



STAPPERT

XM-19

First choice for Hydrogen applications

Information on material **XM-19** | **Nitronic 50®** / **UNS S20910**

The material XM-19 is a high-strength austenitic steel with a high nitrogen content. Compared to the standard austenites 1.4301 (AISI 304) and 1.4404 (AISI 316L), the yield strength is almost twice as high and the corrosion resistance is significantly higher.

The combination of very high yield strength along with significantly higher corrosive properties can only be found in this group of materials.

This material is also characterised by very high resistance to abrasion, erosion and cavitation erosion. XM-19 is highly resistant to chloride and sulphide stress cracking.

The material is antimagnetic, even after further processing such as cold forming.

WELDING

XM-19 can be welded well for all standard welding processes. If filler material is required, then materials 1.3954 and 1.3984 are often used.

AVAILABLE DIMENSIONS

Round bar steel:

30, 40, 60, 70, 80, 100, 120, 140, 160, 180 and 200 mm



APPLICATIONS

- Applications for the hydrogen sector
- Oil and gas industry
- Ship pumps, valves, fittings, moorings
- Food technology
- Process industry
- Paper and pulp industry

MACHINING

Processing the XM-19 is not easy. Chip control is difficult, high cutting forces are required and tool wear is significant. It is therefore advisable to use special cutting tools.

MECHANICAL CHARACTERISTICS AT ROOM TEMPERATURES

Stated values apply to steel bars (ASTM A479)

Heat treatment condition:

Solution annealed

Yield strength Rp0,2 (N/mm²):

min. 380

Tensile strength Rm (N/mm²):

min 690

Elongation at break 4D (%):

min. 35

HEAT TREATMENT

Hot forming:

1150 -950 °C /

Cooling: Air

Solution annealing:

1090 °C /

Cooling: Water

CHEMICAL ANALYSIS

(ASTM A479)

chemical element	XM-19	
	min.	max.
C	-	0.06
Si	-	1.0
Mn	4.0	6.0
P	-	0.045
S	-	0.030
Cr	20.5	23.5
Ni	11.5	13.5
Mo	1.5	3.0
N	0.20	0.40
Nb	-	0.20
V	0.10	0.30

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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.