



Moment JoinTec (JT) Coupler

For rebar connection



International Edition



Leviat® A CRH COMPANY

We imagine, model and make engineered products and innovative construction solutions that help turn architectural visions into reality and enable our construction partners to build better, safer, stronger and faster.

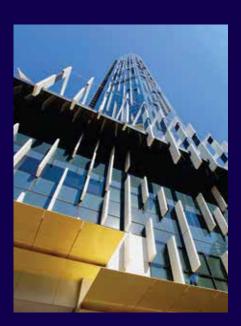
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We provide technical design assistance at every stage of a project, from initial planning to installation and beyond.

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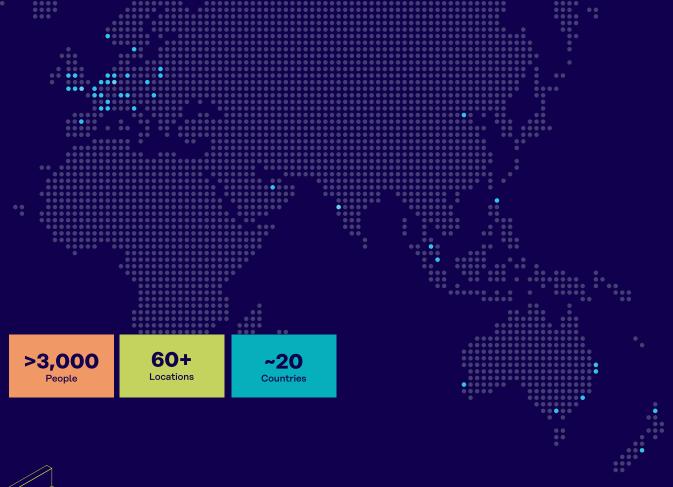
Leviat, a CRH company, is part of the world's leading building materials business.













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Moment JoinTec (JT) Couplers

Introduction

Lapped joints are not always an appropriate means of connecting reinforcing bars. The use of laps can be time consuming in terms of design and installation and can lead to greater congestion within the concrete because of the increased amount of rebar used.

Moment JT Couplers can simplify the design and construction of reinforced concrete and reduce the amount of reinforcement required as well as reduction of carbon footprint up to approximately 84% - 90%.

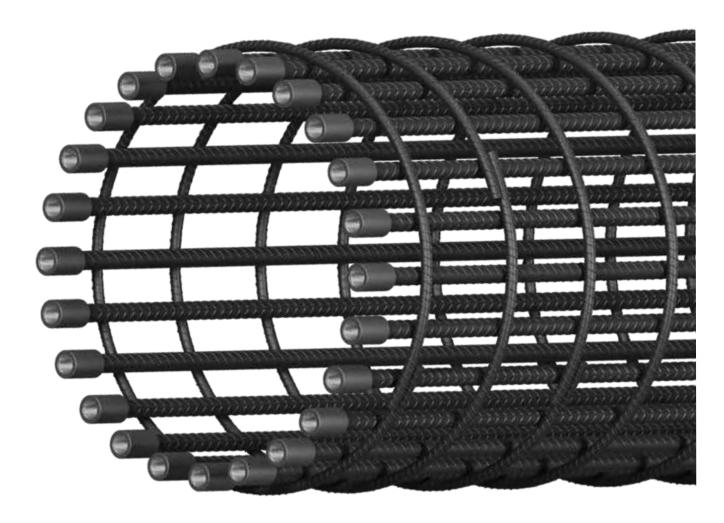
Lapped joints are dependent upon the concrete for load transfer. For this reason any degradation in the integrity of the concrete could significantly affect the performance of the joint. The strength of a mechanical splice is independent of the concrete in which it is located and will retain its strength despite loss of cover as a result of impact damage or seismic event.

Testing and Approvals

Moment JT Couplers are designed and manufactured in accordance with ISO 9001 and comply in all respects to BS8110 and EN 1992-1-1:2004 (Eurocode 2), when used with grade B500B reinforcing bar.

The Moment JT Coupler is designed to exceed the tensile strength of reinforcing bar, up to an equivalent breaking stress of 700MPa in the bar. The standard range of JT Couplers for sizes 16 to 40mm, has been tested and approved by UK CARES to show compliance with the requirements of EN 1992-1-1:2004 (Eurocode 2), BS8110 and UK CARES TA1-F.

