

# 1.2344 (X40CrMoV5-1)

## Material Designation

1.2344 DIN  
H13 AISI

## Standards

DIN EN ISO 4957

## Typical Composition (Mass-%)

C	Si	Mn	Cr	Mo	V
0,4	1,0	0,4	5,0	1,3	0,9

## Properties

1.2344 is a Cr-Mo-V-alloyed hot working steel with high wear resistance as well as good tensile and toughness properties at ambient and elevated temperatures. Also available as remelted grade (ESR) for best toughness properties and micro cleanliness. Excellent machinability in the annealed condition.

## Delivery Condition

- ✘ annealed (+A) max. 229 HBW
- ✘ EFS-annealed (extra fine structure)
- ✘ quenched and tempered (+QT) upon request

## Application Area

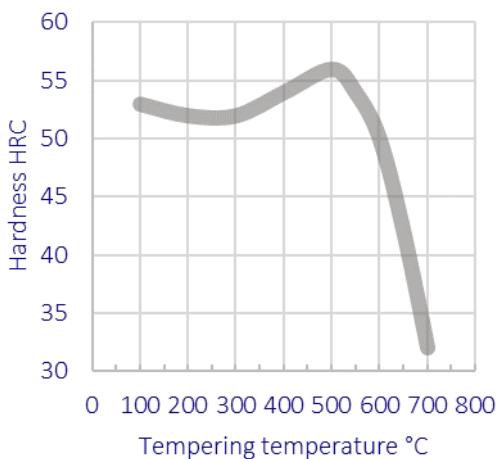
Highly stressed tools for plastic and light alloy processing. Standard grade for tools used in pressure die casting and forging. The ESR grade offers optimized properties for application in e.g. filigree tools.

## Typical Applications

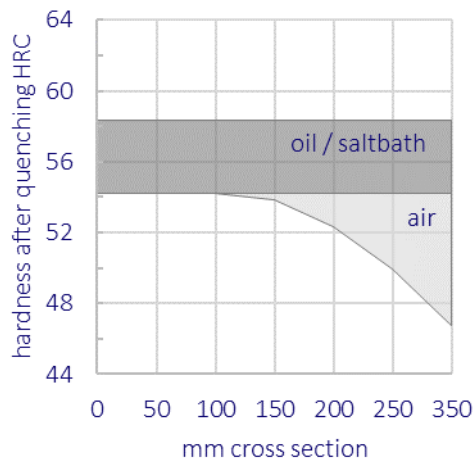
- ✘ Extrusion tools
- ✘ Forging dies
- ✘ Pressure die-casting
- ✘ Press dies
- ✘ Ejector pins

## Heat Treatment Guideline Values

	Temperature [°C]	Cooling medium
Annealing (+A)	800 - 880	Air (furnace)
Quenching and tempering (+QT)	1010 - 1030 (Hardening) Tempering: see graph below	Oil, polymer, saltbath, air Air
Stress relieving (+SR)	Approx. 40 °C below tempering temperature	Air (furnace)



Tempering graph, 1020 °C / oil



Hardenability

## Quality

- ISO 9001
- ISO 14001
- ISO 50001
- Approvals acc. to standards like ABS, BV, DNV ...
- Customer specific approval certificates

## Innovation

- Fully automated ultrasonic testing up to dia. 1000 mm
- CO<sub>2</sub>-reduction by innovative heat treatment solutions

## Flexibility

- Product range from fine wire to forging
- Directly from stock close at hand

## Individuality

- Dimensions
- Tolerances
- Surface qualities
- Delivery conditions

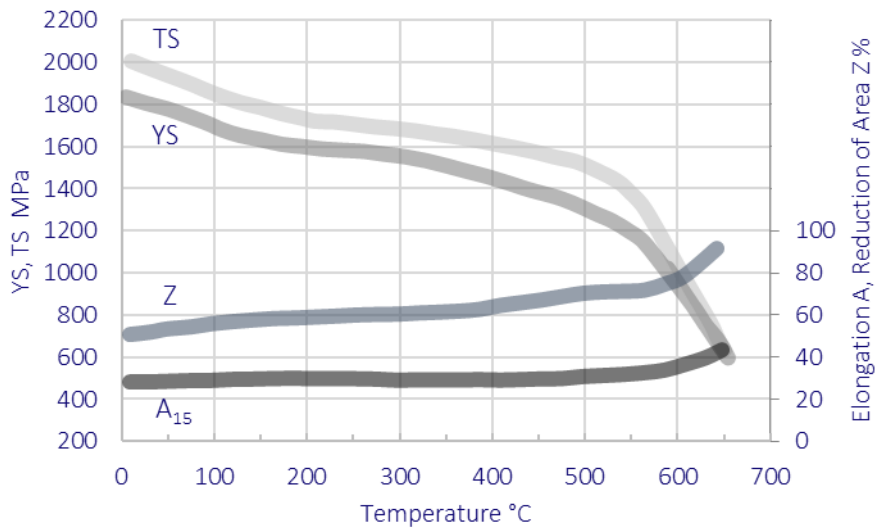
## Your personal contact:

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### Properties at elevated temperatures



Properties at elevated temperatures (heat treatment: 1030 °C / oil / 600 °C / 1h)

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