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Reinforcement Threaded Couplers



Introduction

The TERWA threaded coupler system provides a safe, reliable and efficient method of providing mechanical rebar connections that meet the requirements of BS8110. By increasing the cross-sectional area of material at the joint the connection exceeds the tensile and shear capabilities of the parent bar. This attribute means the performance of the coupling can be ignored in any structural assessment. This makes the adoption of the TERWA couplers over standard rebar in lapped joints or stop ends a simple exchange.

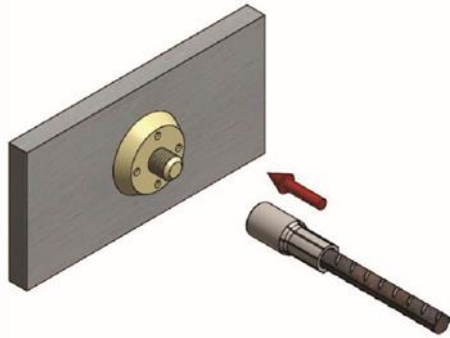
The system is backed up by a CARES Technical Approval, verifying compliance with BS8110 and EC2 for mechanical reinforcement connections. The characteristics and advantages of the TERWA Rebar Connection System are:

Advantages

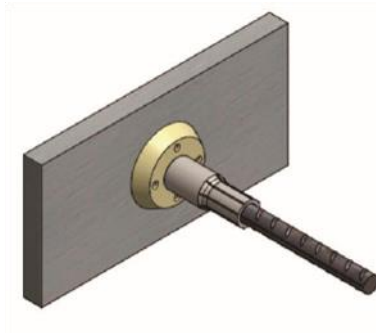
- It is suitable for reinforcement steel with a diameter from 10 mm to 40 mm.
- CARES Technical Approval.
- The full capacity of the bar can be used.
- Full connection of the reinforcement.
- Suited for dynamic and seismic loads.
- Slip value of the system ≤ 0.1 mm.
- Additional preparation of the reinforcement steel is not necessary.
- Suitable for all types of reinforcement steel according to British and European Norms.
- The couplers are designed for reinforcement steel B500B or B500C in accordance with BS4449 and EN 10080 and have a yield strength ≥ 500 MPa and a tensile strength ≥ 550 MPa.
- The shape, height and type of ribs in the reinforcement steel have no influence on the connection.
- The minimum external diameter of the coupler improves concrete cover in lapped joints, and reduces congestion of reinforcement steel in heavily reinforced structures.
- Full connection can be achieved without additional locking nuts.
- Any diameter and length of the reinforcement steel straight or bent can be fitted with a coupler for easy connection on site.

The CARES technical approval TA2 5072 validates that the manufacturer of the Threaded Coupler System has quality management system in accordance with ISO9001:2015, whilst also ensuring the incorporated reinforcement steel is in accordance with BS 4449:2005, cut and bent in accordance with BS8666. The approval also ensures the reinforcement steel meets a strict set of criteria for reinforcement bars used in reinforcement continuity systems, ultimately ensuring the Threaded Coupler System performs in a manner which fulfils the requirements set down in BS EN1992-1-1:2004 (EC2).

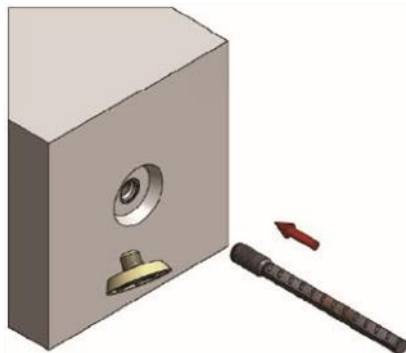
PSA and TSE Coupler Installation Instructions



Thread the coupler onto the fixing plate attached to the shuttering system.

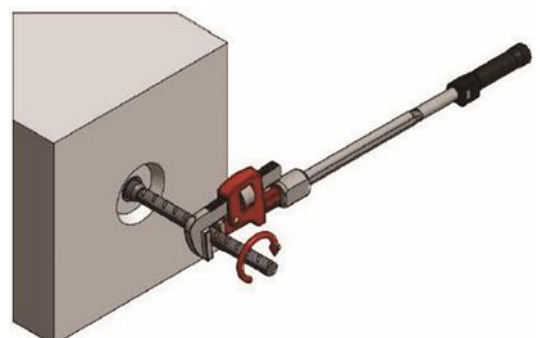


The concrete can now be poured.



