merz
DENTAL

NEXT LEVEL 3D PRINTING

M-PRINT
ADDITIVE MANUFACTURING

OUTSTANDING RESULTS WITH

M-PRINT
3D DENTAL RESINS

HIGHCLASS . BIOCOMPATIBLE . MADE IN GERMANY

From the scanning process to the CAD of models, splints or try-ins, up to the subtractive or additive manufacturing of aids or dentures - with Merz Dental your entry into the digital workflow is flexible and tailored to your needs. Profit from more precise results, increased process reliability and more efficiency. Add innovative 3D printing liquids to your proven workflows.

FAST . EASY . RELIABLE

As an expert in the field of prosthetics and dental acrylics, with many years of experience in the digital dental process chain, Merz Dental now also developed modern manufacturing of 3D printing liquids for the dental workflow.

Coordinated components of hardware, software and materials form a complete solution for the flexible, simple and reliable production of a wide variety of workpieces or medical devices. In terms of precision, accuracy of fit and stability, Merz Dental 3D printing resins meet the highest requirements.

MMA
FREE

BPA
FREE

THF-MA
FREE

READY 2 PRINT

✔ **Free of fillers and suspended matter**
for maximum precision and accuracy of fit

✔ **Free of color pigments**
for maximum sedimentation stability

✔ **Homogeneous formulation**
for maximum stability and fracture toughness

✔ **No deposit during the entire production time**
No shaking necessary before use!

R2P

✔ Overview of compatible 3D printers

✔ Print parameters

✔ Examples of data records

www.merz-dental.de/en/digital-solutions

## Rapid-Prototyping

M-PRINT Proto

Light-curing acrylate-based premium resin for the additive manufacturing of objects of all kinds.

Your time-saver

Your creativity

R₂P
Ready 2 Print

Product benefits

- ✔ *R₂P* - **no shaking necessary**
- ✔ Printing from 25 µm to 100 µm layer thickness
- ✔ High shape and edge stability for best results of filigree structures and objects
- ✔ High dimensional stability and warp resistance for precise, warp-free objects
- ✔ Maximum surface hardness for mechanical stress without changes in shape
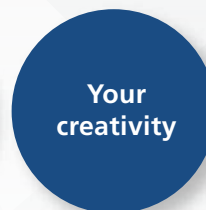
Areas of application

- 3D printed objects of all kinds

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	920 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	108 ± 4 MPa	ISO 178
Modulus of elasticity	3000 ± 100 MPa	ISO 178
Glass transition	93 °C	ISO 11357
Vickers hardness	20 ± 1 HV0,2	ISO 6507-1*

*based on

DELIVERY FORM	COLOR	REF
1000 g	● clear	1084025
1000 g	● cobalt-blue	1084026

Designed for tray-based photopolymerisation at 385 nm
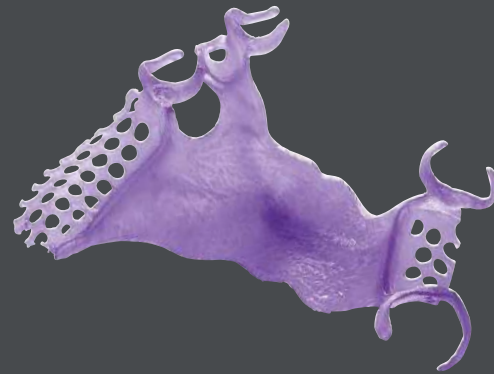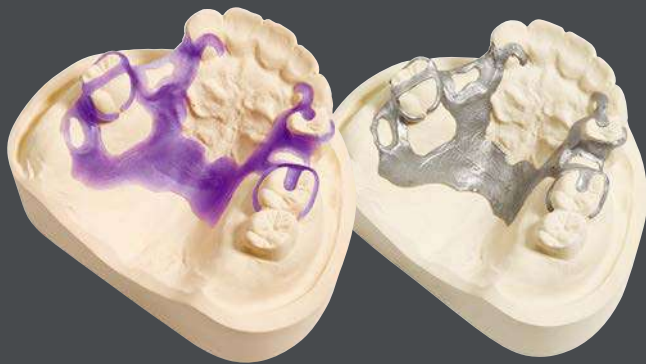
Cast Objects

M-PRINT Cast

Burn-out, light-curing acrylate-based premium resin for the additive manufacturing of objects in the press and model casting technique.

