SMART3D

Macro

Design
for production

SMART3D **Macro** - Additive Manufacturing unleashed

An additive manufacturing solution conceived to streamline the process from development to production.

Actively heated chamber

Its up-to-200°C actively heated print chamber allows it to print the widest material range on the market, including composite or high temperature materials such as PEEK and ULTEM.

High speed

With segment-leading speeds at high accuracy enabled by its motion system and high extrusion flow, Macro is a real manufacturing engine.

Large build volume

With a 350 x 350 x 400 mm or 13.8 x 13.8 x 15.7” capacity on dual extrusion, Macro has the largest print volume in its category and is capable of fitting several parts in one print for production purposes.

A controlled chamber where materials achieve their optimal performance

One of the key elements enabling a material extrusion process to produce high performance parts is thermal stability. Polymers, particularly crystallines, are prone to contraction when the chamber’s temperature is unstable. This makes thermal stability fundamental, particularly when printing larger parts.

In addition, when printing occurs at the polymer’s glass transition temperature, its molecular chain favors bonding with the newly deposited layer. This process improves layer adhesion significantly, as well as the part’s isotropic strength. These are key enablers for additive manufacturing to replace traditional subtractive processes.

SMART3D **Macro Production Modules**

Prototyping Unit

Space Office
User Designer / Engineer
Application Product Development

Production Module

Space Manufacturing Plant
User Production Engineer
Applications Low Volume Manufacturing
Manufacturing Aids

A Smart move into Industry 4.0

Extreme connectivity

Macro 3D Printers offer 4 modules to become fully integrated with the factory’s workflow: Smart3D Cloud, LAN, Serverless and Factory Management.

Business continuity

Easy serviceability accounts for little to no downtime. Macro has been designed with easily replaceable mechanics and electronics compartments.

Advanced management and reporting

Advanced management features for production control are powered by a live camera, status visualization and on-screen slicing on the Production Module’s dedicated computer.

SMART3D **Filaments** - Unlocking applications

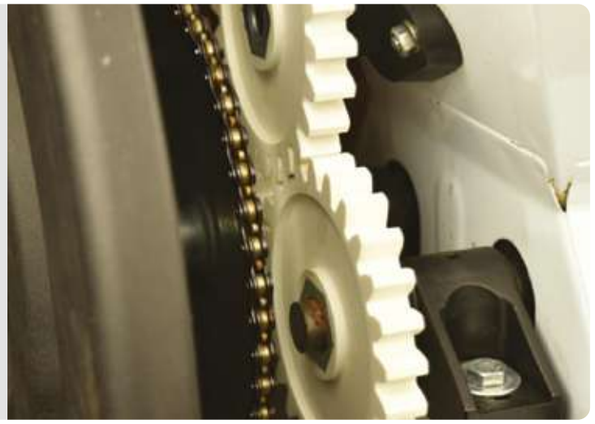
High Performance Filaments

Smart3D Filaments are developed to meet the mechanical and chemical performance required in each application.

Durable, lightweight, flame retardant, strong, stiff or flexible materials that can withstand different conditions.

Widest Material Range

The Smart3D portfolio offers the broadest variety of engineering materials on the market to enable diverse applications in multiple industries. This provides our customers with the flexibility they need to produce parts for different uses.



Open Material Platform

In addition to the flexibility provided by our open material philosophy, we have partnered with the leading suppliers of industrial-grade materials to constantly expand the enabled applications. Manufacturer-approved preset printing profiles for third-party filaments are provided through our Material Partnership Program.

ABS
Acrylonitrile Butadiene Styrene

ABS Pro
Acrylonitrile Butadiene Styrene

ABS vO
Acrylonitrile Butadiene Styrene

ASA
Acrylonitrile Styrene Acrylate

BVOH
Butenediol Vinyl Alcohol

PA 6/66
Polyamide 6/66

PA 6/66/12
Polyamide 6/66/12

PA12
Polyamide 12

PAHT CF
Polyamide 6/66 Carbon Fiber

PC-ABS
Polycarbonate - Acrylonitrile Butadiene Styrene

PC-ABS vO
Polycarbonate - Acrylonitrile Butadiene Styrene

PEEK
Polyether Ether Ketone

PEEK CF
Polyether Ether Ketone Carbon Fiber

PEKK
Polyether Ketone Ketone

PPSU
Polyphenylsulfone

PVA
Polyvinyl Alcohol

TPU 98
Thermoplastic Polyurethane

ULTEM 1010
Polyetherimide 1010

ULTEM 9085
Polyetherimide 9085

… as well as **third-party materials**

Hybrid Drying Technology™

Performant and protective drying
Heat-based methods may damage your material, without even achieving low relative humidity. Our vacuum-based technology can produce no harm and dry it evenly to optimal performance levels.

