

A close-up photograph of several industrial nozzles, likely for SMT production, arranged in a row. The nozzles are metallic and feature a perforated upper section. The background is a soft, out-of-focus light blue and white.

paraquda.

HIGHLY FLEXIBLE „ALL-IN-ONE“ SMT PRODUCTION SYSTEMS



essemtec.
swiss made

A graphic element consisting of a series of black dots of varying sizes, arranged in a curved path that extends from the end of the 'essemtec.' text towards the top right corner.

SMART solutions for tomorrow's electronic production

- Universal equipment for all placement needs
- Comprehensive component range from 01005 to 80x70 mm
- Jet dispensing of surface mount adhesives and dispensing of solder paste
- Up to 240 feeder slots
- Intelligent hot swap feeders with no production interruptions
- Work area of up to 600x470 / 600x400 mm (23.6" x 18.5"/15.7")
- Intuitive software interface
- Full traceability to component and board level
- Integrated QA functions
- Modular, expandable production capacity
- SMART solution software and hardware



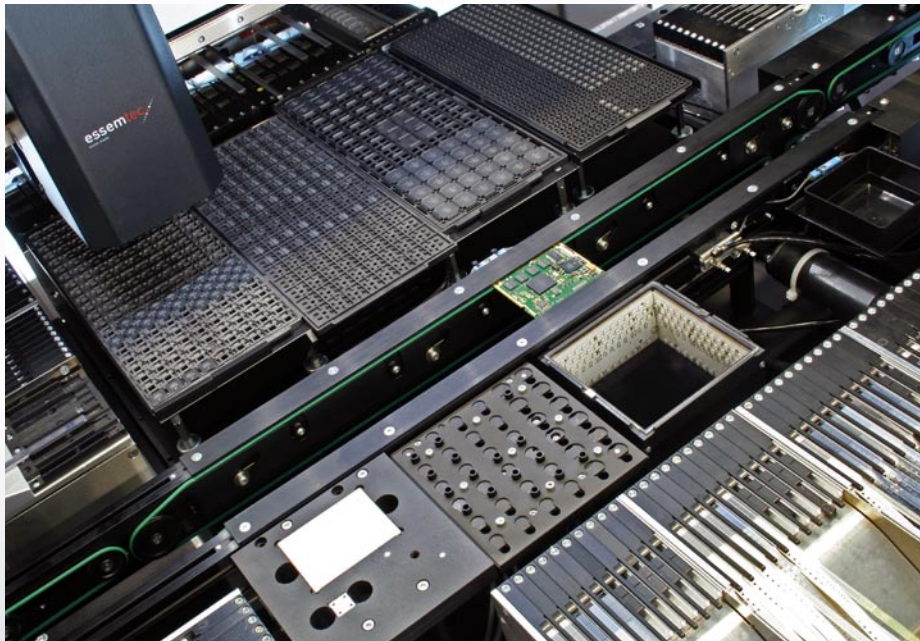
Highly flexible SMT production

Best in class SMT production is guaranteed with high feeder capacity, intelligent kitting, combination of pick-and-place and dispensing processes, simplified graphical user interface and a universal range of placeable components.

Small volumes and fast product changeovers are characteristic for today's SMT production. Pure placement speed does not determine throughput anymore, but a vast range of features improve overall equipment efficiency. The Paraquda offers

unmatched changeover times, the highest number of feeder slots per square meter in the market, intelligent kitting without production stop and the ability to combine placement, dispensing and component verification all in one. Thanks to the easy

integration with modern ERP and production planning systems the Paraquda is the ideal equipment for high mix production with ever changing production schedules.



essemtec

Sophisticated graphical user interface enables intuitive programming



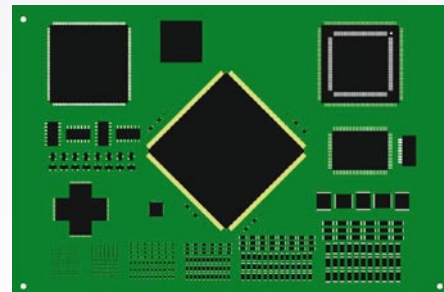
Operation and programming

The Paraquada ePlace software has an excellent menu structure and hence is very easy and intuitive to learn. All relevant information is displayed graphically. Complex CAD data is displayed as a virtual circuit board with realistic images of components and therefore comprehensible for anybody. Operators can check the correctness of their programs visually. During operation the progress is displayed graphically in real time as well.

» The easy to use software guides operators, eliminates programming errors and optimizes production planning.

Touch screen

All Paraquada systems are based on Essemtec's modern eez-Technology. The touch screen based operation enables access to all functions with your fingertip as well as drag and zoom.



