3D SYSTEMS
Additive Manufacturing Solutions

Industrial scale, large format additive manufacturing solutions

Delivering unique pellet-based extrusion technology and hybrid toolhead configurations for medium-to-large format 3D printing and in-situ machining

The trusted partner of industrial customers adopting production additive manufacturing

From ideation to implementation, 3D Systems is your partner for adopting additive manufacturing in industrial production.

With deep expertise in application development, our proven technology is being utilized by large companies in multiple industries, including aerospace, automotive, foundry, government/defense, and healthcare. Our tooling, functional prototyping, and end-use part production applications are proven across a diverse global customer base. At every step of the journey, industrial customers rely on our large-format pellet extrusion 3D printers to reduce part cost, increase system reliability, and achieve higher part performance.

REDUCED PART COST

As the leader in pellet extrusion, the EXT Titan™ Pellet series of 3D printers deliver up to 10X faster print speeds and up to 10X raw material cost reductions compared to traditional filament 3D printing, and lower capital equipment expenses and operating costs. By using lower-cost pellet feedstocks, and with hybrid additive and subtractive capabilities, these
3D printers do more for less.

HIGHER PART PERFORMANCE

With a wide range of pellet feedstocks available, including high-temperature and fiber reinforced materials, EXT Titan Pellet additive manufacturing systems with heated chambers enable industrial customers to use the right material for their production applications. In addition to offering a range of surface finish, speed, and throughput options, as well as the flexibility to print complex structures, large format systems meet the needs of almost every application and budget. EXT Titan Pellet 3D printers are compatible with a wide range of materials and an assortment of nozzle sizes, and delivers higher part performance, while offering the 24/7 reliability that industrial customers require.

INCREASED SYSTEM RELIABILITY

Our industrial control system comes with single or dual pellet extruders, with an optional 3-axis spindle, covering a unique combination of additive and subtractive technologies within a single platform. It does the work of multiple machines - expanding extrusion capabilities while offering breakthrough speed and increased system reliability. EXT Titan Pellet systems are built for the production floor and repeatability, with industrial CNC motion control systems and a robust machine and extruder design for lights out manufacturing.

MORE THAN JUST MACHINES

In addition to delivering unique pellet-based extrusion technology, hybrid toolhead configurations, and in-situ machining, 3D Systems offers end-to-end support for customer production needs. From custom systems and sensors to application development, R&D, and consumables, 3D System's experts offer 3D printing, laser scanning, and material testing services, as well as custom hardware development, custom tool pathing, and post-processing assistance.

Deliver ultra-high speed, low cost plastic parts with CNC finish

With two sizes of different production platforms to choose from, customers can combine configurable modules to tailor a solution that best meets their specific needs.

The robust platforms and configurable modules overcome industrial manufacturing challenges and deliver low total cost of ownership (TCO) on the factory floor. The EXT Titan Pellet line of 3D printers features hybrid extrusion technologies, heated chambers, and industrial CNC motion control systems, while delivering faster production, reduced costs and the ability to print large industrial parts.

INDUSTRIAL PLATFORMS FOR ROBUST MANUFACTURING

The EXT Titan Pellet series is a proven production additive manufacturing system for producing functional parts, including patterns, molds, tooling, jigs, fixtures, end-use parts and full-scale prototypes. Designed for lights-out manufacturing, these systems shorten cycle times, reduce costs and increase uptime in your production processes.

The EXT Titan Pellet printers come with a single pellet extruder and a variety of additional toolhead configurations including pellet + filament extruders, dual pellet extruders and hybrid options with pellet + spindle for additive and subtractive technologies on a single platform. Moreover, these future-proof printers are designed with the future in mind, with the ability to add tool-heads at a later time, which minimizes the customer's capital equipment expense burden and increases equipment lifetime.

FASTER PRODUCTION

Shorten cycle times with print speeds up to 30,000 mm/min.

REDUCE COSTS

Save up to 10X on pellet feedstock compared to filament and up to 75% on open market filaments compared to proprietary filaments.

INDUSTRIAL PARTS

Print full-size parts up to up to 1270mm x 1270mm x 1829mm (50"x50"x72") using high-performance and high-temperature materials.

