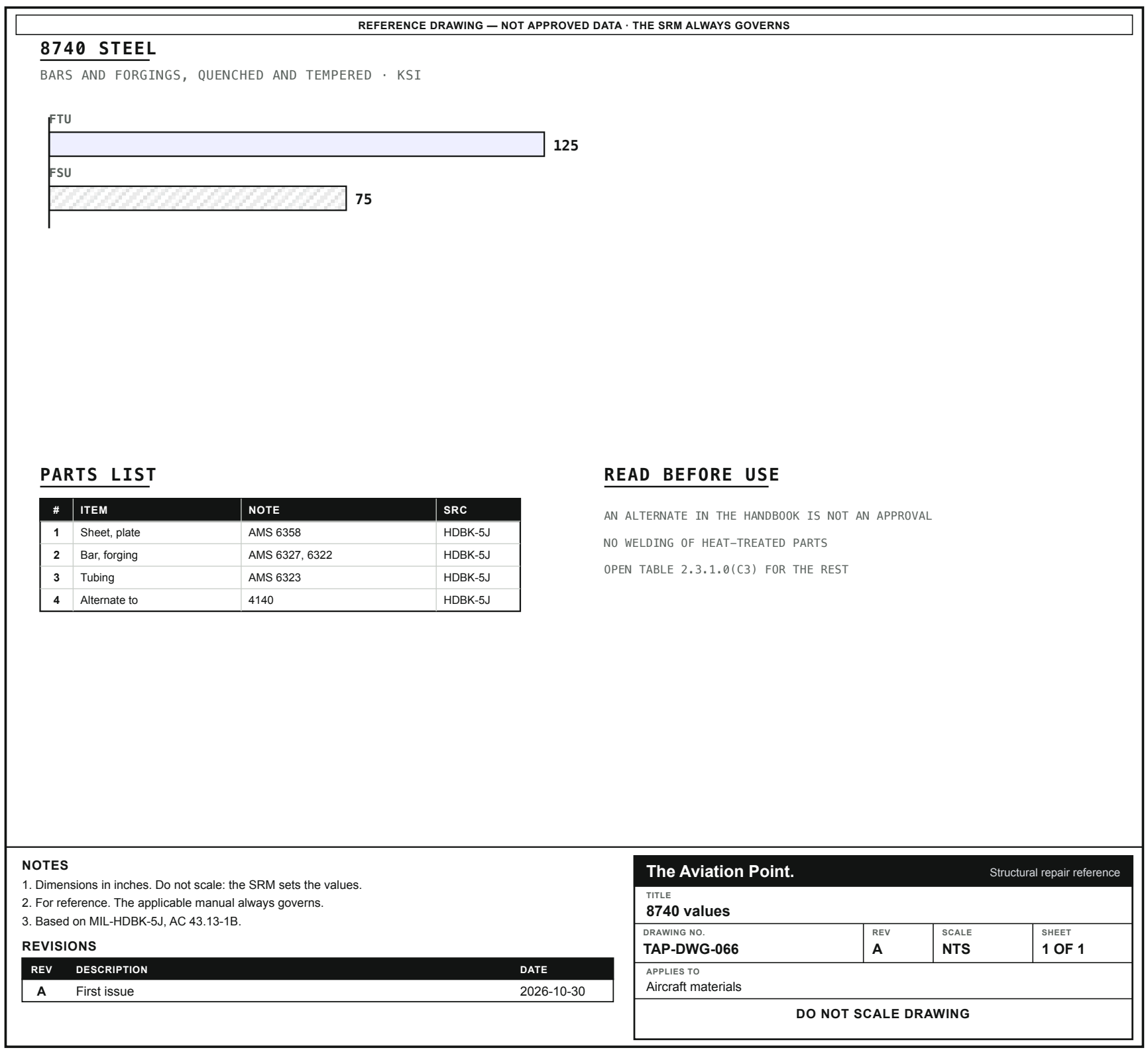
THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM

The Aviation Point

8740 Steel

The nickel-bearing alternate to 4140.



8740 steel: bars and forgings, quenched and tempered Values from MIL-HDBK-5J, S basis unless noted.

Key facts

Property	Value	Source
Composition	Nickel 0.40–0.70 %, chromium 0.40–0.60 %, molybdenum 0.20–0.30 %, carbon about 0.40 %	Metal supplier's AISI 8740 datasheet
Role	AISI 8630, 8735 and 8740 are the alternates to 4130, 4135 and 4140	MIL-HDBK-5J, par. 2.3.1.0
Sheet, strip, plate	AMS 6358	MIL-HDBK-5J, Table 2.3.1.0(a)
Bars and forgings	AMS-S-6049 (noncurrent), AMS 6327, AMS 6322	MIL-HDBK-5J, Table 2.3.1.0(a), (c3)
Tubing	AMS 6323	MIL-HDBK-5J, Table 2.3.1.0(a)
Condition for design values	Quenched and tempered	MIL-HDBK-5J, Table 2.3.1.0(c3)

Design values — AISI 8740 bars and forgings, quenched and tempered

Property	S basis	Unit
Ftu	125	ksi
Fsu	75	ksi
E	29.0	10^3 ksi
G	11.0	10^3 ksi
Density	0.283	lb/in³

Key points

- **Partial table only.** Yield and bearing values are not reproduced here; open Table 2.3.1.0(c3).
- **No welding or bend data** in the public documents.

SOURCES · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · FAA AC 43.13-1B CHG 1 · MMPDS · Metal supplier's AISI 8740 datasheet

SCAN · OPEN THIS GUIDE
theaviationpoint.com/materials/steel/8740/

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