

ES 106 K

Name:
X 19 NiCrMo 4

Material No.:
1.2764

Typical analysis in %:
C Cr Mo Ni
0.19 1.3 0.3 4.1

As-supplied condition:
Soft-annealed to max. 255 HB
(855 N/mm²)

Characteristics:
Very tough, air hardening case hardening steel, low dimensional change, excellent polishability, very high core strength of up to 1500 N/mm²

General fields of application:
Moulds for plastics processing involving deep and complicated impressions

Special note:
Case hardening temperature in powder: 850 - 880 °C

In salt bath: 880 - 930 °C

Intermediate annealing temperature: 600 - 650 °C

Core strength after oil or WB hardening: 1200 - 1500 N/mm²

After air or compressed air hardening: 1100 - 1300 N/mm²

After hardening in case hardening box: 900 - 1100 N/mm²

Surface hardness after oil hardening: approx. 60 HRC

After air hardening: approx. 55 - 60 HRC

Heat treatment data:

	Temperature	Duration	Cooling
Soft annealing	620 - 650 °C	2 - 5 h	furnace
Stress-relief annealing	600 - 650 °C	min. 4 h	furnace
Hardening	780 - 810 °C	Group II	oil,
	800 - 830 °C		air
Tempering	180 - 300 °C	min. 2 h	still air
	see tempering curve	depending on cross section	

Physical characteristics:

Coefficient of thermal expansion: between 20 °C and:

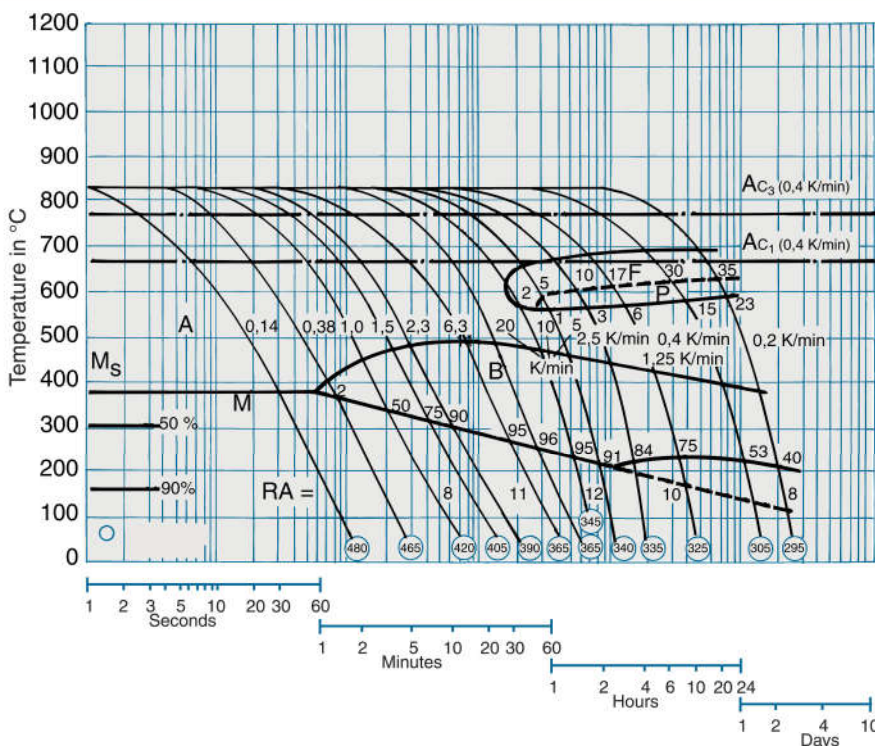
10 ⁻⁶ x m	100	200	300	400 °C
m x K	12.2	13.0	12.1	13.5

Thermal conductivity:

W	20	350	700 °C
m x K	33.5	32.2	32.0

Normal working hardness: 50 - 60 HRC

Continuous time-temperature-transformation diagram



Tempering curve

