



Material No.: Code:  
**1.2316 X38CrMo16**

DE - Brand:  
**R65**

**Chemical composition:**  
(Typical analysis in %)

C	Cr	Mo					
0,38	16,50	1,20					

**Steel properties:**

Stainless martensitic steel with increased Cr-content for improved corrosion resistance. This grade is usually supplied in a quenched and tempered condition. Good polishability.

**Applications:**

Tools and moulds for corrosive plastics and polymers, food industry.

**Condition of delivery:**

Quenched and tempered, 280 - 325 HB  
(950 - 1100 N/mm<sup>2</sup> according to DIN EN ISO 18265  
Table A.1)

**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
		10,3	10,8	11,2	11,6
Thermal conductivity	$\left[ \frac{\text{W}}{\text{m} \cdot \text{K}} \right]$	20°C	350°C		
		19,6	21,1		

**Heat treatment:**

Soft annealing

Temperature	Cooling	Hardness
760 - 800°C	furnace	max. 230 HB

Stress relief annealing

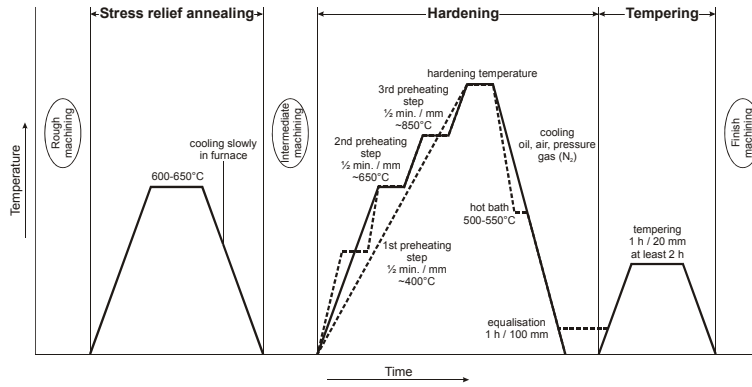
The recommendation 500 - 550°C is valid for quenched and tempered condition. In the soft annealed condition stress relieving between 600 - 650°C is possible.

Temperature	Cooling	
500 - 550°C	furnace	

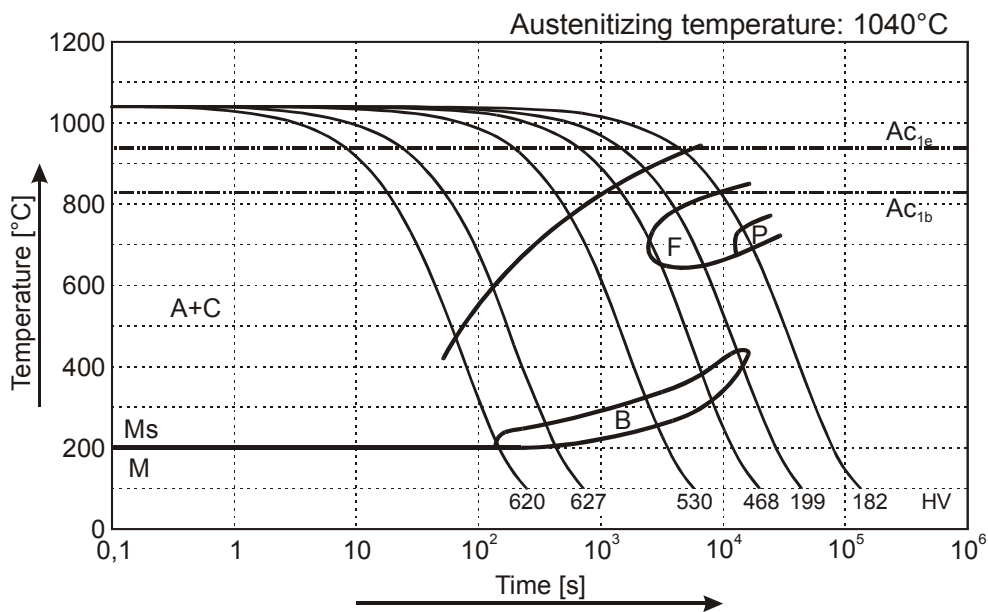
Hardening

Temperature	Cooling	Tempering
1020 - 1050°C	oil, pressure gas (N <sub>2</sub> ), air or hot bath 500 - 550°C	see tempering diagram

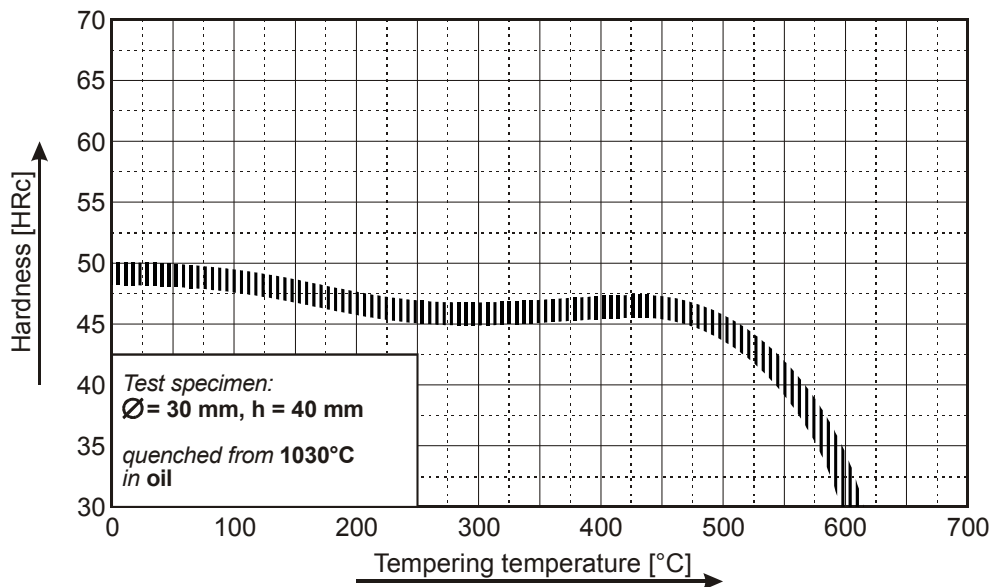
## (1.2316) Thermal Cycle Diagram



## Continuous Cooling Transformation Diagram (CCT)



## Tempering Diagram



Remarks: All technical information is for reference only.