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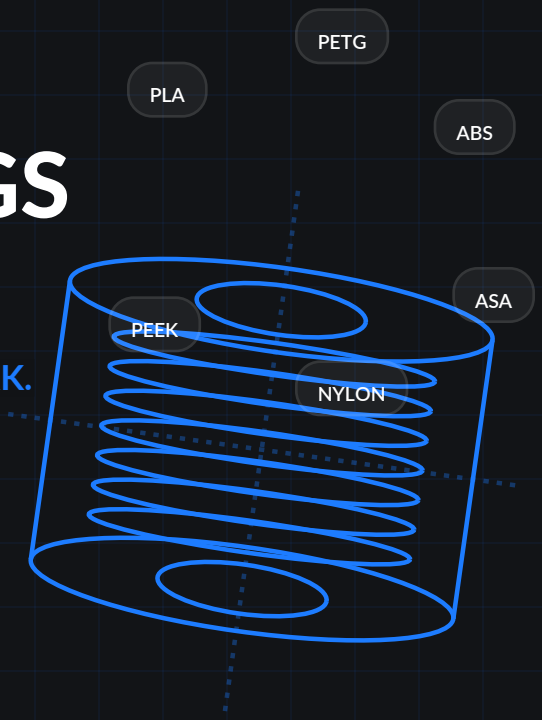
MATERIALS. SETTINGS. LOGS. RESULTS.

FREE PRINTABLE FIELD GUIDE

FILAMENT SETTINGS FIELD GUIDE



31 MATERIALS. ONE REFERENCE. LESS GUESSWORK.

Start with the published range, record what actually works on your machine, and build a repeatable settings history instead of printing from memory.

USE THE GUIDE LIKE A DATA LOOP

01 CHOOSE
Find your material and start inside the published range.

02 PREP
Meet the enclosure, cooling, and drying notes before tuning.

03 PRINT
Run a controlled test on your actual printer and filament.

04 LOG
Write down the settings and the result - good or bad.

05 TUNE
Change deliberately, then keep the setting that earned the result.

STARTING POINTS, NOT MAGIC NUMBERS

These are typical manufacturer-published ranges - not measurements taken by PrintLog3D. Always check your filament maker's own figures.

LIVE MATERIAL LIBRARY

Guides, material pages, updates

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PRACTICAL SETTINGS. REAL RESULTS. NO MORE PRINTING FROM MEMORY.

31-MATERIAL SETTINGS MATRIX

Typical published ranges at a glance. Use the material maker as the final authority.

NO ENCLOSURE | ENCLOSURE REQUIRED | DRYING GUIDANCE

MATERIAL	NOZZLE C	BED C	ENCLOSURE	PART COOLING	DRY AT
PLA	180-220	50-60	Not needed	Yes (100%)	45C / 4-6h (opt.)
PETG	220-250	70-85	Not needed	Yes (30-50%)	65C / 4-6h
ABS	220-250	100-110	REQUIRED	No / low	65-80C / 2-4h
ASA	235-255	90-110	REQUIRED	No / low	70-80C / 4h
PC	260-310	100-120	REQUIRED	No	80C / 6-8h
PEEK	370-420	120-160	REQUIRED	No	120-150C / 3h
Nylon PA6	230-260	70-90	REQUIRED	Minimal	70-80C / 8-12h
Nylon PA12	240-270	70-90	REQUIRED	Minimal	70-80C / 8-12h
PA-CF	260-280	80-100	REQUIRED	Minimal	70-80C / 8-12h
PETG-CF	240-260	80-90	Not needed	Yes (30-50%)	65C / 4-6h
PCTG	230-250	70-85	Not needed	Yes (30-50%)	65C / 4-6h
CPE	240-260	75-90	RECOMMENDED	Yes	65-70C / 4-6h
HIPS	220-250	100-115	REQUIRED	No / low	65C / 4h (opt.)
PLA Silk	195-225	50-60	Not needed	Yes (50-70%)	45C / 4-6h (opt.)
PLA Matte	195-220	50-60	Not needed	Yes (100%)	45C / 4-6h (opt.)
PLA Wood	190-220	50-60	Not needed	Yes	45C / 4-6h (opt.)
PLA Metal	190-225	50-60	Not needed	Yes	45C / 4-6h (opt.)

A FILAMENT DRYER CANNOT DO THESE: PEEK

Domestic dryers stop near 90C. These need a high-temperature oven with a thermostat you have verified.

