

## First Choice for the Pump Industry

Material datasheet for **1.4006** | **S41000** | **X12Cr13** | **AISI 410**

1.4006 is a **stainless martensitic** steel that exhibits good mechanical properties and good corrosion resistance in moderately aggressive media. A smoothed (polished) and residue-free surface is required to achieve optimum corrosion resistance.

This material is particularly frequently used in the manufacture of pumps and in hydraulic engineering. However, it is also used for decorative purposes and cutlery.

### WELDING

1.4006 can be easily welded with all standard processes, although resistance welding is only possible to a limited extent. The steel should be pre-heated to 200-300 °C prior to welding, and be heat treated at 650 °C afterwards.

Due to the expected coarse grain formation in the heat-affected zone, the least possible welding energy should be applied in the welding operation. The use of nitrogenous and hydrogenous gas should be avoided in the welding operation, as brittleness can occur due to the high rigidity.



### ROUND BAR STEEL

#### AVAILABLE DIMENSIONS

30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 200, 210, 220, 230, 240, 250 mm



#### APPLICATIONS

- Pump industry
- Mechanical engineering
- Hydraulic engineering
- Decorative purposes and kitchen fittings
- Oil industry / petrochemical industrial
- Food industry
- Cutlery

#### MACHINING

Machining directly depends on the hardness and rigidity. Its hardness is similar to that of conventional structural steel.using carbide tools.

MECHANICAL PROPERTIES UNDER HIGH TEMPERATURES

Tensile strength value	Delivery state	Temperature °C				
		100	200	300	400	500
Rp0.2	+QT650	≥420	≥400	≥365	≥305	-

MECHANICAL PROPERTIES AT ROOM TEMPERATURE

Stated values apply to bar steel up to 160 mm max.  
(EN 10088-3)

<b>Heat treatment condition:</b> +QT650	<b>Elongation at fracture A5 (%):</b> longitudinal: min. 15
<b>Yield strength Rp0.2 (N/mm²):</b> at least 450	<b>Notch-impact strength (ISO-V) J:</b> longitudinal: min. 25
<b>Tensile strength Rm (N/mm²):</b> 650 - 850	

CHEMICAL ANALYSIS

Chem. element	1.4006	
	min.	max.
C	0.08	0.15
Si	-	1.0
Mn	-	1.5
P	-	0.04
S	-	0.03
Cr	11.5	13.5
Ni	-	0.75

HEAT TREATMENT

<b>Solution annealing:</b> 745 - 825 °C	<b>Cooling:</b> Air or water
<b>Hot forming:</b> 800 - 1100 °C	<b>Tempering:</b> 680 - 780 °C
<b>Hardening:</b> 950 - 1000 °C	

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INOX INTELLIGENCE.

**Note:** All information regarding material properties, recommendations for use of the material, and available delivery configurations have been carefully researched, and is provided according to the best of our knowledge. However, no guarantee is made for the information provided. In the case of orders, all information and data must always be agreed in a separate written agreement.