

STEEL



LIBERTY

AISI 4130

A low alloy Chromium
Molybdenum (CrMo) steel

It has lower carbon level than 4140 giving improved weldability
and machinability

It is widely used in oil field applications

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Scope

The specification defines the requirements for AISI 4130 hot rolled CrMo bars hardened and tempered to meet 75ksi minimum yield, 22HRC maximum, in line with NACE MR0175.

Structure

Grain size will be ASTM 6 or finer.

Steel manufacture

Steel is manufactured via Electric Arc Furnace, followed by Ladle Refining and Vacuum Degassing and is either Ingot Cast or Continually Cast.

General delivery conditions

- Applicable bar diameters: 3-12".
- Surface conditions: Black/Peeled/Smooth Turned.
- Straightness: 1mm in 500mm, 1/8 in 5".
- Enhanced straightness may be available on request.

Chemical analysis

| C | Cr | Mn | Mo | P | S | Si |
|------|------|------|------|-------|-------|------|
| 0.28 | 0.80 | 0.40 | 0.15 | - | - | 0.15 |
| 0.33 | 1.10 | 0.60 | 0.25 | 0.035 | 0.040 | 0.35 |

Machining tolerances

For 'Machining Quality Bar' to ASTM A29 Tolerances the minimum machining allowance should be as follows:

| Ordered Surface condition | Minimum stock removal |
|---------------------------|-----------------------|
| Peeled/Smooth Turned | 1 % per side |

Mechanical properties

| | 75ksi Variant 3-12" (mid radial) | |
|--------------------------|-------------------------------------|-------------|
| | Minimum | Maximum |
| 0.2 % Proof stress (ksi) | 75 | |
| UTS (ksi) | 95 | |
| % Elongation | 18 | |
| % reduction of area | 35 | |
| Hardness HRC | 18 | 22 |
| Hardness HBW | 217 | 237 |
| | Average | Min. Single |
| CVN @ -60°C (J) | 27 | 20 |
| CVN @ -75°C (J) | 19 | |
| CVN @ 23°C (J) | 100 | 80 |

Properties achieved using QTC procedure set out in API 6-A

Reduction ratio

Reduction ratio will meet 4:1 as a minimum.

Structure

Grain size will be ASTM 5 or finer.

API 6A

Each bar length will be 100% ultrasonically tested per ASTM A388, with acceptance criteria in accordance with API 6A PSL 3&4.

Note: Above a rolled size 11.25" the central 20% of the bar will be excluded from ultrasonic testing.

Technical Support

We have a comprehensive technical support team available to advise on grade selection and product range to achieve the maximum benefit. Customer Technical Support provide specialist advice and help with day-to-day problem solving.

Works based metallurgists and the full resources of our Steel Research and Development Laboratories are available to assist with longer-term developments.

For further information, enquiries or any technical guidance on our range of Oil & Gas products please contact the Commercial Department at the address below.

LIBERTY SPECIALITY STEELS

7 Fox Valley Way, Stocksbridge,
Sheffield, S36 2JA, United Kingdom

T: + 44 (0) 114 288 2361
E: contactus@specialityuk.com

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