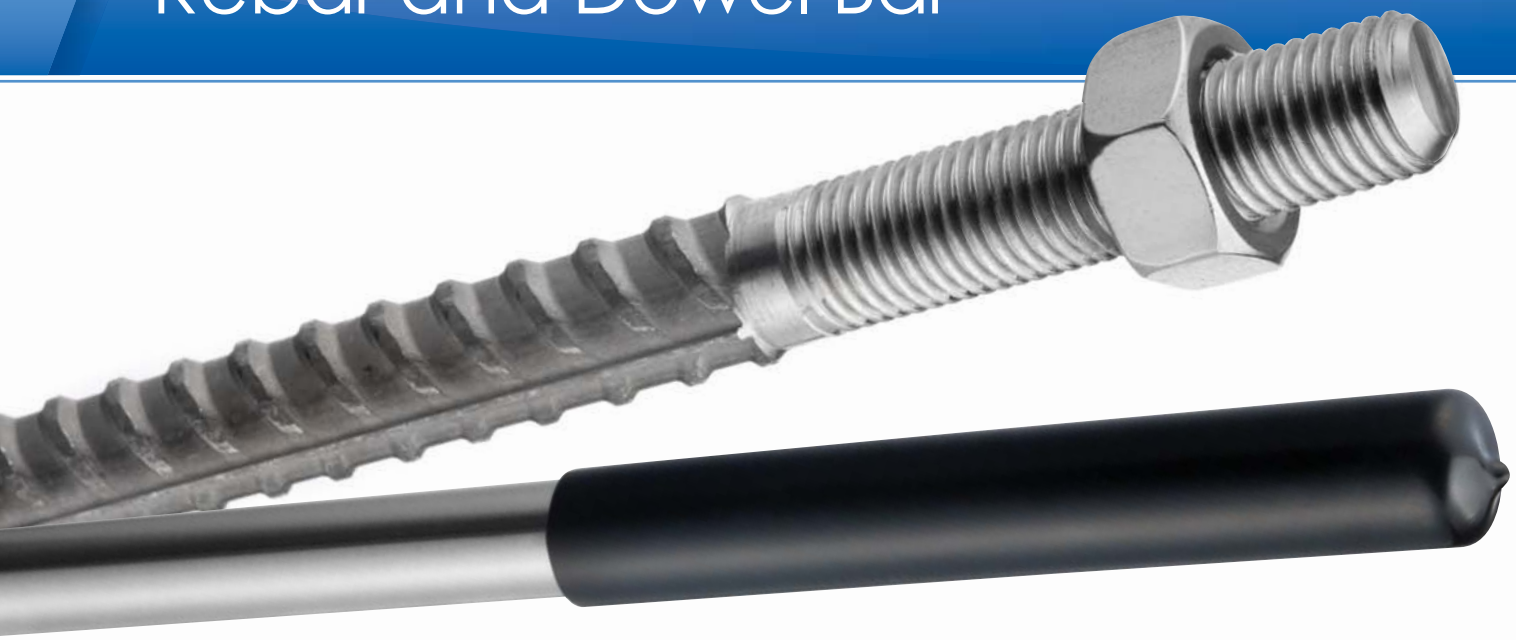
Stainless UK Ltd

Stainless Steel for Civil Engineering & Geotechnical

Rebar and Dowel Bar



Stainless steel rebar and dowel bar manufactured in accordance with BS 6744 supplied cut and bent in accordance with BS 8666.

With the ever increasing concerns regarding structural corrosion, lifetime costing and with the advent of the Highways guidance document for the use of stainless steel bars on road and bridge structures, a secure supply of stainless steel is required.

Benefits

- Supplied in up to 12 metre lengths
- Can be cut, bent or threaded to order
- Excellent corrosion resistance
- Low life cycle cost
- High ductility and strength
- Resistant to seismic loading
- CARES approved rebar supplier
- Low magnetic permeability

Applications

- Reinforcing concrete
- Precast
- Bridge decks
- Marine structures
- Water retaining structures
- Holding down bolts

Selecting the correct Rebar and Dowel bar grades

New Grades for Stainless Steel Ribbed Bar BS 6744:2001+A2:2009

In March 2009 British Standards issued an amendment to BS 6744. The revised Standard included two new Grades of Duplex Stainless Steel. These new Grades have the same mechanical performance as existing Grades but have lower Nickel and Molybdenham contents to offer greater price stability. The corrosion resistance of the new grades 1.4162 and 1.4362 are equivalent to Grades 304 and 316 respectively. The table below shows where BS 6744 recommends different Grades of Stainless Steel can be used.

