

Extrudr DuraPro PA12 Black

Material Engineering Report
MaterialID MAT0020

3DPiceland Engineering Platform
3DPiceland Labs

Generated with 3DPiceland Engineering Platform v60.0.6 WORKFLOW-
RELIABILITY - Bug Fixes and Workflow Reliability
Generated 2026-08-25 19:02:26

Public-data contract: This static report contains only allowlisted material identity, public links, canonical MSRP and existing Verified Material Summary / governed score outputs. It excludes raw specimen rows and non-public operational data.

TEST COVERAGE

Complete

ENGINEERING AXES

6/6

PUBLIC MSRP

\$49.80 USD/kg

Material identity

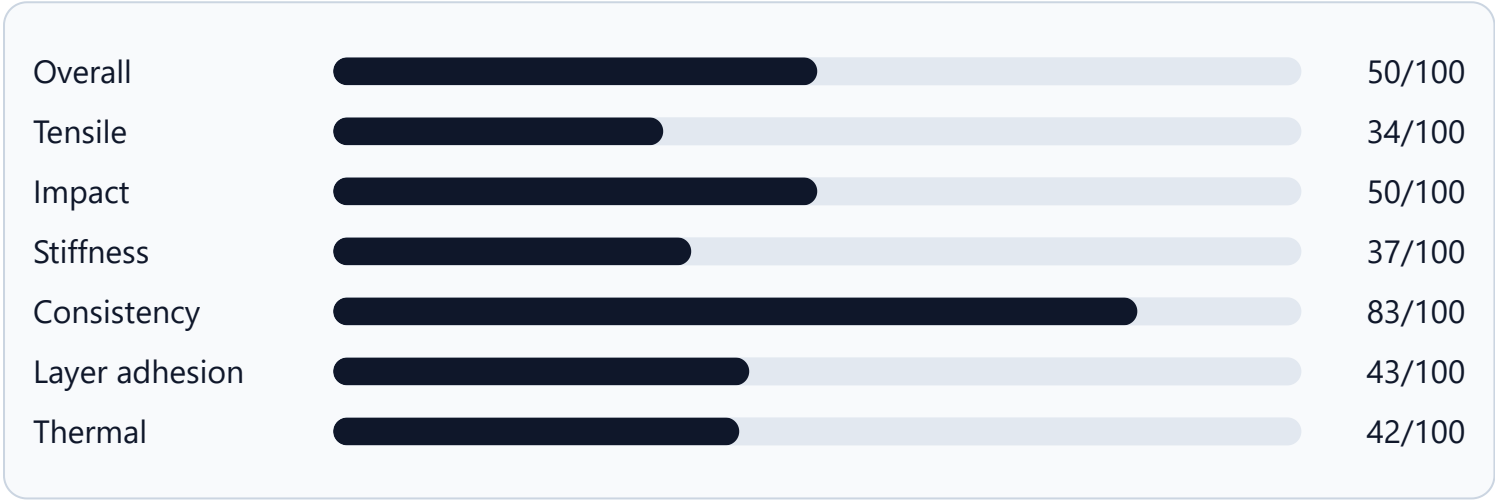
MaterialID	MAT0020
Material	Extrudr DuraPro PA12 Black
Manufacturer	Extrudr
Product line	DuraPro
Base material	PA12
Category	Engineering
Variant / finish	—
Reinforcement	—
Color	Black

