



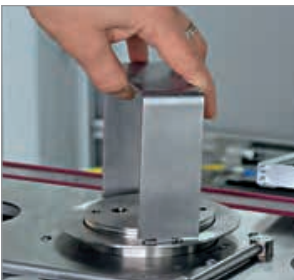
## Automatic Selective Soldering Systems

# Selective Soldering

## with the EBSO SPA Line



Miniwave with overflow wettable solder nozzle



„QUICK RELEASE“ solder pump:  
Simply turn pump 45° and the pump is ready to remove

Many components can due to their thermal sensitivity not be soldered with a traditional wave solder process (LCD displays). Other PCB's are due to SMD component layout issues also can't be soldered successfully using the traditional wave solder process.

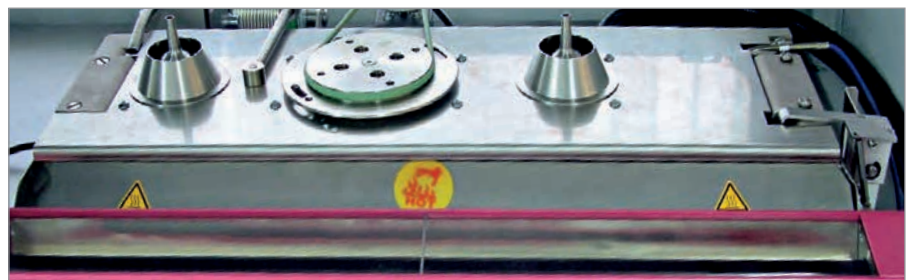
Further more often the very costly custom made solder masks to cover the SMD components are difficult to make and not justifiable so customers finish up hand soldering parts. To automate this process the answer is selective soldering.

EBSO already had machines like SPA 300-F and 400-F developed in the year 1999, this machine concept also allows small to medium companies with smaller budgets and production lots to enter this attractive new technology. The SPA Line starts from manual machines all the way up to fully automatic solder centres.

With this particular product line up EBSO has become the world market leader. Product specific solder nozzles and masks round off the enormous know-how EBSO has in this new emerging soldering technology.

Selective soldering makes your THT solder process more efficient and safer due to exact control of flux quantity, preheat and solder temperature. With over 30 well trained distributors world wide, EBSO can provide best service in pre- and after-sales.

All SPA machines are built with the same solder pot technology fully made out of titanium which is best for lead free solder alloys. The patented unique "QUICK RELEASE" solder pump is a revolution in terms of maintenance time. This system allows full access to the solder pot within seconds, hence it increases your production efficiency.



Solder pot with dual-nozzle-technology and IR pre-heater

The EBSO Offline programming software together with the integrated Photo-Editor allows the fastest programming times.

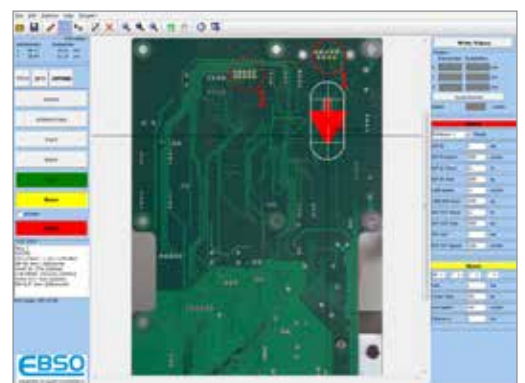


Photo-Editor makes programming easy and comfortable

## Rework and Manual Soldering

The bench top machine SPA-R is a manual solder station to rework leaded components such as connectors etc.

Due to RoHS conform electronics the lead free solder temperature raised which made the rework of THT components with a solder iron even more difficult then it was before.

The solution is the SPA-R which makes this process less painless. Furthermore, for manual soldering of small and medium batches the SPA-R can be used as well.

