

Material Selection White Paper

Thermoset against thermoplastic for transformer bobbins and toroid mounts, with the plastics used across the CB Magnetics catalogue.

CB Technology Industrial Co., Limited / Shenzhen CB Magnetics Co., Limited

Established 2009. ISO 9001:2015, ISO 14001:2015, ISO 45001:2018. All products RoHS compliant.

Office: No.28 Zhongxin Road, Xinqiao Town, Bao'an District, Shenzhen, Guangdong, China

Plant: Building 29, No.3 Gongye Yi Road, Yongning Street, Zengcheng District, Guangzhou, Guangdong, China

Tel +86-755-61124460 WhatsApp +86 136 3166 2432 Email Sales@cb-magnetics.com

Web <https://cb-magnetics.com>

Data in this document is taken from the published CB Magnetics catalogue. Confirm dimensions against the current drawing before releasing tooling or a PCB. CAD files on request.

THERMOSET

Thermoset plastics include epoxies, phenolics and diallyl phthalate. They are known for environmental stability and for tolerating over 750 degrees Fahrenheit without melting. That headroom is what makes them the usual choice when self stripping magnet wire is used: the unstripped, untinned wire is wrapped around a terminal moulded into a thermoset header or toroid mount and dipped into a 750 degree Fahrenheit solder pot, which burns off the insulation, tins the wire and solders it to the terminal in one operation without melting the mount.

THERMOPLASTIC

Thermoplastics include nylon, polypropylene, polycarbonate, polyester (Valox, Rynite), LCP (Vectra) and PPS (Ryton). They begin to melt if held much above 500 degrees Fahrenheit for an extended period. The chemistry that lowers the melting point also makes them less expensive to mould, which is their cost advantage.

THE TRADE OFF

A thermoplastic mount is cheaper to mould but the winding leads must be pre-tinned and heat has to be managed while soldering leads to the mount and the mount to the board. A thermoset mount costs more, but with self stripping magnet wire several terminations can be soldered at once with no stripping or pre-tinning, which can make the overall cost of producing the component lower.

MATERIALS ACROSS THE CB MAGNETICS CATALOGUE

Material	Parts using it
Phenolic	192
Phenolic; Pin Material: CP Wire	43
GFN	40
PBT	33
PET	33
LCP	26
DAP (Black)	14
PPS	12
Pin Material: CP Wire	11
Phenolic; Pin Material: CP Wire	11
DAP	10
PA66	8

Material	Parts using it
LCP(Black)	6
Phenolic; Pin Material: CP Wire	5
Phenolic PM9630	5
Phenolic-PM9630	5
Phenolic (Black)	4
DAP(Black)	4
LCP (Black)	4
Phenolic; Pin Material: Phos Bronze	3