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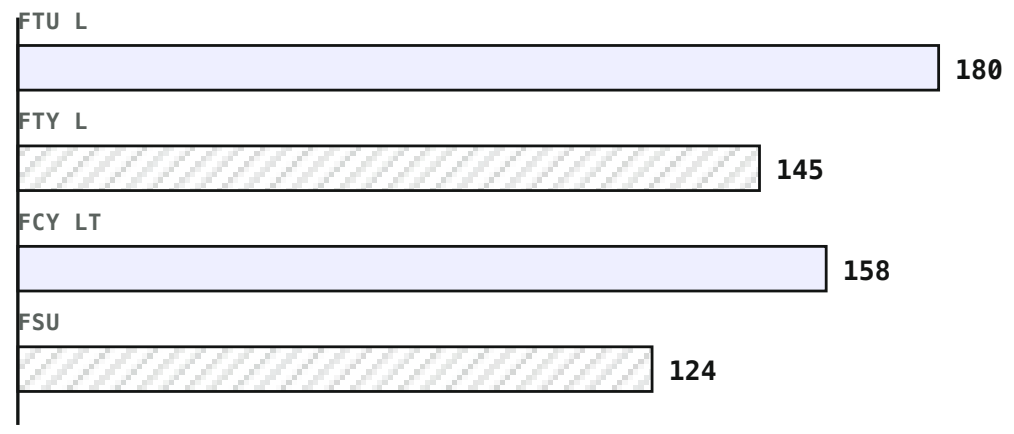
Inconel 718

The precipitation-hardened nickel alloy: 180 ksi sheet, strong to 1,300 °F, welds without strain-age cracking.

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

INCONEL 718

SHEET, SOLUTION TREATED AND AGED, AMS 5596 · KSI



PARTS LIST

#	ITEM	NOTE	SRC
1	Sheet	AMS 5596	HDBK-5J
2	Plate	AMS 5597	HDBK-5J
3	Tubing	AMS 5590	HDBK-5J
4	Drill	135 deg cobalt	AMT HB

READ BEFORE USE

A-BASIS VALUES SHOWN

WELDS WITHOUT STRAIN-AGE CRACKING

SAME DRILL RULES AS 625

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.
3. Based on MIL-HDBK-5J, AC 43.13-1B.

REVISIONS

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

The Aviation Point.	Structural repair reference		
TITLE: Inconel 718			
DRAWING NO.: TAP-DWG-079	REV: A	SCALE: NTS	SHEET: 1 OF 1
APPLIES TO: Aircraft materials			
DO NOT SCALE DRAWING			

Inconel 718: sheet, solution treated and aged, AMS 5596 Values from MIL-HDBK-5J, S basis unless noted.

Key facts

Property	Value	Source
Type	Vacuum-melted, precipitation-hardened nickel-base alloy	MIL-HDBK-5J, par. 6.3.5.0
Composition	Nickel 50–55 %, chromium 17–21 %, niobium 4.75–5.5 %, molybdenum 2.8–3.3 %, titanium 0.65–1.15 %, aluminum 0.2–0.8 %, iron balance	Special Metals, Inconel alloy 718 bulletin, limiting chemical composition
Use range	Creep and stress rupture to 1,300 °F, strength at cryogenic temperature, oxidation resistance to 1,800 °F	MIL-HDBK-5J, par. 6.3.5.0
Welding and forming	Welded easily, excels in resistance to strain-age cracking, readily formable	MIL-HDBK-5J, par. 6.3.5.0
Sheet	AMS 5596 (sheet), 5597 (plate), 5589 (sheet and plate)	MIL-HDBK-5J, Table 6.3.5.0(b)
Tubing	AMS 5590	MIL-HDBK-5J, Table 6.3.5.0(b)

Design allowables — Inconel 718 sheet, solution treated and aged (AMS 5596)

Property	A basis	B basis	Unit
Ftu, L	180	192	ksi
Ftu, LT	180	191	ksi
Fty, L	145	156	ksi
Fty, LT	147	158	ksi
Fcy, LT	158	170	ksi
Fsu	124	132	ksi
Elongation LT (S basis)	12	—	%
E	29.4	29.4	10^3 ksi
Density	0.297	0.297	lb/in³

Key points

- **Heat-treated design values.** They do not apply after welding or hot work without the correct treatment.

Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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- **The engine or airframe manual governs repairs.**

SOURCES · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · FAA-H-8083-31B, Aviation Maintenance Technician Handbook, Airframe, Volume 1 · MMPDS · Special Metals, Inconel alloy 718

SCAN · OPEN THIS GUIDE
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