

HIGHEST WORK SAFETY THANKS TO MODERN SUCTION SYSTEMS AT MECHANICAL ENGINEERING COMPANY TRUMPF

Posted on August 31, 2015 by Alexander Lenfers



Welders and their immediate environment constantly face health hazards: Sparks, gases or ultra-fine dust particles. It is with good reason that metalworking companies are obliged to protect staff by means of e.g. suction systems. At their site in the French Haguenau, the company TRUMPF produces the basic steel frames for laser cutting machines and punch nibbler machines for all of Europe. For some time, workers have been able to do this even more safely and efficiently: 50 welding work places were equipped with high vacuum suction systems.

The task for the equipment was clearly described: The TRUMPF site in the French Haguenau was expanded by a new building measuring 7,000 square meters and the newly created welding workstations were to be designed to be safe and efficient. For this purpose the company decided in favor of a high vacuum suction system above fume extraction torches consisting of two filtration systems.

Staff safety is first and foremost

The suction systems meet all the work protection requirements and furthermore they work at a very low noise level. By means of a spark separator, filter fires are avoided. As regards filter performance, the new systems at TRUMPF exceed legal requirements by far. For welding fumes, filters of the dust class M are sufficient according to statutory requirements. This is defined in DIN EN 60335. However, nearly 90 per cent of particles in the welding fume are smaller than $0.4\mu\text{m}$. The ultra-fine particles are not captured by conventional filters of class M. But it is especially these small particles which represent a particular health hazard. The ultra-fine dust can be deposited in the alveoli and thus make its way into the bloodstream. Depending on the type of dust these deposits in the alveoli and in the bloodstream can result in a most serious health damage and even to cancer.



The systems installed at TRUMPF are equipped with special membrane filters which capture 90 per cent of the ultra-fine particles under $0.4\mu\text{m}$. Approx. 92 per cent of particles with only $1\mu\text{m}$ are eliminated. This exceeds the current regulations. Thus TRUMPF achieves an effective and a sustainable health protection of its staff. Despite all advantages of costs and efficiency, safety of the staff should always be first and foremost.

Reduction of energy costs by means of a regulated suction performance

By means of a frequency converter and pneumatic gate valve separating all work stations from one another, the system at TRUMPF succeeds in regulating the suction performance according to need. In this, the vacuum in the tubing remains constant so that there will be no restrictions or a reduction in safety for the welders at particular welding work stations. Another advantage of the regulation according to need: It makes additional cost savings and reductions in energy costs possible. By these means high quality solutions pay off within a very short time.

The special features of the suction system are however not limited to the key words safety and efficiency. In detail, many small solutions ensure a comfortable and smooth operation. The timer switch saves the manual control of the suction system and a clear display allows for an analysis of the operational status at just one glance. Moreover, the central lubrication of the turbine guarantees a safe operation.

