

# 1.7131

## 16MnCr5 /16HG

CASE HARDENING STEEL

### APPLICATION

Parts with predominant high-wear stress which works under medium load, piston pins, levers, worm wheels, bushings, camshafts and other vehicle parts.

### CHEMICAL COMPOSITION

Chemical composition (in weight %)

| Element | C    | Si   | Mn   | P     | S     | Cr   | Cu   |
|---------|------|------|------|-------|-------|------|------|
| min     | 0.14 | 0.15 | 1.00 | max.  | max.  | 0.80 | max. |
| max.    | 0.19 | 0.04 | 1.30 | 0.025 | 0.035 | 1.10 | 0.40 |

### TREATMENT

|                             |                                                                       |
|-----------------------------|-----------------------------------------------------------------------|
| Jominy test                 | 900 °C (± 5 °C) at least 30 min. austenitizing time (reference value) |
| Carburizing                 | 880 - 980 °C                                                          |
| Direct and single hardening | 820 - 860 °C                                                          |
| Core hardening              | 860 - 900 °C                                                          |
| Case hardening              | 780 - 820 °C                                                          |
| Tempering                   | 150 - 200 °C mind. 60 min. (approx.)                                  |

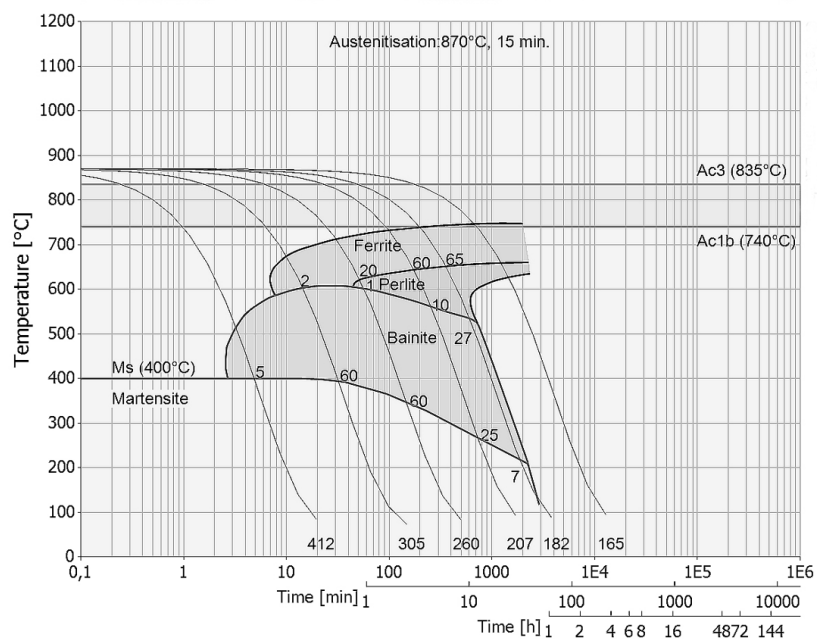
### ADDITIONAL HEAT TREATMENT

|                        |              |
|------------------------|--------------|
| Normalising            | 840 - 870 °C |
| Soft annealing         | 650 - 700 °C |
| Intermediate annealing | 650 - 700 °C |

### MECHANICAL PROPERTIES

|                             |      |
|-----------------------------|------|
| Modulus of elasticity [GPa] | 215  |
| Shear modulus [GPa]         | 83   |
| Poisson ratio               | 0.30 |

## CONTINUOUS COOLING TRANSFORMATION (CCT) DIAGRAM



## TEMPERING DIAGRAM

