

Spectrum

FILAMENTS

**3D Printing Filament
Manufacturer**



PRODUCT PORTFOLIO 2023

About us



Company

Spectrum Filaments, is a 3D printing filament extrusion technology oriented company, opened to new ideas and ready to follow customer expectations, at the same time offering the production capabilities of one of the largest filament manufacturers in Europe.

We are a manufacturer and supplier of high quality filament for 3D printers operating in FFF/FDM technology. Innovation, extrusion know-how and highest quality filaments are the pillars of Spectrum's philosophy. A strong team is working continuously on the development of new materials and their applications to allow customers to use their 3D printers more efficiently and remain competitive.

Optimized materials

Filaments manufactured by Spectrum are advanced, high quality materials with a comprehensive range of properties and applications, ranging from high

performance to unique aesthetic solutions. Specially chosen raw materials and attention to the details in the production process let each user to transfer even the most multidimensional project to the real world. A modern production lines equipped with non-standard solutions allow to obtain chosen color, as well as to maintain important mechanical properties of the filament.

Wide product portfolio

Our portfolio consists of over 50 filaments for 3D printing, differentiated in terms of aesthetic values, mechanical parameters and potential applications. We believe that our offer, which is divided into three segments: desktop easy-to-use materials for low cost 3D printers, industrial grade and high performance materials consisting of engineering thermoplastics, high tech ceramics and other compositions targeted to high-end 3D printers users and industrial applications, are suitable for every solution.



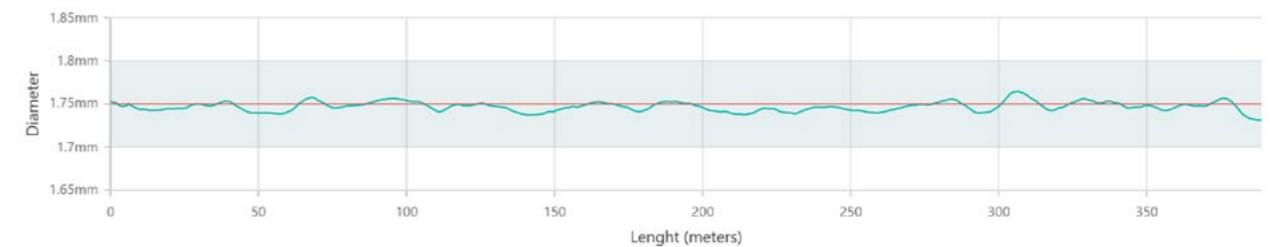
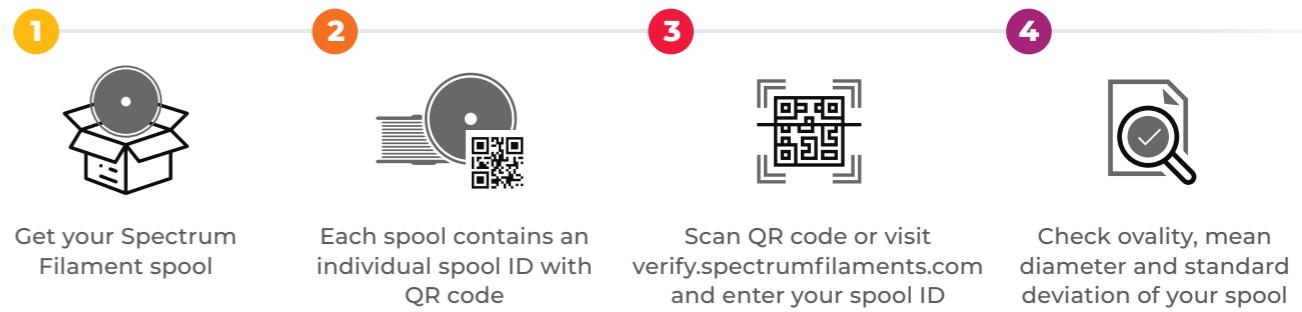
Filament for 3D printers is manufactured by the method of free extrusion. This is one of the most difficult processing techniques by extrusion, due to the particularly large impact of process parameters on product dimensions and material homogenization.

Our technological know-how and experience in filament production allow us to obtain a high-quality final product. To prove this, Spectrum Filaments, as one of the few manufacturers in the world, has introduced the possibility of online presentation, individually for each manufactured spool:

- ✓ The course of diameter on the entire length of the spool,
- ✓ Mean diameter,
- ✓ Ovality,
- ✓ Standard deviation.

