



Steel 1.7225 / 42CrMo4

Alternative Designations

42CrMo4 (ISO/UNE/UNI) | 4140 (AISI/SAE) |
42CD4 (AFNOR) | 708M40 (BS) | 2244 (SIS) |
SCM440(H) (JIS)

Key Features

High strength • Tough • Resistance to impact •
Hardenability

Description

Steel 1.7225 is a German standard material delivered in pre-hardened condition. It is used for manufacturing various types of plastic molds, hot forging dies, and hot stamping dies. The material can also be used for making cold work tool steels. This material has high strength, toughness, good hardenability and good resistance to impact. It is widely used in the construction of machines, axles, gear shafts, wheel and base plates. It is also used for the production of large plastic molds.

Mechanical Properties

Yield strength	500 – 900 MPa
Tensile strength	750 – 1300 MPa
Elongation at break	10 – 14%
Hardness	219
Module of elasticity	164 – 217 GPa

Chemical Composition

Al	-	N	-
Bi	-	Nb	-
C	0.38 – 0.45%	Ni	-
Cd	-	O	-
Co	-	P	0.025%
Cr	0.90 – 1.20%	Pb	-
Cu	0.4%	S	0.035%
Fe	-	Si	0.10 – 0.40%
H	-	Sn	-
Mg	-	Ti	-
Mn	0.60 – 0.90%	V	-
Mo	0.15 – 0.30%	Zn	-

Physical Properties

Density	7.85 g/cm ³
Electrical conductivity	1.82 m/Ω · mm ²
Coefficient of thermal expansion	10.5 – 14.4 $\text{K}^{-1} \cdot 10^{-6}$
Thermal conductivity	34.4 – 45.1 W/m · K
Specific heat capacity	423 – 587 J/kg · K

Reference

Datasheets provided by Xometry contain materials sourced through trusted OEMs, material distributors, and databases. Please visit Materialdatacenter.com for further information on this material.