80 YEARS
1930 - 2010

EXCALIBUR 12 - 1201DE

CNC Automatic drilling line for structural steel sections and flats

FICEP S.p.A.

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STANDARD VERSION

This basic machine design is a time proven classic! FICEP has manufactured the basic traveling single spindle design for more than thirty years and it recently became perhaps one of the most imitated designs by various firms.

Since Ficep originated this design some thirty years ago, the basic product has been enhanced with numerous innovative features and capabilities, however, all of the systems since the beginning featured the “CANTILEVER” system.

The machine is suspended on and moves along its loading table, without interfering with drill chips or anything else lying on the floor.

This simple, yet brilliant solution, of a CNC drilling line mounted on its loading table offers small and mid size steel fabricators a drilling unit that represents:

- Low cost investment
- Reduced overall footprint
- Great flexibility
- High productivity due to its incredible versatility

Thanks to a set of wheels mounted on bearings, the drilling unit slides on a sturdy support traversing the loading table. This support is equipped with a precision rack and pinion system that guarantees the machine’s programmed movement. An electronic sensor determines the leading end location of the section and references the programmed hole pattern from this location. The piece to be processed does not move, but it is firmly clamped in the working position by a dual hydraulic cylinder system (top and bottom clamping).

A web probe laser sensing device is furnished so the flange holes can be oriented relative to the web location to compensation for mill tolerance deviations.

BENEFITS OF THE SYSTEM

- Reduced footprint
- The Excalibur only requires 50% of the space of a conventional beam drilling line.
- No manual programming is required as the system seamlessly receives DSTV files.
- The CNC automatically handles the programming of drilling, layout marks, tapping, countersinking and optional SCRIBING operations.
- No set up is required.
- The Excalibur features not one but two hydraulic clamps that are positioned automatically as part of the movable spindle assembly. This eliminates any requirement for the operator to clamp the piece manually **(Photo 1)**.
- Easy material loading because the parts to be processed can be positioned anywhere along the length of the table datum as the system automatically locates the piece origin prior to drilling.

1

- An example of the versatility is the ability to load short pieces along the table in multiples, thereby allowing the operator to continually rotate pieces while the system is drilling.
- The excellent productivity of the Excalibur typically generates the production of 8 to 10 employees who use manual methods.
- Return on investment: we can help you estimate how the Excalibur repays itself easily in less than one year.
- The Excalibur operators are typically over 30% more productive than those working on competitive models as the wireless remote control feature of the Excalibur eliminates the need for the operator to stand by the CNC control of the machine to be able to respond to such events as a drill bit starting to fail **(Photo 2)**.
- High performance drilling is second to none as the Excalibur 12 features a 25 HP “Direct Drive” spindle motor capable of a maximum of 3,000 RPM **(Photo 3)**.

2

This combination of horsepower and spindle RPM's permits the Excalibur to fully utilize today's high performance tools.

- Remote system diagnostics: The proprietary FICEP Minosse control system features remote diagnostic capability. Through a simple phone or network connection, our service support team in Forest Hill, Maryland can perform the same diagnostic routines that we could perform if we were standing at your drill. If we cannot resolve the problem remotely, we can identify what part is required and our service technician can arrive with the required part rather than travel to the customer's facility only to diagnose the problem and then wait untill the next day for its arrival.
- Positioning accuracy: The spindle axis positioning is guaranteed by ball screws and CNC controlled servo motors. The guidance of the spindle is accomplished with self-lubricating, high precision prismatic guides.
- The drill tools can be lubricated either internally or externally by a centralized pressure system installed on board the machine.

3

4

SAFETY

FICEP has exercised care in the design of the Excalibur taking into account the ergonomic and safety details which results in compliance with CE regulations. Interference sensors are located on the movable tower to detect the physical presence of an obstruction **(Photo 4)**.

