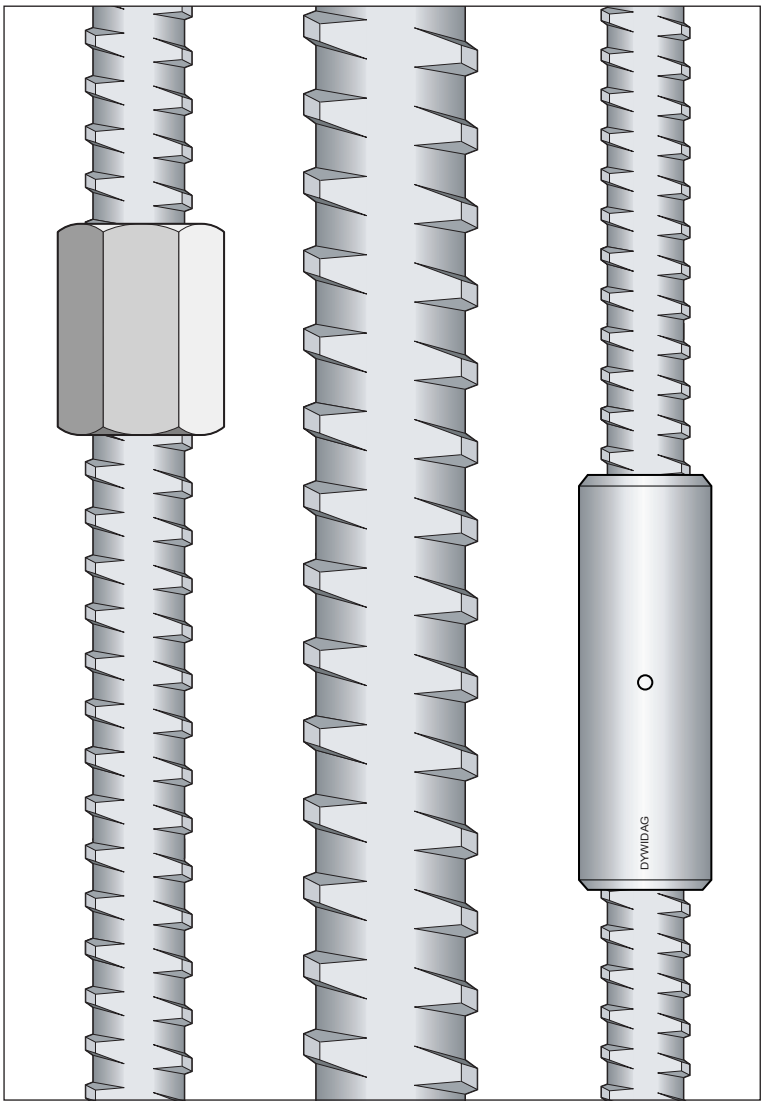
# GEWI® Steel High Yield Threadbar System










# GEWI® Steel High Yield Threadbar System

GEWI® Steel High Yield Threadbar is a high tensile alloy steel bar which features a coarse left-hand thread over its full length. The system is proven worldwide and offers versatility in a range of applications.

Manufactured in accordance with the German Certificate of Approval (Deutsches Institut für Bautechnik), the system also offers general conformance with BS 4449 : 2005 (Steel for the Reinforcement of Concrete).

The minimum specified characteristic yield strength is 500 N/mm$^2$ for bar diameters 16 - 50mm and 555 N/mm$^2$ for the 63.5mm diameter bar. 16 - 50mm bars can be welded using appropriate industry practices relative to the carbon content of the steel. Welding of the higher grade 63.5mm diameter bar is also acceptable with additional measures.

Key features of the system are:

- Fully Threaded Bar - can be cut and coupled at any point.
- Robust Threadform - ideal for construction site use.
- Coarse Pitch Threadform (d/2, except Ø 63.5mm which is d/3) with two flats – ensures thread is self cleaning.
- Fully Galvanized Systems - galvanized threadbars and accessories also available from stock.

