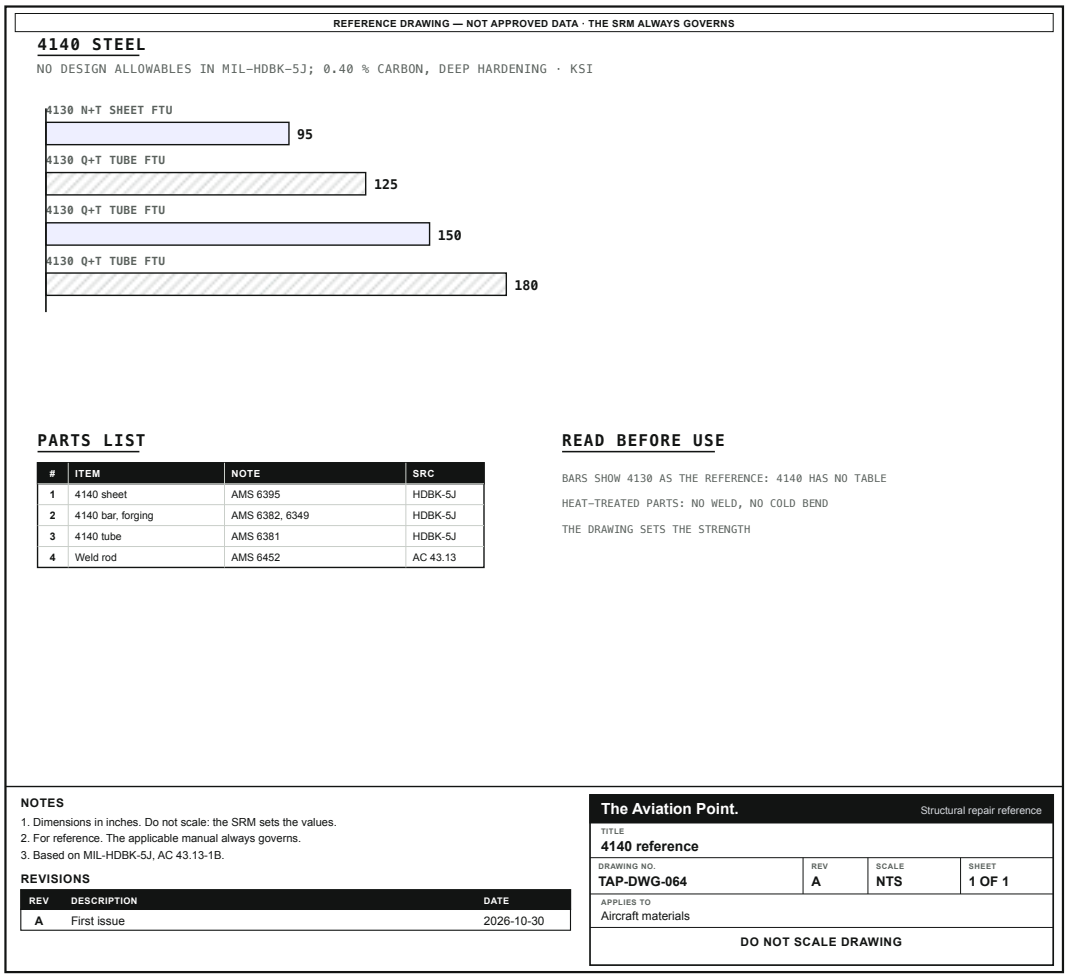
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4140 Steel

4130's heavier cousin: more carbon, so it hardens in thicker sections and reaches higher strength.



4140 steel: no design allowables in MIL-HDBK-5J; 0.40 % carbon, deep hardening Values from MIL-HDBK-5J, S basis unless noted.

Key facts

Property	Value	Source
Composition	Chromium 0.80-1.10 %, molybdenum 0.15-0.25 %, carbon 0.38-0.43 %	AZoM AISI 4140 composition table; the 41 means Cr-Mo steel and 40 about 0.40 % carbon (AMT Handbook, p. 5-16)
Against 4130	Can be heat treated in thicker sections and to higher strength levels than 4130	MIL-HDBK-5J, par. 2.3.1.0
Typical use	Structural machined and forged parts one-half inch and over in thickness	MIL-HDBK-5J, par. 2.3.1.0
Sheet, strip, plate	AMS 6395	MIL-HDBK-5J, Table 2.3.1.0(a)
Bars and forgings	AMS-S-5626, AMS 6382, AMS 6349, AMS 6529	MIL-HDBK-5J, Table 2.3.1.0(a)
Tubing	AMS 6381	MIL-HDBK-5J, Table 2.3.1.0(a)
Alternate	AISI 8740 is listed as the alternate to 4140	MIL-HDBK-5J, par. 2.3.1.0
Welding rod	4140 rod, AMS 6452, AWS A5.28	AC 43.13-1B CHG 1, Table 4-15

Key points

- **No allowables on this page** because the public handbook has none for 4140. Use MMPDS or the drawing.
- **Not a welding recommendation.** TIG weld only with the procedure the SRM or the drawing gives.
- **Not a substitute for 4130 tube.** Different carbon, different weld behaviour.

SOURCES · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · FAA AC 43.13-1B CHG 1 · FAA-H-8083-31B, Aviation Maintenance Technician Handbook, Airframe, Volume 1 · MMPDS · AZoM, AISI 4140 alloy steel

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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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