

# PE320 Pellet Extruder



**Product Code:** PE-320R-2.0

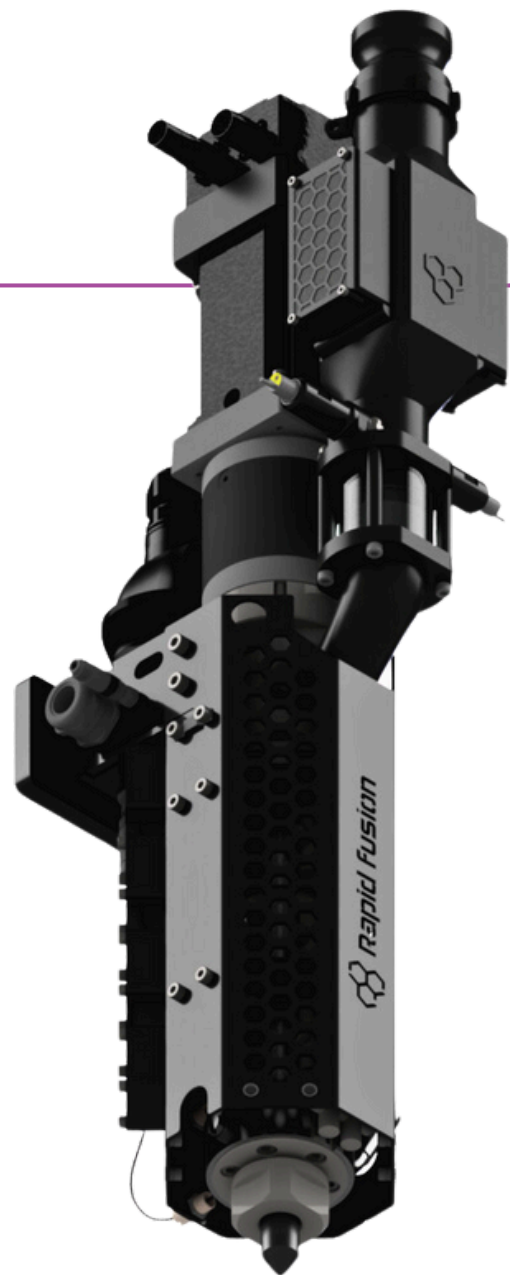
**Version Number:** 2.2

## Overview

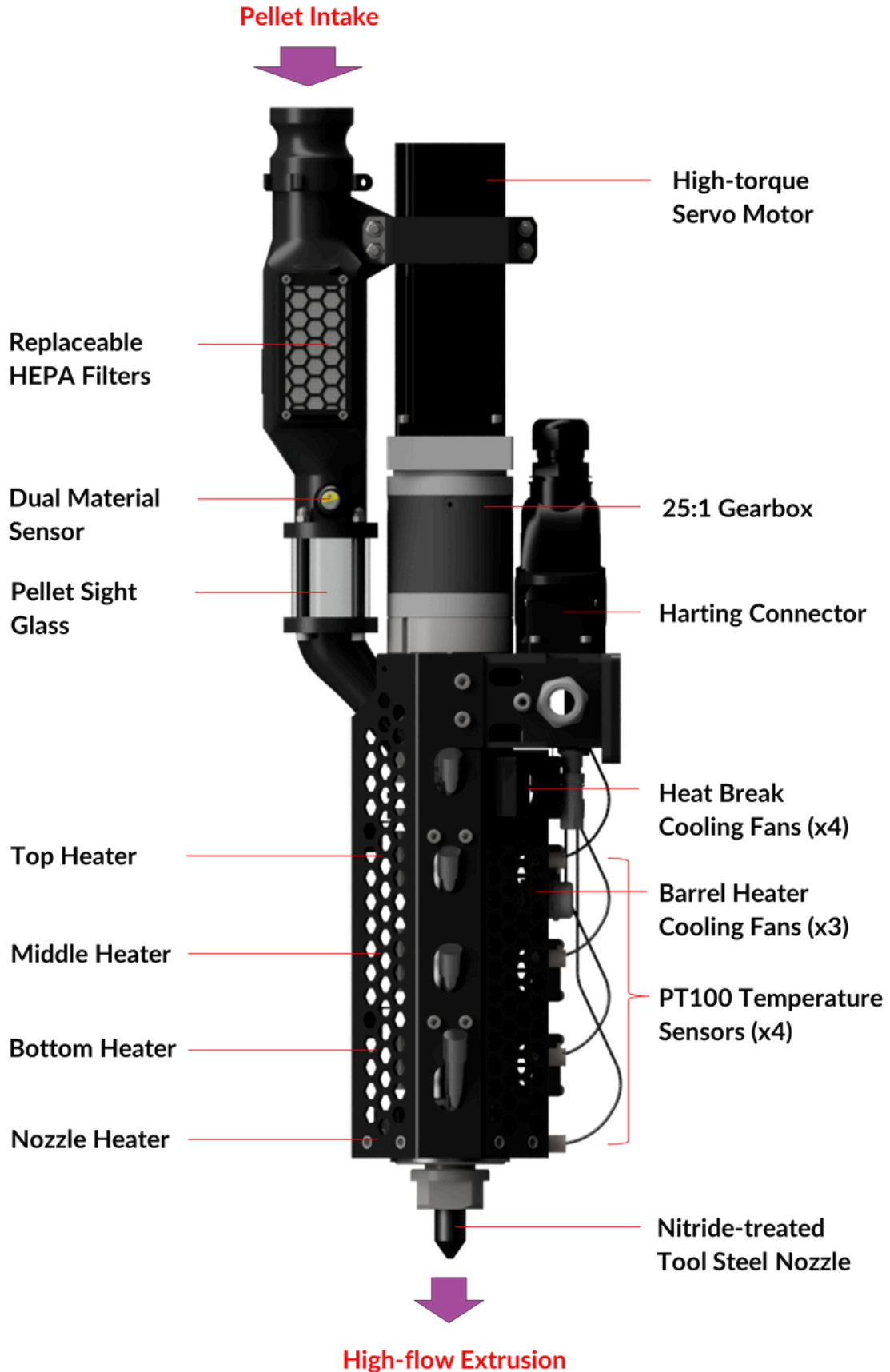
The **Rapid Fusion PE320 Pellet Extruder** is a TCT award-winning polymer extrusion tool designed for industrial grade 3D printing. It boasts low weight, high performance capabilities - achieving an impressive **extrusion rate of up to 17 kg/h** whilst weighing only 24kg.

