

80 YEARS
1930 - 2010



ORIENT

Automatic CNC drilling line
for profiles





Orient is the latest generation of Ficep drilling line to process beams and profiles in an extremely quick, flexible and competitive way.

Orient line, for the steel construction industry, has been optimized both in the overall performances and the product design; the system has been developed with experience that Ficep gained during many years as worldwide leader in the field.

QUICK

- The drill head moves at high speed taking advantage of the combined and simultaneous positioning of two slides operated by CNC controlled servomotors. The slides move on precision roller guides.
- The powerful spindle and rotating motor is optimized for the drill head rotation which, thanks to a reduction gear, can be oriented in three positions at high speed reducing dead time in the cycle.
- The spindle rotates up to 2500 rpm and allows quick drilling operations using all kind of drills.
- The material is fed through a CNC controlled pincher. Its clamping is quick and safe thanks to double-clamp vices and to different clamping forces which reduce vice clamping stop time.



Detail of the drill head during the tool change



Detail of the drill head during drilling operations on flanges



COST EFFECTIVE

- The drill head speed offers the same performances as the larger machines with multiple heads, and at the same time a great saving on the structure, this is reflected in the advantageous purchasing price of the system.
- The line can be easily installed, it does not require foundations and the field bus reduces the 'start up operations' time.
- Reduction of mechanical components (heads, motors, guides, etc.), choice of electrical and electronic systems based on the 'field bus' technology, the optimized mono-board CNC, a reduction of set-up times: all these features make the competitive advantages of this drilling unit!

FLEXIBLE

- In respect of the profiles dimension to be processed (H profiles, 2000 x 510 mm), the Orient does not require a large footprint and can be easily installed both in smaller steel construction companies, in service centres and subsuppliers.
- The head positioning, spindle rotation speed and the 6 position automatic drill changer are all controlled with an electronic closed loop, allowing the processing of all kinds of profiles very quickly and without onerous set-up costs.
- All the data and programming parameters are written in simple tables with an easy language to allow for better comprehension of the system.
- Orient is designed to be combined with FICEP band saws mod. BH and become a flexible system for profiles that are drilled and sawn.

ORIENT 12

BASIC CONFIGURATION

- 12 mt rollerway with powered rolls for profile loading.
- Frame made of a sturdy electro-welded and normalized plate. The structure holds precision roller guides on which the slides supporting the monospindle head move.
- 6 positions automatic tool changer with ISO 45 connections.
- Monospindle drill head equipped with angle rotation device. Thanks to the rotating head, the spindle can position in three orientations $-90^{\circ}/0^{\circ}/+90^{\circ}$ in order to drill the beam on both flanges and on the web. The head positioning along the flanges/web gauge line is carried out through ball screws and CNC controlled servomotor.
- The spindle feed to the working position is done through ball screws and CNC controlled servomotor.
- Sensitive speed change unit ensuring rapid feed, drilling and rapid return of the spindle. This device allows the use of drills of different type and length without requiring mechanical solutions.
- Internal and external drill cooling/lubricating device.
- Double jaw hydraulic vices for horizontal and vertical piece clamping.
Vices are automatically controlled in the working cycle and work with different pressures during the material feeding phase.
Together with the vices, a mechanical probing device to automatically set the zero reference with respect to the real beam centreline axis.
- Carriage with adjustable pincher and idle rolls conveyor for 12 mt long bars with CNC controlled longitudinal feeding.
- On board electrical, hydraulic and pneumatic systems.
- Ficep Minosse control unit.





ORIENT 10 - 1001 DFB
Combined with band saw BH







ORIENT 12 - 1201 DFB
 With optional second drilling head
 and double tool changer



OPTIONS

- Marking unit with 36 positions
- Automatic zero reference setting device
- Tapping device
- Scribing device
- Swarf unloading conveyor
- 16 and 20 mt infeed and outfeed conveyors
- Infeed and outfeed transfer tables with catches with 4-5-6 arms
- Infeed and outfeed transfer tables with carts with 4-5-6 arms



Marking unit with 36 positions



Tapping device





HARDWARE & SOFTWARE

FICEP MINOSSE CONTROL UNIT

The new generation control unit, with 6 controlled axes, is based on a fieldbus CANopen technology.

The CNC is positioned on a mobile control panel, so that the operator can have a complete view of the machine.

All the input and output cards are connected to the bus and lodged on the machine, if it's possible.

