

Plaka MBT coupler

Reinforcement Continuity Connecting System





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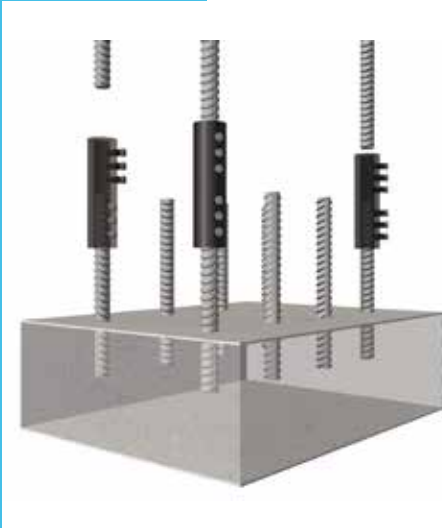
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Couplers

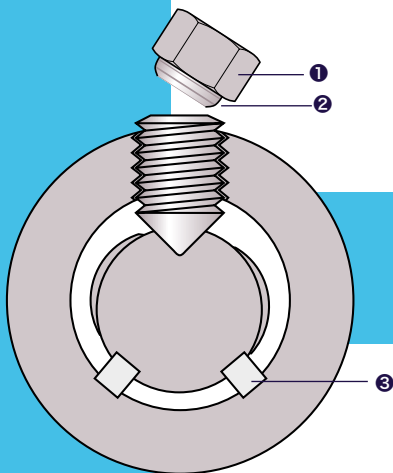
Couplers simplify the design and construction of structures made from reinforced concrete and reduce the amount of reinforcing steel required.

Overlapping of the rebar depends on the transfer of the forces in the concrete. A mechanical coupler works independently from the concrete surrounding it and will therefore retain its mechanical properties when the surrounding concrete is lost as a result of the effects of earthquakes.

The series of MBT couplers enables economic connection of the reinforcing, in particular when one of the bars is already set in concrete and it would not be practical or possible to use a bar swaging device. The MBT couplers are easy to use and enable a breaking force to be obtained that reaches more than 115% of the elasticity limit of steel B500B. Neither preparation of the ends nor twisting of the reinforcing bars is required. The MBT couplers can be used for connecting both smooth and ribbed steel.

The ends of the reinforcing bars lie inside the coupler on two serrated bars and the conical points of the bolts penetrate the reinforcing bars when the lockshear bolts are tightened. The teeth on the serrated bars penetrate the reinforcing bars at the same time. The lockshear bolts on couplers up to type ET20 can be tightened manually with the help of a ratchet spanner. The use of an electric or pneumatic screwing tool for the larger types is recommended.

Reinforced screw caps must be used in all cases. When the optimal tightening moment has been reached, a groove in the bolt causes its head to shear off so that the rest of the bolt does not stick too far out of the coupler. This allows a quick visual inspection of the connection.



Cross-section showing the penetration of the lockshear bolt and the serrated bars in the reinforcing bar and the body of the coupler.

- ❶ Lockshear bolts
- ❷ Groove to check tightening
- ❸ Serrated bar

Advantages

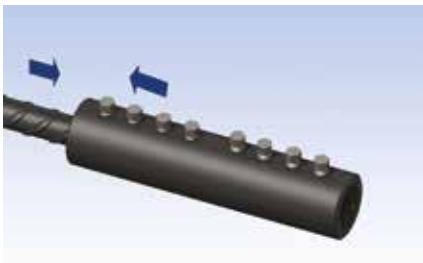
- No overlapping reinforcing bars required, so saves space and material
- The ends of the reinforcing bars require no extra treatment
- The reinforcing bars can also be coupled to bars already concreted



MBT coupler Application



Instructions for use



Slide the coupler over one reinforcing bar. The head of the bar must be in the middle of the coupler with ± 6 mm tolerance. Tighten the lockshear bolts by hand until they make contact with the bar. Check the alignment and improve if necessary.



Slide the other bar into the coupler until it touches the first one. Tighten the lockshear bolts by hand until they make contact with the bars. Check the alignment and improve if necessary.



