



# PREMIUM QUALITY H-13

AISI	H13	<u>Si</u>	<u>C</u>	<u>Cr</u>	<u>Mn</u>	<u>V</u>	<u>Mo</u>
WERKSTOFF	1.2344	1.0	0.39	5.3	0.4	0.9	1.3

## Characteristics

**Premium Quality H-13** is a hot work tool steel made using re-melt technology to ensure optimum material properties and polishability. Premium H13 can be used in a variety of applications such as plastic molding, die casting, and hot forming / forging.

**Premium Quality H-13** consistently demonstrates the following characteristics:

- Good resistance to thermal shock and heat checking
- Excellent toughness and ductility
- Superior dimensional stability in heat treatment
- High levels of machinability and polishability

## Applications

**Premium Quality H-13** applications include: die-casting dies, forging dies, die holders, injection molds, compression molds, extrusion tools and numerous parts where ductility and high strength are required.

## Heat Treatment

### Soft Annealing:

Protect the steel and heat through to 1560°F (850°C). Then cool in the furnace at 20°F (10°C) per hour to 1200°F (650°C), then freely in air.

### Stress Relieving:

After rough machining, the tool should be heated through to 1200°F (650°C), holding time 2 hours. Cool slowly to 930°F (500°C), then freely in air.

### Hardening:

Pre-heating temperature: 1110-1560°F (600-850°C), normally in two pre-heating steps.  
Austenitizing temperature: 1870-1920°F (1020-1050°C), normally 1870-1885°F (1020-1030°C).

### Tempering:

Temper a minimum 2 times between 1000-1150°F, 2 hours minimum each temper

## Machining

Use the following guidelines for machining in annealed condition:

Operation	Depth of cut inches	Feed in/tooth	Tool Type Carbide	Cutting Speed fpm
<u>Milling</u>				
Rough Machining	0.08 min	0.008 min	P30-P40 H.S.S.	230-360 65-130
Finish Milling	0.08 max	0.008 max	P10-P20 H.S.S.	295-460 100-165
<u>Turning</u>				
Rough Turning	0.40 min	0.04 min	P30-P40	260-395
Medium Turning	0.08-0.40	0.012-0.04	P20-P30	330-490
Finish Turning	0.08 max	0.012 max	P10	460-690

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