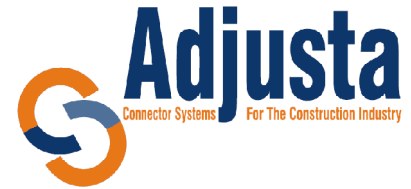


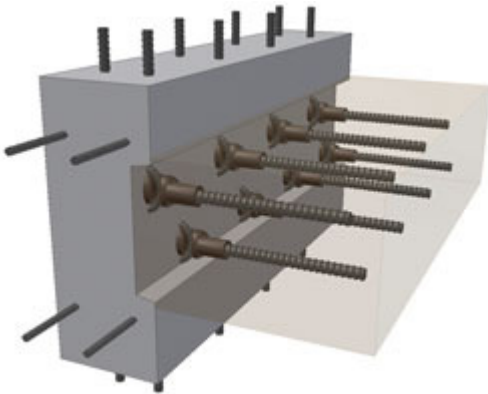
TECHNICAL DATA SHEET



Adjusta JointLOCK System

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SYSTEM COMPONENT	MATERIAL SPECIFICATIONS
Starter Bar	N16 OneSteel Reidbar
JointLOCK Connector	JL16 Forged Ductile Iron 600+MPa
Hook Bar (Wall Anchorage)	2-N12 Deformed Bar (Double Loop)

FIXING COMPONENTS	MATERIAL SPECIFICATIONS
Rebate Board	High density polyethylene
Clam Clips	Moulded thermoplastic
Retaining Spring Clip or Retaining Slip-on Sleeve	Heavy gauge steel wire Moulded thermoplastic

The Adjusta JointLOCK System is a mechanical reinforcement bar connector engineered to safely carry the design load capacity of 500N grade 16mm bar in reinforced concrete joint connections. Independent stress testing confirms the JointLOCK System's loadbearing components are deemed to perform equivalent to continuous reinforcing bar through the joint of monolithic concrete connections.



SYSTEM PERFORMANCE CHARACTERISTICS

DESIGNED FOR ULTIMATE STRENGTH

JointLOCK System is designed with the strength to carry 100% of the design load capacity of N16 rebar;

- ✓ For axial tensile forces the JointLOCK Connector and Hook Bar have a load bearing capacity exceeding the ultimate yield strength of the 16mm starter bars.
- ✓ For flexural stress and bending moments the JointLOCK System positioned in the concrete tensile zone carries the equivalent load capacity of continuous N16 bar in a rigid connection at the joint.

ENGINEERED FOR STRUCTURAL INTEGRITY

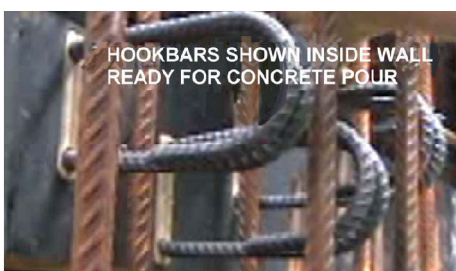
JointLOCK System is engineered to maintain continuity of connection between interfacing concrete sections;

- ✓ For concrete pullout resistance the JointLOCK Hook Bar wall anchor does not slip at the joint or create shear cone rupture in the concrete.
- ✓ For shear resistance the JointLOCK System provides a shear key rebate at the connection for concrete to transfer the shear forces in compression and the JointLOCK components carrying the shear stresses in tensile zones.

INNOVATED FOR ASSURED CONNECTION

JointLOCK System is an innovative solution for the provision of cost effective high strength connections;

- ✓ For speed & ease of connection the JointLOCK is clipped directly onto the Hook Bar, and secured with the retaining spring clip. Allows fast inspection of connection for quality assurance.
- ✓ For surety of connection the JointLOCK Connector is factory fitted to the threaded N16 Starter Bar to the exact fastening depth and torque specifications.



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SYSTEM DESIGN CAPACITY

The JointLOCK System utilises three matched load bearing components, each tested for their ultimate tensile strength capacity. The Hook Bar is configured as 2 - N12 bars in a double loop to provide a greater area of reinforcement steel than 1 - N16, and hence the Hook Bar has capacity to carry the maximum force applied to the N16 Starter Bar at lower tensile stress.

The JointLOCK Connector is engineered with the required capacity to transfer the maximum loads between the Hook Bar & Starter Bar, and is forged from ductile iron with a yield stress of greater than 600MPa.

