



iNTEL MAKiNA
INDUSTRY AND TRADING CORP.

SIRIUS D550

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 9-axis servo-controlled motion structure, all required operations can be performed on all surfaces of the profile in a single loading. Milling operations, opening of internal and external water drainage channels, hinge pockets, lock and handle 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 managed by the CNC control system, thereby ensuring dimensional accuracy and process standardization.

The machine consists of three main sections: an input conveyor, a processing and cutting unit, and an output conveyor. Up to 9 profiles can be loaded simultaneously on the input conveyor, and profiles are automatically transferred to the processing cabinet through an integrated robot system.

This structure is designed to create uninterrupted material flow in 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 precision is maintained.

Profiles that have completed processing and cutting operations are transferred to the output conveyor by a robot arm. The profile pushing and sorting mechanism located in the output section ensures that processed profiles are arranged in an orderly manner. This orderly flow enables the operator to systematically carry out labeling and subsequent production stages.

Labels obtained from the barcode printer within the system are applied to the processed profiles. Through this labeling, the welding unit can automatically identify the profile and digital transfer of profile information in the production process is ensured. Thus, profile confusion and time losses due to manual tracking are prevented, and traceability and operational continuity are provided in the production line.

Highlights

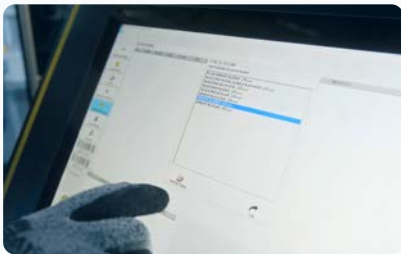
- ✓ Servo-controlled angle and motion feed
- ✓ Minimum profile waste
- ✓ 0.1° cutting and processing precision
- ✓ 9 spindle motors
- ✓ 1 piece Ø550 mm saw
- ✓ Automatic and series cutting capability at all angles between 30° and 150°
- ✓ 21" high-performance industrial PC
- ✓ 9-piece profile stacking capability (max. 7 m.)
- ✓ Barcode printer (integrated with welding and corner cleaning machines)
- ✓ Angled automatic chip conveyor
- ✓ Centralized lubrication system
- ✓ Remote connection technical support option
- ✓ USB input
- ✓ Automatic horizontal and vertical clamping systems
- ✓ 1200-1600 m.tube / 8 hours profile processing capacity
- ✓ User-friendly interface integrated with drawing programs
- ✓ Automatic operation capability in cutting and processing lists
- ✓ Profile recognition system
- ✓ Integrated air pressure sensor

- ✓ Low energy consumption LED lighting inside the cabin
- ✓ Data transmission capability over the internet
- ✓ Integration with four-corner PVC welding, cleaning and screwing line

Optional Features

- + Chip removal system
- + Spare Ø550 mm saw
- + Spare Ø5x L95 mm carbide end mill

Machine Components



Computer Control

Cutting and milling operations are managed through a 21" touch-screen industrial PC with Intel processor. The user-friendly interface provides ease of use with multiple language support. Processing parameters of profiles can be entered, 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 performed through remote connection; this feature also enables fast and efficient technical support. Profile waste in sent cutting lists can be automatically optimized and evaluated. Data transfer can be performed via USB input.



Input Conveyor

Up to 9 profiles can be loaded on 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 profiles precisely and moves them to the processing cabinet.



Processing Unit

The processing unit where milling operations are performed contains 9 air-cooled, high-frequency motors. Water drainage, milling, lock drilling and opening operations on PVC profiles can be performed quickly thanks to specially designed cutting tools. Servo motors provide the capability to perform precise operations on each surface of the profile. A powerful clamping system secures the profile during processing to maintain processing 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 sagging downward.



Cutting Unit

A Ø550 mm saw specially designed for PVC profiles that can rotate to all angles between 30° and 150° is used. Saw vertical movement is provided by a servo motor. This allows position acquisition and feed rate to be precisely controlled. In case of power failure, there is a safety system that prevents the saw unit from sagging downward. During cutting, there is a clamping system of 2 horizontal and 2 vertical clamps that secures the profile and increases cutting quality and saw life.



Chip Conveyor

Scrap and chips produced during cutting are transported to the chip cart by means of a conveyor. The fact that this operation is automatic provides a cleaner work environment and saves time.



Output Conveyor

Profiles that have completed processing are transferred to the output conveyor by a robot. The profile pushing and sorting mechanism located in the output section ensures that processed profiles are arranged in an orderly manner. This orderly flow enables the operator to systematically carry out labeling and subsequent production stages. The profile pushing and sorting mechanism located in the output section ensures that processed profiles are arranged in an orderly manner. So that the sorting belts have a long service life, profiles are first transported on rollers, then transferred to the belt when they reach the position.



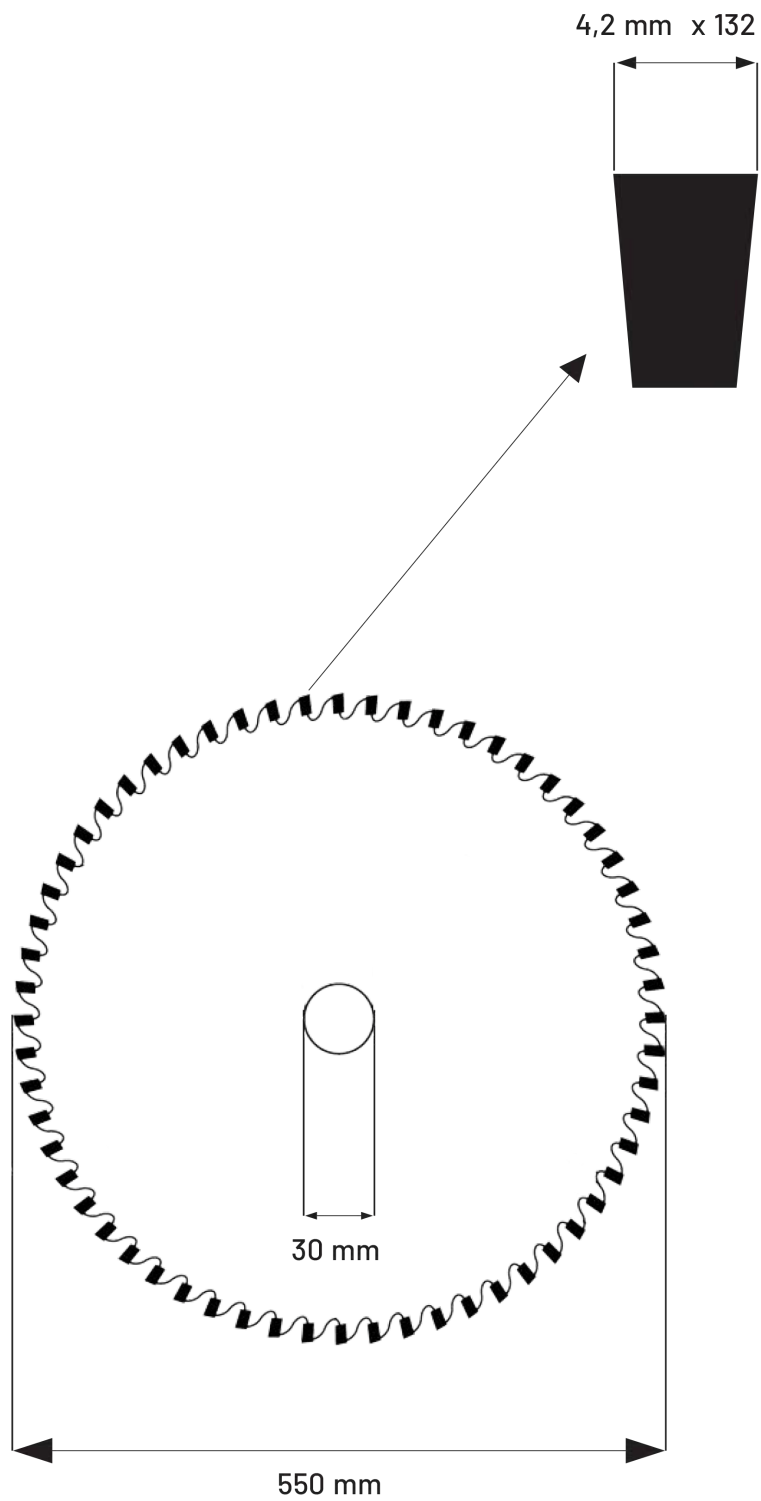
Safety

All milling and cutting operations are performed inside a closed cabin. When the cabin door is opened, the machine stops working. The integrated air pressure sensor stops operations and warns the user when sufficient pressure is not applied. The profile recognition system provides a warning if an incorrect profile is placed, preventing erroneous operations.

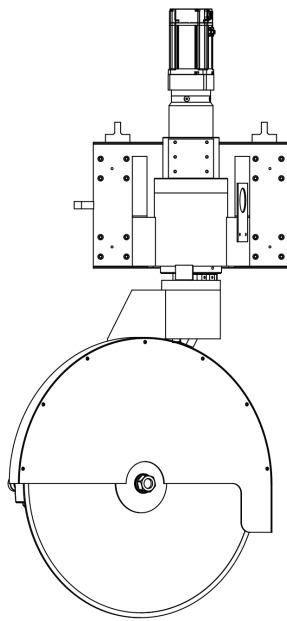


Barcode Printer

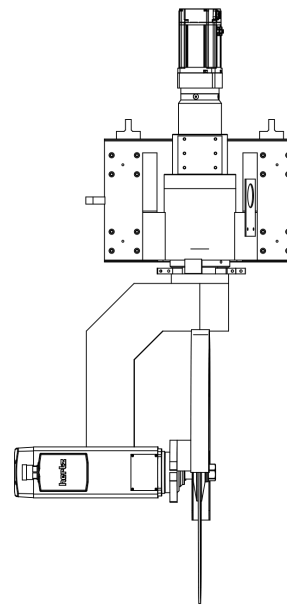
The industrial label printer enables each profile to be labeled according to the characteristics defined in the processing list. Through this labeling, the welding unit can automatically identify the profile and digital transfer of profile information in the production process is ensured. Thus, profile confusion and time losses due to manual tracking are prevented, and traceability and operational continuity are provided in the production line.