Guidance on the use of stainless steel reinforcement for different service conditions

Grades of Rebar and Dowel Bar readily available within BS 6744							
Grades in accordance with BS EN 10088-1	Readily Available: Rebar	Readily Available: Dowel bar	For structures or components with either a long design life, or which are inaccessible for future maintenance	For structures or components exposed to chloride contamination with no relaxation in durability design (e.g. concrete cover or water proofing treatment requirements)	Reinforcement bridging joints, or penetrating the concrete surface and also subject to chloride contamination (e.g dowel bars or holding down bolts)	Structures subject to chloride contamination where reductions in normal durability requirements are proposed (e.g. reduced cover, concrete quality or omission of water proofing treatment)	Key:
1.4301 (304)	✓	✓	1	1	5	3	1 Appropriate choice for corrosion resistance and cost
1.4162 (New Grade)	✓		1	1	5	3	2 Over specification of corrosion resistance for the application
1.4436 (316)	✓		2	2	1	1	3 May be suitable in some instances: specialist advice should be obtained
1.4429			2	2	1	1	
1.4362 (New Grade)	✓		2	2	1	1	4 Grades suitable for specialist applications which should only be specified after consultation with corrosion specialists
1.4462 F51			2	2	1	1	
1.4529			4	4	4	4	
1.4501 F55			4	4	4	4	5 Unsuitable for the application
Grades used for Dowel Bar which are not listed in BS6744 but commonly used							
1.4307 (304L)		✓	1	1	5	3	
1.4401 (316)		✓	2	2	1	1	
1.4404 (316L)		✓	2	2	1	1	

Dowel Bars

Dowel bars are cast or drilled into concrete and used to transfer loads across joints. In applications where movement is expected, the dowel bar is debonded on one side of the joint. Stainless steel dowel bars can be supplied in strength grades 200, 500 and 650 as specified in BS6744.

Rebar

Rebar is generally used for the reinforcement of concrete, it can be supplied cut and bent to BS8666 and threaded to BS3643. Please see back page for bending schedule.

Threaded Ends

Stainless UK can also supply bar with threaded ends for fixing applications to suit customer requirements. The ends are threaded with ISO metric threads to BS 3643.

Rebar Couplers

Manufactured to meet the minimum strength of threaded Rebar.

	Bar		Coupler	
Bar Dia (mm)	Thread Size	Thread Length (mm)	Diameter (mm)	Length (mm)
12	M 12	17	18	37
16	M 16	21	25	45
20	M 20	25	30	53
24	M 24	30	33	63
32	M 30	37.5	42	81
40	M 39	50	60	107

Rebar and Dowel Bar sizes and strengths

Rebar is generally supplied with a minimum 0.2% proof of 500N/mm², a UTS of 550 N/mm² and Elongation of 14%. 650 N/mm² proof can be produced to order or see Grip Rib/Grip Bar Data Sheet for equivalents.

Dowel bar is generally supplied with a 0.2% proof of 250 N/mm2 and a UTS of 500N/mm². Higher proof strength of 500 N/mm² and 650 N/mm² are available.

Rebar 500 proof 550 UTS

Unthreaded					Threaded		
Ref	Kg/m	Cross Section Area (mm²)	Ultimate tensile load kN	Proof load 0.2% N/mm kN	Metric threaded size	Ultimate tensile load kN	Proof load 0.2% N/mm kN
RB 5	0.155	19.6	10	9			
RB 6	0.224	28.3	15	14	M6	12	11
RB 8	0.397	50.3	27	25	M8	21	17
RB 10	0.620	78.5	43	39	M10	34	31
RB 12	0.893	113.1	62	56	M12	50	45
RB 16	1.589	201.1	110	100	M16	91	82
RB 20	2.482	314.2	172	157	M20	143	130
RB 25	3.878	490.9	269	245	M24	207	188
RB 32	6.353	804.2	442	402	M30	327	296
RB 40	9.927	1256.6	691	628	M39	570	517
RB 50	15.512	1963.5	1079	981	M48	859	777

Dowel bar 250 proof 500 UTS

Unthreaded			
Ref	Kg/m	Ultimate tensile load kN	Proof load 0.2% N/mm kN
DB 5	0.154	9.5	4.7
DB 6	0.222	14	7
DB 8	0.395	25	12
DB 10	0.617	39	19
DB 12	0.888	56	28
DB 16	1.578	100	50
DB 20	2.466	157	78
DB 25	3.853	245	122
DB 32	6.313	402	201
DB 40	9.865	618	314
DB 50	15.41	981	490

System Accessories

Bar is available with full strength couplers, load nuts, lock nuts, and standard plates, however plates and end connections can be manufactured to meet individual contract requirements.

1. Dowel Bar Sleeves

Plastic debonding sleeves for use in dowelled movement joints.

2. Expansion Dowel Cap

Rigid PVC caps with compressable filter to allow for expansion.

3. Safety End Caps

Plastic protection caps for exposed bar ends.

4. Double Loop Ties

Stainless steel double loop ties and wire binder tool.

5. Tying Wire

Stainless steel tying wire. 1.2mm diameter in a range of coil sizes.

6. Mesh

Mesh is manufactured with tolerances within BS8666. Material is within BS6744. Please see Welded Mesh Data Sheet for full range.

