

Material No.: Code:  
**1.2787 X23CrNi17**

DE - Brand:  
**R18So**

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

|      |       |      |  |  |  |  |  |
|------|-------|------|--|--|--|--|--|
| C    | Cr    | Ni   |  |  |  |  |  |
| 0,23 | 16,50 | 1,80 |  |  |  |  |  |

**Steel properties:**

Stainless, martensitic tool steel, limited hardness increase. ESR material for glass processing available.

**Applications:**

Pump shafts, mechanical loaded parts in the food industry, moulds and tools for glass processing (ESR material).

**Condition of delivery:**

- a) Quenched and tempered, 800 - 950 N/mm<sup>2</sup>
- b) Quenched and tempered, 950 - 1100 N/mm<sup>2</sup> (ESR material for glass processing)

**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 |
|                               |   | 10,1     | 10,5     | 11,2     | 11,1     |
| Thermal conductivity          | $\left[ \frac{\text{W}}{\text{m} \cdot \text{K}} \right]$               | 20°C     |          |          |          |
|                               |   | 25       |          |          |          |

**Heat treatment:**

Soft annealing

| Temperature | Cooling | Hardness    |
|-------------|---------|-------------|
| 650 - 750°C | furnace | max. 245 HB |

Stress relief annealing

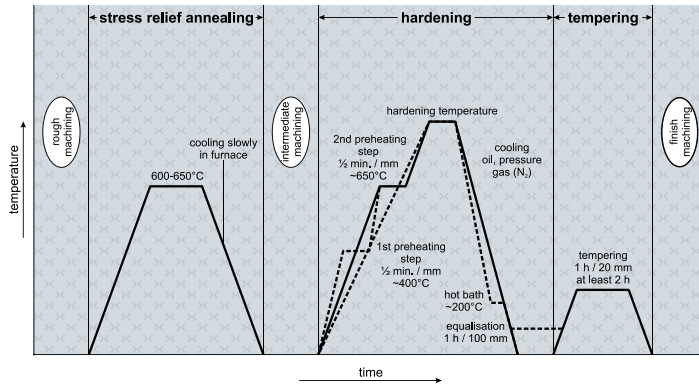
This recommendation is related to the soft annealed condition

| Temperature | Cooling |  |
|-------------|---------|--|
| 600 - 650°C | furnace |  |

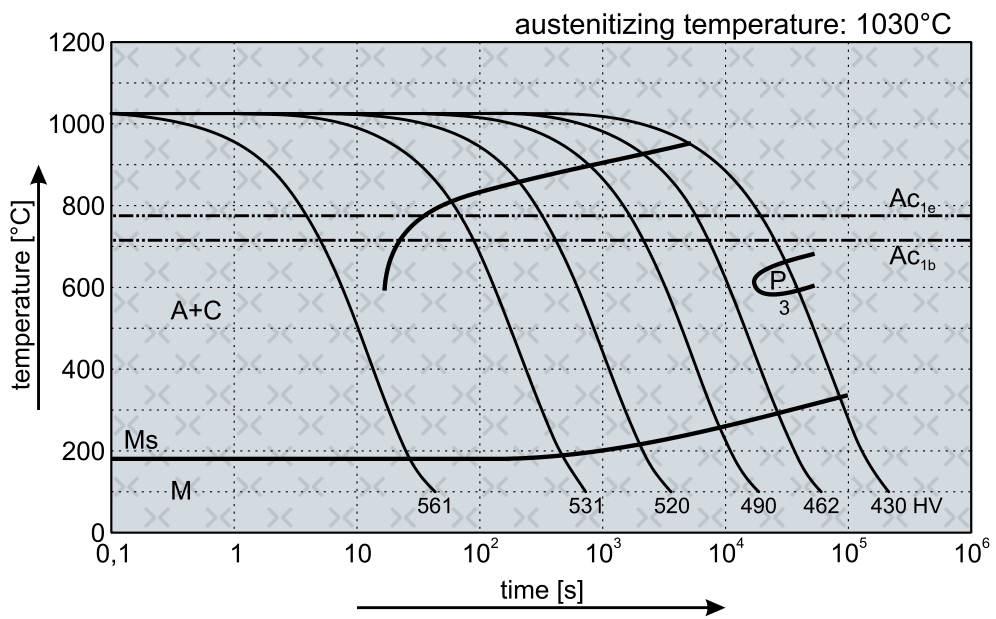
Hardening

| Temperature   | Cooling   | Tempering             |
|---------------|---|-----------------------|
| 1000 - 1050°C | oil, pressure gas (N <sub>2</sub> ) or hot bath 500 - 550°C | see tempering diagram |

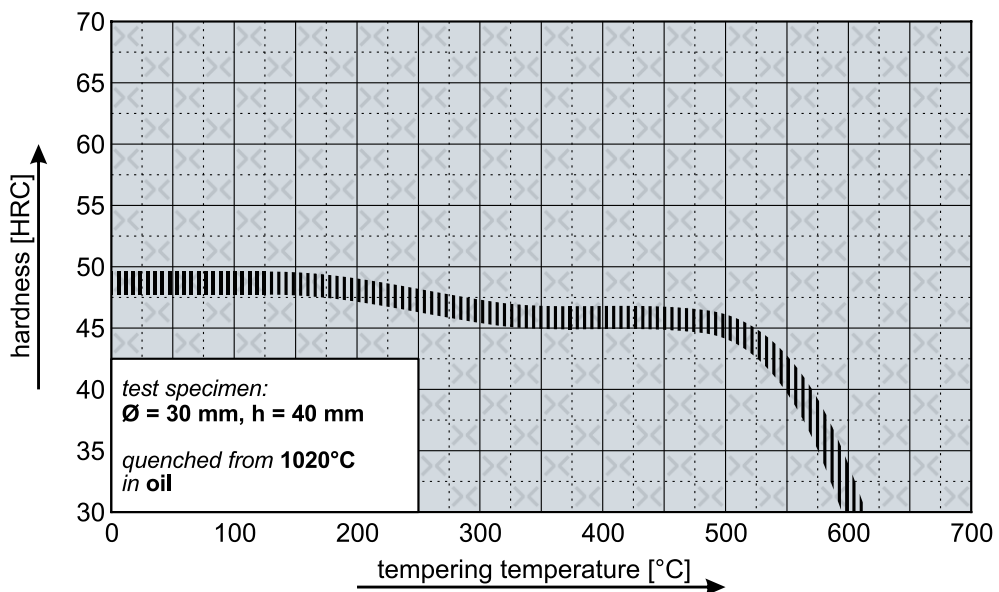
# (1.2787) Thermal Cycle Diagram



## Continuous Cooling Transformation Diagram (CCT)



## Tempering Diagram



Remarks: All technical information is for reference only.