EN

WORLD PREMIERE
Ceramill Sintron®

ceramill sintron®

AMANNGIRRBACH

The non-precious metal revolution.

ceramill sintron®

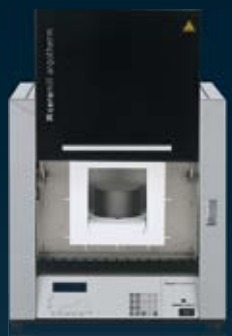
CoCr sinter metal for in-house dry processing using the Ceramill Motion

High innovation power is incorporated in the Ceramill Sintron® CoCr sinter metal from Amann Girrbach. The non-precious metal revolutionises the manufacturing process, as the wax-like texture of the Ceramill Sintron® blanks (CoCr blanks) allows them to be effortlessly dry milled on in-house desktop machines such as the Ceramill Motion 1 and 2. The labour-intensive and error-prone casting procedure and therefore time-consuming manually working stages are no longer required. The sinter process is also extremely easy: the press of a button is sufficient for an excellent result with regard to material quality. Maximum process reliability produces homogeneous, distortion-free frameworks without contraction cavities. Using the new Ceramill Sintron® it is possible to achieve predictable, reproducible fit and framework quality. Ceramill Sintron® can be veneered using any CoCr framework porcelain.

ceramill motion

Dry milling on Ceramill Motion 1 or 2

ceramill argotherm



Sintering in the Ceramill Argotherm under shielding gas flushing

ceramill sintron®

Sintered restoration showing polished and non-polished areas

The highlights of Ceramill Sintron®:

_Effortless dry milling on desktop milling machines due to the "wax-like" texture of the blanks
_Maximum convenience – the entire conventional crown and bridge non-precious metal casting procedure is no longer required
_Maximum in-house value creation – outsourcing for non-precious metal is no longer required, no dispatch times
_Great saving in time during manufacture of non-precious restorations due to in-house production and computer-based design process
_Predictable, reproducible fit and framework quality thanks to the digital processing technique

_Manufacturing process analogous to Ceramill Zi
_Amortisation turbo for the CAD/CAM system in the laboratory
_Maximum process reliability – homogeneous, distortion-free framework without contraction cavities
_No need to change the veneering porcelain (any conventional non-precious metal veneering porcelain can be used)
_Digital templates (tooth library) replace waxing up and accelerate the design
_Easy trimming and finishing of the milled framework in the green body state
_No remakes due to miscasts, as the quality is predictable
_Dry milling – no cooling necessary
_Minimal tool wear because of the wax-like texture of the blanks
_Time-consuming spruing for ingates is no longer required

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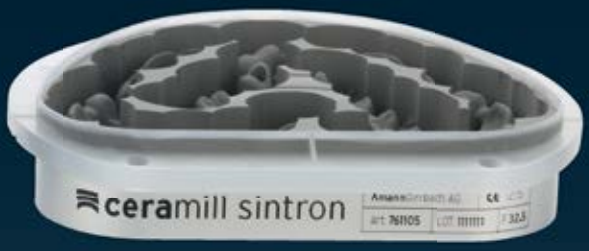
CoCr sinter metal for CAD/CAM dry milling

For the first time Ceramill Sintron® enables CNC-based* dry milling of non-precious metal restorations using desktop milling machines in-house in the laboratory. Up to now it has not been possible to fabricate CoCr restorations on "small" laboratory milling machines because of the material hardness. Due to the "wax-like" texture of the Ceramill Sintron® blanks the material can be easily dry milled in the Ceramill Motion 1 and the Ceramill Motion 2. During the subsequent sinter process with shielding gas flushing the frameworks attain their final state – a non-precious unit with a very homogeneous material structure.

Ceramill Sintron® was developed in collaboration with the Fraunhofer IFAM Dresden, Germany (www.ifam.fraunhofer.de/). Independent universities and accredited test laboratories were commissioned with relevant material and procedure testing of Ceramill Sintron®. Based on the excellent test results and feedback, the process and material quality has been validated at the highest level and guarantees maximum safety for the user and patients.

