

# Thermodur

# E 38 K

approx. X35CrMoV5-1

C 0.35 Si 0.30 Mn 0.30 S < 0.003 Cr 5.00 Mo 1.35 V 0.45

### Steel properties

Outstanding high-temperature strength and improved toughness. Excellent thermal conductivity and low susceptibility to hot cracking. May be water-cooled to a limited extent.

### Physical properties

#### Coefficient of thermal expansion

at °C	20 – 100	20 – 200	20 – 300	20 – 400	20 – 500	20 – 600	20 – 700
10 <sup>-6</sup> m/(m • K)	11.8	12,4	12,6	12,7	12,8	12,9	12,9

#### Thermal conductivity

at °C	20	350	700
W/(m • K) Annealed	29.8	30.0	33.4
W/(m • K) Quenched and tempered	26.8	27.3	30.3

### Applications

Hot-work tool steel for universal use, which is particularly suitable for applications involving high flexural stresses due to its outstanding toughness.

- Extrusion tools for light metal processing
- Die casting tools for light metal processing

### Heat treatment

#### Soft annealing °C

740 – 780

#### Cooling

Furnace

#### Hardness HB

max. 200

#### Hardening °C

1000 – 1030

#### Quenching

Oil or  
hot bath, 500 – 550 °C

#### Hardness after quenching HRC

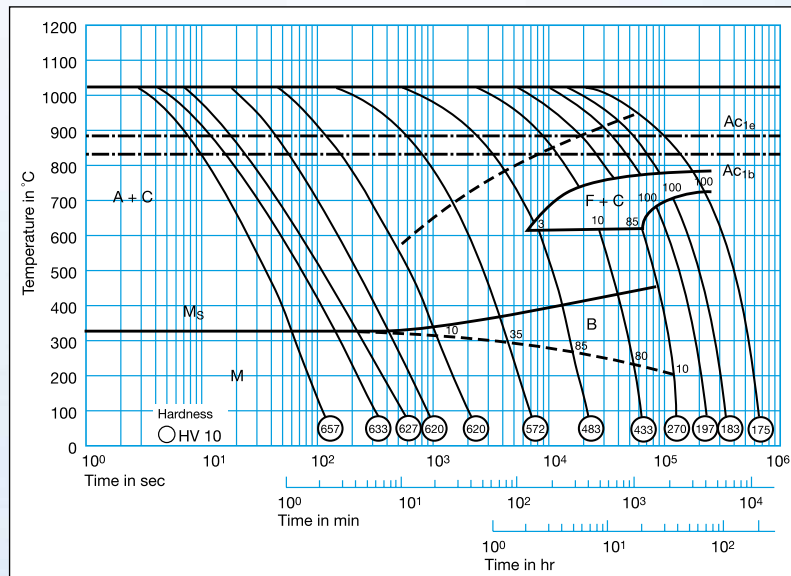
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#### Tempering °C

HRC

100	200	300	400	500	550	600	650
51	51	51	51	52	50	47	34

### Time-temperature-transformation diagram



### Tempering diagram