IMPORTANT: RANGE DOES NOT MEAN "BEST SETTING"

Printer geometry, filament brand, moisture, part design, and environment can change the useful setting. Use this matrix to choose a safe starting range, then log the result on your own machine.

SETTINGS MATRIX, CONTINUED

Flexibles, supports, composites and the high-temperature engineering grades.

NO ENCLOSURE | ENCLOSURE REQUIRED | DRYING GUIDANCE

MATERIAL	NOZZLE C	BED C	ENCLOSURE	PART COOLING	DRY AT
TPU	220-250	30-50	Not needed	Yes	50C / 4-6h
TPE	210-240	30-50	Not needed	Yes	45-50C / 4-6h
PVA	190-220	45-60	Not needed	Yes	45C / 6-8h
PP	220-250	85-100	RECOMMENDED	Yes	60-70C / 4h (opt.)
PVB	215-235	60-75	Not needed	Yes	50C / 4-6h
PLA-CF	190-230	50-60	Not needed	Yes	45-55C / 4-6h (opt.)
PA-GF	250-280	80-100	REQUIRED	Minimal	70-80C / 8-12h
ASA-CF	240-270	90-110	REQUIRED	No / low	70-80C / 4h
PC-CF	260-300	100-120	REQUIRED	No / low	80C / 6-8h
PEI (ULTEM)	370-410	140-180	REQUIRED	No	120-150C / several h
PPS	300-340	120-150	REQUIRED	No	100-120C / several h
Conductive PLA	195-220	50-60	Not needed	Yes	45C / 4-6h (opt.)
Glow PLA	200-225	50-60	Not needed	Yes	45C / 4-6h (opt.)
Magnetic PLA	195-225	50-60	Not needed	Yes	45C / 4-6h (opt.)

A FILAMENT DRYER CANNOT DO THESE: PEI, PPS

Domestic dryers stop near 90C. These need a high-temperature oven with a thermostat you have verified.

IMPORTANT: RANGE DOES NOT MEAN "BEST SETTING"

Printer geometry, filament brand, moisture, part design, and environment can change the useful setting. Use this matrix to choose a safe starting range, then log the result on your own machine.

FAILURE MODES: THE FIRST THING TO CHECK

The most common problem called out for each material in the source guide - tightened into field-note format.

PLA — **HEAT SOFTENING**

Parts soften around 60C. If the part must survive heat, move to PETG or ABS instead of trying to tune PLA.

PETG — **STRINGING**

Lower nozzle temperature 5C at a time and raise travel speed before changing retraction distance.

ABS — **WARPING / LAYER SPLIT**

Corners lift and layers split when the print is exposed to drafts. Enclose the printer and turn part cooling off.

ASA — **WARPING + ODOR**

Similar warping behavior to ABS, with a stronger smell. Ventilate the room and keep the chamber warm and still.

PC — **LAYER DELAMINATION**

A clean-looking print can still delaminate under load when the filament is wet. Dry it and keep it dry during printing.

PEEK — **MACHINE LIMITS**

The main problem is often machine capability. If your hot end or bed cannot reach the required temperatures, tuning cannot solve it.

Nylon PA6 — **MOISTURE**

Steam pops and a furry surface mean the filament is wet. Dry once is not enough - it needs to stay dry during the print.

Nylon PA12 — **BED ADHESION**

Nylon does not like a PEI build surface. A garolite or PA-specific sheet, or a glue-stick layer, can solve what temperature tuning will not.

PA-CF — **NOZZLE WEAR**

Underextrusion that worsens over time can mean the carbon fiber has widened the nozzle bore. Use hardened steel or ruby before the first print.

PETG-CF — **WRONG EXPECTATION**

Carbon fiber makes the material stiffer, not stronger in every sense. Impact resistance goes down, not up.

PCTG — **AVAILABILITY**

The problem may be sourcing more than printing. Fewer brands carry it, so color choice is narrower than PETG.

CPE — **NAME CONFUSION**

In 3D printing, CPE means co-polyester. Do not confuse it with chlorinated polyethylene, an unrelated industrial rubber.

HIPS — **SUPPORT ASSUMPTIONS**

Do not buy it as support material unless you have a second extruder. On a single-nozzle printer it is simply an ABS-like filament.

PLA Silk — **LOST SHEEN**

Too much cooling dulls the sheen. Reduce fan, print a little hotter, and slow down versus plain PLA.

