EN

3D PRINTING WORKFLOW FOR

ceramill®

5100 NextDent FOR ceramill

UNIQUE COOPERATION

3D Systems meets Amann Girrbach. 3D printing meets dental workflow. Together, 3D Systems and Amann Girrbach have created a unique system solution for the dental market. By pooling the core competencies of both system partners, 3D printing for the first time enables a dental and fully integrated workflow for the fabrication of dental products and tools.

The combination of the Ceramill workflow with the NextDent 5100 3D printer and the associated 3D Sprint software solution offers the user a plug & play system solution with comprehensive software access. The large selection of compatible NextDent 3D printing materials stands for a maximum range of applications in everyday laboratory work, which is further simplified by clever material management and matching post-processing options.

_Up to 3x faster printing due to Figure 4™ technology for high productivity and flexibility

_Excellent printing results in highest precision due to coordinated workflows, machines, materials and accessories

_Rapid amortization due to maximum material and indication spectrum as well as low investment and fixed costs

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SIMPLE AND INTUITIVE – FROM DESIGN THROUGH TO PRINTING

The connection of the Ceramill Mind design software to the 3D Sprint nesting software ensures greater efficiency and process stability in everyday laboratory routines. To this end, 3D Systems and Amann Girrbach created a secure interface to enable fast and simple data transfer directly from the design to the nesting software.

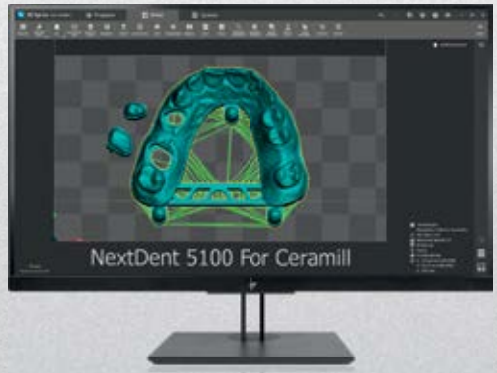
At the same time, the steps of the digital workflow were tested from an application engineering angle and adapted to the needs of the dental laboratory. As a result, preset design parameters, automatic orientation of the building object as well as an optimized workflow from design through to printing ensure a smooth and fast production process.

_End-to-end coordinated Ceramill workflow – for simple, safe and intuitive handling throughout the entire process

_Safety and time savings in everyday laboratory routine due to the automatic transfer of design data in combination with an intelligent nesting concept

_Optimally matched CAD parameters for maximum process reliability

Automatic transfer of data from the Ceramill Mind to the 3D Sprint software



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METICULOUS MATERIAL VALIDATION FOR EXCELLENT RESULTS

During the course of system coordination, all process components such as 3D printer, accessories and post-processing were carefully coordinated with each other. Special attention was paid to the validation of the materials.

The multitude of printable materials and the associated broad spectrum of indications promises maximum flexibility and cost-effectiveness. Predefined and integrated process parameters ensure simple and safe handling as well as assured quality of the restorations. The entire production and post-processing procedure is designed intuitively and reduced to just a few steps in everyday laboratory routine – for maximum efficiency with minimum expenditure of time.

_Excellent results due to validation of the material and indication spectrum within the overall system

_Simple and safe handling in the production process due to predefined parameters

_Intelligent material management system with QR code assignment secures the workflow and provides all the information on material status, material quantities and construction job assignment at a glance

WIDE RANGE OF INDICATIONS AND MATERIALS FOR MAXIMUM ROI

INDICATION	MATERIAL	
Models	NextDent for Ceramill Model 2.0	INTEGRATED
Crowns, bridges, partial dentures	NextDent for Ceramill Cast	INTEGRATED
Crowns, bridges	NextDent for Ceramill C&B MFH	INTEGRATED
Mock-up	NextDent for Ceramill Try-In	VALIDATED
Prosthetic bases	NextDent for Ceramill Denture 3D+	VALIDATED
Drilling templates	NextDent for Ceramill SG	VALIDATED
Individual trays	NextDent for Ceramill Tray	VALIDATED
Bite splints	NextDent for Ceramill Ortho Rigid	VALIDATED
Indirect bonding trays	NextDent for Ceramill Ortho IBT	VALIDATED
Flexible gingiva masks	NextDent for Ceramill Gingiva Mask	VALIDATED

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UNIQUE. FUTURE-PROOF. VALIDATED.

The combination of the familiar Ceramill workflow, the high-speed Figure 4™ technology of the NextDent 5100 for Ceramill, a validated material portfolio and proven post-processing methods provides a simple, coordinated and safe process. This unique workflow enables the user to achieve long-term cost and time savings in resin-based indications. Furthermore, Figure 4™ technology will in future map additional indications and workflows in the NextDent 5100 for Ceramill system.

