



Complete Technical Data Sheet (TDS)

Product-specific technical information for NexaForge wholesale filament series

Item	Details	Item	Details
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Brand	NexaForge	Status	Customer Issue
Product Scope	Wholesale Filament Series	Country of Origin	China
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DOCUMENT USE

Important: This document provides customer-facing technical guidance for product evaluation and distributor onboarding. Printing settings are recommended starting points. Mechanical, thermal, regulatory and formulation-specific values must be supported by the exact product, color, batch and available test documentation before being used for design certification, customs filing or regulated end use.

1. Product Identification and Standard Parameters

Product Identification	Details
Product Name	NexaForge 3D Printer Filament
Product Series	PLA Basic, Matte PLA, PLA+, Silk PLA, Dual-color Silk PLA, Tri-color Silk PLA, Silk PLA Rainbow, PLA HS, PLA Luminous, PLA Wood, PLA Marble, PLA Burning Titanium, PLA Transparent, PLA Metal, PLA-CF, PLA-GF, PETG Basic, Matte PETG, PETG HS, PETG Transparent, PETG-CF, PETG-GF, TPU 95A, PEBA, ABS, ASA, PC, PA Nylon and PA6-CF.
Typical Diameter	1.75 mm
Application	FDM / FFF 3D printing for distributors, resellers, print farms, schools, makers, industrial prototyping and OEM / private-label projects.
Product Form	1 kg filament wound on a plastic spool unless otherwise agreed.
Country of Origin	China

Standard Product Parameters

Control Item	Standard / Typical
Diameter tolerance	Target ± 0.02 mm under standard production control. PEBA may use ± 0.05 mm when specified. Exact order specification can be confirmed separately.
Net weight	1.0 kg per spool unless otherwise specified. Selected PEBA projects can use 200 g, 250 g, 500 g, 2 kg or 3 kg.
Estimated gross weight	Approx. 1.32 kg per standard spool depending on material and packaging; PEBA reference approx. 1.3 kg.
Spool type	Plastic spool; AMS/CFS-compatible geometry available for selected product lines.
Spool reference size	Approx. 198 mm outer diameter $\times$ 68 mm width.
Packaging	Vacuum-sealed bag with desiccant, product label and export carton.
Typical carton packing	10 spools per carton; reference carton 44 $\times$ 37 $\times$ 22 cm; freight gross weight approx. 13.5 kg.
Winding	Neat winding inspection to reduce tangling and feeding interruption.
Color supply	Standard color cards and visual-effect variants; availability subject to production confirmation.
Traceability	Batch / lot identification and QC records can be provided according to confirmed order requirements.

AMS/CFS NOTE

Spool dimensions may be compatible with AMS/CFS-type systems, but material-feed suitability depends on the printer or accessory manufacturer. TPU, PEBA, highly abrasive composites and some moisture-sensitive materials may require an external spool, dry box or manual feed.

2. Recommended Printing Settings - PLA and Visual-Effect Series

Material Series	Nozzle	Bed	Speed	Cooling	Drying / Conditioning	Equipment Notes
PLA Basic	200-210°C	50-60°C	50-200 mm/s	100%	50°C if needed	0.4 mm brass; open printer
Matte PLA	190-220°C	50-60°C	40-150 mm/s	100%	50°C if needed	0.4 mm brass; matte finish
PLA+	200-230°C	50-60°C	50-200 mm/s	100%	50°C if needed	0.4 mm brass
Silk PLA	190-220°C	50-60°C	50-200 mm/s	100%	50°C	Slow outer walls for gloss
Dual-color Silk PLA	190-220°C	50-60°C	50-200 mm/s	100%	50°C	Orient model for color effect
Tri-color Silk PLA	200-220°C	0-60°C	50-200 mm/s	100%	50°C	Orient model and spool consistently
Silk PLA Rainbow	190-220°C	50-60°C	50-200 mm/s	100%	50°C	Transition depends on model size
PLA HS	210-240°C	45-60°C	Up to 500 mm/s*	100%	50°C / 4-6 h	High-flow hotend recommended
PLA Luminous	235-250°C	70-80°C	50-200 mm/s	100%	50°C if needed	Hardened nozzle preferred
PLA Wood	190-220°C	50-60°C	40-100 mm/s	100%	50°C if needed	0.4-0.6 mm nozzle preferred
PLA Marble	200-220°C	50-60°C	50-100 mm/s	100%	50°C	PEI / glass
PLA Burning Titanium	200-220°C	50-60°C	50-100 mm/s	100%	50°C	Metallic visual-effect PLA
PLA Transparent	190-220°C	0-50°C	30-90 mm/s	100%	50°C if needed	Clarity depends on geometry and settings
PLA Metal	190-230°C	35-45°C	<300 mm/s	100%	55°C / 8 h	Store/print below 20% RH where possible
PLA-CF	200-230°C	50-65°C	35-70 mm/s	40-100%	45-55°C / 4-6 h	0.6 mm hardened nozzle preferred
PLA-GF	190-230°C	45-60°C	40-100 mm/s	100%	50°C	Hardened steel nozzle recommended