Parameter	Old value	New value	Difference	Job	Edited on
Created		5000			2013-04-25 11:42
CurrentLocation		C05 02			2013-04-25 11:42
StockItemState	New	Produce			2013-04-25 11:48
Quantity	5000	4840	-160	DemoBoard Job1	2013-04-30 13:43
Quantity	4840	4800			2013-04-30 13:44
Quantity	4800	4325			2013-04-30 13:44
Quantity	4325	489			2013-04-30 13:44
Quantity	489	245			2013-04-30 13:44
Quantity	245	93			2013-04-30 13:44
Quantity	93	0			2013-04-30 13:44
AlarmQuantity	150	93			2013-04-30 13:44

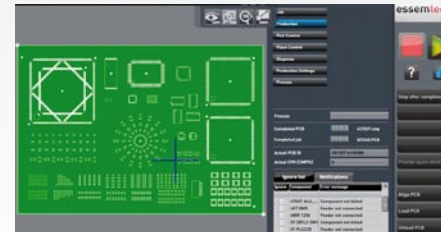
Component library

Over 200 component shapes are stored in the shape library with all relevant parameters. New shapes are easily constructed using either the fully automatic camera capture software or are easily programmed with the built-in shape generator. Data on solder paste or surface mount adhesives are directly integrated as well. Data sheets and jetting/dispensing parameters of the most commonly used fluids are equally stored in the data base and allow a quick and reliable process setup.



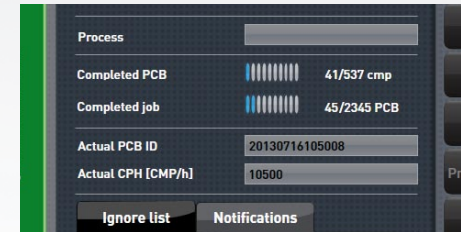
Access control and multilingual interface

The integrated access control enables restrictions to certain menu items for various user groups or individuals. It is even possible to assign different interface languages to different users and thus reducing operator errors further.



Universal CAD converter

Converting CAD data into placing programs within seconds. Changes such as rotation, mirroring, moving or deletion of components are achieved with a few mouse clicks. Stepping up of PCBs into multi panels is equally supported. Offline visualization of PCBs and all its components guarantees error free placement starting from the first board.



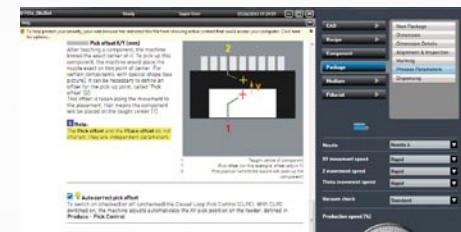
Real time process monitor

During production, all operations and their progress are displayed graphically and in real time on the screen giving the operator full visibility of all functions. Since the software is capable of multitasking, the following jobs are programmed simultaneously and without interruption.



Process control

All process steps are recorded and stored in the database. The analysis of such results is a great tool to introduce process optimization for throughput and reliability.



Context sensitive help

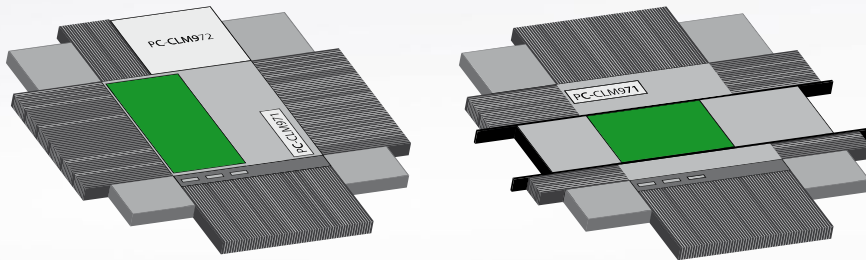
Another great feature of the operating system is its context sensitive help. A touch of the help button from any menu opens the relevant help page describing the various menu items of that screen. Training time and user errors are equally reduced.

Small foot print, universal use – Swiss Made!

Much attention was given in the construction to achieve high motion accuracy and high damping of the gantry. The cross bar is driven on both sides and equipped with high accuracy linear measurement systems. The motion system

rests on a mineral cast base designed for superior thermal stability and damping. The Paraquada systems are entirely designed and assembled in Switzerland and conform to the highest quality standards.

» *Swiss Made precision machinery, high flexibility, highest quality.*



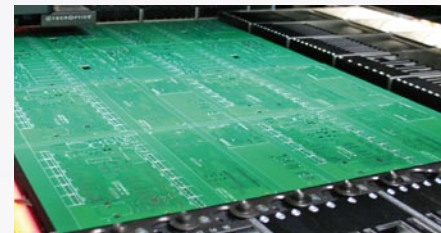
Compact format

The Paraquada placer offers a capacity of up to 240 feeders on less than two square meters of foot print without compromising the board size. Thanks to its compact format it offers excellent serviceability and easy access during production and maintenance while conforming to all safety regulations including CE mark.



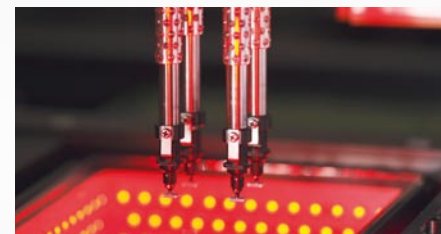
Inline or stand-alone models

The stand-alone version of the Paraquada is ideally suited for sophisticated electronic assembly in low volumes. All inline machines are SMEMA compatible and are equipped with an automatic three stage conveyer for shortest transportation times.