Governed engineering profile

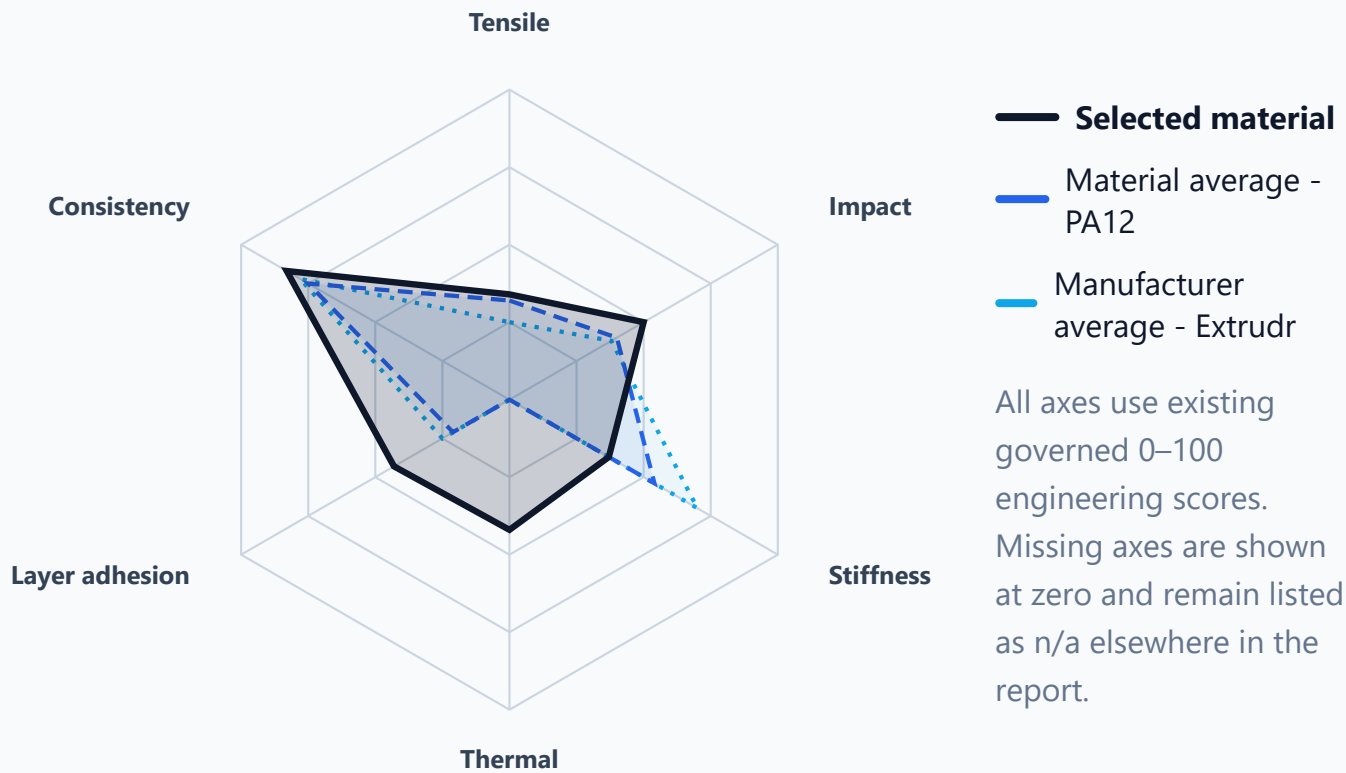
Overall	50/100
Tensile	34/100

Impact	50/100
Stiffness	37/100
Consistency	83/100
Layer adhesion	43/100
Thermal	42/100
Best available axis	consistency

Engineering score profile



Engineering radar



Fixture thermal result

84 °C · score 42/100 · method 3dp-thermal-deflection-fixture-v1
Nearby BlueDOT probe-indicated fixture temperature from a non-standard comparative 3DPIceland method; not ASTM D648, ISO 75, specimen temperature, certified HDT or a manufacturer limit.

Material and manufacturer context

Metric	Selected material	Material average	Manufacturer average
Overall	50/100	45/100	47/100
Tensile	34/100	32/100	25/100
Impact	50/100	40/100	38/100
Stiffness	37/100	54/100	70/100
Consistency	83/100	75/100	78/100
Layer adhesion	43/100	21/100	25/100
Thermal	42/100	—	—

Verified measurement results

Existing Verified Material Summary outputs. The public renderer does not read raw specimen rows or recalculate these values.

