

MATERIAL NO.:

1.2767

DESIGNATION:

DIN: 45 NiCrMo 16
AFNOR: 45 NCD 16
UNI: 40 NiCrMoV 16 KU
AISI: ≈ 6F7

TECHNICAL TIP:

- » To avoid unwanted warping during plastic injection, the tempering temperature after hardening must exceed the operating temperature by 50°C.
- » Example:
 Operation at 200°C
 Tempering at 250°C = 52 HRC

INDICATORY ANALYSIS:

C 0.45
 Si 0.25
 Mn 0.40
 Cr 1.35
 Mo 0.25
 Ni 4.00

STRENGTH:

max. 280 HB
 (≈ max. 950 N/mm²)

THERMAL CONDUCTIVITY AT 100°C:

30 $\frac{W}{m K}$

**COEFFICIENT OF THERMAL EXPANSION
 [10⁻⁶/K]**

100°C	200°C	300°C	400°C	500°C	600°C	700°C
11.6	12.4	12.8	13.1	13.4	13.8	13.6

CHARACTER:

- » Nickel alloyed **steel for through hardening**, with moderate machinability; very high resistance against bending and high compressive strength; very high toughness and good through hardenability, also for bigger sections.

APPLICATION:

- » High-performance cavity plates and inserts for the processing of plastics with high surface requirements (mirror finish); stamping, forming, bending inserts for particularly high pressure and bending stresses

TREATMENT BY:

- » Polishing:
best metallurgical properties for mirror polishing
- » Etching:
is possible
- » EDM:
highly suitable
- » Nitriding:
not usual
- » Hard chrome plating:
particularly increases the steel's wear resistance and corrosion resistance

HEAT TREATMENT:

- » Soft annealing:
610 to 650°C for about 2 to 5 hours
slow controlled cooling inside the furnace: 10 to 20°C per hour to 600°C; further cooling in air, **max. 260 HB**
- » Hardening:
840 to 870°C
quenching in oil/hot bath/air
obtainable hardness: **53-58 HRC**
- » Tempering:
slow heating to tempering temperature immediately after hardening;
minimum time in furnace: 1 hour per 20 mm part thickness;
double tempering is recommended.

TEMPERING CHART:

