



# HybridX

The Multiax Solution

MULTIAX<sup>•••</sup>  
INTERNATIONAL



With HybridX you run new processes  
resulting in optimised products  
otherwise, unthinkable





The CNC machining center  
Multiax P-Series  
in HybridX version





## A DUAL FUNCTION

Have you ever thought of combining the most innovative *additive technology* with classic CNC milling to get the best of both in the same machining centre?

It is now possible to CNC machine newly printed parts more efficiently, without having to move it from one machine to another.

**THE MAIN APPLICATIONS  
OF HYBRIDX →**





<sup>1</sup>Rapid Prototyping, <sup>2</sup>Coating tools, <sup>3</sup>Clamping templates, <sup>4</sup>Low-temperature master templates, <sup>5</sup>Low-temperature moulds, <sup>6</sup>Solutions for low temperature templates, <sup>7</sup>Hot moulding tools, <sup>8</sup>Autoclave moulds, <sup>9</sup>Oven moulds, <sup>10</sup>Self-heating moulds, <sup>11</sup>Components and/or spare parts, <sup>12</sup>Components and/or design items.



# A DOUBLE FUNCTION



High deposition rates up to 25 or 60 Kg (55 or 132 lb) per hour with pellet extrusion 3D printing means *faster print times*, enabling large parts to be printed in days instead of weeks.

Pellet extrusion 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 and glass fiber.

By using layer-by-layer material deposition, component shapes can be created that would not be possible using cutting or casting

manufacturing alone. The combination of these manufacturing processes (hybrid form) firstly enables new possibilities for the manufacturing of components and secondly the efficient use of materials by optimizing blanks.

*Fused Granulate Modeling (FGM)* is based on the use of plastic pellets, which are melted within a screw extruder. Thanks to the CNC the material flow is controlled with accuracy and the software dynamically adjusts the head feed in the NC-Code.



# PRINTABLE MATERIALS

The extruder is tested to be used with different resins for low-, medium- or high-temperature applications, typically:

