Seam tracking and quality control

The "YW52" laser welding head has an integrated "ScanTracker" (Fig. 4) for the controlled weld position and weld seam width. In conjunction with the "WeldMaster" system for realtime process control and quality monitoring, this is a flexible and comprehensive solution for difficult welding tasks under changing conditions. The "WeldMaster" measures the joining position laterally and the width of the gap. Instead of an external axis, the integrated scanner mirror of the "ScanTracker" precisely controls the focal position along the measured joint. The "WeldMaster" systems for realtime process control and quality monitoring of laser seams are based on one standardised platform, which is responsible for data processing and operator guidance. Camera systems and sensors for measuring and controlling the laser joining process can be connected and evaluated to suit the application concerned. The operator concept

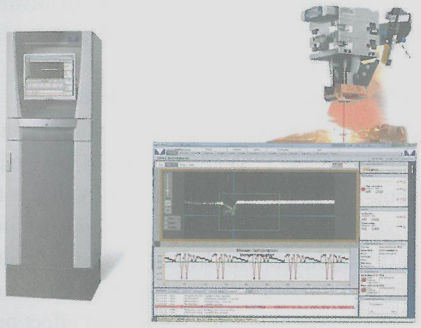

Fig. 4

is always the same, no matter whether the system is supposed to detect and control the joining position, whether an image is evaluated for detecting welding seam errors or whether only a simple sensor signal, the laser power for instance, is to be depicted. Examples of the first successful applications of the "WeldMaster" system in automotive engineering are laser welding and the quality control of gear units, aluminium connections in the drive train, as well as aluminium fillet welds in body construction. (Precitec GmbH & Co. KG, Draisstraße 1, 76571 Gaggenau-Bad Rotenfels/Germany; www.precitec.de)

Resin for industrial applications

"Silikophen AC 950" – the high-temperature resistant, high-solids silicone resin – is HAPS-free and intended to provide protective properties in industrial applications. No toxic substances release during curing, making application of "Silikophen AC 950"

Fig. 5

possible in enclosed spaces. Smoke formation and VOC content are significantly lower than traditional bake-cure silicone resins, allowing "Silikophen AC 950" to meet the increasing requirements for eco-friendly coatings systems. "Silikophen AC 950" cures at ambient temperature, utilising a catalyst, which provides additional advantages. Application displays high and early resistance to aromatic and aliphatic solvents, in addition to impact resistance and non-blocking properties without a bake-cure cycle. Oven drying at high temperatures has natural limits. The ambient-curing systems enable coating of large objects such as in industrial plants for water treatment or for energy generation (Fig. 5). Compared to classic bake-cure systems, energy consumption is also lower. Curing at room temperature facilitates a user friendly, economical solution to high-temperature resistant coatings. (Evonik Resource Efficiency GmbH, Rellinghauser Straße 1-11, 45128 Essen/Germany; www.evonik.de)

Turn finish combination

The "Mikroturn 100 Superfinish" (Fig. 6) is a fully hydrostatic turning machine with an integrated tape-finishing unit. It is meant for manufactures of cylindrical, spherical, conical and crowned workpieces that require a surface finish quality that cannot be achieved by means of hard turning only. The tape-finish process can then further improve the surface accuracy to Rz 0.05 directly after the turning operations. The advantages of this turn-finish combination are

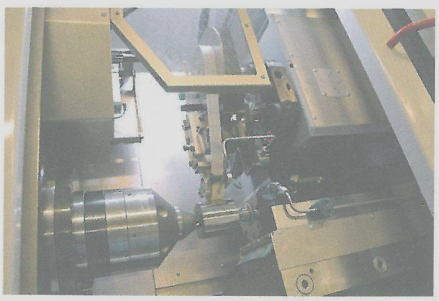

Fig. 6

numerous. Integrating two processes in machine is time and cost saving as multiple operations can be done in one set-up. It eliminates the need for a multi-step process that normally would involve two machines. Another important advantage is that because all surfaces can be machined in one clamping set-up it eliminates any possible re-clamp errors leading to better workpiece quality. The "Mikroturn 100 Superfinish" allows to meet the highest demands for quality and process reliability. (Hembrug Machine Tools, Hendrik Figeeweg 1a+b, 2031 BJ Haarlem/The Netherlands; www.hembrug.com)

Next generation welding anti-spatter

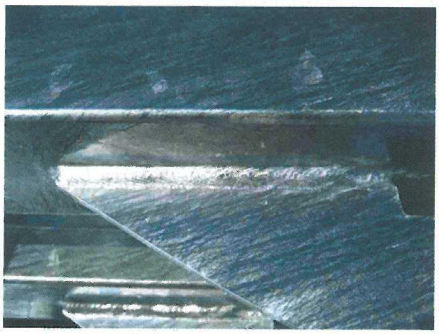

Fig. 7

Protection against weld spatter is applied to tools, equipment and work pieces, in order to produce higher quality more efficiently. The non-flammable anti-spatter agent "Protec CE15L+" (Fig. 7), now launched in further improved formulation, forms a protective film with influence on the surface tension, that leads to a drop off effect of the weld spatter, which is comparable to the "lotus effect". This is valid for both materials of steel and stainless steel. Therefore the surface remains clean and the welding result is optimised – no pores, even in case of excessive (manual) application. The pH-neutral fluid on an aqueous basis is compatible with all common coating techniques, e.g. powder-coating, electroplating, cathodic dip-paint coating, hydro varnishing, hot galvanising etc.; no extra cleaning step will be required. The anti-spatter fluid has been optimised to reduce emissions. An active corrosion protection has been integrated for the water phase. The enhanced fluids are free of markings following the GHS/CLP guidelines and are not classified as "hazardous substance". (Protec Trading GmbH, Julius-Welser-Str. 1/5020 Salzburg/Austria; www.protec-austria.com)