

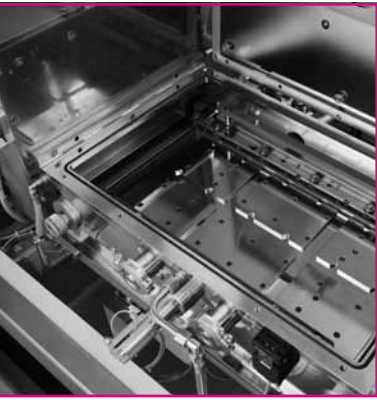


**Void-free
Soldering
with Vacuum**

Plants and Systems

Expertise in soldering

PINK – the systems supplier



VADU300 soldering chamber.

Tailor-made systems to customer specifications

For PINK as a systems supplier, it is all part of routine business to engineer and build tailor-made plants and systems to customer specifications.

PINK regards customer requirements as a challenge that it analyzes in close detail to develop optimum products superior to run-of-the-mill standard solutions. In doing so, PINK attaches the utmost value to the reliability and productivity of the equipment and its components.

PINK's capabilities reach from consultancy, engineering and project planning via design and production to supply, installation and dependable on-site service.

Customer-orientated systems for quality production

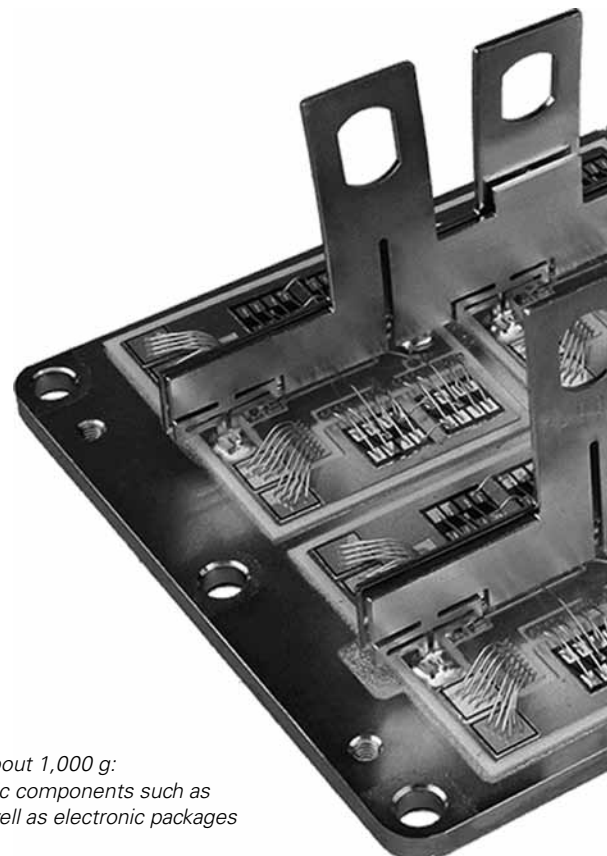
PINK's soldering systems of the VADU series are designed for quality production. In fact, the name VADU stands for the reliability of the components such as semiconductors, hybrid and multichip assemblies as well as electronic packages.

The innovative VADU soldering systems work with soldering preforms or paste (lead-free, too) and, thanks to the selective vacuum support, they produce void-free soldering results.

PINK's vacuum soldering systems program reaches from the compact VADU100 for small series production and the semi-automated standalone unit VADU 200 up to the fully automated inline soldering system VADU300. A continuous recording of process data ensures process reliability, quality and traceability.

Advantages of the VADU systems

- Void-free solder connections
- Temperature profiles acc. to IPC/JEDEC
- Adjustable temperature gradients
- Process temperatures up to 400 °C
- Soldering with preforms or paste
- Operation with inert or forming gas
- Formic acid process
- Flux management
- Process control
- Process data documentation
- SMEMA Interface



*A vacuum-soldered power module with a weight of about 1,000 g:
The continuous shrinking of package sizes of electronic components such as semiconductors, hybrid and multichip assemblies as well as electronic packages requires perfect and void-free soldering connections.*



Patented process technology

Void-free soldering for zero-defect manufacturing

Void-free soldering with vacuum

The continuous shrinking of package sizes of electronic components and packages requires perfect and void-free soldering. However the quality of the solder connections can be affected negatively by gas inclusions (voids). Voids reduce the electrical and thermal conductivity and cause hot spots.