SPEED NOTE

Values marked with * are not guaranteed machine speeds. Actual output is limited by hotend volumetric flow, nozzle size, layer height, geometry, cooling and extrusion calibration.

3. Recommended Printing Settings - PETG, Flexible, Composite and Engineering Series

Material Series	Nozzle	Bed	Speed	Cooling	Drying / Conditioning	Equipment Notes
PETG Basic	230-250°C	70-85°C	40-150 mm/s	30-70%	60-65°C / 4-6 h	PEI / glass; avoid excessive squish
Matte PETG	230-250°C	70-85°C	30-80 mm/s	30-70%	65°C / 4-6 h	PEI / glass
PETG HS	240-260°C	70-90°C	Up to 350 mm/s*	On / tuned	65°C / 6-8 h	High-flow hotend recommended
PETG Transparent	240-260°C	75-90°C	20-50 mm/s	50-100%	65°C / 4-6 h	Lower speed improves clarity
PETG-CF	230-260°C	70-90°C	30-60 mm/s	10-40%	60-70°C / 6-8 h	0.6 mm hardened nozzle preferred
PETG-GF	Grade-specific	Grade-specific	Grade-specific	Grade-specific	Dry before use	White only; exact grade data required
TPU 95A	190-230°C	50-70°C	20-60 mm/s	20-50%	60°C / 4-6 h	Direct-drive preferred; external feed
PEBA	210-240°C	0-60°C	20-60 mm/s	20-50%	Dry before use	Direct-drive preferred
ABS	250-270°C	80-100°C	50-100 mm/s	0-30% normally	80°C / 4-6 h	Enclosure recommended; ventilate
ASA	250-260°C	80-100°C	50-100 mm/s	0-30%	80°C before use	Enclosure recommended; ventilate
PC	250-280°C	100-120°C	40-80 mm/s	0-20%	80-100°C / 6-8 h	High-temp hotend; enclosure
PA Nylon	250-280°C	100-120°C	40-80 mm/s	0-20%	80°C / 6-8 h	Dry box during printing
PA6-CF	260-290°C	70-110°C	30-60 mm/s	0-20%	80-100°C / 8-12 h	0.6 mm hardened nozzle; enclosure

DRYING SAFETY

Drying temperature applies to filament conditioning. Verify that the spool and dryer are suitable for the selected temperature. Do not expose a plastic spool to temperatures above its safe limit; respool or use an appropriate drying method when necessary.

VENTILATION

ABS, ASA, PC, PA and other high-temperature engineering materials should be printed with suitable enclosure control and ventilation. Follow printer and workplace safety guidance.

4. Product-Specific Technical Profiles - Standard PLA Series

PLA Basic	
Material base	Poly(lactic acid (PLA) based compound.
Positioning	General-purpose, beginner-friendly filament for daily printing.
Key characteristics	Easy extrusion, low warpage, clean surface and broad printer compatibility.
Print settings	200-210°C nozzle; 50-60°C bed; 50-200 mm/s; full part cooling as a starting point.
Conditioning	Dry at 50°C only when moisture symptoms are observed; reseal with desiccant.
Equipment / use	Standard 0.4 mm brass nozzle. Applications: models, education, prototypes, organizers and low-load fixtures.
Variants / caution	Standard solid colors subject to the current color card. Not intended for sustained high-temperature or high-load service.

