

# Technical data sheet | rPA12

## Recycled polyamide 12 filament – 1.75 mm

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Recycled polyamide 12 (rPA12) filament is produced from waste PA12 powder from HP Multi Jet Fusion (MJF) printers. The powder is extruded directly into filament on the 3devo FMx10, without an intermediate pelletising step. Combining this zero-cost waste stream with an extrusion line that needs little to no labour input gives a cost-effective route to an engineering-grade filament. Printed flat (XY), rPA12 reaches a yield stress close to that of MJF-printed virgin HP PA 12.

| Material & production     |                                                    |              |
|---------------------------|----------------------------------------------------|--------------|
| Feedstock                 | Post-use HP 3D High Reusability PA 12 powder (MJF) |              |
| Production                | Direct powder extrusion on the 3devo FMx10         |              |
| Additives                 | None                                               |              |
| Melting point (feedstock) | 184 – 187 °C                                       |              |
| Density                   | ≈ 1.01 g/cm³                                       |              |
| Filament properties       |                                                    |              |
| Color                     | Sandy brown                                        |              |
| Diameter                  | 1.75 ± 0.05 mm                                     |              |
| Ovality                   | < 5 %                                              |              |
| Spool type                | Cardboard spool                                    |              |
| Net weight                | 1 kg                                               |              |
| Print settings            |                                                    |              |
| Drying recommendation     | 2 h at 55 °C                                       |              |
| Printer used              | Prusa CORE One L                                   |              |
| Bed type                  | Prusa PA                                           |              |
|                           | Initial layer                                      | Other layers |
| Nozzle temperature        | 265 °C                                             | 265 °C       |
| Bed temperature           | 105 °C                                             | 110 °C       |
| Chamber temperature       | 55 °C                                              | 55 °C        |
| Tensile testing           |                                                    |              |
| Force gauge               | MARK-10 Series 5, model M5-300                     |              |
| Grip                      | G1013 parallel jaw grip                            |              |
| Test method               | ASTM D638-14                                       |              |
| Test specimen             | Type V                                             |              |
| Test speed                | 10 mm/min                                          |              |
| Print orientations        | XZ (edge), ZX (upright), XY (flat)                 |              |

| Tensile results       | XZ (edge) | ZX (upright) | XY (flat) | MJF printed <sup>1</sup> |
|-----------------------|-----------|--------------|-----------|--------------------------|
| Stress at yield (MPa) | 27.8      | 23.4         | 46.0      | 48.0                     |
| Strain at yield (%)   | 9.9       | 8.6          | 10.4      | 11.0                     |
| Strain at break (%)   | 10.3      | 9.8          | 14.9      | 20.0                     |

<sup>1</sup> Values taken from the HP 3D High Reusability PA 12 technical data sheet (MJF-printed parts, XY direction).

**Storage & handling:** PA12 is hygroscopic: store sealed with desiccant and dry before printing. Print in a well-ventilated area or enclosed printer. See the rPA12 Safety Data Sheet for safety information.

*The values above are typical results obtained under the stated test conditions and are intended as guidance only. They are not a product specification and may vary with printer, settings, part geometry and feedstock batch. Users should confirm suitability for their own application.*