

# CO-BASE ALLOYS

## Application Segments

Engineering

## Available Product Variants

Long Products

## Product Description

BÖHLER L035 is a 35-cobalt-35-nickel-20-chromium-10-molybdenum wrought alloy (UNS R30035) used for the production of surgical implants. This alloy composition has been successfully used in human implants. Long-term clinical experience has shown an acceptable biological response.

The exceptional properties of BÖHLER L035 result from its chemical composition, high-quality melting technology, cold forming and heat treatment. It is a vacuum induction melted (VIM) and vacuum arc remelted (VAR) superalloy.

BÖHLER L035 is a nickel-cobalt based multiphase alloy system with a unique combination of properties e.g. extremely high strength, toughness, ductility and excellent corrosion resistance. The alloy can be strengthened and aged in the factory to achieve strength values of max. 260 to 300 ksi (1793-2086 MPa) and stress corrosion cracking (SCC) resistance even in hydrogen sulphide. The BÖHLER L035 alloy resists pitting and crevice corrosion caused by seawater, chloride solutions and other corrosive environments, e.g. mineral acids (nitric, hydrochloric, sulphuric acid).

## Process Melting

VIM + VAR

## Applications

- > Medical
- > Mechanical Engineering
- > Cardiology
- > Stomatology
- > Medical Instruments & Implants
- > Watch Industry
- > Orthopedics
- > Medical Industry
- > Luxury Watch Industry
- > Surgery

## Technical data

Material designation		Standards	
MP35N	Market grade	ISO 5832-6	EN ISO
2.4999	SEL	F562	ASTM
R30035	UNS		

## Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	Co	Ti	B	Fe
max. 0.025	max. 0.15	max. 0.15	max. 0.015	max. 0.010	19.0 to 21.0	9.0 to 10.5	33.0 to 37.0	REM	max. 1.0	max. 0.015	max. 1.0

Refers to ASTM F562.

**Delivery condition**

<b>Solution Annealed + Quenched</b>	
Tensile Strength (MPa)	793 to 1,069
Yield Strength (MPa)	241 to 586   Wire hot rolled.
<b>Solution annealed + cold worked</b>	
Tensile Strength (MPa)	min. 1,000
Yield Strength (MPa)	min. 655   medium hard - Round bars hot rolled and cold worked.
<b>Solution annealed + cold worked</b>	
Tensile Strength (MPa)	min. 1,207
Yield Strength (MPa)	min. 1,000   hard - Round bars hot rolled and cold worked.

**Round Bars and Wire Rod (if any)**

Diameter* mm	
<b>ROLLED</b>	
5.00	-   13.50

\* Diameter 5.00 - 13.50 mm available as Wire Rod.

More information regarding MOQ and tolerances upon request.  
Round bars upon request. Availability depends on delivery condition.

If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.