Matte PLA	
Material base	PLA-based matte compound with surface-modifying additives.
Positioning	Low-gloss decorative filament for premium-looking prints.
Key characteristics	Soft matte appearance, reduced reflections and visually uniform layer presentation.
Print settings	190-220°C nozzle; 50-60°C bed; 40-150 mm/s; full cooling.
Conditioning	Dry at 50°C if moisture symptoms occur.
Equipment / use	Standard 0.4 mm nozzle. Applications: home decor, display models, props and product mockups.
Variants / caution	Color and mechanical behavior may differ from PLA Basic because of matte additives.

PLA+	
Material base	Modified PLA compound.
Positioning	Tougher daily-use PLA for functional and general-purpose printing.
Key characteristics	Improved layer bonding and impact resistance compared with standard PLA under typical conditions.
Print settings	200-230°C nozzle; 50-60°C bed; 50-200 mm/s; moderate to full cooling.
Conditioning	Dry at 50°C if moisture symptoms occur.
Equipment / use	Standard 0.4 mm brass nozzle. Applications: brackets, toys, jigs, enclosures and daily-use parts.
Variants / caution	Final toughness depends on wall count, infill, orientation, color and print temperature.

PLA HS	
Material base	High-flow modified PLA compound.
Positioning	High-speed PLA for printers capable of elevated volumetric flow.
Key characteristics	Stable melt flow and layer adhesion for higher-throughput printing.
Print settings	210-240°C nozzle; 45-60°C bed; up to 500 mm/s after calibration; 100% cooling.
Conditioning	50°C for 4-6 h when needed.
Equipment / use	High-flow hotend recommended. Applications: print farms, rapid prototyping and batch production.
Variants / caution	Advertised speed is not universal and is limited by nozzle, layer height, hotend flow, geometry and cooling.

5. Product-Specific Technical Profiles - Silk and Multicolor PLA

Silk PLA	
Material base	PLA-based visual-effect compound with pearlescent / silk modifiers.
Positioning	Glossy metallic-look decorative filament.
Key characteristics	High surface sheen and smooth highlights; slower outer walls usually improve gloss.
Print settings	190-220°C nozzle; 50-60°C bed; 50-200 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	Standard 0.4 mm nozzle. Applications: vases, gifts, figurines, trophies and decorative models.
Variants / caution	Silk additives may reduce strength versus standard PLA; use for visual rather than high-load parts.

Dual-color Silk PLA	
Material base	Two-color co-extruded Silk PLA.
Positioning	Orientation-dependent two-tone decorative filament.
Key characteristics	Different viewing angles reveal different colors; strongest effect on curved surfaces.
Print settings	190-220°C nozzle; 50-60°C bed; 50-200 mm/s; 100% cooling.
Conditioning	Dry at 50°C if required.
Equipment / use	Standard 0.4 mm nozzle. Keep model and spool orientation consistent. Applications: vases, sculptures, gifts and display pieces.
Variants / caution	Color combinations follow the current dual-color card. Appearance varies with orientation, layer path and lighting.

Tri-color Silk PLA	
Material base	Three-color co-extruded Silk PLA.
Positioning	Orientation-dependent three-color decorative filament.
Key characteristics	Three distinct visual sectors create rotating color effects on curved and faceted models.
Print settings	200-220°C nozzle; 0-60°C bed; 50-200 mm/s; 100% cooling.
Conditioning	Dry at 50°C if required.
Equipment / use	Standard 0.4 mm nozzle. Applications: vases, fantasy models, creative art prints and display pieces.
Variants / caution	Color combinations follow the current tri-color card. Exact visual result depends on model orientation and lighting.

Silk PLA Rainbow	
Material base	Continuous color-transition Silk PLA.
Positioning	Long-transition rainbow decorative filament.
Key characteristics	Color changes progressively along filament length; larger models show more transitions.
Print settings	190-220°C nozzle; 50-60°C bed; 50-200 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	Standard 0.4 mm nozzle. Maintain spool direction for repeat prints. Applications: vases, lampshades and large display models.
Variants / caution	Transition sequence and length are product-specific; small prints may show only part of the sequence.

6. Product-Specific Technical Profiles - Specialty PLA Effects

PLA Luminous	
Material base	PLA compound with glow-in-the-dark pigment.
Positioning	Special-effect filament for luminous decorative parts.
Key characteristics	Charges under light and produces afterglow; effect depends on pigment, wall thickness and charging light.
Print settings	235-250°C nozzle; 70-80°C bed; 50-200 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	Hardened nozzle preferred because luminous pigments can be abrasive. Applications: props, signs, novelty and education models.
Variants / caution	Not intended as certified emergency signage. Pigment can accelerate nozzle wear.