### Product Highlights:

- Easy to operate
- Timer-function
- Solder pump and solder bath made of fully titanium for lead free solder alloys equipped with the "QUICK RELEASE" pump technology
- On the fly wave hight regulation
- Wave standby-function to reduce tack time
- Save up to 10 programs
- Easy solder nozzle interchange
- No limits in board size optional N2-supply
- Optional laserpointer to ease component centering over nozzle
- XY-table



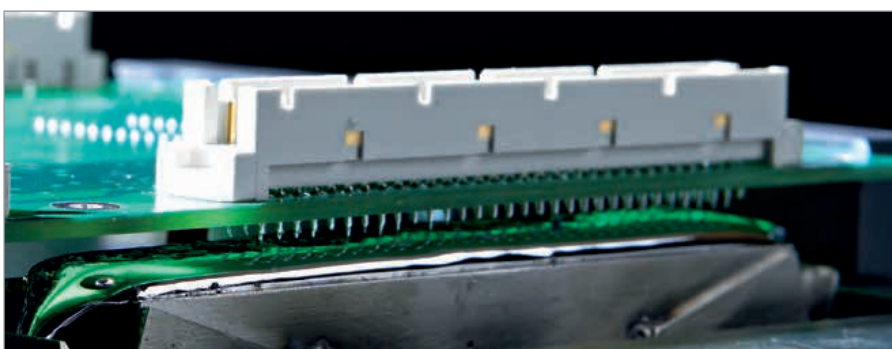
SPA-R with laserpointer to ease component centering over nozzle



XY-Table with position fixing



Different solder nozzle sizes and customized nozzles



Desoldering of a connector



SPA-R insight straight forward engineering



## Worldwide established

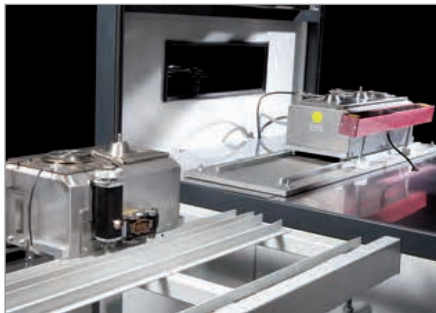


Soldering system with charging station

Since we introduced the SPA 300-F / SPA 400-F to the market in 2003 more than 450 machines has been installed so far.

With the new models SPA 340-EVO / 340-EVO+ / 440-EVO / 550-EVO we offer you different sizes in regards of solder area and machine housing. From 300x300mm to up to 510x510mm standard solder area (customizable) and a foot print from 1.1m<sup>2</sup> you choose the best cost-benefit ratio.

The concept of the machine allows many options for the requirements of the customers demand. Solder pot as well as solder pump are flood with protective gas. The SPA 340/340+/440/550-EVO platform is designed für the automotive soldering of con-nector strips, relais, transformers and other conventional assemblies. Especially für applications which aren't qualified for the wave solder process, SPA is ideally appli-cable to automate the manual soldering process.



Comforable and fast change via loading table

The design of the system offers a variety of options and custom specific equipments which could be retrofitted anytime.

### Your advantages:

#### EBSO SPA Offline Editor

Intuitive graphical programming without programming skills. Creat solder programs in minutes (more on page 7).

#### EBSO Easy Access Concept

Elaborately and consistently made for the best experience in daily practice. With the axis system positioned above the work area and darkly tinted glass folding doors on both sides, the machine provides comfortable access to the tidy work area. The solder pot pump with its patented QUICK RELEASE mechanism, the solder nozzles, the fumigation as well as the pot cover are removed in seconds. That way maintenance becomes a childs play. In the storage compartment below the work area is enough space for everything you need on a daily basis when using the SPA-EVO.



Processing room of the soldering system

#### EBSO individual

For applications with e.g. high requirements on throughput, the machine can be customized and various ways. Solder whole PCBs in one dip or up to 4 PCBs simultaneously. We do the job!



