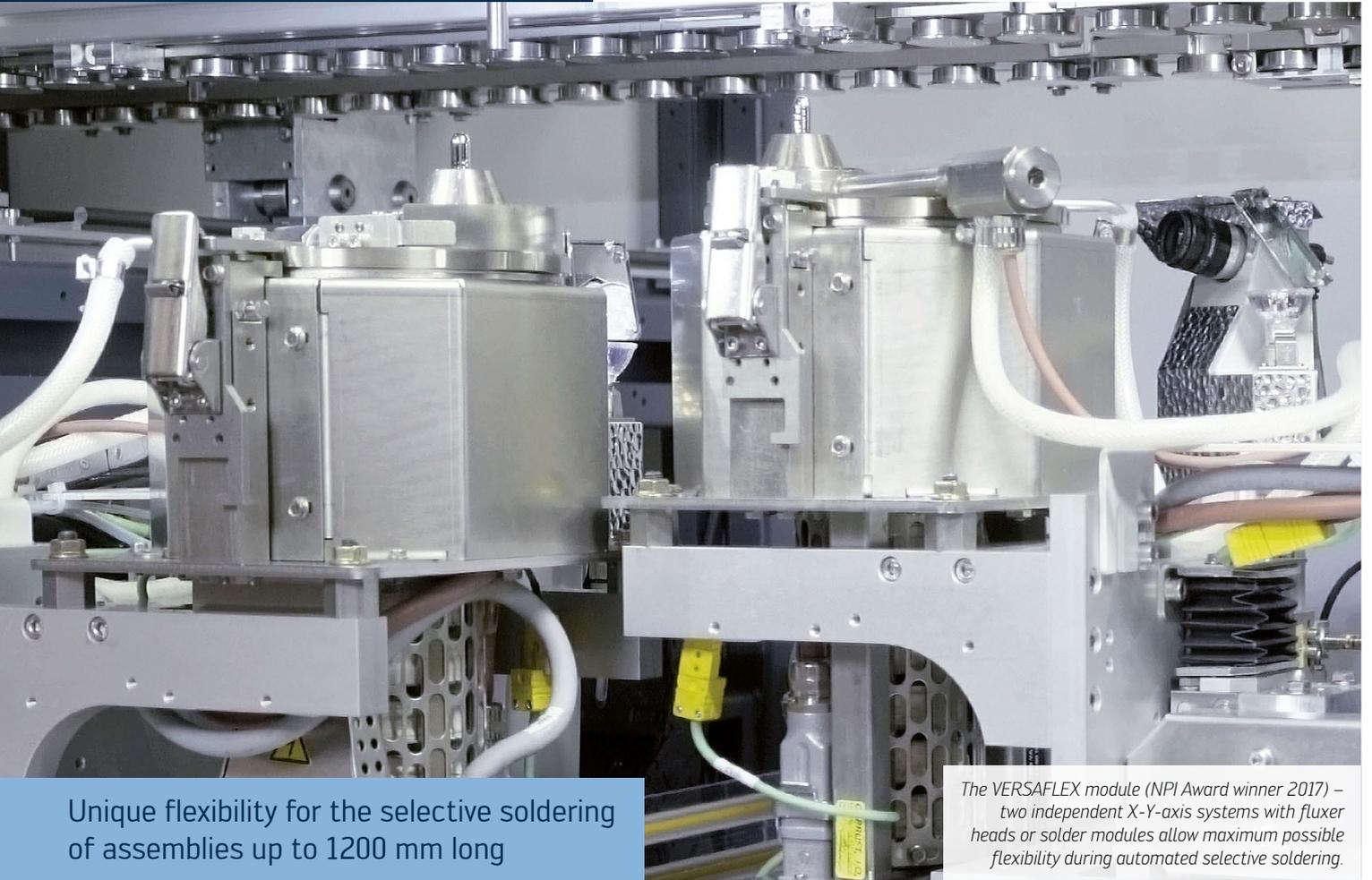


Technical article



Unique flexibility for the selective soldering of assemblies up to 1200 mm long

The VERSAFLEX module (NPI Award winner 2017) – two independent X-Y-axis systems with fluxer heads or solder modules allow maximum possible flexibility during automated selective soldering.