PLA Wood	
Material base	PLA-based compound with wood-effect filler.
Positioning	Wood-like visual and tactile filament.
Key characteristics	Natural texture and color; selected parts can be lightly sanded after printing.
Print settings	190-220°C nozzle; 50-60°C bed; 40-100 mm/s; 100% cooling.
Conditioning	Dry at 50°C if moisture is observed.
Equipment / use	0.4-0.6 mm nozzle; larger nozzle can reduce clogging. Applications: decor, architectural models and crafts.
Variants / caution	Wood tone varies by batch; filled material may be more brittle and can clog small nozzles.

PLA Marble	
Material base	PLA compound with stone-like visual particles.
Positioning	Marble / stone appearance decorative filament.
Key characteristics	Speckled surface reduces visible layer lines and creates a mineral-like finish.
Print settings	200-220°C nozzle; 50-60°C bed; 50-100 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	0.4-0.6 mm nozzle; PEI or glass. Applications: sculptures, planters, busts and architectural models.
Variants / caution	Particle distribution and visual texture vary by path and batch.

PLA Burning Titanium	
Material base	PLA-based multitone metallic visual-effect compound.
Positioning	Premium metallic color-shift decorative filament.
Key characteristics	Layered metallic highlights resembling heated titanium coloration under suitable lighting.
Print settings	200-220°C nozzle; 50-60°C bed; 50-100 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	Standard 0.4 mm nozzle. Applications: fantasy models, sculptures, display decor, gifts and cosplay props.
Variants / caution	Current series includes Starlight Purple, Nebula Purple, Burning Titanium, Royal Green, Cat Eye Gold, Dusk Black, Black + Flash Green and Black + Silver. Name does not imply titanium content.

7. Product-Specific Technical Profiles - PLA Transparent, Metal and Composites

PLA Transparent	
Material base	Transparent / translucent PLA compound.
Positioning	Easy-print visual-effect PLA for decorative and light functional parts.
Key characteristics	Translucent appearance, smooth extrusion and low-warp PLA processing.
Print settings	190-220°C nozzle; 0-50°C bed; 30-90 mm/s; 100% cooling.
Conditioning	Dry at 50°C if needed.
Equipment / use	Standard 0.4 mm nozzle. Applications: light covers, decorative bottles, containers, display parts and models.
Variants / caution	Six-color series: transparent yellow, green, blue, orange, purple and red. Optical clarity depends on wall thickness, infill and print path.

PLA Metal	
Material base	PLA-based metallic-color compound; metal-look color does not by itself confirm metal-powder content.
Positioning	Decorative metallic-finish PLA for premium visual models.
Key characteristics	Smooth metallic sheen and color-dependent reflective appearance.
Print settings	190-230°C nozzle; 35-45°C bed; below 300 mm/s; full cooling.
Conditioning	Dry at 55°C for 8 h before critical printing; keep sealed and below 20% RH where possible.
Equipment / use	Standard 0.4 mm nozzle unless the confirmed grade requires otherwise. Applications: decor, awards, vases and display models.
Variants / caution	Seven colors: Copper Orange, Coffee Gold, Aurora Green, Starry Blue, Rose Gold, Champagne Gold and Starlight Silver.

PLA-CF	
Material base	PLA compound reinforced with chopped carbon fiber.
Positioning	Entry-level carbon-fiber composite with matte technical appearance.
Key characteristics	Higher stiffness and dimensional stability than unfilled PLA with textured surface.
Print settings	200-230°C nozzle; 50-65°C bed; 35-70 mm/s; moderate cooling.
Conditioning	Dry at 45-55°C for 4-6 h.
Equipment / use	0.6 mm hardened steel or ruby nozzle preferred. Applications: rigid prototypes, fixtures, housings and drone accessories.
Variants / caution	Typically black. Composite may be more brittle and layer adhesion may be lower than unfilled PLA.

PLA-GF	
Material base	PLA compound reinforced with chopped glass fiber.
Positioning	Rigid glass-fiber PLA for dimensionally stable functional parts.
Key characteristics	High stiffness, lower shrinkage and technical surface texture.
Print settings	190-230°C nozzle; 45-60°C bed; 40-100 mm/s; 100% cooling.
Conditioning	Dry at 50°C.
Equipment / use	Hardened steel nozzle recommended. Applications: gears, mechanisms, consumer electronics, automotive parts, jigs and prototypes.
Variants / caution	Current color positioning is natural white. Abrasive and potentially more brittle than unfilled PLA.

