



iNTEL MAKiNA
INDUSTRY AND TRADING CORP.

CASTOR FA 6500 E

PVC Profile Processing and Cutting Center

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Description

A CNC-controlled production system developed for high-precision processing of PVC profiles. Thanks to its 5-axis servo-controlled motion structure, all necessary operations can be performed on all surfaces of the profile in a single loading. Milling operations, internal water drainage channel opening, hinge pockets, lock and lever holes as well as angled and straight cutting operations are automatically applied according to the program. Operations are performed sequentially according to the defined operation sequence, and transition times between operations are minimized. High-speed spindle motors positioned in the servo-controlled milling unit produce precise and repeatable results according to defined machining parameters. All movements are controlled by the CNC control system, thus ensuring dimensional accuracy and process standardization. The machine consists of three main sections: input conveyor, processing and cutting unit, and output conveyor. Up to 4 profiles can be loaded onto the input conveyor at the same time, and profiles are automatically transferred to the processing cabinet through an integrated robot system. This structure is designed to create continuous material flow on the production line. The servo-controlled saw system in the cutting unit can be positioned at angles between 30° and 150° and can perform series cutting operations within the specified angle range. Angular positioning is provided by CNC control, and cutting accuracy is maintained. Profiles that have completed processing and cutting operations are transferred to the output conveyor via a robot arm. Profiles arriving at the output section are taken to the conveyor waiting area by a pneumatic pushing system. This orderly flow allows the operator to systematically conduct labeling and subsequent production stages. Labels obtained from the barcode printer in the system are applied to the processed profiles. Thanks to this labeling, the welding unit can

automatically identify the profile and profile information in the production process is transferred digitally. Thus, profile mix-ups and time losses due to manual tracking are prevented, and traceability and operational continuity are provided on the production line.

Highlights

- ✓ 0.1° cutting and processing accuracy
- ✓ Servo-controlled angle and motion delivery
- ✓ Automatic and series cutting capability at all angles between 30° and 150°
- ✓ Minimum profile scrap
- ✓ 5 spindle motors
- ✓ 1 piece Ø550 mm saw blade
- ✓ 21" high-performance industrial PC
- ✓ Barcode printer (integrated with welding and corner cleaning machines)
- ✓ Lubrication system
- ✓ Technical support capability via remote connection
- ✓ USB input
- ✓ Data transmission over internet
- ✓ Low-energy LED lighting inside the cabin
- ✓ 1000-1300 m.linear / 8 hours profile processing capacity
- ✓ User-friendly interface integrated with drawing programs
- ✓ Automatic operation capability from cutting and processing list
- ✓ Profile recognition system
- ✓ Integrated air pressure sensor

Optional Features

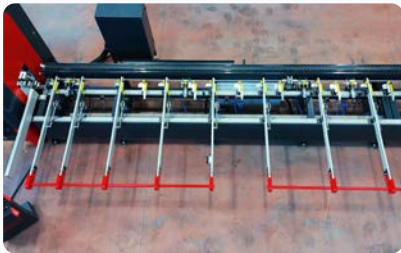
- + Spare Ø550 mm saw blade
- + Spare Ø5 x L95 mm carbide cutter
- + Safety Fence
- + Chip extraction system
- + Chip Conveyor

Machine Components



Computer Control

Cutting and milling operations are managed through a 21" touchscreen industrial PC with Intel processor. The user-friendly interface offers easy-to-use operation with multilingual support. By entering the processing parameters of the profiles, cutting and milling operation lists can be prepared, and thus all operations can be performed fully automatically without operator intervention. Additionally, parameter settings and operation management can be done via remote connection; this feature also allows for fast and efficient technical support. Profile scraps in the sent cutting lists can be automatically optimized and evaluated. Data transmission can be performed via USB input.



Input Conveyor

Up to 4 profiles can be loaded onto the input conveyor. It has the capacity to load profiles with a minimum length of 80 cm and a maximum length of 700 cm. Thanks to the profile recognition feature, profiles are automatically transported and positioned. The servo-controlled transport robot grips the profiles precisely and moves them to the processing cabinet.



