



STRUCTURAL STEEL

FROM DRAWING TO PRODUCTION IN ONE CLICK

VILLING TECHNOLOGIE GMBH

Complete metal structures, daring roofing, fire escape ladders and gates, intelligent supporting structures for special civil engineering projects: special complex constructions are the specialty of VILLING Technologie GmbH. These are the products that the innovative, a thirty man, metal working company based in Friesenheim in Baden, Germany, supplies to customers operating in various industries across Europe. The people at VILLING Technologie particularly enjoy being called for projects that stretch beyond the limits of conventional metal fabrication methods.

SPECIAL CASE SERVICE SUPPLIER

It is amazing to discover a metal fabricator that combines creativity, decades of know-how and next-generation production technology, like at VILLING Technologie. “I like to take visitors to see our production floor right away. Here, I can show them the huge variety of things that we can accurately make with a Lasertube LT20”, declared Konstantin Villing in the summer of 2015 during our visit to the plant housing the impressive 3D laser tube and structural steel cutting system. What the managing partner really meant was clear a few instants later.

“It is in joints that we have achieved unprecedented flexibility and accuracy. This means that we can implement a new approach to metal constructions”.

With Villing we reached the safety fencing guarding the loading station of the machine. True to the notion that ‘a picture is worth a thousand words’, the skilled mechanic and metal fabrication expert made the fencing himself to showcase what the system can do at a glance.



THE FREEDOM OF ANGLES, SHAPES AND SIZES

The entire structure consists of 150 mm diameter round tubes – that work as uprights of the structure – and square section tubes with an outer width of 60 mm. “For fitting we laser-cut the holes and cut both the circular and the square section tubes”, explained Villing pointing to the relevant areas. “Some of the joints are also welded to show how discreet and clean weld seams can be today”. The structure has a screwed couplings. In all cases, the accuracy of laser cuts and of the couplings is unquestionable.

The pinnacle of the creation was the use of circular section tubes that Villing made to project a good half a meter over the frame. This was achieved by making two-dimensional and three-dimensional laser holes and cuts at all possible angles in which the various circular and square section profiles and the tubes made of steels of different qualities are inserted. “When it comes to material, we are very flexible with the LT20: for instance, we can process S235 and S355 steel, stainless steel and fine grain construction steel”, said the businessman.

30%
reduction of production times

STABILITY EVEN WITHOUT WELDING

With regards to materials: “This fitted structure is also very stable without welding”. Villing took us to see a material store they made themselves in which IPE 400 sections of various lengths and truly impressive weights are stored along with other material. The frame is made of circular, square and rectangular section tubes simply fitting into each other: all cuts were made with a LT20.



THE SECRET IS IN THE INTEGRATED PROCESS

In VILLING Technologie, the LT20 is perfectly integrated with the computerized job preparation and organization. After the customer's approval, the 3D CAD data of the steel structures designed at the company seamlessly flow to the Artube programming and simulation system of the system for CNC 3D section and tube laser cutting. Artube automatically creates the single optimized machine program and perfectly simulates the production process on the screen showing how it will be run on the tube and section laser cutting system.

This is the computer-to-laser cutting concept. The fully integrated, high-performance process offers unprecedented flexibility and accuracy to steel fabrications maintaining productivity and high economic efficiency at the same time. It also virtually eliminates all the common causes for error of conventional fabrications.

"We can only earn by offering tangible added value to our customers because only in this way can we overcome the discussions on prices that traditional fabrications suffer from. So we must look forward and invest in future perspective. In this way, we can calculate our prices and ensure they are convenient from the commercial point of view", said Villing illustrating the reason why they had chosen to invest in next-generation 3D CAD technology back in 2006 and decided to buy an innovative BLM GROUP section and tube laser cutting system a year ago.

VERY SHORT PRODUCTION TIMES

Production time has been cut by at least 30 percent since the LT20 was commissioned in the autumn of 2015. This result is complemented by a drastic reduction of assembly time at the construction site because each part are guaranteed to match perfectly. All in all, the company is at least 40 percent faster than traditional production processes. The value is even higher in case of repeat orders.

From Villing's point of view, the new harmonized European standard EN 1090 which governs the use of structural steel and aluminum elements for construction forces everyone – manufacturers and distributors alike – to change their approach. "Without certification



of compliance to the standard there may be even legal consequences in case of damage". Anyone who cannot document to have worked in compliance with harmonized standard EN 1090 should even expect customers to refuse to pay. There is no alternative to the new working method.

AN 18-METRE DISTINCTIVE FEATURE

Villing wittingly decided to install a variant of the Lasertube for processing materials up to 18 meters long with diameters of up to 508 mm and bar weights of up to 200 kg/m, because he wants to make that length a distinctive feature in the market. Some competitors can cut tubes and sections of up to 12 and even 14 meters long. For longer lengths there are fewer suppliers on the market. This is why these additional meters make a big difference, according to the businessman. The length offers the possibility of improving cutting results even further. On the other hand, they also process materials 'just' 6 meters long to exploit the entire range of the machine.

In addition to structures developed for customers, Villing wants to saturate most of the huge potential of LT20 for subcontracted jobs in the short term. Already now the jobs made for companies in the sector contribute to a basic work load. His intention is to start making and marketing his own products. It is obvious that there will not be 8-15 products and that the products will be made with this system. In one way or the other, the production flow can react to all market trends proactively and soundly.

"These proposals are of great value for our customers", summarized Villing. "I understand this simply because in a normal situation no-one calls me back to discuss prices."