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TEKFEN CEYHAN Manufacturing Facilities continue to select FICEP S.p.A to advance their fabrication efficiency

Tekfen Ceyhan Manufacturing Facilities was started in 1993 in Ceyhan, Turkey. Due to its proximity to major highways and the Mediterranean ports of İskenderun and Mersin they have good access to receiving raw material and serving their global marketing strategy.

Since their founding, they have consistently grown their business and physical presence with plant expansions in 1998 and 2011.

The current facility consist of 30,000 square meters of fabrication space that addresses the product areas of steel fabrication with approximately 470 employees.
The facility's yearly capacity is over 30,000 tons of fabricated steelwork and 400,000 WDI of prefabricated pipe spools.

Tekfen Ceyhan Manufacturing Facilities have focused their efforts primarily in the petro chemical and energy fields where they estimate this represents up to 70% of their annual turnover.
This prominent market focus is followed by projects in the industrial (15%), bridges (10%) and commercial fabrication (5%) areas.

Tekfen Ceyhan Manufacturing Facilities have developed into a global player in some of the most significant projects in diverse corners of the globe.
For example, the following projects are just some examples of these jobs:

Azarbaijan Projects:
- Baku Olympic Stadium
- The Central Bank of the Republic of Azerbaijan
- Shah Deniz Fabrication of Offshore & Onshore facilities

Brazilian Project:
- Petrobras Offshore Platform Module Fabrication

Qatar:
- Prlects Al Thumama Stadium Project
- Qatar Motorways

One of Tekfen's core competencies is their engineering background.
They cite that up to 90% of their fabrication projects are designed internally.
They fully utilize Tekla as the CAD package for their projects.

They state that in 10% of the projects they have outside firms generate the detailed fabrication drawings.

Tekfen Ceyhan Manufacturing Facilities have installed numerous FICEP lines dating back as early as 1993. Regardless if the projects are generated internally or externally, they are exclusively downloading all their required FICEP CNC programs from the 3D model.
The initial FICEP lines that were purchased when the facility was started in 1993 consisted of drilling, sawing and thermal processing of structural steel shapes plus plate punching and drilling. These original lines remained in service until the recent replacement with systems that feature current industry leading technology.

Recently we had the opportunity to sit down with Mr. Mustafa Baysal, the Plant Manager, to learn more about the firm and their operations.

Since your start up in 1993 you have installed different FICEP lines to address not just structural steel but also plate fabrication. Part of this history was the purchase of a pull through style plate processor, the FICEP Tipo A, in 2011. Most recently you also purchased a FICEP Gemini for drilling, milling and scribing in tandem with the Kronos burn table to add to your plate fabrication and production capabilities. Why did you decided to now purchase a gantry style plate processor versus buying another FICEP Tipo A?

"We process stock plate up to 8 meters in length on the Tipo A and we wanted to have the ability to process a maximum plate length of up to 15 meters. Our Gemini/Kronos system can process up to 30 meters so we can be processing one 15-meter plate and have the next plate ready to process.
This concept of having two zones enables us to fabricate in one zone while we can unload finished parts in the second zone and then load the next stock length. This way we do not have any idle time on the lines for loading of stock plates and removing of finished parts.
In the case of the gantry system the material is stationary versus moving the plate in the pull through system. This means the required floor space is approximately 50% of the Tipo A pull though style system."

I assume you have used the Tipo A for drilling and thermal cutting with plasma and oxy-fuel. Do you use this system for other operations such as scribing, milling and tapping?

"Virtually 100% of the operations are drilling, scribing and thermal cutting. We have used the system occasionally for tapping and milling."

You purchased a FICEP Gemini in tandem with a Kronos. Can you explain your thought process that developed the decision to have both machines share the same table and rails?

"The gantry system starts by saving so much space over the pull through style plate processor. The ability to add a Kronos thermal cutting system on the same set of gantry rails and burn table without requiring any real addition in the required foot print is a major advantage. While the Gemini concentrates on spindle related functions (drilling, scribing and milling) the Kronos can use its multiple torches to profile parts of the plate that were previously processed by the Gemini.
Our Gemini has two totally independent drill spindles each with its own sub-axis. This technology enables us to generate with the Gemini two different spindle operations (for example drilling, scribing, milling etc.) simultaneously even if they do not share the same length coordinates. The fact that the plate is always stationary and rigidly clamped on the Gemini, during spindle operations, makes it ideally suited for operations such as productive milling functions."

In your layout the saw, drill and robot are separated. What was the decision process that determined your system layout with these machines split?

"Based upon our product mix and the significant number of holes that we need to generate in each part we felt that we could get more throughput per shift by having separate work centers for drilling, sawing and thermal processing of our structural steel shapes.
One of the concerns when you spilt the systems apart is the additional material handling steps that are required.

The movement from sawing to drilling to thermal processing either requires the use of cranes and manpower or integrated transfer tables. In our case the system is totally automatic including all material handling functions.
An operator is not required to operate transfer tables and conveyors which on a manual system happens generally only when the CNC drill line for example is idle.
In our case, with full automation, the movement of the material through the system occurs without human involvement and in masked time. *The routing of material through the lines is performed automatically based upon the operations required. Once material arrives at the appropriate work center the required program is entered automatically.*
An operator is no longer looking for the required program and the potential for human error is eliminated."

Are all the parts that are processed on the line first cut to length on the band saw or are some stock lengths processed as a nested length and later cut to length?
If so, how are they cut to length?

"Based upon the parameters that we set up for our automation some of the parts are cut to length prior to drilling or thermal processing while others are processed through the drill as nested parts. After processing through the drill, the nested parts are cut to length using our coping robot."

When you evaluated the purchase of the drilling line FICEP offers three spindle lines with fixed spindles, but you purchased the Valiant with complementary axis for each spindle. What were the reasons you decided to purchase this model?

"Our purchase of the Valiant was driven because of the increase in productivity and versatility."

Have you performed any milling operations on your Valiant drilling line? If so, what milling processes have you used?

"The Valiant is capable of extensive milling operations for our product line. What we have been using the milling capability for primarily is to generate weld preps and rat holes. In the past we would have generated this application on our old robot but we would then be required to clean up the cuts manually and grind out the web for the rat hole cut until it was flush with the flange. Now when the section leaves the drill there is no secondary clean up required."

What criteria do you use to decide when to use oxyfuel versus plasma on your FRC robot?

"It is driven by the thickness being processed and how close the cut in the web is to the flange as the oxy-fuel torch is smaller in diameter and gives us better flexibility in some cases."

What type of cuts do you make on your new coping robot installation?

"We make all kinds of straight and miter cuts plus we split tees as needed. Frequently we will process a nested section that contains multiple drilled parts through the robot to cut to length the nested parts.
This is extremely easy to accomplish with the software and minimizes the number of material lengths we have to handle up to the time the section enters the robot.
We occasionally use the robot for generating weld prep and rat holes but only when the Valiant drill is overloaded as producing these routines on the drill with milling is the best way to generate these tasks."

What are the greatest advantages that you have realized with the FICEP lines?

"Stability and ease of use by our operator. The way the material handling automation functions and the elimination of required crane activity is a big advantage. We are surprised by how positive this impact has been on our efficiency."

What were the main reasons that you selected FICEP to provide your new lines?

"We have been equipping our plants with FICEP equipment for 27 years and have found that our level of satisfaction could not be better plus the heigh technology that they offer to us as a user is industry leading. Currently we run the equipment on a single shift but in peak periods we go to a three-shift operation and the durability of the FICEP products is more than up to the task."