PLA Matte — **ABRASIVE FILLER**

The matting filler is mildly abrasive. Brass can work, but expect faster nozzle wear than plain PLA.

PLA Wood — **CLOGGING**

Wood particles bridge small nozzles easily. Use 0.4mm or larger and avoid long retractions.

PLA Metal — **STRENGTH MYTH**

Metal filler adds weight and finish, but reduces strength compared with plain PLA.

TPU — **FEED BUCKLING**

The filament buckles between the drive gear and the hot end instead of feeding. Slow to 15-25 mm/s and use direct drive.

THE GOAL IS NOT TO MEMORIZE FIXES. BUILD A REPEATABLE HISTORY.

Record the setting, the failure, the change, and the result on the print log.

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FAILURE MODES, CONTINUED

Flexibles, supports, composites and the high-temperature grades.

TPE — **SOFTER, SOONER**

Everything that goes wrong with TPU goes wrong sooner. Direct drive is effectively mandatory and 15 mm/s is a sensible ceiling.

PVA — **ARRIVES WET**

It degrades in the hot end on long prints because it absorbed water on the spool. Store it sealed from the day it arrives.

PP — **IT WILL NOT STICK**

PP bonds to itself and to very little else. Packing tape or a PP-specific sheet is the answer; bed temperature alone is not.

PVB — **CLOUDING**

It takes on moisture noticeably faster than PLA, and a spool left out for a fortnight prints cloudy rather than clear.

PLA-CF — **STIFFER, NOT STRONGER**

PLA-CF snaps where plain PLA would bend. Stiffness is the reason to choose it, not strength.

PA-GF — **WORSE THAN CARBON**

Glass fibre is more abrasive than carbon, not less. Hardened steel is the minimum; ruby or tungsten if you print it often.

ASA-CF — **BOTH PROBLEMS AT ONCE**

It warps like ASA and wears nozzles like a composite. Enclose the printer and fit a hardened nozzle before the first print.

PC-CF — **TOUGHNESS TRADED AWAY**

The carbon fibre removes much of polycarbonate's impact toughness and keeps all its difficulty. For drops, plain PC is better.

PEI (ULTEM) — **CHAMBER, NOT BED**

A heated bed is not a heated chamber. Large parts delaminate partway up unless the chamber holds 120-180C.

PPS — **CRYSTALLISATION SHRINKAGE**

The part comes off the plate dimensionally different from the model. The fix is chamber temperature and part design, not slicer settings.

Conductive PLA — **NOT A WIRE**

Resistance rises with trace length, so a circuit working across 20mm fails across 200mm. Never put it near mains voltage.

Glow PLA — **PHOSPHOR IS ABRASIVE**

The phosphor is a hard mineral and eats brass faster than most carbon fills. Fit hardened steel first.

Magnetic PLA — **FERROMAGNETIC, NOT MAGNETISED**

A printed part sticks to a magnet but holds nothing up by itself. It also genuinely rusts, so seal it if you do not want that.

THE GOAL IS NOT TO MEMORIZE FIXES. BUILD A REPEATABLE HISTORY.

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LOG IT. LEARN IT. PRINT BETTER.

A clean record turns one good print into a repeatable process - and one failed print into useful evidence.

PRINT LOG - ONE RUN

MATERIAL + SETTINGS + RESULT

MATERIAL
e.g. PETG

BRAND / SPOOL
brand, color, batch

PRINTER
machine / profile

NOZZLE
diameter + material

NOZZLE ____ C

BED ____ C

FAN ____ %

SPEED ____ mm/s

PREP

☐ ENCLOSURE ☐ DRIED ☐ COOLING

RESULT

○ CLEAN ○ USABLE ○ FAIL

WHAT HAPPENED?

NEXT CHANGE - ONE THING ONLY

FIELD REMINDERS

Pulled directly from the material notes.

PLA	Heat sensitive near 60C.
ABS / ASA	Control drafts; enclosure matters.
NYLON	Keep it dry while printing.
PA-CF	Use a hardened or ruby nozzle.
PEEK	Machine capability is the gate.
PLA WOOD	Use 0.4mm or larger nozzle.
PETG-CF	Stiffer does not mean tougher.

KEEP THE LIVE REFERENCE HANDY

Scan for the material library

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31 MATERIALS
ONE SETTINGS REFERENCE

Free to browse. Built to log.

PRACTICAL SETTINGS. REAL RESULTS.