Fraunhofer IFAM



Indications:

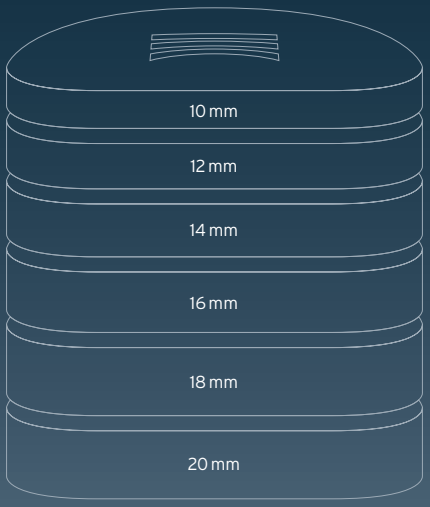
_Anatomically reduced and fully anatomical crown and bridge frameworks in the anterior and posterior region

_Bridge frameworks with a maximum of two connected pontics in the anterior and posterior region and a maximum anatomical length of 50 mm

_Cantilever bridges with a maximum of one bridge pontic (maximum one cantilever unit up to the second premolar maximum).

Contraindications:

_Known incompatibility to the components



Ceramill Sintron®71

_6 heights of blank (XXS = 10 mm to L=20 mm)

_Expansion factor of approx. 11%

_Developed specially for processing in the Ceramill system

_25 to 30 units can be milled from one Ceramill Sintron blank

ceramill argotherm/argovent

Intelligent shielding gas sintering for Ceramill Sintron®

Ceramill Argotherm is a high-temperature furnace and was specially developed for sintering Ceramill Sintron. The Ceramill Argotherm is easily operated at the press of a button and controls the sinter programme of the milled CoCr units. The compact furnace that requires minimal space is used as a benchtop model and actively cools after sintering.

ceramill argotherm

Ceramill Argovent – the sinter chamber.
The patented core of the system

_Minimum shielding gas consumption
_Perfect shielding gas flushing on the sinter framework
_Can only be used in the Ceramill Argotherm
_Capacity per sinter cycle: up to 30 units
_Easy exchange
_Low argon consumption
_Minimum shielding gas consumption
_Capacity per sinter cycle: up to 30 units

Technical data:
Art. No.: 178700
Dimensions (D x W x H) incl. servicing unit: 385 x 400 x 465 mm
Weight: 23 kg
Electrical connections: V/Hz 220-240/50-60
Power: 3.5 kW
Maximum temperature: 1,550° C
Control current fuse (slow): 4A Safety Class – IP20
Thermal protection class according to DIN EN 60519-2: Class 0
Sound pressure level: < 80 db (A)
Ambient conditions:
Temperature: +5 - +40°C
Humidity: 80%

1 Scanning the model situation

2 Design of the restoration (with virtual articulator)

3 Milling the restoration from the Ceramill Sintron® blank (dry milling in the Ceramill Motion 1 or 2)

4 Positioning the restoration in the sinter tray of the Argovent

5 Placing the sinter tray with fitted sinter cover in the furnace

6 Putting on the sinter retort and starting the sinter process

7 Ceramill Sintron® restoration after sintering and removal from the Ceramill Argotherm sintering furnace

8 Sandblasting the restoration and preparing for porcelain veneering

9 Porcelain veneering of Ceramill Sintron®

10 Polishing the fully anatomical sections

11 Checking the fit and occlusion

12 Veneered and polished Ceramill Sintron® restoration

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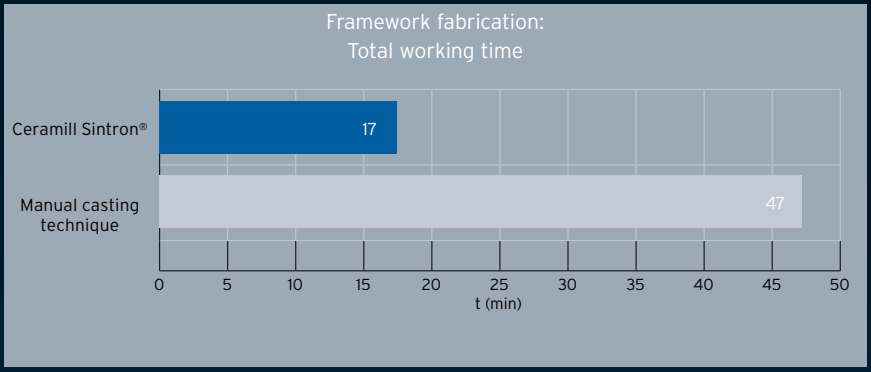
Saving in working time



