

MATERIAL NO.:

1.7131

DESIGNATION:

DIN: 16 MnCr 5
AFNOR: 16 MC 5
UNI: -
AISI: 5115

INDICATORY ANALYSIS:

C 0.16
Si 0.25
Mn 1.15
Cr 0.95

STRENGTH:

max. 186 HB
(≈ max. 635 N/mm²)

THERMAL CONDUCTIVITY AT 20°C: 44 $\frac{W}{m K}$

COEFFICIENT OF THERMAL EXPANSION
[10⁻⁶/K]

100°C	200°C	300°C	400°C	500°C	600°C	700°C
11.5	12.5	13.3	13.9			

CHARACTER: » **Steel for case hardening** for parts requiring a core strength of 800 to 1000 N/mm² and high wear resistance

APPLICATION: » Guiding elements, cores and machine parts with high surface hardness; synthetic resin press moulds for processing thermoplastics and thermosetting plastics

TREATMENT BY:

» Polishing, Etching, EDM: possible

» Nitriding: usually, hardened parts are not nitrided - loss of hardness.

» Hard chrome plating: recommended, increases wear and corrosion resistance

HEAT TREATMENT:

» Soft annealing:
650 to 700°C for about 2 to 5 hours
slow controlled cooling inside the furnace, further cooling in air, **max. 205 HB**

» Carburising:
880 to 980°C. The choice of carburising means and carburising temperature depends on the desired surface carbon content, the carburising graph and the required case depth.

» Intermediate heat treatment:
650 to 700°C, about 2 to 4 hours with slow cooling inside the furnace

» Hardening:
curing temperature 810 to 840°C
quenching in oil/hot bath to 160 - 250°C

» Tempering:
1 hour per 20 mm part thickness, min. 2 hours
Tempering: 150°C - 200°C