

Invested in safe and clean plasma cutting

In the course of the construction of a cutting components centre Conferdo needed a cutting and extraction system designed for the production of complex and fastidious components as far as welding was concerned. The company from Esterwegen in Lower Saxony/Germany is a supplier of industrial customers from the renewable energies sector around the world. The certified specialist steel construction and welding company founded in 2002 produces components for wind turbine generator systems, offshore steel constructions, tower and mast constructions as well as special steel constructions. In general, in the case of project-related work a lot of individual parts are produced. The wide range of tasks requires highest demands on the production. In order to be able to carry out the work in the company, Conferdo maintains a big and modern machine pool within the production department with more than 40,000 m². "This is how we keep added value in the company and we are able to supervise the quality and adherence to delivery dates ourselves", explains general manager Rainer Bach.

The latest addition to the cutting and filter technology sector: a multifunctional plasma cutting unit of the MG series by MicroStep and an extraction and filter unit "ZPF 9H" with rotary gate valve and big-bag disposal by Teka, Velen/Germany. With the help of these units Conferdo is able to cover a wide range of various cutting tasks and at the same time, to fulfil the highest demands in terms of product quality and employee safety.

The plasma cutting unit with a working surface of 12,000 x 4,200 mm, producing



The extraction and filter unit "ZPF" takes in the polluted air and purifies it.

among other things mounting systems for wind wheels in the ocean, makes a combined processing of sheets and pipes possible and is equipped with two plasma sources of the company Kjellberg Finsterwalde, Finsterwalde/Germany. It was configured specifically for Conferdo and it covers various cutting tasks from 3D tube and profile machining (30 mm up to 1,000 mm), the marking and beveling cutting to metal sheeting processing. Both "HiFocus 360i" plasma systems are able to cut into material with a thickness of 50 mm and thanks to the "ContourCut" technology they offer very high cutting and perforation quality. The unit was complemented by a high performance dot peen system with a marking depth up to 0.8 mm. As a result of the use of linear guiding on all axes and drives on both sides the unit provides for a high dimensional accuracy and precision on cut contours and components.

In general, a high quantity of particulate substances is released during plasma

cutting. Even more so when two plasma power sources are used. A clean working environment is an indispensable precondition for an excellent quality of the produced parts and the protection of the employees inside the hall. Particular attention to the product quality must be paid in the cutting centre: "Accuracy and cleanliness are required to a particular high degree here. Because that is where the course is set for the further internal production as well as for the quality of the final products", explains Rainer Bach. Occupational safety



The rotary gate valve continuously transports the particles into the big-bag.

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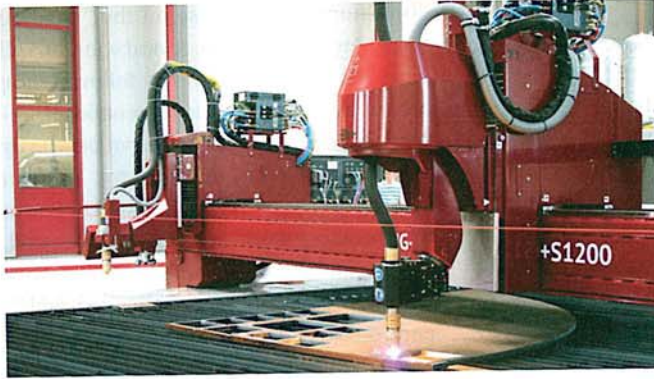
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and the protection of the employees' health are a high priority: "We comply with international standards for occupational safety and health protection in accordance with BS OHSAS 18001 (British Standard Occupational Health and Safety Assessment Series) and we implement it on a daily basis. Extraction and filter units by Teka which we have used for more than ten years in different business divisions perfectly fit into our quality concept."

Energy-saving extraction and filtration

The plasma table at Conferdo is equipped with a sectional, energy-saving extraction under the working table. Along the entire length of the table, suction channels are attached at regular distances below the workpiece support. They are only activated where smoke is actually released. Via a pipeline the polluted air is led to a spark separator which eliminates glowing parts. Then the air is led to a filter unit with a power of 15 kW and a filtering surface of 225 m². The cartridges of the dust category M separate even fine dusts to a degree exceeding 99.9%. Thanks to the special geometry of the filter cartridges the particles can be dedusted effectively and gently by using only a small amount of compressed air. The extraction unit is IFA certified and meets the safety requirements for the welding fume separation category "W3", the highest welding fume separation category for extraction units. This means that even the air produced during the processing of high-alloy materials which is contaminated with harmful emissions can be led back into the working space after the purification in accordance with a derogation of the Ordinance on Hazardous Substances. In this case, up to 10,000 m³/h purified air



The plasma cutting unit provides a very high cutting and perforation quality.



The 3D tube and profile machining rates among the wide range of tasks of the multifunctional cutting unit.

flows steadily and silently through a textile, 9 m long air outlet back into the hall.

Due to the high quantity of dust produced during the plasma cutting, a rotary gate valve with big-bag is installed under the filtration chamber. This ensures that the particles are efficiently eliminated. After every automatic dedusting of the filter with the help of the power-spray-system the particles fall into the housing via the intake and get into the individual chambers of the rotary gate valve. During the circulations, varying depending on the emission level, the dust is transported to the outlet and into the big-bags. In the case of a manually adjusted circulation the operators can replace the full repositories during operation of the

cutting unit. The advantage of the self-contained system: For the dust once fallen into the storage bin through the rotary gate valve there is no return. In case of a repeated dedusting by means of a compressed air blast it cannot be aspirated again and cannot reach the filtration chamber. The consequence: The cartridges are less polluted with dust and must be cleaned less often. In this way not only the service life of the filters is extended, but less compressed air is used, thus saving energy.

Rainer Bach draws a positive conclusion: "We got a system perfectly matched and precisely tailored to our needs. Furthermore it offered the best value for money." (According to press information from Teka)

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