DATA INPUT → CERAMILL MIND → 3D SPRINT for Ceramill → NEXTDENT 5100 for Ceramill → PRINTABLE MATERIALS → CLEANING → LIGHT CURING PROCESS → VALIDATED RESULTS

Digitization of the initial situation by means of intraoral or model scans.

Defined material selection and design parameters for maximum process reliability.

Guided fabrication workflow, auto support and orientation function for optimal printing results.

Sophisticated and coordinated barcode system ensures efficient and reproducible workflows.

Comprehensive material portfolio for maximum flexibility and economical use of the 3D printer.

Defined ultrasonic cleaning times and processing recommendations for optimum material quality.

Light curing device adapted to the material with defined curing times for precise, reproducible and standard-compliant results.

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THE HIGH-SPEED 3D PRINTER FOR DENTAL MATERIALS

The high-speed 3D printer NextDent 5100 for Ceramill with the groundbreaking Figure 4™ technology stands for high productivity at first-class speed at a price that is affordable for practically all dental laboratories.

In addition to perfect restoration results, the 3D printer scores with enormous time savings due to the revolutionary Figure 4™ technology and the oxygen-permeable membrane in the resin tray. The low pull-off forces between the membrane and the construction platform ensure a distortion-free printing process and excellent results. A gentle separation process enables the use of filigree support structures, which can not only be separated easily and without tools in the post-processing process, but also in a time-saving manner.

And last but not least, the NextDent 5100 for Ceramill convinces with its simple single-hand handling. The integrated color display can also be operated with gloves and both the construction platform and the resin tray are easily accessible and user-friendly during application.

_Up to 3x faster printing due to Figure 4™ technology for high productivity and flexibility

_Low pull-off forces due to an oxygen-permeable membrane ensure a long service life of the resin tray, easy separation of the support structures and distortion-free results

_Easy handling due to touch screen and single-hand operation of accessories such as the construction platform and resin tray

TECHNICAL DATA

Construction platform (DxWxH)	12.4 x 7.0 x 19.6 cm
Resolution	1920 x 1080 pixels
Layer thickness	30-100 µm
Printing time	Up to 12.1 cm/h depending on layer thickness
Dimensions (DxWxH)	42.6 x 48.9 x 97.1 cm / 68.1 x 70.4 x 135.6 cm (with pedestal)
Weight	34.5 kg / 54.4 kg (with pedestal)

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WORKFLOW ACCESSORIES – FOR TRUSTED AND REPRODUCABLE RESULTS

LC-3D MIXER

The LC-3D Mixer is a roller/tilting stirring device for stirring of 3D printing materials before use. Due to a defined mixing process with fixed stirring times it ensures stable material conditions before printing. Overall the best solution for constant and homogenous printing results.

ITEM	VALUE
Related voltage	AC 100 - 240 V, 50/60 Hz
Power consumption	10 W
Fuse	250 V, T2A
Dimension (WxDxH)	41 x 27 x 10 cm
Weight	4 kg

LC-3D PRINT BOX

The LC-3D Print Box is a revolutionary UV light box, suitable for post-curing 3D printing materials. The LC-3D Print Box is equipped with 12 UV light bulbs strategically placed inside the box. This ensures that a product is illuminated from all sides, which results in a quick and uniform curing cycle. The spacious interior resin allows you to easily cure multiple products at once. In addition, the box has enough space to place an articulator inside. The LC-3D Print Box is integrated in the Ceramill process and ensures validated and constant results in the Ceramill process chain.

ITEM	VALUE
Related voltage	AC 110-230V, 50/60 Hz, 2.6A/1.3A
Power consumption	10 W
Fuse	T2.0A, AC250V
Dimension (WxDxH)	41 x 44 x 38 cm
Weight	22 kg

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THE MULTITUDE OF MATERIALS OF THE NEXTDENT 5100 FOR CERAMILL

The large selection of printable materials and the associated broad spectrum of dental indications ensure maximum flexibility and economical use of the NextDent 5100 for Ceramill in everyday laboratory work.