# Technical Data for GEWI® Steel High Yield Threadbar

| Nominal Diameter | Steel Grade | Ultimate Strength *fpu* | Yield Strength | 70% (b) Ultimate Strength | 50% Ultimate Strength | Cross Sectional Area | Diameter Over Threads | Thread Pitch | Bar Weight |
|---|---|---|---|---|---|---|---|---|---|
| mm | N/mm$^2$ | kN | kN | kN | kN | mm$^2$ | mm | mm | kg/m |
| 16 | 500/600 | 121 | 100 | 85 | 61 | 201 | 19 | 8 | 1.58 |
| 20 | 500/600 | 188 | 157 | 132 | 94 | 314 | 23 | 10 | 2.47 |
| 25 | 500/600 | 295 | 245 | 206 | 147 | 491 | 28 | 12.5 | 3.85 |
| 28 | 500/600 | 370 | 308 | 259 | 185 | 616 | 32 | 14 | 4.83 |
| 32 | 500/600 | 482 | 402 | 337 | 241 | 804 | 36 | 16 | 6.31 |
| 40 | 500/600 | 756 | 630 | 529 | 378 | 1260 | 45 | 20 | 9.87 |
| 50 | 500/600 | 1176 | 980 | 823 | 588 | 1960 | 56 | 26 | 15.40 |
| 63.5 | 555/700 | 2217 | 1758 | 1552 | 1108 | 3167 | 69 | 21 | 24.80 |

(a) Yield Stress, in general terms, equals 0.1% Proof Stress.
(b) For geotechnical applications 75% fpu may be used for proof testing.

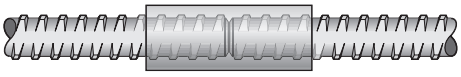
Modulus of Elasticity: E = 205,000 N/mm$^2$ +/- 5%.
Stock Lengths: All bar diameters 12.0m. Tolerances +/- 100mm. Special lengths up to 18.0m are available to order.
All bar diameters can be cut to length to suit customer requirements or supplied bent to BS 8666 : 2000.

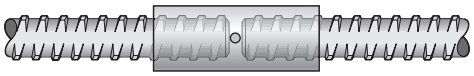
# Couplers for GEWI® Steel High Yield Threadbars

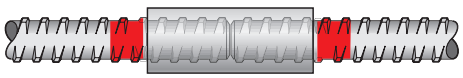
Couplers enable GEWI® Steel Threadbars to be coupled or extended, reliably and efficiently. It is important that the two threadbars meet centrally within the coupler, and remain so during installation, to ensure correct load transfer. Coupler strength = 1.3 x Yield Strength of the bar, which equates to 1.08 x Ultimate Strength, in accordance with German Approval Certificates.

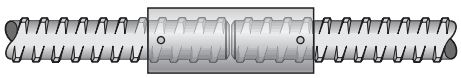
With all types of coupler, precautions should be taken to ensure that the coupler remains centrally located during handling and installation. This can be achieved through the use of grub screws, a centre pin or lock nuts.

The choice of coupler type depends on the application. The static coupler is used either in constant tension or a combination of tension and compression loading, with the longer dynamic coupler used when vibration and cyclical load reversals are anticipated.


standard coupling


centre pin - optional


paint - visual indicator


grub screws - optional

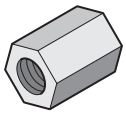
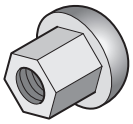
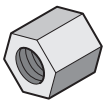
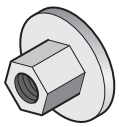
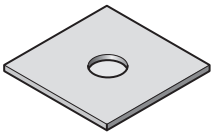
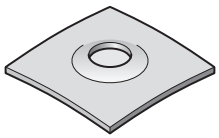
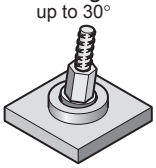
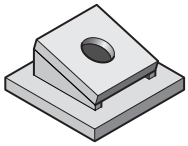
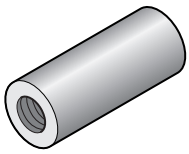
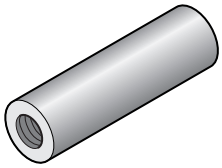
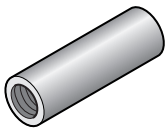
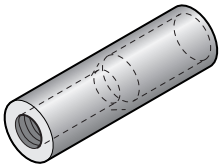
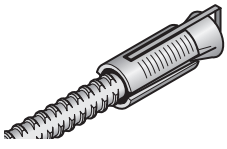
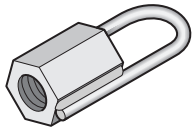
Lock nuts should be used at each end of the coupler when the threadbar is used in reinforced concrete applications designed in accordance with BS 8110. These lock nuts should be torqued to a predetermined value to prevent cracking of the structural concrete at the coupler when the joint comes under load. See table on Page 3 for torque values.

