

PRODUCTIVE. EFFICIENT. RELIABLE.

POWERPRINT PLUS FOR INDUSTRIAL,
LARGE-SCALE ADDITIVE MANUFACTURING



Krauss Maffei
Pioneering Plastics

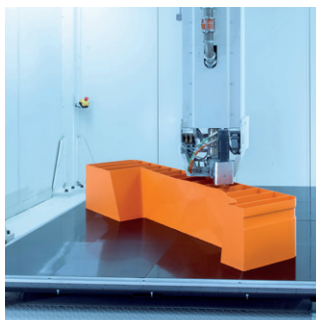
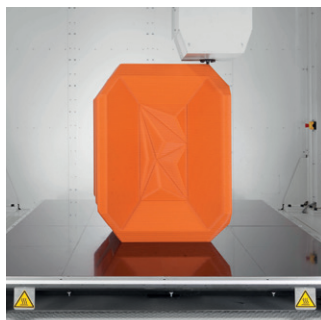
AREAS OF APPLICATION OF POWERPRINT PLUS

Additive production on a large scale

powerPrint Plus is a multi-talented technology. It is setting new benchmarks for efficiency and cost-efficiency in many industries and applications, and helps shorten production sequences. powerPrint Plus makes the typical advantages of 3D printing available for large parts as well.

Key facts of powerPrint Plus

3D printing technology	Fused Granular Fabrication (FGF)
Machine footprint	5100 x 5650 x 6450 mm
Printing space	Thermally insulated and closed
Maximum part size	2,0 x 2,5 x 2,5 m
Extrusion output	Up to 70 kg/h
Extrusion melt temperature	Max. of 400 °C
Print bed	Heatable up to 180 °C with vacuum fixed printing plates.



Typical applications

Molds & tools, e.g.

- composite layup tools
- autoclave tools
- sand casting patterns

Jigs & fixtures, e.g.

- custom assembly fixtures
- transport retention fixtures
- positioning jigs

Design parts, e.g.

- architectural structures
- customized furniture
- room dividers

End use parts, e.g.

- machine housing
- pipe & fitting components
- underbody panels

POWERPRINT PLUS – INDUSTRIAL ADDITIVE PRODUCTION IN LARGE FORMAT

For large-format additive manufacturing, powerPrint Plus is the reliable and fast industry solution for efficient production of near-end-shape components. powerPrint Plus is an extruder-based system for processing thermoplastic granulates.

powerPrint Plus features short set-up times and a high output capacity with fast printing speeds. This means short throughput times, even for large, complex components.

powerPrint Plus processes a wide range of fiber-reinforced thermoplastic granulates. As a result, optimal component properties are achieved at affordable material costs. The path from design data to the finished component is short. powerPrint Plus uses data from common slicing software.

The highlights at a glance:

- Maximum construction volume up to 10 m³
- Simple implementation for large, complex structures
- Efficient production of final-shape and near-final-shape components in high quality: “Right first time”
- Cost-effective and fast alternative to conventional production
- Easy access to the space and direct parts removal by crane

TRANSPARENT TECHNOLOGY

FASCINATING TOUR

OF THE POWERPRINT PLUS

Large-format components

The specially developed granulate extruder allows for efficient production of components with a volume of up to 10 m³. The maximum space is 2 x 2.5 x 2 m.

High-performance extruder

With melt flow control for a higher production speed, high part quality and precise material output in continuous operation.

Non-stop operation

Material drying is connected with the material supply by a vacuum supply system. This allows for continuous production without intervention by an operator.

Heated vacuum printing table

16 individually controllable zones allow for optimal use of the space. Depending on requirements, multiple mounting surfaces can be configured with a pre-settable printing table temperature. Max. printing bed temperature 140 °C.





Printing with proven linear robots from KraussMaffei

The extruder is guided precisely by proven linear robot axes. This enables a high production speed and exact printing of components. Linear robots from KraussMaffei are designed for continuous use in industrial production environments. Automatic lubrication increases the availability and reduces maintenance work. Max. travel speed 300 mm/s.

Easy parts removal

The roof of the powerPrint Plus folds and is pushed back automatically to demold the finished components. Unobstructed access to the build chamber from above and from the front allows for easy demolding of finished components using a gantry crane.

Heat-resistant enclosure

powerPrint Plus prints in an enclosed build chamber. For a suitable printing environment even for challenging materials, it is designed for temperatures of at least 60 °C. This creates the optimal production conditions for premium-quality products.

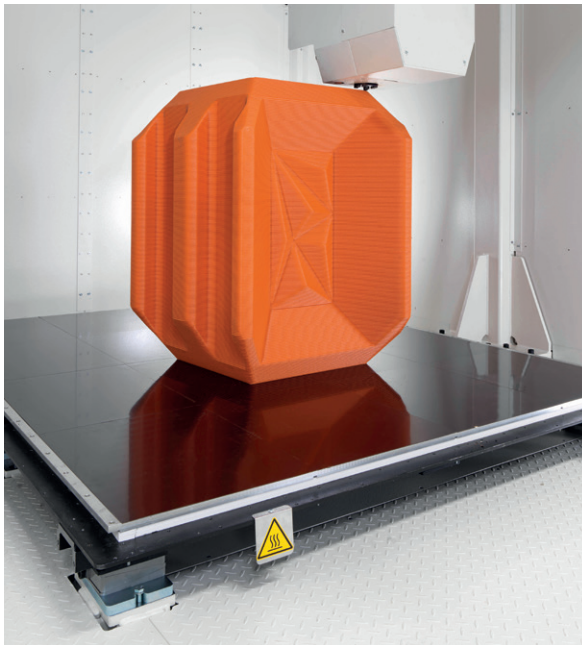
Flexible engineering

Easily accessible – Automatic material feed

PRINTCORE EXTRUDER

HIGH PERFORMANCE IN CONTINUOUS OPERATION

The heart of powerPrint Plus is the high-performance printCore extruder. Available in two sizes for output capacities up to 30 kg per hour, it also meets the highest requirements in an industrial environment. The robust design is designed for continuous operation. Reliability, maximum availability and uniform performance over the service life set the design apart.



The high-performance printCore extruder is the key component of the powerPrint Plus system.

YOUR BENEFITS:

- Durable, high-wear-resistance screw design
- Enhanced melt flow control for highest process control and superior part quality
- Extruder temperature up to 400 °C
- Versatile nozzle options from 2 to 20 mm
- High extrusion output with up to 70 kg/h

Easy control and operation

powerPrint Plus is operated using a clearly arranged user interface based on HTML5. A large display designed for use in industrial environments offers the operator full access to an overview of the most important parameters for the print job and system settings. The control system works with standard slicer output files. This makes data preparation and print file creation easy. Another plus is that the data transfer from the pre-process system can be done wirelessly or via USB.

Comprehensive service

powerPrint Plus is a true KraussMaffei product. Users can rely on our global service network and sophisticated and digital ServiceSolutions. Corresponding powerPrint Plus data interfaces ensure maximum machine and customer benefits.



MATERIAL VARIETY FOR QUALITY COMPONENTS

powerPrint Plus works with a large variety of materials. This is what makes it possible to produce premium-quality components at affordable costs. High-performance thermoplastic and fiber-reinforced materials are processed.

ABS (GF or CF)	Technical material with very good printing and machining properties and low temperature resistance. Ideal for easy and cost-effective production of molds and tools.
PEI (CF)	High performance material with exceptional thermal and chemical properties ideal for high temperature applications.
PETG (GF & CF)	Versatile and strong material with excellent printing and machining properties at low cost. Ideal for cost sensitive production of design and end-use parts.
PC (CF or GF)	Highly technical material with advanced mechanical and thermal properties with a high chemical resistance. Ideal for engineering applications with mid temperature processes and high mechanical pressure.
PP (GF or CF)	Lightweight polymer with high chemical resistant and good mechanical properties. Ideal for end-use parts where the use of Polyolefins is required.



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