



# AMS 5629 (13/8 PH VAR)

# DATA SHEET

## PRECIPITATION HARDENING STAINLESS STEEL BAR

### TYPICAL APPLICATIONS

Ideal for applications where very high strength and toughness are required. This alloy is also used when good general / stress corrosion cracking resistance and minimal property directionality are needed. Applications include aircraft structural parts, landing gear components, shafts, valves, fittings and fasteners. Also used for components in the petrochemical industry.

### PRODUCT DESCRIPTION

13/8 PH VAR is in a family of martensitic precipitation hardening stainless steel along with 17/4 PH and 15/5 PH. It is produced as a consumable electrode, vacuum arc remelted product offering excellent transverse toughness and ductility even in large section. High strength is developed by a simple low-temperature heat treatment. The various 'H' conditions in the table below indicate the property combination achieved by heat treatment at the temperature shown in degrees F. Due to the chemical composition and controlled melting practise, 13/8 VAR has an essentially ferrite-free microstructure. This material has a typical density of 7.8kg/dm<sup>3</sup>.

### RELATED SPECIFICATIONS

ASTM SA-564 Type XM - 13  
UNS S13800

### STOCK RANGE

Round Bar : 5/16" to 4 1/4" Diameter  
(7.94 to 107.95mm)

### CUT TO SIZE SAWN BLANKS

Cut to length in house to tolerances - Nil + 1.0mm

### MACHINABILITY

Average cutting speed 80ft/min. 35-40% average (based on 100% for AISI 1212 steel). Similar to 17/4 PH.

### CORROSION RESISTANCE

Superior to straight chromium grades like 410, approaching corrosion resistance of the chromium nickel grades. In many corrosive media it is equal to such grades as 302. Corrosion resisting properties will be affected by surface finish and aging heat treatment.

### WELDABILITY

Excellent. Readily weldable by all commercial processes.

### PRODUCTION TOLERANCES

Manufacturing limits are as stated in the Table AMS 2241. For further assistance please contact our Sales Dept / Laboratory.

### CHEMICAL COMPOSITION (WEIGHT %)

|     | C    | Mn   | P     | S     | Si   | Cr    | Ni  | Mo   | Al   | N    |
|-----|------|------|-------|-------|------|-------|-----|------|------|------|
| Min |      |      |       |       |      | 12.25 | 7.5 | 2.00 | 0.90 |      |
| Max | 0.05 | 0.10 | 0.010 | 0.008 | 0.10 | 13.25 | 8.5 | 2.50 | 1.35 | 0.01 |

### MECHANICAL PROPERTIES (MINIMA)

| Condition | Tensile Strength (MPa) | 0.2% Proof Stress (MPa) | Elongation on 4D G.L. (%) | Hardness (HRC) |
|-----------|------------------------|-------------------------|---------------------------|----------------|
| H950      | 1,517                  | 1,413                   | 10                        | 45             |
| H1000     | 1,413                  | 1,310                   | 10                        | 43             |
| H1025     | 1,276                  | 1,207                   | 11                        | 41             |
| H1050     | 1,207                  | 1,138                   | 12                        | 40             |
| H1100     | 1,034                  | 931                     | 14                        | 34             |
| H1150     | 931                    | 621                     | 14                        | 30             |

### TECHNICAL SALES ASSISTANCE

Our resident team of qualified metallurgists and engineers will be pleased to assist further on any technical topic.

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