Typical result for Mechanical Tensile Strength Test. (Contact Adjusta for test reports.)

JOINTLOCK SYSTEM LOAD BEARING COMPONENT	APPLIED LOAD kN	STRESS* MPa	TEST RESULT
Hook Bar (Wall Anchorage) 2 - N12 deformed bar loops	131.4	581	No yield or deformation
JointLOCK Connector JL16 Forged Ductile Iron	131.4	> 600 Grade	No yield or deformation
Starter Bar 1 - N16 Reidbar	131.4	653	YIELD (Mode of failure)



*Note: Minimum UTS for 500N reinforcement bar is 540MPa

AXIAL TENSILE CAPACITY

Mechanical tensile test results verify that the axial tensile load bearing capacity of the 2 – N12 Hook Bar wall anchorage and the JointLOCK Connector both exceed the ultimate tensile yield strength of the N16 Starter Bar (OneSteel 500N 16mm Reidbar).

Hence all components in the JointLOCK system are deemed capable of carrying tensile loads at 100% capacity of N16 reinforcement bar.

The strength characteristics of the JointLOCK System to carry forces in tension and compression are considered to be equivalent to continuous N16 reinforcement bar across the construction joint of cast in-situ monolithic concrete.

SHEAR CAPACITY

The JointLOCK System forms a 40mm rebate at the wall to slab interface, providing a shear key at the joint. In compression zones the concrete transfers the vertical or horizontal shear forces in compression. JointLOCK System components located in tensile zones transfer horizontal shear forces in tension to the full capacity of N16 reinforcing bar.

BENDING MOMENT CAPACITY

The JointLOCK System located in the tensile zone of a concrete slab or beam at the connection will carry 100% of the design moment capacity of an equivalent monolithic rigid connection with continuous N16 reinforcing bar.

COMPLIANCE TO INTERNATIONAL STANDARDS FOR MECHANICAL SPLICES

Adjusta has attained a Certificate of Compliance of the JointLOCK System through independent testing to ASTM standard test methods for Mechanical Splices A1034/A1034M. The Adjusta JointLOCK System passed the following test requirements for the American Concrete Institute (ACI) and the International Organisation for Standardisation (ISO) in accordance with the benchmark ASTM standards;

- (i) Monotonic Tension Test (ii) Monotonic Compression Test (iii) Cyclic Load Test (iv) High-Cycle Fatigue Test

TEST	# SAMPLES	LOAD REQUIREMENTS	RESULTS
Tension Test	6	Load to 125% of specified bar yield strength	All samples achieved load of 126kN, passed test
Compression Test	6	Load to 125% of specified bar yield strength	All samples achieved load of 126kN, passed test
Cyclic Load Test	3	Load to tension of $0.95f_{synt}$ and compression of $0.5f_{synt}$ for 28 cycles then load to tensile failure	All samples completed and passed test requirements
High- Cycle Fatigue Test	3	Stress range 0.1 to $0.6 f_{synt}$ at 200Hz freq. for 2 million cycles then load to failure in tension	All samples completed and passed test requirements

SYSTEM IN-CONCRETE TEST PERFORMANCE

Adjusta have commissioned independent test authorities to complete a range of in-concrete stress testing of the JointLOCK System to measure the performance of the load bearing components in the connection of reinforced concrete sections.

Tests were performed on typical configurations of JointLOCK connections at the joint of reinforced concrete members subjected to axial tensile force, flexural stress, bending moments and vertical shear.

For a copy of test reports please contact Adjusta.

TEST CONFIGURATION	TEST DATA	TEST ANALYSIS
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H-Block (4 interfaces)	Vertical Shear Resistance	Performance Summary
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JL16-200TB

Applied Load kN/m per interface	Deflection (d) / Cracking
200 kN/m	d = 0.10 mm Cracks appeared*
466 kN/m	d = 2.03 mm Significant cracks*

The JointLOCK System's rebated slab - wall shear key connection ensured the interfacing concrete sections carried the applied vertical shear force with only minor joint deflection.

The radiographic inspection showed no deformation or movement occurred in any component in the JointLOCK System.

H-Block (4 interfaces)	Tensile Slip Resistance	Performance Summary
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JL16-200TB

Applied Load kN/m per interface	Deflection (d) / Cracking
291 kN/m	d = 0.92 mm Cracks appeared*
416 kN/m	Significant cracks*

*Note: All cracking observed appeared to be surface cracking only at the regions where the concrete was deflecting or being loaded in tension.

