

# ES 265 W

**Name:**  
**X 38 CrMoV 5-3**

**Material No.:**  
1.2367

**Typical analysis in %:**

|      |     |     |     |     |     |
|------|-----|-----|-----|-----|-----|
| C    | Si  | Mn  | Cr  | Mo  | V   |
| 0.38 | 0.4 | 0.5 | 5.0 | 3.0 | 0.6 |

**As-supplied condition:**  
Soft-annealed to max. 229 HB  
(770 N/mm<sup>2</sup>)

**Characteristics:**  
CrMoV alloyed hot work steel with excellent high temperature strength and good high temperature toughness

**General fields of application:**  
Extrusion tools, die inserts, injection moulds, mandrels

**Special note:**  
**Also supplied as EST and ESR grades for the highest requirements.**

## Heat treatment data:

|                         | Temperature                              | Duration                               | Cooling                   |
|-------------------------|--|--|---------------------------|
| Soft annealing          | 820 - 840 °C                             | 4 - 6 h                                | furnace                   |
| Stress-relief annealing | 600 - 650 °C                             | min. 4 h                               | furnace                   |
| Hardening               | 1030 - 1060 °C                           | Group II                               | oil, air,<br>WB 500-550°C |
| Tempering               | 500 - 700 °C<br>3 x, see tempering curve | min. 2 h<br>depending on cross section | still air                 |

## Physical characteristics:

**Coefficient of thermal expansion:** between 20 °C and:

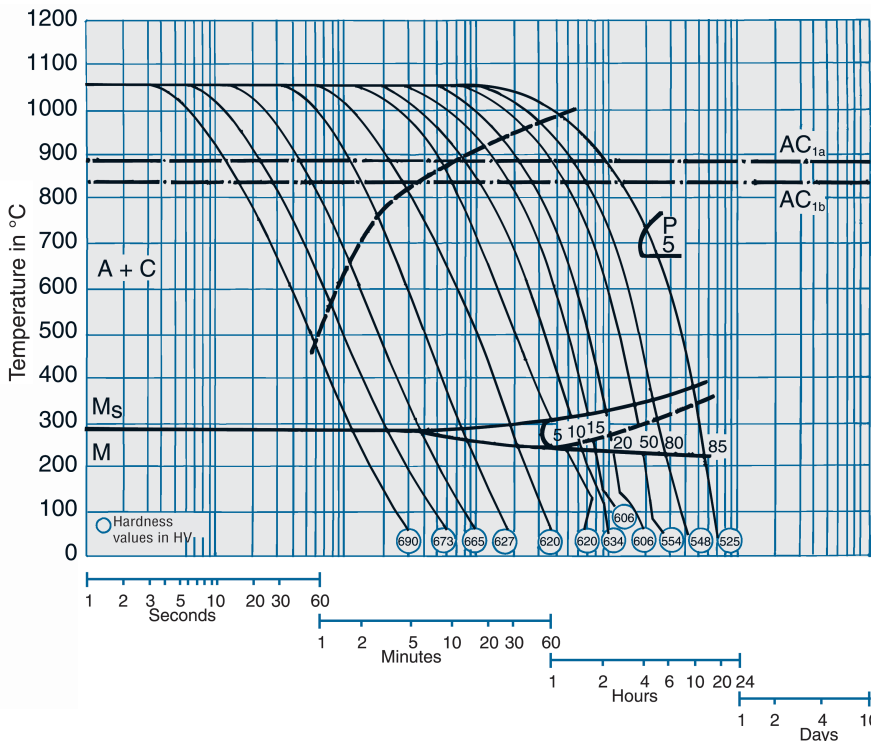
|                    |      |      |      |      |      |      |        |
|--------------------|------|------|------|------|------|------|--------|
| $10^{-6} \times m$ | 100  | 200  | 300  | 400  | 500  | 600  | 700 °C |
| m x K              | 11.9 | 12.5 | 12.6 | 12.8 | 13.1 | 13.3 | 13.5   |

**Thermal conductivity:**

|       |      |      |        |
|-------|------|------|--------|
| W     | 20   | 350  | 700 °C |
| m x K | 36.4 | 32.2 | 27.5   |

**Normal working hardness:** 35 - 52 HRC

## Continuous time-temperature-transformation diagram



## Tempering curve

