STAINLESS GROUP

High performance Alloys - Medical - Aerospace - Microtechnics - Motorsport - Industry

COBALT BASE ALLOY

CoCr28Mo6
UNS R31537

GENERALITES

The **CoCr28Mo6 cobalt-based alloy** has excellent corrosion resistance and very high mechanical properties. The mastery of its VIM production method followed by ESR remelting gives it a high level of cleanliness and homogeneity, which are essential to guarantee high fatigue resistance and quality processing.

STAINLESS has a number of qualified European and American sources in stock, as well as a variety of diameters to meet your needs in terms of requirements. This product can also be made to measure or cut into pieces by our service centres.

Each material is delivered with its producer's certificate of origin in order to guarantee you total transparency and complete traceability.

APPLICATIONS

Due to its recognised biocompatibility in the medical field, the grade is mainly used in the manufacture of implants (prostheses, spine rods, etc.) obtained by forging and/or machining. The material is available in the warm worked state for all diameters.

STANDARDS AND DESIGNATIONS

Numerical designations:
W. Nr 2.4979 - UNS R31537

Standards:
ISO 5832-12 (Alloy 1) - ASTM F 1537 (Alloy 1) – ASTM F799 (chemistry only)
CoCr28Mo6

Brands:
M64BC®, Biodur CCM®, ...

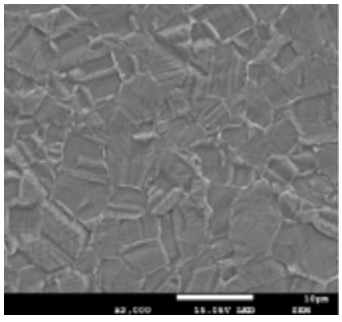
Contact our Technical Support

TYPICAL CHEMICAL ANALYSIS (mass %)

	Carbon	Manganese	Silicium	Chrome	Nickel	Molybdenum	Nitrogen	Iron	Cobalt
min	---	---	---	26.0	---	5.0	---	---	Balance
max	0.14	1.0	1.0	30.0	1.0	7.0	0.25	0.75	

METALLURGY

The production processes combined with the transformation processes to obtain a homogeneous microstructure with a fine grain with a minimum grain size of 5. See micrograph below:



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PHYSICAL PROPERTIES AT 20°C

Density.....8.3 g.cm-3.
Coefficient of thermal expansion (between 20 et 200°C).....12.1 x 10^{-6} m/m.°C
Young's modulus.....225 x 10^{3} MPa
Thermal conductivity.....13 W.m/m^{2}.°C
Relative magnetic permeability..... ≤ 1.01

MECHANICAL PROPERTIES OF THE BARS

The grade is offered as standard in the warm worked condition with the following properties:

Delivery status	Rm (Mpa)	Rp0.2% (MPa)	E5d%
Half warm (warm worked)	**> 1172**	**> 827**	**>12**

PROCESSES

Forgeability/Usability
The grade can be hot forged in the 1100/1200°C temperature range. Machining of this grade requires suitable equipment and tools.

Polishability
The high level of inclusionary cleanliness and homogeneity of the microstructure of this grade allows for optimum polishing.

Heat Treatments
Annealing can be carried out from 950°C to soften the grade. However, this treatment must remain under control so as not to degrade the quality of the microstructure and the grain size. No heat treatment can increase the hardness.

CORROSION RESISTANCE

The grade is highly resistant to general and pitting corrosion due to its high chromium and molybdenum content combined with its low inclusion rate.

STANDARD SHAPE

- 3m round bars in warm-worked condition - Surface ground or peeled
- Flat bars made to measure in the semi-warm state (consult us)