Parallel or XXL – the VERSAFLOW 4/66 makes a big impression

If global trends in mobile consumer electronics are considered, it quickly becomes clear that the integration density of electronic assemblies is increasing all the time.

This trend leads to printed circuit boards becoming smaller, but for production this often only means changes in the size and number of electronic components.

published in
productronic 8-9/2018
in Germany

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VERSAFLOW 4/66 – leading selective soldering technology from the market leader Ersa for assemblies from 610 x 610 mm

Parallel to this trend with mobile devices, very large, highly integrated assemblies are being developed and used in control centres in our networked, digital world. Another booming growth market is LED lighting technology. In this sector, the assemblies can be up to 600 x 1200 mm in size. Existing production equipment for manufacturing electronics products is not suitable for these new requirements, since printed circuit boards of this size are setting new benchmarks and cannot be handled with this equipment. On account of the growing volume of large-format assemblies, the manufacturers of production equipment are increasingly being required to supply efficient and process-reliable solutions for electronics manufacturing.

It was this trend that prompted Ersa as the global technological leader for selective soldering to take up the challenge, in close collaboration with customers. To be able to deliver industrial solutions for high-performance manufacturing to business partners in future, the VERSAFLOW 466 model series was developed, which represents the „ultimate“ in selective soldering technology at this time.

In contrast to the successful series VERSAFLOW 455, the models VERSAFLOW 466 and VERSAFLOW 466 XL permit the processing of signifi-

cantly larger assembly formats, up to 600x1200 mm in size.

UNIQUE FLEXIBILITY THANKS TO TWO SEPARATE AXIS SYSTEMS

Both systems are equipped with the flex modules, for which a patent is pending, in both the flux and solder area. Each of these modules has two independent X-Y-axis systems with fluxer heads or solder modules. This configuration permits simultaneous fluxing or soldering with two fluxer heads/soldering units each on one assembly, with different patterns of movement.

The flex modules allow two modes of operation: synchronous and asynchronous mode. In synchronous mode, the fluxer heads or soldering units on both axes move at a constant distance to one another which does not change. This mode permits a constant distance in both X and Y directions and has been designed for the processing of printed circuit board panels.

No matter how the individual assemblies are mirrored or rotated in a multiple panel, processing takes place through the high flexibility of the axes, automatically and program-controlled. This means there is no need for mechanical adjustment in the modules, and small batch sizes down even to batch

Highlights

VERSAFLOW 4/66

- Fluxer y-/z-variable
- Power-convection preheater
- Dual pot y-/z-variable
- Automatic nozzle activation
- ERSA SOFT 5 award-winning user interface
- VERSAFLEX solder pot can be adjusted in x/y/z-direction
- VERSACAM process visualisation
- VERSASCAN assembly inspection
- VERSAEYE quality documentation
- Simultaneous soldering on multiple boards in x-/y-direction
- Highest flexibility coupled with shortest cycle time
- Automatic optimisation of cycle through
- CAD Assistant 4 offline programming

VERSAFLOW 4/66 XL – the „ultimate“ in selective soldering technology with unique flexibility and a processing range for boards up to 1,200 mm in length



size 1 can be processed in a mix with other assemblies.

In asynchronous mode, the pattern of movement of both axes is independent and permits the simultaneous soldering of the assembly with two soldering units. Fields of application are numerous in this mode, and allow the use of different solder alloys or solder nozzle geometries (MiniWave, MiniVarioWave or MiniDip).

The flux modules can be equipped with two fluxer heads per axis as an option. This gives operators a choice of four fluxer heads in the flux module with a maximum of two different fluxing agents for the process. The movement modes synchronous and asynchronous can of course be selected via solder program in this case, too. This makes the painstaking mechanical adjustment of the offset of the fluxer heads to the printed circuit board multiple panels unnecessary. An absolute necessity that makes work much easier with large and long boards in particular, and a real economic added value.