Configurations available:

Pellet Extruder

Pellet + Filament (single or dual) Extruders

Dual Pellet Extruders

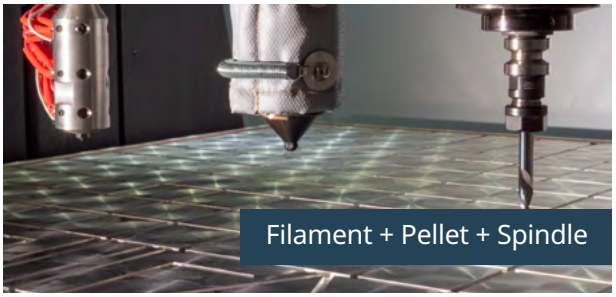
Dual Pellet + Filament Extruders

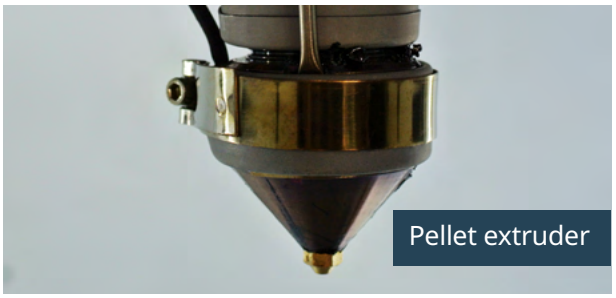
Pellet Extruder + Spindle

Pellet + Filament Extruder + Spindle

Dual Pellet + Spindle


Dual pellet


Filament + Pellet + Spindle


Pellet extruder

Standard features and options

3D Systems is the only manufacturer offering hybrid configurations including pellet extrusion, filament extrusion, and spindle toolheads.

The EXT Titan Pellet line of 3D printers enables the adoption of additive manufacturing in industrial production. All models come ready to produce functional, high-performance parts on the production floor. All feature a robust platform built on a welded steel frame.

Servo-controlled open architecture CNC

The EXT Titan Pellet printers feature a pellet extruder and an industrial CNC motion control system with servo drives on all axes for increased speed and reliability. Because it uses proven motion control technology, the control platform flattens the learning curve for users both familiar and new to conventional CNC and 3D printing equipment.

Medium-to large-format 3D printing build volumes

In addition to an industrial CNC system with servo drives on all axes, the EXT Titan Pellet platform offers a variety of print volume options.

Print volume sizes

- EXT 1070 Titan Pellet has a 1070mm x 1070mm x 1219mm (42" x 42" x 48") build volume (length x width x height)
- EXT 1270 Titan Pellet has a 1270mm x 1270mm x 1829mm (50"x50"x72") build volume (length x width x height)

Standard industrial heated enclosure

All models include a full sheet metal, insulated enclosure that enables printing with high-temperature materials. The actively heated recirculating forced air system maintains ambient temperatures of up to 80°C, complementing the machined aluminum heated bed, which reaches maximum temperatures of up to 140°C. The heated enclosure improves dimensional stability when 3D printing large parts with high-temperature materials such as ABS, PC, nylons, CF-PEI, GF-PEKK and more.

Additional features available

- Customized I/O sensors
- Material dryers
- Air filtration integration

Specifications

Specifications	EXT 1070 Titan Pellet and EXT 1270 Titan Pellet
Slicing Software	Simplify3D
Motion Controller	CNC
Drives	Servos on all axes
Print Speeds	Up to 30,000 mm/min
Rapid Travel Speeds	Up to 60,000 mm/min
Interface	Industrial PC with touch screen
Connectivity	USB & Ethernet connectivity available; remote access and monitoring
Frame	Welded, American-made steel precision machined with a tolerance of .005"
Components	Recirculating ball screws, preloaded linear rails, preloaded runner blocks
Data Monitoring	Monitor and stream data, create alerts based on data
Feed Detection	Detect clogs or lack of material, create alerts based on detection
Max Temperatures	Pellet Extruder: 400°C Filament Extruder: 400°C Print Bed: 140°C Build Chamber: 80°C
Vacuum Plenum	Integrated vacuum system holds build sheet against aluminium bed
Control Panel	NFPA 79–compliant electronics enclosure
Toolheads Available	Pellet Extruder, Filament Extruder (2.85mm or 1.75mm), Milling Spindle
Industrial Features	CNC Motion Control System; Door Interlocks