During the production each 1 mm of filament is being continuously measured in 2 axes with $\pm 0.8 \mu\text{m}$ accuracy. To be sure that the measurement result is reliable we use certified laser meter devices.

How does the verification system work?



Verify your spool

The most precise quality control system on the market



Desktop filaments

Bio-based materials

PLA Premium	High quality PLA, biodegradable, user friendly, very wide range of colors
new GreenyHT	High heat resistance, biodegradable, plasticizer-free, increased rigidity & hardness
PLA Glitter	Unique glitter-gloss effect, reduced visibility of layers, not abrasive
PLA Tough	Tough like ABS, easy to print like PLA
PLA MATT	Matte surface, UV stabilization, improved strength properties
PLA Pro	Alternative to ABS, high impact strength, improved heat-resistance & flow index
PLA SILK	Original, phenomenal colors; unique aesthetic properties, user friendly
PLA Glow in the Dark	Strong phosphorescence effect, smooth surface after printing
PLA Carbon	10% Carbon fiber reinforced, improved hardness & rigidity
PLA Stone Age	Original, unique marble effect; layer masking, not abrasive
PLA Thermoactive	Thermochromic effect, color changing ability at ca. 30°C
WOOD	Natural wood content, perfect side surface of prints, wood appearance

Recycled materials

rPLA	Created by reusing the recycled extrusion residual waste stream, lower environmental impact
rPETG	Created by reusing the recycled extrusion residual waste stream, lower environmental impact

Styrene-based materials

Smart ABS	High quality ABS, reduced shrinkage, high impact resistance & rigidity, increased flow index
ASA 275	Easy to print, excellent resistance to external exposure and changing weather conditions, high printing speed (up to 200mm/s)
new ASA-X CF10	10% Carbon fiber reinforced, improved thermal resistance, outdoor use in conditions of increased exposure to UV radiation & humidity
HIPS-X	light, fully soluble in D-Limonene, HDT B 88°C

Co(Polyester)

PET-G Premium	High quality PET-G, combines advantages of PLA & ABS, odour-free printing, chemical resistance
PET-G Glitter	Unique glitter-gloss effect, reduced visibility of layers, not abrasive
PET-G Carbon	10% Carbon fiber reinforced, improved hardness & rigidity
PET-G Glow in the Dark	Strong phosphorescence effect, smooth surface after printing
PET-G MATT	Matte surface, UV stabilization, improved strength properties
PET-G Flame Retardant VO	Flame retardant, free of halogens, designed to meet UL 94 VO standards
new PET-G/PTFE	10% PTFE reinforced, reduced coefficient of friction, tribological properties
PCTG Premium	High quality PCTG, excellent alternative to PET-G, increased impact strength, combines features of Tough PLA and PET-G Premium
new PCTG CF10	10% Carbon fiber reinforced, high stiffness and tensile strength, good impact and chemical resistance
new PCTG GF10	10% Glass fiber reinforced, good corrosion and chemical resistance, high stiffness

Flexible

S-Flex 85A	Up to 650% elongation at break, Shore 85A, high tensile & tear resistance
S-Flex 90A	Up to 500% elongation at break, Shore 90A, oils & chemical resistance
S-Flex 98A	Up to 510% elongation at break, Shore 98A, high tensile & tear resistance

Polyamide

PA6 Low Warp	Easy to print Nylon, good tribological properties, chemical resistance to lubricants & oils
new PA6 Low Warp CF15S	15% Carbon fiber reinforced, heat-stabilized, increased stiffness & tensile strength
new PA6 Low Warp GF30	30% Glass fiber reinforced, heat-stabilized, excellent chemical resistance

Industrial filaments

Polyamide

PA6 CF15	15% Carbon fiber reinforced, high Z-strength, high temperature resistance, reduced moisture & water absorption, exceptionally low linear shrinkage, increased mechanical strength	LUVOCOM 3F LUVOCOM® 3F PA ^{HT} CF 9742 BK
PA6 GK10	10% Glass microspheres reinforced, stiffer & lighter than pure polyamide, low impact of moisture, high temperature resistance, good electrical insulation properties	LUVOCOM 3F LUVOCOM® 3F PA ^{HT} GK 9874 NT
PA6 Neat NT	High temperature, unreinforced, chemical resistance to oils & lubricants, relatively high resistance to corrosion stimulators & good electrical insulation	LUVOCOM 3F LUVOCOM® 3F PA ^{HT} 9875 NT
PA6 Neat BK	High temperature, mineral filler, good tribological properties, chemical resistance to oils & lubricants, good electrical insulation properties	LUVOCOM 3F LUVOCOM® 3F PA ^{HT} 9936 BK
PA6 CS20 FR VO	Ceramic spheres, flame retardant, UL-94 V0 flammability achieved on ≥0.4 mm thick printed parts, halogen free, high mechanical strength	LUVOCOM 3F LUVOCOM® 3F PAHT KK 50056 BK FR

