

ADVANCED BIOPOLYMER FILAMENT

PLN

High-performance PLA-based filament

For tooling, functional prototypes and industrial applications requiring easy printing, low warping and improved heat performance after annealing.

LOW WARPING

MACHINABLE

STRONG LAYER BOND



NOZZLE

200-215°C

HEATED BED

40-60°C

PART COOLING

0-50%

AFTER ANNEALING

Up to 170°C
claim

PRODUCT OVERVIEW

PLN is Filkemp's PLA-based biopolymer formulation designed as an easier-printing alternative to ABS. The manufacturer highlights high mechanical and impact strength, strong interlayer adhesion, smooth surfaces, low deformation during printing and machinability. Annealed parts are claimed to withstand temperatures up to 170°C.

KEY CHARACTERISTICS

- High mechanical and impact resistance
- Enhanced layer adhesion and smooth print finish
- Low warping and consistent material feed
- Designed for rapid printing; no speed limit is published

TYPICAL APPLICATIONS

- Functional prototypes and engineering models
- Jigs, fixtures and custom tooling
- Machinable printed components
- Heat-exposed parts after application-specific validation

AVAILABLE FORMATS

DIAMETERS	1.75 mm and 2.85 mm
RETAIL SPOOL	1 kg
COLORS	Black, Green, Red, Natural, Neon Orange, Signal Yellow, Silver, Sky Blue, White

PROCESSING NOTE

Published temperatures are starting points. Tune for the printer, part geometry, color and ambient conditions. No current PLN drying schedule or numeric print-speed range is published on the product page.

Reference technical properties

Compiled test values, thermal behavior and annealing guidance

DATA PROVENANCE

The tables reproduce Filkemp grade 881N / PLA-N TDS values (Rev 02/2018), whose description and print window match current PLN. The live PLN page does not explicitly confirm grade 881N or an unchanged formulation. Use as reference data and confirm current lot values with Filkemp for critical design work.

MECHANICAL PROPERTIES

PROPERTY	VALUE	TEST METHOD
Tensile modulus	2400 ± 40 MPa	ISO 527-1
Tensile stress at yield	35.2 ± 0.8 MPa	ISO 527-1
Tensile stress at break	30.0 ± 3.0 MPa	ISO 527-1
Elongation at yield	2.0 ± 0.0%	ISO 527-1
Elongation at break	6.0 ± 2.0%	ISO 527-1
Flexural strength	68 ± 5 MPa	ISO 178
Flexural modulus	2120 ± 480 MPa	ISO 178
Izod impact strength, notched	10 ± 3 kJ/m²	ISO 180

THERMAL PROPERTIES

PROPERTY	VALUE	TEST METHOD
Melt mass-flow rate	13 ± 2 g/10 min	ISO 1133
HDT at 0.455 MPa	57 ± 2°C	ISO 75
HDT at 1.820 MPa	54 ± 3°C	ISO 75
Glass transition, 1 Hz	66-67°C	ISO 6721
Coefficient of thermal expansion	8 x 10⁻⁵ m/m°C	Not stated
Melting temperature	175-185°C	ISO 11357
Vicat softening temperature	57 ± 2°C	ISO 306

ANNEALING GUIDANCE

- Preheat a controlled oven to 80-110°C.
- Measure X, Y and Z dimensions before heating.
- Heat for 30-60 minutes, depending on part size and walls.
- Cool slowly with the oven switched off and closed.
- Expect about 1-5% dimensional change; test a coupon first.

Claimed post-anneal heat resistance: up to 170°C

TEST & SOURCE NOTES

Specimen basis: the 881N sheet states that diameter is measured on filament and all other values on 3D-printed specimens; conditioning and color are not stated.

Sources:

[Current PLN product page](#)
[Filkemp annealing guide, 3 Jul 2025](#)
[Filkemp 881N TDS, Rev 02/2018](#)