

DE - Brand:

## Special Steel

**CPR**

### Chemical composition

(Typical analysis in %)

C	Cr	Mo	V	W			
1,20	12,00	1,40	1,70	2,50			

### Steel properties

Ledeburitic 12% chrome steel with increased additions of W-, Mo- and V, high wear resistance, good toughness, high pressure resistance, minimal change in dimension, secondary hardening.

### Applications

Thread rolling dies, cold extrusion punches, screws, bending tools, hobbing tools, die- and punching tools, calibrating rings, pressure and profiling rolls, drawing tools.

### Condition of delivery

Soft annealed to max. 265 HB

### Physical properties

Thermal expansion coefficient

$\left[ \frac{10^{-6} \cdot \text{m}}{\text{m} \cdot \text{K}} \right]$	20-100°C	20-200°C	20-300°C	20-400°C
	10,6	11,2	11,6	12,0

Thermal conductivity

$\left[ \frac{\text{W}}{\text{m} \cdot \text{K}} \right]$	20°C	350°C	700°C
	22,8	23,8	24,9

### Heat treatment

Soft annealing

Temperature	Cooling	Hardness
820 - 850°C	furnace	max. 265 HB

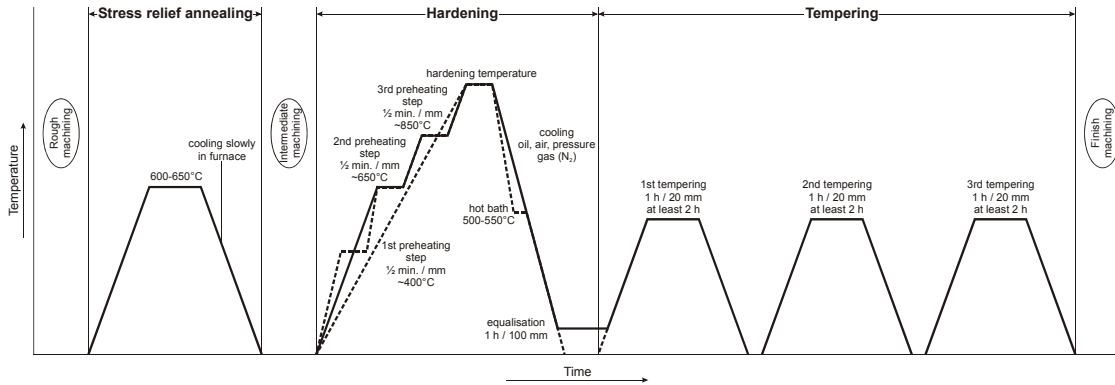
Stress relief annealing

Temperature	Cooling	
600 - 650°C	furnace	

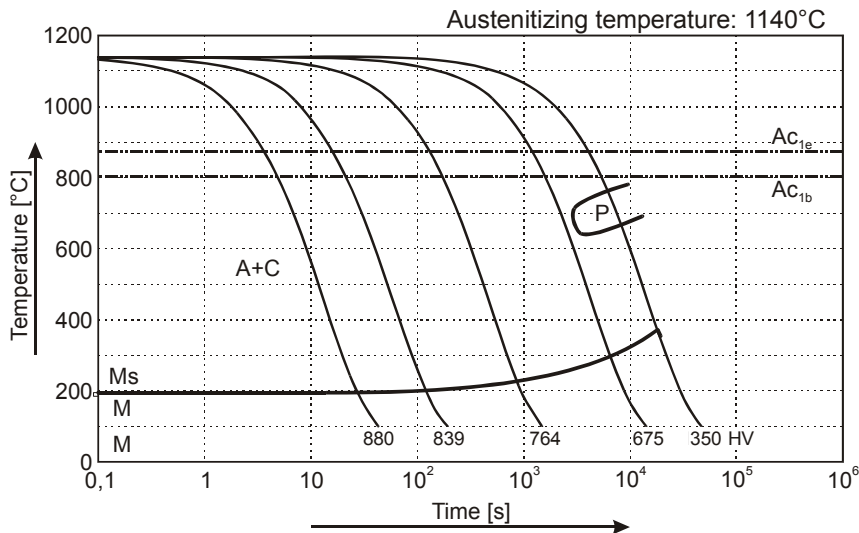
Hardening

Temperature	Cooling	Tempering
1130 - 1150°C	oil, pressure gas (N <sub>2</sub> ), air or hot bath 500 - 550°C	see tempering diagram

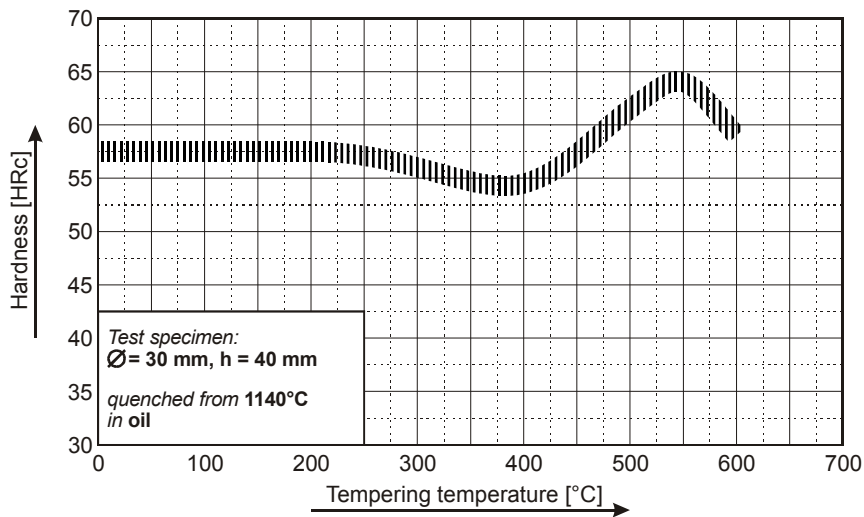
**(CPR) Thermal Cycle Diagram**



**Continuous Cooling Transformation Diagram (CCT)**



**Tempering Diagram**



Remarks: All technical information is for reference only.