System Requirements	
Power Input	208 V three phase,100 amp
EXT 1070 Titan Pellet Machine Weight	4500 lbs.
EXT 1270 Titan Pellet Machine Weight	6000 lbs.
EXT 1070 Titan Pellet Machine Footprint	8' x 7' x 8.6'
EXT 1270 Titan Pellet Machine Footprint	11' x 10' x 10'

Extrusion Capabilities	
Pellet Nozzle Diameters	0.6–9.0 mm
Pellet Layer Heights	0.4–6.0 mm
Pellet Extruder Throughput	1–30* lbs. per hour
Filament Nozzle Diameters	0.4–1.2 mm
Filament Layer heights	0.15–1.0 mm
Filament Extruder Throughput	< 1–2 lbs. per hour

*max flow rate with 9 mm nozzle

Toolhead Configurations	
EXT 1070 & EXT 1270 Titan Pellet	
One Toolhead (Standard)	Pellet Extruder
Two Toolheads	Dual Pellet Extruders, Pellet + Filament Extruder, Pellet Extruder + Spindle
Three Toolheads	Pellet Extruder + Filament Extruder + Spindle, Dual Pellet Extruders, Dual Pellet Extruders + Spindle
EXT 1070 Titan Pellet LT*	*Not compatible with dual pellet or spindle toolhead configurations
One Toolhead (Standard)	Pellet Extruder
Two Toolheads	Pellet Extruder + Filament Extruder
Three Toolheads	Pellet Extruder + Dual Filament Extruders

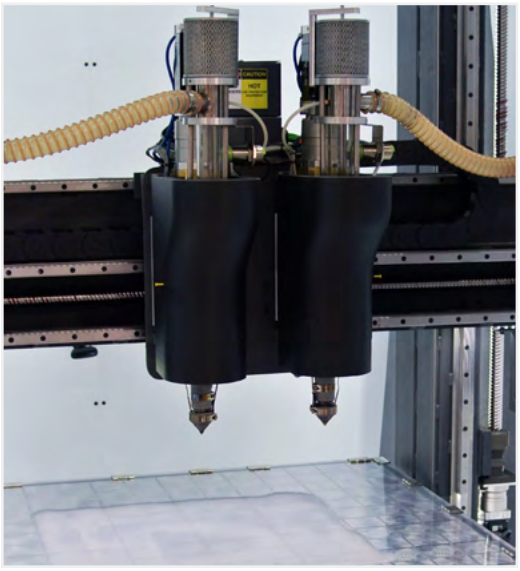
Build Volumes	
EXT 1070 Titan Pellet Print Volume	1070mm x 1070mm x 1219mm (42" x 42" x 48")
EXT 1070 Titan Pellet Cut Volume	1070mm x 990mm x 990mm (42" x 39" x 39")
EXT 1270 Titan Pellet Print & Cut Volume	1270mm x 1270mm x 1829mm (50" x 50" x 72")

Integration Options
Material Dryer
HEPA Air Filtration
Thermal Imaging Camera(s)
Customized Sensor I/O
Auto Z Leveling System
Advanced Safety Interlocks
Interchangeable Build Sheet

Spindle Features	
Speed	18,000 RPM (1.5HP)
Tool Size	Up tp 1/4" diameter, 4" length
Tools Changer	6 tool capacity
Tool Calibration	3-axis sensor configuration
Chip Collector	Brush/vacuum chip collection system

Toolhead options

3D Systems is the only manufacturer offering hybrid configurations that include pellet extrusion, filament extrusion and spindle toolheads on one platform.

