Data Sheet

Steel 1.7131 / 16MnCr5

Alternative Designations

SAE5115 (AISI) | 16MC5 (AFNOR) | 527M17 (BS) | 16MnCr5 (UNI/UNE)

Key Features

High surface hardness • Wear resistance • High machinability and weldability

Description

Steel 1.7131 is a carbon steel with good weldability and machinability. It is suitable for use in the manufacture of parts and components that require good dimensional stability and mechanical properties. It has high surface hardness and wear resistance with good machinability. With a tensile strength of 640 – 1375 MPa, it is ideal for the manufacturing of gears, worms, bushings, and other machine components. This material can be heat treated to achieve a variety of mechanical properties.

Mechanical Properties

Yield strength	440 – 735 MPa
Tensile strength	640 – 1375 MPa
Elongation at break	8 – 15%
Hardness	207
Module of elasticity	190 – 210 GPa

Physical Properties

Density	7.85 g/cm³
Electrical conductivity	1.43 m/Ω · mm²
Coefficient of thermal expansion	11.1 – 13.9 $_{K\text{-}1 \cdot 10\text{-}6}$
Thermal conductivity	41 W/m · K
Specific heat capacity	460 J/kg · K

Chemical Composition

Al	-	N	-
Bi	-	Nb	-
C	0.14 – 0.19%	Ni	-
Cd	-	O	-
Co	-	P	0.025%
Cr	0.8 – 1.1%	Pb	-
Cu	0.4%	S	0.035%
Fe	-	Si	0.15 – 0.4%
H	-	Sn	-
Mg	-	Ti	-
Mn	1 – 1.30%	V	-
Mo	-	Zn	-