Z-Temp™ Materials Guide

	Vendor	Product	Rating for Zortrax™ v2 Hot End	Rating for Z-Temp ZT-HE Hot End	Temp with ZT-HE	Bed Heat	Shim	Remarks
General Purpose PLA	MeltInk	PLA	😊😊😊😊😊	😊😊😊😊😊	200-215	N	Y	Great all-around material, wide range of colors available. Layer bond strength and support removal are excellent in the limited colors we've tested. Optimal temperature may be color- and filler-dependent. Needs good part cooling.
	MeltInk	PLA+PHA	😊😊😊😊😊	😊😊😊😊😊	205-215	N	Y	Excellent when the flexibility and/or strength of PLA+PHA over PLA are desired. Extrusion temperature and feed rate are far less critical than with Colorfabb PLA+PHA. Support removal is slightly more difficult than with standard PLA.
	Octave	PLA	😊😊😊😊😊	😊😊😊😊😊	205-215	N	Y	Good all-around material. Optimum temperature may vary with color; gray produces consistently excellent results.
	TreeD	Eco Genius PLA	😊😊😊😊	😊😊😊😊😊	205-215	N	Y	Smooth, easy printing, easy support removal, nice colors. V2 hot end may give some clicking.
	Verbatim	PLA	😊😊😊	😊😊😊😊😊	200-215	N	Y	We've had fabulous success with the "natural" color of this material - beautifully precise printsat 200º and very easy suport removal. When we tried it in black, however, the results were not good at all - we had to raise the termperature, prints were ugly, and support removal difficult. YMMV.
	Colorfabb	PLA+PHA	🙁🙁	😊😊😊😊😊	200-205	N	Y	This has become our go-to PLA in recent months. Prints great with the ZT-HE but not recommended for the Zortrax hot ends. Very strong, more flexible than most PLA, great color selection. It gave us fits with the V2 hot end but with the ZT-HE it's a dream, with easy support removal.
	JustPLA	PLA	☹	😊😊😊😊😊	200-215	N	Y	Excellent, smooth extrusion, great layer precision, and very easy support removal.
	eSun (Prototype Supply, WanHao)	PLA	☹	😊😊😊😊	205-215	-	Y	Smooth extrusion, great layer precision, and very easy support removal. Sometimes it doesn't stick to itself very well, however, and temperature may have to be increased to overcome this.
	MakerBot	PLA	☹	😊😊😊😊	205-215	-	Y	Somewhat brittle, support removal may be difficult, but it extrudes well with the ZT-HE and is available in a great range of colors.
	PolyMaker	PolyPlus	☹	😊😊😊😊	205-215	-	Y	Excellent quality material, but somewhat brittle and raft & support removal can be difficult.
	MakerGeeks	PLA	☹	Not tested	-	-	Y	
	Fiamentum	Extrafill Crystal Clear	☹	😊😊😊	205-215	N	Y	Similar to some other "premium" PLA, i.e. brittle with potentially difficult support removal. Not really "crystal clear" - slightly yellowish.
	Taulman	inPLA	☹	😊😊😊	205-225	-	Y	Somewhat brittle, support removal may be difficult
General Purpose Other	PolyMaker	PolySmooth™ PVB	😊😊😊😊😊	Not tested	-	N	Y	Apart from its polishability, PolySmoothPVB is a great general-purpose material. Easy printing, wide temperature tolerance, low warping, good adhesion, easy support removal.
	Algix	Dura	Not Tested	😊😊😊😊😊	175-195	some	N	So far we are absolutely loving this amazing material. Super-easy extrusion eco-friendly, great surface finish, flexible, polypropylene-like parts, good strength, very low warping, and a claimed heat resistance of 120ºC without any post-annealing! It does have some shrinkage, though, and doesn't seem to adhere well to glue stick, so we need to do more experimentation to find the optimal bed treatment. It's unfortunately quite expensive at present, however.
	Colorfabb nGen	Co-Polyester	😊😊😊😊	Not tested	200-235	N	Y	Excellent new material from Colorfabb, available in a wide color range. Extrudes wonderfully, like ABS, but with less (but not zero) warpage. Very clean and precise layer deposition. Raft comes off easily but support removal can be challenging.