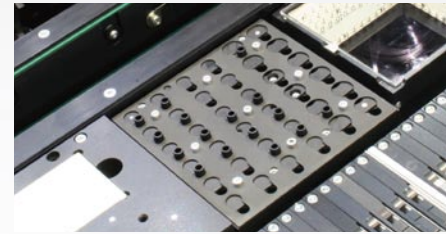
Large board sizes

Boards with dimensions of up to 600 x 470 mm/23.6" x 18.5" (stand-alone) or 600 x 400 mm/23.6" x 15.7" (inline) can be assembled. Universal brackets are available for stand-alone systems for single or double sided boards. Inline models use our time tested and reliable side edge clamps. Various support systems ranging from single pins to vacuum based mechanisms ensure excellent assembly results even for unusually shaped boards, flex or rigid-flex boards, foils, hybrids and circuits on work holders.



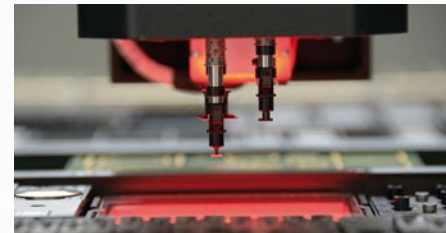
High precision placement heads for all applications

The Paraquada production centre is equipped with high precision placement heads, each with its own drive and closed loop measurement system. The heads are designed to place all component shapes and forms. There is no need to differentiate between low precision chip shooting and high precision placement. This increases the overall precision, eliminates placement errors and simplifies programming and operation.



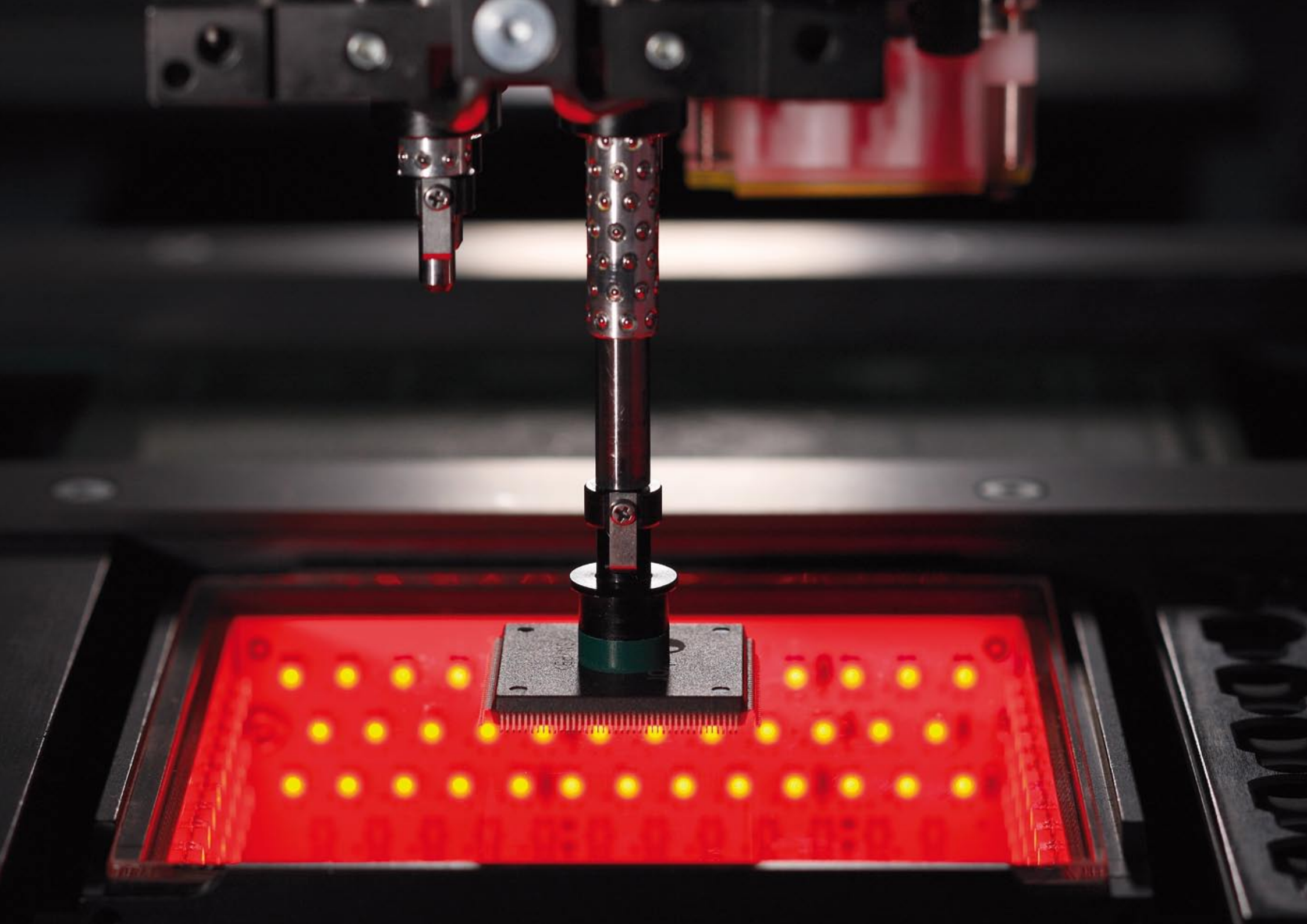
Multitude of nozzles for a wide range of applications

Quick nozzle changes are achieved with an integrated, fully automatic nozzle change system that can change up to four nozzles simultaneously. Standard nozzles are available for all common SMT components, but also for LED's, bare dies, switches and a multitude of special parts. Essemtec offers special nozzles for customized applications with short lead times.



