SPECIFICATION DATA SHEET

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www.adjusta.com.au

Adjusta JointLOCK System

1. PRODUCT NAME

Adjusta JointLOCK System; JL16 – System configuration and component specifications detailed in accordance with the structural design of concrete sections and required connections of reinforcement bars.

2. MANUFACTURER

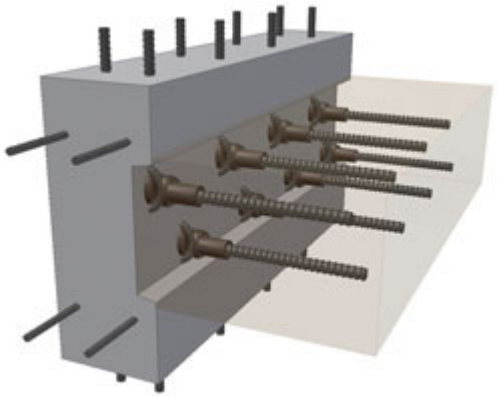
Adjusta Pty Ltd
Unit 3 / 15 Josephine St
Loganholme QLD 4129
Phone: 07 3801 2622
www.adjusta.com.au

3. PRODUCT DESCRIPTION

The Adjusta JointLOCK System is a mechanical connection device engineered to safely carry the design loads required for N16 reinforcing bar through the joint of monolithic concrete connections.

Components & Materials

The JointLOCK System has three matched load bearing components, and allied fixing components. The Starter Bar and Hook Bar are produced from reinforcement bar manufactured in conformance to AS1302.

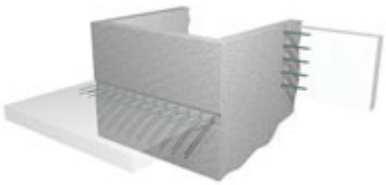


SYSTEM COMPONENT	MATERIAL SPECIFICATIONS
Starter Bar	N16 OneSteel Reidbar
JointLOCK Connector	JL16 Forged Ductile Iron 600+MPa
Hook Bar (Wall Anchorage)	2-N12 Deformed Bar (Double Loop)

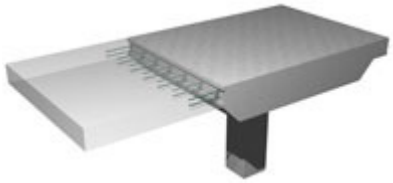
FIXING COMPONENTS	MATERIAL SPECIFICATIONS
Rebate Board	High density polyethylene
Clam Clips	Moulded thermoplastic
Retaining Spring Clip or Retaining Slip-on Sleeve	Heavy gauge steel wire Moulded thermoplastic

Applications

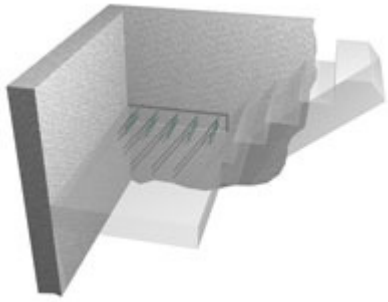
The JointLOCK System is used for the connection of reinforcement at the joint of interfacing concrete sections;



Core Wall/Floor and Core Wall/Shear Wall Joints



Slab/Slab Joints



Stair Landing/Core Wall Joints

4. TECHNICAL DATA

Axial Tensile Capacity

The JointLOCK System utilises three load bearing components, each tested for their ultimate tensile strength 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).

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

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 reinforcement.

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

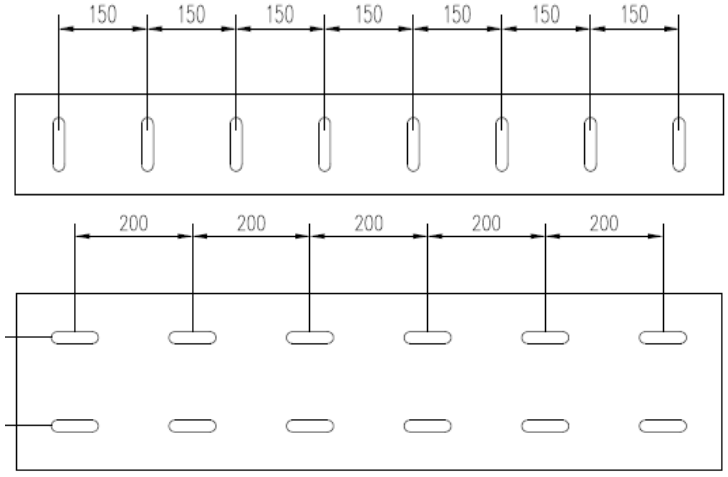
TEST	# SAMPLES	LOAD REQUIREMENTS	RESULTS
Tension Test	6	Load to 125% of specified bar yield strength	All samples achieved load of 126kN, passed test
Compression Test	6	Load to 125% of specified bar yield strength	All samples achieved load of 126kN, passed test
Cyclic Load Test	3	Load to tension of $0.95f_{syt}$ and compression of $0.5f_{syc}$ 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_{syt} at 200Hz freq. for 2 million cycles then load to failure in tension	All samples completed and passed test requirements