	Taulman	T-Glase	😊😊😊	Not tested	-	N	Y	Does not extrude at Taulman's recommended 238-245º, but at 255º it extrudes well and parts are beautiful. Raft and support removal, however, can be very difficult.
ABS	Up/Afinia	Up ABS	😊😊😊😊😊	😊😊😊😊😊	265	Y	N	Virtually identical to Z-ABS, but we prefer to print at the slightly lower temperature that the Up printers use.
	Form Futura	Titan X™	Not Tested	😊😊😊😊😊	245	Y	N	Semi-gloss, nice finish. Support removal was very easy on our test print, although raft removal was less so. According to Form Futura: "TitanX™ is a revolutionary new high-performance and FDM-optimized engineering ABS... with strongly improved mechanical properties and by its FDM-optimization – zero warping, superb first layer adhesion... perfect interlayer adhesion, thermal stability and filament flowing behavior."
	Any	Generic ABS	😊😊😊😊😊	😊😊😊😊😊	235-245	Y	N	Pretty much any ABS will work fine, even with v1 hot end.
PETG	Form Futura	HDglass	Not Tested	😊😊😊😊😊				High gloss, nice surface, easier support removal than MakerGeeks PETG. Not extensively tested.
	MakerGeeks	PETG	Not Tested	😊😊😊				Extrudes fine, but difficult raft and support removal. Not extensively tested.
High-Strength	PolyMaker	PolyMax	😊😊😊😊😊	😊😊😊😊😊	195-215	N	N	Incredibly strong material, recommended over nylon. Very easy to print, tolerant of temperature and speed. Support is well-attached, but since the material is strong, a lot of force can be used to remove it. Some warping can occur on large parts so be sure to use glue stick.
	eSun	PLA+	not tested	😊😊😊😊😊	195-215	N	Y	Prints beautifully, reminds us a lot of Polymax and it may be a copy. More colors than PolyMax.
	PolyMaker	PC-Plus	😊😊😊😊😊	😊😊😊😊😊	260	MAX	N	Very strong (but not necessarily stronger than PolyMax), prints without problems. Hard, glossy surface. It can warp, so use full bed heat, glue stick, and printer side panels.
	ProtoPasta	Carbon-Fiber PLA	😊😊😊😊	😊😊😊😊😊	240	-	Y	Beautiful, clean-printing, matte-finish material. We had some from the original Kickstarter that did fine at 220º with a 0.4mm nozzle, but tests with recent production required 240º and a 0.5mm nozzle. Nonetheless, support removal is still easy and print finish is outstanding.
	ProtoPasta	High-Temperature Carbon-Fiber PLA	not tested	😊😊😊😊😊	240	-	Y	Prints pretty much identically to their standard C-F PLA, but this one can be annealed after printing for higher temperature resistance.
	BioFIla	plaTec		😊😊😊😊😊	195-215	N	Y	A rival for PolyMax, plaTec has high-strength, high temperature resistance (115ºC), easy extrusion and attractive surface finish, with very easy raft and support removal. Not sure it actually is PLA, it may be another lignin-based material.
	Nanodax	Glass-Wool PP	not tested	😊😊😊😊😊	240	some	N	This amazing material is still in development, but we have been fortunate to have received some early samples. Insanely strong, liquid-tight, food safe, and temperature resistant to 120-130ºC. Polypropylene has not been used in FDM previously because of terrible shrinkage, but Nanodax' proprietary glass-wool (not glass fiber) process tames the shrink and makes for a great-printing filament. There are some specific steps required for successful printing with GWPP: wash all glue stick residue from the build plate, it will prevent adhesion! Scuff the plate lightly with scotchbrite to improve adhesion. If you've got any residual ABS in the plate, give it an acetone wipe just before printing to soften the ABS - you want the GWPP to penetrate the holes. Do not use the shim. If these steps are followed you'll get great adhesion that gets better with each print. Raft and support removal have been easy for us so far. Printed parts are rigid, but by printing thin sections you can achieve flexibilty.