Finish tightening the lockshear bolts with a ratchet spanner or a tightening tool. Do not use any tools that vibrate. Tighten the bolts alternately in two goes (first every other bolt, then the rest) until the hexagonal heads shear off.

Testing & certification



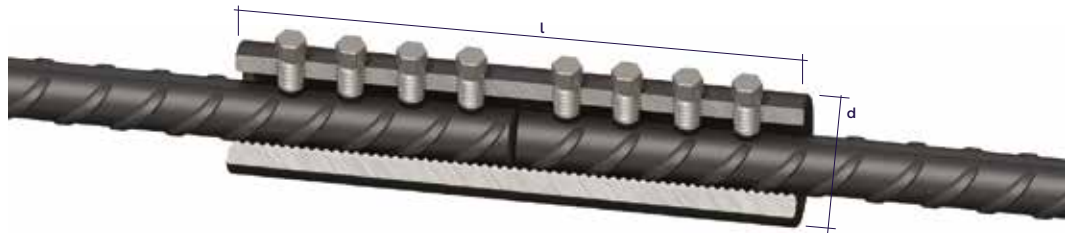
The producer regularly carries out tensile tests on couplers from his stock. The ET couplers have been designed and produced in accordance with the BS EN ISO 9001 quality standard. The most standard types have been certified by the BBA (British Board of Agreement) under No. 98/R102 for use in bridges and roads. Types ET10 to ET28 have also been certified by the German organisation DIBt and make up part of the Nr Z-1.5-10 certificate. Tests were also carried out in order to show that they conform to the international reference standards BS5400, BS8110, ACI318, DIN 1045 and SP SITAC 1002 (Sweden).

Note: The technical advice and the certificates are not applicable to all types and dimensions of couplers presented in this prospectus. Please refer to the corresponding certificate that is available upon request for details of types and dimensions for which all technical advice or national certification is applicable.

MBT coupler Various types

Series MBT coupler type ET

The ET coupler is used for connecting bars of the same diameter.



Dimensions of the ET coupler

Ø of the rebar (mm)	10	12	14	16	20	25	28	32	40
Outside Ø of the coupler 'd' (mm)	33,4	33,4	42,2	42,2	48,3	54,0	66,7	71,0	81,0
Length of the coupler 'l' (mm)	100	140	160	160	204	258	312	312	484
Type of threaded coupler*	½	½	½	½	½	⅝	⅝	⅝	¾
# lockshear bolts	4	6	6	6	8	8	10	10	14
Weight (kg)	0,52	0,72	1,25	1,25	1,96	3,00	5,80	6,50	11,30
Article code	BRMBT10	BRMBT12	BRMBT14	BRMBT16	BRMBT20	BRMBT25	BRMBT28	BRMBT32	BRMBT40

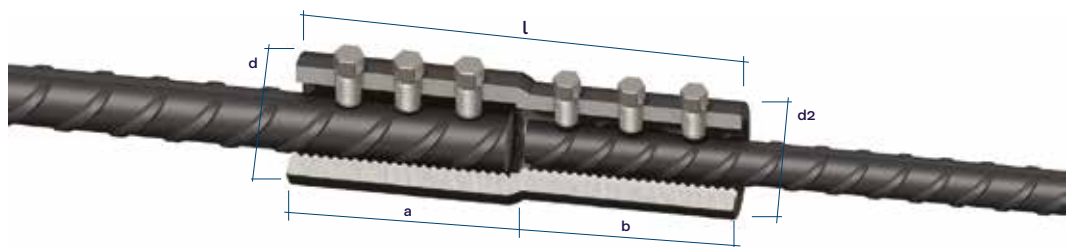
Note: *key width of hexagonal head expressed in inches

Other dimensions available upon request. Please contact us for more information.

Reducing coupler type MR

The MR coupler enables a connection to be made between reinforcing bars with two different diameters. It has the same advantages as the ET couplers and also enables a breaking force to be obtained that reaches more than 115% of the elasticity limit of steel B500B.

It can be used without preparation on the ends of the reinforcing bars as well as without the reinforcing being twisted. The coupler may be positioned in such a way that the lockshear bolts can be easily reached. The lockshear bolts are tightened using a ratchet spanner or a tightening tool. Reinforced screw caps must be used in all cases. The reducing couplers are never stocked but are produced upon request.