8. Product-Specific Technical Profiles - PETG Series

PETG Basic	
Material base	Polyethylene terephthalate glycol-modified (PETG) compound.
Positioning	Durable functional filament with good toughness and chemical resistance.
Key characteristics	Good layer bonding, lower brittleness than PLA and moderate heat resistance.
Print settings	230-250°C nozzle; 70-85°C bed; 40-150 mm/s; 30-70% cooling.
Conditioning	Dry at 60-65°C for 4-6 h before critical prints or when stringing / bubbles appear.
Equipment / use	Standard 0.4 mm brass nozzle. Applications: functional parts, containers, brackets and protective covers.
Variants / caution	Solid and transparent colors subject to current color card. Avoid excessive cooling when strong layer bonding is required.

Matte PETG	
Material base	PETG-based matte compound.
Positioning	Functional PETG with low-gloss premium finish.
Key characteristics	PETG-like toughness with reduced gloss and visually uniform surface.
Print settings	230-250°C nozzle; 70-85°C bed; 30-80 mm/s; 30-70% cooling.
Conditioning	Dry at 65°C for 4-6 h.
Equipment / use	Standard 0.4 mm brass nozzle. Applications: planters, organizers, decorative vases, display parts and brackets.
Variants / caution	Nine colors: white, light green, navy blue, black, gray, green, beige, sakura pink and brown.

PETG HS	
Material base	High-flow modified PETG compound.
Positioning	High-speed PETG for higher-throughput printers.
Key characteristics	Improved melt flow at elevated speed while retaining PETG-like toughness.
Print settings	240-260°C nozzle; 70-90°C bed; up to 350 mm/s after calibration; cooling on and tuned.
Conditioning	Dry at 65°C for 6-8 h before high-speed printing.
Equipment / use	High-flow hotend recommended. Applications: print farms, production parts and fast functional prototyping.
Variants / caution	Actual speed depends on machine, geometry, nozzle and volumetric flow; excessive speed can reduce layer bonding.

PETG Transparent	
Material base	Transparent / translucent PETG compound.
Positioning	Tough translucent filament for decorative and functional parts.
Key characteristics	Clear translucent appearance, PETG durability and good layer adhesion.
Print settings	240-260°C nozzle; 75-90°C bed; 20-50 mm/s; 50-100% cooling.
Conditioning	Dry at 65°C for 4-6 h.
Equipment / use	Standard 0.4 mm nozzle. Applications: light covers, bottles, containers, display parts and prototypes.
Variants / caution	Eight colors: transparent, orange, yellow, black, red, sky blue, green and purple. Clarity depends on geometry and printing profile.

9. Product-Specific Technical Profiles - PETG Composite and Flexible Series

PETG-CF	
Material base	PETG compound reinforced with chopped carbon fiber.
Positioning	Stiff functional composite with PETG-based toughness and matte finish.
Key characteristics	Improved stiffness, reduced gloss and good dimensional stability versus unfilled PETG.
Print settings	230-260°C nozzle; 70-90°C bed; 30-60 mm/s; low cooling.
Conditioning	Dry at 60-70°C for 6-8 h and keep dry during use.
Equipment / use	0.6 mm hardened nozzle preferred. Applications: housings, jigs, fixtures, brackets and technical parts.
Variants / caution	Black, denim blue, lava gray, peacock green, matcha green and violet subject to availability. Abrasive filler.

PETG-GF	
Material base	PETG compound reinforced with glass fiber; exact formulation must be confirmed by order.
Positioning	Glass-fiber PETG for rigid functional parts.
Key characteristics	Technical composite positioning; final stiffness and heat performance are grade-specific.
Print settings	Printing parameters are grade-specific and must be confirmed with the selected product.
Conditioning	Dry thoroughly before use and keep dry during printing.
Equipment / use	Hardened nozzle recommended. Applications: gears, phone cases, functional parts and prototypes where the grade is validated.
Variants / caution	Current color supply is white only. No universal mechanical values are declared without exact grade data.

