

**Ancon®**  
**MBT Mechanically-  
Bolted Couplers**  
for the Construction Industry



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# Reinforcing Bar Couplers

## Simplify the design and construction of concrete

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.

Ancon couplers can simplify the design and construction of reinforced concrete and reduce the amount of reinforcement required.

Lapped joints are dependent upon the concrete for load transfer. For this reason any degradation in the integrity of the concrete could significantly

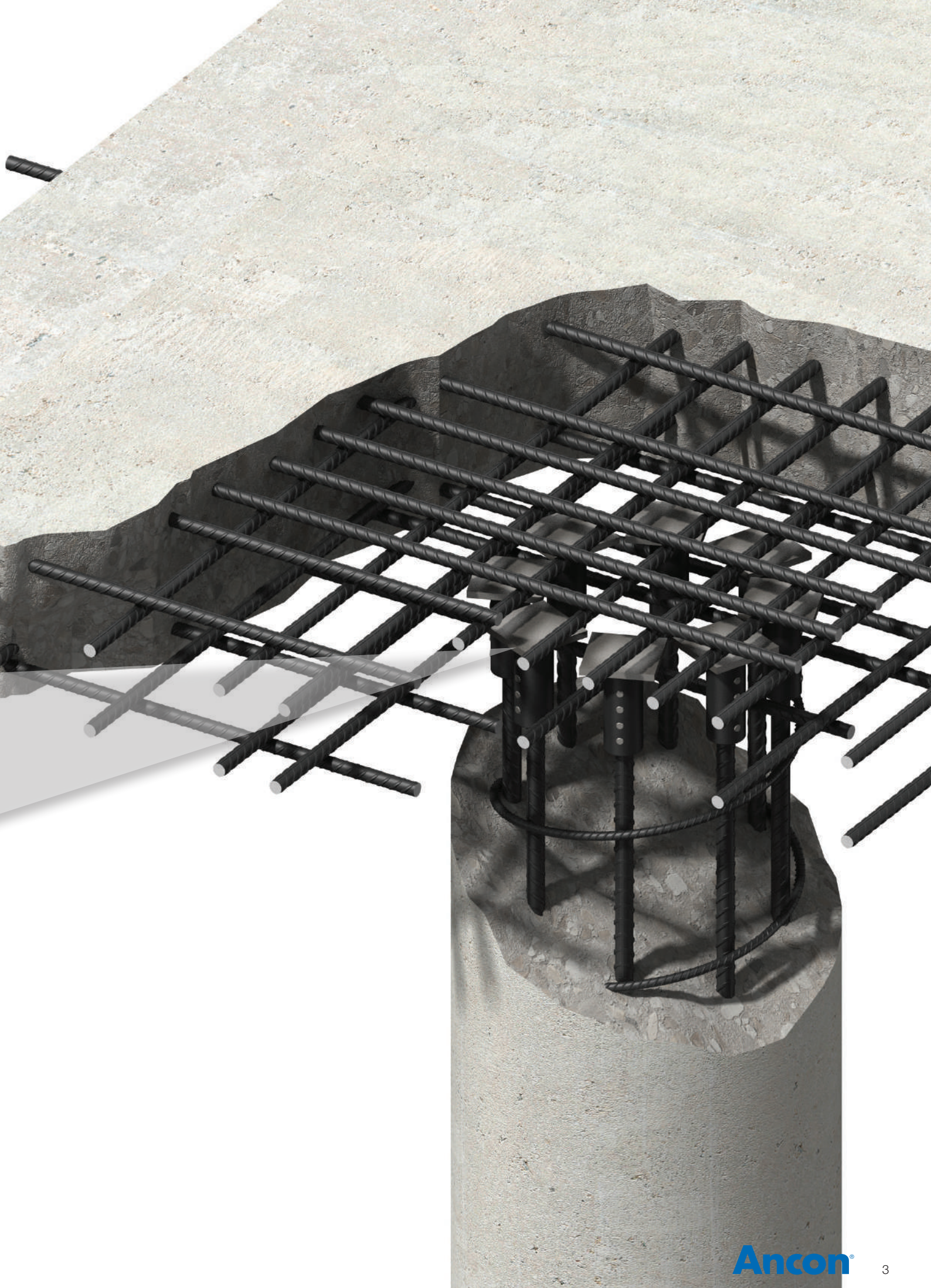
affect the performance of the joint. The strength of a mechanical splice is independent of the concrete in which it is located and will retain its strength despite loss of cover as a result of impact damage or seismic event.