Put in simple terms, flex modules process the assemblies simultaneously, comparable with two different selective soldering systems. - But all in one joint casing and on the same conveyor system. This leads to high flexibility and an increased throughput, at the same time retaining a high degree of reproducibili-

ty. And it reduces the footprint. A technological lead for Ersa customers, which pays off with every assembly produced.

All VERSAFLOW 466 modules have a processing window of max. 610 x 610 mm. This system offers an interesting option for smaller assemblies up to a max. length of 310 mm. With an additional stopper in each module, two assemblies per module can be stopped in the transport system. Thanks to the two independent X-Y-axis systems in the flux and solder module, the two assemblies can be processed separately but simultaneously. This option doubles throughput, making double-track conveyor systems obsolete.

SELECTIVE SOLDERING FOR ESPECIALLY LONG XXL ASSEMBLIES

The VERSAFLOW 466 XL can also process assemblies with a length greater than 610 mm up to max. 1200 mm. This system also offers a processing window of 610 x 610 mm in flux and soldering module. The trick is that the modules are longer, and there are two stoppers installed on the conveyor system 610 mm apart in the flux and soldering module. When the assembly stops at the first stopper, the front 610 mm are processed, at the second stopper the other 610 mm. Parallel to this option,

there is also an option for short printed circuit boards with a max. length of 310 mm available for the XL system.

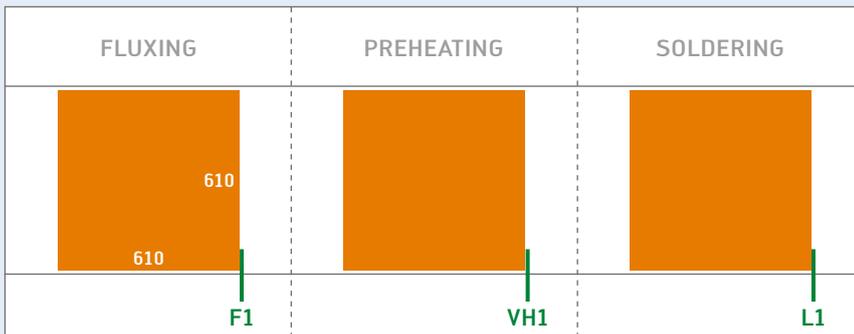
The preheater module of the VF 466 XL has been designed for a max. assembly length of 1200 mm. The heater emitters are segmented and adapt to the length of the assemblies. An option that has just recently been developed for the XL system is a preheater module upstream of the fluxer. This makes it possible to heat assemblies with very high thermal capacity before fluxing in order to protect the fluxing agent from thermal decomposition.

This option allows the very gentle heating of assemblies to preheated final temperature after fluxing. All these op-

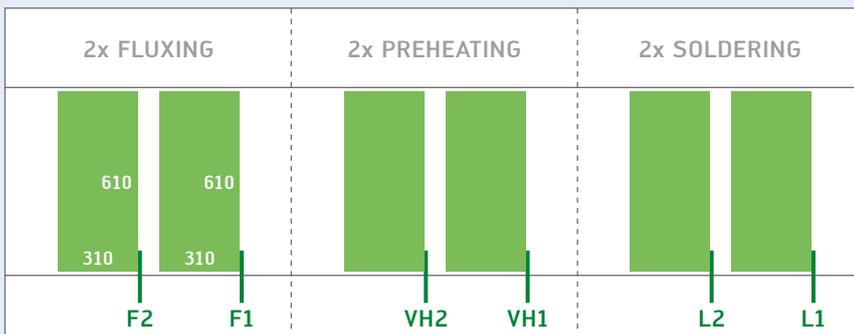
tions make the VERSAFLOW 466 XL the most adaptive selective soldering system on the market.