The JRT variant of the system has been tested for basic tensile, slip, and elongation performance in accordance with ISO15835 with grade ASTM A615 Grade 60 reinforcement. Tensile, slip, and permanent elongations tests have also been conducted for the JTH high performance coupler with B600 grade reinforcing bar.





Technical approval TA1-F 5077 for JoinTec Couplers









Simplify design and Reduce amoun construction reinforcement re

Reduce carbo footprint

Dedicated sales

JoinTec (JT) Couplers

JT couplers produce a full strength joint yet they are among the smallest in the Moment range, best suited to large scale projects requiring a high volume of couplers.



The end of each bar to be joined is cut square and enlarged by cold forging. This increases the core diameter of the bar to ensure that the joint is stronger than the bar.

Parallel metric threads are cut onto the enlarged ends. A nominal allowance of +50mm per threaded bar end should be made for cutting square and cold forging. The threaded ends of the bars are protected by an external plastic sheath.

Couplers, which are usually supplied attached to the bar, have their internal threads protected by an internal plastic end cap. For certain applications, especially where JT Coupler is being used in deep pours, the coupler end caps may not prevent the ingress of concrete fines. For these applications, further protection may be required.

 ${\sf JT}$ couplers are also available to join bars of different diameters. For further information please refer to page 5 on ${\sf JT}$ Reducer Couplers.



JT Dimensions

Bar Diameter (mm)	12/13	16	18 [°]	19/20	22 [^]	24/25	28/29	32	36	40
External Dia. (mm) d	24	28	28	32	32	40	45	50	57	62
Coupler length (mm) 2t	35	40	40	48	48	60	66	70	84	90
'Half Thread' Length (mm) t	17.5	20	20	24	24	30	33	36	42	45
Locknut Length (mm)	12	12	12	12	12	15	15	15	20	20
Thread Size (mm)	M16	M20	M20	M24	M24	M30	M33	M36	M42	M45
Thread Pitch (mm)	2.0	2.5	2,5	3.0	3.0	3.5	3.5	4.0	4.5	4.5
Marking on Coupler ²	JT12	JT16	JT18	JT20	JT22	JT25	JT28	JT32	JT36	JT40

- Bar Diameters shown in this table include sizes that are only available in specific markets or specific to grade ASTM A615 reinforcing bar. For ASTM A615 grade reinforcing bar, the JRT system is generally recommended. Refer to page 9 for further information on JRT.
- 🙎 Bar Diameters with small variance in size share the same coupler, however the couplers are only marked with the more commonly available size.
- Bar Diameter 18 uses the same coupler dimensions as the JT16, only the marking on the coupler differs, however the plastic cap will contain the JT16 marking. In cases of short supply of JT18 couplers, JT16 may be used.
- 4 Bar Diameter 22 uses the same coupler dimensions as the JT20, only the marking on the coupler differs, however the plastic cap will contain the JT20 marking. In cases of short supply of JT22 couplers, JT20 may be used.
- Bar diameter 50 is available upon request.

JT Type A

The JT Type A system utilises internally threaded couplers with a single right hand thread and is suitable for applications where the continuation bar can be rotated. The ends of the bars are upset and threaded for half the length of the coupler ('Half Thread').

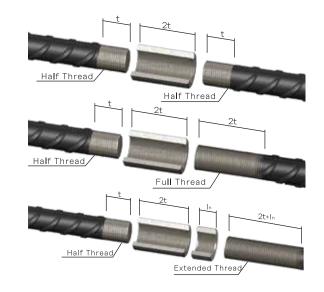
JT Type B

The JT Type B uses the same coupler as the Type A system, but one bar is threaded for a full coupler length ('Full Thread'). It is used for applications where it is difficult but not impossible to rotate the continuation bar.

JT Type C

The JT Type C system has an additional locknut and is used where the continuation bar cannot be rotated.

The continuation bar is threaded for the full coupler length plus the length of the locknut ('Extended Thread').





Installation

The JT Type A System



Screw the coupler to the rear of the thread on the fixed bar and lock tight. The bar end should be central within the coupler.

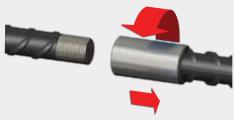


3 Tighten the joint using a wrench on the continuation bar. After tightening there should be no more than 4mm of exposed thread; for size 20mm and below, or 6mm for sizes 25mm and above.

