

Mikael Ramvall:

“Our thermal-spray products and systems are world-class.”



Thermal spraying is an efficient and established method for improving surface properties. How has Sulzer Metco managed to become a world leader in this field?

Contrary to most of our competitors in the surface coating market, we are a global corporation with a broad range of products. Our customers benefit from the fact that we offer materials, components, spare parts, systems, and services from a single source. We are one of the few companies that offer the entire range from materials development, to the delivery of complete thermal-spray systems and coating development and testing. With our broad offering, we can provide our customers with comprehensive advice and develop optimum surface solutions—not only using thermal spray, but also thin film, deposition welding, and nitriding.

STR met with Mikael Ramvall from Sulzer Metco in Wohlen, Switzerland, where he is responsible for the Equipment business unit. He explains which factors support Sulzer's competitive position in the thermal-spray market and how the Wohlen location contributes to the success.

What are the greatest successes of Sulzer Metco in the area of thermal-spray products and systems?

Our core and traditional strength is certainly in plasma processes. In this field, we are recognized as the most innovative company in the market. Our new products, such as the TriplexPro-210 and SimplexPro™ cascading-arc plasma guns represent real progress in plasma technology. But we also have attractive and competitive products in other processes, such as high-velocity oxy fuel spray (HVOF). We have a broad portfolio and can offer our customers competitive products in essentially all coating processes.

What is Wohlen's contribution?

The facility here in Wohlen has a long tradition. It was purchased by Sulzer in the 1980s and is still recognized as one of the world's leading locations for thermal-spray systems. The engineered systems developed here are world-class. Wohlen is active in product development, in collaboration with our colleagues in Westbury, USA, and in engineered systems projects. We also work closely with the Coating Solution Center located in Wohlen.

Thanks to the great efforts of our employees, we have managed to keep our margins relatively stable, despite the very difficult foreign exchange situation we faced during the last few years. We still have a lot of work ahead of us to make the Wohlen location more competitive, in particular given the economic uncertainties prevailing in the euro zone.

What is the product development focus in Wohlen?

In Switzerland, we focus on process control products, power supplies, and selected powder feeders. Our MultiCoat™ controller is very successful, especially for complex, multi process thermal-spray systems. The MultiCoat™ allows our customers to control different thermal-spray processes through a single operator interface.

For single processes, our EvoCoat™ line of controllers offer compact, more cost-effective solutions. The EvoCoat™ HVOF liquid fuel is already on the market and the EvoCoat™ plasma controller is in the validation phase and is currently being stress tested by selected customers. After some initial issues were solved, we are now receiving very positive feedback on these process controllers.

What advantages does an innovative process control system really have?

Enhanced process control primarily improves coating quality, but also contributes to a more efficient use of resources. It makes maintenance easier, extends the life cycle of the equipment, and reduces production waste. One example of this is our innovative EvoLink™ data acquisition technology, which measures process data directly at the gun. In the past, process-relevant data were measured further away from the gun, so that system-specific influences—with a potentially negative impact on the process and coating quality—were only partially captured, if at all.

Besides innovative process controls, are there also fundamentally new spray technologies?

Yes. In February 2012, we bought a technology that is new for Sulzer Metco and that is in the early stages of its industrial development, namely cold spray. In this process, the coating material is heated to a point where it becomes plastic and is deposited on the surface with a very high particle velocity. This process is ideal for ductile materials, which produce a dense and oxide-free coating. With cold-spray products and systems, we will serve the growing markets for surface solutions and also for additive manufacturing. It is also the only process that achieves deposition rates of over 95% with copper. With cold-spray systems, the coating material is not brought to a fluid state as with other technologies such as plasma- or high-velocity oxy-fuel processes. The process temperatures are thus lower, but can still reach about 1000°C.

Amazing, that this is still considered “cold”...

Well, when compared with other processes, it is certainly colder. The correct term would actually be kinetic surface coating. It is a bit like throwing wet snowballs or soft rubber against a wall. When the material is plastic enough, it sticks.

...and the Swiss obviously know something about snow.

Yes, that's true. But joking aside: Our facility here in Switzerland has the advantage of being close to the modeling and material experts working within the Sulzer corporation. They help us to optimize the nozzles and the nozzle cooling in our cold spray systems. We conduct modeling tests and are working right now on a water-cooling system for the nozzle wall to reduce clogging. This allows us to increase the spray temperatures, thus increasing the range of materials we can spray, and it helps our customers achieve better coatings. Through our collaboration with the members of the Cold Spray Competence Group, we are developing this technology further based on the latest research results.

What does a glance into the future look like? At the moment, there is something like a surface coating boom in the marketplace.

The demand for coatings that protect surfaces from heat, corrosion, or friction, is large and growing. Coatings with other surface characteristics, such as electrical conductivity or insulation, are finding more and more areas of application. Also, raw material prices are increasing, which is why many companies are attempting to manufacture components from less expensive materials for structural integrity and then treat the surfaces to achieve the necessary surface properties. Our customers can select a suitable material from a portfolio of several thousand different powders and wires and thus are able to tailor the functionality of the surface for almost any applications.

Which surface technology application areas will grow faster in the future?

The automotive industry is becoming more interesting. We have already helped a number of vehicle manufacturers fulfill the European emission standards

through improved surfaces. The manufacturers benefit from surface treatments because they reduce friction and the need for lubricating oil in the engine, which leads to lower emissions. In the oil and gas industry, attractive applications and markets are also emerging.

In other words, coatings can also contribute to protecting the environment?

Absolutely. And sustainable technologies for the transport sector are essential, since this area is responsible for a very large share of global oil consumption. We deliver coatings for the world's diesel engines from passenger cars and trucks to locomotives. Under the name SUMEBore™, Sulzer Metco markets coating solutions for cylinder sliding surfaces in a huge variety of engine blocks. In the future, ever-increasing demands will be placed on such surfaces. We also offer a range of solutions for the aero-engine manufacturers. For example, the next generation of aircraft turbines will only become more efficient if the operating temperatures can be increased. And this requires surfaces that are more

“Our customers appreciate our wide range of products, systems, materials, and coating developments from a single source.”

resistant to both corrosion and heat.

We are active in these future-oriented areas and support our customers with our comprehensive range of products, systems, materials, and coating developments from a single source.

Interview: Tünde Kirstein

Mikael Ramvall

is head of the Sulzer Metco Equipment business unit, which comprises systems, components, and spare parts activities. He has developed a broad set of functional competencies through his work in engineering, strategy, mergers & acquisitions, and integration management positions in the oil & gas, power generation, automotive, and building technologies industries—to name a few. Mikael Ramvall has a degree in chemical engineering from the ETH Zurich, Switzerland, and an MBA from Columbia Business School, New York, NY, USA.