EXTREMELY SIMPLE PROGRAMMING DESPITE COMPLEX MOVEMENTS

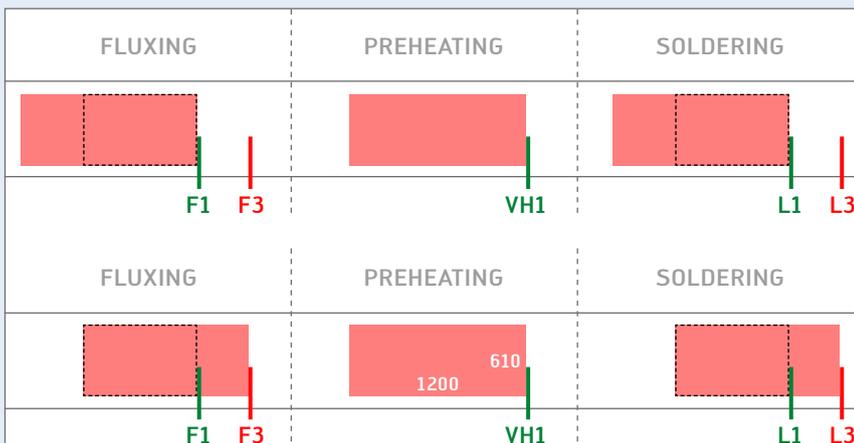
The programming of complex movements in the flex modules is very simple. The operator has a prize-winning user interface and the newly developed Ersa CAD Assistant 4 available for programming. Programming takes place on a graphical basis, whereby the graphic data are generated from all common CAD data such as e.g. ODB++. On this graphic interface, the operator assigns a fluxer head or soldering unit



Schematic diagram showing processing windows for VERSAFLOW 4/66: 610 x 610 mm



Schematic diagram showing processing windows for the simultaneous processing of two smaller assemblies in the VERSAFLOW 4/66 (optional)



Schematic diagram showing processing windows for long assemblies (610 x 1200 mm) in the VERSAFLOW 4/66 XL

Ersa CAD Assistant 4 - minimum cycle times thanks to offline programming and optimum travel paths for the soldering module thanks to the cycle optimising assistant.



(axis 1 or 2) to the soldering spots. The optimum workflow for fluxing and soldering is automatically calculated by an autorouting function. Alternatively, the operator can define the soldering point sequence manually.

In order not to have to program the process parameters for fluxing and soldering on components used regularly for every new assembly, libraries (templates) can be prepared. All these new features make the Ersa CAD Assistant 4 an effective tool for preparing solder programs reliably in no time, thus ensuring maximum process efficiency - with the whole procedure possible offline as well, of course.

SELECTIVE SOLDERING WITH UNIQUE FLEXIBILITY – EVEN IN XXL FORMAT

VERSAFLOW 466 and VERSAFLOW 466 XL are module selective soldering platforms offering unique flexibility for large assembly formats such as those used for servers or in lighting technology. Where no automated selective soldering processes have been possible before, Ersa is once again doing justice to its leading global role in selective soldering technology and extending the successful VERSAFLOW 4 series by two models for XXL boards.

The flex modules with double axes used now guarantee high throughput even for large-format assemblies up to 1200

mm in length, as always guaranteeing maximum quality and reproducibility of the soldering spots. The versatile options for increasing process reliability familiar from the VERSAFLOW 4 family such as the VERSASCAN module for assembly inspection or the VERSAEYE option for documenting quality are also available for the two new systems.

Where larger printed circuit boards are involved, the market leader for selective soldering has the VERSAFLOW 466 and VERSAFLOW 466 XXL ready to deal with even these high requirements.

BASIC INFORMATION ABOUT THE VERSAFLOW 4 SERIES

The best made even better! The fourth generation of VERSAFLOW. Winner of the NPI Award 2016. The globally leading inline selective soldering system VERSAFLOW meets the most demanding of requirements on flexibility and throughput. Almost endless configuration options allow the modular system to be designed ideally for all customer requirements.

Additional module extensions keep the VERSAFLOW fit for future demands. The Ersa VERSAFLOW 4/55 is the fourth generation of the globally leading inline selective soldering system and is impressive all down the line with prize-winning control software ERSASOFT 5 and process flexibility increased even further.. ■

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