Measurement	Average	Std. deviation	CV	Samples	Confidence
Tensile upright	16.372 MPa	3.881 MPa	23.7%	9	9/10
Tensile flat	38.252 MPa	3.131 MPa	8.2%	10	10/10
Impact upright	211.94 kJ/m ²	26.857 kJ/m ²	12.7%	10	10/10
Impact flat	794.527 kJ/m ²	170.469 kJ/m ²	21.5%	10	10/10
Stiffness modulus	1118.256 MPa	—	—	—	—
Stiffness deflection	4.853 mm	—	—	—	—

Measurement provenance

Canonical per-module measured dates from SQLite, shown in unambiguous ISO format. Missing dates are not inferred.

Module	Measured date
Tensile	Not recorded
Impact	Not recorded
Stiffness	Not recorded
Thermal	Not recorded

Engineering interpretation

Summary: Extrudr DuraPro PA12 Black has a specialized or limited engineering profile. It is above its material-family average by 5 points and above its manufacturer average by 2,3 points. Its strongest measured axis is Consistency, while the weakest axis is Tensile.

Data-driven review: Extrudr DuraPro PA12 Black is best understood as a repeatable material for cosmetic, concept and low-load prototype work. Compared with the current verified dataset, it ranks better than 63% overall, is above the material-family average by 5 points, and is roughly aligned with the manufacturer average. Its strongest engineering signal is Consistency, while Tensile is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Consistency

MAIN LIMITATION

Tensile

DATASET POSITION

Better than 63%
88 / 234

Strengths

- Layer adhesion: 43/100. Z-axis bonding is better than the material-family context.
- Consistency: 83/100. Repeatability is one of the stronger signals in this material profile.
- Impact: 50/100. Impact behavior is competitive against the material-family context.

Limitations

- Tensile: 34/100. Avoid using this as the primary choice for tensile-loaded parts.
- Stiffness: 37/100. Expect less shape stability than the stronger materials in the same family.

Engineering trade-offs

- Good repeatability does not compensate for low tensile capability in load-bearing designs.
- The report should be read as a suitability warning rather than a general-purpose recommendation.

Recommended applications

- Repeatable print jobs and production-style batches
- Cosmetic parts, concept models or low-load prototypes
- Avoid high tensile load applications

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	50/100	88 / 234	Better than 63%

Metric	Score	Rank	Percentile
Tensile	34/100	55 / 226	Better than 76%
Impact	50/100	24 / 226	Better than 90%
Stiffness	37/100	219 / 223	Better than 2%
Consistency	83/100	44 / 231	Better than 81%
Layer adhesion	43/100	40 / 226	Better than 83%
Thermal	42/100	37 / 209	Better than 83%

Decision guidance

- Use this material mainly for low-load, visual or experimental parts.
- Review the listed alternatives if the application needs stronger overall performance.
- Do not choose it as a tensile-strength benchmark material.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0214	Eryone Standard Black PA12 CF Black	Eryone	53/100	43/100	46/100

Peer context

Highest-scoring same-base-material peers from the current governed dataset. This context is descriptive and is not recalculated by the public renderer.

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0214	Eryone Standard Black PA12 CF Black	Eryone	53/100	43/100	46/100
MAT0167	BambuLab Basic PA12 PAHT CF Black	BambuLab	51/100	39/100	41/100
MAT0209	Eryone Standard Black PA12 GF Black	Eryone	49/100	33/100	67/100
MAT0022	Fillamentum FX256 PA12 Clear	Fillamentum	45/100	28/100	47/100
MAT0019	MatterHackers NylonX PA12 CF Black	MatterHackers	42/100	32/100	22/100
MAT0239	Yasin Standard Black PA12 CF Black	Yasin	41/100	33/100	25/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0196	Extrudr DuraPro Black PA12 CF Black	Extrudr	40/100	28/100	44/100
MAT0021	Yasin Standard Black PA12 Black	Yasin	31/100	22/100	13/100

Public links

[Manufacturer website](#) [Download PDF](#)

Methodology and limitations

Results are comparative 3DPIceland measurements from home-built test equipment. Thermal is a nearby BlueDOT probe-indicated fixture temperature, not ASTM D648, ISO 75 or specimen temperature. Missing evidence remains n/a. Scores and test results are not recalculated by this publishing layer and do not replace certified manufacturer datasheets or accredited laboratory testing.

- [Testing methodology](#).
- [Engineering methodology whitepaper](#)