Co(Polyester)

PET-G HT100	Improved temperature resistance, excellent dimension stability & toughness, high mechanical strength, chemical resistance, low odour
PET-G FX120	Flexible, Shore hardness 95A, excellent durability & temp. resistance, steam sterilisation possibility
PET CF15	15% Carbon fiber reinforced, high Z-strength; high hardness, stiffness & creep resistance, excellent interlayer adhesion, chemical resistance to lubricants & oils
new ecoPET 9021	90% Recycled content, very good impact strength, rigidity increased by 50%, tensile strength increased by 20%

Styrene-based materials

ABS GP450	All-purpose, industrial grade, high mechanical strength & impact resistance, high printing speed (200mm/s), very robust interlayer adhesion
ABS Medical	Manufactured using ABS pellets that meet the biocompatibility requirements of USP Class VI or ISO 10993-1 certifications
ABS Kevlar	10% Aramid fiber reinforced, high rigidity & impact strength, excellent dimensional stability
ASA Kevlar	10% Aramid fiber reinforced, UV resistance, good aging resistance, excellent resistance to external exposure

Polypropylene

PP	PP-copolymer unreinforced, outstanding chemical resistance, ultimate elongation - 500%; good temperature & electrical resistance
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Polycarbonate

PC/PTFE	10% PTFE reinforced, improved thermal stability, increased electrical insulation, high abrasion resistance
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Polyphenylene sulfide

new PPS AM230	High performance, excellent chemical resistance, high dielectric strength, exceptionally high mechanical properties
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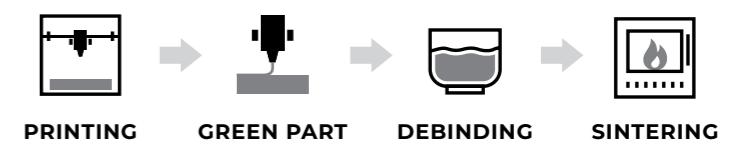
High performance (sintering)

Stainless steel

new 316L

Ceramics

Silicon Carbide
Silicon Nitride
Alumina
Zirconia
Porcelain



COOPERATION PARTNERS:



Industrial filaments comparison

Material	Supplier	Temp.	Bed temp.	Print speed	Cooling	Density	Chamber	Dry box recommended	Ruby or hardened nozzle recommended	Properties & Characteristics									Surface finish	Adhesive		
										Ease of print	Toughness	Hardness	Impact resistance	Ultimate tensile strength	Elongation at break	Heat resistance						
Polyamide																						
PA6 CF15	LUVOCOM 3F	260-290	<80	30-60	0-10%	1.25	not necessary	Yes	Yes	4	9	9	5	10	4	10	HDT A - 200°C, continuous service temp. (20.000h) - 150°C, service temp. (200h) - 180°C	matte, carbon appearance	recommended (1)			
PA6 GK10	LUVOCOM 3F	260-290	<80	30-80	0-10%	1.01	recommended for larger prints	Yes	Yes	3	6	8	4	8	4	5		opaque	recommended (1)			
PA6 Neat Natural	LUVOCOM 3F	250-280	60-80	30-70	0-10%	1.14	recommended for larger prints	Yes	No	5	7	8	7	7	4	5		semi-matte	recommended (1)			
PA6 Neat Black	LUVOCOM 3F	250-280	60-80	30-70	0-10%	1.25	recommended for larger prints	Yes	No	5	7	8	6	7	4	5		semi-matte	recommended (1)			
PA6 CS20 FR VO	LUVOCOM 3F	260-290	>80	30-70	0-10%	1.49	not necessary	Yes	Yes	4	7	8	5	6	2	5		matte, rough	recommended (1)			
Co(Polyester)																						
PET-G HT100		250-280	100-110	40-100	0-30%	1.18	recommended for larger prints	No	No	6	7	9	9	5	5	5	HDT B - 94°C	shiny	not necessary*			
PET-G FX120		240-260	80	30-70	30-70%	1.13	recommended	Yes	No	4	5	3	3	4	10	9	VICAT - 170°C	shiny	recommended (2)			
PET CF15	LUVOCOM 3F	245-270	50-70	30-80	0-30%	1.40	not necessary	No	Yes	7	7	9	5	7	4	6	Service temp. (200h) - 125°C	matte, carbon appearance	not necessary*			
ecoPET 9021	LUVOCOM 3F	250-275	>50	30-70	50-85%	1.36	recommended for larger prints	No	No	6	6	9	4	6	3	4	Service temp. (200h) - 125°C	shiny	recommended (2)			
Styrene-based																						
ABS GP450		235-255	100	30-200	0-25%	1.04	recommended for larger prints	No	No	7	6	9	7	5	7	4	VICAT - 95°C	shiny	not necessary*			
ABS Medical		235-255	100	30-150	0-25%	1.06	recommended for larger prints	No	No	7	7	8	7	5	8	4	VICAT - 97°C	shiny	not necessary*			
ABS Kevlar		250-270	100	30-70	0-25%	1.05	recommended for larger prints	No	Yes	6	6	9	4	5	5	4	HDT B - 88°C, VICAT - 95°C	matte, rough	not necessary*			
ASA Kevlar		240-270	80-100	30-70	0-25%	1.07	recommended for larger prints	No	Yes	6	6	9	4	5	5	4	HDT B - 89°C, VICAT - 94°C	matte, rough	not necessary*			
Polypropylene																						
PP	LUVOCOM 3F	265-295	95-120	30-80	0-35%	0.89	recommended	No	No	2	4	5	6	3	10	6	HDT B - 80°C, VICAT - 135°C	semi-matte	necessary (3)			
Polycarbonate																						
PC/PTFE		265-295	90-120	30-80	0-10%	1.32	recommended	No	No	2	7	8	5	6	6	7	HDT B - 140°C, VICAT - 145°C	semi-matte	necessary (4)			
Polyphenylene sulfide																						
PPS AM230		300-330	100-120	30-70	0-10%	1.33	active heated (60-80°C)	Yes	No	3	7	9	4	6	3	10	HDT B - 129°C, VICAT - 236°C	shiny	necessary (5)			

LUVOCOM® 3F filaments quality was entirely checked and is certified by Lehmann&Voss Co. KG.

For LUVOCOM® 3F materials name references see [page 5](#).

Adhesives:

* For increased adhesion or to prevent warping: glue stick, Dimafix, 3DLac, Magigoo

(1) - Magigoo PA; (2) - glue stick / Dimafix / 3DLac / Magigoo; (3) - MagigooPP; (4) - MagigooPC; (5) - Magigoo Pro HT

High performance filaments comparison

	Nozzle temp.	Bed temp.	Printing speed	Cooling	Green density	Ruby or hardened nozzle recommended	Recommended nozzle diameter	Shrinkage (X/Y)	Shrinkage (Z)	Scaling factor (X/Y)	Scaling factor (Z)	Sintering conditions
316L	155-170	60-70	10-30	Off	7.36	Yes	0.4 - 0.8 mm	16.48%	16.27%	1.20	1.19	>1.000°C
Silicon Carbide	155-170	60-70	10-30	Off	2.161	Yes	0.4 - 0.8 mm	16.40%	21.20%	1.196	1.269	2.100 – 2.200°C in argon
Silicon Nitride	155-170	60-70	10-30	Off	2.200	Yes	0.4 - 0.8 mm	18.36%	20.36%	1.225	1.256	1.680- 1.750°C in nitrogen at elevated pressure
Alumina	155-170	60-70	10-30	Off	2.533	Yes	0.4 - 0.8 mm	19.00%	21.50%	1.235	1.274	1.475 – 1.640°C in air
Zirconia	155-170	60-70	10-30	Off	3.441	Yes	0.4 - 0.8 mm	20.30%	20.30%	1.255	1.255	1.450 – 1.500°C in air

Disclaimer

The product and technical data provided in this datasheet is correct to the best of Spectrum Group Sp. z o.o. knowledge and are intended for reference and comparison purposes only. Actual values may vary according to printing conditions, model complexity, environmental conditions, etc. Typical values are indicative only and are not to be construed as binding specifications.