5. SYSTEM CONFIGURATION & COMPONENT SPECIFICATIONS

JointLOCK System Component	Component Variable	Specification (Standard / Optional)
Starter Bar & JointLOCK *N16 Reidbar with JL16 Connector*	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 or Retaining Slip-on sleeve
Hook Bar (Wall Anchor) *N12 Deformed Rebar*	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 Boards Note: The rebate board variables specify the positioning of the JointLOCK System components with respect to the slab depth , Hook Bar orientation, Starter Bar spacing and concrete cover.	Rebate Board Thickness:	40mm (Standard)
	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



Note: The JointLOCK System can be specified in any configuration of bar positions and spacing to suit the reinforced concrete structural design details. There are no limitations on the minimum spacing of JointLOCK connections. Contact Adjusta for technical assistance in specifying or scheduling system components.

6. SCHEDULING

JointLOCK System Connection Schedule

Schedule JointLOCK system configuration and component specifications required for each connection type;

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

Wall-Slab Connection Schedule

Schedule connections by location of core / wall / level & corresponding slab thickness;

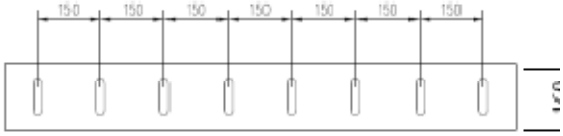
WALL – SLAB CONNECTION SCHEDULE					
CORE	WALL No.	LEVEL(S)	CONNECTING SLAB DEPTH	TYPE	JOINTLOCK CODE
LIFT BLOCK 2	13	2	180mm	A	JL16-150C/160V125
LIFT BLOCK 2	14	2	250mm	B	JL16-200TB/230H165

Note: Adjusta offer a complete takeoff and scheduling service for projects on request.

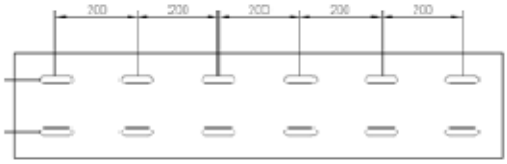
Sample Connection Schedules

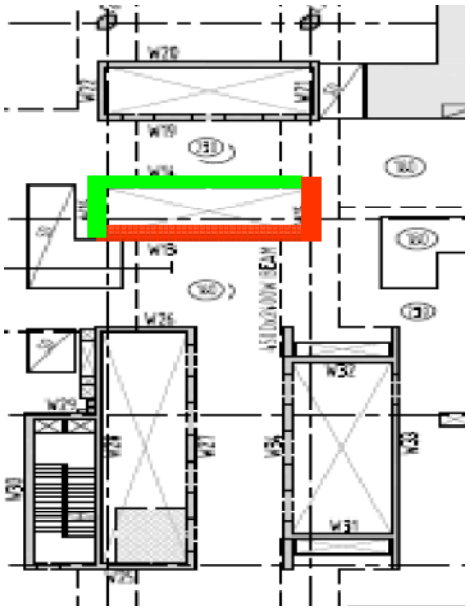
WALL - SLAB CONNECTION SCHEDULE					ADJUSTA JOINTLOCK SYSTEM CONNECTION SCHEDULE					
CORE	WALL No.	LEVEL(S)	CONNECTING SLAB THK	TYPE	JOINTLOCK CODE	BAR SPACING	BAR POSITIONS	BOARD SIZE	HOOK BAR ORIENTATION	HOOK BAR SIZE
LIFT BLOCK 2	13	2	180 SLAB	A	JL16-150C/160V125	150	CENTRAL	160	VERTICAL	125
LIFT BLOCK 2	14	2	250 SLAB	B	JL16-200TB/230H165	200	TOP & BTM	230	HORIZONTAL	165
LIFT BLOCK 2	15	2	180 SLAB	A	JL16-150C/160V125	150	CENTRAL	160	VERTICAL	125
LIFT BLOCK 2	16	2	250 SLAB	B	JL16-200TB/230H165	200	TOP & BTM	230	HORIZONTAL	165
LIFT BLOCK 2	17	2	SLAB							
LIFT BLOCK 2	18	2	SLAB							
LIFT BLOCK 2	19	2	SLAB							
LIFT BLOCK 2	20	2	SLAB							
LIFT BLOCK 2	21	2	SLAB							
LIFT BLOCK 2	22	2	SLAB							
LIFT BLOCK 2	23	2	SLAB							
LIFT BLOCK 2	24	2	SLAB							

CONNECTION TYPE A
JL16-150C/160V125



CONNECTION TYPE B
JL16-200TB/230H165

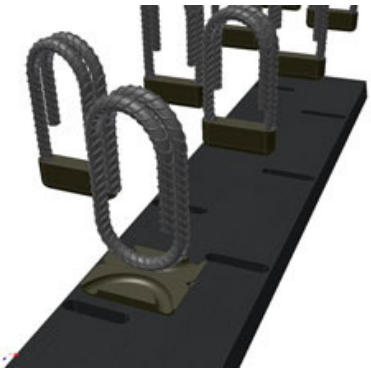




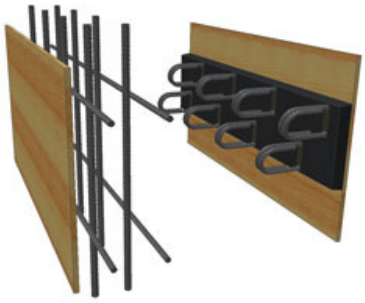
7. INSTALLATION

The Adjusta JointLOCK System is a proprietary system and must be designed and installed in accordance with the manufacturer's requirements.