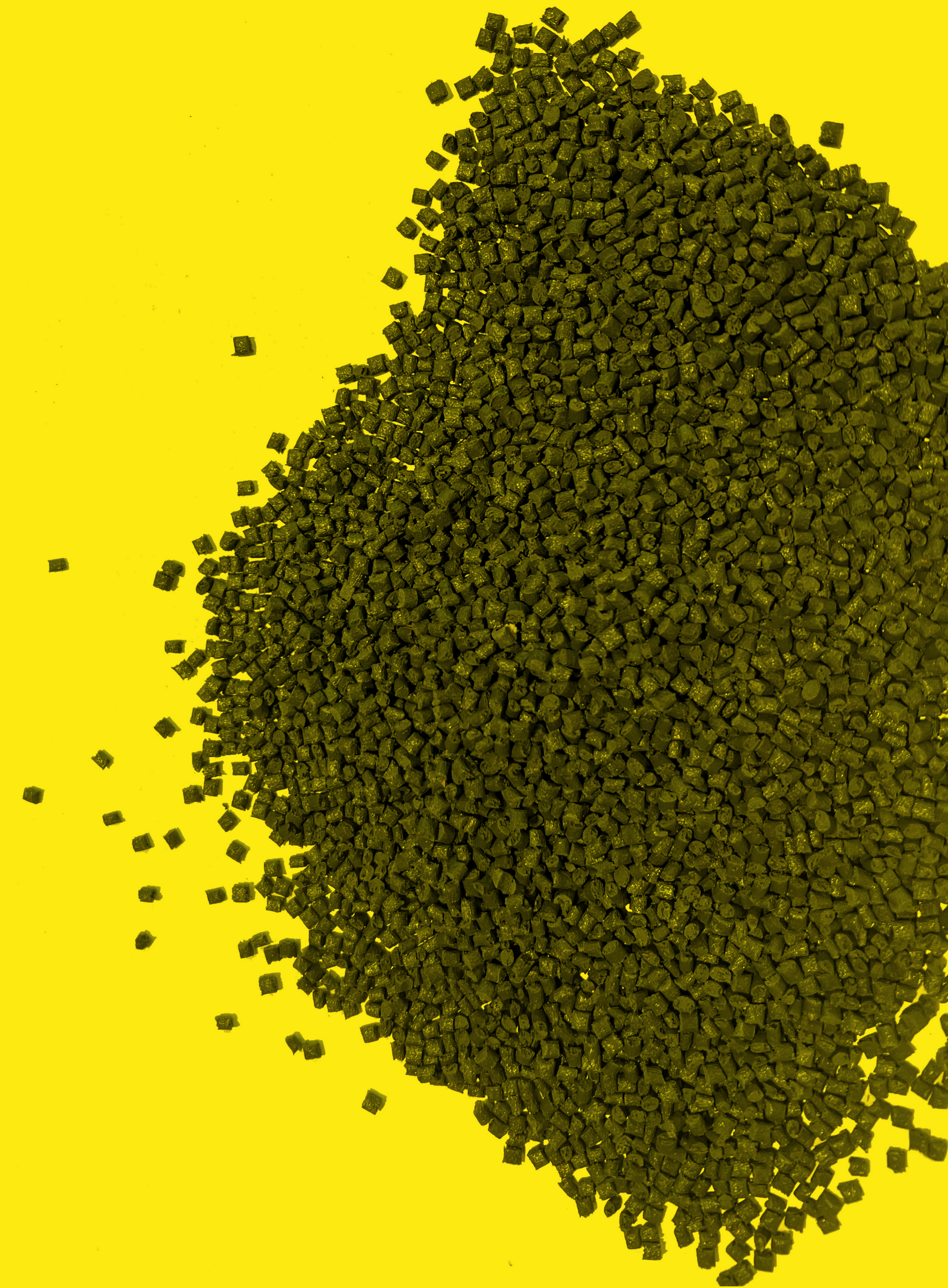
Modified ABS / Carbon Fibre

Modified PC / Carbon Fiber or Glass Fiber

PEI Modified Polyetherimide/ Carbon Fiber

PESU Modified Polyethersulphone/ Carbon Fibreo

*Note: other materials can be tested on request*

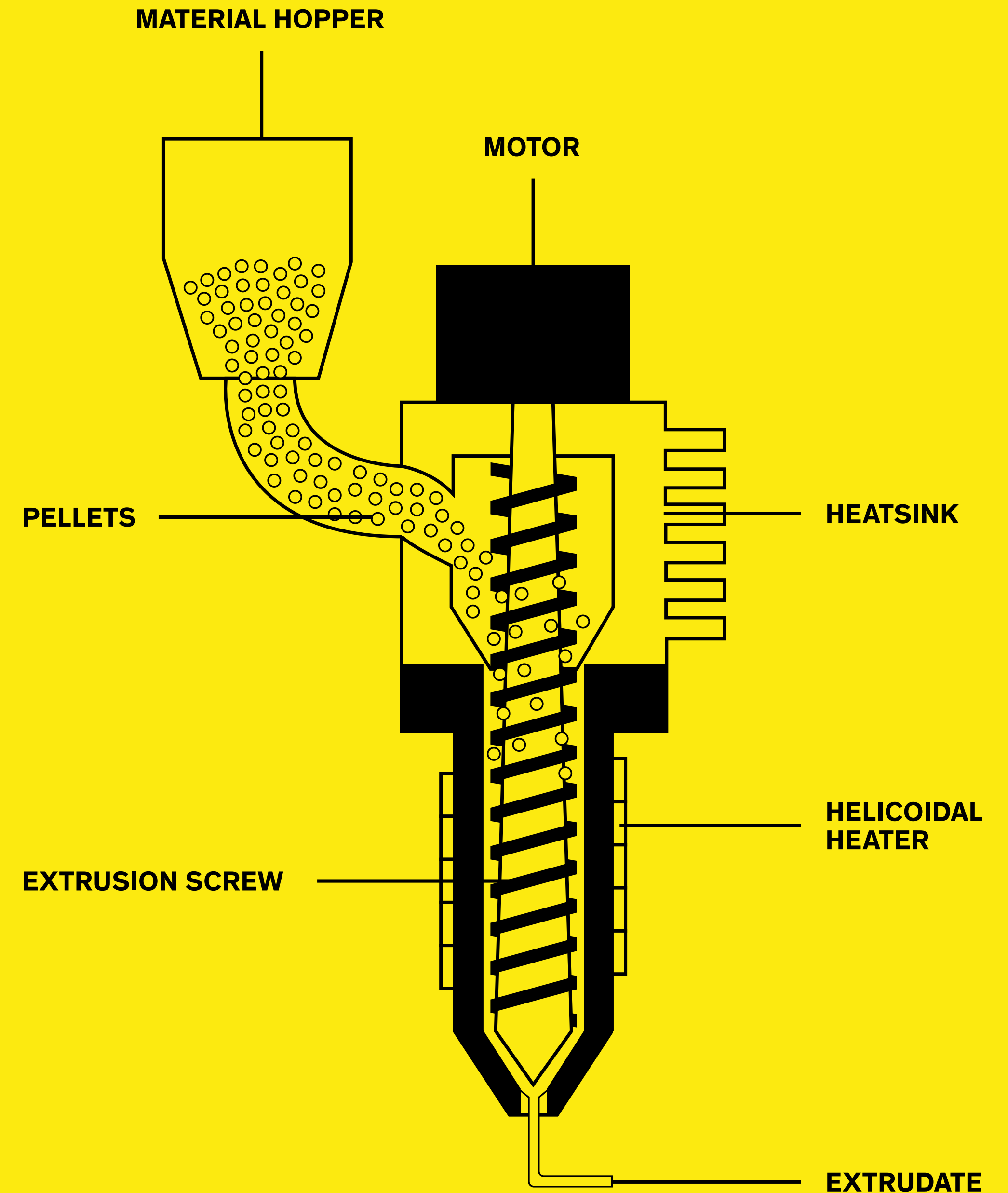
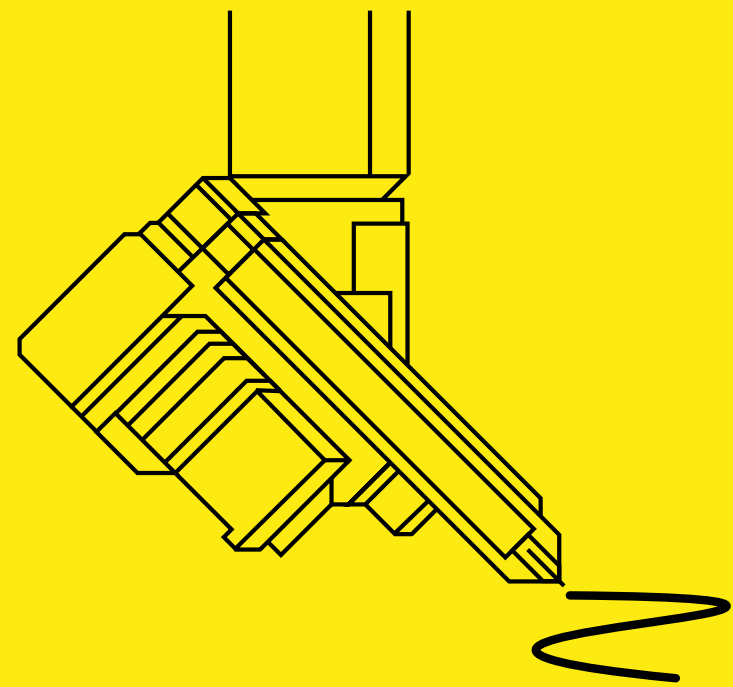




# THE ADDITIVE TECHNOLOGY PACKAGE

## THE EXTRUDER

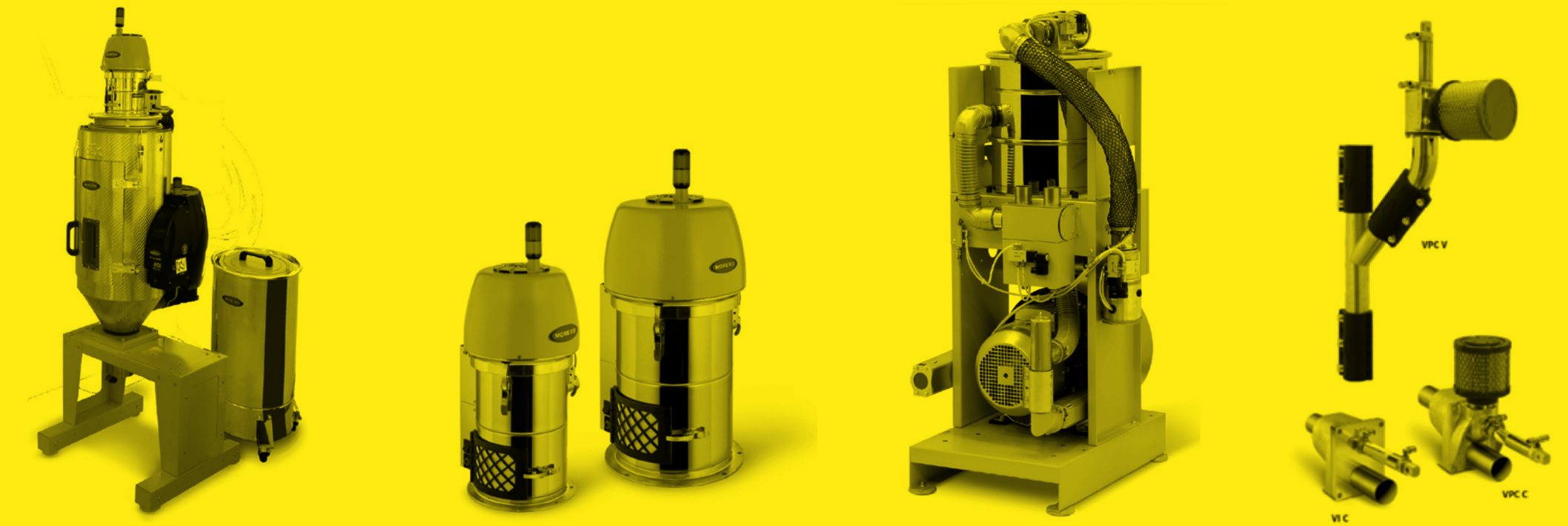
The next-generation *high-flow pellet extruder* installed in the P-Series is designed for the fastest and most economical 3D printing components possible and is capable of printing up to 25 kg or 60 kg. /Hour for larger printing volumes. The *extruder's inclination* can be controlled by NC, according to the most convenient material build-up angle.





