iNTEL MAKiNA
INDUSTRY AND TRADING CORP.

VEGA 500

PVC and Aluminum 5-Tool CNC Processing Machine

Last updated: July 20, 2026



Description

A CNC-controlled production system developed for high-precision processing of aluminum profiles. Due to its 5-axis servo-controlled movement structure, all necessary 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 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 processing parameters. All movements are managed by the CNC control system, thereby providing dimensional accuracy and process standardization.

Highlights

- ✓ Servo-controlled motion feed
- ✓ Software-driven clamping vise systems
- ✓ 0.1° processing precision
- ✓ 5 spindle motors
- ✓ 21" high-performance industrial PC

- ✓ Centralized lubrication system
- ✓ Remote connection technical support capability
- ✓ USB input
- ✓ Integrated air pressure sensor
- ✓ Low energy consumption LED lighting inside the cabinet
- ✓ Data transmission over the internet
- ✓ High production capacity
- ✓ Aluminum and PVC compatible
- ✓ Servo motor-controlled axes

Machine Components



Processing Unit

In the processing unit where milling operations are performed, there are 5 air-cooled, high-frequency motors. Thanks to specially designed cutting tools designed for water drainage, milling, lock hole drilling and opening operations on aluminum profiles, it can perform fast processing. Servo motors provide the capability to perform precise operations on three surfaces of the profile. The powerful clamping vise system maintains processing quality by fixing the profile during operation while extending the service life of cutting tools. In cases such as power failure, the brake system in the servo motor prevents the unit from dropping down.



Clamping Vise System

To reduce vibration of aluminum profiles during processing and to ensure that the profile is supported at shorter distances and does not move, there are 4 moving clamping vise systems. Due to its vertical and horizontal pressures, it adapts to most profiles. The clamping vise system is operated automatically by software without requiring human intervention.



Computer Control

Milling operations are managed through a 15.6'' touchscreen industrial PC with Intel processor. The user-friendly interface provides easy operation with multilingual support. By entering the processing parameters of the profiles, milling operation lists can be prepared, and in this way all operations can be performed fully automatically without operator intervention. Additionally, parameter settings and operation management can also be performed through remote connection; this feature also enables fast and efficient technical support. Data can be transferred via USB input. Thanks to the 315-degree rotatable screen mounting system, it provides comfortable operation.

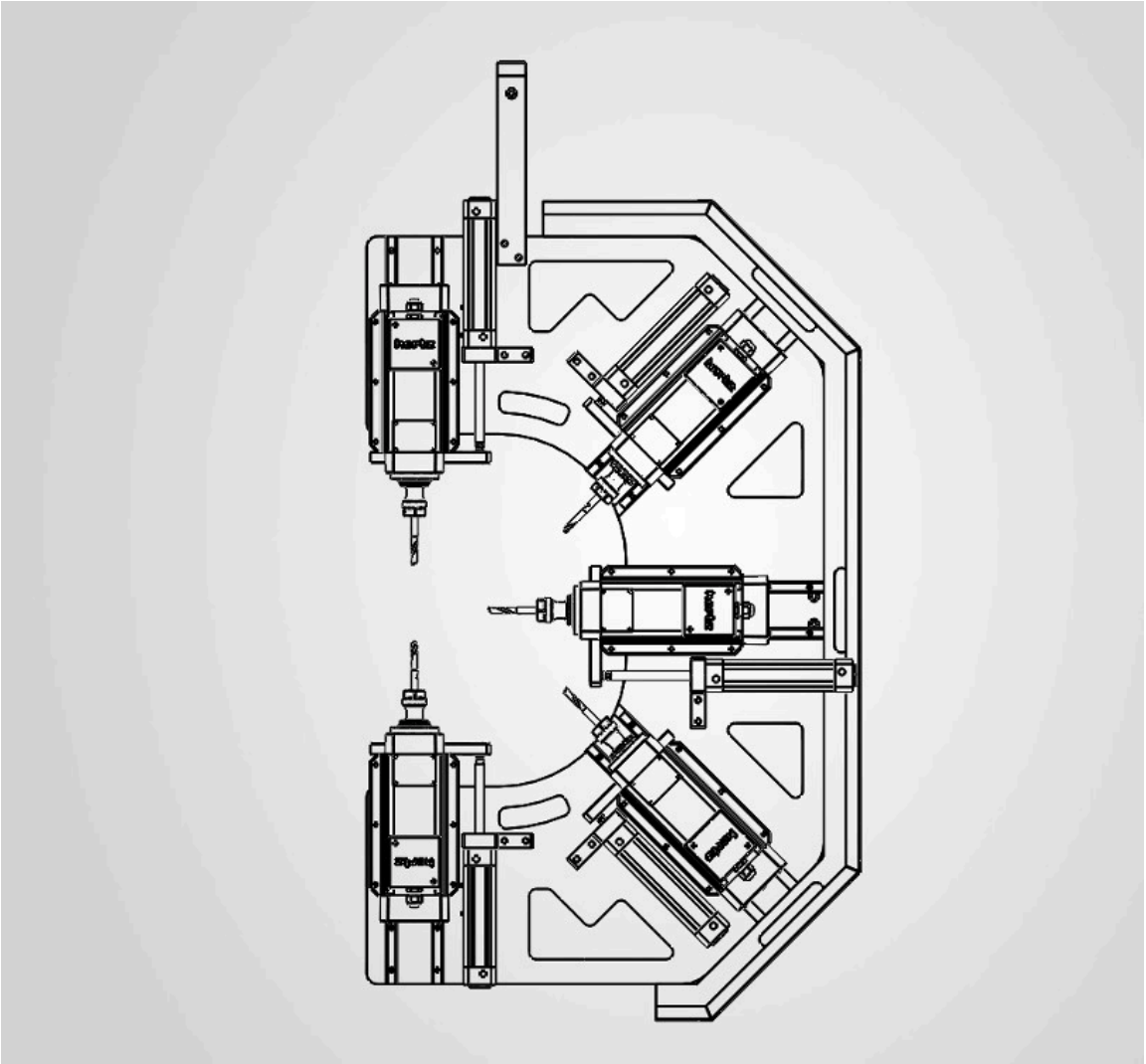


Safety

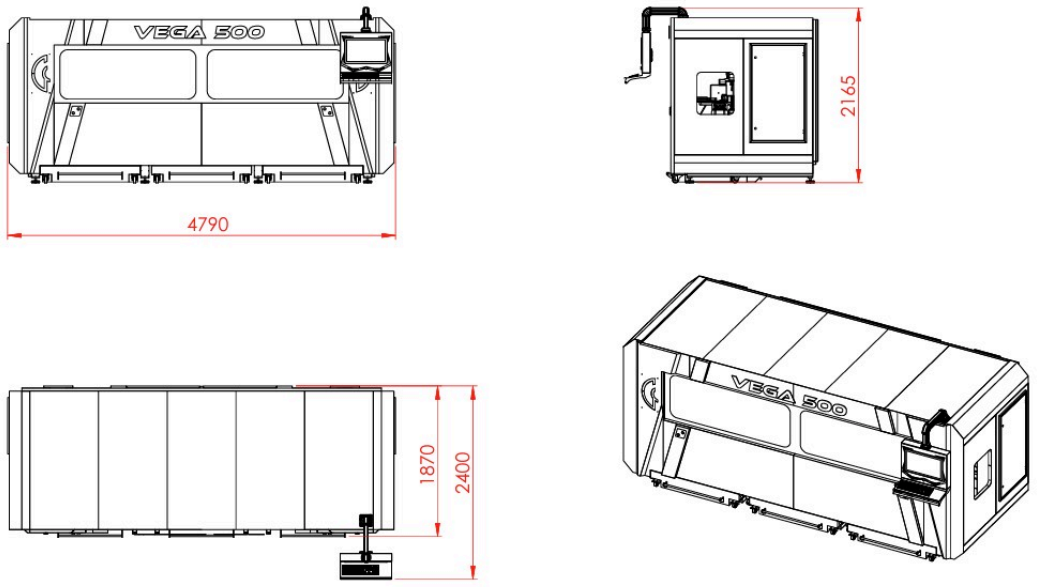
All milling and cutting operations are performed inside a closed cabinet. When the cabinet door is opened, the machine stops. The integrated air pressure sensor stops operations and alerts the user when sufficient pressure is not applied. The profile recognition system provides a warning when a wrong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

Technical Drawings

Layout Plan 1



Technical Drawing 1



Technical Specifications

Machine Dimensions

Machine Height	**2165 mm**
Machine Length	**4790 mm**
Machine Width	**2400 mm**
Machine Weight	**2350 Kg**

Packaging Dimensions

Machine Height	**2200 mm**
Machine Length	**4890 mm**
Machine Width	**2250 mm**
Machine Weight	**2400 Kg**

Milling Unit

Maximum Processable Profile Height	**200 mm**
Minimum Processable Profile Height	**25 mm**
Maximum Processable Profile Width	**200 mm**
Minimum Processable Profile Width	**25 mm**
Maximum Processable Profile Length	**---------**

Minimum Processable Profile Length	---------
X Axis Braked Motor	✓
Milling Tips	**5**
Processing Precision	**+/- 0.2 mm**

Control

Industrial PC	✓
Windows Operating System	**15.6''**
Touchscreen	✓
Remote Connection	✓
Processing List Creation	✓
'mdb' and 'csv' format support	✓

Technical Specifications

Air Pressure	**6-8 Bar**
Total Air Consumption	**140 l/min**
Voltage	**400 V**
Total Power	**17 kW**

Milling Motor

Quantity	**5**
Power	**2.2 kW**
Rotation Speed	**12000 rpm**
Protection Class	**IP 65**
Voltage	**220 V**
Cooling	✓

Processing Unit Servo Motors

Power	**0.75 kW**
Rotation Speed	**3000 rpm**
Voltage	**VAC 110**
Torque	**2.4 Nm**
Quantity (Without Brake)	**2**
Quantity (With Brake)	**1**

Moving Vise Servo Motors

Power	**0.4 kW**

Rotation Speed	**3000 rpm**
Voltage	**VAC 110**
Torque	**1.27 Nm**
Quantity	**4**

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	✓

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