Optical alignment

The Paraquada placement system is equipped with an optical fly by alignment system. A superior placement quality is achieved through the measurement of pins for parallelism and tolerances at the same time as the orientation of the components. Complex parts can be recognized with a programmable camera system with adaptive lighting. Teaching of new or unknown SMT parts is easily achieved with a fully automatic software function.



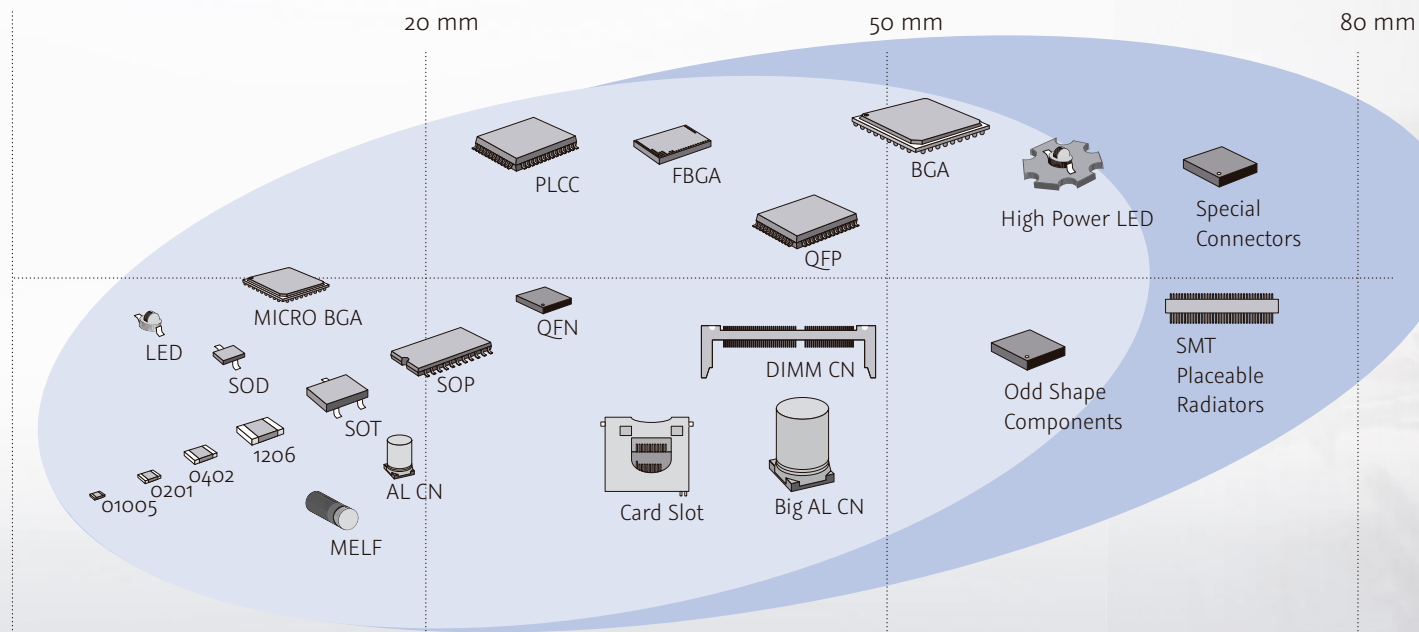
Smart, flexible high-mix SMT production

Placeable components

The Paraquda placement equipment is capable to place SMD components of all sizes and pitches. Thanks to electrically driven feeders the presentation of even the

smallest components is accurate and continuously adjusted for the best pick results. Ultra fine pitch components such as micro BGAs and CSPs are also readily

placed. At the other end of the spectrum the machine is capable to place large components such as heat sinks, electrolyte capacitors and further on a single platform.



Component Range

Intelligent component feeders

Essemtec's Paraquda production system is equipped with a fast bus system that recognizes feeders automatically when loaded. New feeders are immediately included into the speed optimization algorithms and can be inserted or removed without stopping the machine (hot swap). Multicoloured LEDs indicate the status of each feeder directly on the machine.

The system checks automatically for the presence of all required components. Missing components are flagged and can be kitted while the machine starts production already. The machine and the feeders have indicators and alarms for reels that are nearly finished ensuring continuous operation.

» *Offline kitting, changeovers without interruptions, re-kitting during production, quality controlled kitting and feeders for all kinds of components, reels and sticks.*



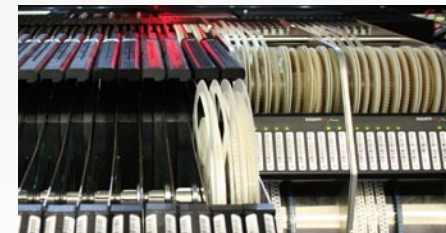
Automatic presentation

All pick-up positions are continuously monitored and the presentation of the parts to the pick nozzle is corrected when necessary to compensate any tolerances in the tape.



Maximum feeder capacity

The Paraquda system can be equipped with up to 240 feeders on standalone machines (220 inline). The feeders can be mounted on all four sides of the machine. With the high number of feeders it is possible to leave common components permanently on the machine. Alternatively, it is conceivable to prepare the following job on the machine while production is running. This hot swap concept guarantees uninterrupted changeovers without expensive feeder carts and with much lower component inventory levels.



