User report | Best practice

The Assembly Center, erected in 2013, of Anton Paar in Graz, (Photo credit: Anton Paar GmbH).

Anton Paar and Ersa

Always Suitable Support

When viewed economically, Anton Paar, the manufacturer of analytical instruments, should be considered as one of the hidden champions of Austria. The company, based in Graz, produces superior quality, sophisticated measuring instruments for physically measuring variables such as density, temperature and viscosity, microwave reaction- and synthesis systems, zeta-potential measurement systems as well as precision mechanical components and modules. Measuring and analyzing materials, they all are products little known to the general public. Yet, these measuring instruments are in use in almost all branches of industry and science, basically everywhere, were highly precise measurements and analyses are called for. This deep market penetration makes this high-tech company the world leader in many fields of measuring technology.

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Production Island with VERSAFLOW Selective Soldering System.

Anton Paar's customer base includes the world's largest soft drink companies, all large breweries, the Formula 1, the chemical, petrochemical and pharmaceutical industry as well as numerous food manufacturers. For years now, this world market leader for precision measuring instruments has found itself on a steady course of expansion – sales volume rose continuously and has reached in 2015 its high point of 264 Million €. In 2013, Anton Paar invested 17 Million € in its existing facility in Graz and erected a new building adding 14 000 m² floor space. In it are now located the electronic manufacturing department, the assembly of the analytic instruments, quality control, warehousing and shipping.

To be able to always manufacture their products to the highest standards, Anton Paar not only invests in research and development, but keeps also a close eye on the market for new production equipment for electronic manufacturing, exchanging outdated systems and investing in new, state-of-the art production lines. Thus, the new electronic manufacturing section is progressively being augmented by additional production lines. This new lines are required not only to keep up with the continuously increasing demands on products from the sister operations, for which the Graz facility manufactures the electronics, but also with the needs of the flourishing EMS operation. In January 2015, it was realized that there was an urgent need for a new SMT-line. Amongst the systems required was also a stencil printer. During the course of a visit at the SMT Nürnberg, Erich Schönberger, production manager of electronic manufacturing and some members of his group used the opportunity to look for suitable systems. Aside from looking at two other large potential suppliers, they also dropped by at the Ersa booth to get some more information on the VERSAPRINT series of printers from Ersa.

Ersa is for this manufacturer of analytical instrument from Graz no stranger – a business relationship exists already for a number of years: to equip the electronic manufacturing department after the move into the new building, the choice fell on systems from Ersa. Since 2014, a POWERFLOW e N_2 wave soldering system and a VERSAFLOW selective soldering system are installed at Anton Paar, providing both a superior process and reliable operation. This, taken together with production manager Schönbergers positive experiences with the Ersa service and application teams, augured well for a continuation of this partnership.

After the discussions at the SMT exhibition, the list of suppliers for the printer could already be reduced to three systems, with the final decision being in favor of a system from Ersa. When queried for reasons for their decision, production manager Schön-

Infobox

Anton Paar in Facts:

Founded in 1922 in Graz (Austria)

Sales 2015:
264 Mio. Euro

Employees:
2.300 in the Anton Paar Group, half of which at the principle place of business in Graz

30 subsidiary companies and branches worldwide an 6 production locations

Automated hybrid rework with the Ersa HR 600/2 ensures expert rework of complex board assemblies.

berger replied that, aside from some peripheral issues, three features were decisive for the selection of Ersa, features, that the competitors were not able to offer: there is the ease of programming and operating of the VERSAPRINT S1, a crucial factor in a manufacturing environment with a large product variety. At least 500 different boards are currently being processed on this solder paste printer, to which need to be added new products and changes or revisions to existing products, required to maintain the product portfolio on the level of current technology. Setting up and easy program modifications are therefore an important time- and cost factor in the production environment.

Furthermore, Anton Paar was looking for a printer capable of simple and reliable deposition of glue. A process, which has been gaining in importance in the manufacture of SMT assemblies, since the number of boards populated on both sides is continuously increasing. Especially when high-mass components are to be soldered on the underside of the board will gluing be imperative - this is to avoid components from being washed off or shifting during soldering. Programming the glue deposition feature is very easy and its process is repeatable and reliable.

The most important argument, however, why Anton Paar selected the VERSAFLOW S1 was the pin positioning system of the printer, a feature, which was not offered in equivalent functionality by any of the competitors, but for which production manager Erich Schönberger saw numerous advantages for his production. The system offered by Ersa ensures that during manual placement of the support pins these can quickly and reproducibly be placed.

Generally, support pins from underneath are required when printing large boards or panels. The pins are intended to prevent sagging of the boards and ensure a plane surfaces. Currently, there are a number of methods available for use in production: For once there are full-surface support systems, which do have the drawback that there may be pins at locations where pressure sensitive components are placed. Therefore, and in many manufacturing guide lines, this method is not permitted to be used. Then there is the possibility of dedicated, individually adjusted supports, which tends to be rather costly since they have to be, after each modification of the boards, newly manufactured. That is why in many cases manufacturers fall back to manual placement of the support pins. This has the benefit that allowance can be made for specific features of the assembly, such as components on the underside of the board or webs between the individual boards of a panel. The drawback here is that the reproducibility of the results will suffer, since there are no methods present with which to ensure the exact positioning of the pins during repeated set-ups of the product.

Board assembly with support pins having been placed.

With the pin positioning system of the VERSAPRINT S1, the reproducibility is regained: As the first step, an image is being taken from the underside of the board in the printer. On this image, the positions of the support pins are then marked by the software. This image is then stored in the printer program of the board assembly. For the actual placing of the pins in the printer, a further camera, looking down onto the print nest, generates a live image. Then, the image with the locations of the support pins that had been stored is, semi- transparently, being superimposed on the image with the print nest.

The set-up technician now sees on the monitor the nominal position of the pins and, at the same time, the actual position of those pins, which he will set manually. If the nominal and the actual position coincide, he lets go of the pin, which then will be magnetically held in that position. Once all pins are placed, production can start. With this method of pin placing, the VERSAPRINT S1 ensures the optimal support of individual board assemblies during the printing process, and it ensures reproducible printing results.

In the rework area, Anton Paar has also made a decision in favor of an Ersa system. At the beginning of the year, a HR 600/2 automatic hybrid rework system was purchased, so that complex board assemblies could expertly be repaired. Decisive for their decision was the convincing thermal performance of the unit, which is equipped with IR lower heating and hybrid upper heating. The combination of these two powerful heating technologies ensures that even board assemblies having a high heat requirement for soldering can be gently and homogeneously heated.

During a test period with the unit at the facility in Graz, this claim could be fully verified. "Even an aluminum plate of 2 mm on the underside of the board assembly was not a problem for the system", reports production manager Erich Schönberger, who had put this product from Ersa through a rigorous testing procedure until he was convinced of its capabilities.

Easy pin positioning through the live image on the transparent board assembly (degree of transparency is adjustable) and the setting of position markers via the software.

The VERSAPRINT S1 Stencil Printer from Ersa, installed in the production

As a system supplier who covers with his product range all areas of electronic manufacturing, Ersa has set itself the goal to contribute to the optimization of the production processes of its customers, and to always offer, in all areas of manufacturing, the optimal technical support. This surely is one factor which contributed to the development of the strong business relationship between Anton Paar and Ersa. And since Anton Paar plans to continue the steady growth experienced over the least years, it is very likely that in the near future there will be more interesting projects at Anton Paar for Ersa to participate in! ■

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