# THE ADDITIVE TECHNOLOGY PACKAGE THE FEEDING SYSTEM

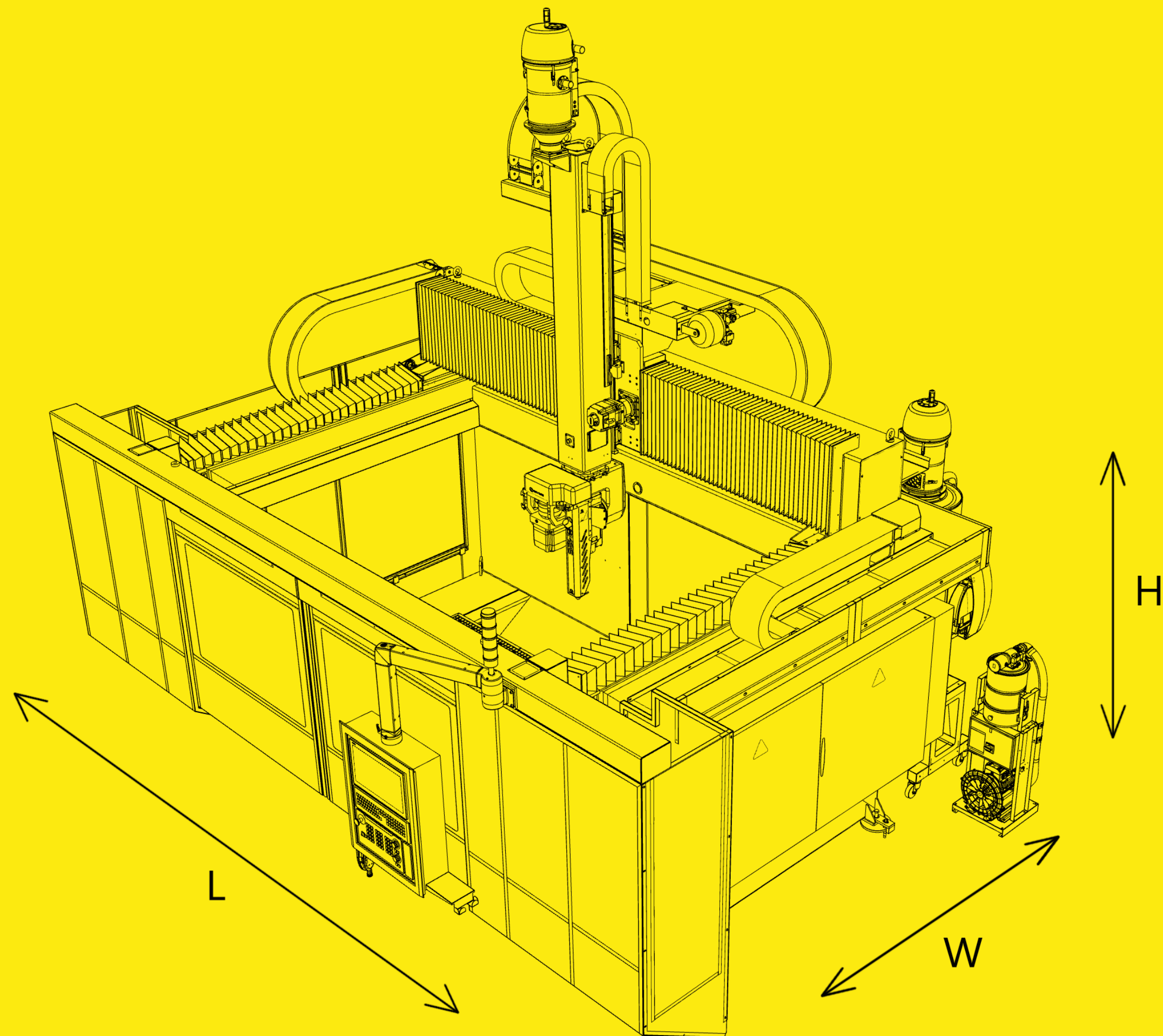
- High-performance *mini-dryer* for the dehumidification of pellets is designed for very demanding applications, such as medical. The technology and equipment used enable excellent treatment at minimum cost. With these features, this dryer is an extremely reliable machine and a leader in energy efficiency.
- The *Vortex backpack cyclone filter* for the suction units is suitable for conveying plastic and/or regrind granules with a high dust content.
- *Duct cleaning valves* are used to empty the conveying pipes at the end of the cycle, eliminating the risk of clogging.



- *Holding hoppers and containers* contribute to the vacuum transport of the pellets in the feeding system.
- *Line cleaning valves*.
- *Stainless steel* is used as much as possible, guaranteeing complete non-toxicity.
- Five types of *man-machine interface* are available, depending on the level of complexity to be handled.



# MACHINE OPERATIVE ENVELOPE



## MACHINE BUILD UP VOLUME

| End-effector inclination (°)* | MAX build up volume (mm. L x W x H) |
|-------------------------------|-------------------------------------|
| 0                             | 2600 × 1300 × 700                   |
| 45                            | 2100 × 1300 × 950                   |

## STROKES AND ENVELOPES

| Machine model    | P2615              | P3115              | T3618/3626                       | T4818/4826                       | T6018/6026                       |
|------------------|--------------------|--------------------|----------------------------------|----------------------------------|----------------------------------|
| Stroke X (mm)    | 2600               | 3100               | 3600                             | 4800                             | 6000                             |
| Stroke Y (mm)    | 1500               | 1500               | 1800 o 2600                      | 1800 o 2600                      | 1800 o 2600                      |
| Stroke Z (mm)    | 1200               | 1200               | 1200                             | 1200                             | 1200                             |
| Stroke C (°)     | ± 365              | ± 365              | ± 365                            | ± 365                            | ± 365                            |
| Stroke B (°)     | ± 120              | ± 120              | ± 120                            | ± 120                            | ± 120                            |
| Table (mm)       | 2600×1500          | 3100×1500          | 3600×1800<br>3600×2100           | 4800×1800<br>4800×2100           | 6000×1800<br>6000×2100           |
| Dimesion (LxWxH) | 5700×3200<br>x4400 | 6300×3200<br>x4400 | 6400×3500×4500<br>6400×4400×4500 | 7900×3500×4500<br>7900×4400×4500 | 8900×3500×4500<br>8900×4400×4500 |