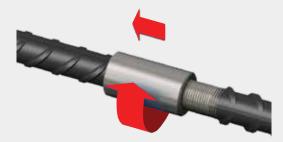


2 Remove the plastic cap from the coupler. Position and rotate the continuation bar in the coupler.

The JT Type B System



Screw the coupler to the rear of the thread on the continuation bar.



Rotate the coupler from the continuation bar to engage against the rear of the thread on the opposing bar and lock tight.



2 Position the continuation bar with the coupler against the end of the first bar.



4 Using a wrench, rotate the continuation bar to lock the two bar ends against each other within the coupler. After tightening, the length of exposed thread should be no more than half of the coupler length plus 4mm for sizes 20mm and below, or 6mm for sizes 25mm and above.

Important Note: The additional thread lengths beyond the final coupler location on Type B and C connections are non-structural and are to be used for positioning purposes only.



To ensure structural integrity of the connection, any actions, such as on-site bending, which induce cold working of the bar in the threaded region are to be strictly avoided.

The JT Type C System



1 Screw the locknut followed by the coupler to the rear of the thread on the continuation bar.



2 Position the continuation bar with the coupler against the end of the first bar.



3 Rotate the coupler from the continuation bar to engage against the rear of the thread on the opposing bar and lock tight.



4 Rotate the locknut along the continuation bar to abut the coupler.



5 Hold the rebar in its required orientation and with a wrench tighten the locknut against the coupler. After tightening, the length of the exposed thread should be no more than half of the coupler length plus 4mm for sizes 20mm and below, or 6mm for sizes 25mm and above.

Important Note: The additional thread lengths beyond the final coupler location on Type B and C connections are non-structural and are to be used for positioning purposes only.



To ensure structural integrity of the connection, any actions, such as on-site bending, which induce cold working of the bar in the threaded region are to be strictly avoided.



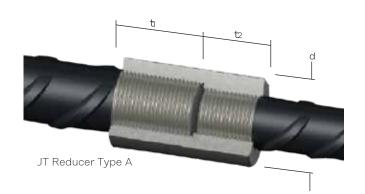
JT Reducer Couplers

JT Reducer couplers are designed to connect reinforcing bars of different diameters whilst still maintaining the full tensile strength of both reinforcing bars, ensuring the failure mode is ductile failure of the smaller bar.

For Type A reducer connections, both bars utilise standard Type A JT threads with a special coupler to connect the two bars.

Reducer connections requiring types B or C systems use the standard JT thread for the smaller bar and a modified JT thread for the larger bar which uses a thread pitch matching the smaller thread to allow simultaneous rotation of the coupler on both bars.

The locknut for a Type C reducer connection uses the standard locknut for the smaller bar.



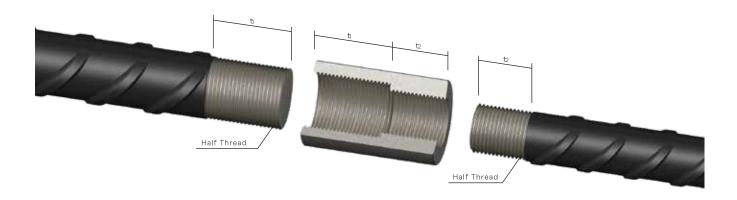
Bar Diameter (mm)	20/16	25/16	25/20	28/20	28/25	32/20	32/25	32/28	36/32	40/25	40/28	40/32	40/36
External Dia. (mm) d	32	40	40	45	45	50	50	50	55	60	60	60	60
Larger Type A Thread Length (mm), t,	24	30	30	33	33	36	36	36	42	45	45	45	45
Smaller Type A Thread Length (mm), t ₂	20	20	24	24	30	24	30	33	36	30	33	36	42
Coupler Length (mm), t ₁ + t ₂	44	50	54	57	63	60	66	69	78	75	78	81	87
Locknut Length (mm),	12	12	12	12	15	12	15	15	15	15	15	15	20
Thread Form 1	M24	M30	M30	M33	M33	M36	M36	M36	M42	M45	M45	M45	M45
Thread Form 2	M20	M20	M24	M24	M30	M24	M30	M33	M36	M30	M33	M36	M42
Type A Thread Pitch 1 (mm)	3.0	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
Type A Thread Pitch 2 (mm)	2.5	2.5	3.0	3.0	3.5	3.0	3.5	3.5	4.0	3.5	3.5	4.0	4.5
Type B & C Thread Pitch (mm)	2.5	2.5	3.0	3.0	3.5	3.0	3.5	3.5	4.0	3.5	3.5	4.0	4.5

Notes: Other sizes are available on request. All transition couplers are made to order. Lead times and minimum order quantities may apply. Contact us for more details.

