



CADdent®

Rapid Prototyping

3D-printing

METALS

CERAMICS

POLYMERS



Cobalt-chrome
Reinforcement



Titanium
Automotive engineering



Titanium
Audiology



Cobalt-chrome
Fluid dynamics



Alumina
Nozzle



Silver
Jewelry



Zirconia
Sensor technology

Prototyping at CADdent

With us, rapid prototyping is really „rapid“. Depending on the material, we realise delivery times of less than a week after receipt of your order.

We combine a wide variety of materials with the technological freedom to realise even complex geometries economically.

MATERIAL OVERVIEW

METALS

- Cobalt-chrome
- Titanium grade 5 (Ti-6Al-4V)
- Silver (sterling silver, 925)

CERAMICS

- Alumina (Al_2O_3)
- Zirconia (ZrO_2)

POLYMERS

- PEEK – Polyetheretherketone
- Various resins (standard, burn-out und biocompatible)
- PLA biopolymer filament

YOUR BENEFITS

- ✓ ALMOST ANY DESIGN CAN BE REALISED
- ✓ FAST DELIVERY TIMES
- ✓ WIDE VARIETY OF MATERIALS
- ✓ TOP PRICE / PERFORMANCE RATIO
- ✓ GOOD SERVICE

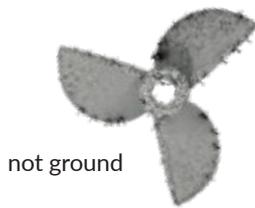


Cobalt-chrome and Titanium grade 5

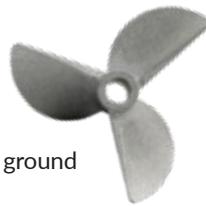
We realize highly detailed components – even complex, hollow and delicate geometries that cannot be produced using conventional manufacturing techniques. Cobalt-chrome is known as „medical

stainless steel“, titanium is very lightweight and biocompatible, which is why it widely used in the fields of medical technology, jewelry and light-weight construction.

Our metal alloys are available in the following designs:



not ground



ground



polished

Material	Cobalt-chrome (CoCr)	Titanium grade 5 (Ti-6Al-4V)
Density	8,6 g/cm ³	4,5 g/cm ³
Tensile strength	1170 MPa	1200 MPa
Melting point	1320 °C	1660 °C
Minimum wall thickness	0,3 mm	0,3 mm
Production time*	2 - 5 working days	2 - 5 working days
Material suitable for medical devices	✓	✓

*after receipt of order, depending on desired finish

925 Silver

925 sterling silver is a popular material for jewelry. In addition, silver is used in electrical engineering as a contact and conductive material due to its best-in-class electrical conductivity. Thanks to the digital workflow, data sets can be customized to your wishes. For example, special moments, captured in a photo, can be implemented in a highly individualized necklace pendant.

Material	925 Silver
Density	10,4 g/cm ³
Electrical conductivity	61,35 · 10 ⁶ A/(V·m)
Minimum wall thickness	0,35 mm
Production time*	4 - 6 working days

*after receipt of order, depending on desired finish



3D printed personalized necklace pendant in silver

Alumina and Zirconia

3D-printing is expanding the range of applications of ceramic materials significantly and is opening up areas that were previously restricted for metals and polymers. As a result, more delicate and more complex geometries can be realised than with

subtractive manufacturing. Compared to traditional techniques, such as slip casting, additive manufacturing reduces costs and processing times for prototype construction many times over.



Various geometries produced with ceramic 3D-printing

Zirconia is a widely used ceramic material in dental and medical technology. Alumina is the preferred choice for technical applications. Both ceramics have a high mechanical strength and high resistance

to chemicals, corrosion and temperature. They are also electrically insulating and biocompatible, making both materials suitable for a wide range of applications.

Material	Alumina (Al₂O₃)	Zirconia (ZrO₂)
Density	3,96 g/cm ³	6,09 g/cm ³
Surface roughness Ra	< 1,0 µm	< 1,0 µm
3-point bending strength	359 MPa	1000 MPa
Vickers hardness	1450 HV10	1250 HV10
Max. operating temperature	1650 °C	1500 °C
Thermal conductivity	37 W/(m·K)	2,5 - 3,0 W/(m·K)
Minimum wall thickness	0,15 mm	0,25 mm
Production time*	6 - 12 working days	6 - 12 working days

*after receipt of order, depending on wall thickness

PEEK, Resin and PLA Filament

We process polymers from various resins as well as PLA bio-polymer filament using 3D-printing processes. We also mill the highperformance polymer PEEK.

Material

PEEK – Polyetheretherketone

Color and surface



Bending strength

186,6 MPa

Minimum wall thickness

0,8 mm

Production time*

2 - 4 working days

Material suitable for medical devices



*after receipt of order

Material	Standard resin	Casting resin	Biocompatible resin
Color and surface			
Features	High precision, very good surface hardness and dimensional stability	Residue free burning, high precision	Material suitable for medical devices, biocompatible, high mechanical stability, sterilizable
Application	Models of any kind	Casting objects for precision casting e. g. for jewelry, dental and medical technology	Implantology, orthodontics, splints, surgical guides
Production time*	1 - 2 working days	2 - 5 working days	2 - 5 working days

*after receipt of order

You have extraordinary enquiries?

We are happy to be your contact for special requests. For example, we produced a 1:87 scale excavator in 14 carat gold.



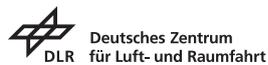
With the potential of 3D-printing, there are no limits to your creativity. You have an idea and need help with the realization? We are happy to support you and your design process from the scratch.

Cooperation with CADdent

CADdent is one of the largest dental 3D-printing and milling centres in Europe. Our strength is the manufacturing of high-precision components in combination with high-performance materials.

With 20 years of experience in additive manufacturing, we are your partner for rapid prototyping, small series and extraordinary enquiries.

Successful partnerships:



CADdent® GmbH
Max-Josef-Metzger-Str. 6 | 86157 Augsburg | Germany

Phone: +49 821 5999965-0
E-mail: prototyping@caddent.eu

Precision in each layer

W W W . C A D D E N T . E U