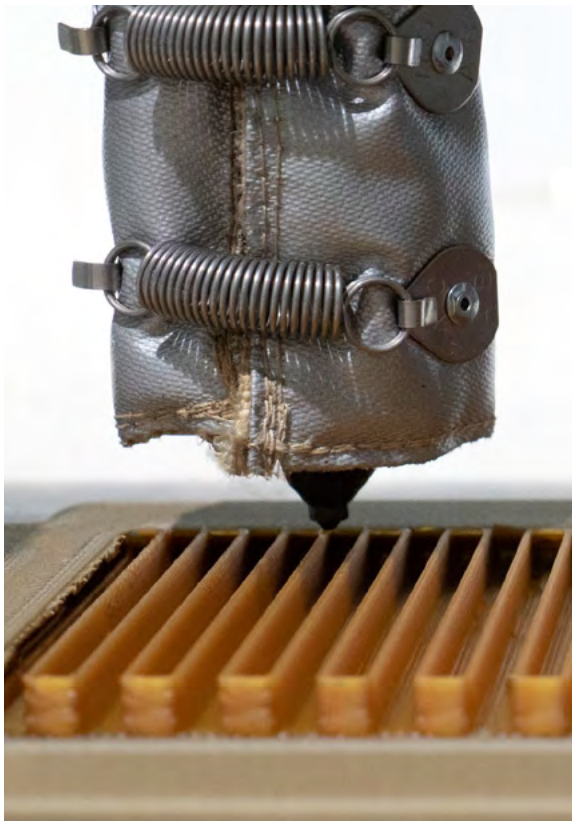


Pellet extrusion

3D print with a variety of different, materials including ABS, PLA, CF-PEI, GF-PEKK, and GF-PC, with a pellet extrusion system and industrial heated enclosure. Direct pellet-fed 3D printing enables the use of a wide range of materials while reducing material cost by 10X, and with up to 10X higher higher deposition rates compared to filament 3D printing.

Hybrid pellet + filament extrusion

The hybrid pellet + filament extrusion system provides the ultimate flexibility in choosing the right extrusion technique for your application. For large parts that need to be printed quickly, select pellet extrusion for high deposition rates. For parts that require high surface resolution and fine details, filament extrusion is the preferred method. Hybrid printing also enables printing with dual materials, such as a soluble support material and a high-performance model material.



Dual pellet extrusion

Maximize the advantages of low-cost pellet extrusion and multi-material printing with dual pellet extrusion. With two retracting pellet extruders, customers can print with two pellet materials, such as soluble support material and high-performance model material. Other capabilities of dual pellet printing include printing with two different materials that are chemically compatible, such as transitioning from a rigid to a flexible material or color blending.

Hybrid dual pellet + filament extrusion

The EXT Titan printers with hybrid dual pellet + filament extrusion system provides the ultimate flexibility in choosing the right extrusion technique for your application. For large parts that need to be printed quickly, select pellet extrusion for high-deposition rates. For parts that require high surface resolution and fine details, filament extrusion is the preferred method. Hybrid printing also enables printing with dual materials, such as a soluble support material and a high-performance model material.