INTEGRATED

NextDent for Ceramill Model 2.0
3D print material for models

_Simple and fast fabrication of dental models
_Perfect fit of the restorations due to highest precision
_High level of detail and surface quality

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Flexuralmodulus	≥ 1500MPa	1980	ISA 178
HardnessshoreD	≥ 80 ShoreD	84	ISO 178

Colors: peach, white, gray, ochre

INTEGRATED

NextDent for Ceramill Cast
3D print material for casting / pressing technique

_High stability of the printed structures
_Burns out residue-free for optimum results

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Flexuralmodulus	≥ 1500MPa	1980	ISA 178
HardnessshoreD	≥ 80 ShoreD	84	ISO 178

Colors: Violet

INTEGRATED

NextDent for Ceramill C&B MFH
3D print material for temporary crowns and bridges

_High strength and wear resistance
_Natural esthetics due to different colors and coordinated translucency

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Flexural strength	≥ 50MPa	107	ISA 10477
Sorption	≤ 60 µg/mm³	54	ISO 10477
Solubility	≤ 12.5 µg/mm³	5.9	ISO 10477
Biocompatibility	according to ISO Standard	comply	ISO 109993-1

Colors: BL, N1, N1.5, N2, N2.5, N3 and T1

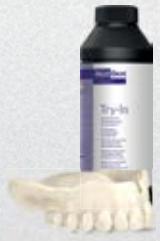
VALIDATED

NextDent for Ceramill Denture 3D+
3D print material for denture bases

_Significantly lower shrinkage than standard PMMA materials for best fit results
_Available in different colors for individual results

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Ultimate flexural strength	≥ 65MPa	84	ISA 20795-1
Sorption	≤ 32 µg/mm³	28	ISO 20795-1
Solubility	≤ 1.6 µg/mm³	0.1	ISO 20795-1
Residual monomer	≤ 2.2 % (w/w)	<0.1	ISO 20795-1
Biocompatibility	according to ISO Standard	comply	ISO 20795-1

Colors: Dark pink, light pink, pink opaque, red pink and translucent pink.



VALIDATED

NextDent for Ceramill Try-In
3D print material for try-in prosthetics

_Best choice for checking digitally designed prosthetic bases with individually designed tooth setups
_Biocompatible MD Class I material

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Flexuralmodulus	≥ 1500MPa	2043	ISO 20795-1
Biocompatibility	according to ISO Standard	comply	ISO 20795-1

Colors: TI0, TI1 and TI2

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NextDent for Ceramill SG (Surgical Guide)
3D print material for drilling templates

_Easy insertion of the drilling sleeves due to highest precision
_Can be sterilized with standardized autoclaving protocols
_Biocompatible MD Class I material

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Ultimate flexural strength	≥ 50 MPa	85	ISA 20795-1
Flexuralmodulus	≥ 1500 MPa	2118	ISO 20795-1
Residualmonomer	≤ 2.2 % (w/w)	< 0.1	ISO 20795-1
Biocompatibility	according to ISO Standard	comply	ISO 10993-1

Color: orange translucent

VALIDATED

NextDent for Ceramill Tray
3D print material for individual trays

_Quality impressions with high precision in next to no time
_Compatible with all types of impression materials
_Biocompatible MD Class I material

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Ultimate flexural strength	≥ 50MPa	81	ISA 20795-1
Flexuralmodulus	≥ 1500MPa	2015	ISO 20795-1
Residualmonomer	≤ 2.2 % (w/w)	< 0.1	ISO 20795-1
Biocompatibility	according to ISO Standard	comply	ISO 10993-1

Colors: blue, pink

VALIDATED

NextDent for Ceramill Ortho IBT
3D print material for orthodontic transfer splints

_Easy positioning and application of orthodontic brackets due to precise and flexible splint material
_Biocompatible MD Class I material

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
ShoreA hardness	75-90	85	ISO 101392
Elongation at break	10-20 %	17	ISO 527-1 ISO 527-2
Biocompatibility	according to ISO Standard	comply	ISO 10993-1

Color: transparent

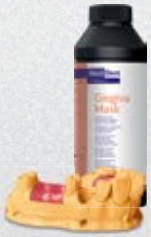
VALIDATED

NextDent for Ceramill Ortho Rigid
3D print material for splints

_Fast fabrication of precisely fitting splints
_Biocompatible MD Class I material

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
Ultimate flexural strength	≥ 50 MPa	78	ISA 20795-2
Sorption	≤ 32 µg/mm³	0.8	ISO 20795-2
Solubility	≤ 5.0 µg/mm³	0.8	ISO 20795-2
Residualmonomer	≤ 5.0 % (w/w)	< 0.1	ISO 20795-2
Biocompatibility	according to ISO Standard	comply	ISO 10993-1

Color: blue transparent



VALIDATED

NextDent for Ceramill Gingiva Mask
3D print material for gingival masks

_Easy fabrication of flexible parts such as gingival masks
_Best results in combination with Model 2.0

PROPERTY	REQUIREMENT	RESULT	ISO STANDARD
ShoreA hardness	60-75	1980	ISO 10139-2
Elongation at break	40-60 %	53	ISO 527-1 ISO 527-2

Color: pink

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ORDERING INFORMATION

NextDent 5100 for Ceramill

181600	**NextDent 5100 – AG**	
181602	Resin Tray – ND 5100	1 pc.
181604	Printer Platform – ND 5100	2 pcs.
181605	Filter, Carbon – ND 5100	1 pc.
181606	Filter, Intake – ND 5100	1 pc.
181607	Punch Tool – ND 5100	1 pc.
181608	Platform Scraper – ND 5100	1 pc.
181609	Scouring Brush – crimp brass – ND 5100	1 pc.
181610	Part Cleaning Brush – ND 5100	1 pc.
181611	Resin Mixer – ND 5100	1 pc.