The JointLOCK System within each interface carried the applied axial loads without joint slippage or major deflection at the connection.

Cracking occurred in the concrete wall sections at tensile force less than the capacity of the JointLOCK system. Radiographic inspection found no deformation or movement had occurred in the JointLOCK System.

Wall Block (1 anchor pt)	Concrete Pullout Resistance	Performance Summary
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Hook Bar (wall anchor)

Applied Load kN per Hook Bar	Deflection (d) / Cracking
115 kN ~ 574MPa stress in 16mm Bar	Cracks formed in concrete around Hook Bar anchor

The Hook Bar wall anchor component resisted pullout of the concrete at applied loads greater than the minimum ultimate tensile strength of N16 bar. The Hook Bar anchor does not produce shear cone failure in the concrete due to the double loop wall anchor configuration.

T- Block (1 interface)	Axial Tensile Strength	Performance Summary
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JL16-150C

Applied Load kN per JointLOCK	Deflection (d) / Cracking
88 kN	d = 4.3mm Cracks appeared

The tensile testing verified the Hook Bar has the required characteristics for a reinforcing bar detail in thin wall sections, and provided highly effective anchorage with even distribution of axial loads throughout the section. No slippage appeared in the JointLOCK components at the joint, and the system carried the applied load without any premature failure of the concrete connection.

T- Block (1 interface)	Flexural Stress & Bending Moments	Performance Summary
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JL16-150C

Applied Load*	Deflection	Applied Moment
26 kN	- 3.6mm interface - 40mm load point	-17.2 kN.m

*Point load applied 0.66m from interface.

In flexural testing the JointLOCK System in the tensile zone carried the equivalent moment capacity of an N16 bar for applied bending moments at the rigid slab – wall interface.

The JointLOCK System performed as an effective load-carrying mechanism to transfer the applied flexural stress through the connection equivalent to continuous N16 bar.

JOINTLOCK SYSTEM SPECIFICATIONS

JointLOCK System Component	Component Variable	Specification (Standard / Optional)
Starter Bar & JointLOCK <i>N16 Reidbar with JL16 Connector</i>	Bar Position / Spacing:	Central Bars spaced at <###> mm centres
	or;	Top Bars spaced at <###> mm centres Bottom Bars spaced at <###> mm centres
	Starter Bar Size:	N16 (Standard)
	Starter Bar Length:	600mm (Standard) Longer lengths cut to order (Optional)
	Retaining Device:	Retaining Spring Clip <i>or</i> Retaining Slip-on Sleeve
Hook Bar (Wall Anchor) <i>N12 Deformed Rebar</i>	Hook Bar Length:	125mm (Standard) 165mm (Standard)
	Hook Bar Orientation:	Vertical or Horizontal
	Hook Bar Position/Spacing:	Match specifications for Starter Bar & JointLOCK
	Hook Bar Clam Clips:	Clam clips to fit N12 Hook Bars (Standard)
	Rebate Board Thickness:	40mm (Standard)
Rebate Boards Note: The rebate board variables specify the positioning of the JointLOCK System components with respect to slab dimensions, Hook Bar orientation, Starter Bar spacing and concrete cover.	Rebate Board Width:	130/180/230mm (Standard) Boards cut to size: slab depth minus 20mm
	Rebate Board Length:	1200mm (Standard): Multiple boards to suit wall length. Shorter boards cut to size (optional).
	Hook Bar Slot Orientation:	Vertical /Horizontal to match specified orientation of Hook Bars (as above).
	Hook Bar Slot Layout:	Match specifications for Hook Bar position /spacing; Central Bars spaced at <###> mm centres or; Top Bars spaced at <###> mm centres Bottom Bars spaced at <###> mm centres
	Hook Bar Slot Edge Distance: (To allow required concrete cover for starter bars)	Specify minimum concrete cover for top/btm bars. Concrete cover top/btm is min. 30mm (Standard) Top Bars concrete cover: specify if min. > 30mm Bottom Bars concrete cover : specify if min. > 30mm

Connection Schedule (Sample)

Adjusta JointLOCK System Connection Schedule						
TYPE	JOINTLOCK CODE	BAR SPACING	BAR POSITION	BOARD WIDTH	HOOK BAR ORIENTATION	HOOK BAR SIZE
A	JL16-150C/160V125	150	CENTRAL	160	VERTICAL	125
B	JL16-200TB/230H165	200	TOP & BTM	230	HORIZONTAL	165