Equipped with powerful heaters and a high-torque motor, the PE320 enables polymer extrusion for a wide range of high-temperature engineering materials, including **carbon and glass fibre composite polymers**.

The PE320 pellet extruder combines power, precision, and versatility - making it an excellent choice for upgrading and **expanding large format 3D printing capabilities on existing robot or gantry systems**.



# PE320 Diagram



# Key Features

## 1. Light Weight, High Material Flow

Weighing only at 24 kg, the PE320 achieves an extrusion flow rate of up to 17 kg/h\*. Its high power-to-weight ratio enables the extruder to be mounted on a wide range of robot and gantry systems.

## 2. Access High-Temperature Engineering Polymers

The PE320 extruder can reach temperatures of up to 450°C, allowing users to work with a wide range of high-temperature engineering materials such as PEI & PEEK. Its nitride treated tool steel barrel can handle abrasive materials like carbon/glass fibre composite polymers.

## 3. Powerful Motor, Seamless Performance

Equipped with a powerful 3 kW servo motor and a high-torque 25:1 gearbox from Schneider Electric, the extrusion screw generates up to 155 Nm of continuous torque for rapid, powerful extrusion.

## 4. Precision Temperature Control

The extruder has 4 powerful heating zones that provide precise and repeatable temperature control with accurate PT100 sensor feedback.

## 5. Seamless Integration with Robot or Gantry Systems

Mount the PE320 extruder on robot or gantry systems to transform them into industrial large-format 3D printers. Plug-and-play the PE320 extruder to the *Rapid Fusion Epicurus Controller* via the *Rapid Fusion Smart Loom* for a complete polymer extrusion system.

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\*Extrusion output flow rate tested using 30% Glass-fibre PETG

# PE320 Extruder



Extruder	
Overall Power	5 kW
Extrusion Screw Length	275 mm
Barrel Diameter	35 mm
Overall Length	730 mm
Weight	24 kg
Max. Extrusion Output*	Up to 17kg/h
Max. Continuous Torque Output	155 Nm
Over-pressure Mitigation**	Rupture Disk 5000 PSI
Material Feed & Part Cooling	Rapid Fusion AirPlus
Nozzle Sizes	3-10 mm

