3D medical models

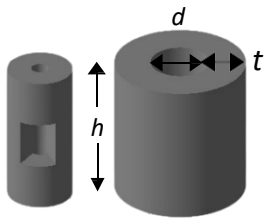
Design Guidelines

For surgical guides produced with Selective Laser Sintering in polyamide 12.

All information in this datasheet is based on validated tests. To guarantee the successful cleaning and sterilization of the 3D-printed surgical guide, the following dimensional requirements for the drilling and cutting features apply. All values are independent of print orientation. All surgical guides need to be marked with a patient number for traceability.

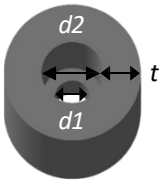
DRILLING GUIDE

	Cylinder height, h [mm]		
Wall thickness, *t* [mm]	**Up to 10 mm**	**Up to 30 mm**	**Up to 30 mm with opening in wall**
up to 2 mm	d ≥ Ø 1.4	d ≥ Ø 2.5	d ≥ Ø 1.4
up to 5 mm	d ≥ Ø 2.0	d ≥ Ø 2.5	d ≥ Ø 2.5



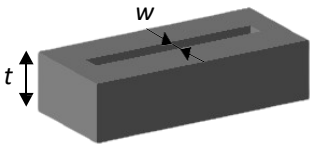
DRILL STOPS

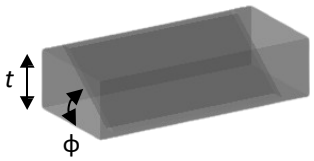
Maximum difference in diameter	**d2-d1 [mm]**
	Δd = Ø 2.0



CUTTING GUIDE

Part thickness, *t* [mm]	**Angle, ϕ [°]**	**Slit dimensions, *w* [mm]**
0.7 to 4 mm	Up to 45°	≥ 0.7
4 to 10 mm	0	≥ 1.0
4 to 10 mm	Up to 45°	≥ 1.2





DIMENSIONS

Build volume	192 x 240 x 315 mm
Maximum part volume	561 cm^3

	Part thickness [mm]
Minimum	0.7
Optimum	1.5-6.0
Maximum*	10.0

**When exceeding the maximum part thickness of 10 mm, the part should be hollowed with a thickness of 3-4 mm.*

LABELLING

	Patient ID	Provide patient ID	
Anatomical landmark (optional)		Include anatomical location/direction	
	Font	Arial (sans-serif)	
Debossed/ embossed text	**Optimum font depth [mm]**	**Maximal font depth [mm]**	**Font height [mm]**
	0.5	1.2	≥ 3

Please note that due to the layer-by-layer production process and the specific design of each individual product values may differ. If your design contains specific details or features not mentioned in our design rules, or your design exceeds the maximum part dimensions, please contact 3D Medical Models, so we can advise you on how to obtain the required part quality. In addition to these application-specific rules, the general design guidelines of Oceanz PA12 apply (www.oceanz.eu).

BAAT Medical Products BV
F. Hazemeijerstraat 800 – A04
7555 RJ Hengelo
The Netherlands
www.baatmedical.com

Oceanz 3D Medical Models B.V.
Maxwellstraat 21
6716 BX Ede, The Netherlands
info@3dmedicalmodels.nl
www.3dmedicalmodel.nl

Tolerance grades

Tolerance values, depending on printing direction.

The values are based on appropriate testing. 3D Medical Models will always aim for the most optimal printing direction (z-direction for channels). In that case, the following tolerance values apply:

OPTIMAL PRINTING DIRECTION	Min [mm]	Max [mm]
Linear dimensions	-0,3	0,3
Length slot	-0,3	0,3
Width slot	-0,3	0,1
Diameter hole	-0,4	0,1

If it is not possible to print all features in the optimal printing direction, the tolerance values of the table below for those features apply. For more information, please contact 3D Medical Models.

ALL PRINTING DIRECTIONS	Min [mm]	Max [mm]
Linear dimensions	-0,5	0,5
Length slot	-0,5	0,5
Width slot	-0,5	0,3
Diameter hole	-0,5	0,3

BAAT Medical Products BV
F. Hazemeijerstraat 800 – A04
7555 RJ Hengelo
The Netherlands
www.baatmedical.com

Oceanz 3D Medical Models B.V.
Maxwellstraat 21
6716 BX Ede, The Netherlands
info@3dmedicalmodels.nl
www.3dmedicalmodel.nl