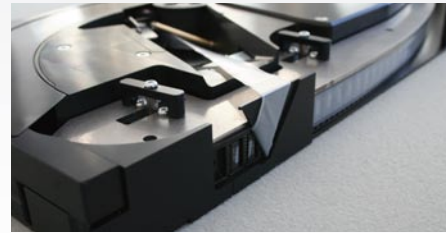
Compatibility of feeders

The investment in feeders is protected with Essemtec's universal feeder concept. Feeders of older generations, such as CSM/PANX, FLX/Flexus are equally accepted as the most modern hyQ feeders.



8 mm hyQ reel feeders

Each feeder can accept various sized components starting from 01005. The electronic feeder drive is software controlled and can be adjusted to 2 and 4 mm steps. Feed speed, tape pull back, and tape acceleration are programmable for each specific component and hence even difficult components are ideally presented.



>12 mm hyQ reel feeders

12 and 16 mm feeders are available in fixed width or with variable width and have the same functionality as the 8 mm feeders. Feeders that are wider than 16 mm are adjustable to two widths availing even more flexibility. Hence the investment in feeders can be significantly reduced without impacting the capability to assemble a wide range of components.



Tray holder and automatic changer

Trays can be positioned freely within the placement area, between the transport belts or instead of feeders at the side of the machine. A fully automatic tray changer is also available that handles up to 20 JEDEC trays.



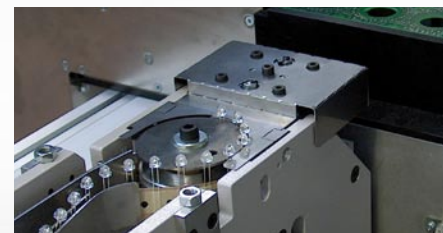
Stick feeder

A universal stick feeder accepts various widths and types of sticks. A large number of different components can be mounted thanks to an adjustable vibration frequency as well as an individually settable feeding time.



Tape cut-off feeder

Tape cut-offs are common in prototyping and NPI production. Essemtec's unique cut-off feeder accommodates all types of tapes and widths and can be kitted directly on the machine. The cut-off feeders can be placed anywhere on the machine instead of the normal feeders.



Special component feeders

A wide range of special feeders are available for the Paraquda, such as feeders for tall components, for through hole components such as LED's, bar code stickers for traceability or for metal domes. More details can be found in our special feeder brochure.



High efficiency and quality – SMART Solution

Today's SMT manufacturers are faced with a large range of conflicting customer requirements. While margins and lead times are decreasing, production is faced with ever smaller batch sizes, customizations, smaller pitched components and fast changing production

schedules. To make matters worse, stringent requirements on traceability, moisture sensitivity, inventory accuracy and lower stocking levels are introduced. All these factors are addressed with Essemtec's SMART solution software and hardware.

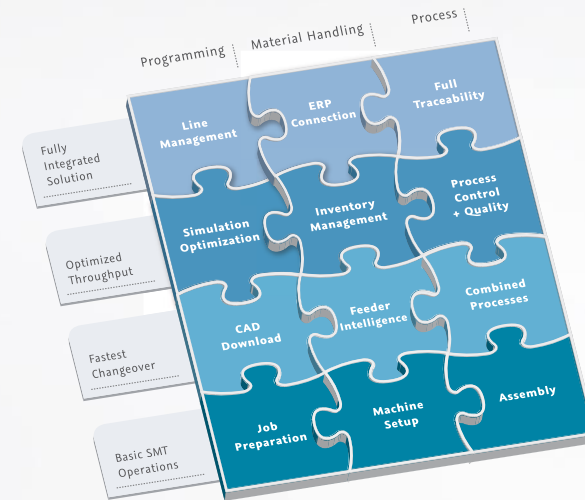


Offline programming and feeder kitting

No expensive kitting and programming stations are required for the offline programming of the Paraquada. The entire functionality can be reproduced on a standard PC and is transferred via network to the machine. Kitting is preferably done with bar coding support and prevents erroneous kitting by an operator. Reduced defect rates save time and money in the long run.

