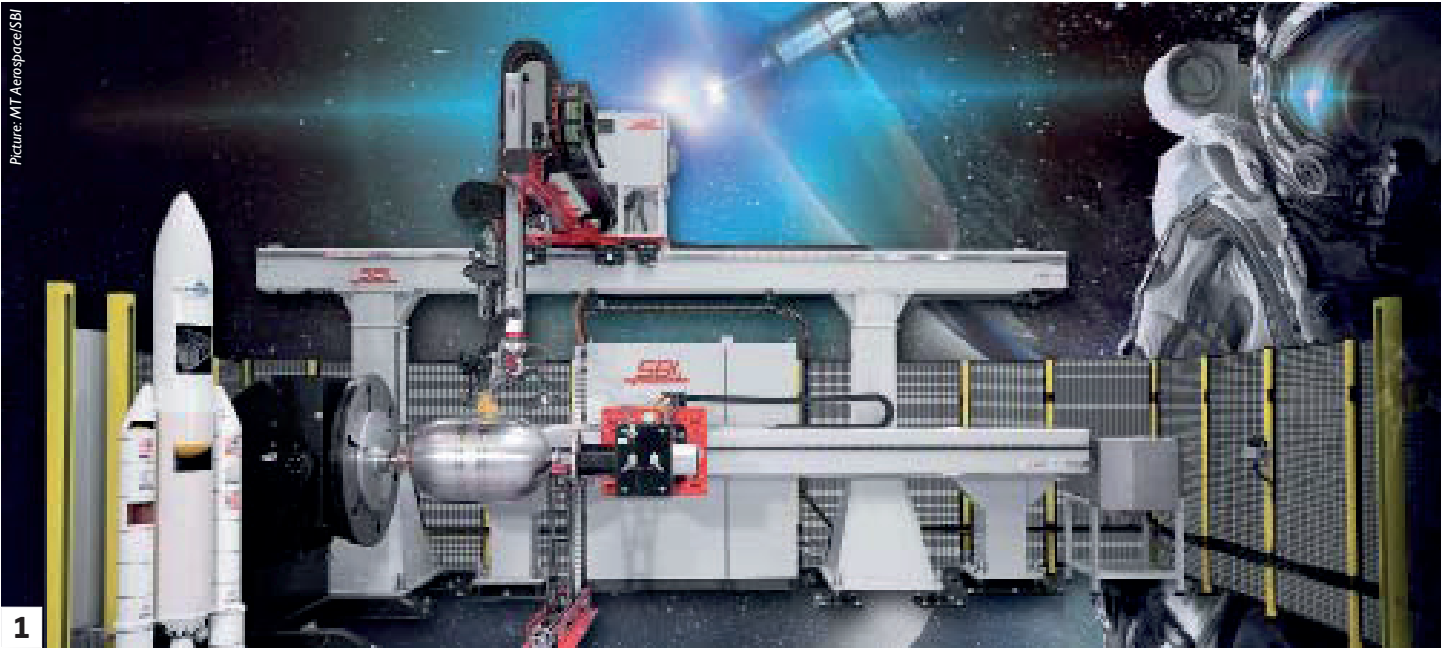




Picture: MT Aerospace/SBI



1

A Connection That Holds

COMPLETE SOLUTION SBI, Austria, recently delivered a newly developed 7-axis Gantry system for the automated welding of satellite tanks to the renowned space-flight company MT Aerospace. For this, SBI relies on automation technology from Sigmatek.

PLASMA WELDING is a niche product – for the Austrian company SBI however, it is a very attractive one. The automation technology comes in large part from the long-time partner Sig-

matek: control and I/O system with Safety, HMIs, servo drives including motors, as well as the comprehensive engineering tool Lasal. SBI founder Ferdinand Stempfer comes from the