STANDARD FEATURES

Sub “X” Axis Positioning system with a ball screw and servo motor which permits the movement of the drilling spindle from hole to hole typically in less than one second (x and y axis) without the need to reposition the drill tower. This delivers unmatched productivity. The addition of this secondary “X” axis gives the capability to create such operations as slotted holes, copes and scribing which was not possible with earlier designs.

Scribing

The Excalibur 12 also includes an automatic tool changer as an option that accommodates up to 6 tools.

HARDWARE & SOFTWARE

The new generation control unit, with four axes, is based on a field bus CAN open technology.
The CNC is stationary so that the operator has a complete view of the machine.

The CNC is equipped with:
- digital inputs (24V – opto insulated)
- digital outputs (24V – protected transistors)

The control panel is an industrial PC containing the CNC and having the following specifications:
- 512 MB RAM memory
- Touch screen color video TFT 12.1”
- Keyboard panel and auxiliary pushbutton panel
- 10/100 RJ45 Ethernet port
- USB modem
- 1 additional USB port
- WINDOWS XP Embedded operative system
- Teleservice software

Programming
- Simplified data input (with appropriate tables and on-screen graphics of the piece part)
- Absolute and hole to hole programming
- Programmed hole sizes which are changed automatically by the CNC controlled tool changer
- Such features as linear, matrix and duplication of hole patterns greatly simplifies programming

Processing
- Automatic tool assignment
- Values ordering

Execution
- Automatic cycle stop for “setup” modification.
- Drilling parameters table automatically assigns the proper programmed feeds and speeds when the tool is changed automatically.

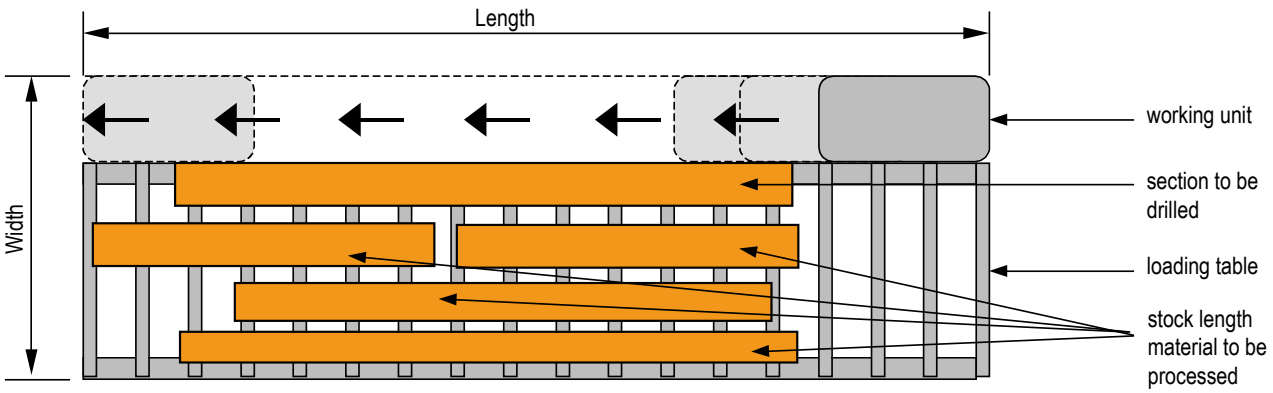
All the appropriate information is clearly displayed on the selected screen to the operator:
- Current program indication, with clear description of the current and pending functions.
- CNC inside and outside alarms
- Registration of the date and time of the last 100 alarm messages
- Diagnostic messages to the operator.

MAIN TECHNICAL FEATURES – EXCALIBUR 12

Standard maximum beam length	40 ft.
Maximum drilling diameter	1-9/16”
Spindle power	25 HP
Spindle rotation speed (rpm)	180 - 3000
Maximum section width	47-1/4”
CNC Minosse control unit	4 axis

Standard configuration - The line can be supplied with conveyors and tables of any length:

Sections up to	40 ft.	50 ft.	60 ft.
Length	49’-3”	59’	68’-11”
Width	10’-10”		



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