JT Reducer Type A

The Type A reducer connection utilises the same Type A JT threads ('Half thread') as the standard system with a special internally threaded coupler to connect the two different sized cold-forged and threaded bar ends together.

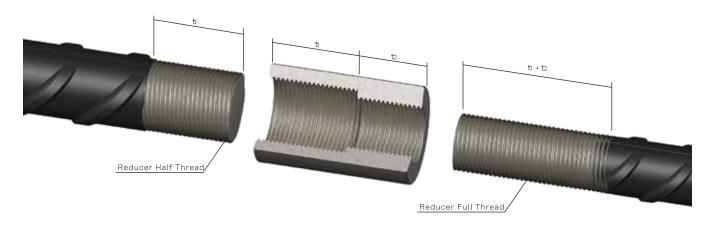
Type A connections are used where the continuation bar can be rotated.



JT Reducer Type B

The Type B connection utilises a longer thread on the smaller bar equal to the length of the Coupler ('Reducer Full Thread'). The thread on the larger bar and the coupler is modified with a pitch matching the smaller thread ('Reducer Half Thread').

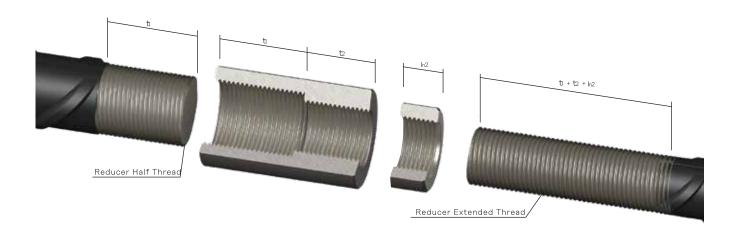
The coupler needs to be rotated from the smaller diameter rebar onto the larger. Type B connections are used where the continuation bar can be rotated for no more than one revolution.



JT Reducer Type C

The Type C connection utilises the same coupler and thread pitches as for the Type B, together with a locknut and longer thread on the smaller bar ('Reducer Extended Thread').

The coupler needs to be rotated from the smaller diameter rebar onto the larger. Type C connections are used where the continuation bar cannot be rotated.



Important Note: The additional thread lengths beyond the final coupler location on Type B and Type C connections are non-structural and are to be used for positioning purposes only.

*JT Reducer Couplers are made to order to project specific requirements. Lead times and minimum order quantities may apply. Contact us for further information.



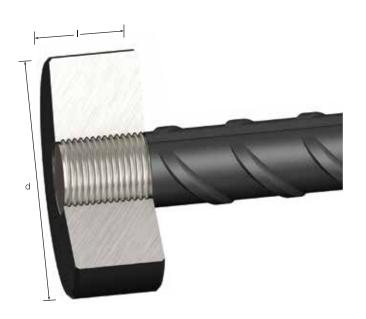
JT Terminator

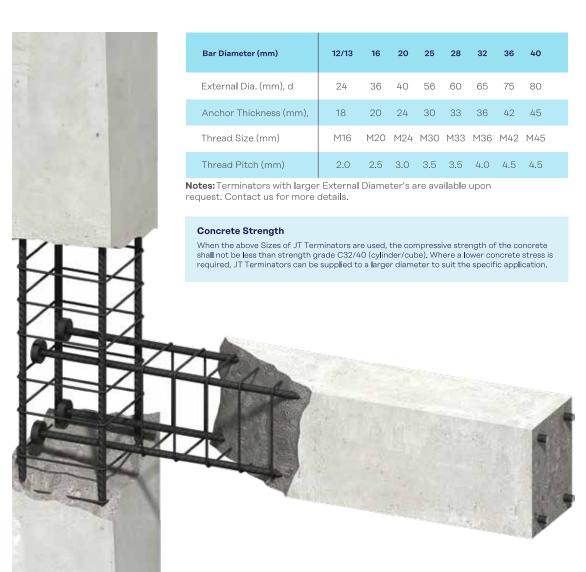
The Moment JT Terminator provides an effective and proven method of achieving rebar end anchorage within concrete.