	3dom	Glass-Filled PLA	😊😊😊	😊😊😊😊😊	195-215	N	Y	Incredibly solid, heavy, and rigid material - prints feel like they're made of stone! Nice matte, slightly-textured, "organic"-feeling surface. Minimal warping and extremely easy raft and support removal. **A 0.5mm nozzle is required - sporadic particulate clogging occurs with 0.4mm nozzles.**
	Taulman	PCTPE nylon	😊😊😊😊😊	😊😊😊😊😊	235	N	Y	Despite the "PC" in its name, this material has nothing to do with polycarbonate, it's a type of nylon. Very strong, easy to print, easy support removal. Flexible features such as "living hinges" can be achieved by making thin sections. It's our favorite nylon by far.
	eSun	ePA nylon	not tested	😊😊😊😊😊	245	mfr recommends high	Y	This material seems very similar to Taulman PCTPE but perhaps not as strong. Not sure if the bed heat is really needed; we don't use it with PCTPE.
	Taulman	Nylon: 618, 645, Alloy 910, Bridge, etc.	😊😊😊	😊😊😊	240-260	Y	Optional	These materials print fine, but warping can range from bad to awful depending on part geometry. Alloy 910 seems to have less warping than the others. We prefer Polymax where strength is required, unless environmental conditions or dye-ability demand nylon.
	Taulman	Tritan	😊😊😊	Not tested	290	?	?	May need to set to +30º to achieve 290º depending on ambient, side covers, etc.
Flexible	PolyMaker	PolyFlex	☹	😊😊😊😊😊	225-245	N	Y	Some strings as is normal with flex filament. Raft and support may need to be cut.
	Sainsmart	TPU	☹	😊😊😊😊😊	225-245	N	Y	Some strings as is normal with flex filament. Raft and support may need to be cut.
	MadeSolid	FlexSolid	☹	😊😊😊😊😊	225-245	N	Y	Some strings as is normal with flex filament. Raft and support may need to be cut.
	Bioinspiration	WillowFlex	not tested	😊😊😊😊😊	195			We haven't tested it ourselves yet, but a beta tester reports excellent results.
	Form Futura	FlexiFil	not tested	😊😊😊😊	245			Tested only at 245º; manufacturer says 220º-260º. At 245º it printed great for us on objects with little retraction. When we hit retraction it wrapped around the gear.
	TreeD	UltraFlexx, Flexmark 7, 8, & 9	not tested	☹				These filaments actually seem to extrude just fine with the ZT-HE, but they won't print due to slipping in the feed gear. We will try to come up with a solution to the problem.
	eSun	eLastic	not tested	☹				
	eSun	eFlex	not tested	☹				
	Nunu's	Flexible Rubber	☹	🙁				We haven't tested it ourselves yet, but a beta tester reports that this material does not work with ZT-HE using 0.4mm nozzle.
	NinjaFlex	NinjaFlex	☹	☹				Haven't gotten this to work yet, but we like Sainsmart TPU so much we're not very motivated vis a vis Ninjaflex.
	NinjaFlex	Semi-Flex	☹	😊😊😊😊	245	N	Y	Semi-Flex did not work in our testing with 0.4mm nozzles, but with a **0.5mm nozzle** at 245º you can get excellent results.
	FilaFlex	FilaFlex	☹	☹				
Specialty/Artistic	ProtoPasta	Magnetic Iron PLA	😊😊😊😊😊	😊😊😊😊😊	205-225	N	Y	Great-looking prints, smooth extrusion, easy support removal. Can be post-processed for rust finish.
	ProtoPasta	Stainless Steel PLA	😊😊😊😊	😊😊😊😊	235	N	Y	Not tested extensively but initial results were good.
	ProtoPasta	Conductive PLA	😊😊😊😊	😊😊😊😊	215	N	?	Prints well but adhesion to other PLAs can be problematic in "mixed material" prints. Shim may not be necessary since the high conductivity may result in "early sensing". Use of a 0.5mm nozzle might be a good idea.
	Form Futura	EasyWood™ Coconut	😊😊😊😊😊	😊😊😊😊😊	205	N	Y	Fantastic-looking prints and easy printing. The filament is soft, however, so a low-drag spool and feed path is required to prevent slipping.
	Form Futura	EasyWood™ Ebony	😊😊😊😊😊	😊😊😊😊😊	215-225	N	Y	Fantastic-looking prints and easy printing. The filament is soft, however, so a low-drag spool and feed path is required to prevent slipping. Note the extrusion temperature is higher than that of Coconut.