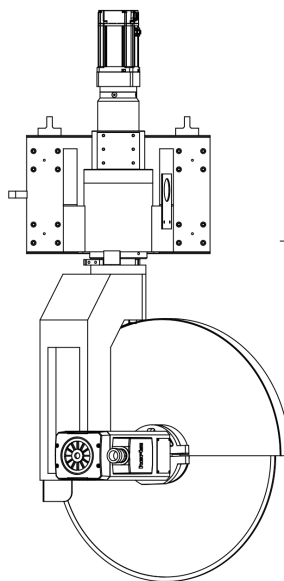
CUTTING UNIT



Min. 30°

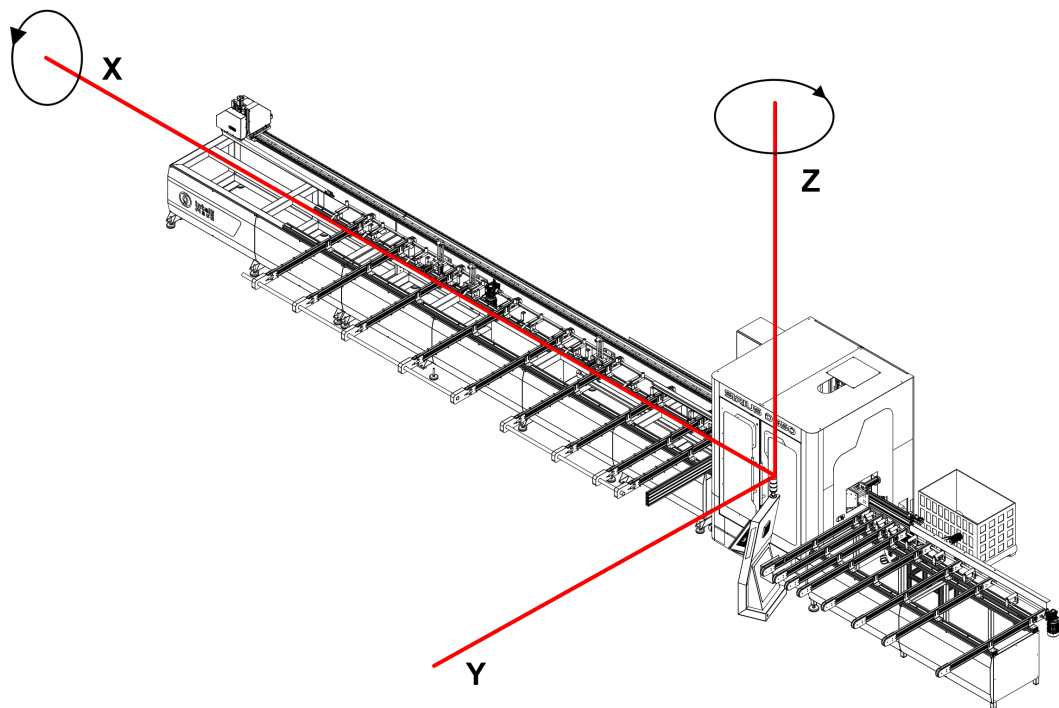


90°

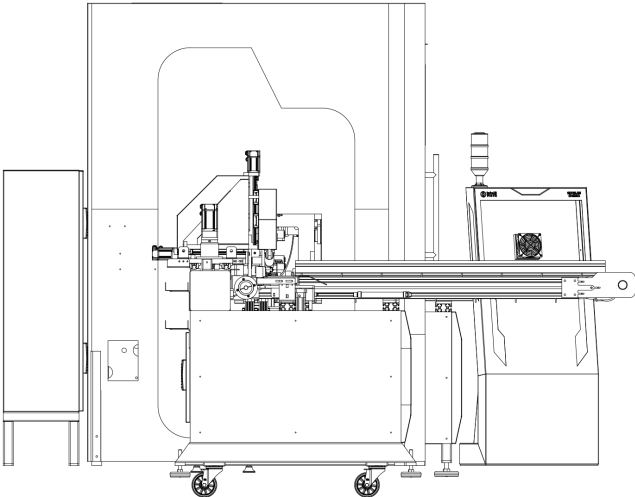
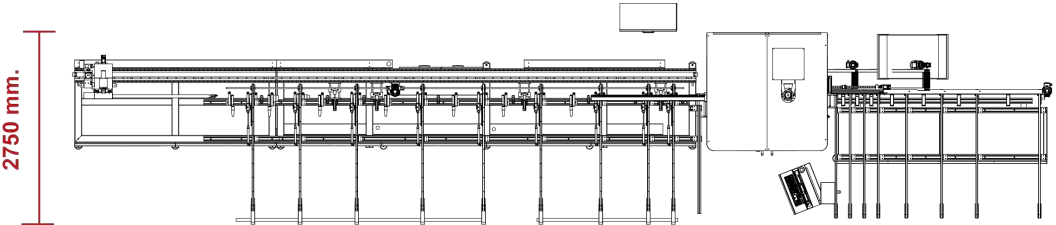
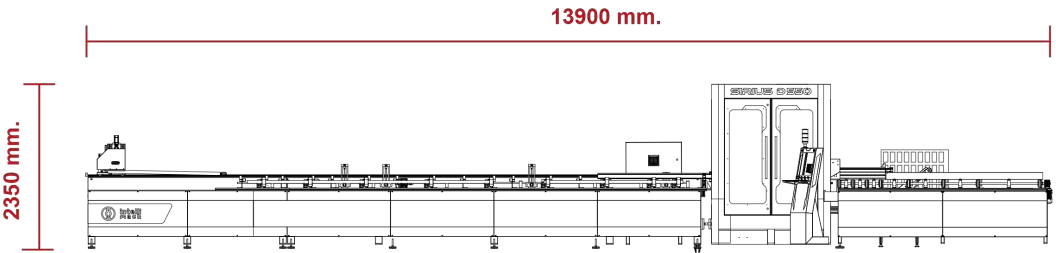