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# Reinforcing Bar Couplers

## MBT Couplers

The Ancon MBT couplers provide 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.

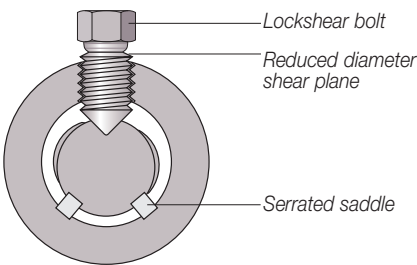
MBT Couplers are easy to install and achieve failure loads higher than 115% of the characteristic yield strength of grade 500 reinforcing bar. Neither bar end preparation to form threads, nor bar rotation are required. MBT couplers can also be used to join imperial, plain round or deformed reinforcing bars.

The bar ends are supported within the coupler by two serrated saddles, and as the lockshear bolts are tightened, the conical ends embed themselves into the bar. As this happens the serrated saddles bite into both the bar and the shell of the coupler. The lockshear bolts of couplers up to and including the size 20 can be tightened using a ratchet wrench. For larger couplers a nut runner is recommended.

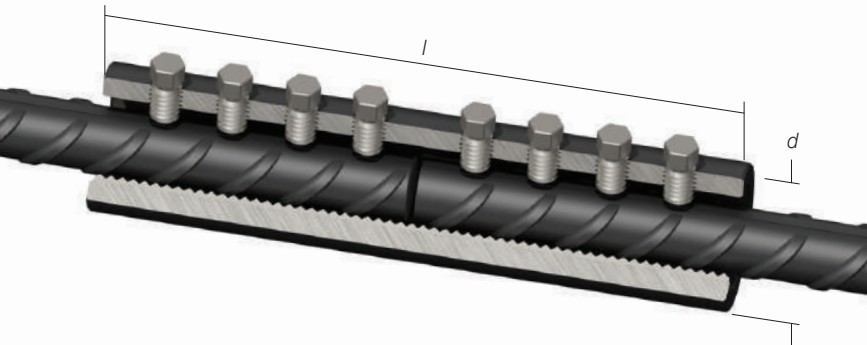
In all cases heavy duty sockets should be used. When the pre-determined tightening torque for the bolts is reached, the heads shear off leaving the top of the installed bolt slightly proud of the coupler. This provides an instant visual check of correct installation.

**Note:** Impact tools must not be used to tighten lockshear bolts.

Section showing the embedment of the lockshear bolts and saddles into the bar and the shell of the coupler



MBT couplers are used to connect reinforcing bars of the same size.

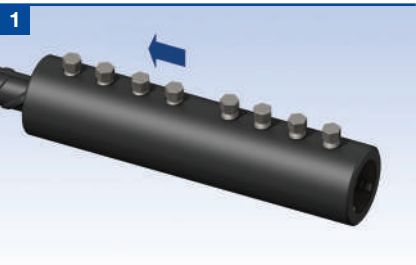


### MBT Coupler Dimensions

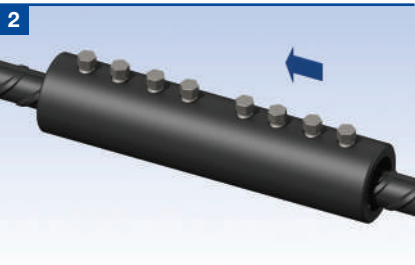
Bar Diameter (mm)		12	16	20	25	28	32	36	40
External Diameter (mm)	<i>d</i>	33	42	48	54	67	71	75	81
Total Length (mm)	<i>l</i>	140	160	204	258	312	312	484	484
Socket Size A/F (ins)		1/2	1/2	1/2	5/8	5/8	5/8	3/4	3/4
No. of Bolts		6	6	8	8	10	10	14	14
Part No.		MBT12	MBT16	MBT20	MBT25	MBT28	MBT32	MBT36	MBT40

**Note:** Dimensions are nominal values and subject to change from time to time. Other sizes available on request. For details contact us.

