

Cobalt chrome / CoCr

Alternative Designations

CoCr

Key Features

Corrosion resistance • Biocompatibility • Wear resistance • Chemically inert

Description

Cobalt Chrome is a high corrosion resistance alloy. The formation of a passive film of Cr2O3 protects the primary material of this alloy. The mechanical properties are excellent due to increased hardness and tensile strength. This alloy has seen wide applications in the medical and dentistry industries due to its biocompatibility, wear resistance, and chemical inertness. In addition, it is used in the production of wind turbines, cutting tools, and other mechanical parts that require high wear resistance.

Mechanical Properties

Yield strength	630 – 840 MPa
Tensile strength	1090 – 1150 MPa
Elongation at break	6 – 15%
Hardness	32
Module of elasticity	170 – 220 GPa

Physical Properties

Density	8.3 g/cm ³
Electrical conductivity	0.87 m/Ω · mm ²
Coefficient of thermal expansion	14 K ⁻¹ · 10 ⁻⁶
Thermal conductivity	14 W/m · K
Specific heat capacity	390 J/kg · K

Chemical Composition

Al	-	N	-
Bi	-	Nb	-
C	0.02%	Ni	0.1%
Cd	0.02%	O	-
Co	Rest is Co	P	-
Cr	28 – 30%	Pb	0.02%
Cu	-	S	-
Fe	0.5%	Si	-
H	-	Sn	-
Mg	-	Ti	-
Mn	1%	V	-
Mo	5 – 6%	Zn	-

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.