# GEWI® Steel High Yield Threadbar Accessories

| Nominal Diameter | Flat Plate Stock Size * | Hexagonal Nut | | Recessed Plate Stock Size * | Domed Nut | | Formed Plate Stock Size * | Hemisphere | |
|---|---|---|---|---|---|---|---|---|---|
| | | AF | Length | | AF | Length | | Dia. | Length |
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 16 | 150 x 150 x 10 | 32 | 40 | 150 x 150 x 20 | | | 150 x 150 x 10 | 46 | 18 |
| 20 | 150 x 150 x 10 | 36 | 45 | 150 x 150 x 20 | 35 | 41 | 150 x 150 x 10 | 46 | 18 |
| 25 | 150 x 150 x 10 | 41 | 50 | 150 x 150 x 20 | 38 | 45 | 150 x 150 x 10 | 57 | 23 |
| 28 | 150 x 150 x 10 | 46 | 55 | 150 x 150 x 20 | 43 | 54 | 150 x 150 x 10 | 57 | 23 |
| 32 | 200 x 200 x 30 | 55 | 60 | 200 x 200 x 30 | 46 | 57 | | 80 | 33 |
| 40 | 200 x 200 x 40 | 65 | 70 | 200 x 200 x 40 | | | | 120 | 55 |
| 50 | 300 x 300 x 50 | 80 | 85 | 300 x 300 x 50 | | | | 120 | 60 |
| 63.5 | 300 x 300 x 50 | 100 | 115 | | | | | | |

| Nominal Diameter | Static Coupler[a] | | Static Coupler[b] | | Dynamic Coupler[a] | | Lock Nut | | Torque Value | Flanged Nut | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dia. | Length | Dia. | Length | Dia. | Length | AF | Length | | AF | Length | Dia. |
| mm | mm | mm | mm | mm | mm | mm | mm | mm | Nm | mm | mm | mm |
| 16 | 32 | 90 | 32 | 90 | 30 | 115 | 32 | 30 | 300 | 30 | 35 | 50 |
| 20 | 36 | 105 | 36 | 105 | 34 | 130 | 32 | 40 | 400 | 36 | 40 | 60 |
| 25 | 40 | 115 | 40 | 115 | 40 | 150 | 41 | 40 | 700 | 41 | 45 | 70 |
| 28 | 45 | 125 | 45 | 125 | 45 | 170 | 41 | 45 | 950 | 46 | 50 | 85 |
| 32 | 52 | 140 | 52 | 140 | 50(AF) | 180 | 50 | 50 | 1500** | 50 | 60 | 100 |
| 40 | 65 | 160 | 65 | 160 | 60(AF) | 210 | 65 | 70 | 2900** | 60 | 70 | 120 |
| 50 | 80 | 200 | 80 | 200 | 80(AF) | 240 | 80 | 85 | 8000** | 80 | 85 | 150 |
| 63.5 | 102 | 260 | 102 | 260 | 102 | 260 | 100 | 115 | 8000** | 100 | 115 | 250 |

* Anchor plates can be supplied in any size to suit customer requirements.
** Torque applied to lock nut using hydraulic torque wrench.
(a) Machined coupler
(b) Cast coupler.

| | | | | |
|---|---|---|---|---|
| **Nuts** | Hexagonal Nut  | Domed Nut  | Lock Nut  | Flanged Nut  |
| **Plates** | Flat Plate  | Formed Plate up to 20°  | Articulating Plate up to 30°  | Gusseted Plate up to 45°  |
| **Couplers** | Static Coupler  | Dynamic Coupler  | Contact Coupler  | Transition Coupler  |
| **Accessories** | Mechanical Shell  | Tapered Washer up to 15°  | Hemisphere up to 30°  | Lifting Shackle  |

