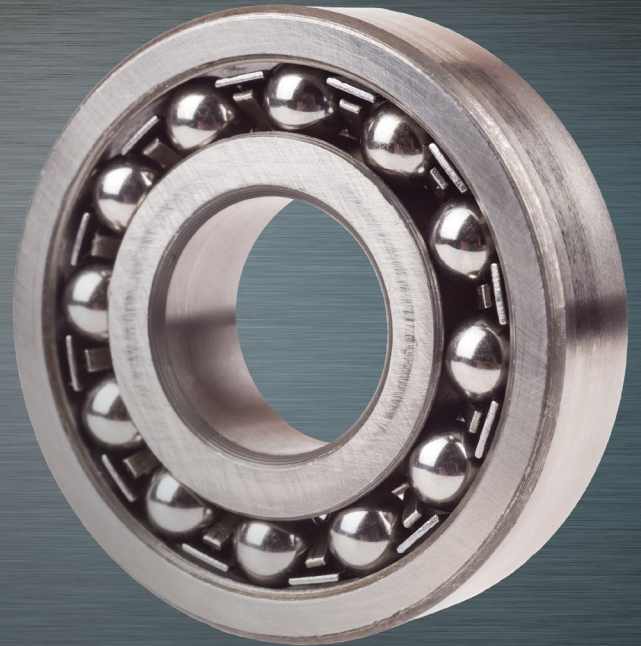


Bearings demand clean, fatigue-resistant wire rod and wire with consistent properties to ensure reliable long life.



**British Steel supplies a wide range of bearing wire rod and wire grades for processing into balls, rollers, needles and axles.**

As a specialist in bearing steel, we supply the majority of our wire in the spheroidised annealed and/or drawn condition. Our state-of-the-art bell annealing furnaces achieve a 100% spheroidised microstructure with an optimum carbide distribution, ensuring our wire rod is not only ductile and machinable but also wear-resistant.

#### Optimised steel sourcing

Depending on the application, the steel we use for bearing products is sourced from different steelmaking routes. The principal grade used for bearing applications is 100Cr6.

Steel for highly demanding bearing applications is produced through the ingot route. The steel is melted in an electric arc furnace (EAF) using selected scrap and is vacuum degassed for cleaner steel. This process ensures a high reduction of area from ingot to wire, leading to a homogeneous structure, minimal segregation and high cleanliness, which is suitable for the most demanding bearing applications e.g. wheel hub bearings.

For applications such as standard balls, rollers and axles, continuous bloom cast bearing steels are available from both EAF and basic oxygen steelmaking (BOS) with secondary metallurgy and vacuum degassing.

#### Rigorous testing for quality assurance

The quality of our products is assured by rigorous laboratory testing procedures to verify stringent criteria e.g. surface quality, dimensional control, hardenability and mechanical properties. Our products meet the required standards for the most challenging and safety-critical applications.

#### Global reach: local supply

We have wire rod manufacturing facilities in the UK and the Netherlands, supplying premium products around the world, supported by an international network of regional sales teams, so our global customers receive local service.

#### 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 and detailed metallurgical analysis to solve specific processing problems.

#### Wire rod dimensions

<b>Rod diameter</b>	5.5 - 30.0mm in 0.5mm increments
<b>Coil weight</b>	1,800kg
<b>Coil length</b>	1,000 - 1,300mm
<b>Coil dimensions</b>	Outside diameter: 1,300mm max Inside diameter: 800mm min

#### Drawn wire dimensions

<b>Wire diameter</b>	1.8 - 29.0mm
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**Note:** Coil size, weight and length are dependent on final size and execution and are available on request. See our Wire Processing Centre datasheet for further information.

## Bearing steel grades

The table below indicates the chemical composition for the principal grade for bearing applications 100Cr6 (material number 1.3505, SAE 52100, JIS SUJ2, DIN EN ISO 683-17, ASTM A295). Other specific element requirements can be provided, subject to a minimum order quantity.

### 100Cr6 grade

Typical supplied chemical analysis (ladle) & tensile strength (when spheroidise annealed)													
Grade	C	Si	Mn	P	S*	Al	Cr	Mo	Ti	Ni	Cu	O	UTS (MPa)
100Cr6	0.93 - 1.05	0.15 - 0.35	0.25 - 0.45	<0.025	<0.008	<0.050	1.35 - 1.60	<0.010	<0.0030	<0.25	<0.30	<0.0009	<680

\*Resulphurised analyses (S range 0.015 - 0.030%) can also be provided.

## Hardening grades

In addition to 100Cr6, we also supply through hardening and case hardening steel grades for bearing applications.

### Through hardening grades

Grade	Material number	C	Si	Mn	Cr	Ni	Mo	O
100CrMn6	1.3520	0.93-1.05	0.40-0.70	1.00-1.20	1.40-1.65	<0.30	<0.10	<15 ppm
100CrMo7	1.3537	0.93-1.05	0.20-0.40	0.25-0.45	1.65-1.95	<0.30	0.15-0.25	<15 ppm

### Case hardening grades

Grade	Material number	C	Si	Mn	Cr	Ni	Mo	O
20NiCrMo7		0.17-0.22	0.20-0.40	0.45-0.65	0.40-0.60	1.60-2.00	0.20-0.30	<15 ppm
17MnCr5		0.15-0.20	0.15-0.40	1.00-1.40	0.40-0.80	0.20-0.50	0.10-0.20	<15 ppm
20NiCrMo2	1.6522	0.17-0.23	0.15-0.30	0.70-0.90	0.40-0.60	0.40-0.70	0.15-0.30	<15 ppm

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