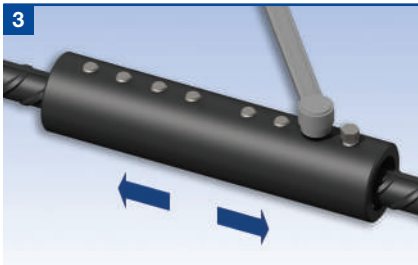
### Installation MBT Coupler



Place the coupler over the end of the bar to half the coupler length +/- 6mm and finger tighten the lockshear bolts onto the bar. Check the alignment and make any necessary adjustments.



Place the other bar end into the coupler until it pushes up against the first bar and finger tighten the remaining lockshear bolts. Check alignment and make any adjustments.



On one half of the coupler, starting from the centre and working outwards, partly tighten the lockshear bolts using either a ratchet wrench or a nut runner as appropriate. Do not use impact tools. Repeat again, this time fully tightening the lockshear bolts until the bolt heads shear off. Repeat the above for the other half of the coupler.

## MBT Transition Couplers

The Ancon MBT Transition series of couplers provides an effective solution for connecting bars of different diameters.

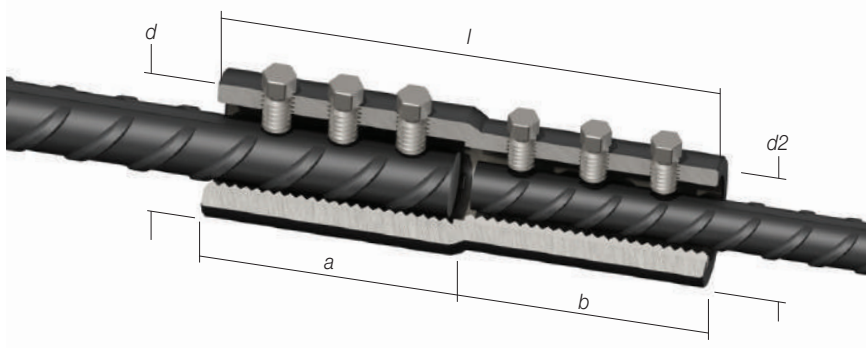
Transition couplers have all of the benefits of the MBT Coupler and are designed to achieve failure loads higher than 115% of the characteristic yield strength of the smaller grade 500 reinforcing bar.

They can be installed without any preparation to the bar ends and without any need to rotate bars.

The coupler can be rotated to allow access to the bolts for tightening with either a ratchet wrench or a nut runner. In all cases heavy duty sockets should be used. Transition couplers are non-standard and are made to order.

**Note:** Impact tools should not be used to tighten lockshear bolts.

**Note:** MBT Transitional Couplers are made to order to project specific requirements. Lead times and minimum order quantities may apply. Contact us for further information.



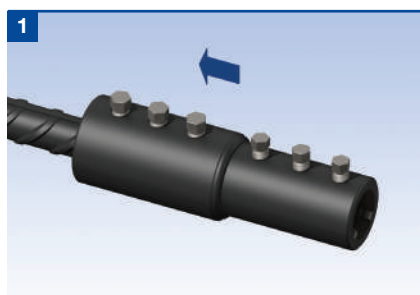
### MBT Transition Series Dimensions

Bar Diameter (mm)		16/12	20/12	20/16	25/16	25/20	28/20	28/25	32/20	32/25	32/28	40/32
External Diameter (mm)	d	42	48	48	54	54	67	67	71	71	71	81
External Diameter (mm)	d2	26	33	48	42	54	48	54	48	54	67	71
Total Length (mm)	l	160	150	160	155	180	204	258	177	231	286	335
Individual Lengths	a:b	80:80	80:70	80:80	75:80	90:90	102:102	129:129	75:102	102:129	130:156	178:157
Socket Size A/F (ins)	a:b	1/2:1/2	1/2:1/2	1/2:1/2	5/8:1/2	5/8:1/2	5/8:1/2	5/8:5/8	5/8:1/2	5/8:5/8	5/8:5/8	3/4:5/8
No. of Bolts	a:b	3:3	3:3	3:3	2:3	3:3	3:4	4:4	2:4	3:4	4:5	5:5
Part No.		MBT16/12	MBT20/12	MBT20/16	MBT25/16	MBT25/20	MBT28/20	MBT28/25	MBT32/20	MBT32/25	MBT32/28	MBT40/32

