MT-COPPER

MT-COPPER is our 80% copper filled filament which is easy to print, sand & polish. With MT-COPPER you can create the most beautiful objects with real METAL characteristics, such as a 3x higher weight then PLA, a METAL feel & touch and thermo-conductivity. Due to the high percentage of fillers MT-COPPER has virtually no shrinkage. A special lubricant increases the flow and prevents MT-COPPER 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 ≥0.35 mm.

Material features:

- Approx. 80% copper 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 ≥0.35 mm

Printed Sanded & Polished Patinated

Colours:

MT-COPPER is available from stock in its natural copper colour.

mtc

Packaging:

MT-COPPER is available in nearly any type of packaging and labelling. Keep in mind the high density of the product to select the preferred amount per reel. Ask our team to help you customizing your product.

Filament specs.		
Size	**Ø tolerance**	**Roundness**
1,75mm	± 0,05mm	≥ 95%
2,85mm	± 0,10mm	≥ 95%

Material properties		
Description	**Testmethod**	**Typical value**
Specific gravity	ISO 1183	3,59 g/cc
MFI 210°C/2,16 kg	ISO 1133	85 g/10min
Tensile strength at yield	ISO 527	16 MPa
Elongation strain at break	ISO 527	31,3%
Elongation strain at yield	ISO 527	1,6%
Tensile (E) Modulus	ISO 527	3550 MPa
Impact strength - Charpy method 23˚C	ISO 179 1eA	2,94 kJ/m2
Printing temp.	Internal method	210±10°C
Vicat softening temp.	ISO 306	65°C

Additional info:

MT-COPPER can be printed without a heated bed, but if you do have a heated bed the recommended temperature is ≤60°C. Storage: Cool and dry (15-25˚C) and away from UV light. This enhances the shelf life significantly. MT-COPPER can be used on all common desktop FDM or FFF technology 3D printers.

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.

-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.