

MATERIAL NO.:

1.2162

DESIGNATION:

DIN: 21 MnCr 5
AFNOR: 20 MC 5
UNI: -
AISI: 5120

INDICATORY ANALYSIS:

C 0.21
Si 0.25
Mn 1.25
Cr 1.20

STRENGTH:

max. 210 HB
(≈ max. 710 N/mm²)

THERMAL CONDUCTIVITY AT 100°C:

38.5 $\frac{W}{m K}$

COEFFICIENT OF THERMAL EXPANSION
[10⁻⁶/K]

100°C	200°C	300°C	400°C	500°C	600°C	700°C
12.2	12.8	13.5	13.8	14.1	14.4	14.7

CHARACTER:

» Standard **steel for case-hardening** with good machinability; high surface hardness with tough core

APPLICATION:

» Machine parts and mould plates with a high surface hardness; synthetic resin press moulds for the processing of thermoplastics and thermosets

TREATMENT BY:

» Polishing, etching, EDM: possible
» Nitriding: usually, hardened parts are not nitrided - loss of hardness.
» Hard chrome plating: recommended, results in increased wear and corrosion resistance

HEAT TREATMENT:

» Soft annealing:
670 to 710°C for about 2 to 5 hours
slow controlled cooling inside the furnace, further cooling in air, **max. 205 HB**

» Carburising:
870 to 950°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:
630 to 650°C, about 2 to 4 hours with slow cooling inside the furnace

» Hardening:
810 to 840°C
quenching in oil/hot bath (160 to 250°C)

» Tempering:
1 hour per 20 mm part thickness, min. 2 hours

TEMPERING CHART:

