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DESIGN LABS

About Us?

At NirmitSU Design Labs, we specialize in **industrial additive manufacturing**, delivering rapid, high-precision solutions across tooling, prototyping, and end-use applications. We are proud to house the only **Titan EXT Pellet 3D Printer** in India, marking a significant leap in large-format, high-throughput manufacturing capabilities available locally. This unique investment positions us to serve industries with unmatched speed, scalability, and material flexibility.



Our Capability

3D Systems Titan 1070 EXT Pellet

The Titan EXT Pellet 3D Printer is a powerful platform tailored for industrial-grade manufacturing. Leveraging pellet-based extrusion, we offer exceptional speed, material flexibility, and cost-efficiency; ideal for low-to-mid volume production and functional prototyping.

Key Features:

- **Build Volume:** 1000 × 1000 × 1000 mm
- **Material Compatibility:** Over 100 grades of engineering polymers
- **Cost Savings:** Up to 90% savings on material costs as compared to filament
- **Hybrid Manufacturing**



Material Versatility

Standard Materials

PLA, ABS, PETG, PP, ASA

High-Performance Polymers

PC 20% CF/GF, Nylons up to 50% CF, PEI 20% CF/GF, PPS,
PPSU, PEKK 305 CF/GF, peek 30% CF/GF

Flexible Materials

TPU, TPE, PEBA, TPC

Our Capability

3D Systems Figure 4 Standalone

The Figure 4 Standalone is our high-resolution digital molding solution ideal for small-batch production, prototyping, and end-use applications that demand precision and surface finish. With ultra-fast layer curing and a wide range of engineered resins, it delivers production-grade parts without the need for tooling.

Key Features:

- **Print Technology: Non-contact membrane SLA with digital light processing**
- **Resolution: Up to 10 microns**
- **Material Portfolio: High-temperature, tough, flexible, castable, and biocompatible resins**
- **Speed: Print functional parts in hours, not days**
- **Accuracy: Dimensional tolerances comparable to injection molding**



Material Versatility

Tough

- TOUGH-GRY 10 • TOUGH-GRY 15 • TOUGH CLEAR

Production

- PRO-BLK 10

High-Temperature

- HI-TEMP 300-AMB • High Temp 150C FR Black • Tough 65C Black • Tough 60C White • Rigid 140C Black

Flexible and Rubber-Like

- FLEX-BLK 10, FLEX-BLK 20 • RUBBER-BLK 10 • RUBBER-65A BLK

Castable

- JEWEL MASTER GRY • JCAST-GRN 10 • JCAST-GRN 20

Biocompatible

- MED-WHT 10 • MED-AMB 10

Rigid/General Purpose

- Rigid White • Rigid Gray

Molding

- EGGSHELL-AMB 10 (sacrificial molding shell) • Tough FR V0 Black (Fire retardant properties)

APPLICATION AND USE CASES

Thermoforming Tools

- A shower panel mould, printed in 42 hours with PC GF pellets.
- Weight: 46 kg
- Successfully pulled 1000+ shots without any visible wear.



APPLICATION AND USE CASES

Thermoforming Tools

- A RV Fender skirt, printed in 15 hours with PC GF pellets.
- Weight: 3 kg
- Porous mould allows vacuum to pass, eliminating drilling process.