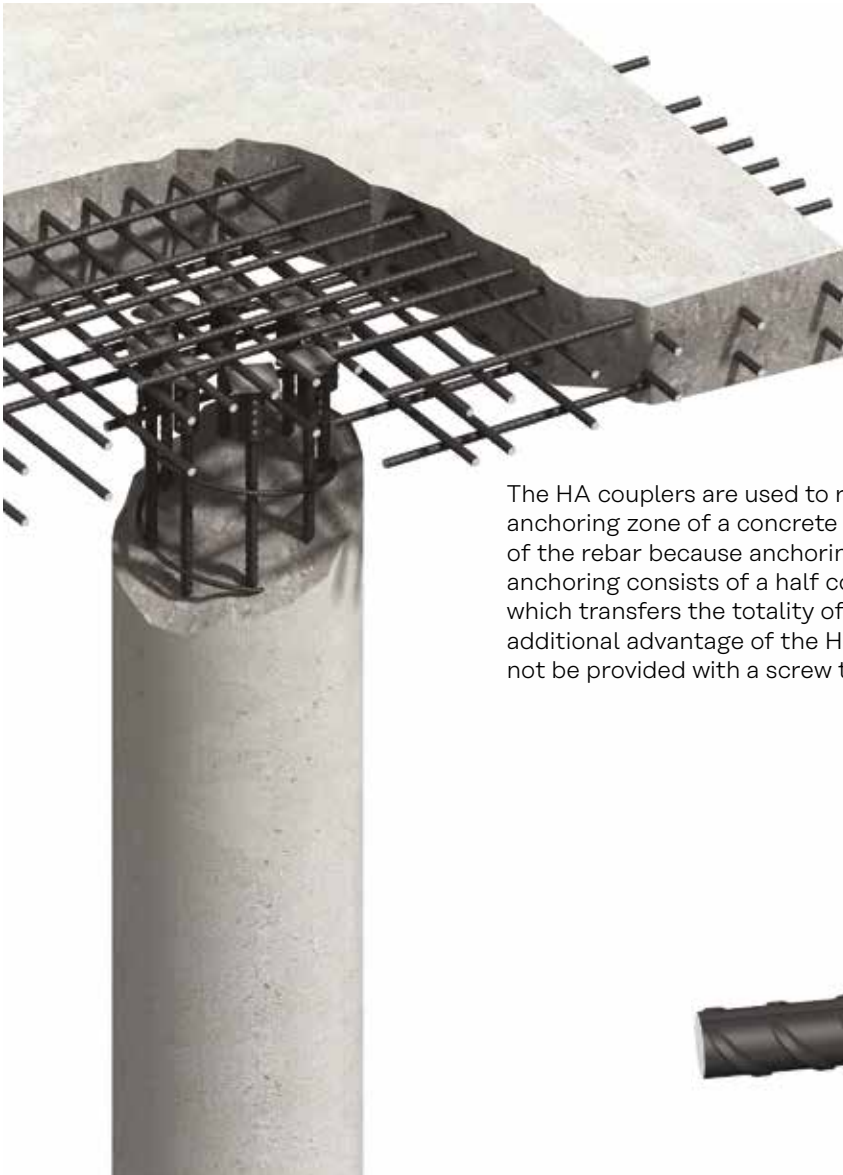
Dimensions of the MBT reducing coupler

Ø of the rebar (mm)	16/12	16/14	20/16	25/20	28/25	32/25	32/28	40/32
Outside Ø of the coupler 'd' (mm)	42,2	42,2	48,3	54,0	66,7	71,0	71,0	81,0
Outside Ø of the coupler 'd2' (mm)	26,4	42,2	48,3	54,0	54,0	54,0	66,7	71,0
Total length of the coupler 'l' (mm)	160	160	160	180	258	231	286	335
Individual length a-b (mm)	80-80	80-80	80-80	90-90	129-129	102-129	130-156	178-157
Type of threaded coupler* a:b	½:½	½:½	½:½	⅝:½	⅝:⅝	⅝:⅝	⅝:⅝	¾:⅝
# lockshear bolts a:b	3:3	3:3	3:3	3:3	4:4	3:4	4:5	5:5
Weight (kg)	1,30	1,25	1,56	2,23	3,98	3,70	5,71	7,47
Article code	BRMR1612	BRMR1614	BRMR2016	BRMR2520	BRMR2825	BRMR3225	BRMR3228	BRMR4032

