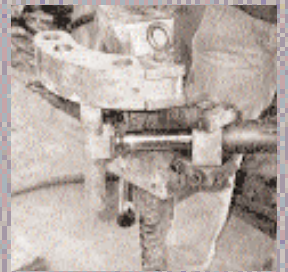
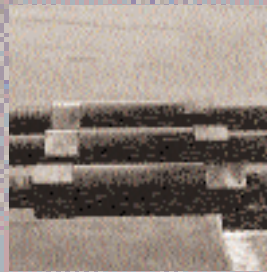
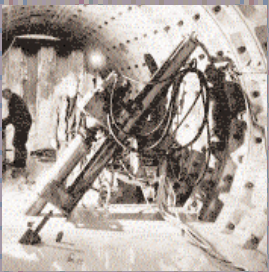




Macalloy 500  
Reinforcing Bar



# Macalloy 500 specification

## Mechanical Properties

Bar diameters	Minimum ultimate tensile strength	Characteristic minimum yield strength	Minimum elongation	Youngs modulus
mm	N/mm <sup>2</sup>	N/mm <sup>2</sup>	%	kN/mm <sup>2</sup>
20 – 50	550	500	12	205
63	710	565	10	205
75	700	500	10	205

## Properties

Macalloy 500 bar is a high yield reinforcing steel, with hot rolled deformations specially designed to form a thread along the entire length of the bar. All bars up to 50mm are CARES approved to the Macalloy 500 specification. Bar diameters up to 40mm are also approved by CARES to the performance requirements of BS 4449.

Macalloy 500 has been developed to offer a competitive, economical alternative to standard rebar in any application where threaded joints with couplers or nuts are required. For example:

- Reinforced concrete
- Ground Engineering

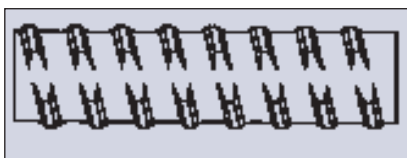
## Bar lengths

The Macalloy 500 bar is available in standard lengths of 12m. Longer lengths are available as a special order. For more information contact our Sales Department.

## Quality assurance

The bar and fittings are manufactured under a quality assurance system complying with BS EN ISO 9002.

## Threads



**No additional threading operations are required**

Macalloy 500 bar is threaded along its entire length and can be trimmed on site as necessary. The thread form is a hot rolled intermittent thread of coarse pitch, except 63mm and 75mm, which is a continuous cold rolled thread.

This gives a threaded bar which is:

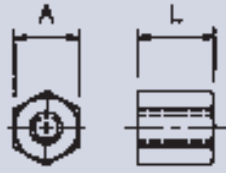
- Robust
- Self-cleaning
- Easily assembled on site

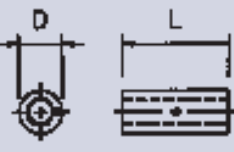
## Welding of Macalloy 500

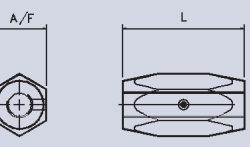
These bars can be welded using techniques appropriate to steel having a carbon equivalent of 0.51% maximum for diameters 20 - 50mm and 0.69% maximum for 63mm and 75mm diameter bars.

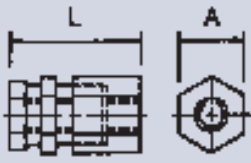
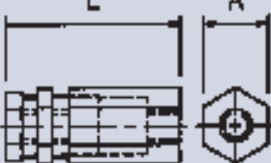
Nominal diameter	Maximum major diameter	Cross sectional area	Mass per metre	Thread pitch	Minimum failing load	Characteristic yield load
mm	mm	mm <sup>2</sup>	kg/m	mm	kN	kN
20	21.7	314	2.47	8	173	157
25	27	491	3.85	10	270	246
28	30.1	616	4.83	11	339	308
32	34.6	804	6.31	12.5	442	402
40	42.9	1256	9.87	16	691	628
50	53.1	1963	15.4	20	1080	981
63	67.4	3117	24.5	8	2217	1758
75	78.8	4417	34.7	8	3000	2130

