

## ASTM A182 Grade F6NM (NACE MR-0175/ISO 15156 modified\*)

**Grade:** ASTM A182 Grade F6NM Stainless Steel (UNS S 41500, ASTM A182/A276 – chemistry only)

**Type:** Typically supplied in the solution annealed and double tempered condition (23 HRC maximum)

Nominal Composition	
Element	Weight %
Carbon	0.05 max
Silicon	0.6 max
Manganese	0.5 – 1.00
Phosphorus	0.30 max
Sulphur	0.30 max
Molybdenum	0.5 – 1.0
Chromium	11.5 – 14.0
Nickel	3.5 – 5.5

### Notes

F6NM is a martensitic grade of stainless steel. The nickel and molybdenum content give the material high strength and excellent sub-zero impact properties.

The grade has improved weldability (may need post weld heat treatment for sour service) compared to other martensitic grades and has enhanced corrosion resistance. It has basic pitting and crevice corrosion resistance.

The material has good cracking resistance due to its air hardening nature.

\*Other non-NACE strength levels are available.

### Mechanical Properties Condition

Solution annealed followed by quenching and double tempering

Property	Values
Ultimate Tensile Strength *	95 min Ksi (655 MPa)
0.2 % Yield Strength *	75 min Ksi (517 MPa)
Elongation *	17 % min
Reduction of Area *	35 % min
Charpy Impact Toughness	42 average / 34 min J at -60° C
Hardness	23 HRC

The grade is typically used for pressure containing applications such as valve bodies or pipework, also used for valve gates and stems.