

Carbon Steel Bright Bar M1030 Grade Data Sheet

Grade M1030

Grade M1030 carbon bar is a merchant grade plain carbon steel product containing nominally 0.30% carbon. M1030 is supplied based on it meeting specified chemical composition requirements only.

Related Specifications

Bar in grade M1030 is supplied in accordance with the requirements of AS1443 Grade M1030.

Chemical Composition (%)

C	Si	Mn	P	S
0.25 - 0.35	≤ 0.35	0.30 - 0.90	≤ 0.050	≤ 0.050

Conditions of Supply – Typical Mechanical Properties

M1030 is not guaranteed to meet any specified minimum mechanical properties and the values in the table below reflect typical properties only. These values reflect grade D4 (AS1443) for cold drawn sections and grade T4 (AS1443) for turned and polished sections. Brinell Hardness (HB) limits are not specified in AS1443.

Condition	Diameter (mm)	Tensile Strength (MPa)	Yield Stress (MPa)	Elongation (% in 50mm)	Hardness (HB)
Cold Drawn	Up to 16mm inclusive	560 min	440 min	10 min	164 min
	>16mm to 38mm inclusive	540 min	430 min	11 min	160 min
	>38mm to 100mm inclusive	520 min	410 min	12 min	154 min
Hot Finished or Turned and Polished	All sizes to 260mm	500 min	250 min	20 min	147 min

M1030 can be supplied as D4 or T4 (or equivalent) with guaranteed mechanical properties as above on special order requests.

Conditions of Supply – Finish, Dimensions and Tolerances

Surface Finish

Bright round bar up to 63.5mm diameter is all cold drawn. Bright round bars of 63.5-100mm diameter are cold drawn or smooth-turned and polished. Bright round bars over 100mm diameter are all smooth-turned and polished. All hexagonal bar and all square bar is cold drawn. Flat bar is cold drawn and supplied sharp-edged. As rolled (black) bars available upon enquiry.

Diameter and A/F Tolerances

Round Bar: Drawn h10; Smooth-turned and polished h11 or h10; Ground h8.

Square Bar, Hexagon Bar & Flat Bar: h11.

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Straightness – Maximum Deviation from a Straight Line

Rolled Bar: 1 in 500mm.

Square Bar, Hexagon Bar & Flat Bar: 1 in 375mm.

Other tolerances may be supplied for more critical applications upon enquiry.

Length Tolerances

Mill lengths (3.5 to 6.0m): ± 250 mm max.

Set lengths (3.0 to 7.0m): -0/+40mm max., tolerance is possible subject to enquiry.

Heat Treatment

The following temperature ranges are applicable for the respective heat treatment operations.

Annealing	Normalising	Quenching	Quenching Medium	Tempering
850 - 900°C	870 - 920°C	850 - 890°C	Water or Brine	550 - 660°C

The tempering temperature range in the table refers to tempering after quenching. For tempering after a blank carburising process a temperature range of 150-250°C is appropriate.

Surface Hardening

M1030 is not a dedicated case-hardening steel, nor is it a dedicated through hardening steel. If Carbon content is below 0.30% (check test certificate) it may be case hardened by the blank carburising process, though this procedure is not generally recommended. If Carbon is above 0.30% (check test certificate) M1030 may be quenched and tempered although only a limited and shallow (up to 5mm from surface) hardening response will be achieved.

Welding

M1030 can be welded by all conventional welding processes, MIG, TIG, MMAW etc. Pre- and Post-heating may be required as part of the welding process so as to avoid cracking, particularly in heavier sectional sizes.

Applications of Grade M1030

Grade M1030 is used in general engineering applications. It offers an improvement in tensile strength and yield strength as compared to grade M1020 (when equivalent sectional sizes and metallurgical condition are compared). Applications such as fasteners of various types, engineering applications where strength is not the major consideration (shaft, threaded bar) and a grade is required that can be welded.

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Possible Alternative Grades

Grade	Why it might be chosen instead of M1030
M1020	Where a lower tensile and yield strength grade is acceptable. Pre-and Post-heating can not be used but would be required if M1030 is used.
1214	Where lower strength is acceptable, and welding and /or bending are not required. Substantial improvement in machinability required over that offered by either grades M1030 or M1020.
1045	Further increase in strength required above that of M1030 and the lower ductility and toughness of 1045 can be tolerated. Pre-and Post-heat recommended as part of the welding procedure if grade 1045 is used and it is to be welded.

Limitation of Liability

The information contained in this Atlas Steels Carbon Steel Bright Bar M1030 Grade Data Sheet document is not an exhaustive statement of all relevant information. It is a general guide for customers to the products and services available from Atlas Steels and no representation is made or warranty given in relation to this information or the products or processes it describes.