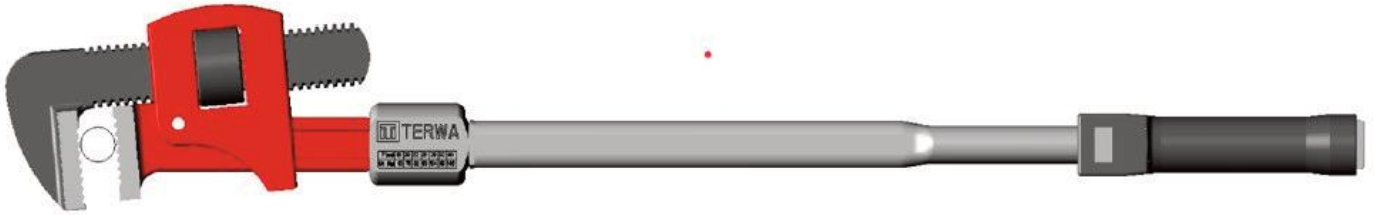
After removal of the shuttering system and removal of the fixing plate, the TSE coupler can be inserted and hand tightened.

Complete the connection with the calibrated torque wrench.



Calibrated Torque Wrench

The calibrated torque wrench is specially designed for the correct installation of the TERWA couplers on site. All TERWA wrenches are delivered together with a calibration report and instructions for use. The torque values are marked on the wrench for all diameters of rebar. The torque values for all TERWA couplers is highlighted bellow.



<u>Reinforcement Diameter</u>	<u>Thread (M)</u>	<u>Necessary Torque (Nm)</u>
12mm	16mm	60
16mm	20mm	80
20mm	24mm	100
25mm	30mm	125
32mm	42mm	160
40mm	48mm	200

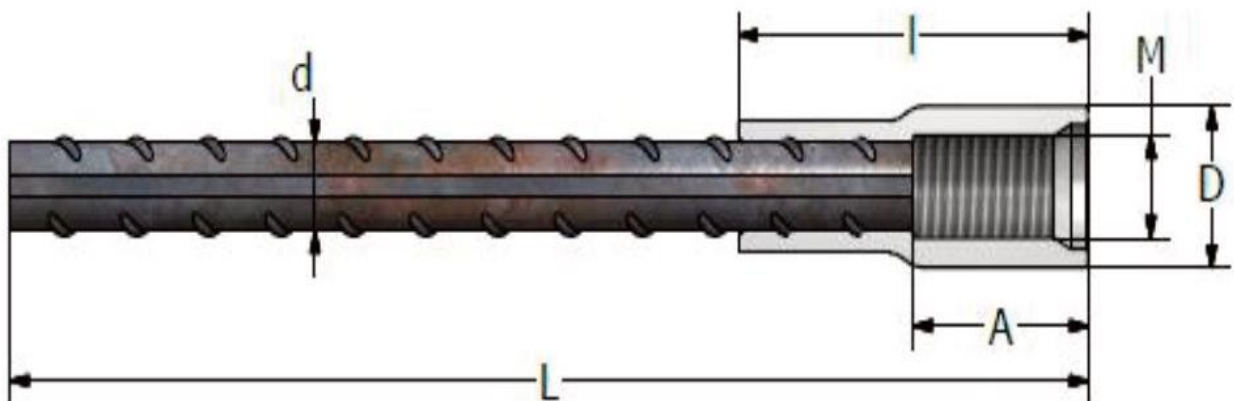
PSA Female Coupler

The PSA couplers are made of steel 20CrMo5 or equivalent and are supplied zinc plated. The couplers are marked with the company logo and the thread type. The reinforcement steel is standard B500B or B500C in accordance with BS4449 and EN 10080.

On request the PSA couplers can be produced in stainless steel or hot dip galvanised finish.

The PSA reinforcement coupler is composed of the reinforcement steel and an internally threaded sleeve which is hydraulically pressed on to the reinforcement steel using a swaging process. Used in conjunction with the TSE coupler or the PSA-PSC connector the completed coupling ensures an effectively continuous run of reinforcement steel. This method of connecting the reinforcement steel makes the PSA coupler ideal for connections to precast concrete units, continuity of reinforcement through structural joints and connections in prefabricated reinforcement cages.

In addition, the PSA couplers can be utilised to lift and handle precast concrete elements.