TPU 95A	
Material base	Thermoplastic polyurethane, nominal Shore 95A grade.
Positioning	Flexible elastic filament for soft and impact-tolerant parts.
Key characteristics	Flexible, abrasion resistant and resilient; short constrained feed paths improve stability.
Print settings	190-230°C nozzle; 50-70°C bed; 20-60 mm/s; low to moderate cooling.
Conditioning	Dry at 60°C for 4-6 h and keep sealed during storage.
Equipment / use	Direct-drive extruder preferred; external spool/manual feed may be required. Applications: shoe soles, tires, phone cases, flexible parts and protective covers.
Variants / caution	Nine colors: black, white, gray, red, green, blue, yellow, orange and transparent. Minimize retraction.

PEBA	
Material base	Polyether block amide (PEBA) flexible engineering polymer.
Positioning	High-resilience, lightweight flexible filament.
Key characteristics	Higher rebound, strong support at low density and stable flow when properly dried.
Print settings	210-240°C nozzle; 0-60°C bed; start at 20-60 mm/s and tune by machine.
Conditioning	Dry before use and keep sealed; exact drying profile depends on grade and spool limits.
Equipment / use	Direct-drive preferred. Applications: sports shoes, insoles, sporting-goods prototypes and non-certified support devices.
Variants / caution	Colors: red, black, blue, orange, white and silver. Standard 1 kg; project weights 200 g, 250 g, 500 g, 2 kg and 3 kg. Nominal tolerance may be ±0.05 mm for this series.

10. Product-Specific Technical Profiles - Engineering Polymer Series

ABS	
Material base	Acrylonitrile butadiene styrene compound.
Positioning	Tough engineering filament for heat-resistant functional parts.
Key characteristics	High impact strength, good rigidity and useful heat resistance under controlled printing conditions.
Print settings	250-270°C nozzle; 80-100°C bed; 50-100 mm/s; use low cooling for most parts and tune higher cooling only for geometry-specific needs.
Conditioning	Dry at 80°C for 4-6 h if exposed to moisture.
Equipment / use	Enclosed printer and ventilation recommended. Applications: functional parts, tooling, enclosures, electronics parts and prototypes.
Variants / caution	Standard colors include white, black, red, pink, green and yellow; custom colors by project. No universal flame-retardant claim.

ASA	
Material base	Acrylonitrile styrene acrylate compound.
Positioning	Weather- and UV-resistant engineering filament for outdoor parts.
Key characteristics	Good toughness, weather resistance and color stability for functional engineering parts.
Print settings	250-260°C nozzle; 80-100°C bed; 50-100 mm/s; 0-30% cooling.
Conditioning	Dry at 80°C before use.
Equipment / use	Enclosed printer recommended; provide ventilation. Applications: outdoor parts, drone parts, robotics, jigs and print-farm functional parts.
Variants / caution	White, red, blue, orange, yellow, green, purple and black plus custom color. Warping and fumes require controlled conditions.

PC	
Material base	Polycarbonate-based engineering compound.
Positioning	High-temperature, high-strength engineering filament.
Key characteristics	Good toughness and heat resistance when printed in controlled high-temperature conditions.
Print settings	250-280°C nozzle; 100-120°C bed; 40-80 mm/s; minimal cooling.
Conditioning	Dry at 80-100°C for 6-8 h and keep dry during printing.
Equipment / use	All-metal high-temperature hotend and enclosure recommended. Applications: engineering parts, lamp housings, protective covers and industrial fixtures.
Variants / caution	Black, white and transparent subject to confirmation. UL94 V-0 or 125°C claims apply only to a confirmed grade with supporting test documentation.

PA Nylon	
Material base	Nylon / polyamide compound.
Positioning	Tough, wear-resistant engineering filament.
Key characteristics	Good mechanical strength, low friction, self-lubrication and wear resistance; rapidly absorbs moisture.
Print settings	250-280°C nozzle; 100-120°C bed; 40-80 mm/s; 0-20% cooling.
Conditioning	Dry at 80°C for 6-8 h and print from a dry box.
Equipment / use	Enclosed printer recommended; use suitable build-surface adhesive. Applications: gears, sliding parts, bearings, bushings and prototypes.
Variants / caution	Transparent, white and black. Approx. length 400 m for 1 kg reference spool. Moisture strongly affects print quality and properties.