# Corrosion Protection

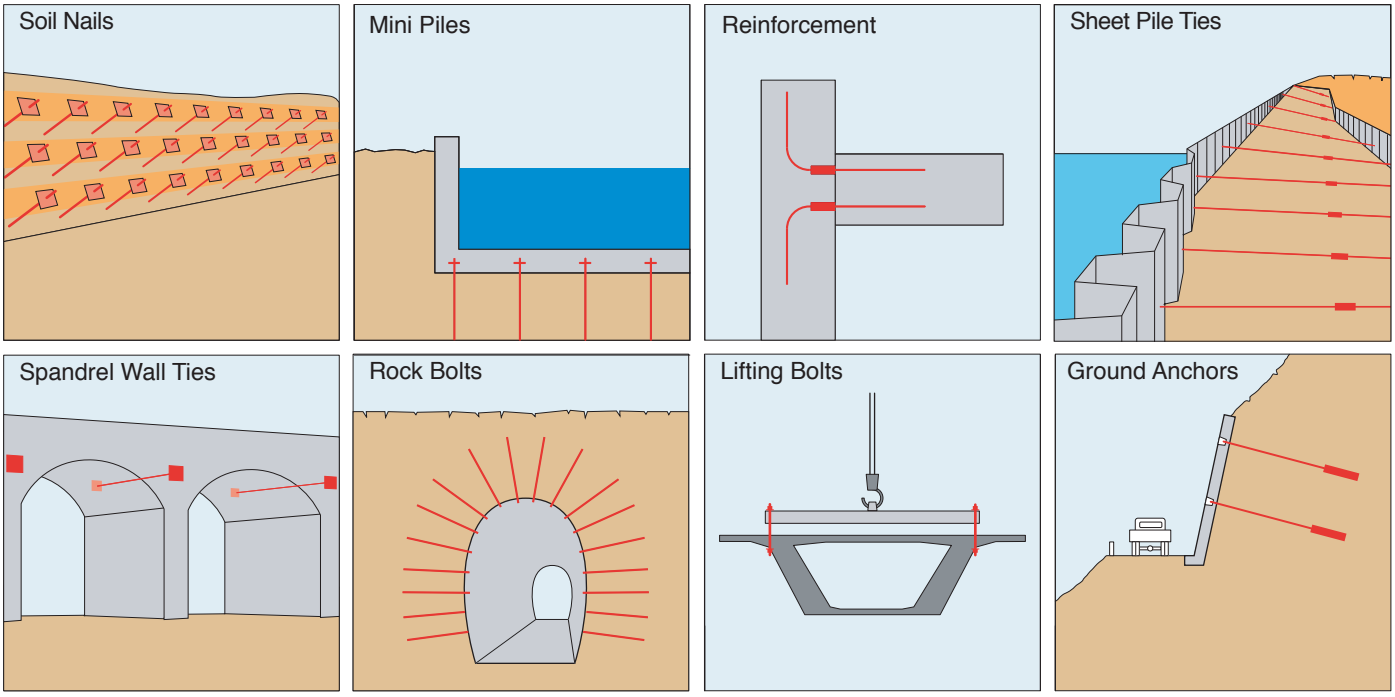
Galvanizing to BS EN ISO 1461 : 1999

- Rock Bolts
- Soil Nails
- Temporary Ground Anchors

Double Corrosion Protection to BS 8081 : 1989

- Permanent Soil Nails
- Permanent Ground Anchors

# Applications

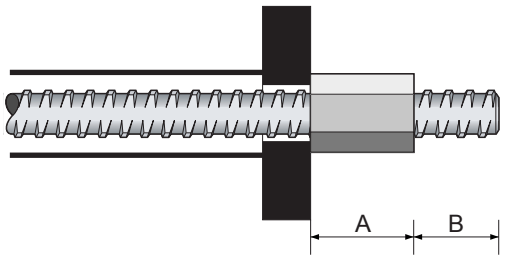



# Stressing Equipment

| Jack Selection Chart | | | Bar Diameter mm | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Capacity** | **Stroke** | **Weight** | 16 | 20 | 25 | 28 | 32 | 40 | 50 | 63.5 |
| 100kN | 150mm | 15kg | ✔ | | | | | | | |
| 140kN | 150mm | 15kg | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 300kN | 50mm | 21kg | ✔ | ✔ | ✔ | ✔ | | | | |
| 300kN | 150mm | 36kg | | ✔ | ✔ | ✔ | | | | |
| 600kN | 50mm | 37kg | | | ✔ | ✔ | ✔ | ✔ | | |
| 1100kN | 50mm | 46kg | | | | | ✔ | ✔ | ✔ | ✔ |
| 1500kN | 180mm | 50kg | | | | | | | ✔ | ✔ |
| 2000kN | 250mm | 180kg | | | | | | | | ✔ |

# Stressing Dimensions

| Nominal Diameter | Steel Grade | Dim. A | Dim. B | |
|---|---|---|---|---|
| **mm** | **N/mm²** | **mm** | **mm** | |
| 16 | 500/600 | 40 | 45 | |
| 20 | 500/600 | 45 | 55 | |
| 25 | 500/600 | 50 | 60 | |
| 28 | 500/600 | 55 | 65 | |
| 32 | 500/600 | 60 | 70 | |
| 40 | 500/600 | 70 | 80 | |
| 50 | 500/600 | 85 | 100 | |
| 63.5 | 555/700 | 115 | 130 | |




Dimension **B** is the minimum threadbar projection required for stressing.

GEWI® May 2009

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