APPLICATION AND USE CASES

Layup Mould

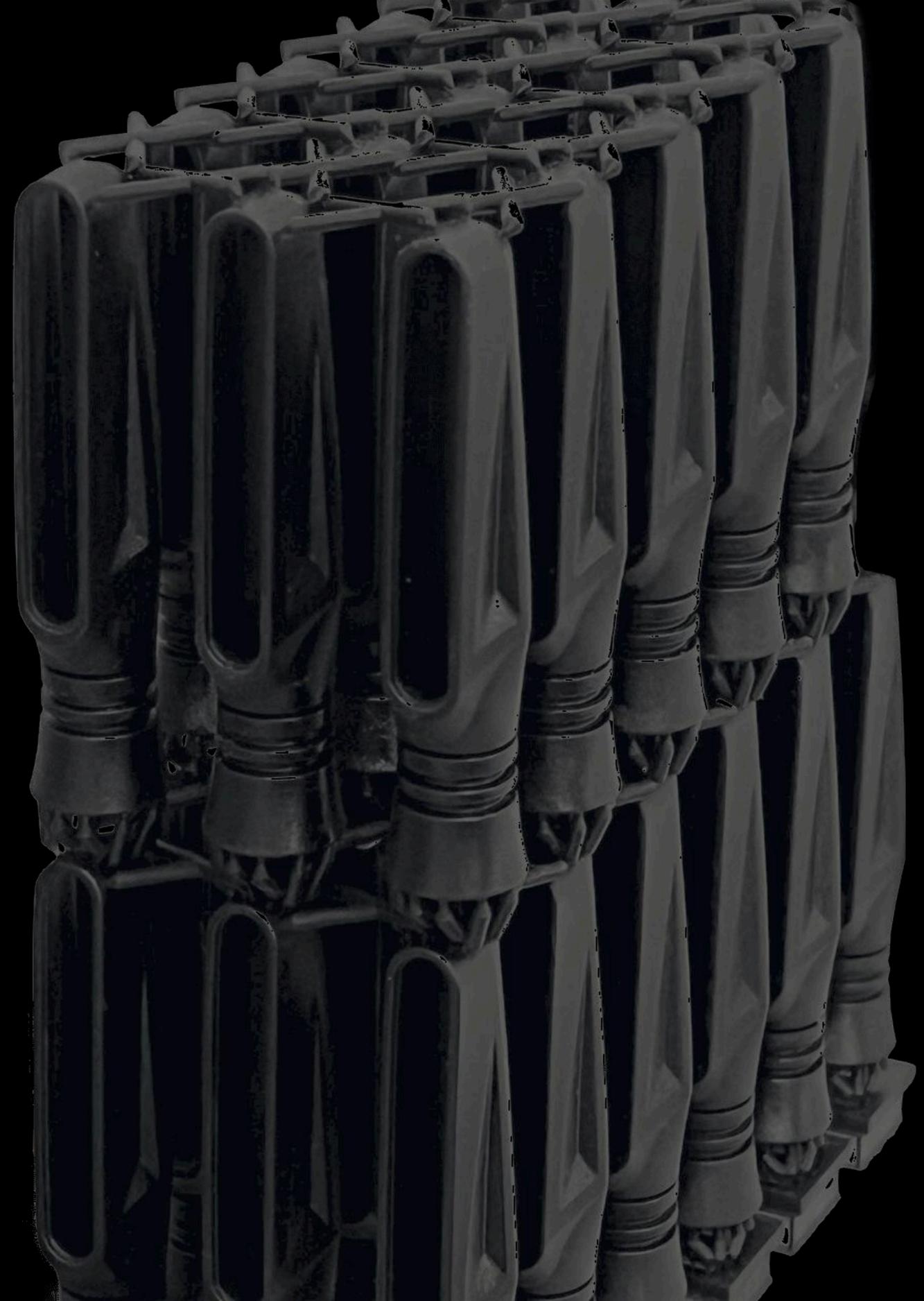
- High temperature layup tool printed in 12 hours using CF-ULTEM pellets.
- Material Weight: 9 kg



APPLICATION AND USE CASES

Bike Indicator Housing

- A stack of 36 bike indicators, printed in 4 hours.
- Cost: Rs. 150-Rs. 250 per part
- Low-volume batch production allowing several hundreds of components to be produced per week.



APPLICATION AND USE CASES

Electrical Connectors

- Electrical connectors in insulated material
- Cost: Rs. 100- Rs. 200 per piece
- Custom wiring requirements can be incorporated into the design for crimping purposes, etc.



