

Nanovia PA Rail :

EN 45545-2

Certified NF EN 45545-2 for its non-flammable, low smoke and toxic free properties, Nanovia PA Rail is usable in the railway sector. This composite polyamide (nylon) filament allows for the creation of components for sensitive environments, resilient up to 100°C, printable without enclosure.



Advantages

- Certified NF EN 45545-2 (R22, R23) and UL V0
- No warping during the printing process
- Can be printed without a heated enclosure

Applications

- Railway maintenance and replacement parts
- Protection carter and electronics containers
- Equipement and professional kitchen tools
- Protection accesories and templates in tool shops (welding/grinding)
- Adaptability equipments for hospitals

Application recommendations

Storage

- Store in airtight container with desiccant, out of direct sunlight.
- Dehydrate for 6 h at 100 °C prior to printing.

Printing

- Nanovia PA Rail shows better adhesion results on smooth build plates (PEI/glass).

Properties

3D Printing

Extrusion temperature	260 – 280 °C	
Plate temperature	70 – 80 °C	
Enclosure temperature	20 °C	
Nozzle (minimal)	0.5 mm	
Diameter	1.75 & 2.85 mm	+/- 50 µm
Colour	Black	

Mechanical properties

Physical

Density	1.49 g/cm ³	ISO 1183
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Tensile

Test performed at 1mm/min on 3D printed test specimins at 0°, along with the tension stress.

Young's modulus	3280 MPa	ISO 527-2/1A
Ultimate strength	25 MPa	ISO 527-2/1A
Elongation ultimate strength	1.6 %	ISO 527-2/1A

Health and safety

Printing

- We recommend printing Nanovia PA Rail in a room equipped with air extraction or by using appropriate breathing equipment.

Post treatment

- Standard PPE recommended (dust mask, gloves)

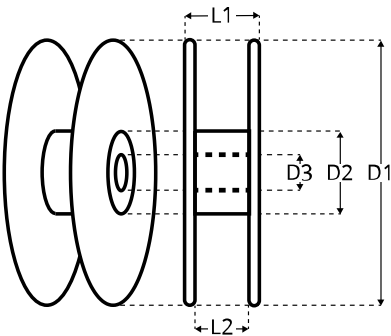
Certifications

- Nanovia PA Rail RoHS certification : 
- Nanovia PA Rail EN45455-2 Test results : [Download .PDF](#)

Printing profiles

- Ultimaker Cura slicer material profile : [lien](#)
- [Thought 3D Drywise](#) profile available 

Packaging



Vacuum packed spools, with desicant, packed in individual boxes with engraved serial number.

Other formats available on demand.

Spool	L1	L2	D1	D2	D3	Weight
500g	53	46	200	90	52	182 g
2kg	92	89	300	175	52	668 g

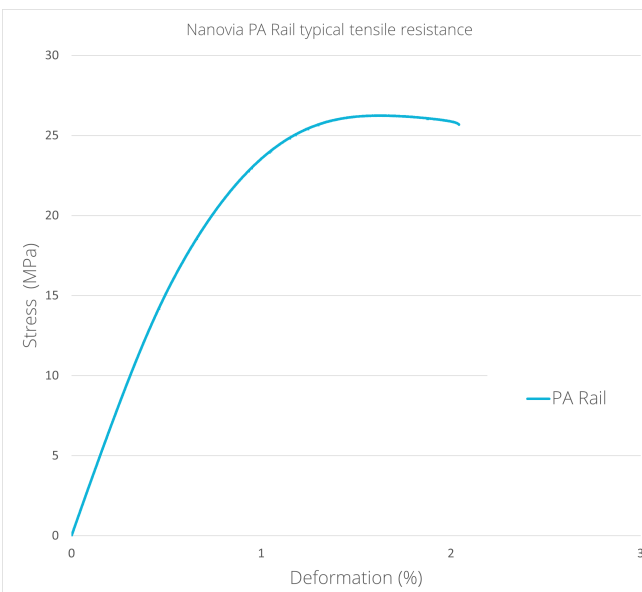
www.nanovia.tech/ref/pa-rail

Test performed at 1mm/min on 3D printed test specimens successively at 45° and -45° per layer.

Young's modulus	3590 MPa	ISO 527-2/1A
Ultimate strength	27 MPa	ISO 527-2/1A
Elongation ultimate strength	1.5 %	ISO 527-2/1A

Test performed at 1mm/min on 3D printed test specimens at 90°, oposite to the tension stress.

Young's modulus	3280 MPa	ISO 527-2/1A
Ultimate strength	22 MPa	ISO 527-2/1A
Elongation ultimate strength	1.3 %	ISO 527-2/1A



Thermal properties

Continuous operational temperature	120 °C	ISO 3167 A
Service temperature	160 °C during lifetime max, MPTS	ISO 3167 A
HDT A	90 °C	ISO 75
Flammability	V0 at 0.4 mm	UL 94

Norme EN 4545-2

Conform to requirements	R22, R23
Insulation resistance	HL1, HL2, HL3

Electrical properties

Surface resistance	> 10 ⁹ Ω	DIN IEC 60093
Insulation resistance	> 10 ⁹ Ω	DIN IEC 60167

last updated : 25/04/2024