TECHNICAL DATASHEET

Cobalt-chrome (Co-Cr-Mo)
FT 029 – Version 0

This non-magnetic cobalt, chromium and molybdenum based alloy offers high mechanical strength as well as high resistance to corrosion and fatigue.
It is commonly used in the orthopaedic industry to manufacture machined or forged parts intended for use in full joint replacements, but also in the manufacture of tailor-made dental prostheses.
It is generally supplied in a semi hot-worked condition or annealed to the required resistance, and in its low-carbon version (alloy 1 according to the reference standards).
The Co-Cr-Mo alloy is widely held to be difficult to machine, regardless of the type of heat treatment it has undergone.
The use of appropriate tools is therefore essential.

APPLICATIONS	ADVANTAGES
Orthopaedic implants, spinal rods, screws Dental prostheses	Biocompatibility Excellent resistance to fatigue and corrosion
STANDARDS	**SHAPES**
ASTM F1537 ISO 5832-12 ISO 22674 (dental applications)	**BAR** Diameter 5-100 mm Length 3000-3500 mm Tolerance Ø≤20 mm: h7-h9 – Ø>20 mm: h11 **DENTAL DISCS** Diameter 98.5 mm Thickness 8-25 mm

➢ CHEMICAL COMPOSITION

%	C	Cr	Mo	Ni	Fe	Si	Mn	N	Co
min		26	5						residue
max	0.14	30	7	1	0.75	1	1	0.25	

0.15-0.35% carbon is permitted for the high-carbon type 2 Co-Cr-Mo alloy.

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➢ MECHANICAL PROPERTIES

Condition	Rm Tensile strength (MPa)	Rp0.2 Yield strength (MPa)	Elongation (% min)	Necking (% min)
Annealed	897	517	20	20
Hot-worked	1000	700	12	12
Semi hot-worked	1172	827	12	12

➢ PHYSICAL PROPERTIES

Density (g/cm³)	8.3
Typical hardness (HRc)	36-44
Modulus of elasticity at 20°C (N/mm²)	241 x10³
Thermal conductivity at 20°C (W/m °C)	12.6
Specific heat (J/Kg °C)	450
Mean coefficient of thermal expansion at 20-500°C 20-600°C	 14.1 x10-6 14.5 x10-6
Non-magnetic	YES
Biocompatible	YES

The information and technical data contained in this sheet are for information purposes only. Only the information written on our material analysis certificates will be official.