Fully automatic MSL control

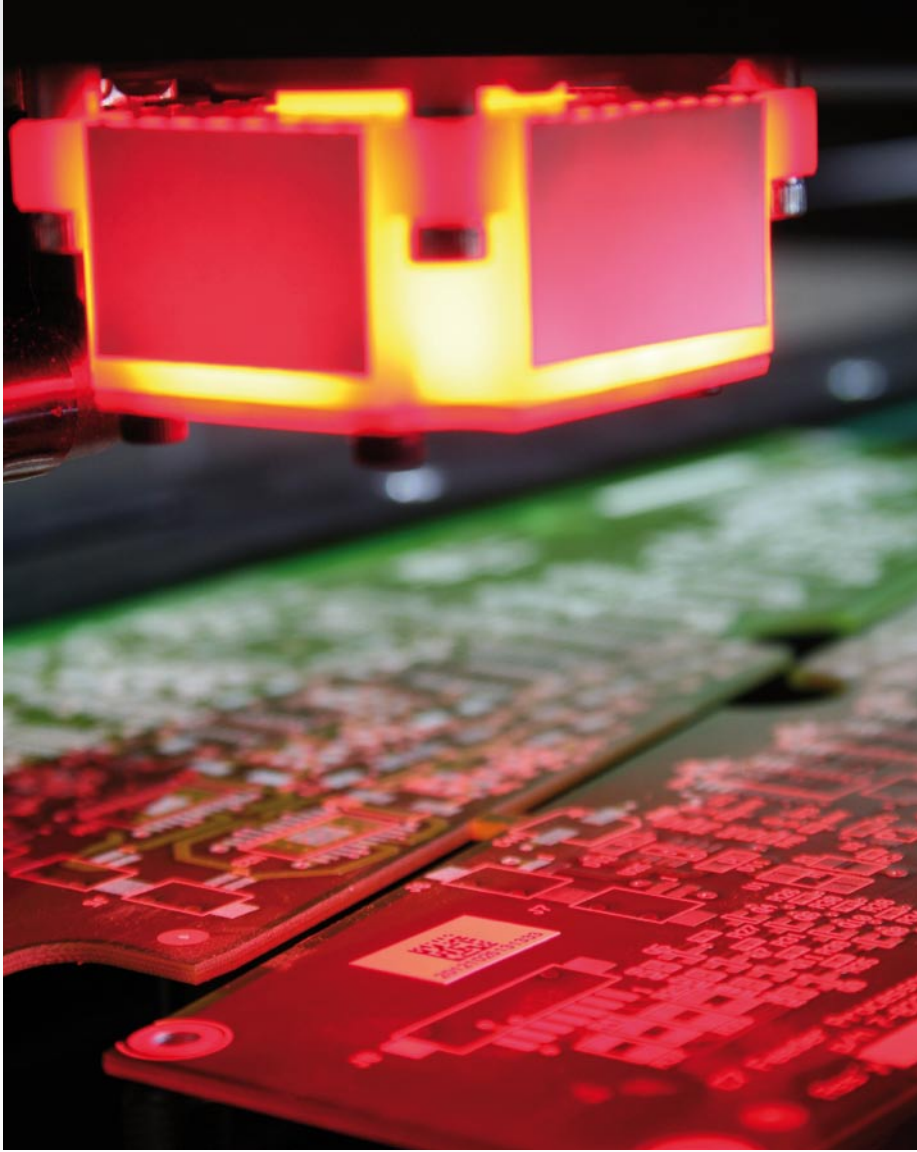
IPC/JEDEC J-STD-20 specification defines the time a moisture sensitive part is allowed in a normal production environment. Moreover, stringent documentation requirements exist for the manufacturing of medical and avionic products. Essemtec's SMART software modules store all relevant data automatically, create records and stop the production if a part oversteps its floor time. In combination with our dry storage inventory systems a complete solution is created for this type of SMT production.



» *Raw placement speed does not guarantee an efficient way to run SMT production. Many other parameters effect productivity and improve cost of ownership.*

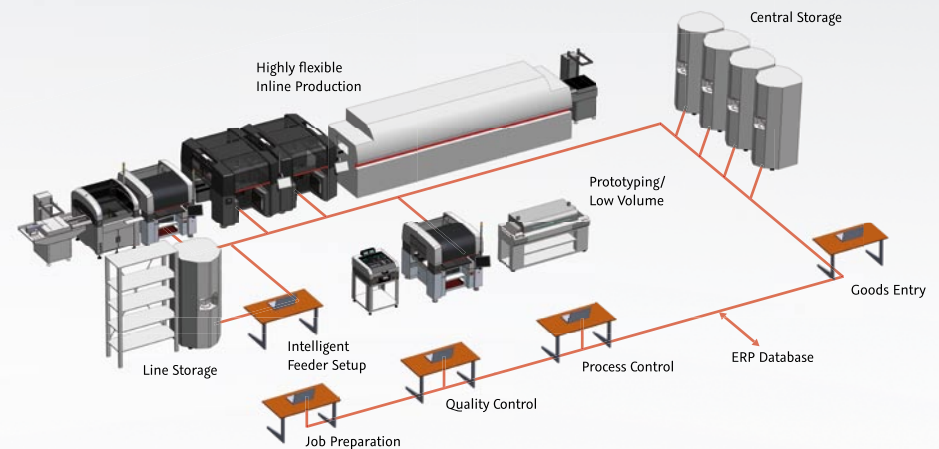
Integrated parts library

The SMART combination of intelligent feeders, machines and inventory management afford total control of components, inventory levels, usage statistics, shelf life management and traceability. The software alarms operators ahead of time, allowing a pro-active management of the SMT production if parts are running out or if special components need kitting.



Traceability

Traceability for each component and each PCB is increasing in importance, not only for medical or military products. Essemtec's SMART solution software have full traceability built-in from the get go.



Line management

The line management software has two optimization functions. Firstly, it balances various production modules in a large line. Secondly, it balances multiple lines and sends the production jobs to the appropriate line taking into account run time and kitting efforts. The software communicates in real time and continuously optimizes the load of the various lines.

Connection to MRP/ERP systems

In today's SMT production, production plans and parts availability can change quickly. The timeliness of inventory data, fast access to production schedules and reliable data storage are important.

