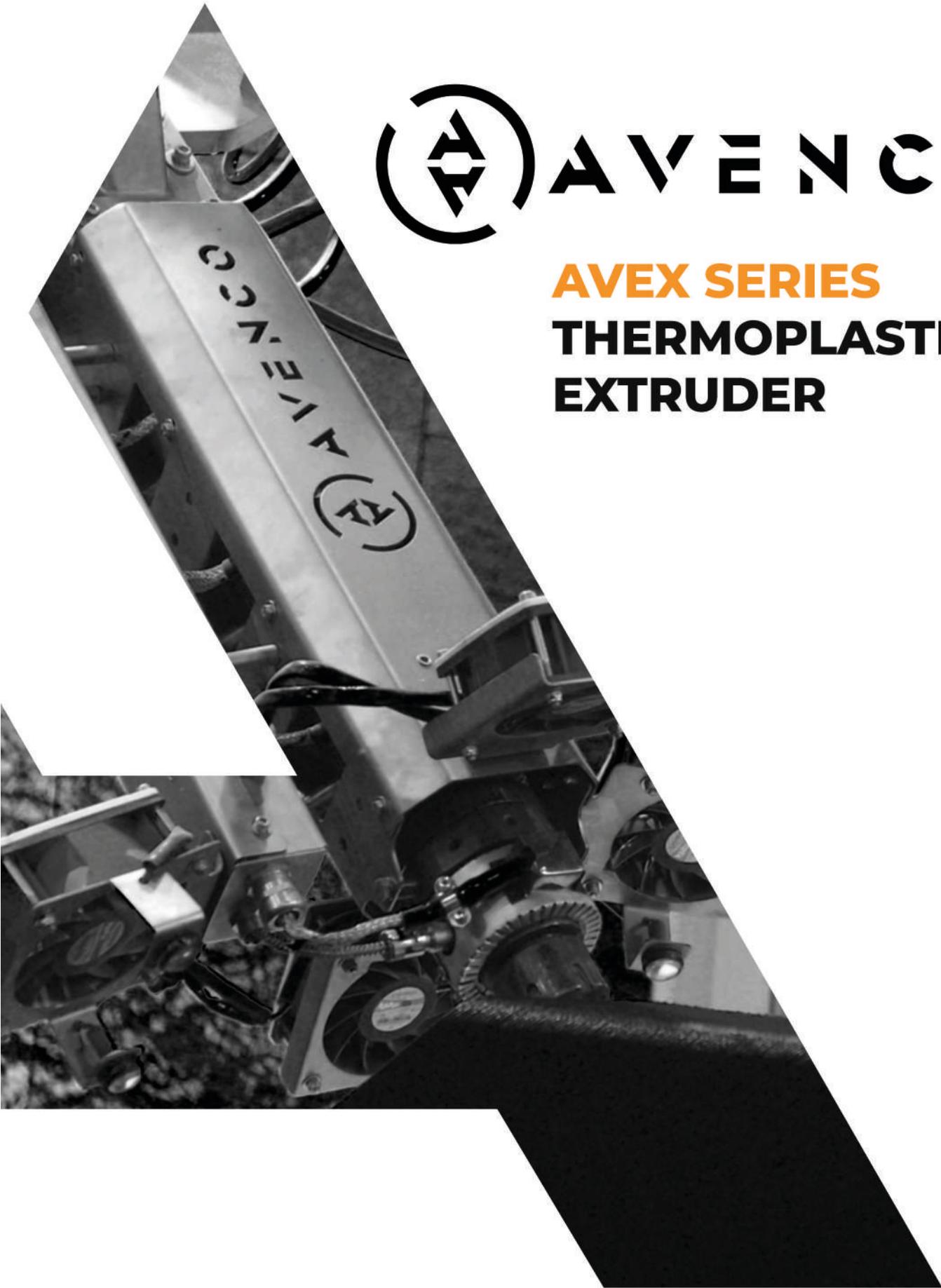




AVEX SERIES
THERMOPLASTIC
EXTRUDER



EXECUTIVE SUMMARY

The AVEX Series (AVEX15, AVEX20, AVEX32) comprises industrial extruders engineered for large-scale thermoplastic 3D printing. AVEX delivers reliable, high-output performance up to 50 kg/h, with printing temperatures reaching 450 °C. As an official KUKA systems partner, Beckhoff automation partner and technology partner of ENCY, Ai Build, and Adaxis, AVENCO integrates robust hardware with advanced robotic CAM and AI-driven optimization workflows.

ABOUT AVENCO

AVENCO is a global engineering company specializing in robotic systems for additive manufacturing, milling, and automation. With exports to 40+ countries across 6 continents, AVENCO delivers solutions trusted by leaders in construction, marine, automotive, and manufacturing. As of now, AVENCO has two branches, Istanbul HQ and Dubai Branch.