Anchorage of reinforcement within a concrete section is traditionally achieved by means of creating a long hooked end to the bar. These hooks can lead to problems when positioning the bar and can increase congestion. This can ultimately result in larger than necessary concrete sections at the location of hooked ends.

The JT Terminator is essentially an oversized coupler capable of carrying the full tension load of the bar when it bears against the concrete in which it is cast. The Terminator removes the need for the hooked rebar end and can subsequently reduce congestion, simplifying bar placement. This in turn increases the speed of construction and gives greater flexibility in design. Typical applications include pile caps and beam-to-column connections.

To attach the Terminator to the rebar, it is first necessary to enlarge the bar end and then form the thread on the enlarged bar end using a thread cutting machine. As with the JT coupler connection, the thread is such that the cross-sectional area of the bar end is not reduced, thus ensuring the tensile strength of the connection matches or exceeds that of the parent bar.





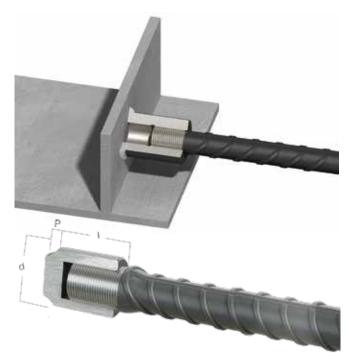
JT Weldable Couplers

Moment JT Weldable couplers provide a convenient means of connecting reinforcing bars to structural steel plates or sections. One end is internally threaded with the JT thread form; the other end is prepared for welding to the steel.

The JT Weldable Couplers are manufactured from Steel Grade S45C to JIS G 4051. The coupler is suitable for welding to structural steels EN BS 10025, Grade S275 (43A) or Grade S355 (Grade 50B), however the load conditions at the connection must be determined by the designer responsible for the structural element, along with the type and size of weld required.

Other important considerations include the type of electrode to be used, which must be matched to the properties of the plate and tube, and to the site conditions under which the welding will be undertaken. Welders should be qualified for the type of weld required.

Carbon Equivalent Value - The Carbon Equivalent value of these couplers may typically vary between 0.50-0.75, where the carbon equivalent value is given by CEV = C + (Mn)/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5

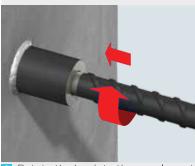


Bar Diameter (mm)	12/13	16	20	25	28	32	36	40	50
Coupler Diameter (mm), d	28	32	36	45	50	55	65	70	85
Coupler Length (mm),	36	40	45	50	55	60	65	70	90
Thread Size (mm)	M16	M20	M24	M30	M33	M36	M42	M45	M53
Thread Pitch (mm)	2.0	2,5	3,0	3,5	3,5	4.0	4,5	4,5	4.0
Weld Preparation (mm), p	8	8	9	10	10	12	12	14	15

Installation



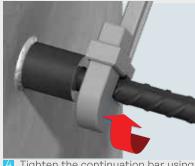
1 The coupler must first be welded to the steelwork.



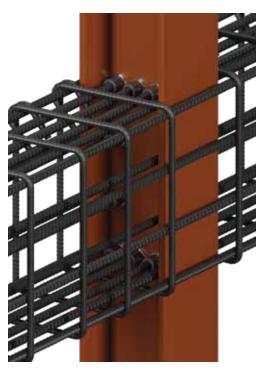
Rotate the bar into the coupler until tight.



When ready to extend, position the continuation bar into the sleeve.



4 Tighten the continuation bar using a wrench.



JRT Couplers

The JRT system uses the same coupler sleeve as the standard JT system however the thread on the reinforcing bar is formed by rolling, best suited for high fatigue applications or when reduced cold-forging of the bar end is required.

The end of each bar to be joined is cut square and enlarged by cold forging to the pre-roll diameter for the thread size. This process allows for a thread size larger than bar diameter to be formed onto the bar, ensuring that the joint is stronger than the bar, whilst minimizing the amount of cold-forging that is required.

A nominal allowance of +50mm per threaded bar end should be made for cutting square and cold forging.

The reduced amount of cold-forging when compared to the standard JT cut thread also provides an advantage in markets where the reinforcing bar may not be as consistently compatible with the standard JT system. This is seen in some markets in Asia which have adopted the ASTM A615 grade reinforcing bar, whereby we recommend the JRT system.

The thread rolling process adopted in the JRT system produces a curved grain structure within the threaded end and also removes re-entrant corners typically seen in cut-thread profiles, leading to superior high cycle fatigue performance.