Turnkey solutions

Essemtec offers full turnkey solutions for SMT production including printers, dispensers, pick-and-place machines, ovens, storage systems and even handling systems. Naturally, we also have process engineers to get the lines productive quickly. Essemtec also offers the integration of third party equipment.

Essemtec offers a middle ware program to connect the production floor data with the enterprise management system including parts management and inventory control. There is no need to rely on expensive third party integrations and complex interfaces.

Quality control and add-on processes included

The Paraquda platforms offer additionally a full range of add-on features in a compact and high quality machine. The machine can be expanded with the following functions.



I am also a measurement unit!

The optional component verification unit increases the quality of finished boards and reduces defect rates. Resistors, capacitors, inductors and diodes are measured before placement or after a reel change. Tolerances can be set individually per component. Assembly task requiring records of the actual component value, or precise component matching can be achieved as used in high end audio, implantable medical devices or space and defense applications.

» *Expand the functionality of your SMT pick-and-place system into a fully loaded SMT production centre.*

I am also a dispenser!



The Paraquda offers the ability to be equipped with a wide variety of dispensing valves for solder paste, adhesives or dam & fill materials. Prototypes are easily assembled without the need of stencils reducing your turnaround time considerably. Expensive stepped stencils can be eliminated with the dispensing of additional solder paste. SMT adhesive is dispensed for parts that require additional fixation during soldering or to improve their drop test reliability. The combination of the various processes is carried out automatically and the machine offers easy setup for combined processes. The software is the same as the high speed jet dispenser Scorpion also manufactured by Essemtec and offers identical professional high speed dispensing solutions.

I am a QC engineer!



Expensive assembly defects caused by the placement of wrong components are completely eliminated with our intelligent feeders and feeder bus system in conjunction with our inventory control software and bar code assisted kitting concept. The humidity controlled storage towers ensure proper stocking of MSL sensitive parts and ensure that no long term failures can creep in.

„All-in-one“ SMT production system

The Paraquda system can be ordered in various configurations:

Para

„All-in-one“ stand-alone SMT production system

Ideally suited for mid volume/high mix production with up to 240 feeders and the possibility to jet and dispense adhesives or solder paste.



Para-C

„All-in-one“ inline SMT production system

Ideally suited for mid volume/high mix production with up to 220 feeders and interfacing with other SMEMA compatible pre and post processing equipment.



Para-Doble

„All-in-one“ SMT production system

Highly flexible manufacturing solution for high and mid volume applications with up to 400 feeders and the possibility to combine multiple processes like adhesive and solder paste dispensing with pick-and-place in one production system.