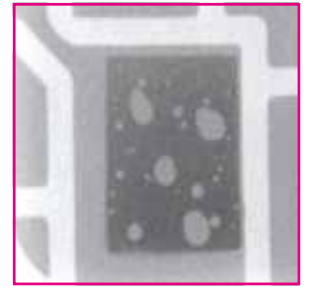
In addition, lead-free solders are required because of their lower environmental impact. However lead-free solders cause increased void generation.

The only reliable possibility to remove voids from the liquid solder is the selective use of vacuum during the soldering process. PINK's patented vacuum soldering systems are designed for a void-free quality production.

Innovative process technology

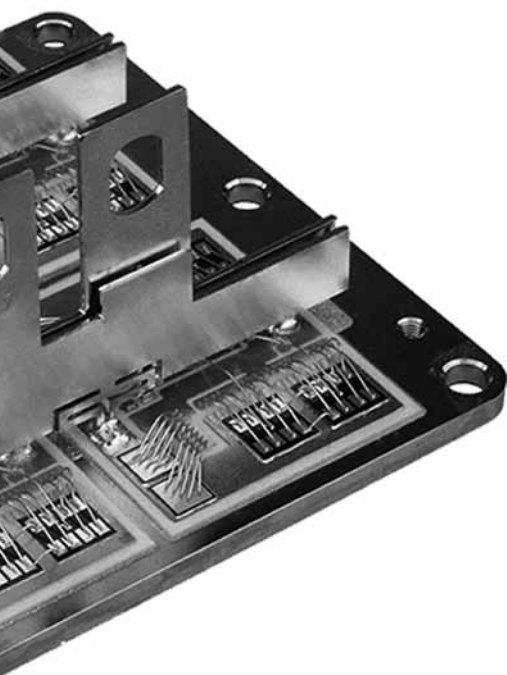
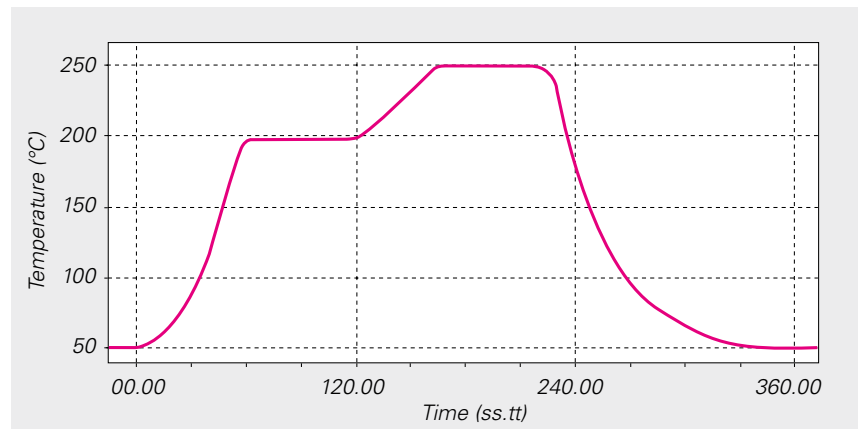
VADU soldering technology offers industry various advantages: The heat is transferred by an adjustable heating plate, which works on a constantly higher temperature level. The actual temperature of the substrate is continuously measured by a sensor and used to control the heating process. The temperature gradient is controlled by distance regulation between heating plate and substrate.

In the subsequent cooling process, the heat is removed by an adjustable cooling plate with controlled temperature gradient. The hermetic process chambers are installed back-to-back and separated by vacuum-sealed gate valves.



X-ray of solder with voids (above) and without voids (below).