APPLICATION AND USE CASES

Vehicle AC Vents

- A car AC vent printed in 24 minutes.
- Cost: Rs. 300- Rs. 500
- Custom designs printed in less than half an hour allowing rapid prototyping and design validation.



APPLICATION AND USE CASES

Pen Nozzle Prototype

- A custom designed pen nozzle for a felt-pen prototype in 8 minutes.
- Cost: Depends on quantity.
- Rapid prototyping allows rapid design validation in a day or less.



APPLICATION AND USE CASES

Metal Forming Tool

- Printed in 40 minutes using ABS-CF pellets, milled in 1.5 hours.
- Material Weight: 0.6 kg
- Serial printing produces high tolerance parts and the exact desired quantity of parts in the desired cycle times.



APPLICATION AND USE CASES

Foundry Patterns

- Raw material costs savings are estimated 15% - 20% savings.
- Traditional method required cutting and carving the pattern out of wood. This process was time consuming, taking up to 8 weeks in some cases.



APPLICATION AND USE CASES

Furniture Moulds

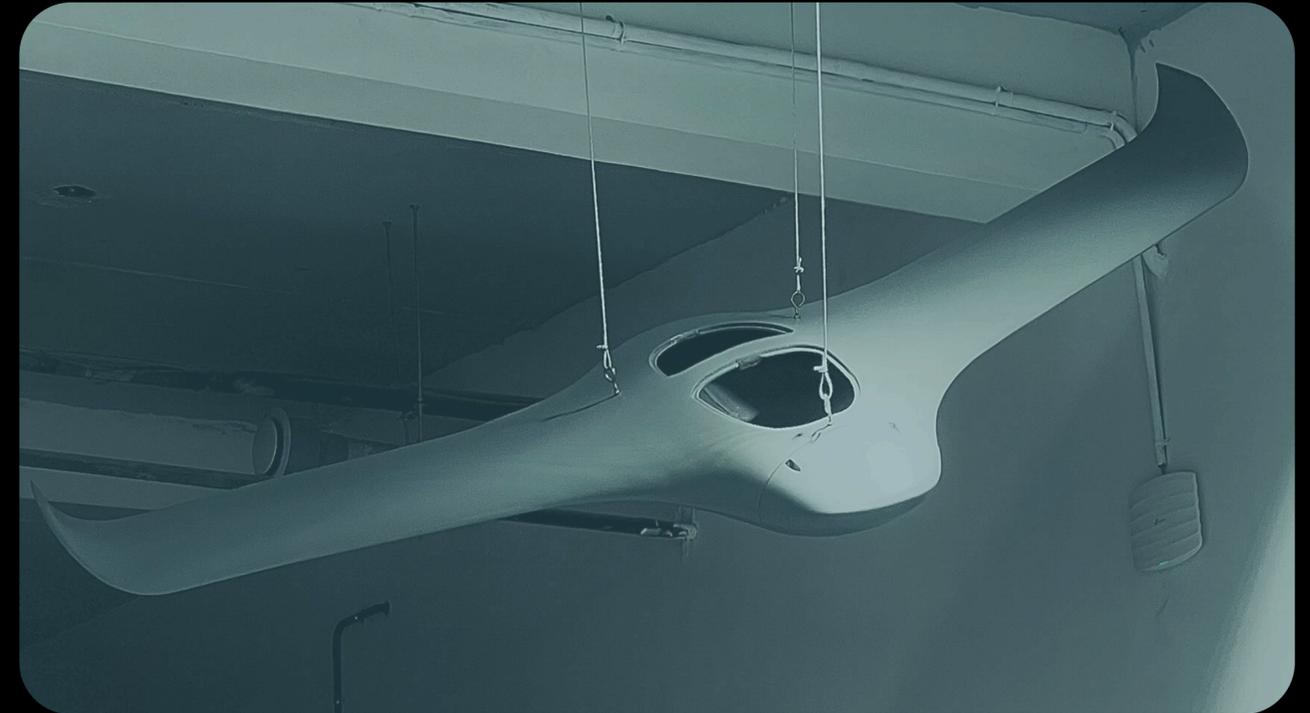
- Moulds for creating FRP shells of furniture items, to be later mass-manufactured.
- Part was printed in 21 hours using ABS GF pellets saving time taken by hand-moulding.