Finest structures

Burns-out

R₂P
Ready 2 Print

Product benefits

✔ **R₂P - no shaking necessary**

✔ Burns-out without residue (< 0.1 %), even with large volume parts

✔ Warp-free, even with large-volume (voluminous) objects

✔ Matched to phosphate-bonded investment materials

✔ High strength, shape and edge stability, best drawing accuracy for filigree structures

✔ The finest structures thanks to layer thicknesses of up to 25 µm - precise reproduction with the finest surface structure

Areas of application

• Cast objects of all kinds

• Applicable in the conventional as well as in the speed casting process for press ceramics e.g. veneers, inlays or onlays

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	1000 ± 200 mPa·s	ISO 3219
End product		
Flexural strength	104 ± 3 MPa	ISO 178
Modulus of elasticity	2900 ± 200 MPa	ISO 178
Glass transition	86 °C	ISO 11357
Ash content	< 0,1 %	ISO 3451-1*

*based on

DELIVERY FORM	COLOR	REF
1000 g	● purple	1084010

Designed for tray-based photopolymerisation at 385 nm
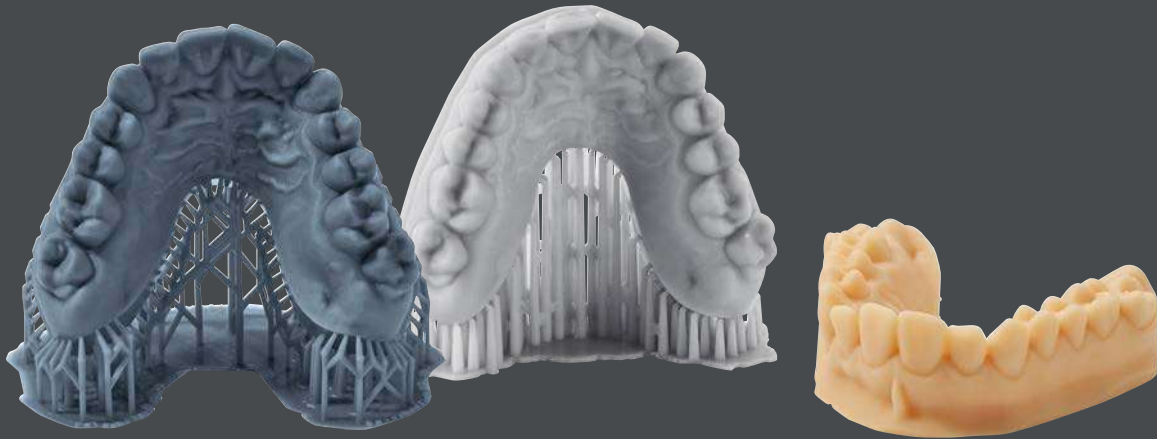
Production of Models

M-PRINT Model

Opaque, light- and moisture-stable, light-curing 3D printing resin for the production of very precise, true-to-detail master, stump and / or functional models with finest and smooth surface structure.

Without fillers & pigments

High Precision

R₂P **Ready 2 Print**

Product benefits

- ✔ **R₂P - no shaking necessary**
- ✔ Very dimensionally stable, precisely grindable
- ✔ Preparation lines optimally visible through opacity
- ✔ High construction precision - for an excellent fit of model stumps
- ✔ High efficiency - thanks to the low-viscosity setting of the resin for lower material consumption and short post-processing

Areas of application

- Models
- Model stumps
- Models for splints and functional models

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	950 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	68 ± 2 MPa	ISO 178
Modulus of elasticity	1600 ± 100 MPa	ISO 178

DELIVERY FORM	COLOR	REF
1000 g	● ash-gray	1084017
1000 g	● taupe-gray	1084018
1000 g	● sand	1084020

Designed for tray-based photopolymerisation at 385 nm
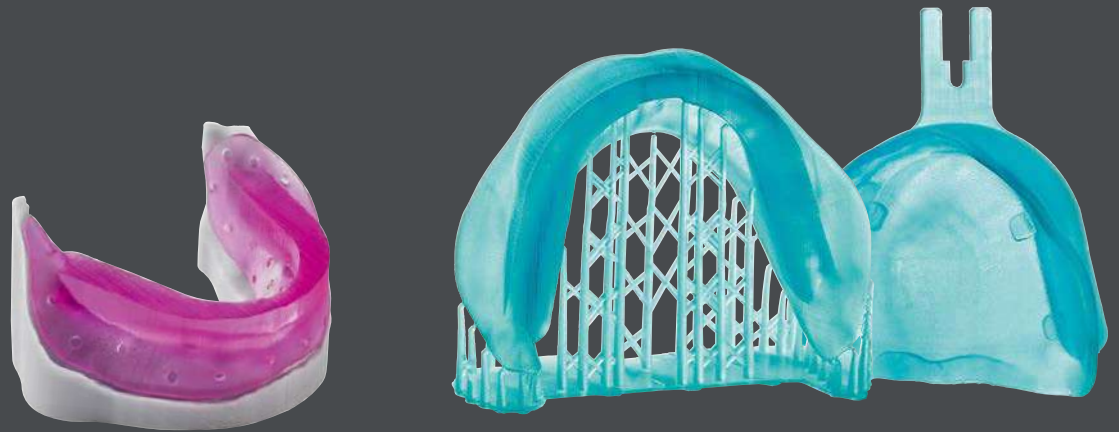
Individual Impression Trays

