Broder Aerospace

AMS5629

COMMON NAMES:

13-8PH

UNS S13800

FORM & USE:

We stock round bar, solution annealed with H1000 capability results. This material is used for products requiring corrosion resistance, particularly stress-corrosion resistance.

The material has high strength up to 316°C, and good ductility and strength in the transverse direction in large section sizes, although usage is not limited to such applications.

STOCKED SIZES:

Condition A with H1000 capability results: – 12.7 mm dia – 142.4 mm dia

TYPES:

There are two classifications of AMS5629:

Type 1 – where the steel has been multiple melted using vacuum consumable electrode remelting (e.g. VAR) in the final melt cycle.

Type 2 – where the steel has been multiple melted using electroslag remelting (e.g. ESR) in the final melt cycle.

Note: if a Type is not specified, Type 1 is to be supplied.

CLASS:

Classes are defined by the maximum amount of Delta Ferrite content in the material:

Class A – Maximum 0.5% free ferrite

Class B – Maximum 1.0% free ferrite

Class C – Maximum 2.0% free ferrite

Note: if a class is not specified, any class may be supplied

GENERAL:

Material is premium aircraft-quality conforming to AMS2300.

Tolerances conform to applicable requirements of AMS2241.

CHEMISTRY:

C	Mn	Si	P	S	Cr	Ni	Mo	Al	N
<0.05	<0.10	<0.10	<0.010	<0.008	12.25 - 13.25	7.50 - 8.50	2.00 - 2.50	0.90 - 1.35	<0.010

MELT PRACTICE:

multiple melted using vacuum induction practice followed by either vacuum consumable electrode remelting (Type 1) or electroslag remelting (Type 2) in the final melt cycle.

FINISH:

Centreless ground or turned after solution heat treatment.

Bars are not cut from plate.

HEAT TREATMENT:

Solution Treated by heating to 913°C - 941°C, holding for a time commensurate with section thickness and equipment used, followed by cooing to below 16°C.

Pyrometry is in accordance with AMS2750.

Samples are precipitation heat treated to achieve H1000 (aged) condition by heating at 532° C-544°C for 4.0-4.5 hours and cooled in air.

MATERIAL PROPERTIES:

Macrostructure: visually examined (using hot hydrauchloric acid as an etchant) in accordance with ASTM A604. The macrostructure should show no pipe or cracks. Porosity, segregation, inclusions, or other imperfections for product less than 523 cm^2 in nominal cross-sectional area to be no worse than the following severities as per ASTM A604:

Class	Condition	Severity
1	Freckles	A
2	White Spots	A
3	Radial Segregation	A
4	Ring Pattern	B

Porosity, segregation, inclusions, or other imperfections for product greater than 523 cm^2 in nominal cross-sectional area to be no worse than that of product less than 523 cm^2 in nominal cross-sectional area or as agreed.

Microstructure: does not contain more than the free ferrite for the applicable Class. The amount iof free ferrite in the material is as determined according to AMS2315

Tensile Properties:

	Minimum Tensile Strength Ksi	Minimum Yield strength at 0.2% Offset Ksi	Minimum Elongation in 2" or 4d %	Minimum Reduction of Area %	Hardness
Solution Heat Treated	-	-	-	-	<363 HB, determined at 1/4T
As Condition H1000					
Longitudinal direction (up to 63.5 mm dia)	205	190	10	50	-
Transverse direction (63.5 mm – 305 mm diameter)	205	190	10	40	-

A “-“ indicates no requirement for the property.

Grain size: ASTM No. 5 or finer for sizes up to 76.2 mm diameter, or ASTM No. 4 or finer for sizes above 76.2 mm diameter.

Full material traceability, with anti-counterfeit measures, is maintained at all times, and full certification is provided, including producer’s name and country where the material was melted.

For a quotation please telephone ++44 (0)114 232 9243, email sales@broder-aerospace.com or use the quotation page on our website: http://www.broder-aerospace.com