Printer Pedestal
Stand for NextDent 5100 for Ceramill

181601	Printer Pedestal	1 pc.

NextDent LC-3D Print Box
Post-curing furnace for 3D printing materials

181800	NextDent LC-3D Print Box – AG	1 pc.

NextDent LC-3D Mixer
Stirring device for mixing 3D printing materials

181810	NextDent LC-3D Mixer – AG	1 pc.

Resin Tray Kit
Resin tray including storage garage kit

181602	Resin Tray – ND 5100	1 pc.

Storage Garage Kit
For safe storage of the filled resin tray

181603	Storage Garage Kit – ND 5100	1 pc.

Printer Platform
Building platform

181604	Printer Platform – ND 5100	1 pc.

Filter, Carbon

181605	Filter, Carbon – ND 5100	1 pc.

Filter, Intake

181606	Filter, Intake – ND 5100	1 pc.

Punch Tool
Separating aid for printed objects

181607	Punch Tool – ND 5100	1 pc.

Platform Scraper
Cleaning tool

181608	Platform Scraper – ND 5100	1 pc.

Scouring Brush – Crimp Brass
Cleaning tool

181609	Scouring Brush – crimp brass – ND 5100	1 pc.

Part Cleaning Brush
Cleaning tool

181610	Part Cleaning Brush – ND 5100	1 pc.

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ORDERING INFORMATION

Resin Mixer
Material mixer for resin tray

181611	Resin Mixer – ND 5100	1 pc.

NextDent Cast
3D print material for casting / pressing technique

NPAGCAPU01000	NextDent Cast / Purple	1000 g

NextDent C&B MFH
3D print material for temporary crowns and bridges

NPAGCMT101000	NextDent C&B MFH / T1	1000 g
NPAGCMN101000	NextDent C&B MFH / N1	1000 g
NPAGCMN1.501000	NextDent C&B MFH / N1.5	1000 g
NPAGCMN201000	NextDent C&B MFH / N2	1000 g
NPAGCMN2.501000	NextDent C&B MFH / N2.5	1000 g
NPAGCMN301000	NextDent C&B MFH / N3	1000 g
NPAGCMBL01000	NextDent C&B MFH / BL	1000 g

NextDent Gingiva Mask
3D print material for gingival masks

NPAGGMPI01000	NextDent Gingiva Mask	1000 g

NextDent Model 2.0
3D print material for models

NPAGM2PE01000	NextDent Model 2.0 / Peach	1000 g
NPAGM2WH01000	NextDent Model 2.0 / White	1000 g
NPAGM2GR01000	NextDent Model 2.0 / Grey	1000 g
NPAGM2OK01000	NextDent Model 2.0 / Ochre	1000 g

NextDent Ortho IBT
3D print material for orthodontic transfer splints

NPAGOICL01000	NextDent Ortho IBT	1000 g

NextDent Ortho Rigid
3D print material for bite splints

NPAGORBL01000	NextDent Ortho Rigid	1000 g

NextDent Ortho SG
3D print material for drilling templates

NPAGSGOR01000	NextDent SG / Orange	1000 g

NextDent Tray
3D print material for individual trays

NPAGTRBL01000	NextDent Tray / Blue	1000 g
NPAGTRPI01000	NextDent Tray / Pink	1000 g

NextDent Try-In
3D print material for try-ins

NPAGTITI001000	NextDent Try-In / TI0	1000 g
NPAGTITI101000	NextDent Try-In / TI1	1000 g
NPAGTITI201000	NextDent Try-In / TI2	1000 g

NextDent Denture 3D+
3D print material for prosthetic bases

NPAGD3DP01000	NextDent Denture 3D+ / Dark Pink	1000 g
NPAGD3LP01000	NextDent Denture 3D+ / Light Pink	1000 g
NPAGD3OP01000	NextDent Denture 3D+ / Opaque Pink	1000 g
NPAGD3TP01000	NextDent Denture 3D+ / Translucent Pink	1000 g
NPAGD3RD01000	NextDent Denture 3D+ / Red Pink	1000 g

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