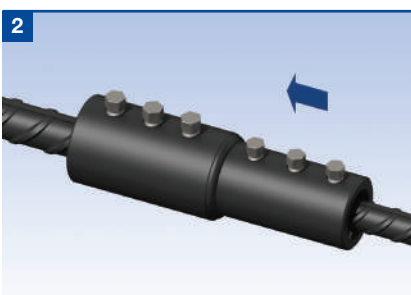
**Note:** Dimensions are nominal values and subject to change from time to time.

### Installation

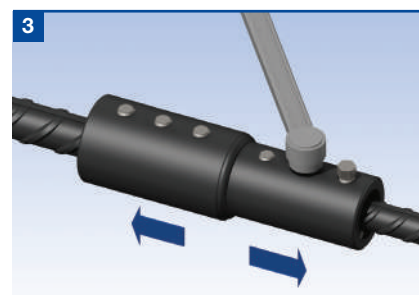
#### MBT Transition Series



Place the coupler over the end of the bar to the appropriate depth +/- 6mm and finger tighten the lockshear bolts onto the bar. Check the alignment and make any necessary adjustments.



Place the other bar end into the coupler until it pushes up against the first bar and finger tighten the remaining lockshear bolts. Check alignment and make any adjustments.



On one half of the coupler, starting from the centre and working outwards, partly tighten the lockshear bolts using either a ratchet wrench or a nut runner as appropriate. Do not use impact tools. Repeat again, this time fully tightening the lockshear bolts until the bolt heads shear off.

Repeat the above for the other half of the coupler.

#### Electric Wrench

Ancon Electric Wrenches are available for purchase or hire. The smooth continuous action of the wrench prevents the early shearing of the lockshear bolts and damage to threads. The wrench is supplied with specially hardened heavy duty sockets.

For details please contact us.



# Reinforcing Bar Couplers

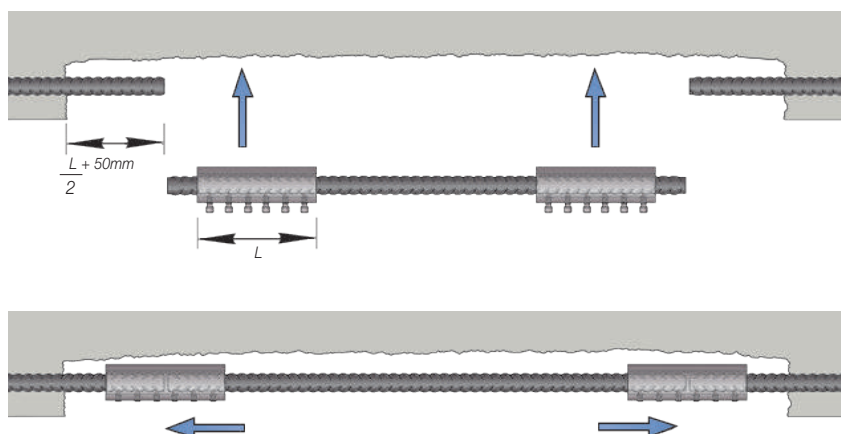


## Repair and Remedial Work

The Ancon MBT range of couplers is ideal for applications involving the replacement of corroded or damaged reinforcement as bar ends require no preparation or rotation.

