



Manufacturer: German Special Alloys GmbH | Carl-Friedrich-Benz-Str. 1b | 47877 Willich | Germany



Produced for:
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METAPLUS VP hard is an extra hard partial denture alloy based on cobalt and finds application in frame works. **METAPLUS VP hard** is free from nickel, cadmium, beryllium and lead and fulfils the standards of EN ISO 22674 type 5 for appliances in which parts require the combination of high stiffness and strength, e.g. thin removable partial dentures, parts with thin cross-sections and clasps.

Composition w_i

Co	%	62,5
Cr	%	30,0
Mo	%	5,1
Si	%	1,0
Mn	%	1,0
C, N, Nb, Fe	%	< 1

Properties

Density ρ	g · cm ⁻³	8,2
Vickers hardness	HV 10	375
Melting range T _S - T _L	°C	1260-1320
Casting temperature T _{Cast}	°C	1440
0,2-% Yield strength R _{p 0,2}	MPa	620
Modulus of elasticity E	GPa	220
Tensile elongation at break A ₅	%	4,5
Tensile strength R _m	MPa	920

Recommendations for Use

Waxing-up

Lead round wax wires with Ø 3,5-4 mm in direction of flow, avoid sharp deflections.

Investing and Casting

Suitable investment materials are phosphate-bounded investments for partial denture alloys. Preheat the investment to 950-1000 °C. Depending on the model and the casting machine and when total plates are modelled the final temperature is 1050 °C. Hold final temperature for 45-60 minutes depending on the size of the investment ring and degree of filling. Follow the manufacturer's instructions for use of the casting machine. Always use an individual ceramic crucible for **METAPLUS VP hard** to prevent contamination with other alloys. Clean crucible after each use to avoid residues of slag. Do not overheat the alloy. Start casting as soon as the ingots have collapsed giving a uniform melt. For melting by flame heat the ingots and give a rotary motion by use of the flame. Start casting as soon as the bath begins to vibrate. Allow the cylinder to cool down slowly to the ambient temperature and deflask without hitting the cone.

Treatment of the Cast Object

After deflasking:

1. Sand blast the surface by use of a pencil-blaster with aluminium oxide 100 µm or 250 µm.
2. Separation of sprues and finishing of the object.
3. Electrolytic polishing with commercial electrolytes in dental polishing units. Cover clamps and fitting parts with covering varnish while polishing.

Finishing

After finishing and fitting smooth the frame with a rubber polisher.

Soldering and Welding

Soldering can be carried out with commercially available solders und high temperature flux. The width of the solder gap should be 0,05-0,2 mm. For welding with laser use suitable commercially available metal welding wires.

Safety Note

Metal dusts are harmful to health. Use a dust extractor. Consider allergic hypersensitivities to contents of the alloy. In case of suspected incompatibility with individual elements of this alloy, this should not be used.

Warranty

These application recommendations are based on own experiments and experiences and can therefore only be regarded as guidelines. The dentist or dental technician is responsible for the correct processing of this alloy.



Batch number



Refer to instructions for use



Manufacturer



Not for reuse