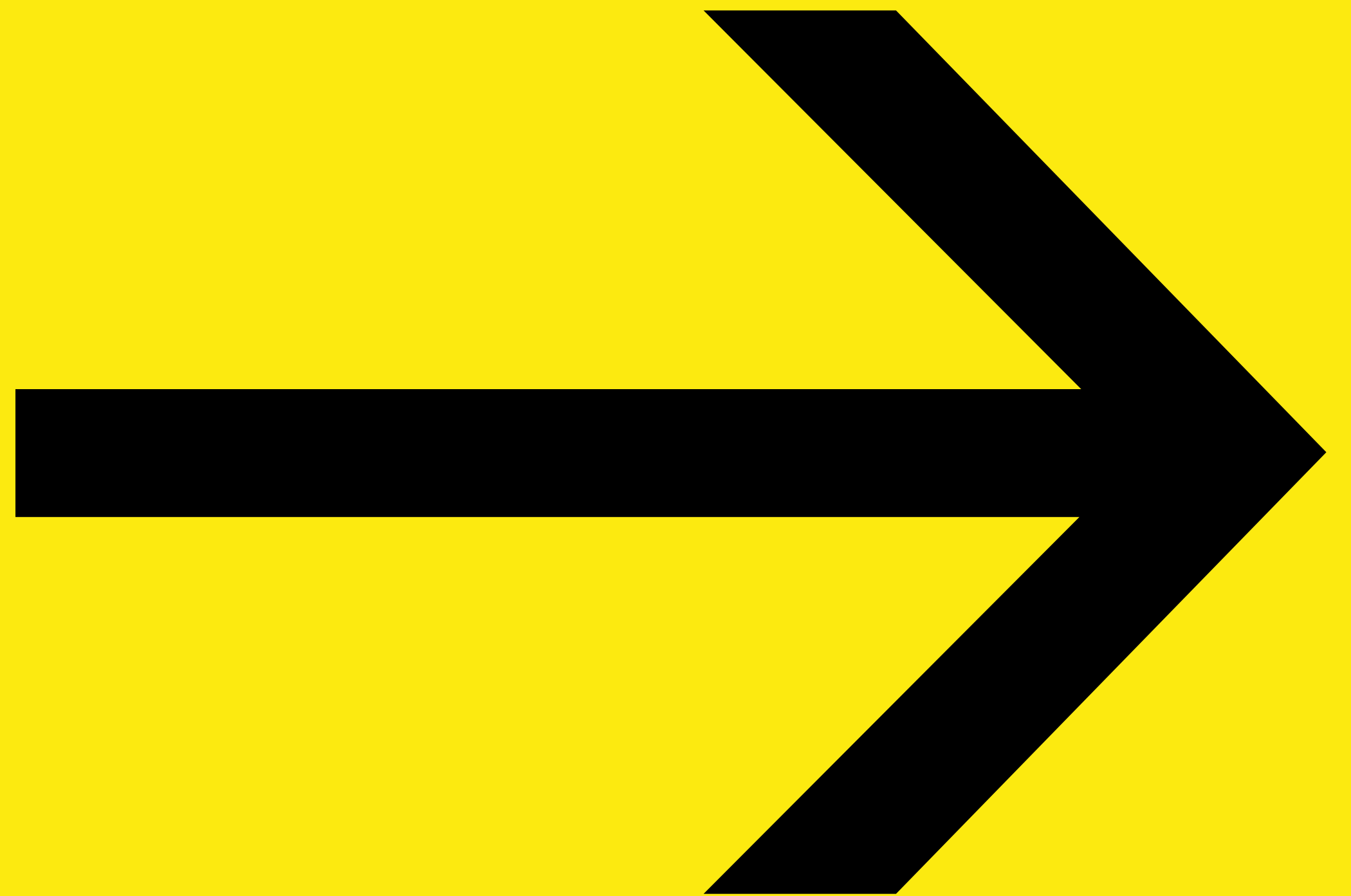
## ACCURACY AND REPEATABILITY (WITH SCALES AND ENCODERS, FOLLOWING THE ISO 230-2)

| Axis | Reference stroke | Accuracy  | Repeatability |
|------|------------------|-----------|---------------|
| X, Y | 2000 mm          | 0,020 mm  | 0,010 mm      |
| Z    | 1200 mm          | 0,020 mm  | 0,010 mm      |
| C    | ± 365°           | 25 arcsec | 15 arcsec     |
| B    | ± 120°           | 25 arcsec | 15 arcsec     |



# **SERIES OF MACHINES ON WHICH ADDITIVE TECHNOLOGY CAN BE INTEGRATED**

Each Multi-ax CNC machining center is extensively customizable to meet any requirement. Contact us for customized solutions or more information and visit our website.