Soldering process with the wettable nozzle

## Technology

- 3 axis CNC positioning system with Servo drives
- FTP interface to Network
- Digital Closed Loop control for N2 flow incl. Standby function to reduce Cost of Ownership
- Wave Height control
- Autom. Solder wire Feeder and solder level sensorFlux
- Tank and flux Level monitoring
- Control of all Processparameters including monitoring functions including maintenance and error messages including password protection
- Exhaust function monitor
- Control lamp freely configurable
- Operating state and Maintenance indicator (optional with wireless Net-work to PC)
- HMI Touch-Panel
- Internal Data management for program storing
- Timerfunction
- Darkly tainted folding doors and Big storage compartments for accessories
- Softwareupdates via USB
- ESD-Paint RAL 7035 (light gray) and RAL 7016 (anthracite)
- Standard Solder Area Options:  
Solder area: 300x300 / 300x400 / 400x400 / 510x510mm (customizable)
- All Solderpots made of Titanium for highest longevity
- Reliability at highest operational availability due to quick release solder pump
- Easy Change Pot system for lead and lead free production
- Single solder pot with just 12 kg Solder capacity
- Soldering over 2 Solder pots
- Dual Solder nozzle for simultaneous soldering
- Max. clearance at solder side 40 mm
- Wettable Nozzles 3 – 12 mm Inner Diameter
- Jet Nozzles 5 – 60 mm
- Special nozzles for Dipping process
- Max. 4 Fluxers in any combination
- Single Spray / Single Microdrop
- Dual Spray / Dual Microdrop
- Combination of Single or Dual Spray and Microdrop
- Convection line PreheaterIR Line or Area Preheater
- Top Side IR Preheater (temperature controlled)
- Flux Drop Control System
- Witness colour Camera for PC monitor
- AOI for solder control
- Barcode or DatamatrixCode with BDA (Traceability)  
Solder Frame identification over RFID-Chip including soldering protocol including process data recorder
- Programming via Offline Editor including Photo Editing or Import Functions



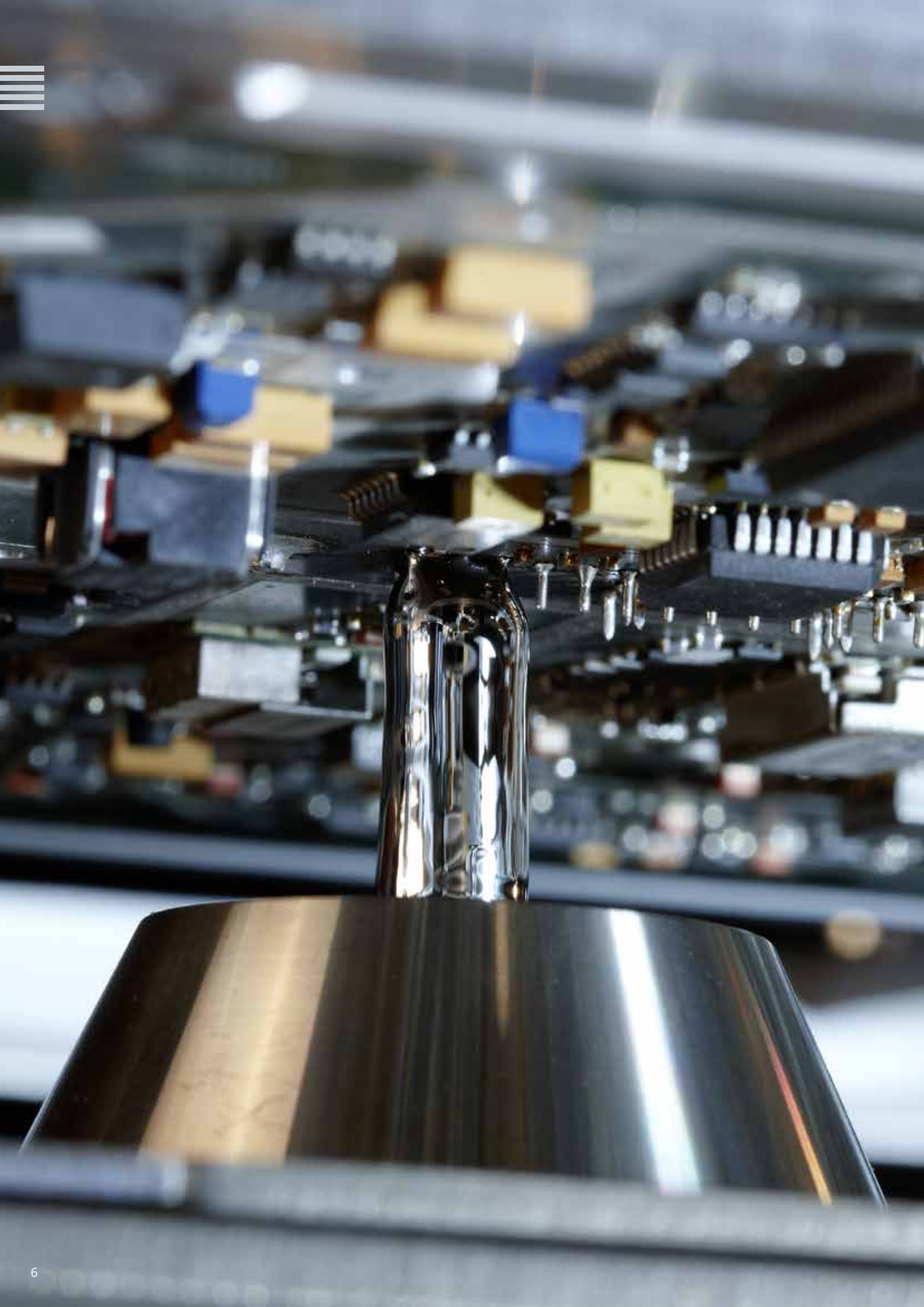
Selective soldering application with 45 mm interfering edge



