E STEEL SDN BHD (891338-A)

NO 3, Lorong Sungai Puloh 7/KU 6,
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H13 Tool Steel , 2344, SKD61, 8407

AISI H13 Hot Work Tool Steel air hardening, with good toughness, resistance to abrasion and high red hardness. It resists softening to 550°C and has good resistance to heat checking. Will Nitride with a case hardness over 1000 V.P.N. Generally supplied annealed to HB 230 max.

Typical Applications:
Hot punches and dies for blanking, bending, swaging and forging, hot extrusion dies for aluminium, cores, ejector pins, inserts and nozzles for aluminium, tin and lead die casting.

2344 Tool Steel Chemical Composition

C	Si	Mn	Cr	Mo	Ni	V
0.32 to 0.42	0.8-1.2	≤ 0.50	1.80 to 2.10	0.15 to 0.25	-	0.80-1.20

Common H13 Tool Steel Related Specifications

Country	USA	German	Japan
Standard	ASTM A681	DIN EN ISO 4957	JIS G4404
Grades	H13	1.2344/X40CrMoV5-1	SKD61

AISI H13 Steel Mechanical Properties

Properties	Metric	Imperial
Tensile strength, ultimate (@20°C/68°F, varies with heat treatment)	1200 – 1590 MPa	174000 – 231000 psi
Tensile strength, yield (@20°C/68°F, varies with heat treatment)	1000 – 1380 MPa	145000 – 200000 psi
Reduction of area (@20°C/68°F)	50.00%	50.00%
Modulus of elasticity (@20°C/68°F)	215 GPa	31200 ksi
Poisson's ratio	0.27-0.30	0.27-0.30

Machinability Machinability of H13 is medium to good. It rates as 75% that of the W group water hardening tool steels which are low alloy and of generally good machinability.

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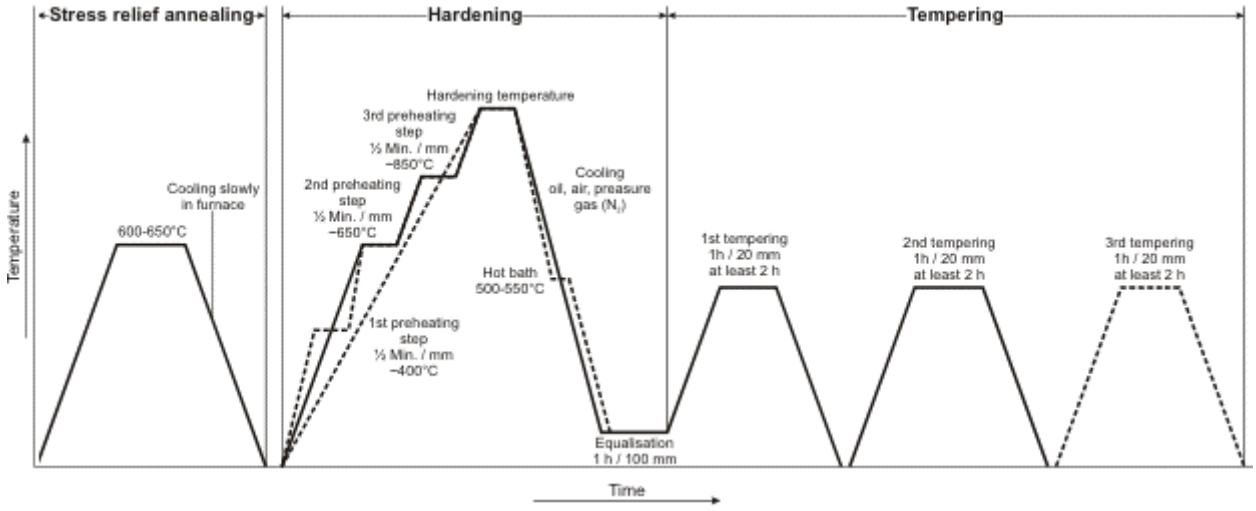
Heat Treatment Preheat to 1500 f and then heat to 1850 F. Hold at 1850 f for 15 to 40 minutes and then air cool (air quench).

