

## Broder Aerospace

### BS 7 S80:2002 – S80D

#### COMMON NAMES:

431S29 Stainless

UNS S43100

AMS 5628

#### FORM & USE:

S80D under the British Aerospace Standard BS 7 S80 is a material with high mechanical properties and good corrosion resistance. It is akin to 431 stainless. The material is magnetic. We stock round bar and the material is supplied in the hardened and tempered condition (S80D).

The material may be welded, except the use of forge or hammer welding not recommended. The material needs to be annealed after welding to reduce the effects of air-hardening.

#### SIZES STOCKED:

19.05 mm diameter – 127 mm diameter

#### GENERAL:

Tolerances are in accordance with BS S100.

#### CONDITION:

Hardened & tempered

#### MELTING:

Air melted by an electric process



#### CHEMISTRY:

C	Mn	Si	P	S	Cr	Ni	Mo	Co	Cu
0.12					15.0	2.0			
-	<1.00	<1.00	<0.030	<0.025	-	-	<0.30	<0.05	<0.30
0.20					18.0	3.0			
Nb	Sn	Ti	V	W	Fe				
<0.05	<0.02	<0.05	<0.20	<0.05	Balance				

#### HEAT TREATMENT:

Hardened and tempering cycles:

1. 1000°C to 1020°C for sufficient time, then oil quenched
2. 640°C to 660°C for sufficient time, then water or oil quenched
3. 620°C to 640°C for sufficient time, then water or oil quenched

**MATERIAL PROPERTIES:**

Tensile Properties:

	Tensile Strength Mpa	Minimum Yield strength at 0.2% Offset MPa	Minimum Elongation in 2" or 4d %	Minimum Reduction of Area %	Hardness
Hardened & Tempered	880 - 1080	690	12	-	255-321 HB

A "-" indicates no requirement for the property.

IZOD Impact test

In accordance with BS 131

< 63 mm dia - >25 ft lbs

>63 mm dia - >15 ft lbs

Macroetch examination

Meets requirements of BS S100 SECTION 1

Non-metallic inclusions

In accordance with ASTM E45

100% Ultrasonic Test

In accordance with AMS-STD-2154 Rev C – Quality Class A

100% Surface Inspection

No reportable surface defects.

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](mailto:sales@broder-aerospace.com) or use the quotation page on our website: <http://www.broder-aerospace.com>