

EXT 220 MED

3D print implants and instruments
with high performance polymers



OUTSTANDING TECHNOLOGY



3D Printer Specifically Designed for ADDITIVE MANUFACTURING OF IMPLANTS

The EXT 220 MED with its filament-based extrusion technology enables printing of implants and instruments using high performance polymers, including PEEK and Radel® PPSU.

It is the only platform with an integrated clean room and temperature controls to enable high-quality device production. The EXT 220 MED delivers rapid, reproducible printing for a broad range of applications and is validated by leading hospitals and device manufacturers worldwide. Additional benefits include:



Validated to fulfill ASTM F2026 standards



Excellent accuracy due to delta kinematics



Fully controllable build chamber heating



Laminar airflow enabling homogenous temperature distribution



Adaptive local temperature management



Optimized for operating in clean rooms



APPLICATION SUPPORT FROM CONCEPT TO DELIVERED DEVICE

The Application Innovation Group (AIG) is a team of engineers and experts that enable our customers to adopt technology and solve their additive manufacturing challenges faster with a complete tailored solution.

The AIG guides our customers through an application/product development process called Quality by Design. The team also offers training, consulting and direct support for the qualification of integrated additive manufacturing (AM) workflows.

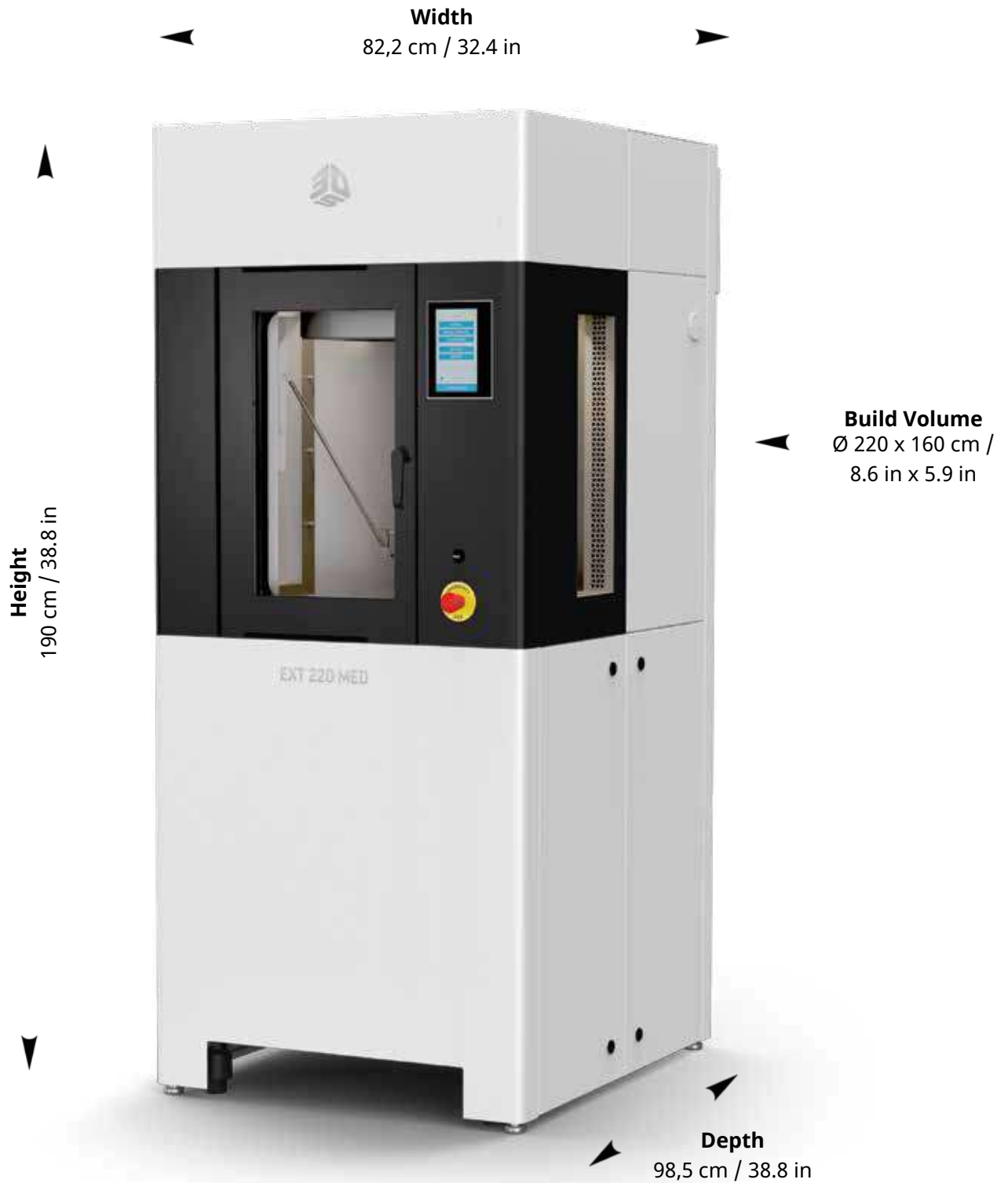
WORLDWIDE EXPERT MEDICAL TECH SUPPORT

3D Systems offers a globally accessible, specialized medical technology support team. Whether it's technical assistance, innovation or expert guidance, the team helps ensure customer requirements are met with precision and excellence.