The JRT system is available in Types A, B & C, as shown for the JT system on page 2. For the type C system, the same lock-nut is used as for the standard JT system.

The JRT system is also compatible with the JT reducer, Terminator, and Weldable couplers shown on pages 5 to 8.



JTH Couplers

The JTH Coupler is designed as a high performance coupler; suitable for connecting high strength reinforcing bars.

The JTH system adopts the same dimensions as the standard JT system however higher performance material is used in the coupler sleeve to achieve the higher capacities.

Designed to resist an equivalent bar stress up to 900MPa, the JTH coupler can provide bar break performance for the majority of grade B600 and Grade 75 reinforcing bars currently available in the market.

The threaded ends of the reinforcing bar is conducted in a similar process as the JT system, whereby the bar end is cut square and enlarged before a parallel metric thread is cut.

The JTH Coupler can also be used with reinforcing bars that have been threaded with the JRT thread.

The JTH system is available in Types A, B & C, as shown for the JT system on page 2. For the type C system, the same lock-nut is used as for the standard JT system.

The JTH Reducer, Terminators, and Weldable couplers can be made available upon request.



Bar Diameter (mm)	12/13	16	18 ³	19/20	22 ⁴	24/25	28/29	32	36	40
External Dia. (mm) d	24	28	28	32	32	40	45	50	57	62
Coupler length (mm) 2t	35	40	40	48	48	60	66	72	84	90
'Half Thread' Length (mm) t	17.5	20	20	24	24	30	33	36	42	45
Locknut Length (mm)	12	12	12	12	12	15	15	15	20	20
Thread Size (mm)	M16	M20	M20	M24	M24	M30	M33	M36	M42	M45
Thread Pitch (mm)	2.0	2.5	2.5	3.0	3.0	3.5	3,5	4.0	4.5	4.5
Marking on Coupler ²	JTH12	JTH16	JTH18	JTH20	JTH22	JTH25	JTH28	JTH32	JTH36	JTH40

- Bar Diameters shown in this table include sizes that are only available in specific markets or specific to grade ASTM A615 reinforcing bar. For ASTM A615 grade reinforcing bar, the JRT system is generally recommended. Refer to page 9 for further information on JRT.
- 2 Bar Diameters with small variance in size share the same coupler, however the couplers are only marked with the more commonly available size.
- Bar Diameter 18 uses the same coupler dimensions as the JT16, only the marking on the coupler differs, however the plastic cap will contain the JT16 marking. In cases of short supply of JT18 couplers, JT16 may be used.
- 4 Bar Diameter 22 uses the same coupler dimensions as the JT20, only the marking on the coupler differs, however the plastic cap will contain the JT20 marking. In cases of short supply of JT22 couplers, JT20 may be used.

Other Leviat Products

Ancon MBT Coupler

The MBT coupler range provides a cost-effective method of joining reinforcing bars, particularly when the fixed bar is already in place and there is insufficient space for a hydraulic swaging press. They are easy to install and achieve failure loads higher than 108% of the characteristic yield strength of grade 500 reinforcing bar. Neither bar end preparation to form threads, nor bar rotation is required. MBT couplers can also be used to join imperial or metric plain round or deformed reinforcing bars, making it ideal for alteration or refurbishment projects.



Moment Grout Coupler

Specifically made for precast concrete connections, the Moment Half Grout coupler system combines the benefits of the Moment JT threaded system, with the flexibility and tolerance of a grout system.

When used together with Moment's proprietary 100MPa grout, the coupler system is a bar break technology and is capable of carrying very high bar loads. On one end the coupler receives threaded rebar, whereas the opposite end provides the flexibility of a grout system. Consist of a one-piece design, the coupler is capable of carrying very high loads.



Moment Loop Box

The Moment Loop Box is available in 3 versions, Single, Double and Multi version including single, double and multi wire rope loops respectively to ensure strength in the connection.

The Loop Box will need to fix to the formwork and the flexible folded wires will need to be pulled out to make a connection when ready on site. The load will be transferred from one concrete panel to the other panel via wire rope loop. High strength (1770 MPa) galvanized steel wire rope with 6 mm φ will need to be crimped by using compression sleeves / ferrule to form a loop at one end & to transfer a load axially through other ends. The load is transferred from one concrete panel to the other panel via wire rope loop.





Contact Leviat locally

For more information on the products featured here, please contact Leviat:

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