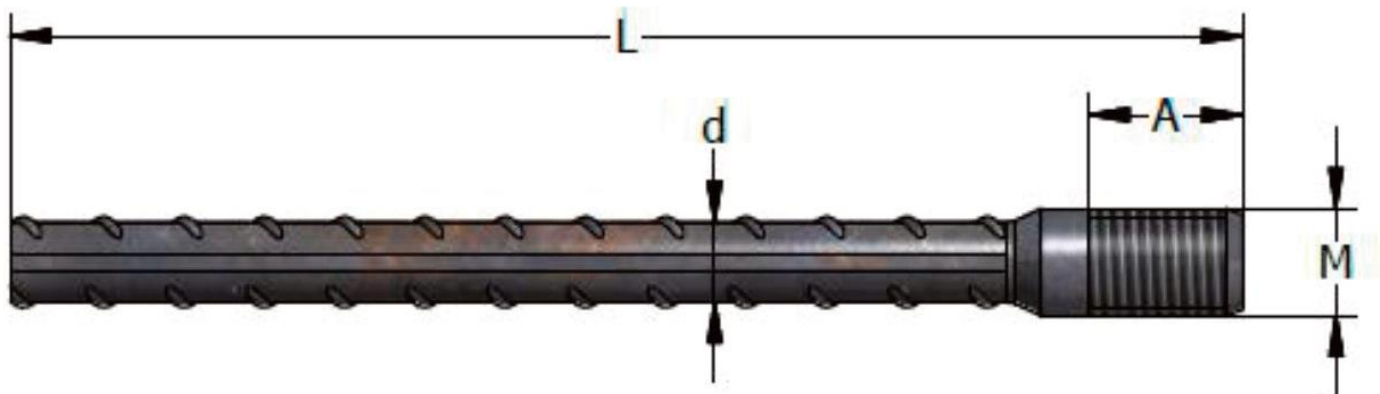
Length	Thread		Coupler		Reinforcement Steel		
	M	A	D	L1	d	Tensile Force	Rated Section
(mm)	(Metric)	(mm)	(mm)	(mm)	(mm)	(kN)	mm ²
400	16	25	22	62	12	56.5	113.0
600	16	25	22	62	12	56.5	113.0
800	16	25	22	62	12	56.5	113.0
1500	16	25	22	62	12	56.5	113.0
400	20	38	28	86	16	100.5	201.0
550	20	38	28	86	16	100.5	201.0
800	20	38	28	86	16	100.5	201.0
1020	20	38	28	86	16	100.5	201.0
1440	20	38	28	86	16	100.5	201.0
700	24	42	34	99	20	157.0	314.0
1000	24	42	34	99	20	157.0	314.0
1280	24	42	34	99	20	157.0	314.0
1800	24	42	34	99	20	157.0	314.0
2000	24	42	34	99	20	157.0	314.0
2200	24	42	34	99	20	157.0	314.0
700	30	52	40	117	25	245.5	491.0
1000	30	52	40	117	25	245.5	491.0
1250	30	52	40	117	25	245.5	491.0
1500	30	52	40	117	25	245.5	491.0
2260	30	52	40	117	25	245.5	491.0
1400	42	65	54	153	32	401.9	803.8
1600	42	65	54	153	32	401.9	803.8
2300	42	65	54	153	32	401.9	803.8
1000	48	72	65	188	40	625.0	1250.0
1500	48	72	65	188	40	625.0	1250.0
2000	48	72	65	188	40	625.0	1250.0

TSE Male Couplers

The TSE reinforcement coupler is produced from reinforcement steel in grades B500B or B500C in accordance with BS4449 and EN 10080 and is forged at one end with a rolled metric thread. The overall diameter of the threaded connection is greater than that of the parent reinforcement. This ensures that the joint has a superior tensile capacity and shear capability than that of the parent bar.

This is commonly referred to as a "bar break coupler" where the connection is stronger than the bar itself.

To connect with a reinforcement coupler PSA, the TSE coupler is screwed fully into the PSA coupler.



Length (mm)	Thread		Reinforcement Steel		
	M (Metric)	A (mm)	d	Tensile Force	Rated Section
375	16	22	12	56.5	113.0
575	16	22	12	56.5	113.0
625	16	22	12	56.5	113.0
800	16	22	12	56.5	113.0
1000	16	22	12	56.5	113.0
1500	16	22	12	56.5	113.0
520	20	28	16	100.5	201.0
770	20	28	16	100.5	201.0
825	20	28	16	100.5	201.0
1020	20	28	16	100.5	201.0
1250	20	28	16	100.5	201.0
1440	20	28	16	100.5	201.0
2200	20	28	16	100.5	201.0
665	24	35	20	157.0	314.0
965	24	35	20	157.0	314.0
1050	24	35	20	157.0	314.0
1280	24	35	20	157.0	314.0
1800	24	35	20	157.0	314.0
2200	24	35	20	157.0	314.0
1000	30	43	25	245.5	491.0
1300	30	43	25	245.5	491.0
1500	30	43	25	245.5	491.0
2260	30	43	25	245.5	491.0
1000	42	45	32	401.9	803.9
1400	42	45	32	401.9	803.9
1650	42	45	32	401.9	803.9
2300	42	45	32	401.9	803.9

PSC Reinforcement Connector

The reinforcement connector PSC is a metric threaded connector, used to convert the PSA coupler into a male coupler PSA-PSC. Two PSA couplers and a PSC connector provide a connection in the reinforcement steel for precast elements, construction joints and prefabricated reinforcement cages. The PSC connectors are made of alloyed steel 34CrMo4 (W1.7220) or equivalent. The dimensions for the PSC connection are shown in the table below.

PSC Installation Instructions Insert