Dry over 10 times faster
Have the dryer's full storage capacity in optimal moisture levels in less than 3 hours.

Dry multiple materials simultaneously
Our approach is not dependent on high heat, which allows you to dry materials with different melting temperatures together.

Good for prototyping, required for production
The Smart3D Multimaterial Dryer is an optimal accessory for any filament 3D printer. The same technology is included in Macro Production Modules to ensure repeatable prints.

WET FILAMENT

VS.

DRY FILAMENT

SMART3D Macro Models

Both **Prototyping Units (PU)** and **Production Modules (PM)** come in **standard** or **High Temperature (HT)** versions according to the required material capabilities.

Features

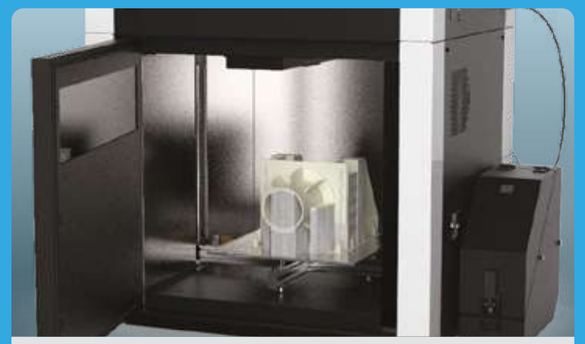



	PU	PU HT	PM	PM HT
Build volume	350 x 350 x 400 mm 13.8 x 13.8 x 15.7"	350 x 350 x 400 mm 13.8 x 13.8 x 15.7"	4 chambers, each 350 x 350 x 400 mm 13.8 x 13.8 x 15.7"	4 chambers, each 350 x 350 x 400 mm 13.8 x 13.8 x 15.7"
Max. chamber temperature	120°C	200°C	120°C	200°C
Motion system	Belts	Hybrid – Beltless	Belts	Hybrid – Beltless
Extrusion system	Bowden	Direct	Bowden	Direct
Accuracy	± 0.2 mm*	0.05 mm	± 0.2 mm*	0.05 mm
Hybrid Drying Technology™	Accessory	Accessory	Built-in	Built-in
Automatic material back-up	No	No	Yes	Yes
Dedicated computer	No	No	Yes	Yes
Cloud/LAN connectivity	Included	Included	Included	Included
Serverless connectivity	Via upgrade	Via upgrade	Included	Included
Supported materials	Most FFF materials, including PEEK	All FFF materials, including ULTEM, PEEK, PEKK and PPSU	Most FFF materials, including PEEK	All FFF materials, including ULTEM, PEEK, PEKK and PPSU

*or ± 0.002 mm per mm of travel (whichever is greater)

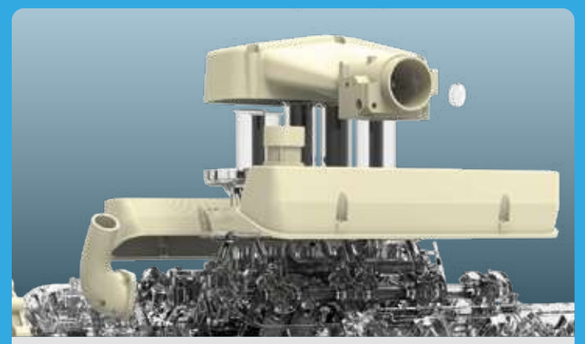
SMART3D Macro

A platform designed for the repeatable production of high performance parts



Fast extrusion in heated chambers

Materials achieve their optimal performance when printed in a controlled environment at temperatures favoring crystallization and layer bonding.



A wide array of quality materials

A broad line of proprietary filaments, a partnership program and an open platform provide the largest versatility on the market for any 3D printing technology.

Hybrid Drying Technology™

Industrial-grade drying and protective feeding guarantee that the material's properties are preserved.

Scalable production systems

The transparent prototyping to production solution with a modular approach helps easily meet production demand.

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