
INTERNATIONAL STANDARD **ISO** 5832 / V



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Implants for surgery — Metallic materials — Part V : Wrought cobalt-chromium-tungsten-nickel alloy

*Implants chirurgicaux — Produits à base de métaux —
Partie V : Alliage à forger à base de cobalt, de chrome, de tungstène et de nickel*

First edition — 1978-07-01

STANDARDSISO.COM : Click to view the full PDF of ISO 5832-5:1978

UDC 615.465 : 669.255.26.27.24

Ref. No. ISO 5832/V-1978 (E)

Descriptors : surgical implants, products made with metal, cobalt alloys, chromium-containing alloys, tungsten-containing alloys, nickel-containing alloys, materials specifications, chemical composition, mechanical properties, tests, tension tests, marking, user-supplier relations.

Price based on 1 page

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5832/V was developed by Technical Committee ISO/TC 150, *Implants for surgery*, and was circulated to the member bodies in January 1977.

It has been approved by the member bodies of the following countries :

Australia	France	Romania
Austria	Germany	South Africa, Rep. of
Belgium	India	Spain
Canada	Italy	Turkey
Czechoslovakia	Mexico	U.S.S.R.
Denmark	New Zealand	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

United Kingdom
U.S.A.

Implants for surgery – Metallic materials – Part V : Wrought cobalt-chromium-tungsten-nickel alloy

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of, and corresponding test methods for, wrought cobalt-chromium-tungsten-nickel alloy for use in the manufacture of surgical implants.

NOTE – The mechanical properties of a sample obtained from a finished product made of this alloy may not necessarily comply with those specified in this International Standard.

2 REFERENCE

ASTM E8, *Methods of tension testing of metallic materials*.

NOTE – The above reference will be replaced by a reference to the appropriate International Standard when the latter becomes available.

3 CHEMICAL COMPOSITION

The analysis of a representative sample of the alloy shall comply with the chemical composition specified in table 1 (for test methods, see clause 5).

TABLE 1 – Chemical composition

Element	Compositional limits % (m/m)
Chromium	19,0 to 21,0
Tungsten	14,0 to 16,0
Nickel	9,0 to 11,0
Iron	3,0 max.
Carbon	0,15 max.
Silicon	1,0 max.
Manganese	2,0 max.
Cobalt	Balance

4 MECHANICAL PROPERTIES

4.1 Test pieces

Representative test pieces for the determination of tensile properties shall be prepared in accordance with ASTM E8.

4.2 Tensile test

The tensile properties of the alloy in the annealed condition, determined as specified in clause 5, shall be in accordance with the requirements of table 2.

TABLE 2 – Mechanical properties of the alloy in the annealed condition

Ultimate tensile strength min.	Yield strength (0,2 % offset) min.	Elongation ¹⁾ min.
MPa	MPa	%
860	310	10

1) Gauge length = $5,65 \sqrt{S_0}$ or 4 to 5 times the original diameter, where S_0 is the original cross-sectional area in square millimetres.

5 METHODS OF TEST

The methods of test to be used in determining compliance with the requirements of this International Standard shall be those given in table 3.

TABLE 3 – Methods of test

Requirement	Relevant clause	Method of test
Chemical composition	3	Recognized analytical procedures (ISO methods where these exist)
Mechanical properties	4	ASTM E8