COOPERATION PARTNERS:



Desktop filaments color table

PLA Premium



PLA Pro



rPLA



PLA Tough



PLA Stone Age



PLA Thermoactive



PLA Glitter



PLA MATT



PLA Glow in the Dark



PLA Carbon



WOOD



PLA SILK



GreenyHT



ASA 275



ASA-X CF10



PET-G Premium**S-Flex 85A****S-Flex 90A****S-Flex 98A****Smart ABS****HIPS-X****Industrial filaments color table****PCTG Premium****PET-G MATT****PET-G FR V0****PET-G/PTFE****PA6 Neat NT****PET-G HT100****ABS GP450****PC/PTFE**

Filament sets for start

new

Ideal to begin your 3D printing journey!

Eco-friendly cardboard spools
Always 5 spools 0.25 kg each
Various materials & colors



5 PACK PLA Premium

1.75 mm (5x 0.25 kg)

PLA Premium Polar White
PLA Premium Deep Black
PLA Premium Lion Orange
PLA Premium Pacific Blue
PLA Premium Lime Green

5 PACK PET-G Premium

1.75 mm (5x 0.25 kg)

PET-G Premium Arctic White
PET-G Premium Deep Black
PET-G Premium Lion Orange
PET-G Premium Pacific Blue
PET-G Premium Lime Green

5 PACK ASA 275

1.75 mm (5x 0.25 kg)

ASA 275 Polar White
ASA 275 Deep Black
ASA 275 Silver Star
ASA 275 Navy Blue
ASA 275 Bloody Red

5 PACK PLA SILK

1.75 mm (5x 0.25 kg)

PLA SILK Glorious Gold
PLA SILK Spicy Copper
PLA SILK Apple Green
PLA SILK Indigo Blue
PLA SILK Ruby Red

5 PACK PCTG Premium

1.75 mm (5x 0.25 kg)

PCTG Premium Arctic White
PCTG Premium Deep Black
PCTG Premium Lion Orange
PCTG Premium Transparent Green
PCTG Premium Clear

5 PACK Premium PLA Essentials

1.75 mm (5x 0.25 kg)

PLA Premium Wizard Indigo
PLA Premium Wizard Green
PLA Premium Wizard Charcoal
PLA Premium Caribbean Blue
PLA Premium Translucent

5 PACK PLA Glitter

1.75 mm (5x 0.25 kg)

PLA Glitter Aurora Gold
PLA Glitter Volcano Grey
PLA Glitter Clear Gold
PLA Glitter Silver Metallic
PLA Glitter Stardust Blue

5 PACK Material Mix #1

1.75 mm (5x 0.25 kg)

PLA Premium Navy Blue
PET-G Premium Bloody Red
PCTG Premium Iron Grey
PLA SILK Amethyst Violet
ASA 275 Traffic Yellow

5 PACK Material Mix #2

1.75 mm (5x 0.25 kg)

PET-G MATT Deep Black
rPLA Leaf Green
rPETG Signal Yellow
PLA Pro Lion Orange
PET-G HT100 Pure White

5 PACK Carbon Set

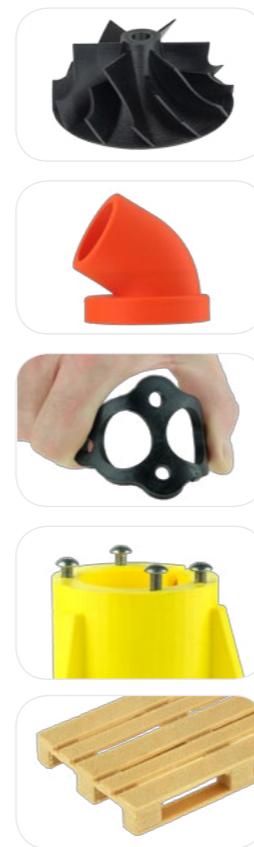
1.75 mm (5x 0.25 kg)

PLA Carbon
PET-G Carbon
ASA-X CF10
PCTG CF10
PA6 LW CF15S

Why Spectrum Filaments?

Top quality filament manufacturer

- Extrusion know-how
- High production capacity
- Rigorous quality control system "Verify your spool"
- Private label services
- Technical support



Wide Spectrum of materials

- More than 50 filaments in portfolio
- Desktop easy-to-use
- Industrial grade polymers
- High performance ceramics
- 0.25 - 12.5 kg spools
- Comprehensive range of properties & applications
- Unique aesthetic solutions





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