## L SERIES

Moving bridge  
Gantries with low rails



## P SERIES

Moving bridge  
Transversal gantries



## T SERIES

Moving bridge  
Longitudinal gantries



## K SERIES

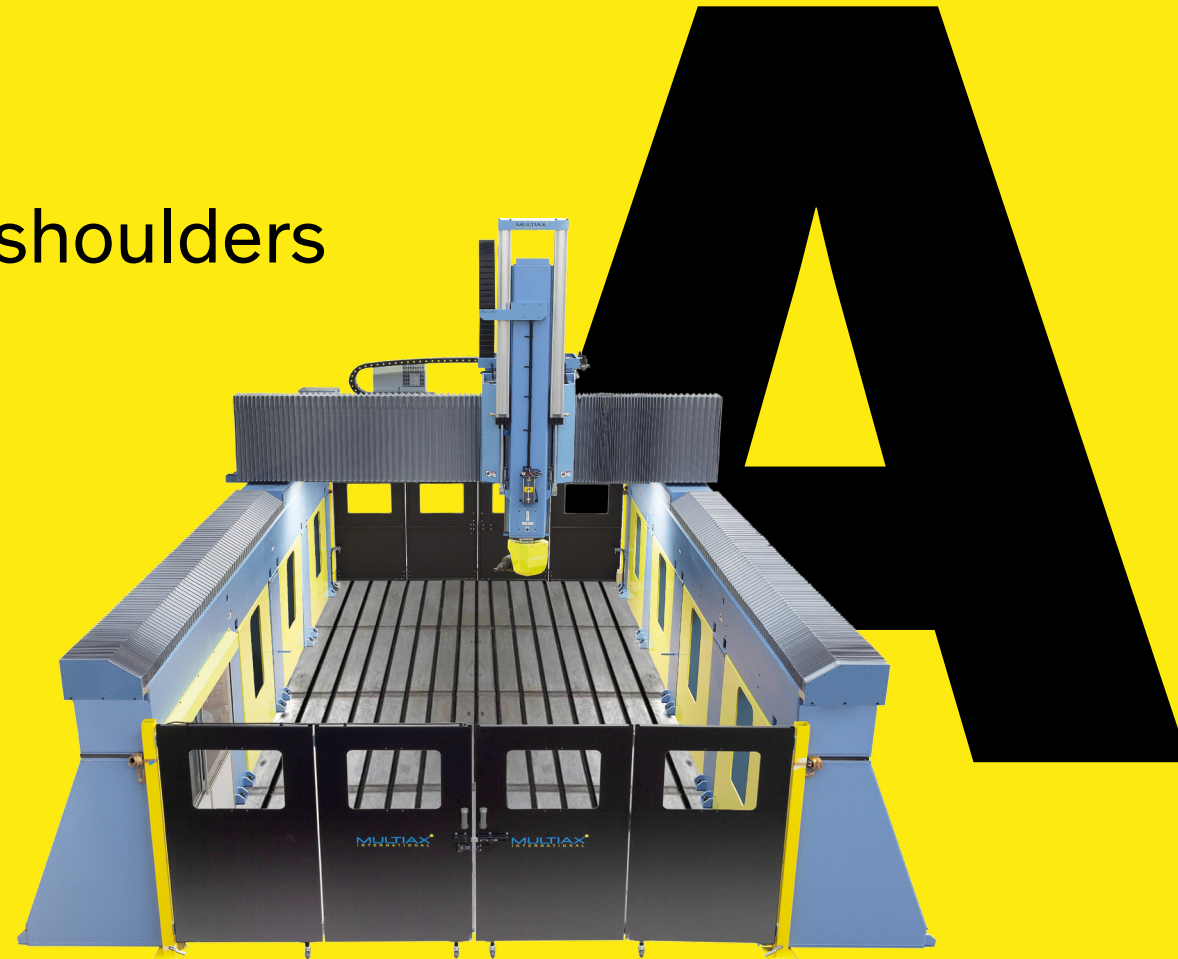