The CNC is equipped with:

- digital inputs (24V – optoinsulated)
- digital outputs (24V – protected transistors)

The control panel is an industrial PC containing the CNC and having the following specifications:

- 600 Mhz CPU with L2 512 KB “cache”
- 512 MB RAM memory
- Touch screen colour 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 tables and workpiece on-screen graphics)
- Absolute and incremental values
- Diameters programming
- Linear, matrix and flange patterns
- Nesting of equal or different workpieces into the same bar, with on-screen graphics
- Automatic nesting

Processing

- Automatic tool assignment
- Unit offset sum
- Values ordering
- Automatic optimization on the basis of the quantities left for each single workpiece

Execution

- Automatic survey of the bar length, and re-calculation of the optimized accumulation
- Automatic cycle stop for “setup” modification, and on-screen indication of the tools to be changed
- Automatic control to prevent any possible collision of the drills
- Drilling parameters table

All the indications are clearly displayed on the screen, and concern:

- Current program indication, with clear description of the program running at the moment
- CNC inside and outside alarms
- Registration of the date and time of the last 100 alarm messages
- Diagnostic messages to the operator





PRODUCTION DATA

Web and flange drilling of one section only, according to the following specifications:

Model

I-Beams (without camber)

Web height	min.mm
	max.mm
Flange width	min.mm
	max.mm

UPN Channels (web downwards)

Web height	min.mm
	max.mm
Flange width	min.mm
	max.mm

Angles

Flange height (unequal flanges as well)	min.mm
	max.mm

Flats

Width	min.mm
	max.mm

Square Tubes

Size	min.mm
	max.mm

Rectangular Tubes

Size	min.mm
	max.mm

All Beams

Max. thickness that can be drilled	mm
Max. length (can be extended with options)	mm

Drilling Capacities

Drill heads	no.
Spindles per drill head	no.
Tool-change system (with 6 positions)	no.
Maximum hole diameter	mm
Spindle rotation motor per head (a.c.)	kW
Program controlled spindle rotation speed with continuous variation	RPM

Other Specifications

Maximum positioning weight	Kg
Maximum linear weight of the section	Kg/m
Maximum carriage speed	m/min.
Spindle positioning speed	m/min.
Working level height	mm

Band Sawing Unit

Minimum sawing capacity at 90°	mm
Maximum sawing capacity at 90°	mm
Sawing capacity at 45°	mm
Sawing capacity at 20°	mm
Band motor's power	kW
Toothed band's size	mm
Toothed band's speed	m/min.

CNC Ficep Minosse	Axes no.
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NOTE: Dimensional tolerances of the raw sections are to UNI 5783-5784/73 standards.

	ORIENT 6 601 DF	ORIENT 12 1201 DF	ORIENT 20 2001 DF	ORIENT 6 601 DFB	ORIENT 10 1001 DFB	ORIENT 11 1101 DFB	ORIENT 12 1201 DFB	ORIENT 20 2001 DFB
	60	80	200	60	80	80	80	200
	610	1220	2000	610	1015	1100	1220	2000
	30	42	60	30	42	42	42	60
	310	510	510	310	450	510	510	510
	60	80	200	60	80	80	80	200
	610	1220	2000	610	1015	1100	1220	2000
	30	45	60	30	45	45	45	60
	300	300	300	300	300	300	300	300
	50 x 50 x 5	80 x 80 x 8	120 x 120 x 10	50 x 50 x 5	80 x 80 x 8	80 x 80 x 8	80 x 80 x 8	150 x 150 x 12
	250 x 250 x 40	250 x 250 x 40	300 x 300 x 50	250 x 250 x 40	250 x 250 x 40	250 x 250 x 40	250 x 250 x 40	300 x 300 x 50
	100	100	200	100	100	100	100	100
	610	1200	1200	610	1000	1100	1200	1220
	60 x 60	80 x 80	200 x 200	60 x 60	80 x 80	80 x 80	80 x 80	200 x 200
	300 x 300	500 x 500	500 x 500	300 x 300	450 x 450	500 x 500	500 x 500	500 x 500
	60 x 30	80 x 40	200 x 10	60 x 30	80 x 40	80 x 40	80 x 40	200 x 100
	600 x 300	1200 x 500	2000 x 500	600 x 300	1000 x 450	1100 x 500	1200 x 500	2000 x 500
	50	75	100	50	50	100	75	100
	12000	12000	12000	12000	12000	12000	12000	12000
	1	1 (2)	1	1	1 (2)	1	1 (2)	1
	1	1	1	1	1	1	1	1
	1	1 (2)	1	1	1 (2)	1	1 (2)	1
	40	40	40 (50)	40	40	40 (50)	40	40 (50)
	7,5	15	15	7,5	11	15	11	15
	180 - 1500	180 - 2500	180 - 2500	180 - 1500	180 - 2500	180 - 2500	180 - 2500	180 - 2500
	3500	5400	3000	3500	5400	5400	5400	10000
	185	185	375	185	220	220	285	500
	50	50	40	50	50	50	50	20
	40	30	30	40	30	40	30	10
	850	850	850	850	850	850	850	850
								Disc Saw
	-	-	-	60 x 10	80 x 10	80 x 10	80 x 10	200 x 10
	-	-	-	610 x 310	1015 x 450	1100 x 510	1250 x 510	2000 x 510
	-	-	-	400 x 310	620 x 450	700 x 510	800 x 510	1200 x 510
	-	-	-	250 x 250	350 x 350	500 x 500	500 x 510	1900 x 510
	-	-	-	4	5,5	11	11	11
	-	-	-	34 x 1,1	41 x 1,3	54 x 1,6	67 x 1,6	67 x 1,6 x 12100
	-	-	-	20 - 100	20 - 100	20 - 100	20 - 100	20 - 120
	3	3 + 2	3 + 2	3 + 2	3 + 2	3 + 2	3 + 2	3 + 2



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