SECTORS SERVED



Defense:

Rapid prototyping of housings and enclosures, low-volume tooling, jigs & fixtures, composite mold masters (non-ITAR production support).



Aerospace:

Layup tools, vacuum form tools, drill jigs, non-flight composite tooling, aerodynamic mockups and form/fit prototypes.



Marine:

Hull sections, fairings, cores, custom molds; corrosion-resistant materials for marine environments.



Furniture:

Large sculptural shells, ergonomic forms, upholstery molds, custom fixtures for production lines.



Interior Design:

Parametric panels, bespoke décor, lighting housings, architectural elements with complex geometry.



Automotive:

Prototype body panels, bumpers, fixtures, composite tooling, assembly aids.



Construction/Architecture:

Façade panels, molds for casting, large-format functional components.

AVEX SERIES OVERVIEW

AVEX extruders are designed for continuous, high-throughput production of large-format parts using reinforced thermoplastics. Each model includes multi-zone heating, reinforced-polymer-ready screw/barrel geometry run by specialized servo motors, and interfaces for seamless robotic integration.



MODEL	Screw Diameter	Output Capacity	Heating Zones	Max Temperature	Primary Use Cases
AVEX15	25 mm	15 kg/h	4	450 °C	R&D labs, universities, mid-size prototypes
AVEX20	25 mm	25 kg/h	4	450 °C	Industrial prototyping, tooling & molds
AVEX32	35 mm	50 kg/h	4	450 °C	Heavy-duty production, large structural parts

AVEX15

AVEX15 features a 25 mm screw, 4 independent heating zones, and a maximum extrusion temperature of 450 °C. It delivers up to 15 kg/h for reliable, repeatable output.

Highlights:

- Compact footprint with industrial reliability for labs and pilot lines.
- Ideal for mid-size parts, method development, and materials R&D.
- Lightweight frame that can be operated with smaller KUKA robots.



Dimensions : 1810 x 686 x 570 mm



Weight : 78 kg



Nozzle Size : 2 - 16 mm



Temperature : Up to 450°C



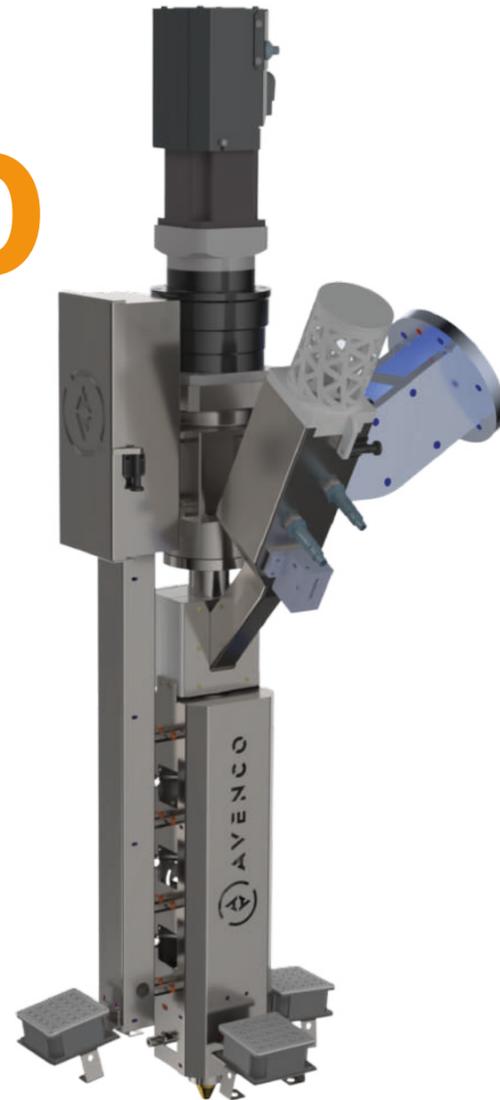
Capacity : 15 kg/hour

AVEX20

AVEX20 features a 25 mm screw, 4 independent heating zones, and a maximum extrusion temperature of 450 °C. It delivers up to 25kg/h for reliable, repeatable output.

Highlights:

- Workhorse extruder for industrial prototyping and tooling.
- Balanced throughput vs. footprint for factory environments.
- Can reach higher torques than AVEX 15.



Dimensions :
1450 x 715 x 525 mm



Weight :
84 kg



Nozzle Size :
2 - 16 mm



Temperature :
Up to 450°C



Capacity :
25 kg/hour

AVEX32

AVEX32 features a 35 mm screw, 4 independent heating zones, and a maximum extrusion temperature of 450 °C. It delivers up to 50 kg/h for reliable, repeatable output.

Highlights:

- High-throughput system for heavy-duty production and large assemblies.
- Stable melt quality at high flow rates for structural parts.
- Designed for continuous operation with reinforced polymers.



