



## **FMB Model EXPLORER 1- Vertical Single Spindle Drilling Machine**

EXPLORER 1 is a 4-Axis drilling center for making a wide range holes; threads and countersinks.

The Automatic X-Axis positioning drive allows for material to move in relation to the spindle for precise locating of the spindle according to the customer's requirements.

A work piece is clamped horizontally and vertically during drilling operation.

The following operations can be performed:

- Through Hole
- Blind Hole
- Double Hole (For Square and Rectangle Tubes)
- Slotting
- Threading (Optional)
- Countersinks (Optional)

The Following Work Pieces can be machined:

- Tubes
- Angle Iron
- Beams
- UNP
- Flat Bars



### **Main Features and Standard Features:**

Automatic Feed of the Material by the FMB Feed System  
Vertical Spindle Drill Unit  
Z-axis and Y-Axis are ballscrew/servo controlled  
Exchange System for Material Feed Vises to allow working on both ends of the work piece  
Twin Vertical Pushers  
Twin Horizontal Clamping Vise  
Twin Vertical Clamping Vise  
Chip Conveyor  
Automatic Lubrication System for the linear guideways  
Laser for set up of Zero Position  
Rapid Tool Changer  
Inner Tools Lubrication  
ISO 40 Spindle; Reduction ISO 40 Standard Spindle; Taper CM3  
Positive Drop Tool Lubricating System  
Control Cabinet with Industrial PC Console  
Machine Cover with perfect view of the working area  
6.5 FT InFeed Roller Table  
6.5 FT OutFeed Roller Table

### **Drill Unit:**

The drilling head is mounted on a large column. The head's Z-axis and Y-Axis position on linear guideways. The Z-axis and Y-axis are ballscrew/servo controlled for added precision. The coolant system is external and through tool misting lubrications. The machine comes standard with our "FMB smart drilling control" which prevents the head from entering the work piece too deeply and damaging the tool. The machine comes standard with a hydraulic spindle so the operator simply presses a button to lock or unlock the spindle. The spindle is ISO40. One spindle is included with the machine.

### **Operation:**

The drill unit has fast approach so it will rapidly feed until the tool is just above the material. The machine has two chip breaking modes. Mode one is the machine will stop feeding for one second and mode two is the machine will completely get out of the drilled hole. The machine has a tool and spindle table so it is easy for the operator to select the correct tool and spindle size. The coolant system can be set to run no coolant, external only, external and through tool, or through tool only. The machine can slot or mill in any direction so angled slots or mills are not an issue. The slots and mills are done through a step mode. The machine's piece measurement system checks that the programmed dimensions match the actual dimensions.