M-PRINT Tray

Light-curing, biocompatible 3D printing resin for the production of individual functional trays and impression trays, bite registration, transfer keys and base plates.

Medical Device Class I

Layer thicknesses up to 150 μm

R_2P
Ready 2 Print

Product benefits

- ✓ **R_2P - no shaking necessary**
- ✓ Biocompatibility tested according to EN ISO 10993-1
- ✓ High dimensional stability and warp resistance for exact, distortion-free impressions
- ✓ Odorless and tasteless
- ✓ Retention holes can be planned in advance in the CAD modeling
- ✓ Effective, as it is optimised for high printing speeds and high layer thicknesses of up to 150 μm

Areas of application

- Individual functional trays and impression trays
- Bite registrations
- Transfer keys
- Base plates

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	900 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	116 ± 10 MPa	ISO 10477
Modulus of elasticity	2900 ± 300 MPa	ISO 10477*
Glass transition	91 °C	ISO 11357

*based on

DELIVERY FORM	COLOR	REF
1000 g	● aqua	1084035
1000 g	● hot-pink	1084036

CE

Designed for tray-based photopolymerisation at 385 nm
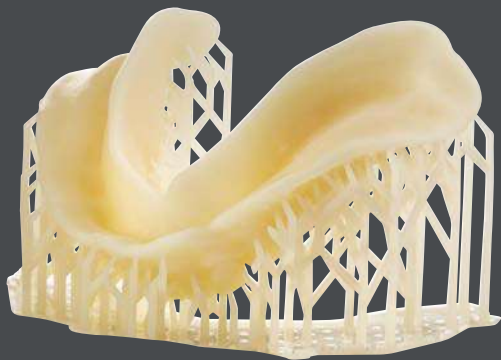
Try-ins

M-PRINT TryIn

Light-curing, biocompatible 3D printing resin for the production of try-ins for the intraoral check-up of digitally designed dentures.

Medical Device Class I

Matched to the production of digital dentures with the Baltic Denture System

R₂P Ready 2 Print

Product benefits

✔ **R₂P - no shaking necessary**

✔ Biocompatibility tested according to EN ISO 10993-1

✔ For realistic assessment of fit, phonetics and aesthetics prior to final construction

✔ Suitable for checking bite registration and occlusion functionality

✔ Available in the colors ivory and gum for monochrome try-ins or aesthetic bicolor

✔ Odorless and tasteless

✔ High precision - for excellent fit of denture base and arch

✔ Precisely grindable for patient-specific adjustments by the dentist

Areas of application

• Try-in for removable full and partial dentures

• Correction impression and bite registration

coming soon

CE

DELIVERY FORM	COLOR	REF
500 g	ivory	1084046
1000 g	ivory	1084047
500 g	gum	1084048
1000 g	gum	1084049

Designed for tray-based photopolymerisation at 385 nm

Drilling templates

M-PRINT Surgical guide

Biocompatible, liquid, light-curing acrylate-based premium resin especially tailored for surgical drilling templates for exact contouring in the area of drill sleeves.

Medical Device Class I

Without fillers & pigments

R_2P Ready 2 Print

Product benefits

✔ **R_2P - no shaking necessary**

✔ Biocompatibility tested according to EN ISO 10993-1

✔ Dimensionally stable, for the exact positioning and fixation of the drill sleeves, for safe insertion in the patient

✔ Very good precision and a perfect fit for the respective bone and soft tissue conditions

✔ Warp resistant, for the surgically precise and safe insertion of dental implants

✔ Color ice blue for visual control in the work area

✔ Easily polishable

✔ Mucous membrane friendly

Areas of application

• Drilling templates for the surgically precise and safe insertion of dental implants

• Positioning templates

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	830 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	100 ± 8 MPa	ISO 10477
Modulus of elasticity	2600 ± 200 MPa	ISO 10477*
Glass transition	96 °C	ISO 11357

*based on

DELIVERY FORM	COLOR	REF
1000 g	ice-blue	1084040

CE

Designed for tray-based photopolymerisation at 385 nm

Sterilisable drilling templates

class I
MDR
conform

M-PRINT Surgical guide HT

Biocompatible, liquid, light-curing acrylate-based premium resin especially tailored for sterilisable surgical drilling templates for exact contouring in the area of drill sleeves.

