

Manufacturing precision for information technology

SCHÄFER Perforated Metal produces special perforated sheets for IT racks

Neunkirchen, 10th December 2020. Perforated metal sheets have become indispensable in information technology. This is because the demand for IT capacity and performance is constantly increasing, leading to cooling requirements for IT components becoming ever more stringent. The standards that have to be met for access control and contact protection make this task more difficult. For this reason, IT rack manufacturers need perforated sheets with "open areas" – referred to in technical jargon as "free clearance" - of over 80 percent. In other words: less than 20 percent of one square metre of perforated sheeting actually consists of metal; over 80 percent is open area. Such extremes can be realised with a hexagonal perforation pattern, H6 T6.70, which provides free clearance of 80.2 percent.

The challenge in producing this perforation pattern is the ratio between perforation size (6 mm), material thickness (1.25 mm) and margin width (0.7 mm). The fine 0.7 mm margins must not break during production of the sheets and also have to remain mechanically stable, not only while the sheets are being processed to make the end products but also during the products' subsequent use.

This requires special high-precision punching tools for the production process. SCHÄFER Perforated Metal relies completely on individually manufactured tools from the company's own toolmaking department.

The greater a perforation pattern's free clearance, the greater the stresses exerted during the punching process. The mechanical stress must not exceed an individually defined threshold value otherwise cracks will form in the workpiece. However, a certain cylindrical deformation of the semi-finished product is unavoidable in the punching process. For this reason, a further processing step is needed to flatten the sheet on a precision straightening machine. Only now is the fully automatic further processing of the perforated sheet possible.

"The processing of cold-rolled and hot-dip galvanised steel sheet, stainless steel and aluminium is one of the core competences of SCHÄFER Perforated Metal. We integrate the individually processed perforated sheet solutions precisely into our customers' workflow," explains Alexander Tumasjan, Business Unit Sales Manager at SCHÄFER Perforated Metal.

Among the customers benefitting from the special perforated sheets produced by SCHÄFER Perforated Metal for manufacturing rack, server and control cabinet systems is SCHÄFER IT-Systems, which is also part of the SCHÄFER WERKE Group.

About SCHÄFER Perforated Metal (www.schaefer-lochbleche.de):

Working with the slogan "Perforated metal made to measure – individual and fast", SCHÄFER Perforated Metal in Neunkirchen supplies a wide and quickly available range of high-quality perforated metal sheets for all industries and applications. Using high-precision tools, the company can meet virtually any customer requirements

regarding material, perforation pattern, dimensions, machining and delivery. SCHÄFER Perforated Metal is a division of the internationally successful SCHÄFER WERKE.

This owner-led enterprise is headquartered in Neunkirchen in Germany's Siegerland region and operates globally with diversified business areas: EMW Steel Service Centre, perforated sheets, expanded metal, standard and special containers in stainless steel and installations for data centres, workshops and factories, as well as data management systems for load carriers. The work of all these divisions is based on high-quality fine steel sheet. The processing of this material is one of the core competencies of this enterprise.

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