

Roamr TPU Air HR 85A

TECHNICAL DATA SHEET (TDS)

Structural high-rebound foaming TPU engineered for high-stress, high-wear and critical support zones in footwear. The active foaming mechanism allows printed density and hardness to be tuned through print temperature and flow rate.

1. Introduction

- Balances stable support, responsive rebound and long-term durability.
- Ideal for outsoles and high-wear zones, ergonomic slides, structural midsoles and reinforced uppers.

2. Specification

Specification	Value
Name	Roamr TPU Air HR 85A
Net Weight	800 g spool
Color	Noir, Beige
Diameter	1.75 mm (+/-0.03 mm)
Filament Density	1.05 g/cm ³
Melt Index (MFI)	8 g/10 min

3. Mechanical Properties - 0.4 mm Nozzle

Property	230 C	240 C	250 C	260 C	Method
Flow Rate	93%	83%	72%	62%	-
Printed Part Density	0.93	0.83	0.72	0.62	ISO 845
Hardness	83 A	82 A	76 A	70 A	ISO 7619
Tensile Yield Strength X-Y	12.5 MPa	11 MPa	7 MPa	5.3 MPa	ISO 527
Elongation at Break X-Y	750%	680%	620%	550%	ISO 527
Bayshore Rebound	48%	48%	48%	48%	ASTM D2632

Mechanical Properties - 0.6 mm Nozzle

Property	220 C	230 C	240 C	250 C	Method
Flow Rate	93%	83%	72%	62%	-
Printed Part Density	0.93	0.83	0.72	0.62	ISO 845
Hardness	83 A	82 A	76 A	70 A	ISO 7619

Property	220 C	230 C	240 C	250 C	Method
Tensile Yield Strength X-Y	12.5 MPa	11 MPa	7 MPa	5.3 MPa	ISO 527
Elongation at Break X-Y	750%	680%	620%	550%	ISO 527
Bayshore Rebound	48%	48%	48%	48%	ASTM D2632

Siraya Tech states that flow-rate percentage is directly proportional to final printed-part density; for example, an 80% flow rate produces an approximate density of 0.8 g/cm³.

Test conditions: 0.4/0.6 mm nozzle, 45 C bed, 60 mm/s print speed, 100% infill and +/-45 degree infill angle. Flow rate adjusted by temperature for optimal foaming.

4. Preparing for Printing

Parameter	Recommendation
Drying	70-80 C for 4-6 hours
Nozzle Diameter	0.4-0.8 mm
Nozzle Material	Brass works; hardened steel is not required, but can also be used
Recommended Build Surface	Glass with PVP glue; PEI with release agent; steel plate with PVP glue; PC film
Enclosure	No requirement

5. Printing with Roamr TPU Air HR 85A

For best results, Siraya Tech recommends printing directly from a dry box or filament dryer while maintaining humidity below 15%.

Parameter	Recommended Setting
Nozzle Temperature	220-260 C
Build Plate Temperature	35-50 C
Cooling Fan Speed	100%
Print Speed	30-60 mm/s
Flow Rate / Extrusion Multiplier	See nozzle-specific mechanical-property tables above
Retraction Distance	Off recommended
Retraction Speed	Off recommended

6. Moisture Management

- **Sealed packaging:** Store in a sealed aluminum foil bag to prevent moisture.
- **Desiccants:** Add desiccants to absorb moisture and keep the material dry.
- **Avoid sunlight and heat:** Keep away from direct sunlight and high temperatures to prevent degradation.
- **Temperature control:** Store at room temperature and avoid extreme heat or cold.

Source and Document Note

This PDF is a formatted reproduction of technical information published by Siraya Tech for Roamr TPU Air HR 85A. Values, test methods and printing recommendations are based on the manufacturer's TDS page and have not been independently altered or supplemented.