# Macalloy 500 accessories

Flat nut	Diameter	20	25	28	32	40	50	63	75
	Ref. No.	M5N20	M5N25	M5N28	M5N32	M5N40	M5N50	M5N63	M5N75
	Length (L) mm	40	50	55	63	80	100	70	90
	Across (A) mm Flats	36	41	46	50	60	80	105	125

Machined Coupler†	Diameter	20	25	28	32	40	50	63	75
	Ref. No.	M5C20	M5C25	M5C28	M5C32	M5C40	M5C50	M5C63	M5C75
	Length (L) mm	80	100	110	125	160	200	145	175
	Outside (D) mm Diameter	34	42	45	52	64	80	105	102

Cast Coupler‡	Diameter	20	25	28	32	40	50
	Ref. No.	M5C20/C	M5C25/C	M5C28/C	M5C32/C	M5C40/C	M5C50/C
	Length (L) mm	72	90	100	112	144	180
	Across Flats (AF) mm	34	40	45	53	64	80

Short Turnbuckle (25mm Adjustment)*	Long Turnbuckle (100mm Adjustment)*
	
* These and other special fittings are available. For details, contact our Sales Department	

† All couplers are available with and without central pinstops. e.g. Reference M5PC20/C is a 20mm dia. cast coupler with pinstop. M5C20/C is a 20mm dia. cast coupler without pinstop.

**Coupled joints:** All bar diameters up to and including 50mm can be coupled to produce a full tension joint which complies with all the requirements of BS8110. To achieve this requirement, machined couplers MUST be used and all joints MUST be torqued. For full torque settings please refer to the table below.

## Torquing of bars and nuts

If the minimum elongation requirements of BS8110 are specified then the bars and nuts should be torqued in accordance with tables 1 and 2.

Manual and hydraulic torque wrenches specifically designed for use with the Macalloy 500 system are available upon request for torquing of Macalloy 500 bars and nuts.

**Table 1**

Torques required for bars butting bar to bar, using a coupler.

Bar diameter (mm)	Torque (Nm)
20	400
25	700
28	950
32	1500
40	3000
50	N/A

**Table 2**

Torques required for Macalloy 500 bars jointed using couplers and lock nuts.

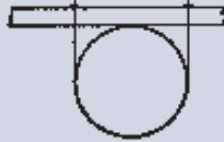
Bar diameter (mm)	Torque (Nm)
20	300
25	550
28	750
32	1300
40	3000
50	9000

# Applications of Macalloy 500

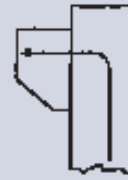
## Possible Applications



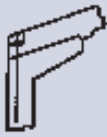
Shuttering or building ties



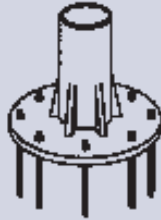
Pipe supports - U bolts



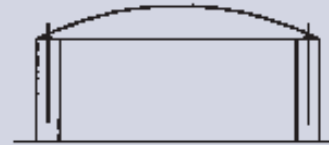
Tying on brackets or other connections



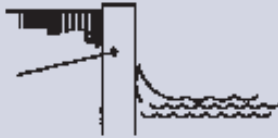
Joining precast units



Holding down bolts



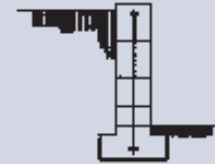
Anchoring container vessel roofs etc against pressure tests



Anchoring sheet pile or other wharves to strong points

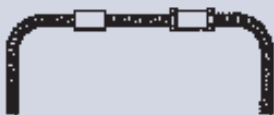


Rock bolts, soil nails, ground anchors and micropile reinforcement



Stressing vertically precast block walls to give resistance to horizontal pressure

## Reinforcing Bar Coupling Applications



Connection bars and couplers for fixed bar applications



Connection details for extension bars



Coupler turnbuckle arrangement for connecting two fixed bars



This publication provides the technical details currently used by McCalls Special Products Ltd in the manufacture of its components. The company reserves the right

to amend technical details as and where necessary in line with its policy of continuous development.

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