Medical Device Class I

Without fillers & pigments

R₂P Ready 2 Print

Product benefits

- ✔ **R₂P - no shaking necessary**
- ✔ Biocompatibility tested according to EN ISO 10993-1
- ✔ Dimensionally stable, for the exact positioning and fixation of the drill sleeves, for safe insertion in the patient
- ✔ Very good precision and a perfect fit for the respective bone and soft tissue conditions
- ✔ Warp resistant, for the surgically precise and safe insertion of dental implants
- ✔ High rigidity, low deformation due to a very high modulus of elasticity
- ✔ Steam sterilisable up to 273.2 °F (134 °C)

- ✔ Color spring green for reliable visual control of the correct fit through good contrast in the oral cavity
- ✔ Easily polishable
- ✔ Mucous membrane friendly

Areas of application

- Sterilisable drilling templates for the surgically precise and safe insertion of dental implants
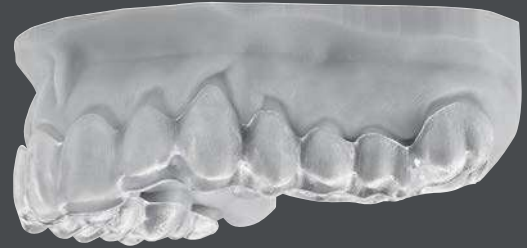- Sterilisable positioning templates

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	650 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	130 ± 5 MPa	ISO 10477
Modulus of elasticity	3150 ± 130 MPa	ISO 10477*

*based on

DELIVERY FORM	COLOR	REF
1000 g	● spring-green	1084041

CE

Designed for tray-based photopolymerisation at 385 nm

Occlusal splints and bite splints

M-PRINT Splint

Biocompatible, light-curing premium acrylate-based resin for the additive manufacturing of occlusal / bite splints of all kinds.

Medical Device Class IIa

Unlimited wearing time

R2P Ready 2 Print

Product benefits

✔ **R2P - no shaking necessary**

✔ Biocompatibility tested according to EN ISO 10993-1

✔ Tasteless, high wearing comfort for high patient satisfaction

✔ Medical Device Class IIa - can permanently remain in the mouth

✔ High precision for a perfect fit

✔ Color stable, permanently clear

✔ Dimensionally stable

✔ Easily polishable

Areas of application

- Occlusal splints and bite splints of any kind
- Bleaching trays

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	825 ± 100 mPa·s	ISO 3219
End product		
Flexural strength	70 ± 6 MPa	ISO 20795-1
Modulus of elasticity	1800 ± 200 MPa	ISO 20795-1
Glass transition	93 °C	ISO 11357
Vickers hardness	20 ± 1 HV0,2	ISO 6507-1*

*based on

DELIVERY FORM	COLOR	REF
1000 g	● clear	1084050

CE 0482

Designed for tray-based photopolymerisation at 385 nm
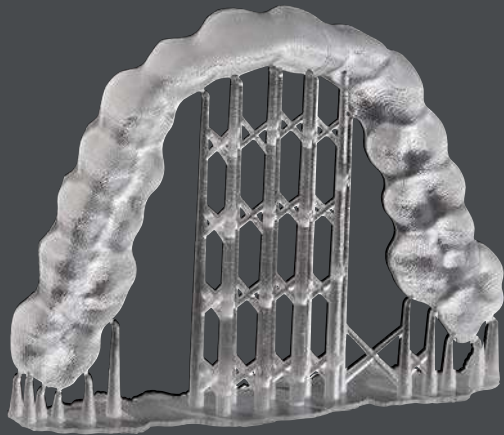
Flexible occlusal splints / bite splints

M-PRINT Splint flex

Biocompatible, light-curing premium acrylate-based resin for the additive manufacturing of flexible occlusal splints / bite splints of all kinds.