Custom made dip nozzle



Production at Werma Signal Lights in Germany: 3 SPA machines, inbetween operator working place insures highest flexibility and throughput - always 3 different (or same) products are in production at the same time





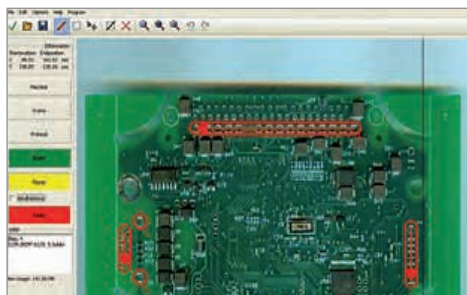
# Programming

## with the EBSO Offline-Editor

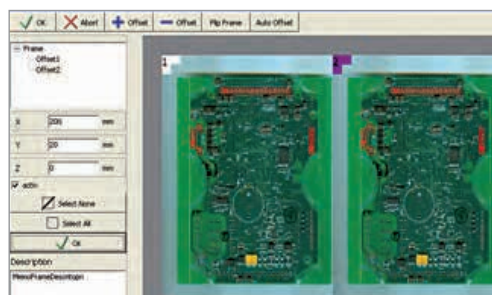
The EBSO offline Editor is a windows based software to create a solder program for each individual solder point. With an easy POINT AND CLICK tool a repeatable solder program is done within minutes.

- Offline means no programming on the machine
- Open fine tune parameter settings for each individual solder joint
- Demo mode
- Cykle time calculation
- Compatible to all EBSO solder machines

Use a CAD Image or a scan of the bare PCB board and click on the position you want to solder. Use the default settings and fine tune in necessary. Import of Gerber datas or CAD datas possible.



Use friendly and intuitive software



Automatic multiplying of panelized boards with bad mark function



Parameter for each single solder joint

### Advantages:

- You can consider neighbour SMD components
- Visual orientation on the board while programming
- Solder joint offsets are easier to control
- Program changes can be done quicker