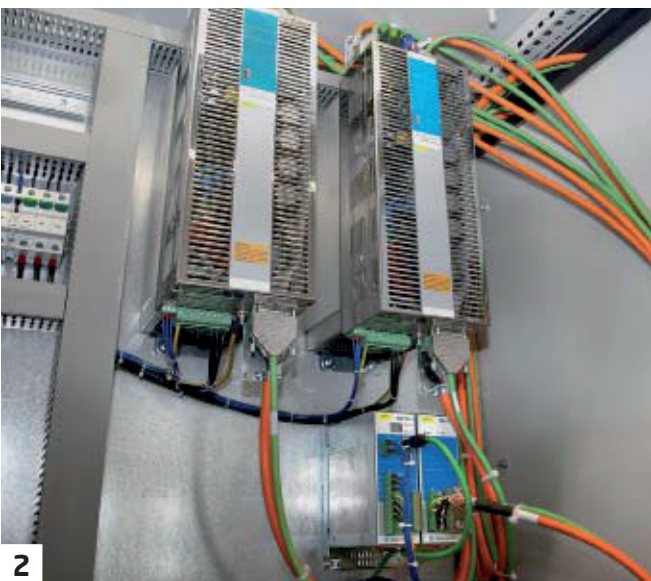
plastics machine manufacturing industry. With the development and production of special thickness gauges for use in plastic foil manufacture, he started his own business in 1999 – today one of

the two pillars of the currently 100-employee company. The second is automated systems made especially for plasma spot and path welding, as well as other welding processes. “With plasma welding, extremely demanding applications can be implemented that cannot be achieved with other welding methods,” clarifies the company founder.

The renowned space-flight company took notice of SBI’s special aluminum welding pattern and its quality. MT Aerospace designs and manufactures globally unique components for booster rockets, satellites and orbit transfer systems.

7-Axis Gantry System

The manufacturer supplies, for example, solid-fuel rocket housings and the largest satellite tank systems in the world. A very demanding project commissioned by MT Aerospace is the newly developed seven-axis Gantry system for automated welding of satellite tanks. Desi-



2

Picture: MT Aerospace/SBI

- 1 Seven-axis Gantry system with components from Sigmatek.
- 2 The compact and modular Dias Drive provide the dynamic drive of the system.
- 3 The visualization for the HGT 1035 mobile control panel was created LASAL Screen.



3

Picture: MT Aerospace/SBI

igned for processing cylinders with diameters from 600 to 1,700 millimeters, the system can be equipped with WIG, as well as plasma welding torches. Three linear axes in the X, Y and Z direction, as well as two rotary and swivel axes achieve freedom of movement in all directions. In addition, the tank is mounted on a rotating and tilting table. In the first process cycle, the mounted shell is riveted. Then comes the continuous weld seam and finally, the fill layer. A laser sensor-based camera system installed above the torch continually monitors the welding process and informs both the seam-tracking system, which ensures the optimal placement of the torch, and the data-collection system of the current welding status. "Data logging and process documentation have always been integrated at SBI and are a prerequisite for the aerospace industry," stresses Stempfer.

In automation technology, a long-standing partnership bonds SBI with the Salzburg-based manufacturer Sigmatek. "I have previously worked with Sigmatek during my time in plastics machine manufacturing and have utmost confidence in them," praises the SBI chief. "It was therefore fully clear that as a bu-

ness owner, I would trust this manufacturer." The automation provider's complete solution can be found in the seven-axis Gantry system: On the drive side, countless AKM motors and Dias-Drive servo amplifiers are used. On the control side, a compact IPC as well as nume-



Picture: MT Aerospace/SBI

» In practice, we run all our programs in millisecond cycles, in hard real time. «

**Ferdinand Stempfer, Founder, SBI
Production techn. Anlagen GmbH & Co KG**

rous control and I/O modules from the S-Dias series. For SBI, integrated Safety technology is a matter of course. The system communicates internally via the real-time Ethernet Varan. "We operate all our programs in a 1-ms cycle – in hard realtime," explains Stempfer. "With Varan, this is no problem whatsoever – it works absolutely trouble-free." For communication with higher-level systems, the right module is available for all commercial field bus standards. On the HMI side, an ETT 731

panel, as well as a control panel (HGT 1035) are used.

Object-Oriented Programming

Herbert Sieneel, technical director for welding at SBI, praises Sigmatek's system concept of the engineering software platform Lasal. "Programming everything with one system has many advantages for us – we can no longer imagine it differently." With Lasal, a toolset for all phases of machine development is provided: project development, control programming, visualization, motion control, Safety and simulation. Furthermore, tools for diagnostics and remote maintenance are integrated.

"The Lasal system provides us with a high degree of freedom in designing the surface of the HMI visualizations." The software tool combines object-oriented programming with graphic representation. Real components can be represented by software

objects. "That simplifies a lot – especially in our welding processes," reports Sieneel. If the technician needs help, a phone call is sufficient. "Sigmatek's support is simply the best."

www.sigmatek-automation.com
SPS IPC Drives: Hall 7, Stand 270