APPLICATION AND USE CASES

Fixed Wing Drone Airframe

- Printed with lightweight ABS material, assembled with precision post-processing and high-grade paint.
- Print time: 64 hours
- Material Weight: 31kg
- Reduced cost and time compared to traditional composite layup or CNC machining.



APPLICATION AND USE CASES

RC Drone Body

- Drone body designed with generative design, printed in 16 hours at 10 micron resolution.
- Extremely lightweight, around 20 gram increasing flight speed and operations.



APPLICATION AND USE CASES

Flight Controller

- Highly detailed split snap-fit flight controller body with high-detail to allow wiring and electronics.
- Printed in 5 hours at exceptional build quality.
- Ergonomic design achieved with high-precision printing with handheld grip texture.



APPLICATION AND USE CASES

Dental Model Kits

- High resolution dental samples printed using biocompatible materials opening the door for medical possibility.
- Scan to design printed at high resolution upto 10 micron.



APPLICATION AND USE CASES

Flow Models

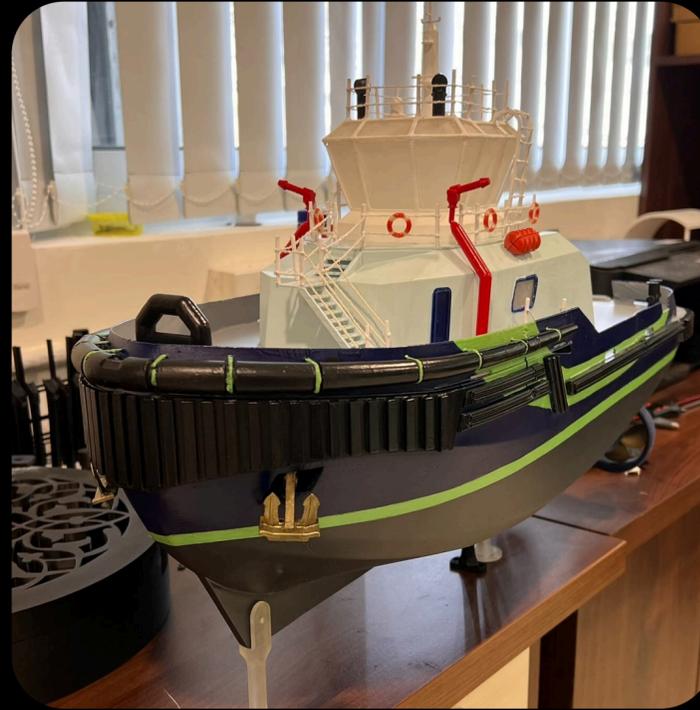
- High temperature material used to print the mould.
- Small details such as holes achieved with precision printing.
- Translucent nature of material allows flow visualisation.



APPLICATION AND USE CASES

Scale models

- Scale models of various sizes achieved by our machines, capturing necessary details that provide a realistic miniature or real-world replica of desired item.
- 3D printing enables rapid cycles and increases time-savings upwards of 60-70%



APPLICATION AND USE CASES

Ducting for HVAC

- Potential lower costs from reducing operations and part consolidation
- Aftermarket retro-fit application: quick turn-around and tooling elimination; Potential weight reduction



Why Choose NirmitSU?

Local Manufacturing

We aim to provide rapid manufacturing aid to local businesses based in the wonderful scenic location of Goa.

Scalable production

Go from prototypes to batch manufacturing QUICK!

Faster Turnaround

Eliminate unnecessary tooling costs and provide rapid prototyping for quick approvals.

Locally sourced materials

Our pellet materials are sourced locally from businesses in India, realising the true power of the Make In India initiative.

Contact Us

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