inoMILANO – 4 Head Welding and CNC Corner Cleaning Line - 12 AXIS:

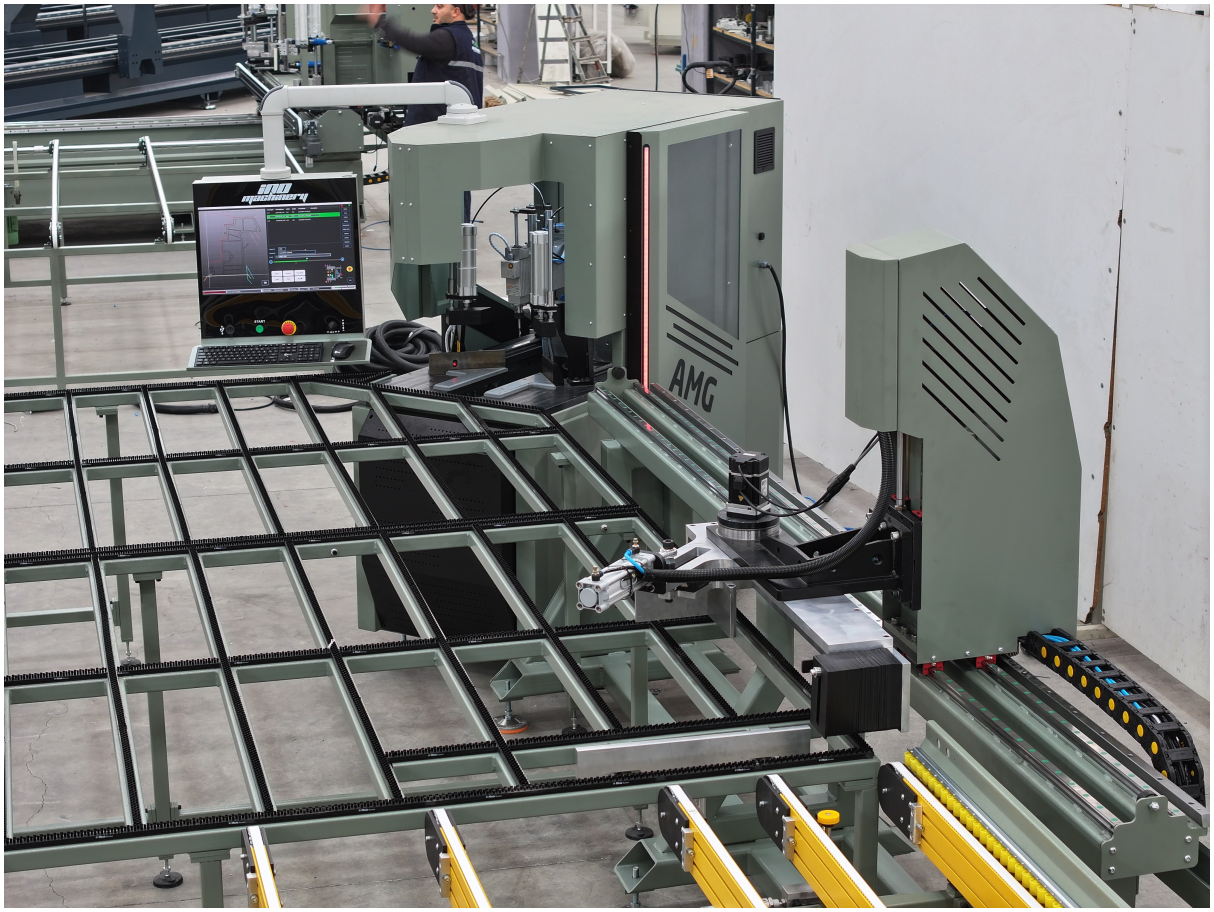
Product Properties:

8-axis on the 4-head welding + 2-axis on the CNC Corner Cleaner + 2-axis on the Turning Station:

• **ino RANGE Automatic CNC 4 Head Welding Machine with 8-Axis:** This machine is responsible for welding the corners of the frames. It has automated functions to weld the corners accurately and efficiently. Thanks to the unique technology of 8-Axis system on each welding head; the welding corners' positioning and welding cycles are completely managed by the CNC controller. Thus the operator can decide the strength of the corners and the aesthetic look of all the frame by adjusting from the electronic parameters.
This system works perfectly compared to the conventional system because in conventional pneumatic system, you could never decide in which pressure for which color and which type of system profile would be the best; but in this machine it is completely possible for the users to get any result they want. This can also be considered as a revolution in the PVC windows and doors market.
• **Cooling Station:** After welding, the frames need to undergo a cooling process to ensure they maintain their structural integrity. The cooling station is where this cooling process takes place. The cooling time is controlled by the computer on the welding machine, ensuring optimal cooling without unnecessary delay.
• **CNC 2-axis Turning Station:** This robot assists in the handling and rotation of frames, allowing for precise movement during the manufacturing process. It facilitates the seamless transition between welding and corner cleaning.

• **inoAMG 2-Axis CNC Corner Cleaning Machine:** Once the frames are welded and cooled, they move to the corner cleaning machine. This machine utilizes CNC (Computer Numerical Control) technology to clean the corners of the frames accurately.
Overall, inoMILANO appears to be a well-integrated system that optimizes the manufacturing process of frames by combining welding, cooling, and corner cleaning in a synchronized and efficient manner.

Machine Parameters:
• Sawblade Diameter: Ø 250 mm.
• Inner Frame Dimension: 420 mm x 420 mm Max.
• Outer Frame Dimension: 3.200 mm X 2.650 mm.
• Profile Height: 130 mm Max. (Welding and Cleaning)
• Profile Height: 30 mm Min.
• Profile Width: 130 mm.
• Power Suply: 380-400 V 3 ph, 50-60hz.
• Total Power:25 Kw
• Air Consuption: 180 Lt/min
• Machine Height:2200mm
• Machine Lenght:12175mm
• Machine Width : 4668mm
• Machine Weight : 4000 kg
• Profile Measures for Maximum Turning: 2800*2650 mm



Main Body

• Electrowelded Steel Structure: The main structure of the machine is constructed using electrowelded steel. This process involves joining steel components using electrical currents to melt and fuse them together. Additionally, the structure undergoes normalization with thermal treatment, which helps to relieve internal stresses and improve its mechanical properties.

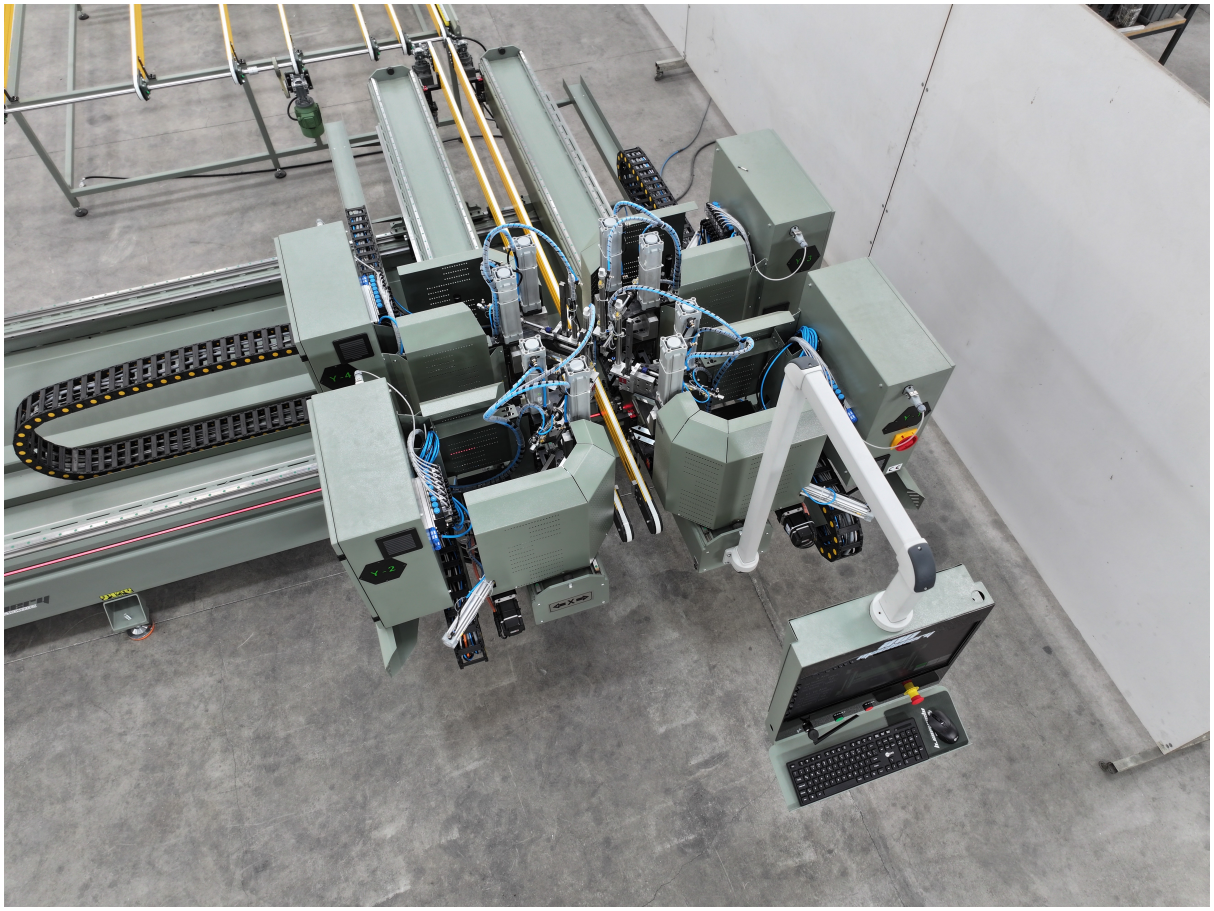
• 5 Axis CNC Steel Machining Center: The main body of the machine is processed using a 5-axis CNC (Computer Numerical Control) steel machining center. This advanced machining technology allows for precise and complex shaping of the steel components.

• Powder Coating: The entire body of the machine is coated with powder coating. Powder coating is a durable and high-quality finish that provides corrosion resistance and a uniform appearance.

• Die-Casted Mechanical Pieces: Many mechanical components of the machine are die-casted and then machined in-house using CNC machining centers. Die-casting is a manufacturing process where molten metal is injected into a mold cavity under high pressure. This results in parts with tight tolerances and excellent surface finishes.

• Operator Ease of Use and Ergonomics: During the design phase, emphasis is placed on ensuring that the machine is easy for operators to use and that ergonomic principles are considered. This prioritization aims to enhance efficiency, safety, and comfort for operators working with the machine.

Overall, these design and construction features contribute to the durability, precision, usability, and aesthetic appeal of the machine. They reflect a commitment to quality and innovation in manufacturing processes.



Electrical Box and Controller Terminal:

• Electrical Box: This is a separate enclosure typically located at the back of the machine. It houses electrical components such as relays, circuit breakers, power supplies, and possibly motor drives. The wheels under the cabinet make it easier to move when necessary.

• User Terminal: This is a mobile unit equipped with wheels and a PC, typically used by the operator to interact with the machine. It is connected to the electrical cabinet via an Ethernet cable, enabling communication between the user interface and the machine's control system. The user terminal allows for flexibility in positioning, as the operator can move it independently.

• Optional A/C Connection: The electrical box may have provisions for connecting an air conditioning unit (A/C) to help regulate temperature and ensure optimal performance of the electronics inside the cabinet. This is particularly important in environments where temperature control is critical for equipment reliability.

Components on the User Terminal: The user terminal includes several input devices and controls for operating the machine:

Keyboard and Mouse: These are standard input devices for interacting with the PC and navigating software interfaces.

Handwheel: The handwheel is likely used for manual control of the machine's axes, providing a tactile interface for precise adjustments.

Button Set: This set of buttons typically includes:

• On/Off Button: Controls the power to the machine.

• Start Button: Initiates machine operations, such as starting a machining process.

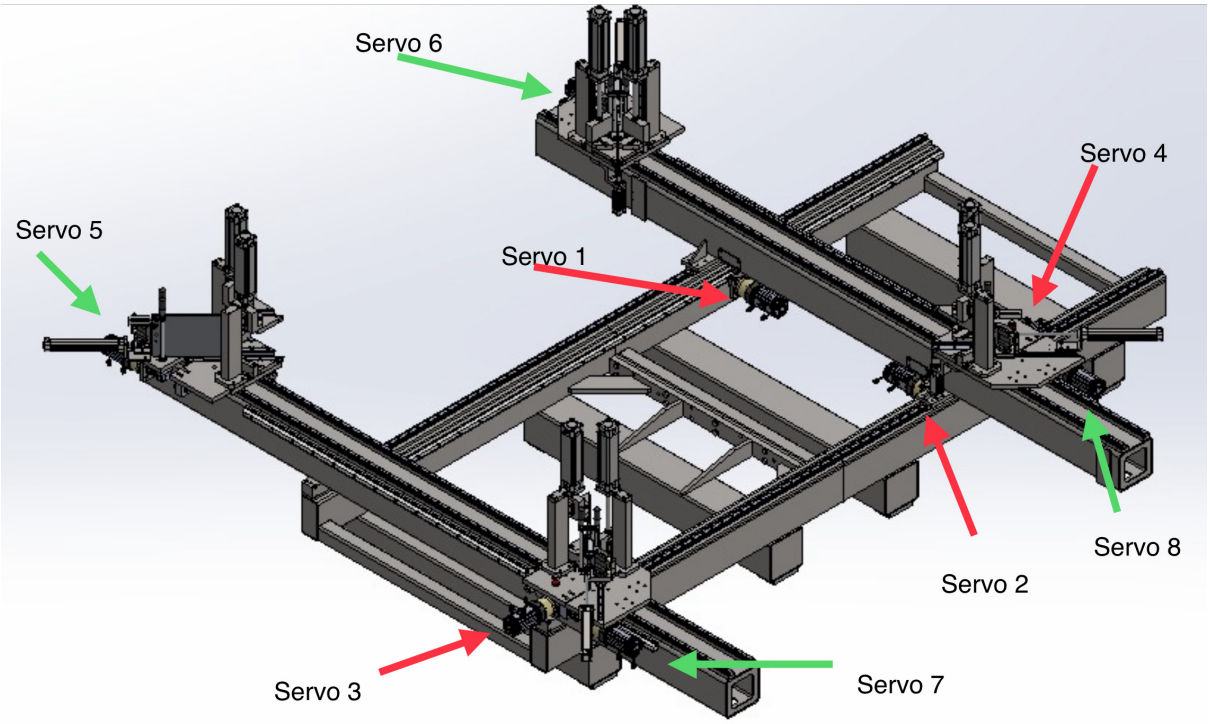
• Axis Moving Buttons: Allows the operator to move machine axes manually.

• Feed Rate Regulator: Adjusts the speed at which the machine performs its operations.

• Emergency Button: Provides a quick way to halt machine operations in case of emergencies, overriding other controls.

Overall, this setup provides the operator with the necessary tools and controls to operate the machine effectively while maintaining flexibility and ease of use. The mobility of the user terminal allows the operator to position it for
optimal visibility and accessibility during operation.

Ino RANGE – CNC 4 HEAD WELDING MACHINE 8-Axis (UNIQUE IN THE MARKET)



This machine is responsible for welding the corners of the frames. It likely has automated functions to weld the corners accurately and efficiently. Thanks to the unique technology of 8-Axis system on each welding head; the welding corners' positioning and welding cycles are completely managed by the CNC controller. Thus the operator can decide the strength of the corners and the aesthetic look of all the frame by adjusting from the electronic parameters. This system works perfectly compared to the conventional system because in conventional pneumatic system, you could never decide in which pressure for
which color and which type of system profile would be the best; but in this machine it is completely possible for the users to get any result they want. This can also be considered as a revolution in the PVC windows and doors market.

Key Features:

• Servo-Axis Precision: The ino RANGE employs 8 servo axes to achieve precise welding on both upper and lower . This high level of precision ensures meticulous results.

• Servo motor 1: the first motor of the gantry axis; moves the bridge and head #2

• Servo motor 2: the second motor of the gantry axis; moves the bridge and head #2

• Servo motor 3: moves head #3 to the position

• Servo motor 4: moves head #4 to the position

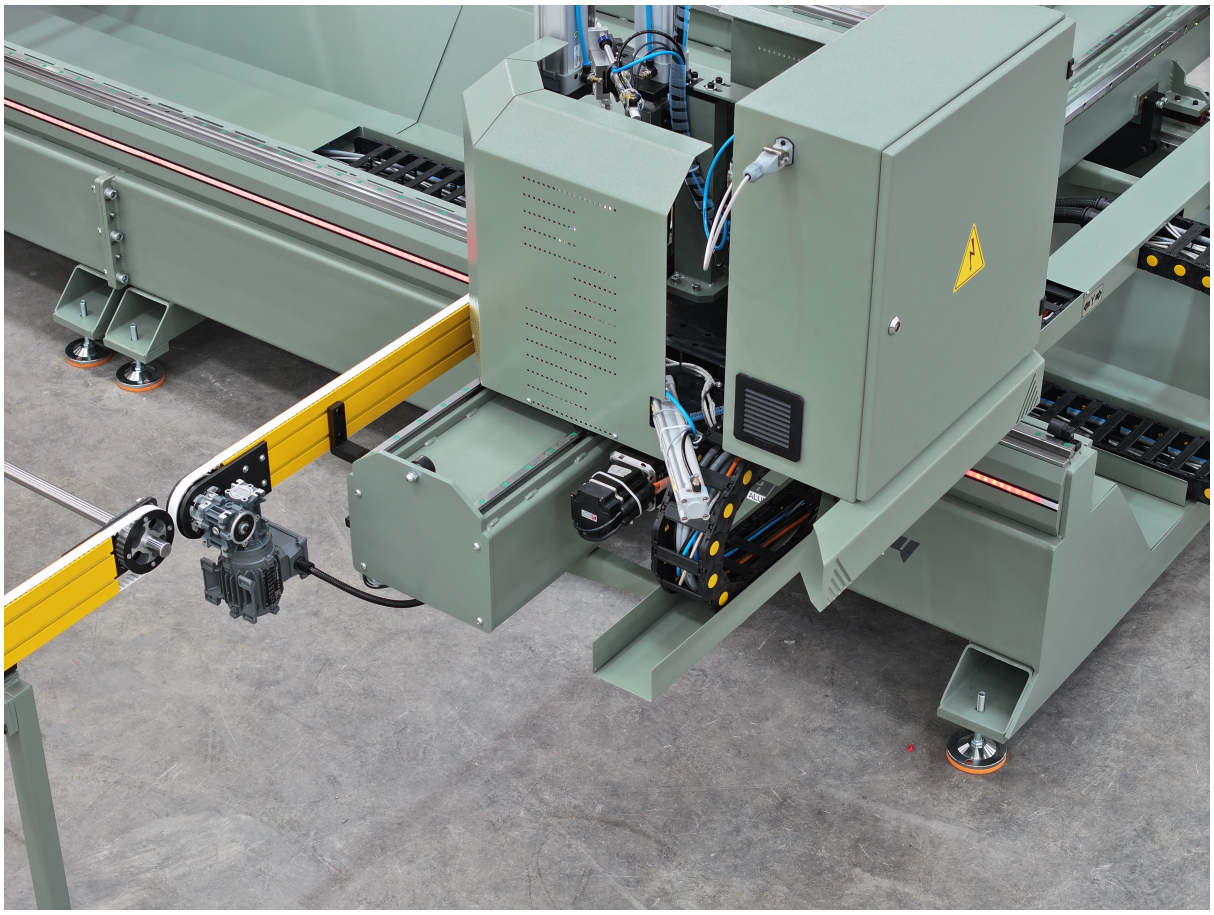
• Servo motor 5: manages the welding process for head #1

• Servo motor 6: manages the welding process for head #2

• Servo motor 7: manages the welding process for head #3

• Servo motor 8: manages the welding process for head #4

• Software Efficiency: The system's software optimizes processes and reduces the workload on the CNC corner cleaning machine. It allows for the establishment of a user-defined database containing up to 10,000 welding parameters, offering enhanced customization options to suit different profile types.



• Gasket Pushing System: this is a standard accessory that once the welded gaskets to function better.

• CNC CONTROLLED WELDING CYCLE: This is a new technology. During the welding process as all the process is controlled by eight servo motors. Thus the positioning has zero error and because of this, the size of the frame also will have zero error. This is the first revolution and on the other hand, for each welding head, there are servo motors that are pressing the heated PVC profiles together. All

this process including the pressing speed and pressing pressure, then pressing off timing and pressing off speed can all be adjusted
from the parameters on the CNC controller interface. What this brings is a 30% faster welding cycle, 100% correct welded frame dimension and 50% better strength of the corners.
• Computer-Controlled Heat Control: A PID-controlled heat system ensures that welding strength meets international standards. Temperature, melting, and welding times can be adjusted for each profile type.
Specially designed, long-lasting heating plates distribute heat uniformly, contributing to consistent weld quality.
• Touch Screen Interface: The system features a user-friendly 21” touch screen equipped with a Windows 11 operating system. This interface provides intuitive control and navigation for operators, enhancing usability.
• Data Transfer and Connectivity: Data can be transferred wirelessly or via USB connection, offering flexibility in data management. The precision of the machine is further enhanced by ball screws in the motion system, driven by servo motors for accuracy and durability.
Overall, the InoAS477 combines advanced technology with user-friendly features to deliver efficient and precise cleaning and welding of profiles. Its customizable software, precise servo-axis control, and intuitive interface make it a versatile solution for various welding applications.

Technical Features;
• Power Supply: 400 V 3~50-60Hz
• Total Power Output: 23 kW, 60 A
• Air Pressure: 6-8 bar
• Max. Welding Length: 3000 mm x 2500 mm
• Min. Welding Length: 350 mm x 350 mm
• Max. Profile Height: 200 mm.
• Min. Profile Height: 30 mm.
• Max. Profile Width: 130 mm.
Machine Dimensions;
• Machine Height: 2000 mm
• Machine Length: 4600 mm
• Machine Width: 5600 mm
• Machine Weight: 3200 kg

inoAMG - 2-AXIS CNC CORNER CLEANING MACHINE:

inoAMG is a 2-axis CNC corner cleaning machine designed for efficient and precise corner cleaning tasks. Thanks to
its servo controls, inoAMG ensures fast and accurate corner cleaning, delivering excellent results with its specialized
cleaning tools. The machine features a 21'' PC attached to a movable arm, providing ergonomic operation for the
operator. It can store an infinite number of profile dimensions, enhancing versatility.
The cleaning process with the 11 tools includes:

- Top and bottom surface cleaning for white profiles
- Top and bottom surface cleaning for colored profiles
- Inner-outer gasket channel cleaning
- Inner corner cleaning for glazing beads
- Cleaning of radius and angled surfaces
- Outer corner cleaning by saw

Additionally, inoAMG is equipped with an automatic profile recognition system, eliminating the need for manual
profile selection by the operator. This feature enhances efficiency and simplifies operation.
Technical Features

- Power Supply: 400 V, 3~50-60 Hz

• Total Power Output: 14 kW, Air Pressure: 6-8 bar
• Air Consumption: 100 l/ min.
• Saw Diameter: Ø 250 mm Min.

Machine Dimensions

• Inner Frame Dimension: 420 mm x 420 mm Max.
• Profile Height: 130 mm Min.
• Profile Height: 30 mm Max.
• Profile Width: 120 mm
• Machine Height: 1900 mm
• Machine Length: 1910 mm
• Machine Width: 900 mm
• Machine Weight: 740 kg

THE CNC CONNECTED SECOND CNC CORNER CLEANING LINE:

The biggest advantage of the machine is not only the super high quality corners due to the servo controlled welding cycle; but also the welding machine can feed 2 cnc corner cleaning lines and the machine can double the capacity only by adding a second cnc corner cleaner and a turning station. Thanks to the high speed welding cycle, the welder can weld more than what a single 2 axis cnc corner cleaner can clean. To maintain this high capacity by adding a cnc controlled carriage, the machine can feed a second cnc corner cleaning line. Your capacity will be doubled.