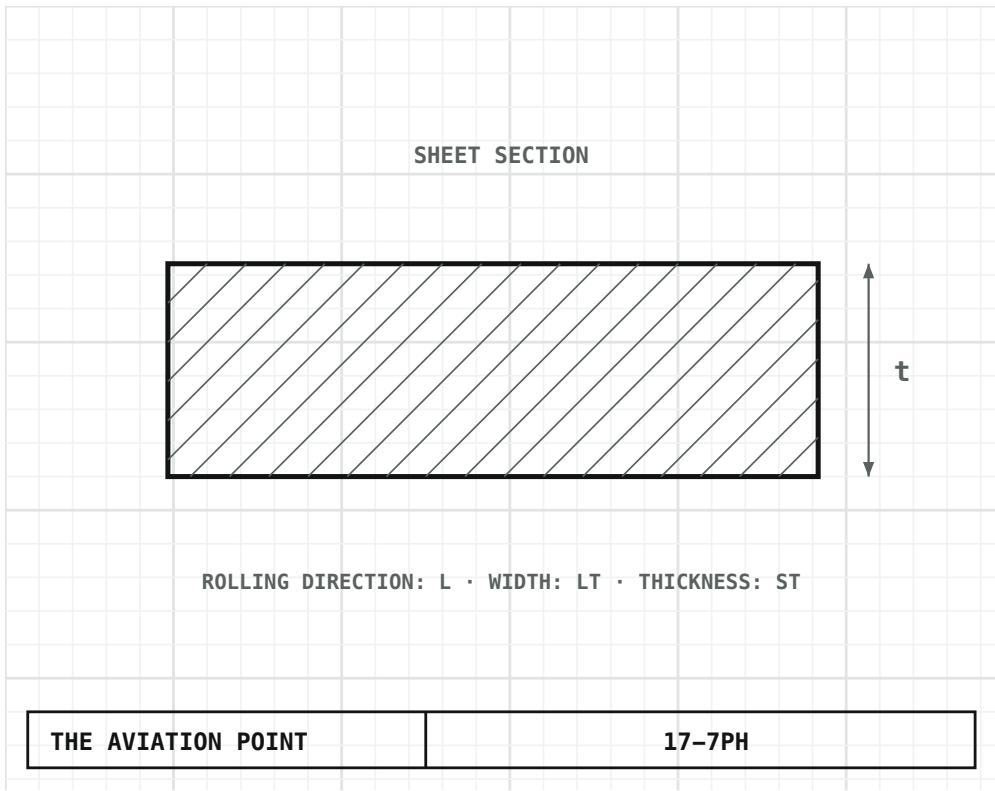
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17-7PH — precipitation-hardening stainless steel

The stainless sheet you form soft and then harden.



Schematic

Designation

Item	Value
Designation	17-7PH
Class	Steel and stainless
Type	precipitation-hardening stainless steel

Composition

Item	Limit	Source
Composition	Chromium 16-18 %, nickel 6.5-7.75 %, aluminum 0.75-1.5 %, carbon up to 0.09 %	Metal supplier's 17-7 PH datasheet, chemical composition (AMS 5528)

Properties

Property	Value	Source
Related grade in the AC table	PH15-7Mo: carbon 0.09, chromium 15, nickel 7, molybdenum and aluminum	AC 43.13-1B CHG 1, Table 4-3
Sheet, plate	AMS 5528, TH1050	MIL-HDBK-5J, Table 2.6.10.0(b)
Service limit	High strength and good corrosion and oxidation resistance up to 600 °F	MIL-HDBK-5J, par. 2.6.10.0
Forming	Supplied in Condition A for ease of forming; readily cold formed	MIL-HDBK-5J, par. 2.6.10.0
Growth in hardening	Net growth 0.0045 in/in from Condition A to TH1050	MIL-HDBK-5J, par. 2.6.10.0

Design allowables — 17-7PH sheet and plate, TH1050 (AMS 5528)

Property	Sheet 0.015-0.187, A basis	Sheet 0.015-0.187, B basis	Plate 0.188-0.500 and 0.501-1.000, S	Unit
Ftu, LT	177	184	180	ksi
Fty, LT	150	167	150	ksi
Fcy, LT	166	185	166 (to 0.500)	ksi
Fsu	112	117	114 (to 0.500)	ksi
Elongation LT (S basis)	—	—	6	%
E	29.0	29.0	29.0	10^3 ksi
Density	0.276	0.276	0.276	lb/in³

Design values come from material austenite conditioned and aged by suppliers; properties of material that has been formed or cold worked may be different. G = 11.5 × 10^3 ksi. MIL-HDBK-5J (2003) is superseded by MMPDS.

Notes

- **Hardening growth 0.0045 in/in** must be planned for.
- **No A-to-service shortcut.**

SOURCES · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · FAA AC 43.13-1B CHG 1 · MMPDS · Metal supplier's 17-7 PH datasheet

SCAN · OPEN THIS DATA SHEET
theaviationpoint.com/parts/materials/17-7ph/

Reference data. The aircraft manufacturer's documentation (SRM / IPC) takes precedence.