

# MT-BRONZE

MT-BRONZE is our 80% bronze filled filament which is easy to print, sand & polish. With MT-BRONZE you can create the most beautiful objects with real METAL characteristics, such as a 3 x higher weight than PLA, a METAL feel & touch and thermo-conductivity. Due to the high percentage of fillers MT-BRONZE has virtually no shrinkage. A special lubricant increases the flow and prevents MT-BRONZE to adhere to the nozzle. Finally all above combined with the correct hardness results in a filament that can be printed on almost every type of FDM 3d printer available on the market with retraction enabled on nozzles  $\geq 0.35$  mm.

## Material features:

- Approx. 80% bronze content
- PLA-based, 3 times heavier
- Metal feel & "cold" touch
- Excellent printability on both direct & Bowden style 3D printers
- Processing additive added for easy & reliable printing
- Quick & easy polishing and other post-processing
- Possibility to print with retraction
- Works on nozzles  $\geq 0.35$  mm



Printed

Sanded & Polished

Patinated

## Colours:

M-ABS is available from stock in 12 colours. Other colours on request



## Packaging:

M-ABS is available in nearly any type of packaging and labeling. Ask our team to help you customizing your product.

## Filament specs.

Size	Ø tolerance	Roundness
1,75mm	$\pm 0,05$ mm	$\geq 95\%$
2,85mm	$\pm 0,10$ mm	$\geq 95\%$

## Material properties

Description	Testmethod	Typical value
Specific gravity	ISO 1183	3,39 g/cc
MFR 190°C/2,16 kg	-	n.a.
Tensile strength at yield	ISO 527	18,3 Mpa
Strain at break	ISO 527	8,0%
Tensile Modulus	ISO 527	3990 Mpa
Impact strength - Izod method 23°C	ISO 180/A	11,3 kJ/m2
Printing temp.	DF	210 $\pm$ 10°C
Melting temp.	ISO 294	195 $\pm$ 10°C
Vicat softening temp.	ISO 306	65°C

## Additional info:

MT-BRONZE can be printed without a heated bed, but if you do have a heated bed the recommended temperature is  $\pm 35$ -60°C. Storage: Cool and dry (15-25°C) and away from UV light. This enhances the shelf life significantly.

MT-BRONZE can be used on all common desktop FDM or FFF technology 3D printers.

\* Please consider the use of a hardened steel nozzle when printing with MT-BRONZE.

The bronze powder inside makes the filament abrasive and will result in fast wear of regular brass nozzles.

\* Please have a look at the Printing, post-processing & other info document for further tips & tricks.

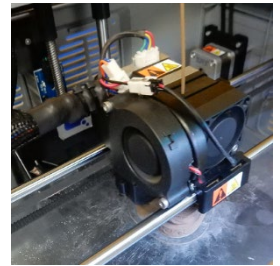
# Printing, post-processing & other info

## Printing:

The MT range of filaments, such as MT-COPPER and MT-BRONZE are quite easy to print on any type of hot-end with any 0.35- or 0.4-mm nozzle although we do recommend a spring-loaded extruder with a (hardened) stainless steel nozzle. The high percentage of metal makes the filament abrasive which will result in quick nozzle degradation with regular messing nozzles.

Through extensive testing we can report that retraction does not have to be disabled. it is recommended to first do some tests to check whether your tension settings are perfect when your 3D printer does not have a spring-loaded extruder.

**Testing shows excellent results on any Direct, Bowden or Hybrid type extruder / hot-end combination.**



## Post-Processing:



Post-processing the MT range is quite an easy process though manual labour is required when you do not have access to a so called “rock tumbler” which gives the best polished results.

Step 1: A 3D printed Buddha with 90% infill and 0.15 layers

Step 2: This photo shows the Buddha after a quick brushing with a soft messing brush.

Step 3: Photo 3 displays the Buddha after sanding with 600 grid sandpaper and water\*

Step 4: During this step of the process we took a Dremel with a polish wheel together with metal polish which results in a shiny metal object. Depending on how much time and effort is put in step 3 & 4 you will have even better results.

Step 5: This step of the process is optional although many people love to have a patina on their printed object for aesthetical reasons\*

\* Do not worry about the white haze after sanding. This is a byproduct from our included process aid which will be gone after polishing

## Important information:

MT-COPPER and MT-BRONZE are filled with 80% metal powder which results in Abrasiveness to your nozzle. We have found that this should not give any problems during printing though it is recommended to use specialized “hardened” (stainless steel) nozzles as these do not wear as quick as common brass nozzles.

In the photo on the right you can see the wear of a standard Dremel 3D printer nozzle after printing non-stop for 22.5 hours.



If you decide to print with a regular nozzle, we recommend that you change to a new nozzle in between prints to avoid disappointing print quality or defects in your printed object.