7. Pattress Plates

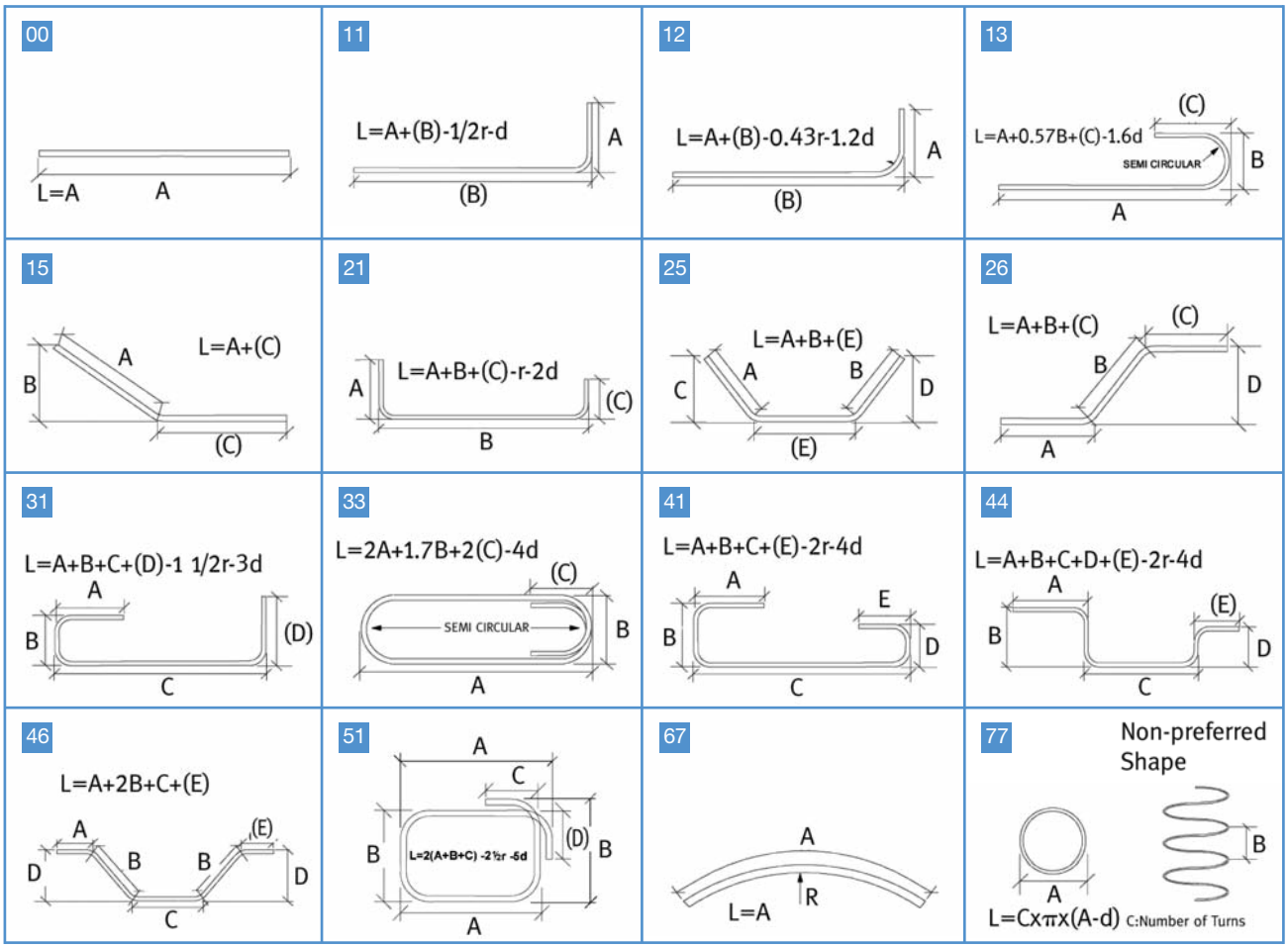
Available in ductile iron or fabricated to customers specific requirements. Please see Pattress Plates Data sheet.

8. Stainless Plate Washer

Manufactured either flat which can take up to 8 degree misalignments or dished to suit up to 45 degree misalignment. Can be supplied with a hemi nut or washer to suit.

Shape Codes

The following table shows the shape codes for the current standard : BS8666
Shape and total length of bar (L) measured along centre line.



99 All shapes where standard shapes cannot be used.

A dimensioned sketch to be drawn over the dimension columns A - E. Total length to be calculated.

BS8666 specifies minimum radius (r) and minimum end dimension (A) as follows:

Bar Dia (mm)	6	8	10	12	16	20	25	32	40
Min radius (r)	12	16	20	24	32	70	87	112	140
Min. end dimension (A)	110	115	120	125	130	190	240	305	380

MADE IN SHEFFIELD

BSSA

Stainless UK Ltd

Stainless UK Limited
Newhall Road Works / Sheffield / S9 2QL / United Kingdom
T: +44 (0)114 244 1333
F: +44 (0)114 244 1444
E. sales@stainless-uk.co.uk