Moving bridge  
Transversal HD gantries





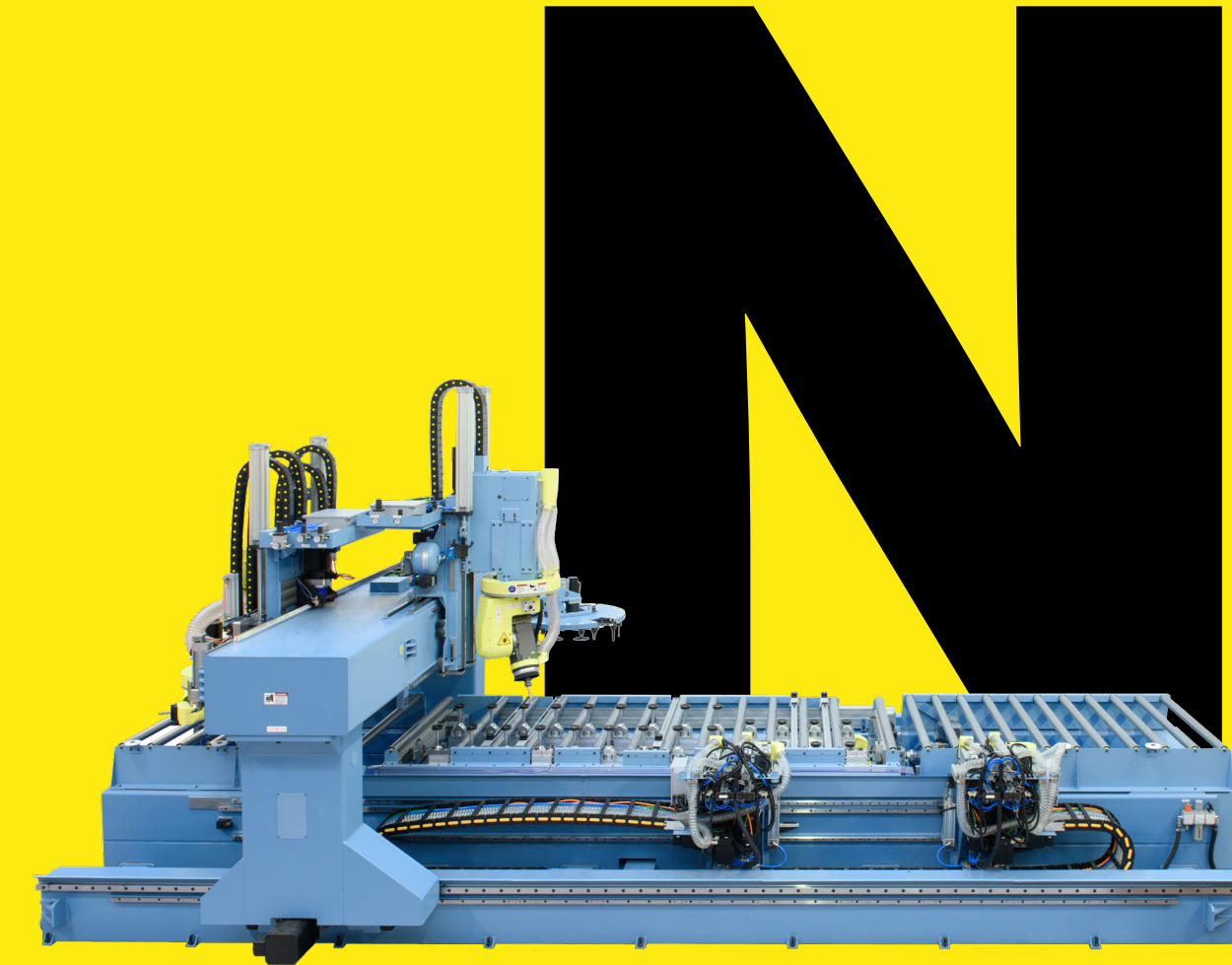
## A SERIES

Moving bridge  
Gantries with high shoulders



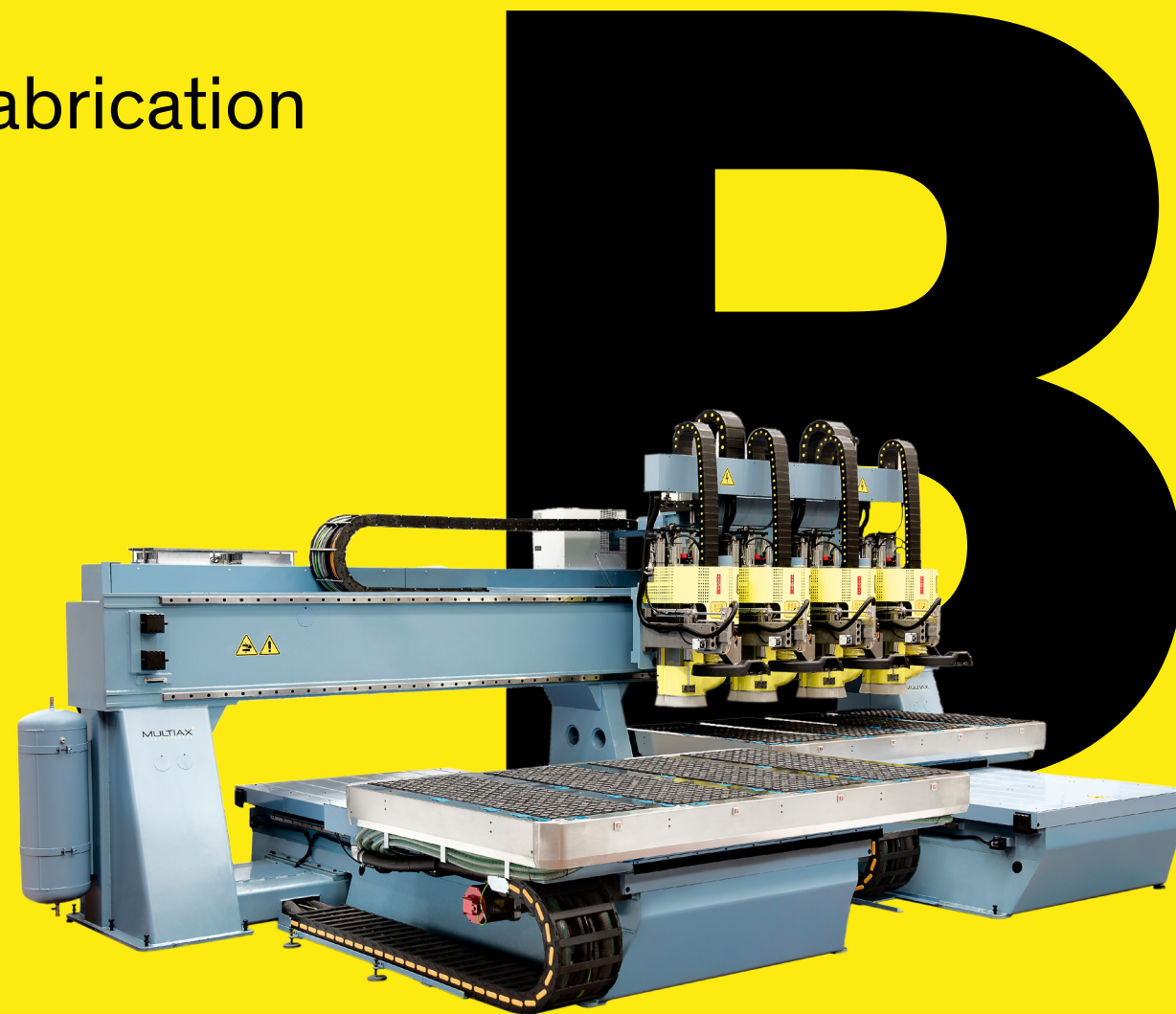
## N SERIES

Moving bridge  
