LT-FREE, LT 360: the 5 axes redouble

*A new product joins the 5-axis laser cutting line by BLM GROUP. Besides the LT FREE system, LT360 is a new opportunity to cut bent tubes, flat and drawn sheet metals, hydroformed and pressed components and welded assemblies by means of the 5-axis cutting process in a simpler way and at a lower cost both systems were presented and operated at INTUBE IXX, the Open House by BLM GROUP.*

BLM GROUP trusts in the 5-axis laser cutting systems because they complete the range of tube machining processes, permitting to laser cut an already bent tube and, more generally speaking, as it is an important process in many of its target markets such as automotive and motorbike, just to make an example. That is why LT360 has been created: it is a system based on a six-axis robot that supports and guides in space the laser head cutting drawn sheet metals, hydroformed components, welded assemblies.

INTUBE IXX was the ideal setting to show, as world first, this product that comes up beside LT FREE to finish off the 5-axis system range. LT FREE is the complete system, able to support large volumes with flexibility and with extremely high productivity and LT 360 is an even more flexible, simple and low cost system that keeps unchanged some important advantages of the LT FREE system.

**LT360**

This system consists of a six-axis robot arm that moves the laser head in space over 5 axes to cut 3D parts such as drawn sheet metals, hydroformed parts, tubes. etc. Parts to be machined can be placed inside the work area - protected for obvious safety reasons - on a support table or supported by another six-axis robot. Other customised configurations can be offered in function of the specific needs and it is easy to understand the variety of possible solutions.

However, it should be underlined that LT 360 is not a cell designed for a specific application, but it is a general purpose system suitable for flexible machining of different parts programmed off-line. Off-line programming is identical to the LT FREE system and uses the same simple production changeover.

The laser technology, with the Active functions and the database of cutting parameters, is the same guaranteed by the over 30 years of experience in laser cutting of BLM GROUP in its whole range of products.

In the configuration showcased at INTUBE IXX, inside a cabin that ensures safety during machining steps, there are two different working positions that can be reached by the LT360 cutting head. A part of a motorcycle exhaust to be trimmed is placed on a table and next to it another six-axis robot picks up a bent tube and positions it to be cut by the operating arm of LT360.

Two separate and different machining operations showcased the flexibility of this system as to price and flexibility, the two points of greatest interest and importance.

LTFREE

LT FREE is the 5-axis system with a more traditional Cartesian movement of the cutting head, that ensures great flexibility and extremely high productivity. LT FREE is available in four configurations:

* “ENTRY LEVEL” with single table, especially used for prototyping,
* ONE FLEX, with turning table, typical for automotive,
* MID FLEX suitable for small parts with two alternating tables,
* HIGH FLEX the most complete configuration that, with its two supporting six-axis robots enables precise machining in a single pass of bent or hydroformed tubes.

At INTUBE IXX, LTFREE was presented in its most complete configuration with the two robot cells that will perform different machining processes. One cell is dedicated to cooktop drilling, a machining process with drawn sheet metal, typical application for this type of systems. The second cell is used to drill holes and trimming on a dashboard support part, a tube cut on a LT5 and bent on a ELECT 80 with a demo of the entire All-In-One process that in this case includes final laser machining after bending.

LT FREE and LT360 systems belong to the Lasertube family from which they inherit some of the most characteristic functions, such as Active Piercing to better check the drilling step and Active Focus to automatically adjust the focus position with respect to the cutting nozzle. Besides these, some typical functions of the LT FREE system such as Active Gripper, enabling control of automatic part clamping devices during machining and Active Power, a measuring system of the actual power of the beam reaching the machine and used to ensure a better cut quality and easy maintenance. Both systems work with fibre laser sources up to 3 kW.

The programming software ArtCut is a strength of both systems. Extremely easy to use, ArtCut is the CAD/CAM enabling programming and simulation off-line in a simple and intuitive way. Simulations are used to check axis trajectory and automatically avoid collisions of the head with the part or with other machine elements.

Programming, simulating, estimating and quantify times and costs, without needing to the stop the machine, means being able to ensure accurate and precise jobs with 24/7 non-stop production at the same time.

Then, an automatic loading/unloading station is available so that LT FREE systems can operate in a completely autonomous way. It is a special application that, by exploiting an accurate viewing system and a robotised arm, a single element can be identified in a box containing the parts to be processed, picked and placed on the load/unload table. At the end of the cycle, the worked part is placed in another collection box. More in general, the presence of an external loading robot increases the customisation opportunities for the loading-unloading system of the LT-FREE with automatic solutions including concatenations with other BLM GROUP systems. Final goal: to create an efficient non-stop cycle, capable of working 24/7 and guaranteeing certain processing time and therefore constant productivity and known costs.

All these cases refer to special applications studied and customised according to the customer’s need by means of a detailed technical analysis of the application.

**BLM GROUP**

BLM GROUP is the global partner for the entire tube machining process with a capillary worldwide presence and thousands of applications:

BLM S.p.A., based in Cantù (CO), Italy, has specialised since 1960 in the production of CNC tube bending machines, tube forming machines, measuring units and devices for automated integration.

ADIGE S.p.A., based in Levico Terme (TN), manufactures systems for laser-cutting tubes and machines for disc-cutting tubes, solids and sections. The range is completed by brushing machines, measuring systems, washing systems and collectors

ADIGE-SYS S.p.A., based in Levico Terme (TN), specialises in the production of "mixed" laser-cutting systems for cutting tubes and sheet metal, systems for laser-processing large-sized tubes and end cutting and removing lines for tubes and bars.

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