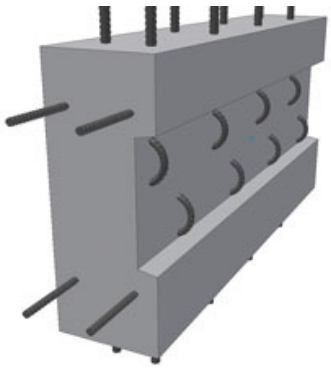
1. Clip reinforcing Hook Bars into re-usable plastic rebate inserts. Locate assembled Hook Bars & clam clip inserts into the matching recesses in the rebate board. This task can be done on the deck in advance of schedule and stored ready for use.



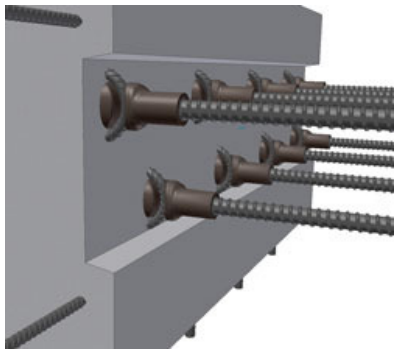
2. Fix rebate board assembly to the formwork shutter, oil rebate along with other formwork and close shutter against wall reinforcing. Care must be taken to align reinforcing loops to miss wall reinforcing when the shutter is closed. Alternately the rebate may be tied to steelwork and the shutter closed.



3. Strip the formwork exposing the concrete rebate, cast-in Hook Bars, and reusable locating inserts. The locating inserts (clam clips) are to be carefully removed for re-use. If a jump-form is used, the rebate board is already in position for the next pour after fitment of hook bars as per step 1 above.



4. Fit the JointLOCK Connector & Starter Bar to each exposed cast-in Hook Bar and secure with a retaining spring clip or sleeve. The JointLOCKs can be installed either prior to floor reinforcing layers or as the floor reinforcing is laid.



Quality Assurance

The contractor can easily undertake a visual inspection of the connection prior to the second pour to ensure the secure attachment of the JointLOCK Connector to the Hook Bar exposed in the first pour concrete section. Inspections are recommended to ensure the retaining spring clip or sleeve is fitted over the JointLOCK Connector, providing the contractor with surety of connection. Starter bars are fully resistance fitted into the JointLOCK Connector in the Adjusta factory and do not require checking on site.

8. SAMPLE SPECIFICATION

This sample specification is a guide for the specifying engineer or contractor in the preparation of contract specifications detailing the use of the Adjusta JointLOCK system for wall – slab connections in concrete structures;

S.1 The provision for mechanical connections of reinforcing bar in wall to slab construction joints shall be the Adjusta JointLOCK System. [Adjusta Pty Ltd, Ph (07) 3801 2622, www.adjusta.com.au]

S.2 The Adjusta JointLOCK System configuration and component specifications to meet the structural concrete design requirements shall be detailed and scheduled in accordance with the manufacturer's recommendations. (Sample schedule below)

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

S.3 The contractor and Adjusta shall develop a Connection Schedule for each construction joint location where the Adjusta JointLOCK System is designated as the connection type. (Sample schedule below)

WALL – SLAB CONNECTION SCHEDULE					
CORE	WALL No.	LEVEL(S)	CONNECTING SLAB THK	TYPE	JOINTLOCK CODE
LIFT BLOCK 2	13	2-5	180mm	A	JL16-150C/160V125
LIFT BLOCK 2	14	2-5	250mm	B	JL16-200TB/230H165

S.4 The Adjusta JointLOCK System is a proprietary system engineered with matched components that have been designed and tested for ultimate strength, integrity and surety of connection.

9. ORDERING PROCEDURE

The customer and Adjusta shall agree on the JointLOCK System Connection Schedule detailing the system configuration and component specifications prior to ordering.

Rebate boards in the specified configuration are supplied to site by Adjusta. Hook Bars are delivered in one tonne bulk bags. JointLOCK Connectors with factory fitted Starter Bars are delivered in crates.

Note: All components in the JointLOCK System must be supplied by Adjusta Pty Ltd to ensure the correct specifications and ultimate performance of the connection. No responsibility will be taken by Adjusta for products incorrectly installed or mixed with unauthorised components.

10. TECHNICAL SERVICES

Contact Adjusta for additional product information or technical assistance in the design or construction of superior connections using the JointLOCK System. For detailed technical data refer to the Adjusta JointLOCK System Technical Data Sheet TDS401 and other technical resources available at our website.

Adjusta

Adjusta Pty Ltd

Ph: 1300 418 218

www.adjusta.com.au