



## Bright Bars

We specialise in the processing and supply of stainless steel round bars in various Martensitic and Ferritic (also known as the '400 series' or 'Chromium') grades. The grades most commonly produced by us are as follows:

### Martensitic

1. AISI 410 | DIN 1.4006 | X12Cr13
2. AISI 416 | DIN 1.4005 | X12CrS13
3. AISI 420 | DIN 1.4021 | X20Cr13
4. AISI 431 | DIN 1.4057 | X17CrNi16-2

### Ferritic

1. AISI 430 | DIN 1.4016 | X6Cr13
2. AISI 430F | DIN 1.4104 | X14CrMoS17

We offer both **Bright Bars** and **Hot-Rolled (Black)** Bars in the above mentioned grades across a wide diameter range from **9mm - 160mm**.

Specifications—Bright Bars		
Supply Condition	Dia Range	Dia Tol
H/T or Annealed + Peeled + Centreless Ground	9 - 80mm	e8, f8, h8, h9, h11
H/T or Annealed + Peeled + Centreless Ground + Polished *	16 - 40mm	e8, f8, h8, h9
H/T or Annealed + Peeled (Rough Turned)	20 -155mm	K12/13 (Plus Tol.)

\* Can be offered with Ra value up to 0.4 (max)

Specifications—Hot Rolled (Black) Bars		
Supply Condition	Dia Range	Dia Tol
H/T or Annealed + Straightened	12 - 160mm	N/A

**Chemical Composition of Martensitic and Ferritic Grades**  
Standard: EN 10088-3

Grade	C (max)	Si (max)	Mn (max)	P (max)	S (max)	Cr	Ni (max)	Mo (max)
1.4006	0.08-0.15	1.00	1.50	0.04	0.03	11.50-13.50	0.75	-
1.4021	0.15 (min)	1.00	1.50	0.04	0.03	12.00-14.00	-	-
1.4005	0.08-0.15	1.00	1.50	0.04	0.15-0.35	12.00-14.00	-	0.60
1.4016	0.08	1.00	1.00	0.04	0.03	16.00-18.00	-	-
1.4104	0.10-0.17	1.00	1.50	0.04	0.15-0.35	15.50-17.50	-	0.20-0.60
1.4057	0.12-0.22	1.00	1.50	0.04	0.03	15.00-17.00	1.50-2.50	-

Standard: ASTM

Grade	C (max)	Si (max)	Mn (max)	P (max)	S (max)	Cr	Ni (max)	Mo (max)
AISI 410	0.08-0.15	1.00	1.00	0.04	0.03	11.50-13.50	-	-
AISI 420	0.15 (min)	1.00	1.50	0.04	0.03	12.00-14.00	-	-
AISI 416	0.15	1.00	1.50	0.04	0.15-0.35	12.00-14.00	-	-
AISI 430	0.12	1.00	1.00	0.04	0.03	16.00-18.00	-	-
AISI 430F	0.12	1.00	1.25	0.06	0.15 (min)	16.00-18.00	0.75	-
AISI 431	0.22	1.00	1.00	0.04	0.03	15.00-17.00	1.25-2.50	-

**Mechanical Properties of Martensitic and Ferritic Grades**  
Standard: EN 10088-3

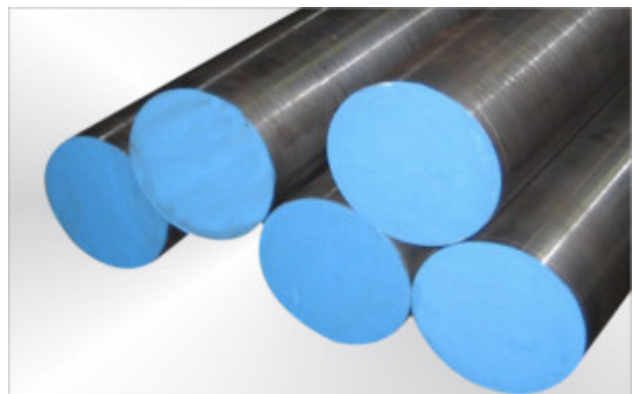
Grade	Tensile Strength N/mm <sup>2</sup>	Yield N/mm <sup>2</sup> (min)	Elongation % (min)	Hardness BHN (max)
1.4006 A	730 (max)	-	-	220
1.4006 QT 650	650 - 850	450	15	-
1.4021 A	760 (max)	-	-	230
1.4021 QT 700	650 - 850	450	15	-
1.4021 QT 800	800 - 950	600	12	-
1.4005 A	730 (max)	-	-	220
1.4005 QT 650	650 - 850	450	12	-
1.4104 A	730 (max)	-	-	220
1.4057 A	950 (max)	-	-	220
1.4057 QT 800	800 - 950	600	14 (up to 60mm) 12 (60 - 160mm)	295
1.4057 QT 900	850 - 900	700	14 (up to 60mm) 10 (60 - 160mm)	-

Standard: ASTM A 276

Grade	Tensile Strength N/mm <sup>2</sup>	Yield N/mm <sup>2</sup> (min)	Elongation % (min)	Reduction % (min)	Hardness BHN (max)
AISI 410 A	480	275	20	45	-
AISI 410 T	690	550	15	45	-
AISI 420 A Hot Finished	-	-	-	-	241
AISI 420 A Cold Finished	-	450	-	-	255
AISI 431 A Hot/Cold Finished	800 - 950	600	-	-	255 - 285

Standard: ASTM A 479

Grade	Tensile Strength N/mm <sup>2</sup>	Yield N/mm <sup>2</sup> (min)	Elongation % (min)	Reduction % (min)	Hardness BHN (max)
AISI 410 A	485	275	20	45	223
AISI 410 T cond. II	760	585	15	45	223 - 269
AISI 431 A	-	-	-	-	277
AISI 431 T	795	620	15	45	277



## **Annealing**

Annealing is carried out to soften the steel for improved machinability and to relieve internal stresses induced by previous operations such as rolling, forging, etc.

## **Pre straightening**

Straightening of the raw material before the peeling process ensures accurate peeling. If the raw material is not found to be of the desired standards, it is not allowed to pass onto the next stage.

## **Peeling**

At this stage, the straightened raw material passes through the peeling machine to be peeled, as per the required size, by a cutter made out of tungsten carbide. The rotary motion of the cutter ensures accurate and even peeling of the raw material.

## **Post Straightening**

The material is now re-straightened to make it ready for precise centre-less grinding.

## **Centreless Grinding**

The straightened peeled bars are accurately ground within tight specified tolerances.

## **Cut to Length**

The finished ground bars are cut according to the customer's requirement using horizontal band saw machines.

## **Inspection**

The finished material is checked for:

1. Straightness
2. Surface defect
3. Packing standard
4. Mechanical properties
5. Size
6. Tolerance
7. Length of bar
8. NDT for surface cracks
9. Out roundness

A well equipped laboratory with up-to-date equipment ensures quality at every step. All procedures are documented to ensure correctness in testing and product certification.