11. Product-Specific Technical Profile - PA6-CF and Grade-Specific Limitations

PA6-CF	
Material base	PA6 nylon compound reinforced with chopped carbon fiber.
Positioning	Engineering carbon-fiber nylon for stiff, heat-resistant functional parts.
Key characteristics	High stiffness, dimensional stability and improved heat performance compared with standard PLA/PETG families; highly moisture sensitive.
Print settings	260-290°C nozzle; 70-110°C bed; 30-60 mm/s; minimal cooling.
Conditioning	Dry at 80-100°C for 8-12 h and feed from a dry box.
Equipment / use	0.6 mm hardened steel/ruby nozzle and enclosed high-temperature printer recommended. Applications: jigs, fixtures, tooling, robotics and demanding prototypes.
Variants / caution	Black, lava gray and matcha green subject to availability. Fiber percentage, continuous-service temperature and mechanical properties require exact grade and batch documentation.

Grade-Specific Restrictions

Topic	Requirement
PC flame-retardant option	UL94 V-0 and heat resistance up to 125°C may apply only to a confirmed flame-retardant PC grade. Do not state these as universal PC properties without the corresponding grade and report.
PA6-CF / carbon-fiber composites	Fiber percentage, fiber length, surface treatment, resin grade, XY/Z strength, interlayer strength, creep, fatigue, HDT and moisture content must be confirmed by the exact formulation and batch report.
PETG-GF	Current color supply is white only. Exact mechanical data and print profile must be confirmed by the selected grade.
PEBA and medical/sports use	Product-family positioning does not constitute medical-device approval, orthotic certification, food-contact approval or regulated-use qualification.

ENGINEERING APPLICATION VALIDATION

For load-bearing, pressure, electrical, food-contact, medical, automotive, aerospace or high-temperature end use, the buyer must validate the printed part under actual service conditions. Filament-family guidance does not qualify a printed part for a regulated application.

12. Source-Provided Physical and Mechanical Reference Data

IMPORTANT VERIFICATION NOTICE

The following values were supplied in product-source materials during catalog preparation. They are included in the TDS rather than in marketing product pages. Where a complete test method, conditioning procedure, specimen orientation or original report was not supplied, the value must not be treated as a certified specification. Do not use these data for structural design without verification.

Material	Property	Typical Value	Source / Status
PLA Metal	Density	1.24 g/cm ³	Supplier-provided typical value
PLA Metal	Vicat softening temperature	57°C	Test method not supplied
PLA Metal	Heat distortion temperature	57°C	Test method / load not supplied
PLA Metal	Melt temperature	160°C	Supplier reference
PLA Metal	Melt flow index	42.4 ± 3.5 g/min	Source unit retained; test condition not supplied
PLA Metal	Tensile strength	35 ± 4 MPa	Supplier-provided typical value
PLA Metal	Elongation at break	12.2 ± 1.8%	Supplier-provided typical value
PLA Metal	Flexural modulus	2750 ± 160 MPa	Supplier-provided typical value
PLA Metal	Flexural strength	76 ± 5 MPa	Supplier-provided typical value
PLA Metal	Impact strength	26.6 ± 2.8 kJ/m ²	Supplier-provided typical value
PLA-GF	Melt flow index	6.36 (190°C / 2.16 kg)	GB/T 3682-2000
PLA-GF	Density	1.31 g/cm ³	GB/T 1033-86
PLA-GF	Tensile strength	59.27 MPa	GB/T 1040-92
PLA-GF	Impact strength	10.16 kJ/m ²	GB/T 1843-96
PLA-GF	Flexural strength	85.01 MPa	GB/T 9341-2000
PLA-GF	Flexural modulus	4414.89 MPa	GB/T 9341-2000
PLA-GF	Heat distortion temperature	56°C at 0.45 MPa	GB/T 1634-2001
PLA-GF	Elongation at break	7.99%	GB/T 1040-92

12. Source-Provided Physical and Mechanical Reference Data (continued)

Material	Property	Typical Value	Source / Status
PETG Transparent	Density	1.23 g/cm ³	Supplier-provided typical value
PETG Transparent	Melt flow index	22 (250°C / 2.2 kg)	Supplier-provided typical value
PETG Transparent	Heat distortion temperature	70°C at 0.45 MPa	Supplier-provided typical value
ABS	Density	1.02 g/cm ³	Supplier-provided typical value
ABS	Heat distortion temperature	95°C	Test condition not supplied
ABS	Melt flow index	15 g/10 min	Test condition not supplied
ABS	Vicat softening temperature	86°C	Supplier-provided typical value
ABS	Tensile strength	42 MPa	Supplier-provided typical value
ABS	Elongation at break	7.8%	Supplier-provided typical value
ABS	Flexural strength	55 MPa	Supplier-provided typical value
ABS	Notched impact strength	126 J/m	Source value; verify method before formal use
PEBA	Density	1.0 g/cm ³	Supplier-provided typical value
PEBA	Tensile strength	43 MPa	Test method not supplied