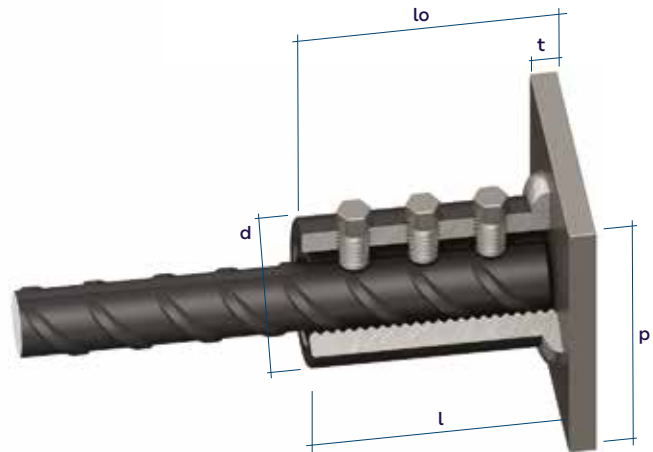
Note: *key width of hexagonal head expressed in inches

MBT coupler *Various types*

Anchoring coupler type HA



The HA couplers are used to reduce the concentration of steel in the anchoring zone of a concrete element and they simplify the positioning of the rebar because anchoring with bent bars is avoided. This type of anchoring consists of a half coupler from the ET series welded to a plate which transfers the totality of the loads in the adjacent concrete. An additional advantage of the HA coupler is that the ends of the bars need not be provided with a screw thread or require any other treatment.



Dimensions of the MBT anchoring

Ø of the rebar (mm)	12	14	16	20	25	28	32	40
Outside Ø of the coupler 'd' (mm)	33,4	42,2	42,2	48,3	54,0	66,7	71,0	81,0
Length of the coupler 'l' (mm)	75	82	82	104	129	156	156	247
Length of the coupler 'lo' (mm)	85	92	92	114	139	168	171	262
Length of the plate 't' (mm)	10	10	10	10	10	12	15	15
Plate length x width 'p' (mm)	70	70	80	90	100	110	130	150
Type of threaded coupler*	½	½	½	½	⅝	⅝	⅝	¾
# lockshear bolts	3	3	3	4	4	5	5	7
Weight (kg)	0,74	1,01	1,07	1,58	2,29	4,14	4,72	8,30
Product code	BRHA12	BRHA14	BRHA16	BRHA20	BRHA25	BRHA28	BRHA32	BRHA40

Note: *key width of hexagonal head expressed in inches. Concrete pressure resistance in the anchoring zone at least 25 N/mm².

MBT coupler Screwing tools



Electric tightening tool

An electric tightening tool to simplify the use of MBT couplers is available on request. Regular and progressive tightening of the bolts avoids premature shearing of the hexagonal heads of the lockshear bolts, as well as damage to the screw thread.

This tool must be used in combination with specially strengthened caps. Please contact us for more information.

Note: The use of vibrating tools to tighten the lockshear bolts is not permitted. The reinforced couplers must be used in all cases.



Lockshear bolts					
Coupler Type	Bolt thread	Coupler		Fracture torque (Nm)	Lever* (mm)
		Type	Code		
T 10	M 10	1/2"	BRD1620	55	300
T 12	M 10	1/2"	BRD1620	55	300
T 16	M 12	1/2"	BRD1620	108	600
T 20	M 12	1/2"	BRD1620	108	600
T 25	M 16	5/8"	BRD2532	275	1100
T 32	M 16	5/8"	BRD2532	360	1500
T 40	M 20	3/4"	BRD40	525	2100

(*) The length of the lever given causes a fracture in the bolt at a force of about 250 N

MBT coupler Applications



MBT coupler

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