Medical Device Class IIa

Unlimited wearing time

R₂P
Ready 2 Print

Product benefits

- ✔ **R₂P - no shaking necessary**
- ✔ Biocompatibility tested according to EN ISO 10993-1
- ✔ Medical Device Class IIa - can permanently remain in the mouth
- ✔ Increased wearing comfort thanks to pleasant flexibility
- ✔ High precision for a perfect fit
- ✔ Color stable, permanently clear
- ✔ Dimensionally stable
- ✔ Easily polishable

Areas of application

- Flexible occlusal splints and bite splints of any kind
- Bleaching trays

Material properties

Property	Value	Test Method
Acrylate mixture		
Viscosity	700 ± 100 mPa·s	ISO 3219

CE 0482

DELIVERY FORM	COLOR	REF
1000 g	● clear	1084051

Designed for tray-based photopolymerisation at 385 nm

M-PRINT	Areas of application	MDC*	Color	Viscosity	Flexural strength	Module of elasticity	Glass transition	Vickers hardness	Wave-length	Layer thickness
Proto	• 3D printed objects of all kinds	–	• clear • cobalt-blue	920 ± 100 mPa·s	108 ± 4 MPa	3000 ± 100 MPa	93 °C	20 ± 1 HV0,2	385 nm	25 µm 50 µm 100 µm
Cast	• Cast objects of all kinds	–	• purple	1000 ± 200 mPa·s	104 ± 3 MPa	2900 ± 200 MPa	86 °C	–	385 nm	25 µm 50 µm 100 µm
Model	• Models • Model stumps • Models for splints and functional models	–	• ash-gray • taupe-gray • sand	950 ± 100 mPa·s	68 ± 2 MPa	1600 ± 100 MPa	–	–	385 nm	25 µm 50 µm 100 µm
Tray	• Individual functional trays and impression trays • Bite registrations • Transfer keys • Base plates	I	• aqua • hot-pink	900 ± 100 mPa·s	116 ± 10 MPa	2900 ± 300 MPa	91 °C	–	385 nm	50 µm 100 µm 150 µm
TryIn	• Try-in • Correction impression • Bite registration	I	• ivory** • gum**						385 nm	50 µm 100 µm
Surgical guide	• Drilling templates • Positioning templates	I	• ice-blue	830 ± 100 mPa·s	100 ± 8 MPa	2600 ± 200 MPa	96 °C	–	385 nm	25 µm 50 µm 100 µm
Surgical guide HT	• Sterilisable drilling templates • Sterilisable positioning templates	I	• spring-green	650 ± 100 mPa·s	130 ± 5 MPa	3150 ± 130 MPa	–	–	385 nm	25 µm 50 µm 100 µm
Splint	• Occlusal / bite splints • Bleaching trays	IIa	• clear	825 ± 100 mPa·s	70 ± 6 MPa	1800 ± 200 MPa	93 °C	20 ± 1 HV0,2	385 nm	25 µm 50 µm 100 µm
Splint flex	• Flexible occlusal / bite splints • Bleaching trays	IIa	• clear	700 ± 100 mPa·s	–	–	–	–	385 nm.	25 µm 50 µm 100 µm

*Medical Device Class

**planned

M-PRINT 3D printing liquids are generally compatible with DLP printers with a wavelength of 385 nm. Print parameters are available for the following printers.

Updated overview available at www.merz-dental.com

Legend:
- ✔ available print parameters
- ● parameters under evaluation

EU Medical Device Class	M-PRINT			REF	Nexa3D XiP	Carima Carima IMD	W2P SolFlex / SolLab	VOCO SolFlex 170 / 350 / 650	Rapid Shape D20+ / D30+	Asiga MAX / MAX X / PRO 4K	Ackuretta FreeShape 120	DEKEMA trix print²
TECHNICAL RESINS	Proto	clear		1084025	●	✔	✔	✔	●	✔	✔	✔
	Proto	cobalt-blue		1084026	●	✔	✔	✔	●	✔	✔	✔
	Cast	purple		1084010	✔	✔	✔	✔	✔	✔	✔	✔
	Model	ash-gray		1084017	✔	✔	✔	✔	✔	●		✔
	Model	taupe-gray		1084018	✔	✔	✔	✔	✔	●		✔
	Model	sand		1084020	✔	✔	✔	✔	✔	●		✔
MEDICAL RESINS	I	Tray	aqua	1084035	✔	✔	✔	✔	✔	✔	✔	✔
	I	Tray	hot-pink	1084036	✔	✔	✔	✔	✔	✔	✔	✔
	I	Surgical guide	ice-blue	1084040	●	✔	✔	✔	✔	✔		✔
	I	Surgical guide HT	spring-green	1084041	●	✔	✔	✔	●	✔		✔
	IIa	Splint	clear	1084050	●	✔	✔	✔	✔	✔		✔
	IIa	Splint flex	clear	1084051	●	✔	✔	✔	✔	✔		✔

Reliable . Innovative . Proven

Merz Dental is certified according to EN ISO 13485 and offers therefore the security and advantages of a future orientated quality management system.