**Programming can't be easier.**

Technical data	SPA 440-EVO / SPA 550-EVO
Length	1600 mm
Width	1200 mm
Height	1600 mm
Weight	750 kg
<b>Colour</b>	RAL 7035 and RAL 7016
<b>Transportsystem</b>	XYZ axis carrier system
Transportangle	0° or 7° fix
Max. PCB size	400 x 400 / 510 x 510 mm
Max. frame / fixture size	440 x 440 / 550 x 550 mm
Max. clearance on solder side	40 mm
Max. transportspeed	X axis = 18 m/min Y axis = 18 m/min Z axis = 18 m/min
Position accuracy over fluxer, preheater and solder nozzle	+/- 0,1 mm with servo drives
<b>Fluxermodule</b>	Optional microdrop-fluxer
Flux pot	2 l stainless steel flux pot and fittings incl. flux level monitoring
<b>Preheater</b>	IR-emitters
Power	Max 7,5 KW
<b>Soldermodule</b>	Titanium solder bath and pump
Nozzles (refer to data sheet)	Jet wave nozzle Overflow nozzle Special nozzles
Smallest nozzle diameter	2,5 mm on overflow nozzles 4,0 mm on jet wave nozzles
Min. neighbour component clearance	1,5-3 mm (depends on nozzle type)
Solder capacity	approx. 12 kg for standard pot
Max. temperature	350°C
Upheat time	Approx. 30 - 45 min. depends on the solder bath
Solder time	free programmable
<b>Nitrogen technology</b>	
N2	by user (bottles, tank, generator are suitable)
Pressure	3-6 bar
Consumption	1,5-3 m³/h adjustable
N2 type	99,999% recommended
<b>Inline</b>	-
<b>Air</b>	
Pressure	6 bar
<b>SPS</b>	Schneider Electric CNC control with color touch-panel
Automatic timer	■
Working hours counter	■
Maintenance control	■
Password protection	■
<b>Manual Operation</b>	Wave height, fluxer, preheat, solder temperature
<b>Electrical data</b>	
Power	3 x 230 / 400 V, N, PE 50 / 60 Hz
Power tolerance range	+6%, -10%
Power consumption	Max. 7.5 - 15 KW depends on configuration
Fuse rate	Max. 3 x 16 A - 3 x 25 A depends on configuration
<b>Exhaust</b>	
Exhaust power	150 m³/h
Extension tube	Ø 100 mm
<b>Environment temperature</b>	15-30°C
<b>Permanent sound level</b>	< 50 dB
<b>Further</b>	
Welded iron frame	■

Legend: ■ included in standard configuration | - non-existent

Technical subject to change. We don't take over adhe





## Lead Forming

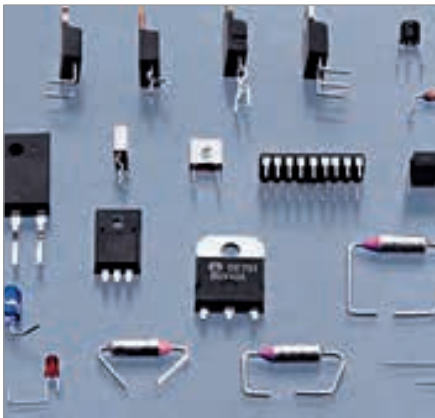


Since more than 35 years the cutting and forming of THT components is the core business of EBSO.

With over 20 standard preforming machines we can provide solutions to any kind of lead forming jobs.

Despite of the SMT technology, THT components are still in use in reasonable quantities in the electronic industry hence makes a big portion of our business.

Visit our website to learn more about EBSO products.

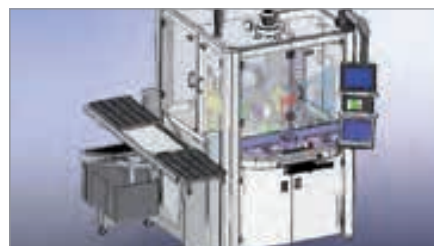


## System integration and custom automated systems



Individual customized automation solutions, which often challenging requirements, are part of the engineering services EBSO provides. No matter if it is a complete turnkey solution, special conditioning or a economically and technically implemented system integration.

We plan, design, manufacture and assemble customized solutions. Trust in our 35 years experience. Numerous successfully implemented projects in the automotive, consumer, telecommunications, electrical, electronics and ceramic industry speak for themselves.



# Process Monitoring

## You always have a reliable partner at your side

We assist our customers before, but also during and after the integration of our solutions in their production. Our goal is to install a zero defect process. A claim, which we pursue in the interests of our clients without any compromise.



## Referenzen

BERU AG

KUHNKE

SANMINA SCI

BOSCH

MARQUARDT

SIEMENS

FABRINET

MENTOR

STIEBEL ELTRON

FESTO

MIELE

STILL

GRUNDIG

MOTOROLA

VALEO

HONEYWELL

MSC

WERMA

HOMAG

OSRAM

ZF

KOSTAL

OTIS

ZOLLNER



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experience in electronics**



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