Press Release

SCHMID Group presents itself at productronica

- World's leading trade fair for the development and production of electronics opens its doors in Munich from November 14 - 17, 2023
- SCHMID Group presents numerous innovative and sustainable solutions, underlining its role as a technological pioneer
- Embedded trace process – made by SCHMID:
  The revolution in PCB and substrate production

Freudenstadt, Germany, 07.11.2023. The SCHMID Group, a global solution provider for the high-tech electronics, photovoltaics, glass and energy systems industries, will be presenting itself to a broad specialist audience at productronica in Munich. From November 14 - 17, 2023, the company will be presenting highly innovative and sustainable solutions for the rapidly growing electronics market at the world's leading trade fair for electronics development and production in Hall B3.

With their new solutions and exhibits on show, the company is underlining its pioneering technological role in the industry, its high level of innovation and its commitment to more sustainable and therefore more environmentally friendly production.

Embedded Trace Process – made by SCHMID: A new approach to PCB and substrate production

The new Embedded Trace Process (ET Process) is an absolute highlight. With this new process – and with it a new generation of production equipment – the company is revolutionizing PCB and substrate production. This unique "process-system combination" now enables higher densities and many other technological features.

For example, "embedded circuit traces" offer many previously unimagined possibilities in miniaturization. Electronic devices and components are becoming increasingly complex and compact – and the space available for the necessary structures is becoming correspondingly tight. The ET process now gives developers new freedom in electrical design in order to achieve optimum performance, an optimum thermal budget and optimum packing density in the printed circuit board.

Another highly innovative and very important aspect is signal integrity. Embedded traces allow designers to create traces in a completely new way in any shape and connect them across the isolation planes. Furthermore, careful control of impedance and routing of critical high-speed signals can be performed. This helps to maintain signal integrity and minimize signal degradation such as reflections or electromagnetic interference.

The new ET process also enables a significant improvement in reliability and longevity of a PCB, as there is no need to press the insulation layers into the circuit traces, thus eliminating the typical mechanical stress on the delicate circuit traces. In addition, the ET process avoids the surface topology caused by the conventional structure and, with its always planar surfaces, offers significantly better layer to layer registration. Taken together, these two aspects enable a higher track density in the production process with a better aspect ratio of the copper traces.

There are also considerable advantages in terms of costs, production efficiency and the use of resources. For example, water consumption can be reduced by up to 70%, CO_2 emissions by up to

30% and chemical consumption by up to 40%. The ET process therefore also forms the basis for considerably more environmentally friendly production – and enables SCHMID customers to improve their CO_2 footprint.

This innovative process is realized by a new equipment technology from SCHMID. Due to this uniqueness and outstanding position in the market, the company has registered this highly innovative development for the "productronica innovation award", which recognizes the most innovative new products and manufacturing processes.

Through Glass Vias – complete solution for advanced packaging with glass wafers

SCHMID is breaking new ground with Through Glass Vias (TGVs). Glass is excellently suited as a substrate material and promises enormous market potential as a replacement for organic materials or silicon in the field of semiconductor substrates – also due to its excellent material properties. It offers significant commercial and technical advantages, particularly for requirements in the field of artificial intelligence (AI) and high-frequency applications. SCHMID offers its customers integrated complete solutions for advanced packaging with glass wafers or full panels across the entire value creation process – from glass processing for through-holes and structuring to metallization. This is a new and unique offering on the market.

The titanium etching module and the chemical copper module are also completely new – both for the InfinityLine H+ product line.

InfinityLine H+: Titanium etching module – high-temperature etching of stainless steel

For the InfinityLine H+, SCHMID is developing an etching module made of titanium for the first time – and is thus facilitate new possibilities in high-temperature etching. Titanium has very high corrosion and temperature resistance as well as a long service life. By using this resistant material, a wide variety of chemicals can be used for etching and the etching process can be carried out at a temperature of up to 70 degrees.