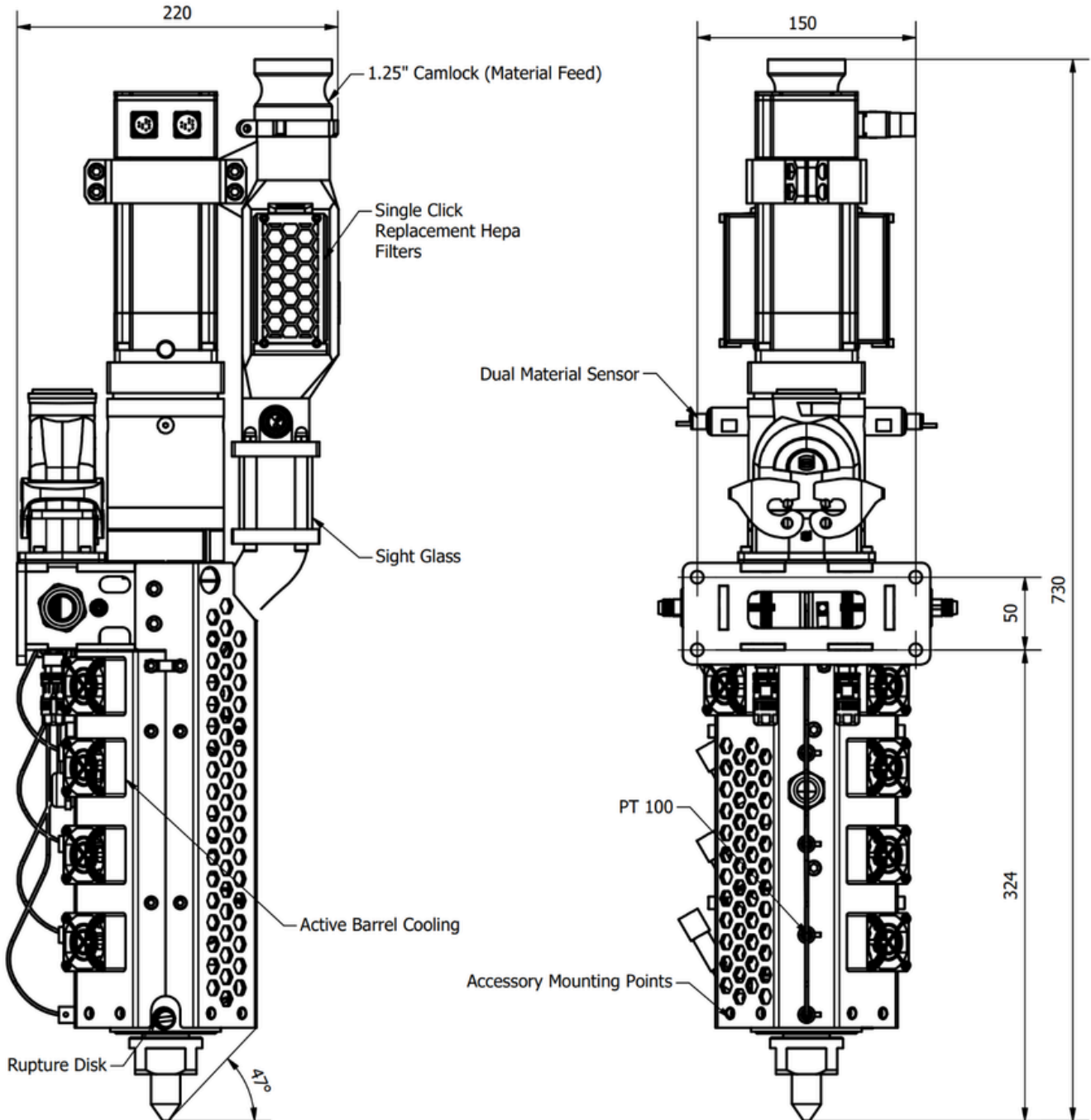
\*Extrusion output flow rate is material dependent

\*\*Rupture Disk can be replaced with melt pressure sensor upon request

Heaters	
Overall Heater Power	2.3 kW
Voltage	4 x 230V AC (1-Ph+N)
Barrel Heaters (Top, Middle & Bottom)	1.65 kW (0.55 kW ea.)
Nozzle Heater	0.65 kW
Max. Temp.	≤ 450°C
Temp. Control*	PWM
Heat Break & Barrel Cooling	Forced air

\*Included in *Rapid Fusion Epicurus Controller*

# CAD Drawing



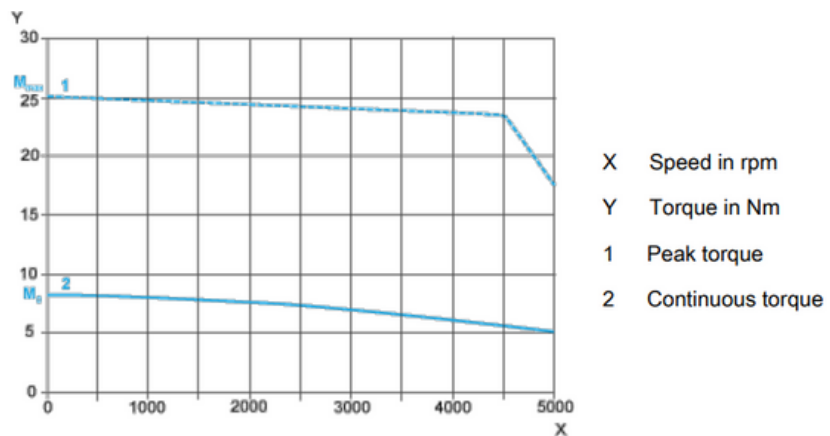
Servo Motor	
Peak Stall Torque	25.1 Nm
Peak Mechanical Speed	6000 rpm
Continuous Torque	6.2 Nm
Continuous Speed	4000 rpm
Gear Ratio	25:1

Servo Drive	
Nominal Output Power	2.7 kW
Voltage	400 / 480 V, 3-phase
Servo Drive*	Lexium 32
Default Control	STEP/DIR signals
Optional Control**	EtherCAT or EtherNet/IP
Servo Drive Feedback***	Modbus RTU

\*Included in *Epicurus Controller*

\*\*To be specified on purchase

\*\*\*Included in *Epicurus Controller PRO*



### Safety & Compliance

Rapid Fusion operates under ISO 9001 and ISO 14001 standards, with products meeting BS EN 60204-1 standards. All products come with a 12-month warranty, subject to Terms and Conditions. Please follow all usage guidelines and safety instructions. For more information or queries, please visit our website or contact customer service.