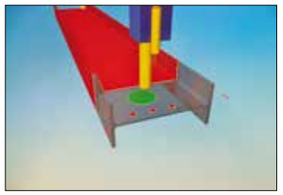
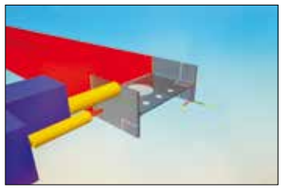
Exhaust system

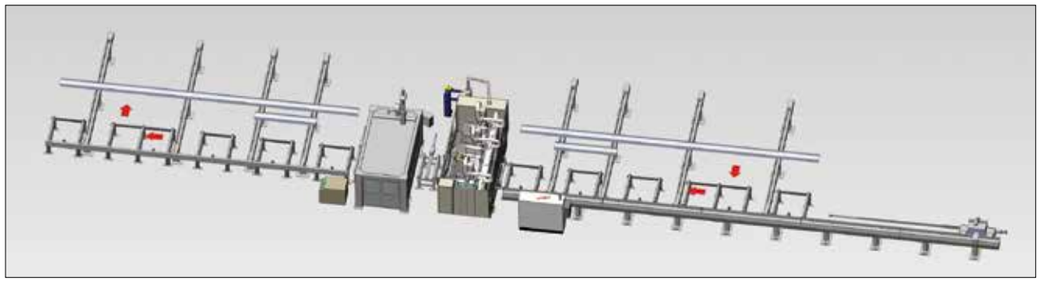
MAIN OPTIONS

- Plasma cutting system with Hypertherm power source and an oxy-fuel torch are selected as required automatically in seconds.
- Exhaust system which is essential for the plasma torch cutting.
- Equipment for the processing of round pipes.





CNC Line with thermal coping unit and drilling unit in tandem with conveyors and transfer tables.



TECH SPECS

AUTOMATIC CNC THERMAL COPING ROBOT - FLEX	1201FRC	2001FRC	2501FRC
Section size [min. mm]	80x42	200x75	300x75
Section size [max. mm]	1220x600	2000x815	2540x815
Oxy-fuel torch [no.]	1	1	1
Plasma torch [no.]	1	1	1

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FICEP Japan

FICEP

FLEX

Automatic CNC thermal coping robot for sections

FLEX - Automatic CNC thermal coping robot for sections

Structural steel buildings are constructed of steel sections (beams, channels, angles, tubes) in combination to form the final structure. The finished sections are welded and bolted one to the other to form the structure.

Straight, mitered and shaped cuts on the web and flanges are typically required to form the specified geometry. The layout marks and welding instructions are automatically created to facilitate the fitting operations and avoid human errors. All of these processes can be covered with the FICEP FRC coping robot.

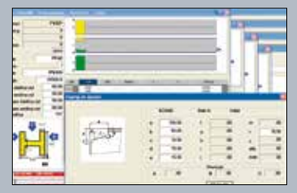
The FICEP robot permits the torch to move and orientate around the section. An automatic tool changer for the plasma and oxy-fuel torch efficiently changes them to the cut position in seconds. This permits the selection of the most efficient and effective thermal cutting process to be utilized when processing a section. The robot is controlled by dedicated software which optimizes the movement to achieve the most effective cutting sequences.

When the material enters the machine, laser technology is utilized to probe the part geometry. This enables a fast recognition of the section to be processed.

The actual section geometry is compared to the theoretical profile stored in the CNC library. Any deviations are recognized and the torch path is automatically corrected to compensate for mill tolerance deviations. This ensures accurate torch location, reliable ignition and total completion of the desired cut path.

The required shape to be processed is selected from the relevant shape library but only its real dimensional values that are identified with laser probing are loaded into the program.

Pegaso is the latest generation CNC for FICEP lines where the PC, CNC and PLC are all integrated into a single circuit board for maximum reliability. Pegaso is based upon a field bus technology using CanBus and EtherCAT for controlling up to 32 separate CNC axes.



A graphical 3D simulation of the cutting process by the robot confirms the torch path and cutting sequences.

- Point-to-point LEAD CUT manual programming can be accomplished directly on the CNC control.
- Programming can be achieved with graphical macros that are stored and registered in the relevant library.
- Programming by downloading from an offline computer.
- Automatic precise torch positioning is achieved with laser technology.

The advantages of these systems are straight forward:

- All the manual operations to measure, lay out and cut are eliminated.
- Eliminate human error.
- Coping operations can be done in tandem with a FICEP drilling line to save space and time.
- The processing cycle is optimized.
- The manufacturing times are drastically reduced.
- Processing is done in a complete automatic cycle.
- The required floor space is reduced when compared to manual operations.
- Production costs are predictable and greatly reduced.
- The labor required for complicated operations is reduced to the minimum.

MAIN TECHNICAL FEATURES

- The material positioning carriage adjusts to accommodate different section profiles. The standard powered infeed conveyor is 12 mt but can be extended as an option as required.
- The material positioning carriage is guided by a free-standing support structure and positions the stock section along the infeed conveyor.
- The machine frame is a box type structure constructed of structural tubes to provide an overhead support for the robot.
- A semi-spherical Cartesian robot incorporates 6 controlled axes that position the two cutting torches as required.
- Laser technology is employed to manage material probing and compensate for section mill tolerance deviations.
- Automatic vices provide material clamping even during cuts where the material is required to move longitudinally for such operations as beam splitting.
- A hydraulic alignment device is integrated into the infeed conveyor assembly to orientate the incoming section to the cutting chamber.
- Detection and automatic adjustment accommodates normal mill tolerance deviations.
- The latest generation FICEP PEGASO control unit controlling 6 axes (7th axis optional).
- Hypertherm True Hole technology.

Hypertherm
Cut with confidence
True Hole™