Aluminium I-Plus Beams - Technical Datasheet



50mm I-Plus Rail



75mm I-Plus Rail



100mm I-Plus Rail

Wallbarn Aluminium I-Plus Beams 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

	50mm	**75mm**	**100mm**
Profile			
Material	Aluminium 6063 T6	Aluminium 6063 T6	Aluminium 6063 T6
Weight	1.61kg/m	1.92kg/m	2.19kg/m
Height	50mm	75mm	100mm
Width	60mm	60mm	60mm
Length	3,600mm	3,600mm	3,600mm
Fire Classification	**Class A BS EN 13501-1 2018**		

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Recommended Pedestal Placement - I-Plus Rail

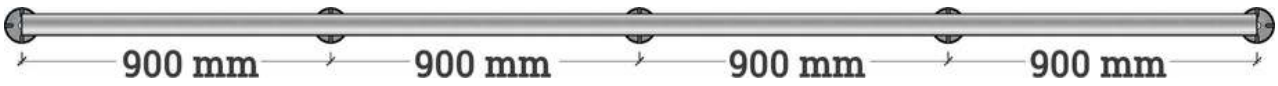
Wallbarn Aluminium I-Plus Rails/Joists are capable of longer spans. These products were independently tested for weight tolerance by testing organisation, Specialist Technical Services (U.K) Limited. (See Test : Appendix A)

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	STS UK Test - Maximum distance between pedestals
50mm	600mm	600mm
75mm	900mm	1,000mm
100mm	1,800mm	2,200mm

50mm Box Rail/Joist

75mm Box Rail/Joist



100mm Box Rail/Joist

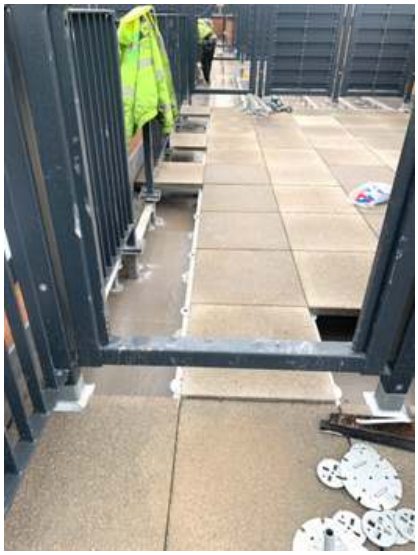
Load Testing - I-Plus Rail

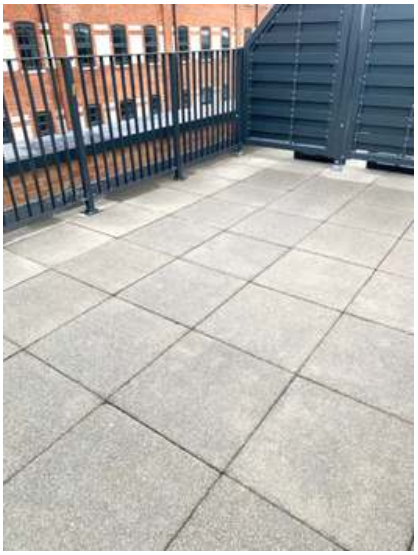
Wallbarn Aluminium I-Plus Rails/Joists have been independently tested by Specialist Technical Services (U.K) Limited to determine destructive load possible. 2 metre lengths of each rail were clamped on each end and a vertical compressive load was applied to the centre. (See Test : Appendix B)

The table below displays the force applied and the corresponding deflection achieved prior to failure.

Test Product	STS UK Test - Load Obtained (kN)	STS UK Test - Maximum Displacement (mm)
50mm	4.08 (Approx. 415Kg)	44.96
75mm	6.58 (Approx. 670Kg)	32.65
100mm	8.10 (Approx. 825Kg)	27.86
1 Kilonewton (kN) is approximately equal to 101.9716213 kilograms		







Increasing Structural Integrity through Noggins

The use of noggins as part of Wallbarn's aluminium Box Rail and I-Plus Rail systems, significantly adds to their structural integrity and load-bearing capacity. By incorporating noggins at regular intervals, the rails have increased lateral stability and resistance to deflection under load. This added reinforcement is particularly important in applications where wider pedestal support spacings are required, ensuring a reliable decking or paving solution.

Independent testing has demonstrated the dramatic improvement achieved through the use of noggins, increasing the strength & stability by up to 40%.

Analysis One : 75mm I-Plus Rail

The 75mm I-Plus Rail, when tested as a single rail, supported a load of approximately 1.94kN at a 5mm deflection with a span of 1,300mm (See Appendix A).

When noggins were added between two 75mm I-Plus Rails at the same span, the load capacity increased significantly, recording 2.75kN at a 5mm deflection. This is an increase in strength of 41.75% (See Appendix C)

Appendix A Snapshot



Appendix C Snapshot

Increasing Structural Integrity through Noggins cont'd

Analysis Two : 100mm I-Plus Rail

The 100mm I-Plus Rail, when tested as a single rail, supported a load of 2.02kN at a 5mm deflection with a pedestal spacing of 2,200mm (See Appendix A).

Tested with the addition of noggins spaced at 1200mm intervals, with a greatly increased pedestal spacing of 3,100mm, the test recorded a load of 2.07kN to a 5mm deflection (See Appendix D).

This demonstrates the substantial improvement in structural performance provided by noggins, allowing for greater flexibility in design while maintaining strength and safety.

Appendix A Snapshot



Appendix D Snapshot

Wallbarn - Technical Datasheet

Compatible Pedestals & Components

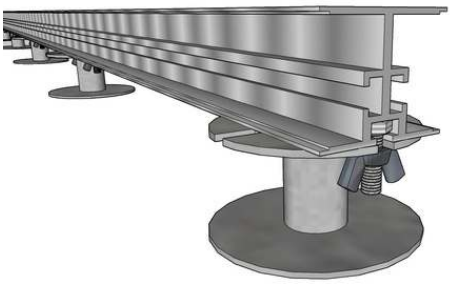
[Mega Balance Non-Fire Rated Pedestal]



[Class A Joist Holder]

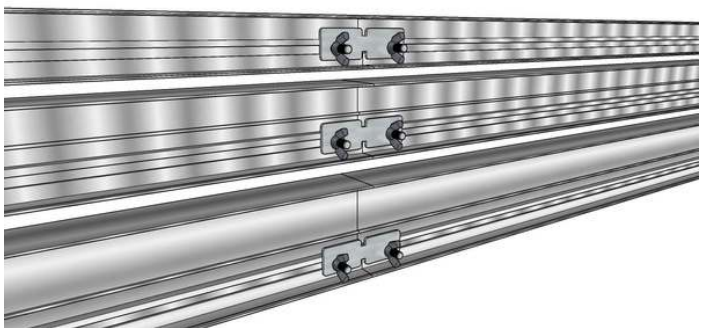


[Class A MetalPad Ex Pedestal]



Connecting Brackets

[Stainless Steel Straight Brackets]



[Stainless Steel Right Angle Brackets]



Headpieces

[Paving Headpiece]



[Rail to Rail Headpiece]



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Appendix A

Appendix B

APPENDIX C:

APPENDIX D: