HELEX

PRECISION BY DESIGN

CNC DRILLING SERIES

Six-Sided Through-Feed CNC Drilling Machine

Barcode-driven drilling and grooving of furniture panels on all six sides in one cycle, with automatic positioning, clamping and sorted discharge.

MODEL HE 2800 D

6 sides	**2800** mm	**130** m/min	**29 + 1**
IN ONE CYCLE	MAX. PANEL LENGTH	X-AXIS TRAVEL SPEED	DRILLING SPINDLES AND SAW



/ Application & Use

The HELEX HE 2800 D is a through-feed six-sided CNC drilling machine for panel furniture production. Panels are identified by a wireless barcode scanner, positioned automatically and held by two floating clamps. In one cycle the machine drills the holes on all six sides and mills the grooves on the front and the back of the panel; after machining the clamps unload the panel onto a rotary sorting platform.

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

Key Features

- Heavy-duty gantry design: the drilling and milling unit moves along the panel without repositioning it
- Batch barcode scanning with automatic queuing; the processing order can be set forwards or backwards
- Integrated CAM software, prepared for connection to automatic production lines
- Clamping system with floating clamps that automatically avoid interference with the machining units, for panels of different sizes and shapes, including simultaneous processing of two panels
- Direct import of DXF, MPR and XML drawings from CAD and CAM
- Clamps with air blowing that remove dust before clamping
- Air-floated working table with beads and steel plate, so panel faces 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 cycle
- 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 CNC gantry mill so that the assembly accuracy is held over the whole working length.

2 **Upper drilling unit**

Twelve vertical drilling spindles, eight horizontal drilling spindles and one grooving saw, driven by a 3.5 kW air-cooled electrospindle. 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 drilling spindles with a second 3.5 kW air-cooled electrospindle machine the bottom face and the back grooves, which completes the six-sided processing in the same cycle.

4 **Floating clamps**

Two floating clamps hold the panel and automatically avoid interference with the machining units, for panels of different sizes and shapes, including the simultaneous processing of two panels. 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 rotary sorting 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 precision reducers, frequency inverters and industrial electrical components, fan cooled cabinet, automatic centralised lubrication. A 5.5 kW dust extraction unit is listed in the technical documentation; its inclusion in the scope of supply is specified in the quotation.



Upper drilling unit on the gantry, with dust extraction



Drill block with vertical and horizontal drilling 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.

2. Loading and positioning

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

3. Clamping

The floating clamps blow the surface clean and hold the panel, avoiding interference with the machining units during the cycle.

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.

5. Grooving

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

6. Sorted discharge

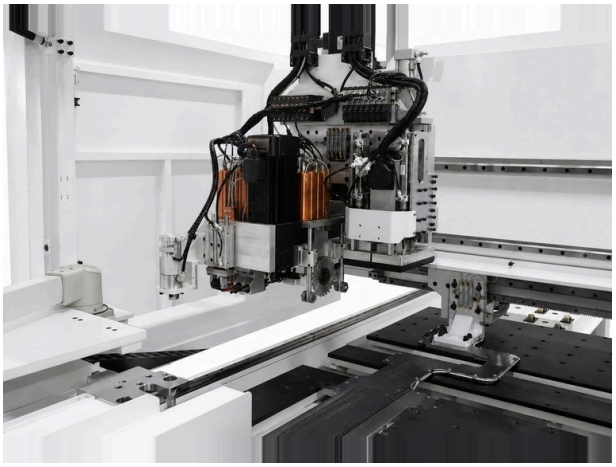
The clamps unload the finished panel onto the rotary sorting platform, ready for the next station of the line.

/ Control and Software

The machine is operated from an industrial CNC control with integrated CAM software. Hole and groove parameters can be edited on the machine, and drawings can be imported directly from CAD in DXF, MPR and XML format. The control is prepared for connection to an 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 drilling unit above the working table





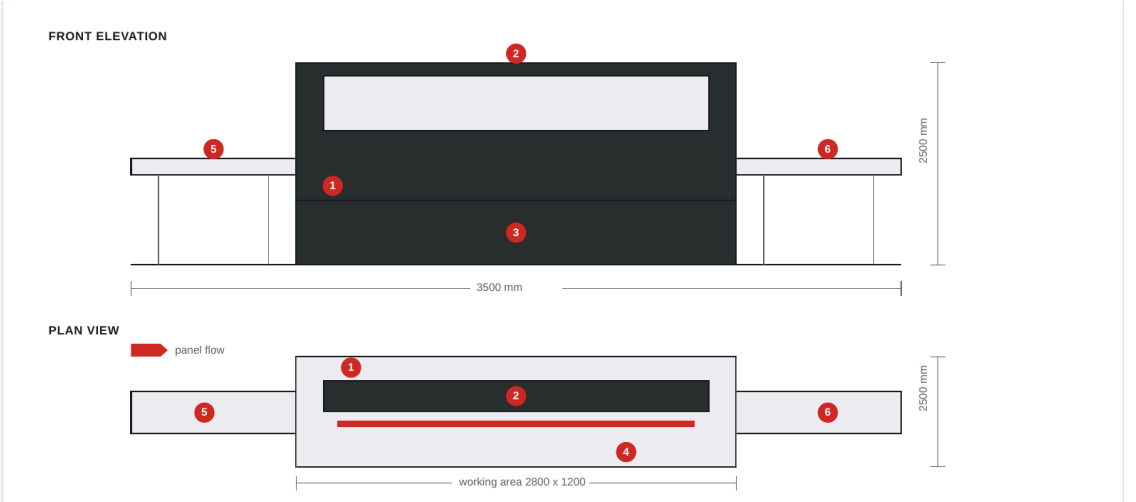
/ Technical Data

Model	HE 2800 D
Type	**Six-sided CNC drilling machine, through-feed**
X-axis travel	**2800 mm**
Y-axis travel	**1200 mm**
Z-axis travel	**200 mm**
Travel speed, X axis	**130 m/min**
Travel speed, Y and V axes	**65 m/min**
Travel 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**
Working table	**Air-floated, beads and steel plate**

Working units	Configuration
Upper drilling unit	**12 vertical + 8 horizontal spindles + 1 saw**
Lower drilling unit	**9 vertical spindles**
Upper electrospindle	**3.5 kW, air cooled**
Lower electrospindle	**3.5 kW, air cooled**
Drive system	**Servo motors and drives**
Panel identification	**Wireless barcode scanner**
Data formats	**DXF, MPR, XML**
Dust extraction unit	**5.5 kW (scope of supply per quotation)**
Cooling	**Fan cooled cabinet**
Lubrication	**Automatic, centralised**
Electrical supply / compressed air	**380 V / 50 Hz; min. 0.65 MPa (6.5 bar)**
Overall dimensions	**3500 x 2500 x 2500 mm**

Data according to the technical documentation of the machine. The supplied configuration and the installation requirements are specified in the quotation. Technical changes reserved.

/ Layout Diagram



1 Machine bed and gantry
2 Upper drilling unit
3 Lower drilling unit
4 Floating clamps
5 Air-floated working table
6 Drive and control cabinet

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