Processing Unit

In the processing unit where milling operations are performed, there are 5 air-cooled, high-frequency motors. Fast processing is possible thanks to cutting tools specially designed for water drainage, milling, lock location drilling and opening operations on PVC profiles. Servo motors provide the ability to perform precise operations on every surface of the profile. A powerful clamp system secures the profile during processing, maintaining operation quality while extending the service life of cutting tools. In case of power failure, the braking system in the servo motor prevents the unit from dropping down.



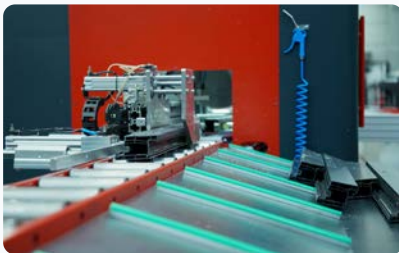
Cutting Unit

A Ø550 mm saw blade specially designed for PVC profiles that can rotate at all angles between 30° and 150° is used. Vertical saw movement is provided by a servo motor. This allows position and feed rate to be controlled precisely. In case of power failure, there is a safety system to prevent the saw unit from dropping down. There is a clamp system consisting of 2 horizontal and 2 vertical clamps that secures the profile during cutting, increasing cutting quality and saw blade life.



Chip Conveyor / Optional

Scrap pieces and chips produced during cutting are transported to the chip cart via conveyor. The fact that this operation is automatic provides a cleaner working environment and saves time.



Output Conveyor

Profiles that have completed processing are transferred to the output conveyor via the robot. The pneumatic pushing system located in the output section delivers the processed profiles to the operator for barcode labeling. This orderly flow allows the operator to systematically conduct labeling and subsequent production stages.



Safety

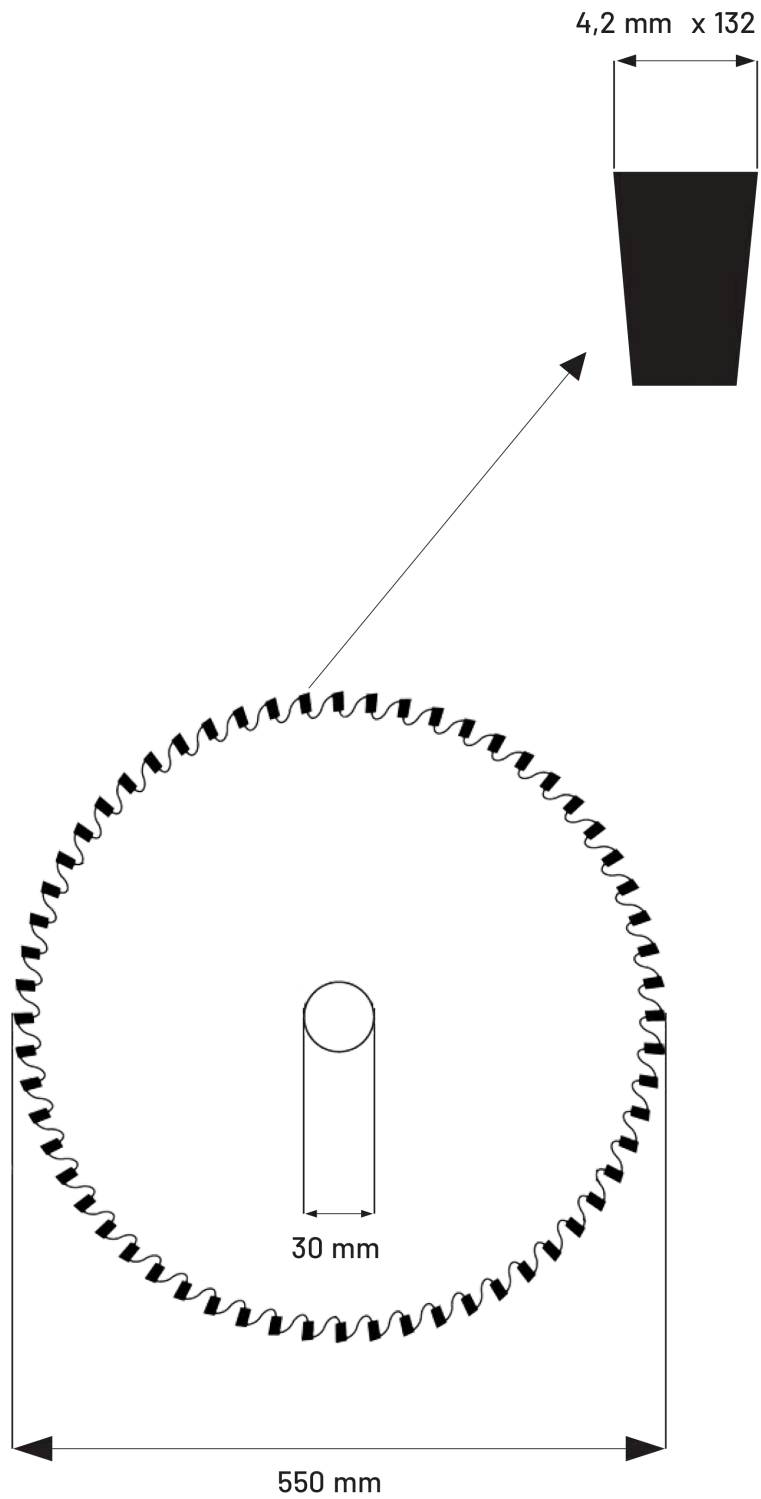
All milling and cutting operations are performed inside a closed cabinet. When the cabinet door is opened, the machine stops operation. An integrated air pressure sensor stops operations and alerts the user when sufficient pressure is not applied. The profile recognition system provides a warning when a wrong profile is placed, preventing incorrect operations.



