a 400mm span before the maximum deflection was obtained, with the 100mm rail reaching a span of 1200mm from the centre, before obtaining maximum permissible deflection. All testing was completed within the BS 8572:2020.

For Specialist Technical Services (U.K) Limited			The results found on this Certificate relate only to the product[s] tested as described above This Test Certificate shall not be reproduced except in full
Approved By:	Andrew Gore		
Position:	Technical Director		
	Signature:		QC: TC001 – Test Certificate – v4.0 | Page 1 of 1

END OF PAGE

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Offices Located at: Chester | Ellesmere Port
Website: https://www.sts-group.co.uk

Appendix B:

TEST CERTIFICATE

LOAD TESTING IN ACCORDANCE WITH THE CLIENT'S SPECIFICATION

On Wallbarn Limited,
3 Hagley Court North, The Waterfront, Dudley, West Midlands, DY5 1XF

PROOF LOAD TESTING
STS LABORATORY

TEST DESCRIPTION: A weight tolerance test was conducted on various aluminium rails to determine the destructive load obtainable. Testing was completed using a jack to apply a vertical compressive load centre to the product, to confirm structural performance and determine load failure limit. All testing was carried out in accordance with the client's specification.

REF NO.:	DR-5744	**DATE TESTED:**	15th May 2024
JOB NO.:	P10259	**CERTIFICATE DATE:**	24th May 2024
CERTIFICATE NO.:	IC11717	**SUPPLIER/SOURCE:**	Client

TEST DETAILS:

Product Tested:	Aluminium Rail	Item Condition:	New
Target Loads:	Failure	Ambient Temperature:	18°C
Test Location:	STS Laboratory	Procedure or Method:	Client's Specification

TEST RESULTS:

Test Product	Load Obtained (kN)	Maximum Displacement (mm)
15mm Rail	1.05	68.77
20mm Rail	1.06	65.87
25mm Rail	1.58	64.63
50mm Rail	4.08	44.96
75mm Rail	6.58	32.65
100mm Rail	8.10	27.86

ANALYSIS:
Testing was completed with each individual rail obtaining various loads before reaching failure. The 15mm rail obtained the lowest load (1.05kN) along with the highest displacement (68.77mm), with the 100mm obtaining the highest loading (8.10kN) along with the lowest recorded displacement (27.86mm). All testing was completed within the client's specification.

For Specialist Technical Services (U.K) Limited			The results found on this Certificate relate only to the product[s] tested as described above This Test Certificate shall not be reproduced except in full
Approved By:	Andrew Gore		
Position:	Technical Director		
	Signature:		QC: TC001 – Test Certificate – v4.0 | Page 1 of 1

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APPENDIX C:

TEST CERTIFICATE

LOAD TESTING IN ACCORDANCE WITH THE CLIENT'S SPECIFICATION

On Wallbarn Limited,
3 Hagley Court North, The Waterfront, Dudley, West Midlands, DY5 1XF

PROOF LOAD TESTING
STS LABORATORY

TEST DESCRIPTION: A destruction test was conducted on an aluminium rail. Testing was completed using a hydraulic jack to apply a vertical point load to the centre of the product. All testing was carried out in accordance with the client's specification.

REF NO.:	DR-5838	**DATE TESTED:**	5th November 2024
JOB NO.:	P10305	**CERTIFICATE DATE:**	6th November 2024
CERTIFICATE NO.:	IC11907	**SUPPLIER/SOURCE:**	Client

TEST DETAILS:

Product Tested:	25mm Aluminium Rail	Item Condition:	New
Target Loads:	Failure	Ambient Temperature:	22°C
Test Location:	STS Laboratory	Procedure or Method:	Client's Specification

TEST RESULTS:

Test Product	Load Achieved (kN)	Displacement (mm)
25mm rail	5.14	62.66

ANALYSIS:
Testing was completed with the rail reaching a maximum load of 5.14kN before suffering permanent deformation. All testing was completed within the Client's Specification.

For Specialist Technical Services (U.K) Limited			The results found on this Certificate relate only to the product[s] tested as described above This Test Certificate shall not be reproduced except in full
Approved By:	Andrew Gore		
Position:	Technical Director		
	Signature:		QC: TC001 – Test Certificate – v4.0 | Page 1 of 1

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APPENDIX D:

TEST CERTIFICATE

LOAD TESTING IN ACCORDANCE WITH BS 8579:2020

On Wallbarn Limited,
3 Hagley Court North, The Waterfront, Dudley, West Midlands, DY5 1XF

PROOF LOAD TESTING
STS LABORATORY

TEST DESCRIPTION: A proof load test was conducted on a 25mm aluminium rail, with steel pedestals fitted at varied lengths, increasing in 100mm spans from the centre of the rail. Testing was completed using a hydraulic jack to apply a vertical point load to the centre of the product. All testing was carried out in accordance with British Standard BS 8579:2020.

REF NO.:	DR-5838	**DATE TESTED:**	5th November 2024
JOB NO.:	P10305	**CERTIFICATE DATE:**	6th November 2024
CERTIFICATE NO.:	IC11902	**SUPPLIER/SOURCE:**	Client

TEST DETAILS:

Product Tested:	Aluminium Rail with Steel Pedestal	Item Condition:	New
Target Loads:	2.0kN	Ambient Temperature:	22°C
Test Location:	STS Laboratory	Procedure or Method:	BS 8527:2020

TEST RESULTS:

Test Product	Load Achieved (kN)		
	300mm from Centre	400mm from Centre	500mm from Centre
25mm Rail	2.46	2.06	1.48

ANALYSIS:
Testing was completed with the rail obtaining 2kN load before reaching 5mm deflection. The rail managed to get to 400mm before failing at 500mm, which got to 1.48kN at the 5mm maximum deflection. All testing was completed within the BS 8572:2020.

For Specialist Technical Services (U.K) Limited			The results found on this Certificate relate only to the product[s] tested as described above This Test Certificate shall not be reproduced except in full
Approved By:	Andrew Gore		
Position:	Technical Director		
	Signature:		QC: TC001 – Test Certificate – v4.0 | Page 1 of 1

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