noztek
Advanced 3D Extrusion

PRODUCT SPECIFICATION

# Nexus Mk 2 Desktop Extruder

Rev. 2026 | CE Certified

## Noztek Nexus

***Servo-Powered Desktop Filament Extrusion***

The Noztek Nexus delivers industrial-grade filament extrusion on a desktop scale. Powered by an advanced 48V, 750W RS485 DC servo motor with a 20:1 planetary gearbox, it produces 24 Nm of torque and lab-grade precision below 0.05 mm diameter variation — ideal for researchers, materials development, and robotic integration.

Three independently PID-controlled heater zones, a precision 2-stage screw, and a 7” capacitive touchscreen interface make the Nexus equally at home processing standard polymers, advanced composites, and recycled feedstocks.

| 24 Nm | 150 RPM | 500°C | 4.5 m/min |
|---|---|---|---|
| Maximum Torque | Maximum Speed | Max Temperature | Output Rate |

## DRIVE SYSTEM

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|---|---|
| **Motor** | 48V, 750W RS485 DC Servo Motor |
| **Gearbox** | 20:1 Planetary Reduction |
| **Maximum Torque** | 24 Nm |
| **Maximum Speed** | 150 RPM |
| **Speed Regulation** | ±0.1% with closed-loop control |
| **Control Mode** | Closed-loop servo with encoder feedback |

## HEATING SYSTEM

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|---|---|
| **Heater Bands** | 3 × independent, individually PID-controlled zones |
| **Standard Max Temperature** | 300°C |
| **Optional Max Temperature** | 500°C HT version |
| **Control** | Independent set points per zone via Nexus Control Hub |
| **Sensor Monitoring** | Thermocouple anomaly detection with custom alerts |
| **Warm-Up Function** | Real-time progress display — alerts when ready to extrude |

## SCREW & BARREL

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|---|---|
| **Screw Material** | Stainless steel |
| **Screw Design** | 3-stage (feed zone, melting, metering) |
| **Barrel Length** | 250 mm |
| **Construction** | Stainless steel barrel, screw and nozzles |
| **Nozzle Sizes** | 1.75 mm and 2.85 mm (custom sizes available on request) |

## CONTROL & CONNECTIVITY

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|---|---|
| **Interface** | 7” Capacitive Touchscreen — manual control of temperature and RPM |
| **Control Software** | Nexus Control Hub — PC-based real-time monitoring and data logging |
| **Data Visualisation** | Live temperature, RPM, torque, and load charts |
| **Workflow** | 3-step guided process: Setup → Warmup → Run |
| **Data Export** | One-click CSV export of full run data |
| **Program Memory** | Retains last-used temperature, speed, and timer settings on restart |
| **Connectivity** | RS485 / RS232 ports for PC integration |
| **PCB** | Bespoke Noztek control PCB for optimised signal integrity |
| **Processor** | Arduino-based control system |
| **Safety** | Emergency stop, motor block detection, sensor anomaly alerts |

## OUTPUT & PERFORMANCE

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|---|---|
| **Extrusion Rate** | Up to 4.5 m/min |
| **Diameter Variation** | <0.05 mm — lab-grade precision |

| | |
|---|---|
| **Material Utilisation** | 95% |
| **Throughput** | 125% increase over conventional desktop extruders |
| **Noise Level** | 60% quieter than traditional extruders |
| **Compatible Materials** | PLA, ABS, PETG, TPE, TPU, PC, carbon-fibre nylons, glass-bead and ceramic-filled compounds, biopolymers (PHA, PCL), conductive materials, recycled plastics |

## PHYSICAL & ELECTRICAL

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|---|---|
| **Dimensions (L × W × H)** | 90 cm × 25 cm × 23 cm |
| **Weight** | 17 kg |
| **Chassis Finish** | Stainless steel or black powder coat (specify on order) |
| **Power Supply** | 220 VAC or 110 VAC (specify on order) |
| **Motor Power Supply** | 48 V DC, 20 A max |
| **Frequency** | 50 Hz / 60 Hz |
| **Certification** | CE, RoHS, WEEE |
| **EORI (Export)** | GB221742634000 — full export documentation available |

## OPTIONAL ACCESSORIES & UPGRADES

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|---|---|
| **Tolerance Puller** | Active haul-off with closed-loop diameter control — essential for consistent filament diameter |
| **Filament Winder 2.0** | Motorised spooling system for continuous production runs |
| **Roller Conveyor** | Extended cooling run for high-temperature materials |
| **500°C Heater Upgrade** | Extended temperature capability for engineering polymers |
| **Custom Nozzle Diameter** | Non-standard extrusion nozzles available to order |

### Enquiries & Orders

*Contact our technical team to discuss your application requirements, request a formal quotation, and confirm lead time.*

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