	Form Futura	EasyWood™ Olive	😊😊😊😊😊	😊😊😊😊😊	205-215	N	Y	Fantastic-looking prints and easy printing. The filament is soft, however, so a low-drag spool and feed path is required to prevent slipping.
	BioFIla	"Silk"	😊😊😊😊😊	😊😊😊😊😊	205	N	Y	Spectacularly beautiful, organic-looking finish. Easy to print and reliable.
	BioFIla	"Linen"	😊😊😊😊😊	😊😊😊😊😊	205	N	Y	Spectacularly beautiful, organic-looking finish. Easy to print and reliable.
	3dom	"Wound Up" coffee-based	😊😊😊😊😊	😊😊😊😊😊	215	N	Y	Beautiful, semi-transparent "bakelite" finish with metallic gold highlights. Prints well, hard and brittle.
	3dom	"Buzzed" Beer-based	😊😊😊😊	😊😊😊😊	215	N	Y	Interesting speckled finish. Prints well, but very hard and brittle.
	eSun	eCopper	not tested	😊😊😊😊😊	200-215	N	Y	Similar to CopperFill from colorFabb - looks like mud when printed but metal is revealed by buffing with steel wool. Very heavy, lots of metal in it. We haven't tried CopperFill so can't compare the finishes, but it prints fine with the ZT-HE.
	TreeD	"Architectural" Series (Marble, Stone, Sand, Brick, etc.)	😊😊😊😊😊	😊😊😊😊😊	245	Y	N	These print well, with a very smooth, very matte finish and easy support removal. They seem to be styrene-based.
	PolyMaker	PolyWood	😊😊😊😊😊	😊😊😊😊😊	205	N	Y	Easy to print and gives a nice smooth, organic-looking finish, but does not contain real wood. Available in non-"wood" colors.
	colorFabb	Woodfill, BronzeFIll, etc	☹☺	😊😊😊😊😊	205-210	N	Y	Mixed results with the v2 hot end, but excellent with the ZT-HE.
	colorFabb	BambooFill	☹☺	😊😊😊😊😊	205-210	N	Y	Requires a 0.5mm nozzle for reliable extrusion. Stops extruding below 200º so be aware of fan-related temperature dips.
	Octave/Afinia	Copper-Infused PLA	😊😊😊	😊😊😊😊😊	200	N	Y	Nice, genuinely-metallic-looking finish with no post-processing required.A bit iffy with the V2 hot end, requiring higher temperature, but with ZT-HE it works great at 200º with very easy support removal.
	Octave/Afinia	Aluminum-Infused PLA	😊😊😊	😊😊😊😊😊	200	N	Y	Nice, genuinely-metallic-looking finish with no post-processing required.A bit iffy with the V2 hot end, requiring higher temperature, but with ZT-HE it works great at 200º with very easy support removal.
	Octave	Wood-Infused PLA	😊😊😊😊	Not tested	-	N	Y	Not tested extensively but initial results were good.
	Graphene Labs	Black Magic Conductive PLA	🙂🙂	🙂🙂	220	N	Y	Unfortunately we cannot recommend this wonderfully conductive material, as it is extremely prone to clogging/jamming. The manufacturer recommends using a nozzle size larger than 0.5mm but our experience is that this can lead to poor extrusion using Z profiles. We have done a few successful prints with it, but have had more failures than successes.
	Sainsmart	Wood	😊😊😊😊	Not tested	-	N	Y	Not tested extensively but initial results were good.
	3dom	Biome Lignin	😊😊😊😊	Not tested	-	N	Y	Somewhat similar to BioFila "Silk" Nice finish. Not tested extensively but initial results were good.
	Taulman	Blu-Print	😊😊😊😊	Not tested	-	N	Y	I prefer this material for clear prints over Z-Glass, T-Glase, etc.
	Parthy Labs	Porolay Lay-Fomm 40	😊😊😊😊	Not tested	-	N	Y	A very strange and interesting material that prints like rigid plastic but turns into a viscoelastic sponge after soaking in water. Prints well but not particularly useful.
	Colorfabb	XT	🙁	Not tested	-	-	-	Not recommended with v2 hot end. Narrow workable temperature range, clicking during high flow rate operations. Can result in nasty, difficult-to-clear clogs.