### Machine Control:

20" Color Touchscreen with Built in Tables for Tools and Materials

Open System to allow additional tables as required

Program memory

Allow Holes and Threads in Semi-Auto Cycle

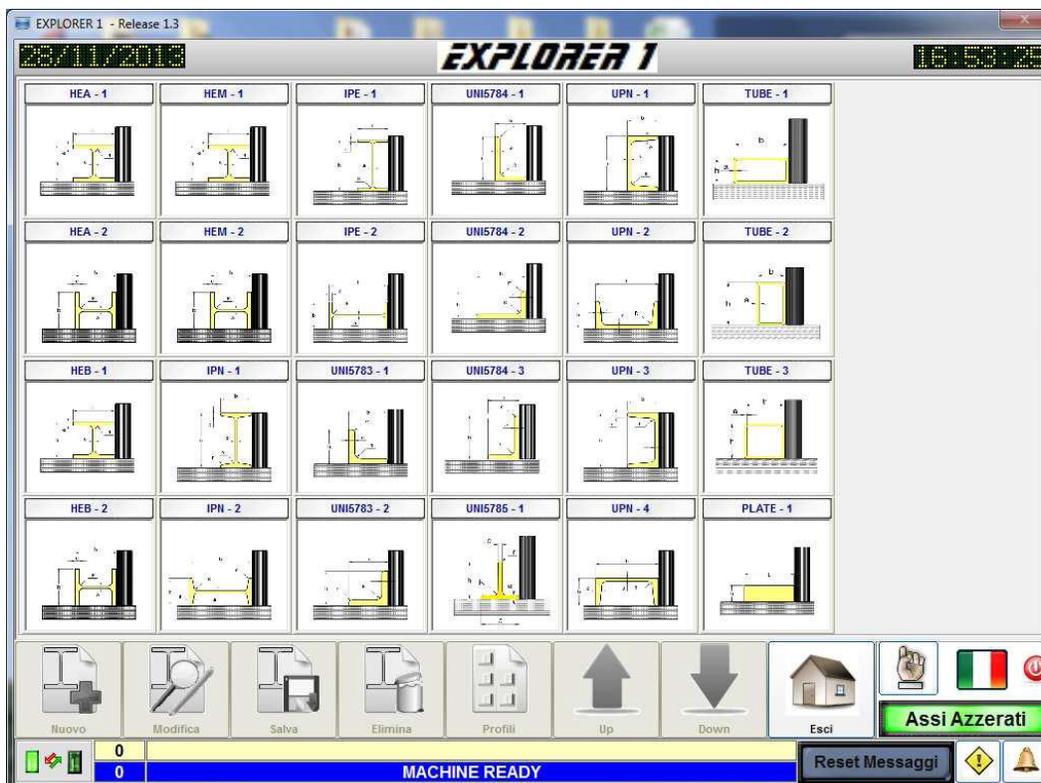
Measurement of the Length of Tool

Smart Drilling Control that stops the drill just past the through position

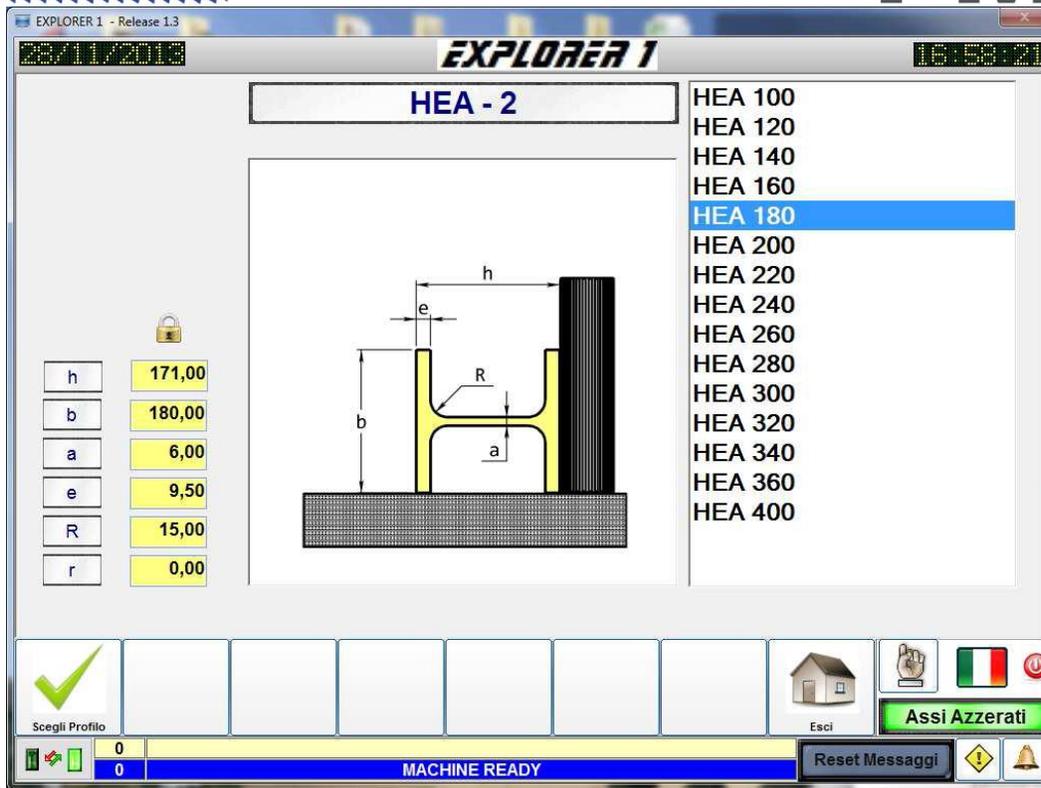
Remote Connection to factory via the internet

The machine is PC based and WIFI ready

Remote service assistance through internet connection



Work Piece Table



## Work Piece Table

### Working Cycle:

Position the work piece on entry side of the machine just before the zero point laser

Once Cycle Start Button is activated, the machine will check the work piece for proper dimensions against dimensions selected by the operator. The operator is advised if there are any differences. If operator selects OK, the tool position will be set to the real measures of the work piece to avoid any issues between real and theoretic dimensions.

The work piece moves slowly to the zero position laser, then moves at normal working speed. Work piece is held in the vertical position by vertical pushers to prevent movement in an upward direction. These vertical locking jaws increase their pressure during the drilling process.

All holes of the same diameter are made up and down the length of the work piece. Once all the same holes are made, the operator can change the tool and then the machine will move left and right to complete all holes of the new size. If threading is to be done, the tool is changed and threading operations are made automatically.



### Advantages of the EXPLORER 1 Design:

Small footprint of the machine is a great advantage. Traditional machines that utilize power rollers tables require a permanent large foot print.

EXPLORER 1 can process a work piece as long as 98 Ft.

The EXPLORER 1 is built on a single platform. It is easy to install and able to be moved.

Since the material feed system is located on both sides of the tool, the work piece can be moved left and right during the machining process.\

The EXPLORER 1 can drill pieces that have already been cut on angle because the operator can enter the angle degree into the machine's control.

### **Machine Pictures:**





## Technical Data:

### Work Piece Dimensions:

Maximum Working Length	98 Ft
Minimum Length – Exchange	17.75 inch
Minimum Length without Exchange	10 inch
Z-Axis Travel	25.5 Inch
Y-Axis Travel	16.5 Inch
Minimum Width of Work Piece	1.575 inch
Maximum Width of Work Piece	17.71 Inches

Minimum Size of Angle Iron	1.575 x 1.575 x 0.118 inch
Minimum Height	0.393 inch
Maximum Height	11.811 inch

### Drill Data:

Minimum Drill Diameter	0.196 inch
Maximum Drill Diameter	1.259 inch
Maximum Rotational Speed	3,000 RPM
Spindle Power	8.25 HP
Spindle Size	ISO 40

### Positioning Data:

Machine Positioning Speed	30 FPM
Material Feed Speed	18 FPM