Comparison of the saving in working time of the fabrication technique

Working stages taken into account: scanning > designing > nesting > sending data to the milling machine > separating connection > fitting > finishing

Source: Amann Girrbach R&D

Corrosion resistance and biocompatibility

Results for corrosion tests and biocompatibility

Test start	Standard	Fulfilled?
Corrosion	DIN EN ISO 10271:2001	✔
Tarnish resistance	DIN EN ISO 22674:2006, Pkt. 8.6	✔
Static immersion test	DIN EN ISO 10271:2011-10, Pkt 4.1	✔
Static immersion test	DIN EN ISO 10271:2011-10, Pkt 4.5	✔
Sensitisation (allergenicity)	DIN EN ISO 10993-10	✔
Cytotoxicity (after 24 h and 72 h)	DIN EN ISO 10993-5	✔
Systemic toxicity	DIN EN ISO 10993-11	✔
Intracutaneous reactivity	DIN EN ISO 10993-10	✔

_Ceramill Sintron successfully passed all corrosion and biocompatibility tests

_Ceramill Sintron fulfils all standard requirements in relation to corrosion resistance and biocompatibility that are applicable for metal materials in dentistry

Source: BIOSERV Analytik und Medizinprodukte GmbH, Rostock, Germany

Chemical composition

	Casting alloy	Sinter alloy
Components [%]	**Girobond NB**	**Ceramill Sintron®**
Cobalt (Co)	62	66
Chrome (Cr)	25	28
Molybdenum (Mo)	5	5
Tungsten (W)	5	-
Silicon (Si)	1	< 1
Cerium (Ce)	< 1	-
Iron (Fe)	< 1	< 1
Niobium (Nb)	< 1	-
Manganese (Mn)	-	< 1

Both alloys are free of nickel, beryllium, gallium and cadmium in accordance with DIN EN ISO 22674:2007.

The chemical composition of Ceramill Sintron is comparable to that of CoCr casting alloys.

Source: Amann Girrbach R&D

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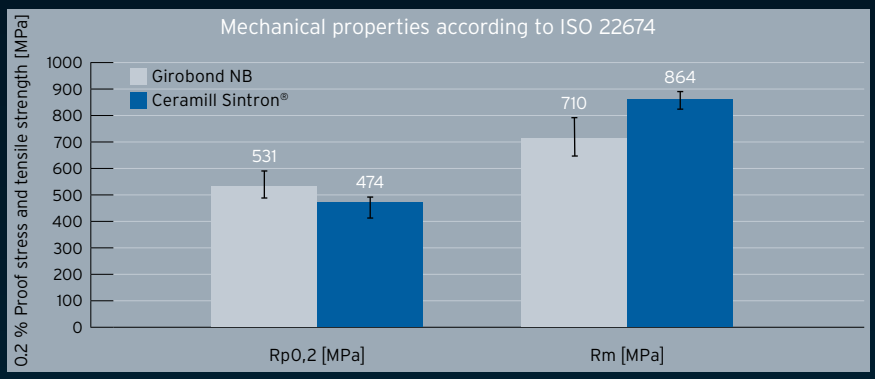
Mechanical properties

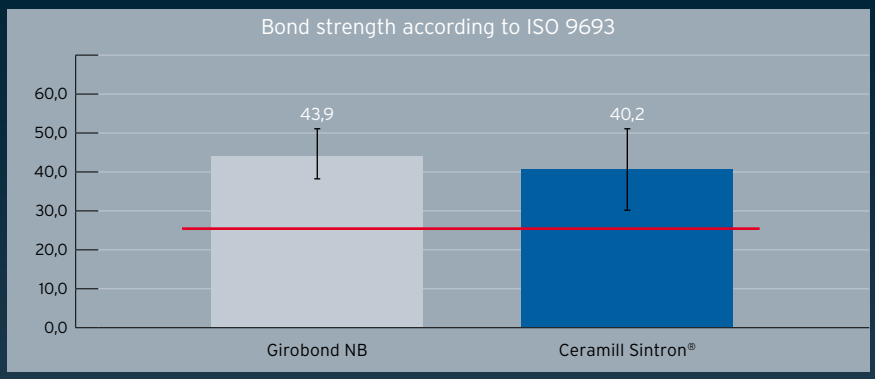


Ceramill Sintron® greatly surpasses the strength requirements of ISO 22674 for Class 4 alloys (Rp 0.2: 360 MPa).

