

H13

TOOL STEEL

H13 is a high-performance hot work tool steel with excellent thermal fatigue resistance, hardenability, wear resistance, and toughness. It is commonly used in hot and cold work tooling, but is particularly well-suited for hot work applications due to its exceptional properties.

H13 is harder and more abrasion-resistant than most mild and stainless steels, but less hard than other tool steels like D2. Its combination of properties makes it a versatile and reliable choice for a range of applications.

Composition	Weight%	Features & Benefits
Iron	Balance	Resistant to thermal fatigue
Carbon	0.4	Hardenable
Chromium	5.0	Great wear resistance and toughness
Manganese	0.4	Variable properties through heat treatments
Molybdenum	1.2	
Silicon	1.0	
Vanadium	1.0	

*Related standards and denominations: AISI H13, ASTM A681, 1.2344 / X40CrMoV5-1, UNS T20813, JIS G4404 SKD61

Physical Properties	As Sintered	As Annealed	H+T*
Ultimate tensile strength [MPa]	1350	625	1200-1450
Yield strength [MPa]	800	285	1000-1300
Elongation [%]	3	>15	4-10
Hardness [HRC]	40	<20	44-52
Relative density [%]	97	97	97

* H=Hardened, T=Tempered. Final properties vary depending on heat treatment conditions.

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