NUMERIC PROPERTY POLICY

No universal numeric declaration: This family TDS intentionally does not publish universal tensile strength, elongation, flexural strength, impact strength, HDT, Vicat, continuous-service temperature, shrinkage, resin grade or fiber percentage for every product. These values can change materially with formulation, color, additive package, conditioning, specimen preparation, print orientation and test method. Numeric claims should be issued only when supported by the exact product and applicable test evidence.

13. Quality Control, Storage, Handling and Packaging

Quality and Production Control

Control Item	Standard Control Method
Diameter consistency	In-line diameter monitoring and production sampling.
Winding quality	Visual winding inspection to reduce crossing, tangling and feeder interruption.
Moisture protection	Vacuum packaging with desiccant; dry storage recommended after opening.
Visual inspection	Color, surface, spool, label and packaging inspection before shipment.
Net-weight control	Production and packing checks according to the confirmed order standard.
Batch traceability	Batch or lot information can be maintained for confirmed bulk orders.
Capacity statement	Production scheduling and available capacity are confirmed per order; stated capacity is not a delivery guarantee.

Storage and Handling

Item	Requirement
Unopened storage	Store indoors in a cool, dry, well-ventilated area away from direct sunlight, rain, heat and humidity.
After opening	Reseal unused filament with desiccant or store in a dry box.
Moisture-sensitive materials	PETG, TPU, PEBA, PA, PA6-CF and PC should be dried before critical printing and kept dry during long prints.
Shelf life	12 months is a general recommended unopened storage period; actual performance depends on material, packaging integrity and environment.
Handling composites	Use care when cutting or sanding fiber-filled parts. Avoid skin/eye exposure to fine dust and use appropriate PPE and extraction.

Packaging and Label Support

Service	Description
Standard supply	NexaForge label, vacuum bag, desiccant, plastic spool, export carton and standard shipping documents.
Neutral packaging	Available subject to order confirmation.
Private label / OEM	Label, barcode, packaging and color-matching support subject to project quantity, material, sample approval and artwork confirmation.

14. Technical Documentation and Declaration Policy

Document / Data Type	Availability
General / product-family TDS	Available for customer evaluation and distributor onboarding.
SDS / MSDS	Available in 16-section format when supported for the exact material series.
RoHS / REACH	Subject to exact product series, color, batch and destination requirement.
COA / QC report	Available by confirmed order and batch when applicable.
Packing list / invoice / label file	Available for confirmed commercial orders.
Mechanical / thermal test report	Only when an applicable product- or batch-specific report is available.
Resin grade / supplier TDS	Subject to supplier authorization and availability; not automatically included.
Fiber percentage / fiber details	Must be specifically confirmed for the exact composite formulation; not inferred from the product name.

General Disclaimer

The information in this document is based on NexaForge standard product knowledge, customer-provided source material and typical operating conditions. It is provided in good faith for product evaluation and does not replace customer testing under actual printing, regulatory or end-use conditions. Product specifications may vary by material series, color, additive, batch and agreed order requirement. NexaForge may update formulations, packaging or recommendations where such changes do not conflict with a confirmed order specification.

Revision History

Revision	Date	Description
1.0	2025-06-15	Initial general customer-issue technical data sheet (NXF-TDS-GEN-001).
2.0	2026-03-20	Expanded to the complete product-family TDS (NXF-TDS-FULL-002).
3.0	2026-07-25	Updated company email and current contact details; added PLA Transparent, PLA Metal, PETG Transparent, PETG-GF, PEBA and ABS; aligned current product-card print settings and color restrictions; standardized most product tolerances to ± 0.02 mm; added source-provided physical and mechanical reference data with verification notes; updated carton reference to 44 × 37 × 22 cm, 10 spools and approx. 13.5 kg.

Online contacts: www.nexaforge3d.com | [Made-in-China Store](#)