

Wiron® light

Nickel-chrome metal-to-ceramic alloy
(free of beryllium according
to ISO 9693)



Instructions for use

For further information see
"Alloys for metal-ceramics containing
no precious metals"

(Languages:

CE 0197

ISO 9693 / ISO 22674

Safety hint

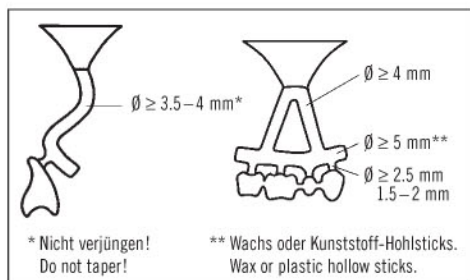
Metal dust is harmful to your health.
When deflasking and blasting use a suction
extraction system and breathing mask
type FFP3-EN149:2001!

Standard analysis, % by weight (elements)

Ni	64.5	Si	2.1
Cr	22.0	Nb, Mn, B	
Mo	10.0		

Alloy characteristics (standard values)

Biocertificate	<input checked="" type="checkbox"/>
Type	4
BEGO colour code	white (8)
Density [g/cm ³]	8.2
Vickers hardness (HV 10)	260
Modulus of elasticity [GPa]	approx. 200
Elongation limit (R _p 0.2) [MPa]	470
Tensile strength (R _m) [MPa]	880
Ductile yield (A5) [%]	10
Melting interval [°C]	1200–1280
Casting temperature [°C]	approx. 1350
CTE [10 ⁻⁶ K ⁻¹]	25–500 °C 20–600 °C
	13.8 14.1



Modelling/Sprue system: Minimum metal thickness
(after grinding): for ceramic veneering 0.3 mm, for acrylic veneering
with retention pearls 0.3 mm. Shape groove in cervical and palatal
area. Avoid sharp edges. In the case of work on long bridges, divide
plastic hollow stick between the front teeth and in the area around
the canine teeth.

Investing/preheating: Use phosphate-bonded crown and bridges
investment materials (e.g. Bellavest® SH).
Follow processing instructions! Preheating temperature
780–830 °C.

Melting/casting: General: Do not overheat alloy. Use only clean
crucibles, one crucible per alloy. Recommendation: to enable an
exact identification of each charge cast new metal only. In case of

re-casting: only re-cast identical alloys. Blast old material. Add at least 50 % of new material.
Use only ceramic crucibles.

Moment for casting: Vacuum pressure casting with induction heating (Nautilus®) and centrifugal
casting with induction heating (Fornax®). When the last solid component has submerged completely in
the melt, continue to heat for 0 to 10 seconds depending on the induction capacity of the casting unit,
trigger casting when the oxide layer has disappeared. Follow operating instructions for Fornax® and
Nautilus®. Flame centrifugal casting (Fundor): Flame setting propane/oxygen: flow pressure setting
0.5 bar propane, 2.0 bar oxygen. The blue tips in the inner cone of the flame on the torch tip shall be
6–8 mm long. Distance of torch tip to metal: 15–25 mm. Always pre-warm ceramic pan as well.
Heat metal in melting pot with light rotating flame movement until brightly red hot. Then insert muffle
and continue to heat metal. An oxide film will form after the individual castings have collapsed.
Continue to melt on with light rotating flame movement until the cast metal moves together under one
joint oxide film and can be visibly moved through the flame pressure. The color of the molten material
must be uniformly light. Initiate casting process without allowing the oxide film to tear.

After deflasking: Blast residual investment material with Korox® 250 at 3–4 bar. Use fine carbide,
ceramically bonded stones or BEGO sintered diamond milling tools for finishing.

Ceramic: Use ceramics according to ISO 9693 with firing temperatures of up to approx. 980 °C
(e.g. Duceram KISS, Creation, HeraCeram, IPS d.SIGN, Noritake, Vintage, Vintage Halo). Also suitable:
Ceramics with reduced firing temperature (e.g. Omega 900, VM 13, Finesse). Always follow the ceramic
manufacturer's instructions! Always blast the surface to be veneered (pure Korox® 250: 3–4 bar) and
clean the frame thoroughly (steam clean or boil in aqua dest.). After cleaning, hold with artery clamps
and refrain from touching.

Oxide firing: Not necessary. If oxide firing is carried out to check the surface (950–980 °C/5 minutes
with vacuum), always blast the oxide again (with pure Korox® 250: 3–4 bar). Clean thoroughly
(steam clean or boil in aqua dest.).

Ceramic firing: Always apply basic material in two firing operations. The first coating thin (washbrand),
the second coating opaque. Wash off frame under running water before application of next ceramic
coating. Allow to cool down normally after firing. Remove ceramics only mechanically. Hydrofluoric acid
(HF) corrodes the metal frame.

Acrylic veneering: The corresponding instructions of the manufacturers must be followed when
processing the veneering systems.

Final work: Blast visible metal surfaces with Korox® 50, then blast-polish external surfaces with
Perlblast®. Rubber-polish with BEGO rubber polishers, and after that finish-polish with
BEGO Diapol (Order No. 52305/52306). Clean thoroughly (steam clean or boil in aqua dest.).

Soldering: Soldering prior to firing with the flame: Wiron® solder (Order No. 52625) and Fluxsol flux
(Order No. 52531). Soldering after firing in the furnace: WGL solder (Order No. 61079) and Minoxid flux
(Order No. 52530). Cool down normally.

Laser welding: Filler material: Wiroweld NC wire Ø 0.35 mm (Order No. 50006).

Secondary effects: Such as allergies to contents of the alloy or electrochemically based reactions may
very rarely occur.

Reciprocal actions: In case of occlusal or approximal contact of different alloys electrochemically
based reactions may very rarely occur.

Reactions: In case of known incompatibilities and allergies to contents of the alloy.

Warranty: Whether given verbally, in writing or by practical instructions, our recommendations for use
are based upon our own experience and trials and can only be considered as standard values.
Our products are subject to a constant further development. Therefore alterations in construction and
composition are reserved.