Twin drives



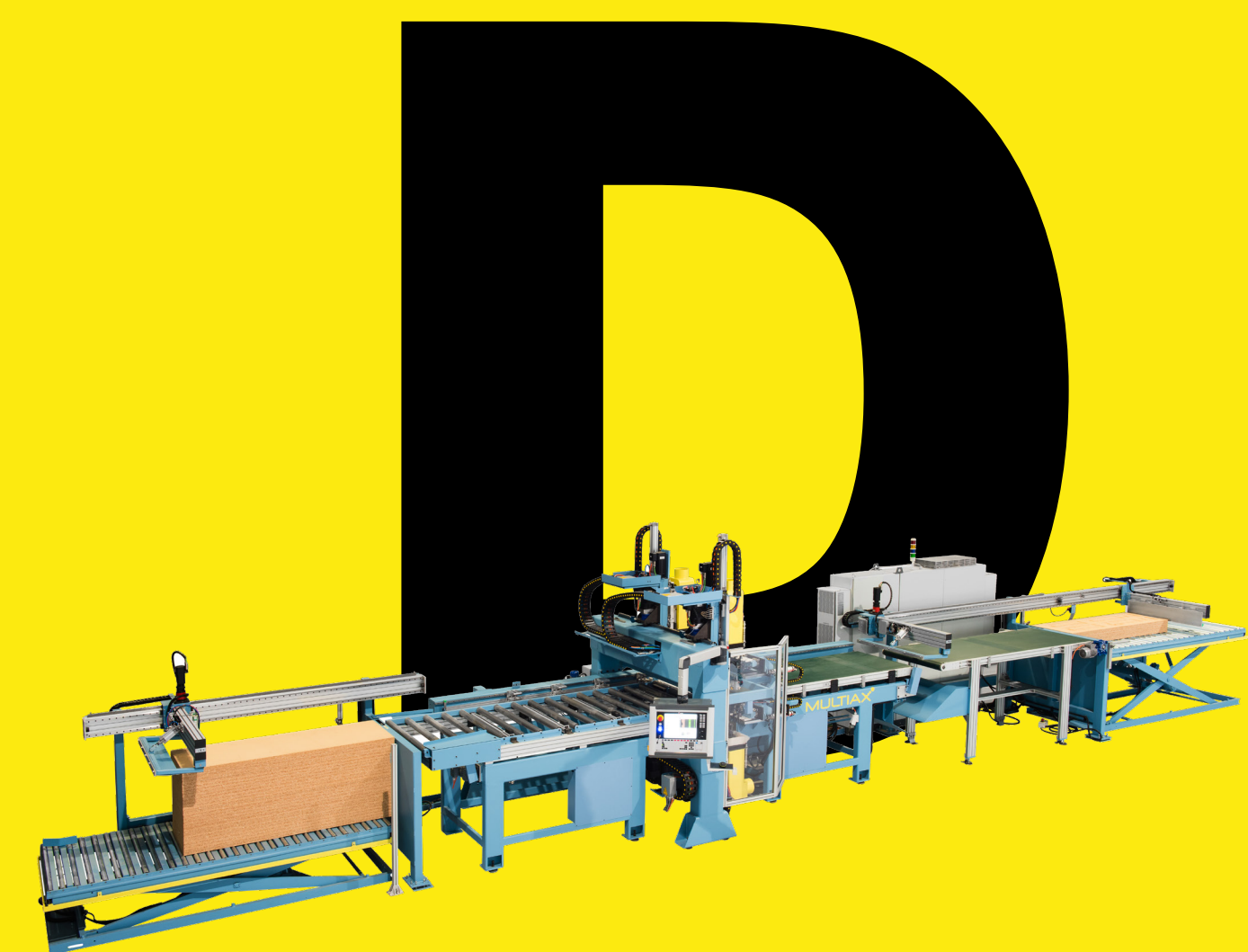
## B SERIES

Fix bridge  
Rigid and heavy fabrication



## D SERIES

Special machines  
Residential doors







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