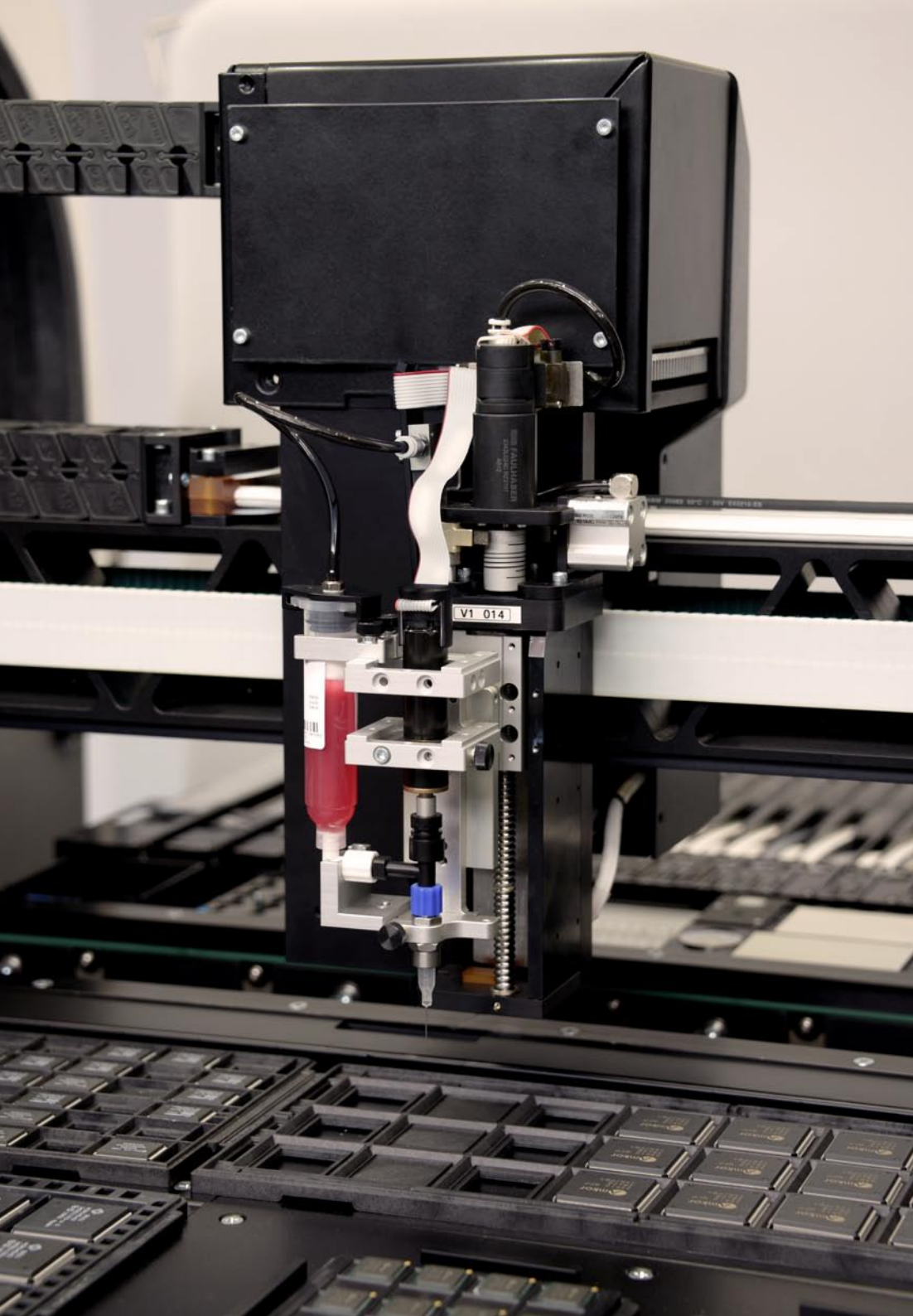


Para-Line

Integrated highly flexible SMT turnkey line

Turnkey SMT manufacturing solution with up to 400 feeders and a placement rate of 30'000 components per hour and with all features for a SMART manufacturing solution.







paraquda.

A new generation SMT pick-and-place machine, designed for the highly flexible SMT production with higher throughput. Places chips, fine pitch and odd-shape

components and dispenses - all in one machine. Operation and programming using new intuitive ePlace user interface.

Essemtec support and services – global, local help

We are here to help you if needed. Essemtec has experienced, globally distributed service engineers that maintain and support over 6000 installations worldwide.



Context sensitive help

All machines are based on our eez-technology (essemtec easy) and include online manuals with context sensitive help. Wherever you are in the user interface, simply touch the help button and the needed explanation pops up.

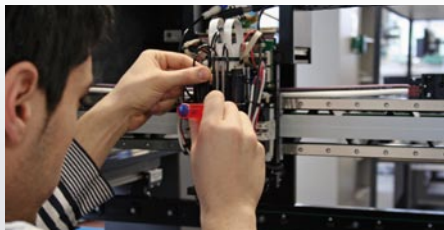


Trainings

Dedicated equipment and process training takes place during installation. Follow up training for new employees and brush up courses can be provided at our training centers or directly at your site. Computer based training courses are also available for self assessed learning.

Hotline support 24/7

Furthermore, our thoroughly trained hotline engineers will answer your questions around the clock and quickly resolve most issues via phone.



Maintenance

Get a maintenance contract directly after the warranty period ends. Benefit from properly maintained equipment and spare parts at a reduced price.

Regional support and spare part hubs

Local service staff will support you on a daily basis and ensure that necessary spare parts are with you in the shortest possible time.

» *Do you have a particularly tricky SMT application?*

Application support

Our application support can help you to find the right solution for all your problems. We have highly skilled, cross functional teams in most areas of SMT production. Our solutions may entail process development for jet dispensing or simulating oven profiles for a given substrate load. Furthermore we do not shy away from hardware modifications, special tooling & automation, customized grippers and nozzles as well as other specialities.

Remote access

With the customer's permission, our hotline engineers are able to access Essemtec equipment without jeopardizing the safety of the machine or humans around it. A thorough look at the log files usually is enough to find the root cause of any given issue quickly and to initiate appropriate action.

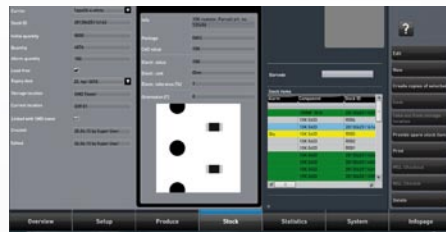
Lowest cost of ownership

Essemtec machines are designed with the entire assembly process in mind to achieve lowest cost of ownership. Price and placement speed are only two factors in the COO calculation and must be weighed up against others. These include reliability and low maintenance time, number of serviceable parts, quick job setup, fast changeover times, low defect rates, operational efficiency and reduced waste cost for dispensing applications.

Essetec – more than machines

flex²²

Today's business is not predictable anymore. Essetec gives you more flexibility to adjust your equipment set to match the actual economic situation.



Software licensing program

Try before you buy! All our SMART suite software modules can be licensed for a limited period at a nominal fee. Experience your productivity gain first hand before you decide to invest in one or all modules. We are convinced that the cost savings will quickly justify the additional investment.



Investment protection

Essetec offers predefined investment protection programs. If the additional modules do not fit your growing requirements and you need faster or different machines simply trade in your current equipment for a predefined attractive price and get the latest equipment for your next bold move.



Rental programs

Feeders and even complete machines can be rented for a certain time to overcome production peaks without the need of a full investment. If you decide to keep the feeders or machines, a large part of the rental fee will be applied towards the purchase price. (Not available in all countries).

Modular approach

Hardware and software is fully modular and can be added when needed. Add-on functions to your existing Essetec products in the field and get more out of your installed equipment base at a small additional cost.

Financing

We can help you to get local financing for your new equipment. Simply contact our local specialists for such cases.

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www.essemtec.com

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