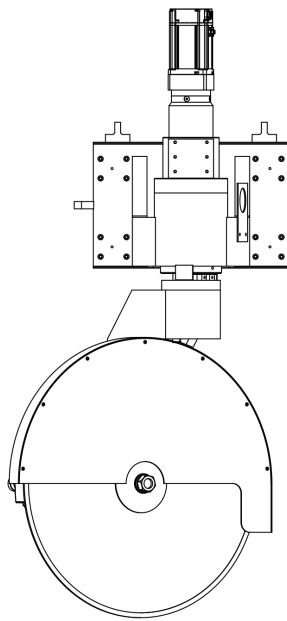
Barcode Printer

An industrial label printer enables labeling of each profile according to the characteristics defined in the operation list. Thanks to this labeling, the welding unit can automatically identify the profile and profile information in the production process is transferred digitally. Thus, profile mix-ups and time losses due to manual tracking are prevented, and traceability and operational continuity are provided on the production line.

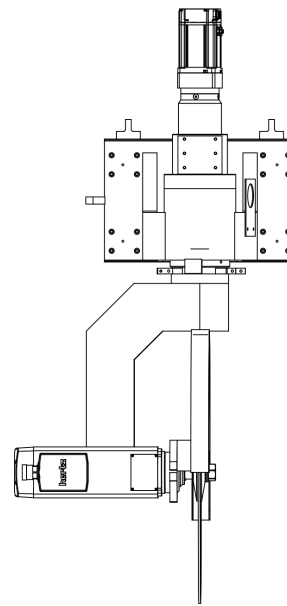
SAW BLADE



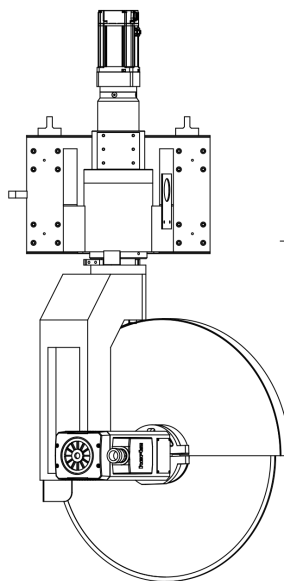
CUTTING UNIT



Min. 30°

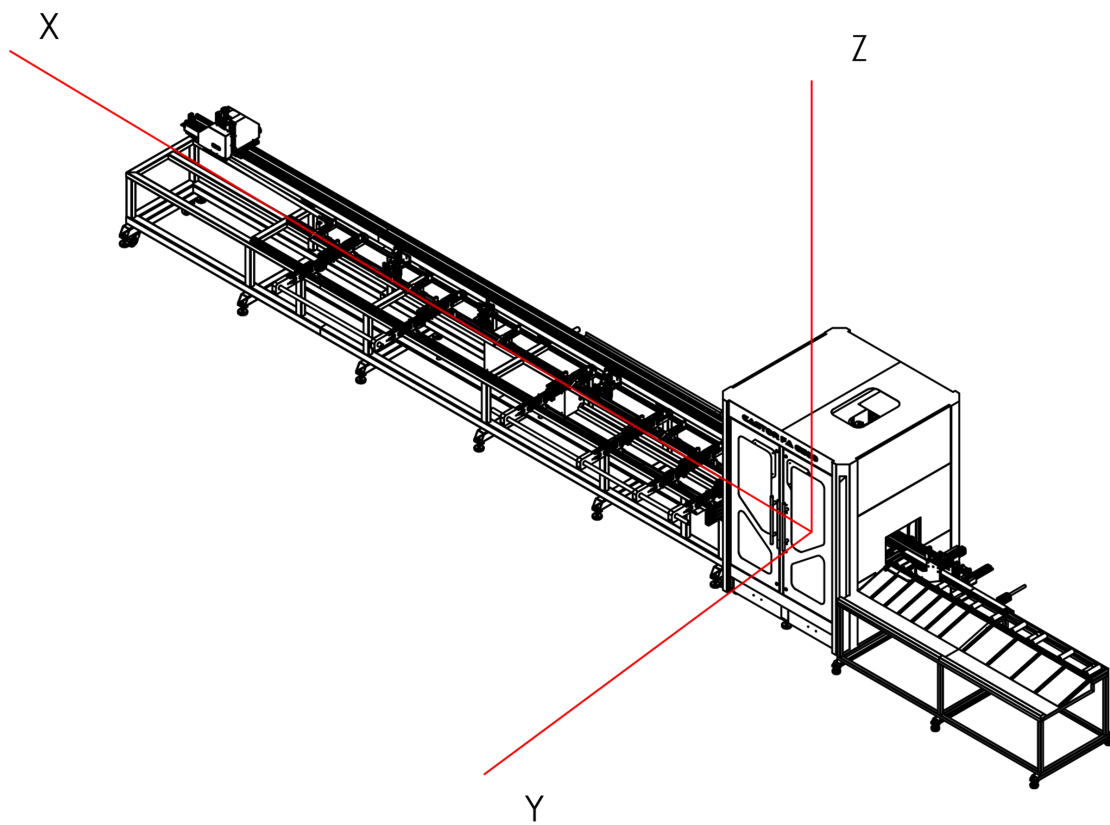


90°

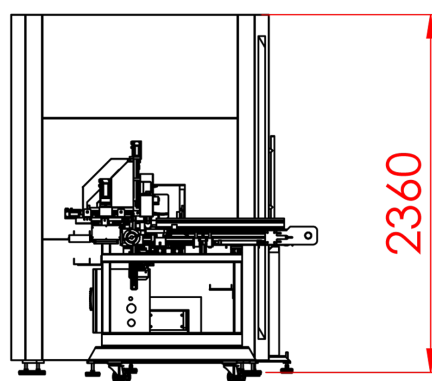
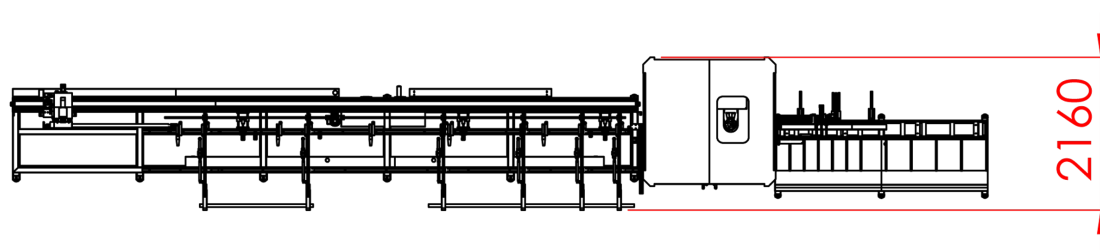
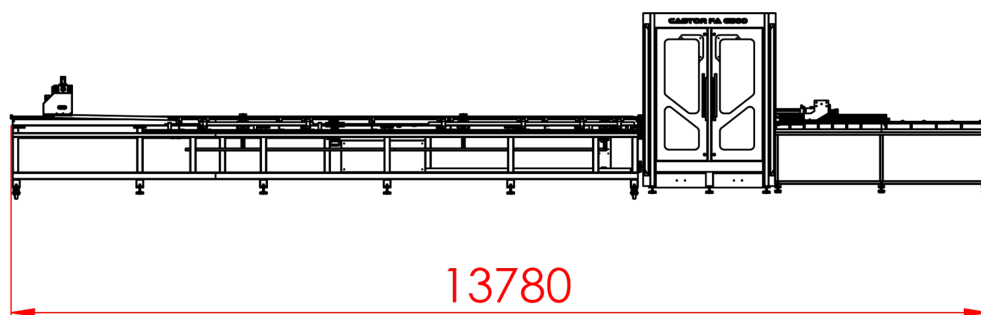


