

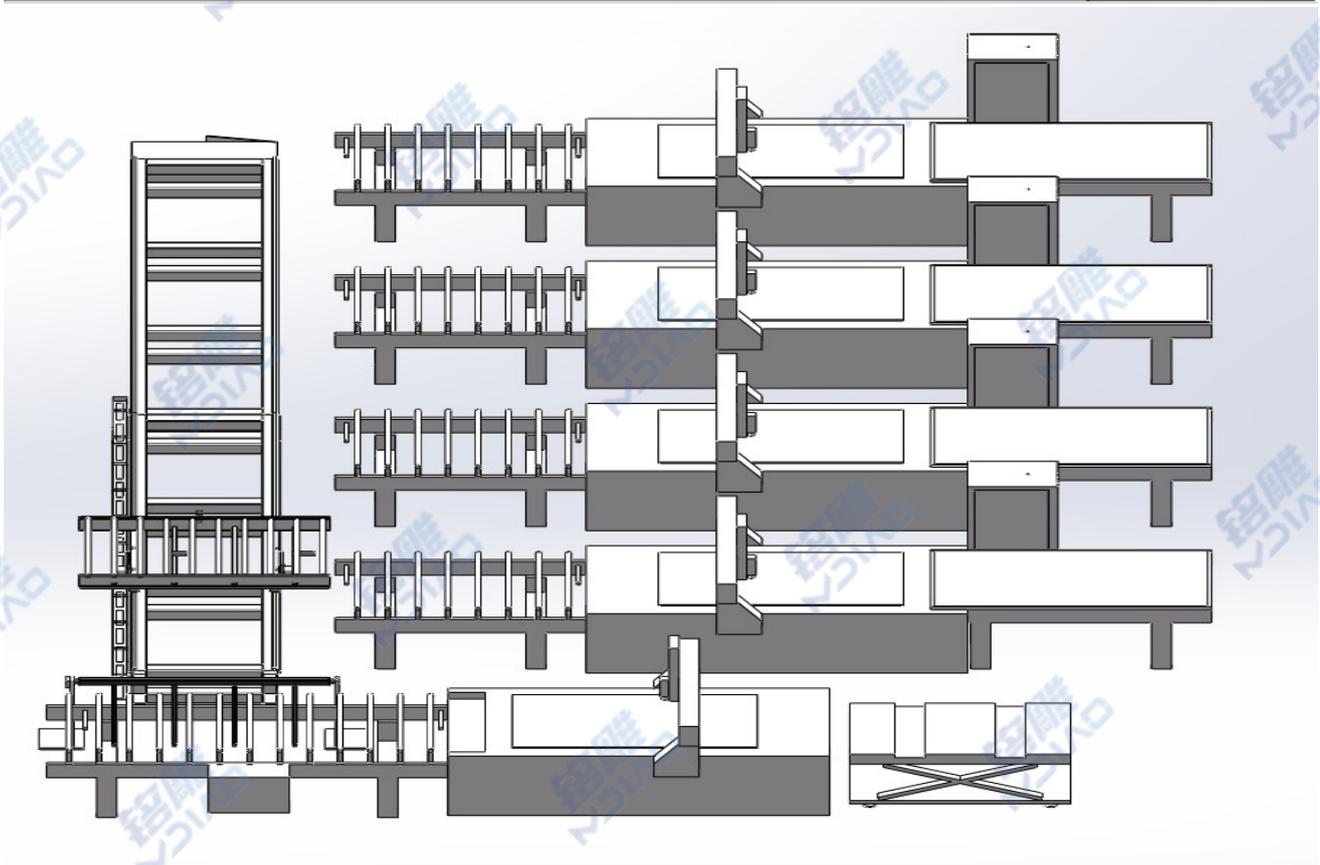
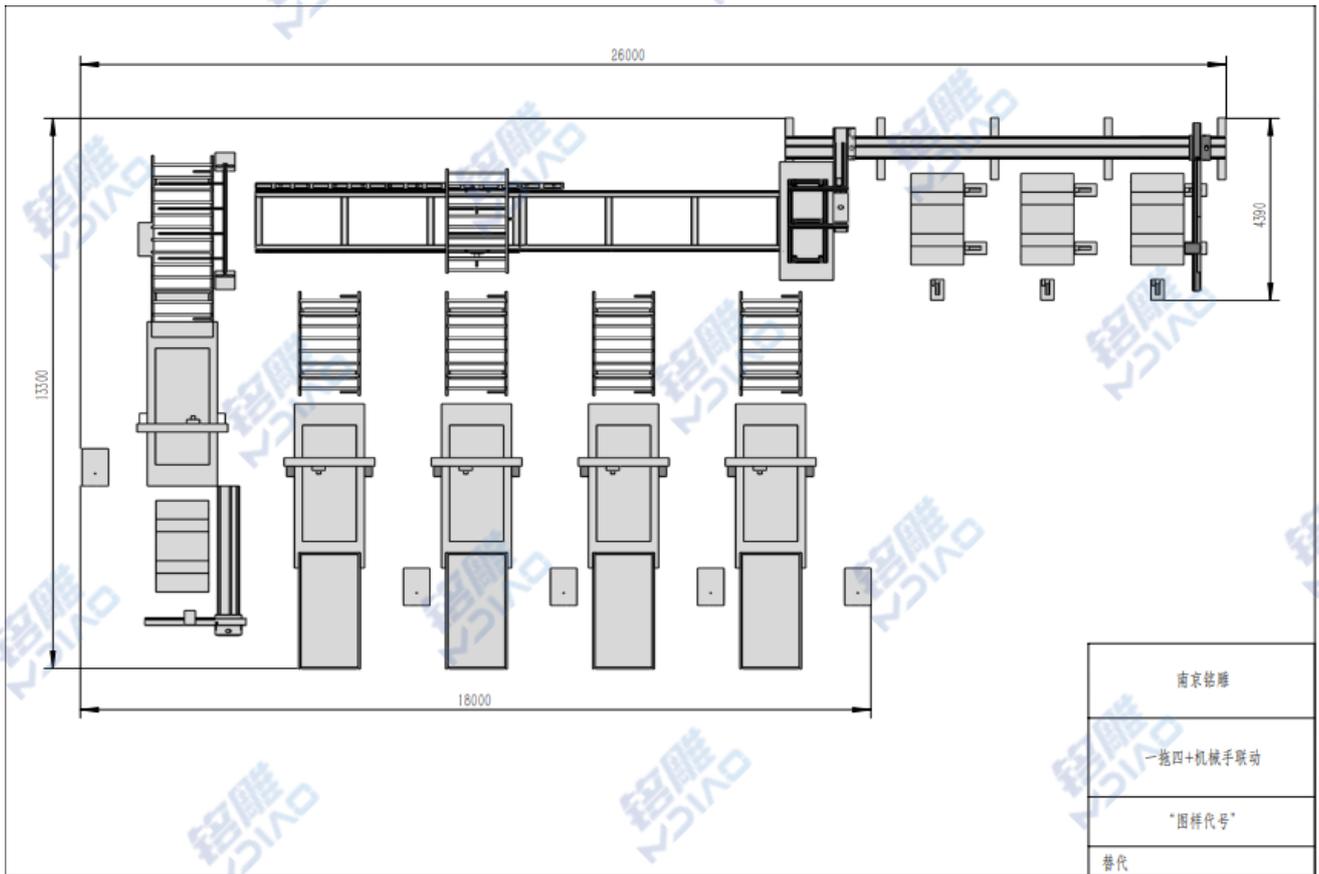
M20 One-to-Four Molded Door Panel Smart Connection

Configuration Sheet

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1. Product image display





II. Description of the technical features of the equipment

The one-to-four intelligent production line for molded door panels is a solution specifically designed for the mass production and automation of cabinet and wardrobe molded door panels. Its core is the linkage of multiple processing centers through a single main control unit.

1. This production line can complete marking, hinge hole drilling, grooving, and sculpting on the back of the door panel. It is suitable for fully automated processing of both sides of molded door panels, greatly improving production efficiency and saving labor costs.

2. The production line is less prone to errors and requires minimal human intervention. Through precise allocation of processing tasks by a central controller, it ensures uniform and standardized processing details such as shape and hole positions on both sides of the door panel, stabilizing product quality.

3. The overall process is as follows: Material is fed to the hydraulic platform—automatically fed to the reverse processing machine—laser marking—hinge hole drilling, perforation, straightener groove drilling, and glass door back processing—transfer to the flipping machine—automatically transferred by the Mingdiao intelligent trolley to the door shape processing center—door shape processing and cutting—processed and pushed to the discharge platform while simultaneously being loaded.

4. Fully automated production, requiring no manual intervention, offering higher precision and efficiency; daily output can reach 250-500 square meters (depending on the complexity of the door panel design).

III. Configuration Parameters

Product Name	Model Number	Tool Magazine Quantity	Remarks
Automatic Tool Changer and Unloading Machine	M20	20 fixed discs	One-year machine warranty, lifetime maintenance (excluding consumables)
Product Accessories			
Processing Dimensions	X1280mm*Y2800mm*Z200mm		
Motor	New Generation AC Servo Bus Absolute Value X/Y Axis 1100W; Z Axis 1000W (with brake)		
Drive Method	Syntec AC Servo Bus Absolute Value X/Y Axis 1100W; Z Axis 1000W (with brake)		
Guide Rail	Original Taiwan Square Guide Rail (3-axis 30#)		
Spindle	Mingdiao Customized 9.0KW Automatic Knife Changing	Air-cooled	Speed: 24000 rpm/min
Tool holder/clamp	Can clamp ϕ 3.175-12.7M		
Frequency converter	Fuling 11KW/380V		
Power transmission method	X/Y axis: Gear and rack (Taiwan (Mingdiao Custom) high-precision helical rack; ground gear); Z axis: TBI 2510 lead screw; X/Y adopts Taiwan (Mingdiao Custom) high-precision new type reducer (precision three-arc division)		
Cable	Imported drag chain cable		
Backing positioning	Standard positioning cylinder (thickened ϕ 30)		
Bed	Thickened steel structure	Tempering and aging treatment of steel structure (bed)	
Control system	New generation FC-60CB; 22 inch LCD display; Wireless keyboard and mouse		
Tool diameter	3.175/4/6/12.7/16		
Power supply	380V/220V	Three-phase dry-type isolation transformer	50HZ
Cabinet	Computer control integrated cabinet		
Tabletop	Vacuum adsorption table is made of engineering PVC board with a thickness of 28mm.		
Additional	Air-cooled 6.0KW*1 unit (250 cubic meters)	5.5KW vacuum cleaner*1 unit	New dust collector
All switches, buttons, AC contactors (imported from Honeywell, USA), air switches, etc. of this product are imported products			
The machine weighs approximately 3 tons. The above configuration is the acceptance standard.			

IV. Features of main parts of equipment and pictures



1. Conical 20-tool magazine:

---Uses a fixed disc structure, it can hold 20 tools, sufficient to handle the various tools required in engraving.



2. Automatic lifting platform:

---The lifting platform is equipped with infrared sensing, and the equipment system controls it uniformly according to the thickness changes of the stacked boards, automatically raising and lowering the height



3. Conveyor belt conveyor:

---The equipment pushing platform can automatically push the finished products onto the belt conveyor, and the belt conveyor automatically drives them to stop at a fixed position, making it convenient for subsequent stacking



4. Long strip suction cup:

---The elongated suction cup increases the contact surface with the board, initiates adsorption, and greatly improves the adsorption capacity



5. Material Pushing:

---Automatic feeding function: After reprocessing, the system automatically pushes out the sheet metal while performing secondary dust removal during the process.



6. Positioning Cylinders:

----Standard positioning cylinders (thickened $\phi 30$) Positioning cylinders: three on the Y-axis and two on the X-axis, forming a right angle. All five positioning cylinders are adjusted with a dial indicator to ensure secondary positioning accuracy during front and back machining. Additional side vanes ensure the pushed-out sheet does not fall off.



7. Bed steel:

---The bed is made of Q235B/H rectangular tubing with a wall thickness of 8mm according to national standards. Q235B/H steel is low-carbon steel with good weldability, and the sawing and welding of the tooling achieves a seamless connection of the bed.



8. Bed tempering and aging treatment:

---After 48 hours of high-temperature tempering treatment and quenching treatment, the hardness of the bed is increased to 36-40HRC, avoiding the occurrence of cracking during the length of the bed or during loading and use.

After more than 10 days of self ignition aging treatment, the bed body is guaranteed to be used for many years without deformation.



9. Body features:

---The bed adopts a large five axis gantry milling machine, which can complete the milling of the guide rail surface, rack surface, and other required installation hole positions in one go.

The reinforcing ribs on the bed are relatively dense, which increases the strength of the bed and ensures that the bottom plate does not deform.
plus Workbench dimensions: X1280mm*Y2800mm*Z200mm;



10. Bed grinding, spraying, baking treatment

---After careful manual polishing, Aksu powder is used for spraying. Aksu is one of the world's largest suppliers of plastic powder, characterized by strong adhesion, high temperature resistance, high gloss, and strong artistic three-dimensional sense.



11. Guide rail:

----Taiwan original square track;

---X/Z axis 30#;Y axis 30#

Square guide rails have advantageous characteristics suitable for specific applications, meeting high stiffness and high load applications. The maximum load of the 30 # square rail can reach 32KN.

During high-speed machining, it can better ensure operational stability.



12. Rack:

----Taiwan original high-precision helical gear rack with precision of three arc minutes;

---Grade 7 precision precision milling oblique tooth mold 2 quenched and tempered gear rack with 20-26 degrees, tooth surface smoothness of 3.2.



13. Gearbox:

--- Taiwan Fordesy Precision Reducer AL-090-5-K3-19

High precision, good rigidity, large bearing capacity, high efficiency, long service life, low noise

Timely control start stop and speed change. Increasing the torque through the reducer is equivalent to increasing the input power, which can reduce the power required by the input motor (in situations where speed regulation is needed)



drive



system

14. Motor drive:

--- Taiwan Shin-Dae motor, AC servo bus absolute value X/Y axis 1100W; Z axis 1000W (with holding brake)

Large drive motor: (smoother operation; more powerful)

The machinery adopts a new generation motor, with a speed increase of 30%: (idle speed of 60-80 meters/minute; processing speed of 8-25 meters/minute)



15. Spindle:

----Brand: Mingdiao Customized Tool Replacement Spindle

----Power: 9.0KW

----Spindle speed, up to 24000RPM, variable frequency speed regulation;

----Pulling tool spindle, ISO automatic tool change

Automatic tool change is achieved through cylinder switching, and machining is achieved by enlarging holes for larger diameters to meet production process requirements.



16. Control system:

---Original Taiwan Syntec 60CB

It is compatible with various CAD/CAM design and manufacturing software; it can control and complete multi-layer 3D machining.



17. Tabletop:

---Vacuum adsorption table thickness is 28mm

Quality complies with GB/T4454-1996, with good chemical stability, corrosion resistance, high hardness, high strength, UV resistant (aging resistant), fire retardant (self-extinguishing), reliable insulation performance, smooth and flat surface, non-absorbent, and non-deformable.



18. Knife magazine:

---Directly arrange 12 knife magazines

---ISO30 ER32 tool holder, can hold ϕ 3.175-20MM



19. Cable&drag chain:

---Shanghai Deruo Cable

The cable adopts high flexibility shielded wire, which has a longer service life. In the field of industrial manufacturing equipment, we focus on high flexibility cables that are resistant to oil and bending

---Adopting a new type of drag chain, divided into four compartments, the signal and power lines are distinguished according to specifications to better defend against signal interference, while also eliminating the twisting of cables together during operation.



20. Automatic fuel box:

---This system can deliver lubricating oil to key friction pairs such as guide rails and screws in a timed, quantitative, and precise manner, forming a stable oil film, effectively reducing wear and heat, preventing "dry friction" and corrosion, thereby significantly reducing failure rates and extending the service life of core components and the entire machine.



21. Electrical control cabinet

---The electrical control cabinet separates strong and weak electricity, with a more reasonable layout, which can effectively reduce interference between electrical appliances. The larger space can effectively increase heat dissipation capacity!



22. Electrical components:

---Switches, buttons, AC contactors, air switches, etc. are imported products (imported from Honeywell, USA)



23. Vacuum Pump:

- Air Pump 6.0KW;
- Vacuum Pressure (Air Pressure) 50 - 1040 mbar
- Voltage: Three-phase 380V / 220V The greater the force applied to the adsorption plate, the better it can overcome air leakage, suitable for adsorbing materials with uneven surfaces or small dimensions.



24. Exit the machine:

- Each machine needs to undergo various precision checks before leaving the factory, and the accuracy of each processing area on the entire table must be tested separately to ensure that there are no blind spots in the machine's processing.