The efficiency of the chemicals used is increased accordingly, resulting in a significantly faster etching process and thus an increased output quantity and improved efficiency. Furthermore, completely new etching structures can be realized, providing a new range of technological possibilities.

Of course, the full titanium module is also fully compatible with all InfinityLine H+ option packages. This module can also be equipped with the highly efficient and reliable vacuum etching technology. This ensures that there is always a permanent exchange of chemicals on the surface, guaranteeing a consistent and precise etching result. Due to its high resistance, this etching module represents a very long-lasting and therefore sustainable investment.

InfinityLine H+: Chemical copper module – perfect copper deposition, perfect handling

SCHMID's decades of experience in "chemical copper" have been incorporated into the new design of the InfinityLine H+. The company is now introducing the new "chemical copper" module for the InfinityLine H+. The task of this module is to deposit a thin copper layer on through-holes, blind vias and on the surface of the dielectric in a first step towards through-hole plating. The module has optimized hydrodynamics offering different wave forms in the immersion bath (so-called standing wave). These wave forms can be individually adjusted and visualized using ultrasonic flow meters.

A modified level drain from the process area into the tank area and a separate upright-shaft rinse ensure particle-free copper deposition on the circuit board. Thanks to its intelligent design, the module also offers extremely practical advantages in terms of handling. For example, the container

base is rounded on all sides to prevent unwanted copper deposits. Furthermore, it can also be emptied very easily, quickly and completely, which results in a shorter cleaning time and therefore a positive effect on efficiency.

The "Chemical Copper" module in the InfinityLine design will be presented to trade visitors as an exhibit for the first time at the trade fair.

The new vertical resist stripping module for the InfinityLine V+ and the enhanced process chamber for the InfinityLine C+ will also be on display at the trade fair stand.

InfinityLine V+: Resist stripping module – "stripping" in perfection

The InfinityLine V+ is designed for Advanced HDI and IC substrates and is characterized, among other things, by vertical, contactless transport of the panels using innovative clamping frame technology. The transport frames are loaded and unloaded fully automatically. A magnetic transport system is also used to ensure particle-free movement of the frames. In addition to the developer, flash etch and a MEC process, SCHMID is expanding its high-performance and reliable InfinityLine V+ system concept with the new stripper module.

After etching, the module removes the dry film resist (stripping) and filters the dissolved and rinsed photoresist from the chemistry and prevents it from returning the tank area. Due to the vertical arrangement, the same process parameters exist on both the front and rear sides, resulting in optimum removal of resist particles. The new module therefore stands for perfect results and thus for maximum quality.

InfinityLine C+: Process chamber – intelligently enhanced!

The InfinityLine C+ is a modular, vertical, non-contact cluster that can be equipped with up to 8 vertical spin chambers. SCHMID's proven clamping frame technology is also used here. As with other non-contact product lines from SCHMID, the clamping frame makes it possible to hold the thinnest substrates.

The further developed process chamber with simultaneous processing of the front and rear sides offers the user enormous advantages. The vertical rotary movement (rotation) and a servo-controlled spray arm allow complex movement patterns to be run, which enables maximum process reliability in terms of time, pressure and chemical distribution – allowing 2 µm structure resolution and below. Another advantage: several processes, including rinsing and drying, can be carried out sequentially within one chamber. The C+ system concept also stands for minimum consumption of resources such as water and chemicals. In this way, the C+ system series combines technological possibilities with a resource-saving production process in a special way – with correspondingly positive effects on running costs, CO_2 balance and environment. Just typical SCHMID.

About SCHMID Group

The SCHMID Group is a world-leading global solutions provider for the high-tech electronic, photovoltaics, glass, and energy systems industries, with its parent company Gebr. SCHMID GmbH is based in Freudenstadt, Germany. Founded in 1864, today it employs more than 800 staff members worldwide, and has technology centres and manufacturing sites in multiple locations including Germany and China, in addition to several sales and service locations globally. The Group focuses on developing customized equipment and process solutions for multiple industries including electronics, renewables and energy storage. Further information is available at: www.schmid-group.com

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