BRITISH STEEL

Steel products for cold heading applications

High performance wire rod for fasteners and fixings

Technical datasheet

WIRE ROD

We produce a wide range of cold heading wire rod grades for processing into bolts, screws, pins, rivets, studs, tie rods and an extensive range of other fasteners and fixings.

These high-performance components fulfil demanding applications across the automotive, construction and engineering sectors. Steel grades used for these applications are boron, low carbon aluminium killed and alloy steels.

Boron steels

Boron steels offer enhanced formability, with low susceptibility to head bursts, enabling them to be processed into more complex fastener shapes. They offer excellent hardenability and consistent performance during cold forming and subsequent heat treatments.

Low carbon aluminium killed steels

Offering enhanced ductility, formability and strength, low-carbon aluminium-killed steels are suitable for the full range of cold-heading applications.

Alloy steels

We supply low alloy heat-treatable wire rod products with controlled hardenability as specified by national and international specifications and suited to customer requirements.

Close compositional control and quality manufacturing procedures ensure within cast variability is kept to very low levels. This delivers long-term product performance through consistent heat treatment response.

Rigorous testing for quality assurance

The quality of our products is assured by rigorous testing procedures conducted in well-equipped laboratories to verify stringent criteria such as surface quality, dimensional control, hardenability and mechanical properties. Our products meet the required standards for the most challenging and safety-critical applications.

Technical support from our specialists

Our team of experienced metallurgists provides dedicated technical support to our customers, including selection of the most appropriate steel grade and size, detailed metallurgical analysis to solve specific processing problems, and the development of new and more advanced grades of steel for increasingly demanding applications.

Wire rod dimensions

Rod diameter	5.5 - 17.0mm in 0.5mm increments
Coil weight	1,800 - 2,200kg
Coil length	1,400 - 1,650mm
Coil dimensions	Outside diameter: 1,250mm max Inside diameter: 850mm min

Note: Coil weight and length are dependent on rod diameter and grade combination. Specific coil package dimensions to be agreed at time of order placement/enquiry.

Cold heading steel grades

The tables below indicate the typical chemical analysis for our cold heading grades. Other grades e.g. silicon can be considered and are available upon request.

Boron grades

		Typical supplied chemical analysis (ladle) & tensile strength (as-rolled condition)										
Standard	Grade	C	Si	Mn	P	S	Al	Cr	N	Ti	B	UTS (MPa)
EN10263-3	18B2	0.17-0.18	<0.10	0.75-0.80	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	440-500
	22MnB4	0.21-0.22	<0.10	0.93-0.98	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	490-540
	22MnB4+Cr	0.22-0.23	<0.10	0.92-0.97	<0.015	<0.015	0.025-0.040	0.25-0.30	<0.009	0.020-0.040	0.002-0.004	520-580
EN10263-4	17B2	0.17-0.18	<0.10	0.80-0.85	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	440-500
	23B2	0.21-0.22	<0.10	0.83-0.88	<0.015	<0.015	0.025-0.040	0.08-0.13	<0.009	0.020-0.040	0.002-0.004	500-550
	28B2	0.25-0.26	<0.10	0.85-0.90	<0.015	<0.015	0.025-0.040	0.13-0.18	<0.009	0.020-0.040	0.002-0.004	540-600
	33B2	0.34-0.35	<0.10	0.60-0.65	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	520-580
	38B2+Cr	0.37-0.38	<0.10	0.76-0.80	<0.015	<0.015	0.025-0.040	0.20-0.30	<0.009	0.020-0.040	0.002-0.004	620-670
	20MnB4*	0.21-0.22	<0.10	0.90-1.00	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	490-540
	23MnB4*	0.21-0.22	<0.10	0.90-1.00	<0.015	<0.015	0.025-0.040	<0.05	<0.009	0.020-0.040	0.002-0.004	490-540
	30MnB4+Cr	0.29-0.31	<0.10	0.85-0.90	<0.015	<0.015	0.025-0.040	0.15-0.20	<0.009	0.020-0.040	0.002-0.004	560-620

*Grades also available with chromium addition up to 0.3% max to meet customer requirements.

Aluminium killed grades

		Typical supplied chemical analysis (ladle) & tensile strength (as-rolled condition)								
Standard	Grade	C	Si	Mn	P	S	Al	Cr	N	UTS (MPa)
EN10263-2	C4C	0.04-0.05	<0.05	0.33-0.38	<0.015	<0.015	0.030-0.050	<0.05	<0.006	350-390
	C8C	0.06-0.07	<0.05	0.33-0.38	<0.015	<0.015	0.030-0.050	<0.05	<0.006	360-400
	C10C	0.10-0.11	<0.05	0.37-0.42	<0.015	<0.015	0.030-0.050	<0.05	<0.006	380-420
	C15C	0.15-0.16	<0.05	0.50-0.55	<0.015	<0.015	0.030-0.050	<0.05	<0.006	430-470
	C17C	0.18-0.19	<0.05	0.70-0.80	<0.015	<0.015	0.030-0.050	<0.05	<0.006	470-520
	C20C	0.19-0.21	<0.05	0.75-0.85	<0.015	<0.015	0.030-0.050	<0.05	<0.006	485-535
EN10263-3	C10E2C	0.10-0.11	<0.05	0.37-0.42	<0.015	<0.015	0.030-0.050	<0.05	<0.006	380-420
	C15E2C	0.15-0.16	<0.05	0.50-0.55	<0.015	<0.015	0.030-0.050	<0.05	<0.006	430-470
	C17E2C	0.18-0.19	<0.05	0.70-0.80	<0.015	<0.015	0.030-0.050	<0.05	<0.006	470-520

Alloyed grades

		Typical supplied chemical analysis (ladle) & tensile strength (as-rolled condition)								
Standard	Grade	C	Si	Mn	P	S	Al	Cr	Mo	B
EN10263-4	37Cr4	0.34-0.41	<0.10	0.60-0.90	<0.025	<0.025	0.020-0.060	0.90-1.20	–	–
	41Cr4	0.38-0.45	<0.10	0.60-0.90	<0.025	<0.025	0.020-0.060	0.90-1.20	–	–
	34CrMo4	0.30-0.37	<0.10	0.60-0.90	<0.025	<0.025	0.020-0.060	0.90-1.20	0.15-0.30	–
	30MoB1	0.28-0.32	<0.30	0.80-1.00	<0.025	<0.025	0.020-0.060	0.20-0.30	0.08-0.12	0.002-0.005

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