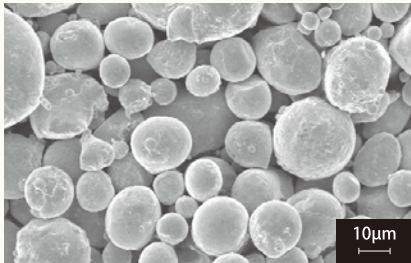


# Copper Powders for Additive Manufacturing

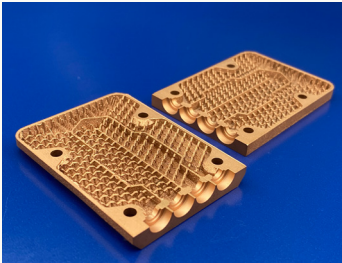


## Copper Alloy Powders for L-PBF

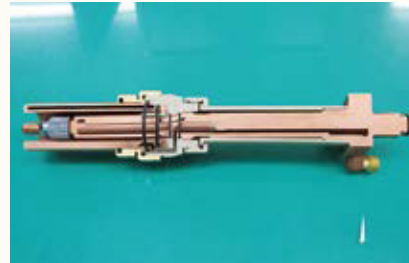
- ✓ MA-CCR25L is the highest conductivity Cu alloy for L-PBF(95% IACS and 377W/mK)
- ✓ MA-CCR25H with better mechanical property is appropriate for functional-structural applications
- ✓ Both two grades can be fully densified with printers with the laser output of 400W
- ✓ We can share our standard parameters to reduce customers' development cost
- ✓ Both grades are applicable to other laser-based 3D printing processes such as DED as well



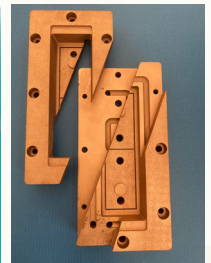
◆ MA-CCR25L ◆



◆ Heat sink ◆



◆ Water cooled torch ◆



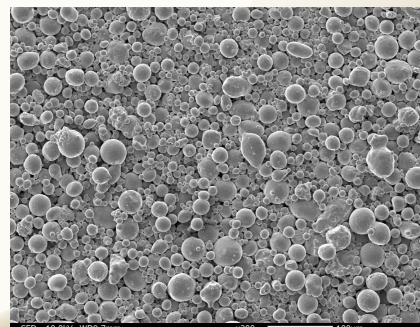
◆ Mold tool ◆

Product Grade	Features	Powder Properties		Properties of Printed Parts							Applications
		D <sub>50</sub>	Tap Density	Relative Density	Thermal Conductivity	Electrical Conductivity	Tensile Strength	0.2% Strength	Elongation	Young's Modulus	
		µm	g/cm <sup>3</sup>	%	W/m·K	%IACS	MPa	MPa	%	GPa	
MA-CCR25L	High Conductivity	25	5.6	99.5	377	95	316	190	31	112	✓ Thermal Management ✓ Electrical application
MA-CCR25H	Good Balance	25	5.6	99.5	349	92	361	204	36	-	✓ Rocket Chamber ✓ Induction Coil
	High Strength			99.5	203	60	755	720	15	124	✓ Tooling ✓ Engine
Pure Copper (Reference Value)		-	-	-	398	100	195	200	35	117	

## High Purity Copper Powder for Additive Manufacturing

Product Name	Composition/%	
	Cu	O
MA-PC	>99.9	0.04>

3D Printing Process	Powder Size Distribution(µm)
Laser- Powder Bed Fusion (L-PBF)	15 to 45
Electron Beam - Powder Bed Fusion (EB-PBF)	45 to 106
Direct Energy Deposition (DED)	53 to 150
Binder Jetting	<25



TRIAL

Advanced Functional Powder



<https://www.mitsui-kinzoku.co.jp/project/kinoufun/en/>