Maks. 30°

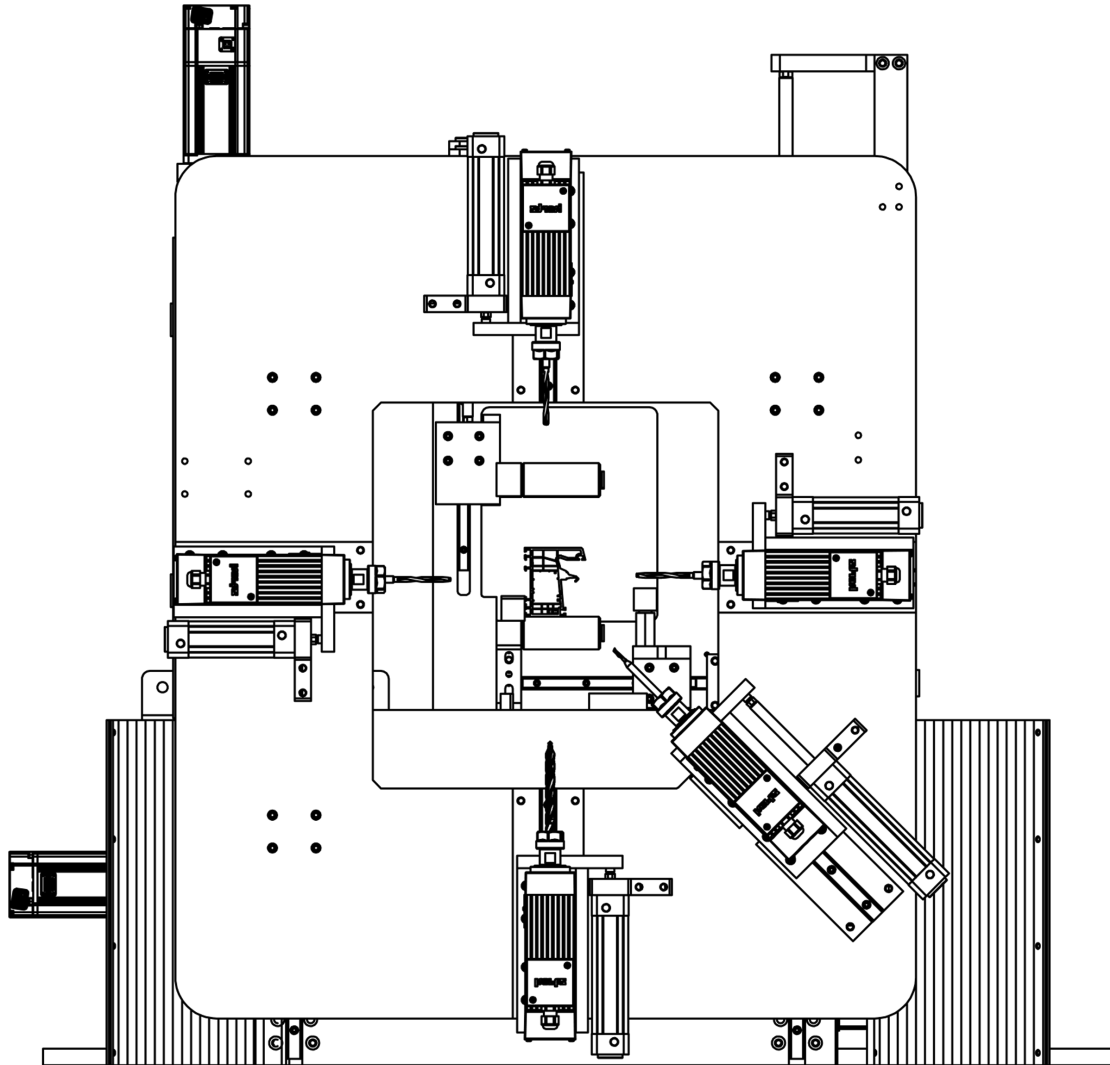
AXES



VIEWS



MILLING UNIT



Technical Specifications

Saw Motor

Power	1.5 kW
Rotation Speed	3000 rpm
Voltage	380 V
Frequency	50 Hz
Cooling	✓
Quantity	1

Milling Motors

Power	0.75 kW
Rotation Speed	18000 rpm
Voltage	220 V
Frequency	300 Hz
Cooling	✓
Quantity	5

Processing Unit Servo Motors

Power	0.75 kw
Rotation Speed	3000 rpm
Voltage	VAC 110
Torque	2.4 Nm
Quantity	4
Braking Feature	✓

Input Unit Servo Motor

Power	0.75 kw
Rotation Speed	3000 rpm
Voltage	VAC 110
Torque	2.4 Nm
Quantity	1

Output Unit Servo Motors

Power	0.4 kW
Rotation Speed	3000 rpm
Voltage	VAC 110

Torque	1.27 Nm
Quantity	1

Saw Blade

Quantity	1
Saw Blade Inner Diameter	30 mm
Saw Blade Outer Diameter	550 mm
Saw Blade Thickness	4.2 mm
Saw Blade Tooth Count	132

Cutting Unit

Maximum Loadable Profile Length	7000 mm
Maximum Cuttable Profile Height	160 mm
Maximum Cuttable Profile Width	140 mm
Cutting Accuracy	+/- 0.2 mm
Cutting Angle Range	30° - 150°
Vertical Clamp	2 Pieces
Horizontal Clamp	2 Pieces
Precision Reducer	✓
Scrap-Free Cutting Feature	✓

Milling Unit

Maximum Machinable Profile Height	160 mm
Maximum Machinable Profile Width	140 mm
Milling Cutters	5 Pieces
X-Axis Braked Motor	✓
Processing Accuracy	+/- 0.2 mm

Control

Industrial PC	✓
Operating System	Windows
Touchscreen Display	21.5"
Remote Connection	✓
USB File Transfer	✓
'mdb' and 'csv' format support	✓
Processing List Creation	✓

Machine Dimensions

Machine Height	2360 mm
Machine Length	13780 mm
Machine Width	2160 mm
Machine Weight	3350 kg

Packaging Dimensions

Machine Height	2300 mm
Machine Length	13000 mm
Machine Width	

Safety

Safety Cabinet (With Safety Switch)	✓
Integrated Air Pressure Sensor	✓
Profile Recognition System	✓
Current Protection (Leakage Current)	✓
Motor Protection (High Current)	✓
Phase Protection (When Motor Direction Changes)	✓
Emergency Stop	✓
Servo Motor Torque Protection	✓
Input Unit Mechanical Safety Barrier	✓



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