The strength values are comparable with those of CoCr casting alloys.

Source: Amann Girrbach R&D

Bond strength



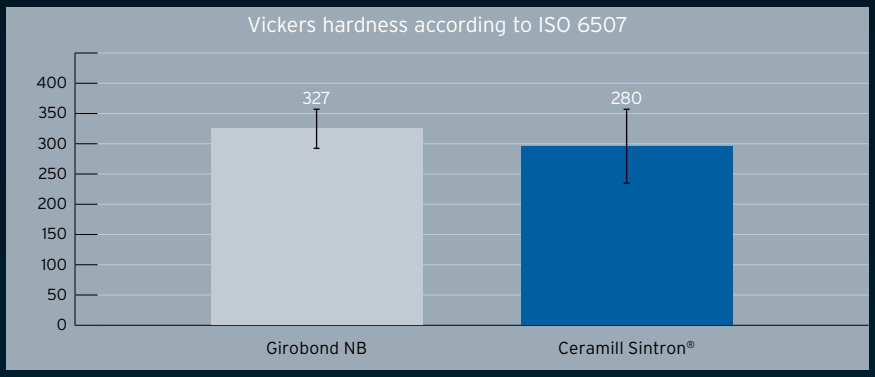
The coefficient of thermal expansion (25-500°C) of Ceramill Sintron is 14.5x10-6/K.

Ceramill Sintron can therefore be veneered with all conventional non-precious metal veneering porcelains.

The bond strength of Ceramill Sintron to veneering porcelain (in this case Creation CC) is comparable to the bond strength between CoCr casting alloys and veneering porcelain.

Source: Amann Girrbach R&D

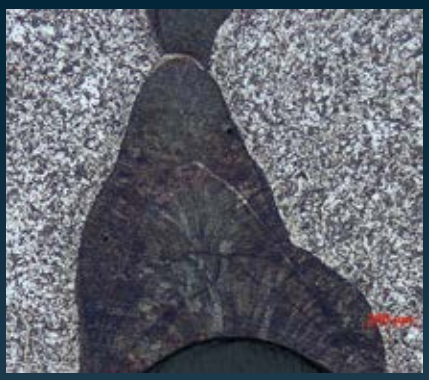
Vickers hardness HV 10



In the densely sintered state Ceramill Sintron® has a lower hardness than CoCr casting alloys, which facilitates workability/ polishability.

Source: Amann Girrbach R&D

Solderability / Laserability



The weldability and solderability of Ceramill Sintron is given as analogous to CoCr casting alloys without restriction.

Source: Amann Girrbach R&D

Ordering information

761101	Ceramill Sintron 71XXS, CoCr blank, dental arch form	h = 10 mm	1 blank per pk.
761102	Ceramill Sintron 71XS, CoCr blank, dental arch form	h = 12 mm	1 blank per pk.
761103	Ceramill Sintron 71S, CoCr blank, dental arch form	h = 14 mm	1 blank per pk.
761104	Ceramill Sintron 71, CoCr blank, dental arch form	h = 16 mm	1 blank per pk.
761105	Ceramill Sintron 71M, CoCr blank, dental arch form	h = 18 mm	1 blank per pk.

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Ceramill Sintron® -
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AMANNGIRRBACH

Headquarter
Amann Girrbach AG
Herrschaftswiesen 1
6842 Koblach, Austria
Fon +43 5523 62333-105
Fax +43 5523 62333-5119

Amann Girrbach Asia PTE.LTD.
12 Eu Tong Sen Street
#06-171 The Central
Singapore 059819 | Asia
Fon: +65 6592 5190
Fax: +65 6225 0822

austria@amanngirrbach.com
singapore@amanngirrbach.com
www.amanngirrbach.com