

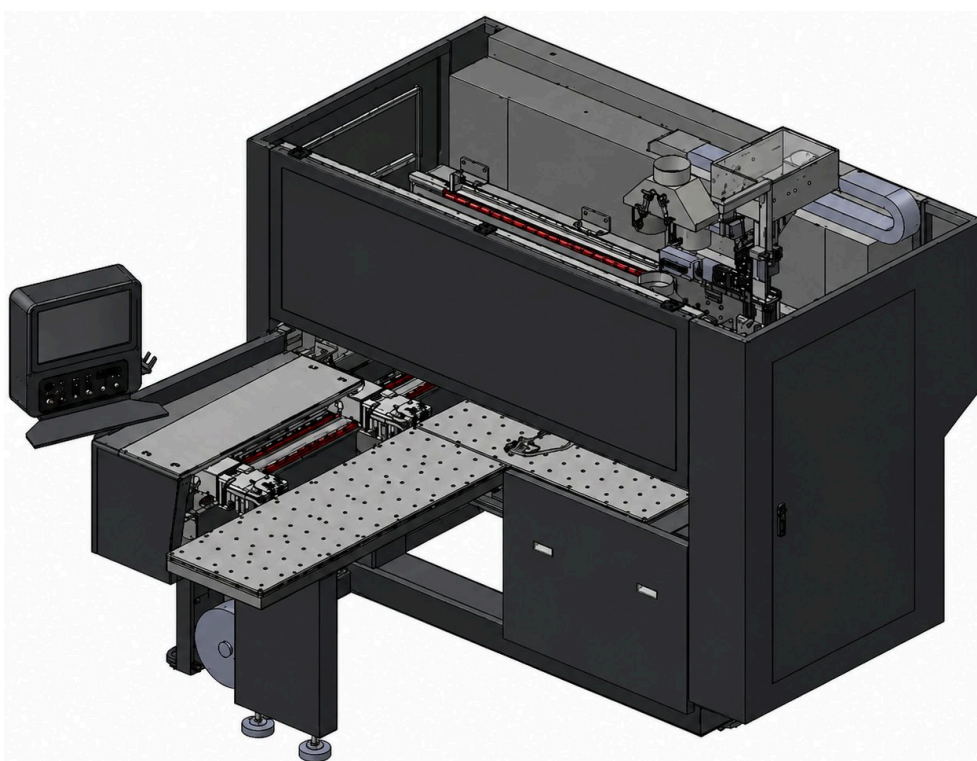
CNC DRILLING SERIES

Six-Sided Through-Feed CNC Drilling Machine

Barcode-driven drilling and grooving of furniture panels on all six sides in a single operation, with automatic loading, clamping and sorted discharge.

MODEL HE 2800 D

6 sides	2800 mm	130 m/min	29 + 1
IN ONE PASS	MAX. PANEL LENGTH	X-AXIS FEED SPEED	DRILLS AND SAW



/ Application & Use

The HELEX HE 2800 D is a through-type six-sided CNC drilling machine for panel furniture production. Panels are identified by wireless barcode scanning with sorting, positioned automatically and held by double floating clamps. In a single operation the machine drills the holes on all six sides and mills the grooves on the front and the back of the panel. When machining is finished the clamps unload the panel onto the sorting rotary platform, so the machine runs with a high degree of automation and a high output.

The machine is designed for the production of kitchen and bedroom furniture, office furniture, wardrobes and shop fitting, and it is intended to work either as a stand-alone unit or as the drilling station of a fully automatic panel production line.

Key Features

- Heavy-duty high-strength gantry design: the drilling and milling unit moves at high speed without vibration
- Batch barcode scanning with automatic queuing; the processing order can be set forwards or backwards
- Integrated CAM software, proven and stable, prepared for connection to automatic production lines
- Intelligent floating clamps with automatic avoidance: large, small and shaped panels, and two panels at the same time
- Direct import of DXF, MPR and XML and other open data formats from CAD and CAM
- Clamps with air blowing that remove dust before clamping, protecting the clamping force and the accuracy
- Air-floated working table with beads and steel plate, so panel surfaces are not scratched
- Automatic centralised lubrication and fan cooling of the electrical cabinet

Panel Materials

- Melamine faced chipboard and raw chipboard
- MDF and HDF, lacquered and foiled panels
- Plywood, blockboard and solid wood panels
- Acrylic and high-gloss faced panels

Working Range

- Maximum panel size 2800 x 1200 x 50 mm
- Minimum panel size 35 x 180 mm
- X-axis travel 2800 mm, Y-axis 1200 mm, Z-axis 200 mm
- Six-sided drilling and front and back grooving in one pass
- Two panels processed simultaneously when the size allows



Front view: enclosed machining area, air-floated table and discharge platform

/ Structure and Configuration

The machine is built from six functional groups. All axes are servo driven, with rack and pinion transmission (M1.5) on the long axis and ball screw transmission (2510) on the short axes, running on H25 linear guides.

- 1 Machine bed and gantry**
Robot-welded heavy-duty frame, heat treated to relieve the welding stress, shot blasted and powder coated, with the bed and the crossbeam machined on a large CNC gantry mill so that the assembly accuracy is held over the whole working length.
- 2 Upper drilling unit**
Twelve vertical drills, eight horizontal drills and one grooving saw, driven by a 3.5 kW air-cooled spindle. The unit covers the top face and the four edges of the panel and mills the grooves on the front side without repositioning the panel.
- 3 Lower drilling unit**
Nine vertical drills with a second 3.5 kW air-cooled spindle machine the bottom face and the back grooves, which completes the six-sided processing in the same cycle.
- 4 Double floating clamps**
Two intelligent floating clamps hold the panel and move out of the way of the drilling units automatically. Each clamp blows the surface clean before closing, so that dust and chips do not affect the clamping force or the position of the panel. After machining the clamps transfer the panel to the sorting rotary platform.
- 5 Air-floated working table**
Working surface made of steel plate with air-floating beads, allowing panels to be moved into position without scratching the faces. Barcode scanning identifies each panel and calls the corresponding program.
- 6 Drive and control cabinet**
Servo drives and motors with Shimpo reducers (Japan), inverters and Delixi electrical components, fan cooled cabinet, automatic centralised lubrication and a 5.5 kW dust extraction unit.



Drilling and milling unit on the gantry, with dust extraction



Drill block with vertical and horizontal spindles

/ Working Sequence

1. Barcode scanning

Panels are scanned in batches with the wireless scanner; the machine queues the programs automatically and the order can be set forwards or backwards.

3. Clamping

The double floating clamps blow the surface clean and hold the panel, moving out of the way of the drilling units during the cycle.

5. Grooving

The saw mills the grooves on the front and the back of the panel without a second setup.

2. Loading and positioning

The panel is moved over the air-floated table and positioned automatically against the reference edge.

4. Six-sided drilling

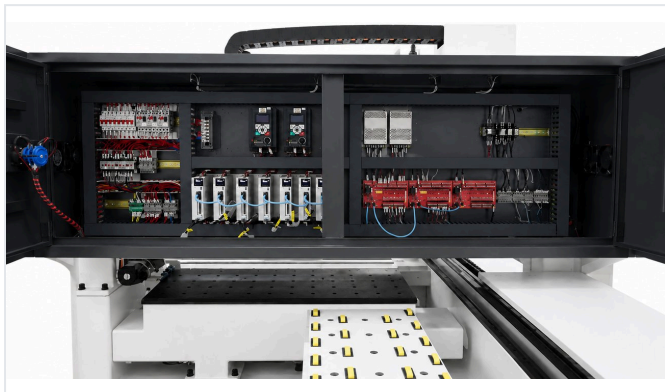
The upper and lower units drill the top, the bottom and the four edges of the panel in one continuous operation.

6. Sorted discharge

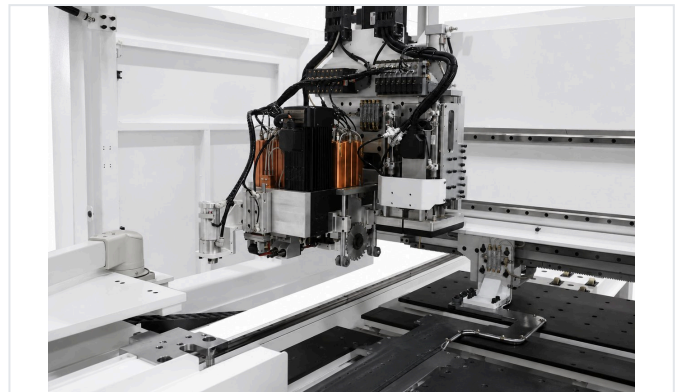
The clamps unload the finished panel onto the sorting rotary platform, ready for the next station of the line.

/ Control and Software

The machine is operated from an industrial control system with integrated CAM software. Hole and groove parameters can be edited manually on the machine, and drawings can be imported directly from CAD in DXF, MPR and XML and other open formats, without conversion. The control is prepared for connection to a fully automatic production line, so that the drilling station takes its work list from the line management system.



Electrical cabinet with servo drives, inverters and fan cooling



Gantry unit above the working table during machining



Air-floated table with beads and the transfer platform



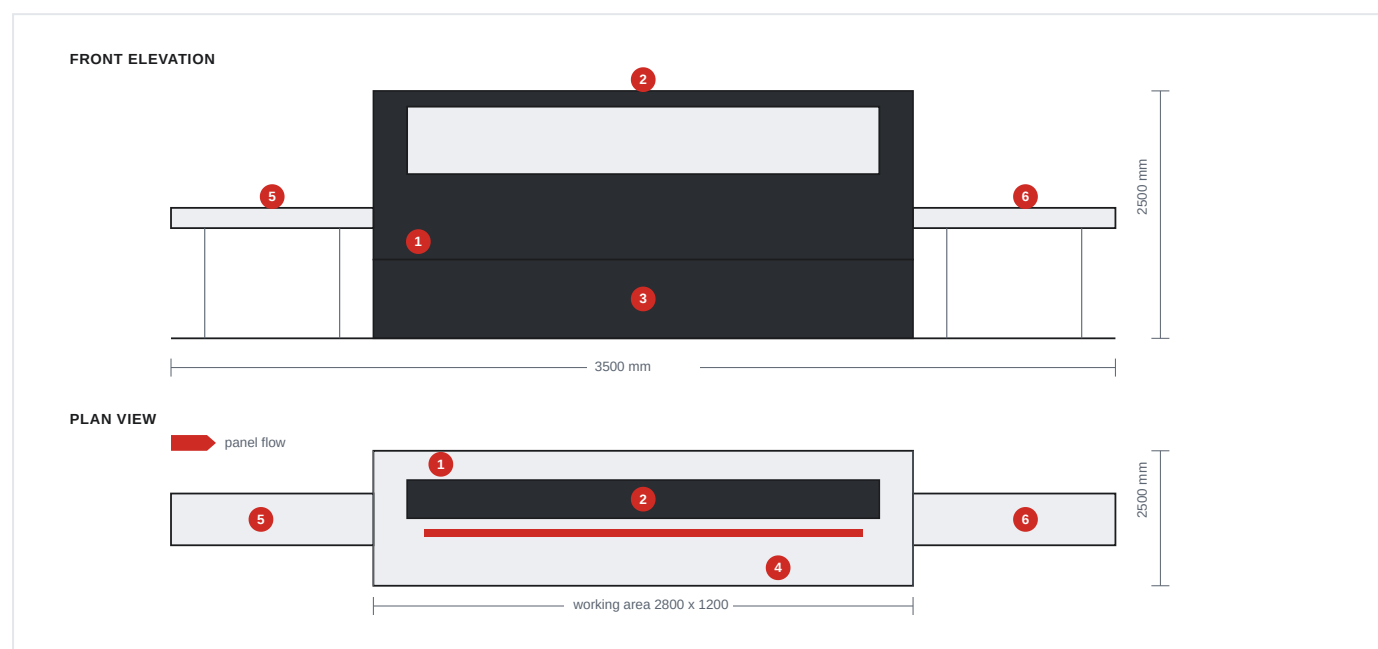
Side view with the control panel and the discharge table

/ Technical Data

Model	HE 2800 D
Type	Six-sided CNC drilling machine
X-axis travel	2800 mm
Y-axis travel	1200 mm
Z-axis travel	200 mm
Feed speed, X axis	130 m/min
Feed speed, Y and V axes	65 m/min
Feed speed, W and Z axes	20 m/min
Maximum panel size	2800 x 1200 x 50 mm
Minimum panel size	35 x 180 mm
Transmission	Rack and pinion M1.5, ball screw 2510
Linear guides	H25, Lapping, Taiwan
Helical rack	J&T, Taiwan
Working table	Air-floated, beads and steel plate

Working units	Configuration
Upper drilling unit	12 vertical + 8 horizontal + 1 saw
Lower drilling unit	9 vertical drills
Upper spindle	3.5 kW, air cooled
Lower spindle	3.5 kW, air cooled
Drive system	Servo motors and drives
Reducers	Shimpo, Japan
Electrical components	Delixi
Panel identification	Wireless barcode scanner
Data formats	DXF, MPR, XML and other open formats
Dust collector	5.5 kW
Cooling	Fan cooled cabinet
Lubrication	Automatic, centralised
Voltage / compressed air	AC 380 V / 50 Hz, min. 0.65 MPa
Overall dimensions	3500 x 2500 x 2500 mm

/ Layout Diagram



1 Machine bed and gantry
4 Double floating clamps

2 Upper drilling unit
5 Air-floated working table

3 Lower drilling unit
6 Drive and control cabinet

SUPPLIER

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