Hybrid pellet extrusion + spindle

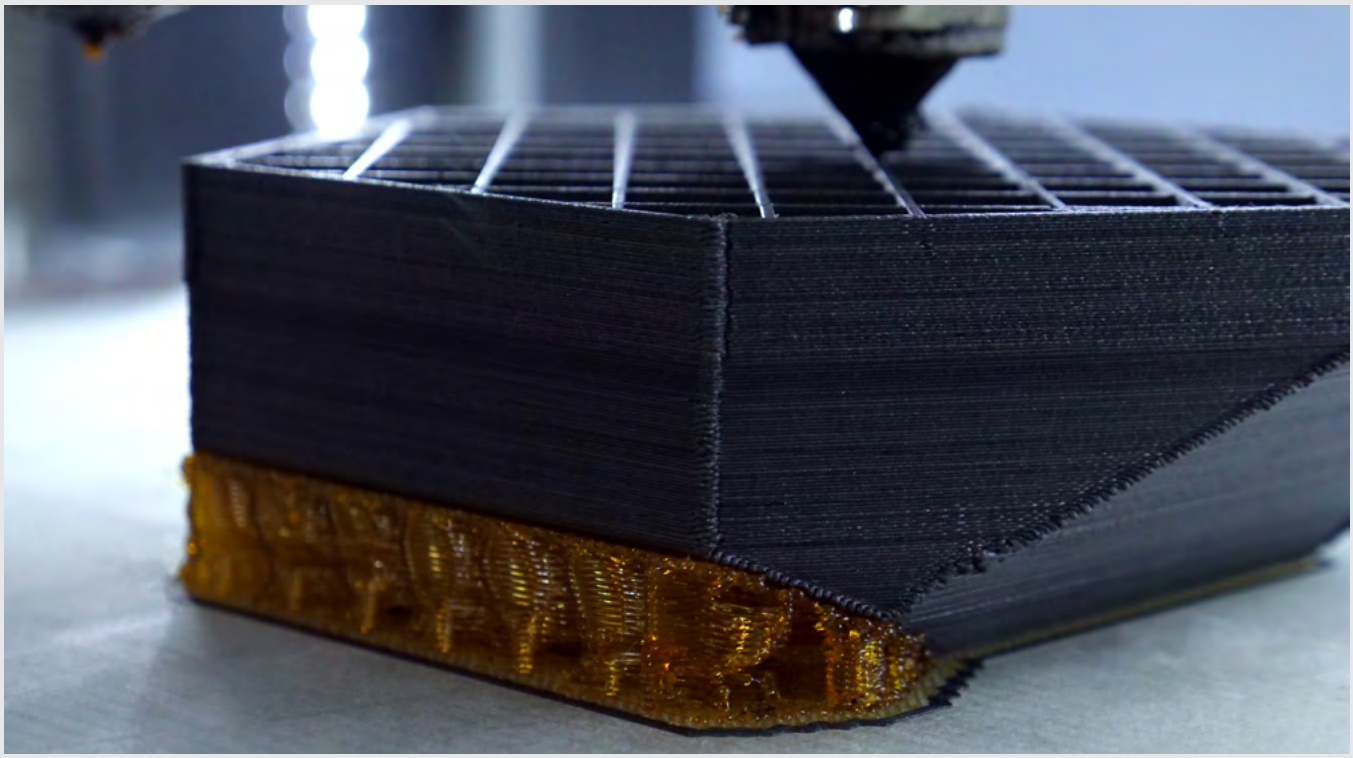
Incorporating pellet extrusion with a 3-axis milling system on the same gantry, the EXT Titan systems with a cutting-edge hybrid additive and subtractive configuration enables 3D printed parts to be milled both during and after the printing process. Taking production additive manufacturing to the next level, this hybrid system shortens cycle times and produces smooth and accurate end-use 3D-printed parts.

Hybrid pellet extrusion + filament + spindle

Only 3D Systems offers a unique configuration with three distinct toolheads—pellet extruder, filament extruder, and spindle—providing ultimate flexibility to customers. The pellet extruder allows for making large parts fast with cheaper feedstock, while the spindle creates a smoother surface finish. The filament extruder enables of the printing of support material for complex geometries.

Materials for pellet extrusion

3D printing directly with plastic pellets enables the adoption of additive manufacturing in industrial production.



Affordable feedstocks

Pellet extrusion 3D printing enables the use of affordable feedstocks, often at a 10X reduction in cost compared to filament. Commodity resins can cost as little as $2 per pound.

Faster print times

High deposition rates ranging from 1 to 30 pounds per hour with pellet extrusion 3D printing mean faster print times, enabling large parts to be printed in days instead of weeks.

More material options

Direct pellet-fed 3D printing opens up a world of material options, with hundreds of formulations available, ranging from low durometer (soft) to high-performance and highly filled resins such as carbon fiber, glass fiber, and minerals.

Open market pellet feedstocks

EXT Titan Pellet printers use open market pellet feedstocks. Pellet materials can be purchased through 3D Systems or on the open market. Having successfully printed hundreds of grades of polymers with pellet extrusion, our experts can help customers identify and implement the right materials for their applications. Here is a sample of materials compatible with the EXT Titan Pellet models:

Flexible materials (Compatible with very flexible materials, such as Shore A 26)

- TPU
- TPE
- PEBA
- TPC

Standard materials

- PLA
- ABS
- PETG
- PP
- ASA

Lightweight materials

- Glass bead or carbon fiber-filled

High performance/filled materials

- PC 20% CF & GF
- Nylons up to 50% CF
- PEI 20% CF & GF
- PPS
- PPSU
- PEKK 30% CF & GF

In-situ compounding

- Color blending
- Material blending
- Transitioning — instantaneous or gradient

Compatible materials

Have a specific material in mind or need a custom compound? 3D System's experts share their experience gained from printing hundreds of materials, allowing customers to focus on product development. We can help you with material integration, testing, and procurement. We leverage our strong partnerships with top global chemical companies to implement unique and custom-compounded materials for your additive manufacturing application.

CONTACT US

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