Customized soldering profile



Inline soldering system VADU300

Automated soldering with vacuum



Inline soldering system VADU300 with three separate process chambers for pre-heating, soldering and cooling.

Technical data

Dimensions of soldering system: approx. L 2,300 x W 1,600 x H 1,800 mm

Dimensions of pump stand: approx. L 1,000 x W 700 x H 1,800 mm

Process area: L 410 x W 280 mm (e.g. 4 boards 5 x 7 ")

Substrate height: max. 100 mm

Power supply: 3 x 400 V, 50/60 Hz

Power input: 25 kW

Weight (without pump stand): 1,450 kg



Efficient soldering system for series production

The soldering system VADU300 is designed for highly efficient series production with internal substrate handling and inline carrier transfer. According to customer requirements the loading or reloading operations can be realized manually or automatically. The system is available in two alternative configurations as paste or as preform soldering system (with integrated formic acid process). The soldering system is characterized by its easy maintainability and ergonomical operation.

Advantages

- Void-free solder connections
- Soldering with preforms or paste
- Operation with inert or forming gas
- Formic acid process
- Flux management
- Soldering temperatures up to 400 °C
- Individual temperature profiles (e.g. acc. to IPC/JEDEC)
- Low energy and media consumption
- Clearly arranged touch screen panel
- SMEMA Interface

The new VADU300: PINK's redesign of the efficient soldering system results in various improved technical details as well as optimized control and service modules.



The compact VADU 100 soldering system

Top soldering results – also in small-series production



The VADU 100 system is provided with separate process zones for soldering and cooling.

Compact and reliable

The newly developed powerful soldering system VADU 100 is designed for operation with paste as well as preforms.

Based on compact design and user friendliness, the system is very suitable for production of small series and in laboratories for research applications.



Technical data

Dimensions: approx. L 1.100 x W 1.400 x H 1.200 mm

Process area: L 168 x W 280 mm (e.g. 2 boards 4 x 6 ")

Substrate height: max. 50 mm

Power supply: 3 x 400 V, 50/60 Hz

Power input: 3 kW

Weight: approx. 500 kg

Advantages

- Void-free solder connections
- Soldering with preforms or paste
- Operation with inert or forming gas
- Formic acid process
- Flux management
- Soldering temperatures up to 400 °C
- Individual temperature profiles
- Separate soldering and cooling zone
- Clearly arranged touch screen panel
- SMEMA Interface



Batch soldering system VADU 200

Void-free soldering with vacuum



Precise, reproducible processing

The VADU 200 soldering unit is a high-performance semi-automated vacuum soldering batch system with two process chambers (soldering and cooling), designed for manual loading and for both paste and preform soldering. The VADU 200 systems offers all system advantages of the VADU product family.

Technical data

Process area: L 410 x W 280 mm (e.g. 4 boards 5 x 7")

Substrate height: max. 100 mm

Dimensions: approx. L 2,100 x W 1,200 x H 1,700 mm

Power supply: 3 x 400 V, 50/60 Hz

Power input: 12 kVA

Weight: approx. 1,000 kg

VADU inline systems

Options

Customized automatization solutions

PINK engineers soldering solutions for integration into existing or newly developed production lines.

Taking particular account of customer automation processes, PINK will supply solutions to link-up with pick-and-place machines (top) as well as with optimized carrier handling (below: system with surrounding transfer unit).



Carriers for the VADU system

Application-optimized components

Carriers for maximum productivity and cost-efficiency

PINK provides customized, substrate-specific carriers and the matching adapter/ base plates.

Available for the VADU system are both carriers with manual attachment (for high flexibility in production) as well as carriers with automatic securing within the process chamber for fully automatic high-output operation.



Carrier with integrated low-clamp frame for automatic fixture in the process chamber.

Selection criteria

- Desired degree of automation
- Workpiece geometries and soldering processes
- Necessary option flexibility



Carrier with base plates and 5 x 7" master cards.



Carrier with top side clamping for master cards and special applications.



Carrier with jigs for terminal soldering.



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