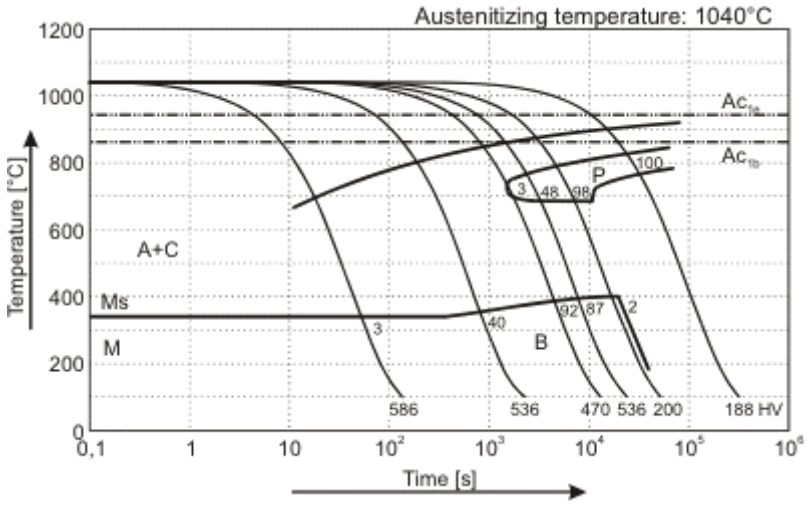
Tempering Temper at 1000 F to 1200 F for Rockwell C of 53 to 38. It is advisable to do a double temper by repeating the process and use 1 hour at temperature each time.

Hardening See "Heat Treating" and "Tempering".

Thermal Cycle Diagram



Continuous Cooling Transformation Diagram (CCT)



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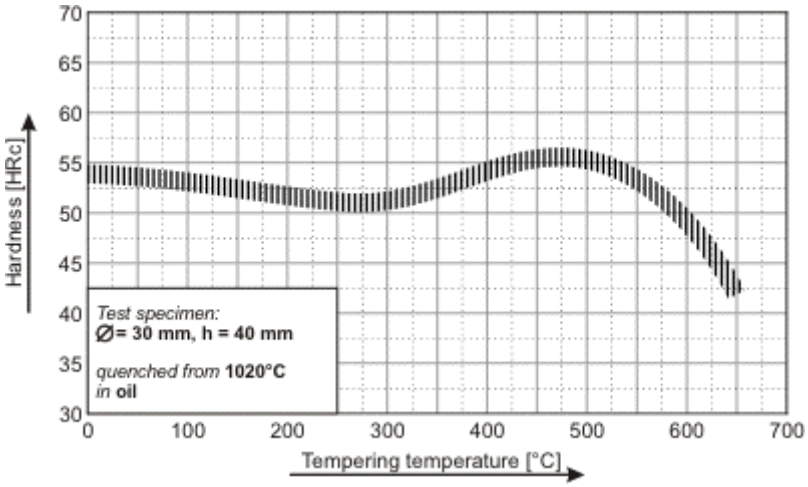
Tempering Diagram



Application of ASSAB 8407 Tool Steel

- **As Tools for Extrusion**

Part	Aluminium, magnesium alloys, HRC	Copper alloys HRC	Stainless steel HRC
Dies, Backers, die-holders, liners, dummy blocks, stems	44-50	43-47	45-50
	41-50	40-48	40-48
Austenitizing temperature	1,870-1,885°F	1,900-1,920°F	
	(1,020-1,030°C)	(1,040-1,050°C)	

- **As Plastic Molding Tool Steel**

Part	Austenitizing temp.	HRC
Injection molds Compression/ transfer molds	1,870-1,885°F (1,020-1,030°C)	50-52
	Tempering 480°F (250°C)	