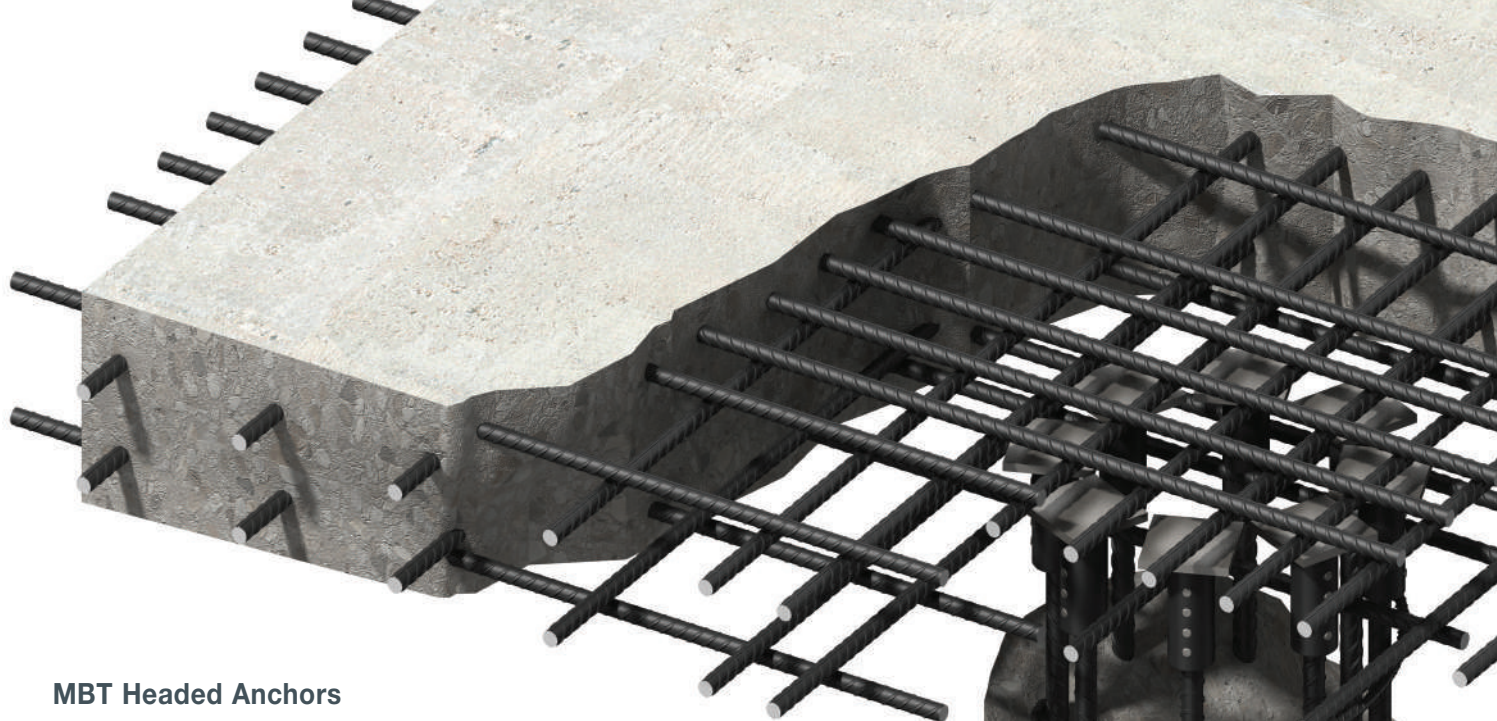
### MBT Couplers

When two MBT couplers are used, the replacement bar is cut approximately 5mm shorter than the original length to allow clearance for insertion between the sound ends of the in-situ bars. MBT couplers are pushed fully over both ends of the replacement bar and temporarily held in position. The replacement bar is then correctly positioned and the couplers moved to a previously marked position on the existing bars indicating half the length of the coupler. The lockshear bolts are tightened to complete the installation. The above application is suitable where the bar being replaced is at least  $2 \times \text{MBT coupler length} + 100\text{mm}$ .