**PARTNER
WITH US**

MACHINE SPECIFICATIONS



MATERIALS



PEEK (e.g., VESTAKEEP® by Evonik)

Polyether ether ketone | Outstanding biocompatibility and biostability, ideal for implantation

- VESTAKEEP® i4 3DF, Implantable grade
Especially for long-term contact in the body
- VESTAKEEP® Fusion, Implantable grade
Supplemented with biphasic calcium phosphate (BCP)
- VESTAKEEP® iC4612 3DF
Containing 12% carbon fiber
- VESTAKEEP® iC4620 3DF
Containing 20% carbon fiber

PEKK

Polyether ketone ketone | Requires a lower build temperature than PEEK and is easier to process
High impact strength at low temperatures

PEKK-A, Implantable grade

PEKK-A is the amorphous version of PEKK, which is characterized by better printability

Radel® PPSU

Polyphenyl sulfone | Offers high impact strength and very good chemical resistance

Radel® PPSU, Limited body contact (24h) grade

Sterilizable up to 500 times

Resorbable polymers, implantable grade

For personalized, high resolution bioresorbable 3D printed implants

- RESOMER®, PDO, Polydioxanone, implantable grade, degradation time < 6 months
- RESOMER®, PCL, Poly (caprolactone), degradation time > 2 years
- RESOMER®, PLLA, Poly (L-lactide), degradation time > 3 years
- RESOMER®, PLGA, Poly (L-lactide-co-glycolide) 85:15, degradation time 1–2 years

SAMPLE APPLICATIONS

Craniomaxillofacial Implants

Material: PEEK

Patient-specific cranial and orbital plates are 3D printed using a complete design-to-delivery workflow

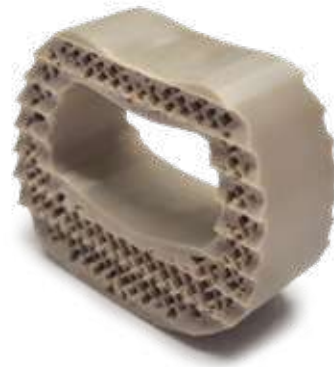
Accelerates manufacturing time to as little as two days from scan to surgery



Interbody Fusion Devices

Material: PEEK BCP

PEEK filled with BCP or HA—combined with integrated lattice structures—is intended to support cell attachment and proliferation



Retractor Blades

Material: CFR-PEEK

Radiotranslucent instrument

Durable blade which is resistant to hot steam with high stiffness due to fiber-reinforcement

Trial Implants: Trauma Bone Plates

Material: Radel® PPSU

Very high thermal stability and high resistance to cleaning agents, disinfectants and other solvents



TECHNICAL DATA

TYPE	EXT 220 MED
Manufacturing technology	Fused Layer Manufacturing (FLM): Processing of polymer filament for layer-by-layer production of parts
Machine Dimensions	
Width x depth x height	823 x 985 x 1950 mm 32.4 x 38.8 x 76.8 in.
Construction Volume	
Max. build envelope	Ø220 x 160 mm Ø8.7 x 6.3 in.
Production Accuracy	
Typical materials	PEEK, PEKK, Radel® PPSU, PEEK CFR, biodegradable polymers
Layer thickness (typical)	0.1 - 0.3 mm 0.004 - 0.012 in.
Diameter filament	1.75 mm 0.069 in.
Diameter: nozzle	0.4 (opt. 0.2/0.6) mm 0.016 (0.008/0.024) in.
Print speed (typical)	100 - 4000 mm/min 4 - 157.5 in./min
Max. movement speed	9000 mm/min 354 in./min
Weight	450 kg 1102 lbs.
Connectivity Specifications	
Electrical requirements	380 - 400VAC, 3PH, 15A, 50-60Hz
Compressed air	40 LPM (5-10 BAR) 85 SCFH (80-140 PSI)
Network connection	Ethernet, RJ45 plug
Temperature	
Max. operating temperature: Nozzle	500°C 932°F
Max. operating temperature: Build plate	300°C 572°F
Max. operating temperature: Build chamber	250°C 482°F
Additional Information	
Clean room filter	Integrated HEPA filter system for clean room environment (ISO 14644 - Class 7) inside build chamber
Clean room readiness	Suitable for operation in clean rooms
Certification	CE, UL, CSA
Warranty	1 year warranty under 3D Systems purchase terms and conditions

Start the conversation.



Schedule a meeting at
www.3dsystems.com/ext-220



Not all products and materials are available in all countries – please consult your local sales representative for availability.

Warranty/Disclaimer The performance characteristics of these products may vary according to product application, operating conditions, material combined with, or with end use. 3D Systems makes no warranties of any type, express or implied, including, but not limited to, the warranties of merchantability or fitness for a particular use.

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