Dimensions :
1810 x 686 x 570 mm



Weight :
140 kg



Nozzle Size :
2 - 16 mm



Temperature :
Up to 450°C



Capacity :
50 kg/hour

MATERIALS & PROCESS GUIDELINES (TYPICAL)

We support a wide range of advanced thermoplastics tailored for LFAM. Each material offers unique performance advantages from strength and heat resistance to lightweight and chemical durability. Selection depends on application needs, ensuring the right balance of performance and manufacturability.

PP GF (Glass-Filled Polypropylene)

Affordable, durable, lightweight, chemical-resistant. Ideal for automotive parts, containers, industrial components.

PETG

Easy to process, dimensional stability, transparent appearance, recyclable. For furniture, displays, large decorative elements.

PETG GF (Glass-Filled)

Stronger & stiffer than regular PETG, translucent. Used in structural prototypes, molds, outdoor applications.

PC CF (Carbon-Filled Polycarbonate)

High strength, impact resistance, heat resistance. Perfect for aerospace, defense, tooling.

PA6 GF/CF (Glass/Carbon-Filled Nylon)

Excellent mechanical performance, wear resistance. For functional parts, composite molds, robotics.

Additional materials and applications are available. [Contact us to explore the full range](#)

SOFTWARE & WORKFLOW

- **ENCY** : Advanced robotic CAM for precise toolpath generation, supporting complex bead widths, layer heights, and deposition strategies. Best for high customization & control.
- **Ai Build**: AI-driven path optimization — automatically simulates and validates extrusion paths to reduce defects and boost quality. Ideal for efficiency & reliability.
- **Adaxis**: User-friendly robotic additive suite for programming, calibration, and multi-axis coordination. Great for fast setup & streamlined workflows.

QUALITY, RELIABILITY & COMPLIANCE

- Continuous operation proven in long-duration production deployments.
- Design follows CE principles; detailed risk assessment and documentation available upon request. Compliance with UL standards.
- Factory acceptance tests (FAT) and site acceptance tests (SAT) procedures available.
- Servo controlled extrusion ensuring repeatability and reliability.

INTEGRATION & INTERFACES

- **Robotic Platforms**: partnering with KUKA for robotic solutions.
- **Mounting**: flange mounting; dimensions and hole patterns provided in technical drawings.
- **Controls**: supports standard robot-controller signaling and synchronization (Ethercat and ethernet connections, digital I/O and robot-native interfaces).
- **Cooling**: water-cooled barrel and nozzle for thermal stability in high-throughput scenarios.
- **Safety**: interlocks and temperature protections designed per industrial best practices.

ACCESSORIES & OPTIONS

- **Nozzles**: multiple diameters for varying bead widths and deposition rates.
- **Material Handling**: hopper and dryer integration guidance for reinforced pellets.
- **Calibration Aids**: alignment gauges and flow calibration routines.
- **Enclosures & Shields**: thermal and safety enclosures where required by process.
- **Heated build plate option** for first layer adhesion

INSTALLATION, COMMISSIONING & TRAINING

AVENCO provides commissioning support, operator training, and process tuning. Recommended on-site package includes mechanical mounting assistance, parameter setup for reference materials, and workflow handover covering ENCY, Ai Build, and Adaxis toolchains.

SUPPORT & SERVICE

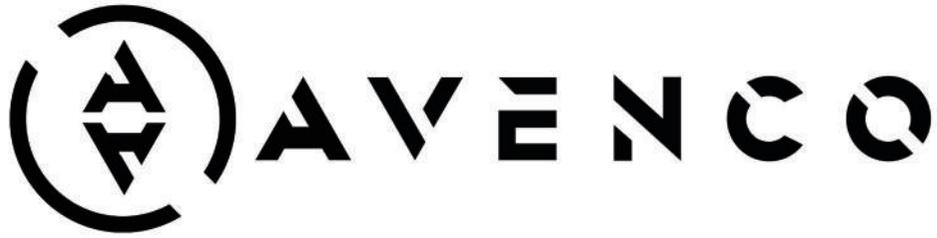
- ▶ 1-Year Free Technical Support is included with every AVEX extruder.
- ▶ Advanced Support Subscription: extended remote support, on-site visits, and periodic process audits.
- ▶ Spare Parts & Preventive Maintenance programs available globally.

ROI & BUSINESS IMPACT

- Reduce lead times for large tooling and prototypes from weeks to days.
- Lower material waste vs. subtractive methods by targeted deposition.
- Enable design freedom for lightweight, high-strength geometries.
- Scale throughput with AVEX32 for production; deploy AVEX15/20 for development and pre-series.

ORDERING INFORMATION

- Select model (AVEX15 / AVEX20 / AVEX32) based on required throughput and part scale.
- Confirm material set and nozzle assortment.
- Define integration scope with the target robot platform.
- Optional: choose support subscription and training package.



AVENCO

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