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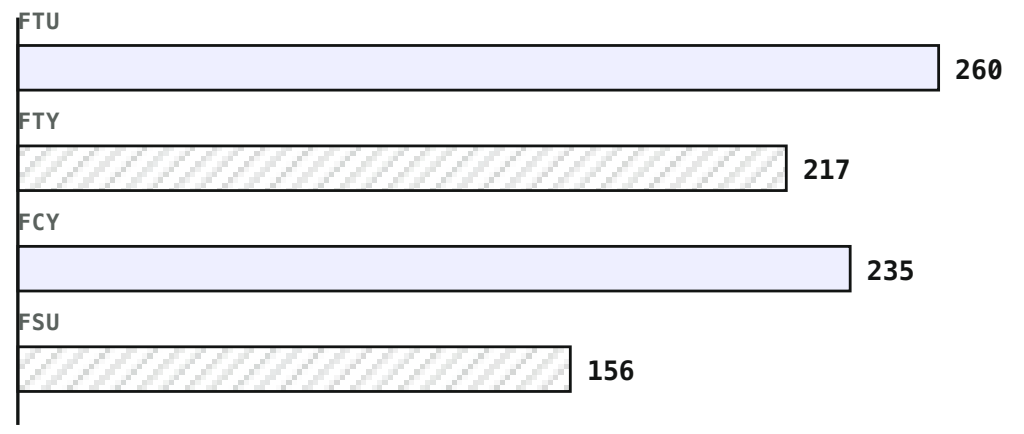
4340 Steel

The deep-hardening high-strength steel for forgings and bars at 260 ksi and up.

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

4340 STEEL

VACUUM-MELTED, QUENCHED AND TEMPERED, AMS 6414 · KSI



PARTS LIST

#	ITEM	NOTE	SRC
1	Bar, forging, tube	AMS 6414	HDBK-5J
2	Sheet, plate	AMS 6454	HDBK-5J
3	Air-melted bar	AMS 6415	HDBK-5J
4	Elongation L	10 %	HDBK-5J

READ BEFORE USE

NO TEMPERING AT 500 TO 700 F

VACUUM-MELTED VALUES ONLY

NO POWER TOOLS ON CORROSION

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			
4340 allowables			
DRAWING NO.: TAP-DWG-065	REV: A	SCALE: NTS	SHEET: 1 OF 1
APPLIES TO: Aircraft materials			

DO NOT SCALE DRAWING

4340 steel: vacuum-melted, quenched and tempered, AMS 6414 Values from MIL-HDBK-5J, S basis unless noted.

Key facts

Property	Value	Source
Composition	Nickel 1.65–2.00 %, chromium 0.70–0.90 %, molybdenum 0.20–0.30 %, carbon about 0.40 %	AZoM AISI 4340 composition table
Against 4140	Heat treated in thicker sections and to higher strength levels	MIL-HDBK-5J, par. 2.3.1.0
Bars, forgings, tubing (consumable electrode melted)	AMS 6414	MIL-HDBK-5J, Table 2.3.1.0(b)
Sheet, strip, plate	AMS 6454 (consumable electrode), AMS 6359 (air melted); neither lists minimum properties	MIL-HDBK-5J, Tables 2.3.1.0(a) and (b)
Bars and forgings (air melted)	AMS-S-5000, AMS 6415	MIL-HDBK-5J, Table 2.3.1.0(a)
Strength levels used	Ftu = 260 ksi or higher; not used at 220 ksi	MIL-HDBK-5J, par. 2.3.1.0
Tempering trap	Embrittlement when tempered in the range 500 to 700 °F	MIL-HDBK-5J, par. 2.3.1.0

Design allowables — AISI 4340, quenched and tempered

Property	S basis	Unit
Ftu	260	ksi
Fty	217	ksi
Fcy	235	ksi
Fsu	156	ksi
Elongation, L (S basis)	10	%
Specification	AMS 6414	—

Key points

- **Vacuum-melted values only.** They do not apply to air-melted material.
- **Not a repair stock.** Replacement of a 4340 part is by part number, not by a bar from a catalog.
- **No welding or hand-sanding advice.** Corrosion and cracks go to engineering.

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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SOURCES · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · FAA AC 43.13-1B CHG 1 · MMPDS · AZoM, AISI 4340 alloy steel

SCAN · OPEN THIS GUIDE
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