Bar replacement using two MBT Couplers



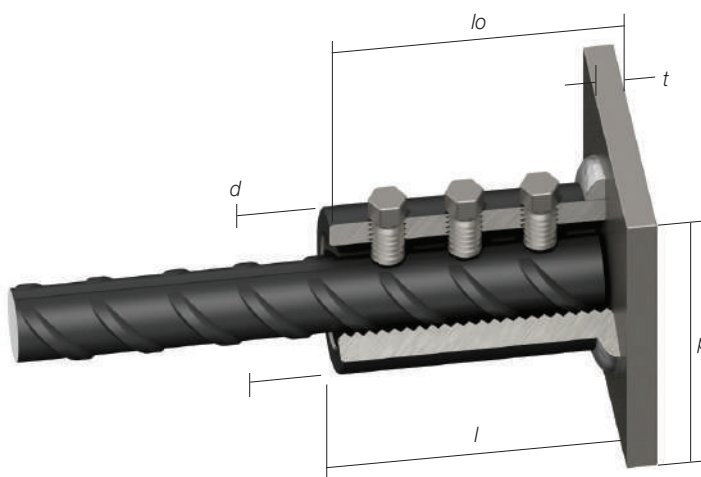
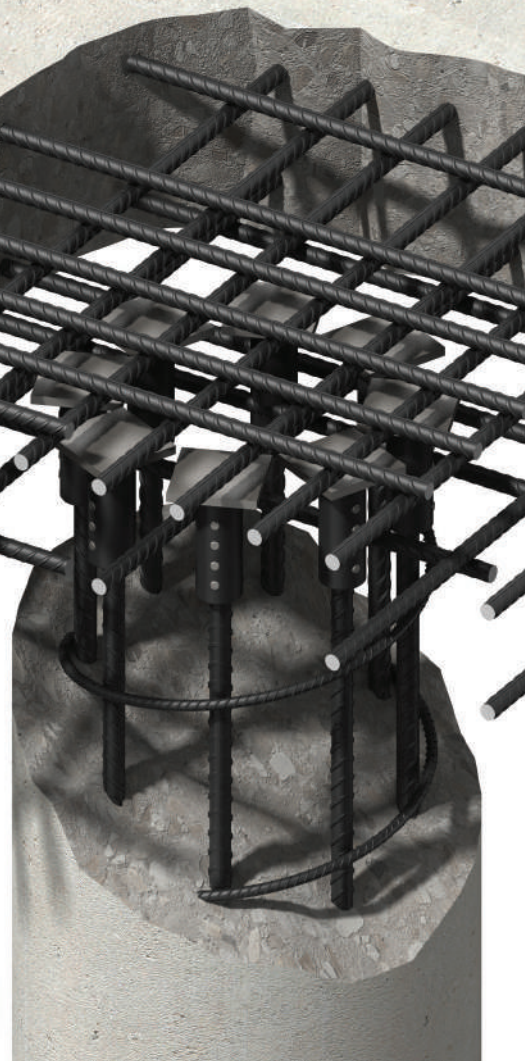
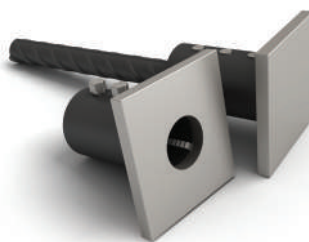


## MBT Headed Anchors

Ancon MBT Headed Anchors are designed to provide dead end embedment for bars in concrete. This helps to reduce congestion and simplify the placement of rebars by removing the need for hooked ends.

The anchor comprises half an MBT coupler with a plate welded to one end which carries the full tension load of the bar when it is bearing against the concrete. Plates can be supplied with or without a hole, allowing bars to either end in or pass through the coupler. The MBT Headed Anchor also has the added advantage of requiring no special bar end preparation.

**Note:** MBT Headed Anchors are made to order to project specific requirements. Lead times and minimum order quantities may apply. Contact us for further information.



Bar Diameter (mm)		12	16	20	25	28	32	36	40
External Diameter (mm)	<i>d</i>	33	42	48	54	67	71	75	81
Coupler Length (mm)	<i>l</i>	75	82	104	129	156	156	247	247
Total Length (mm)	<i>lo</i>	85	92	114	139	168	171	262	262
Plate Thickness (mm)	<i>t</i>	10	10	10	10	12	15	15	15
Plate w x h (mm)	<i>p</i>	70	80	90	100	110	130	150	150
Socket Size A/F (ins)		1/2	1/2	1/2	5/8	5/8	5/8	3/4	3/4
No of Bolts		3	3	4	4	5	5	7	7
Part No. (No hole in plate)		MBTHA12	MBTHA16	MBTHA20	MBTHA25	MBTHA28	MBTHA32	MBTHA36	MBTHA40
Part No. (Hole in plate)		MBTHA12H	MBTHA16H	MBTHA20H	MBTHA25H	MBTHA28H	MBTHA32H	MBTHA36H	MBTHA40H

**Note:** Minimum compressive strength of concrete 25N/mm<sup>2</sup>. Dimensions are nominal values and subject to change from time to time.

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