noztek
Advanced 3D Extrusion

PRODUCT SPECIFICATION
Noztek Nexus Mk2 Extruder
Rev. 2025 | CE Certified

Nexus Mk2

Compact Research Extruder & Compounder

The Noztek Nexus Mk2 is a compact, high-performance single-screw extruder engineered for laboratory and research environments where material availability is limited and formulation flexibility is essential.

With a minimum working charge of just 7 g, the Nexus Mk2 is uniquely suited to small-batch compounding, polymer blending, filled and composite formulations, and filament production from experimental or precious feedstocks.

7 g	30.6:1	100–150 bar	3 Zones
Minimum Charge	L/D Ratio	Barrel Pressure	PID Temperature

BARREL

Overall Length	367 mm
Internal Bore	Ø12 mm
L/D Ratio	30.6:1
Material	Stainless steel
Heater Zones	3 × independent, individually PID-controlled
Max Barrel Pressure	100–150 bar

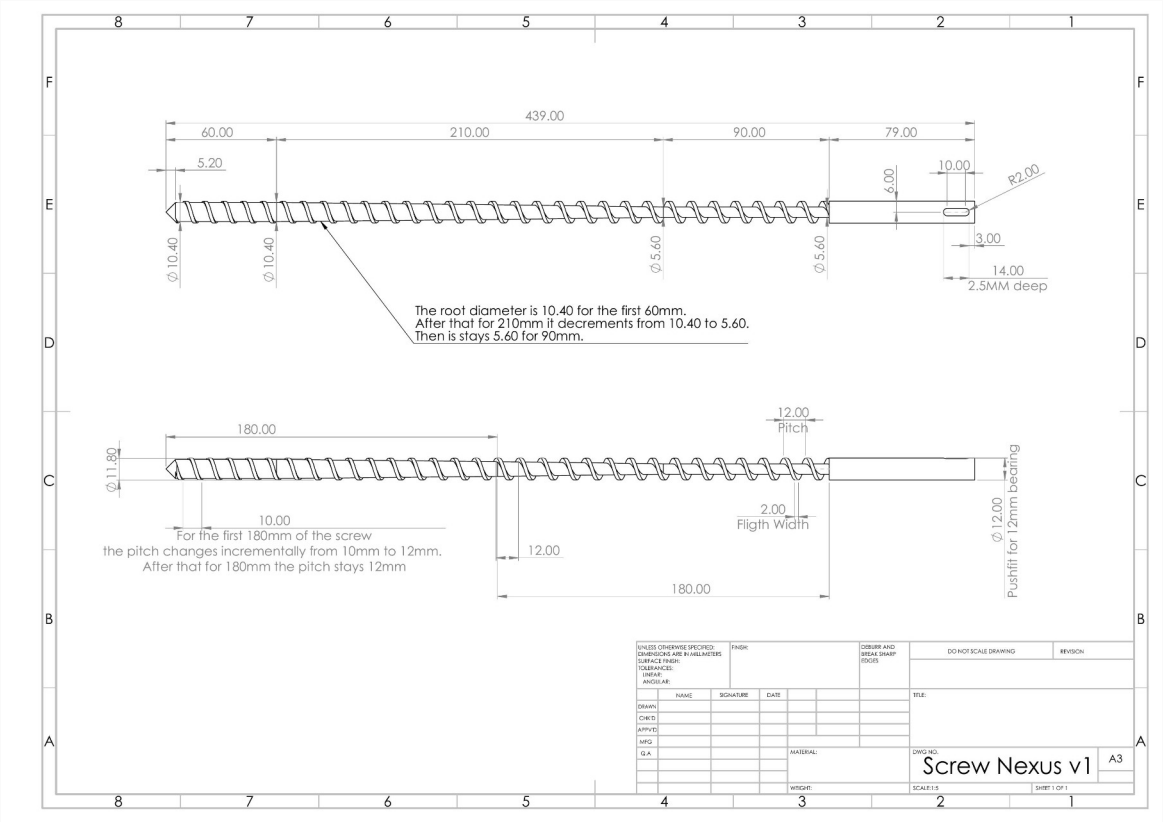
SCREW — 3-STAGE DESIGN

Overall Length	439 mm
Flight Diameter	Ø11.80 mm
Flight-to-Barrel Clearance	0.10 mm

Flight Width	2.00 mm
Material	Stainless steel
Pitch (Feed Zone)	Variable 10 mm → 12 mm over first 180 mm — reduces shear stress, optimises intake for pellets and powder
Pitch (Balance of Screw)	12 mm (constant)

Zone	Length	Root Diameter	Function
Feed	60 mm	10.40 mm (constant)	Solid conveying & material intake
Compression	210 mm	10.40 → 5.60 mm (tapered)	Melting & pressure build-up
Metering	90 mm	5.60 mm (constant)	Melt homogenisation & output

SCREW ENGINEERING DRAWING — Nexus v1 | Scale 1:5 | All dimensions in mm



HEATING SYSTEM

Heater Bands	3 × independent, individually PID-controlled zones
Max Temperature	300°C (standard)
Control	Independent setpoint per zone via touchscreen

Warm-Up Time	~15 minutes to operating temperature
Sensor Monitoring	Thermocouple anomaly detection with alert notifications

CONTROL & CONNECTIVITY

Interface	7" Capacitive Touchscreen — full manual control of temperature, RPM, and timers
Control Software	Noztek Control Hub — PC-based real-time monitoring and data logging
Data Visualisation	Live temperature and RPM charts with per-zone trend display
Data Export	CSV export of full run data via USB connectivity
Program Memory	Retains last-used temperature, speed, and timer settings on restart
USB Connectivity	USB port for PC integration and data export
PCB	Bespoke Noztek control PCB for optimised signal integrity
Safety	Emergency stop, motor block detection, sensor anomaly alerts

OUTPUT & PERFORMANCE

Minimum Working Charge	7 g
Hopper Capacity	50 g minimum / 1,100 g maximum
Nozzle Sizes	1.75 mm and 2.85 mm (custom sizes available on request)
Compatible Materials	ABS, PLA, PET, PP, HDPE, recycled plastics, powders, polymer blends, filled composites
Extrusion Rate (with Tolerance Puller)	Up to 4–6 metres of filament per minute

PHYSICAL & ELECTRICAL

Chassis Finish	Stainless steel or black powder coat (specify on order)
Power Supply	220 VAC or 110 VAC (specify on order)
Frequency	50 Hz / 60 Hz
Certification	CE, RoHS, WEEE
EORI (Export)	GB221742634000 — full export documentation available

OPTIONAL ACCESSORIES & UPGRADES

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
Pelletiser	Strand pelletising attachment for compounding output
Hardened Screw/Barrel	Bimetallic wear-resistant upgrade — recommended for abrasive or filled compounds
Custom Nozzle Diameter	Non-standard extrusion nozzles available to order

Key Design Advantages

Extended L/D ratio (30.6:1) — Increased residence time for superior melt homogeneity across the full screw length.

Progressive compression — Root diameter tapers from 10.40 mm to 5.60 mm, generating 100–150 bar for high-viscosity and filled materials.

Variable-pitch feed zone — Pitch ramps from 10 mm to 12 mm, reducing shear stress while optimising intake for both pellets and powder.

Tight clearances (0.10 mm) — Precision output with minimal backflow — critical for consistent small-batch results.

Enquiries & Orders

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

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