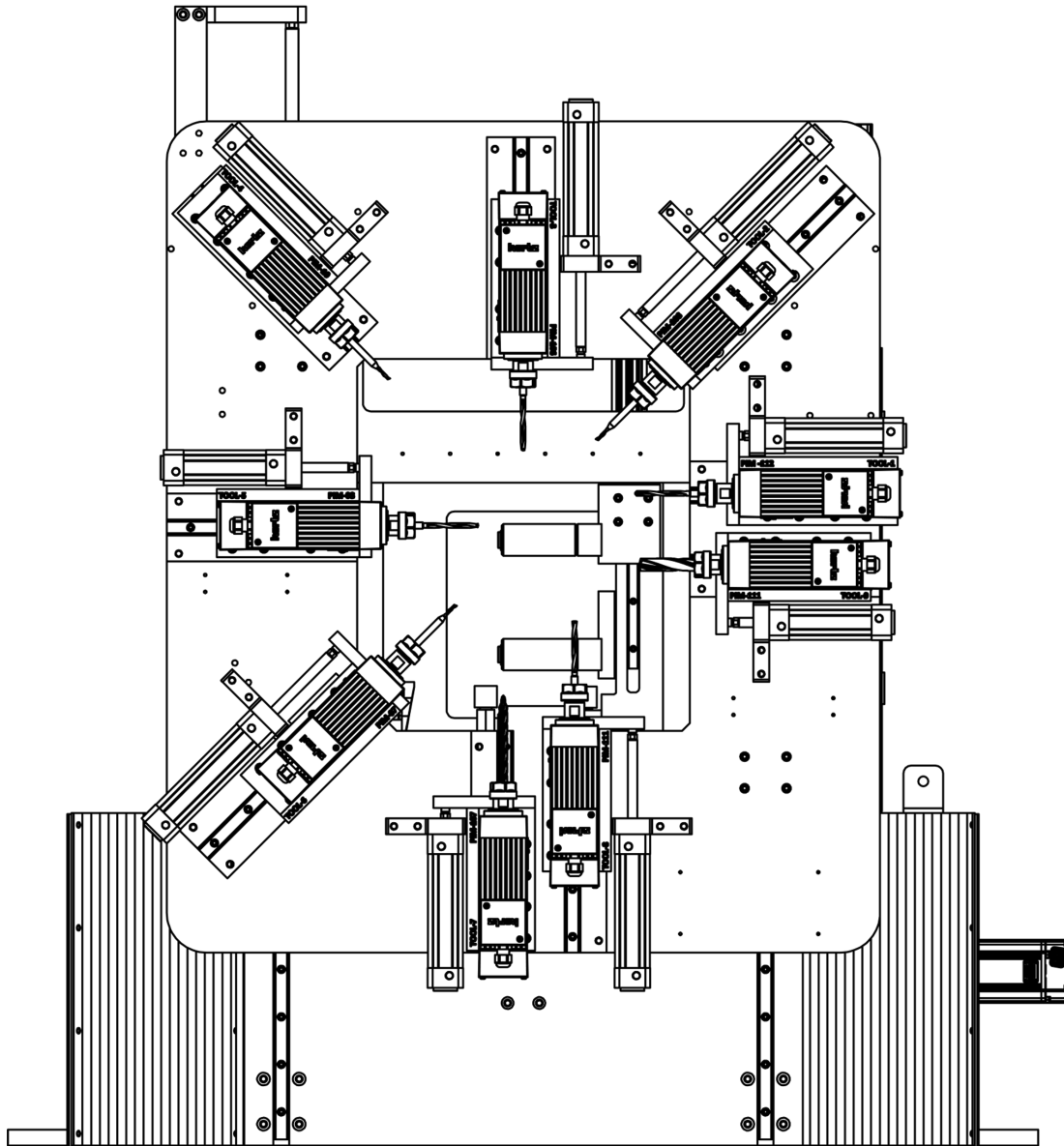
Maks. 30°

AXES



VIEWS





Technical Specifications

Saw Motor

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

Milling Motors

Power	0.75 kW
Rotation Speed	18000 rpm
Voltage	220 V
Frequency	300 Hz
Cooling	✓
Quantity	9

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

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

Milling Unit	
Maximum Machinable Profile Height	160 mm
Maximum Machinable Profile Width	140 mm
End Mills	9 Pieces
X-Axis Braked Motor	✓
Processing Precision	+/- 0.2 mm

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

Machine Dimensions

Machine Height	2365 mm
Machine Length	13900 mm
Machine Width	2927 mm
Machine Weight	3700 kg

Packaging Dimensions

Machine Height	2300 mm
Machine Length	13000 mm
Machine Width	2300 mm

Safety

Safety Cabin (Safety Switch Equipped)	✓
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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