

# SELECTIVE SOLDER SYSTEM



**InterElectronic**



# INTRODUCTION



InterElectronic Hungary Ltd. offers equipments, machines and different materials (ESD) of different production technologies (SMT/THT/LED). Including high quality, special request fulfilling soldering machines, devices, tools, instruments and materials for the electronic industry and services.

## SERVICES

Our each and every product has a warranty granted by the InterElectronic Hungary Ltd. For more complex appliances our company offers a well-needed training for set up and usage. We grant the repair of all of the products traded by our company during and after the warranty period. As well as we guarantee the continuous supply of accessories and instruments.

## DEMONSTRATION

In case if any of our products aroused your interest the InterElectronic Hungary Ltd. would be glad to visit your company and hold a presentation of the product of your interest. As far as possible we serve you by bringing demo devices with us. In the most cases of our products we are proud possessors of references nation-wide. Major machines also could be observed at our partners' site.

## PRICE LIST

Most of the prices of our products can be requested on our website and will be sent via email to you. In case of special and more complex machines the prices are given after consultation individually through a price offer. If you are interested in more information or user manuals of our products we recommend you to visit our website ([www.interelectronic.com](http://www.interelectronic.com)), which is updated continuously with professional information. We also recommend you to visit our office, where you can purchase any of the needed devices and spare parts of the product of your interest.

## ORDER/SHIPPING

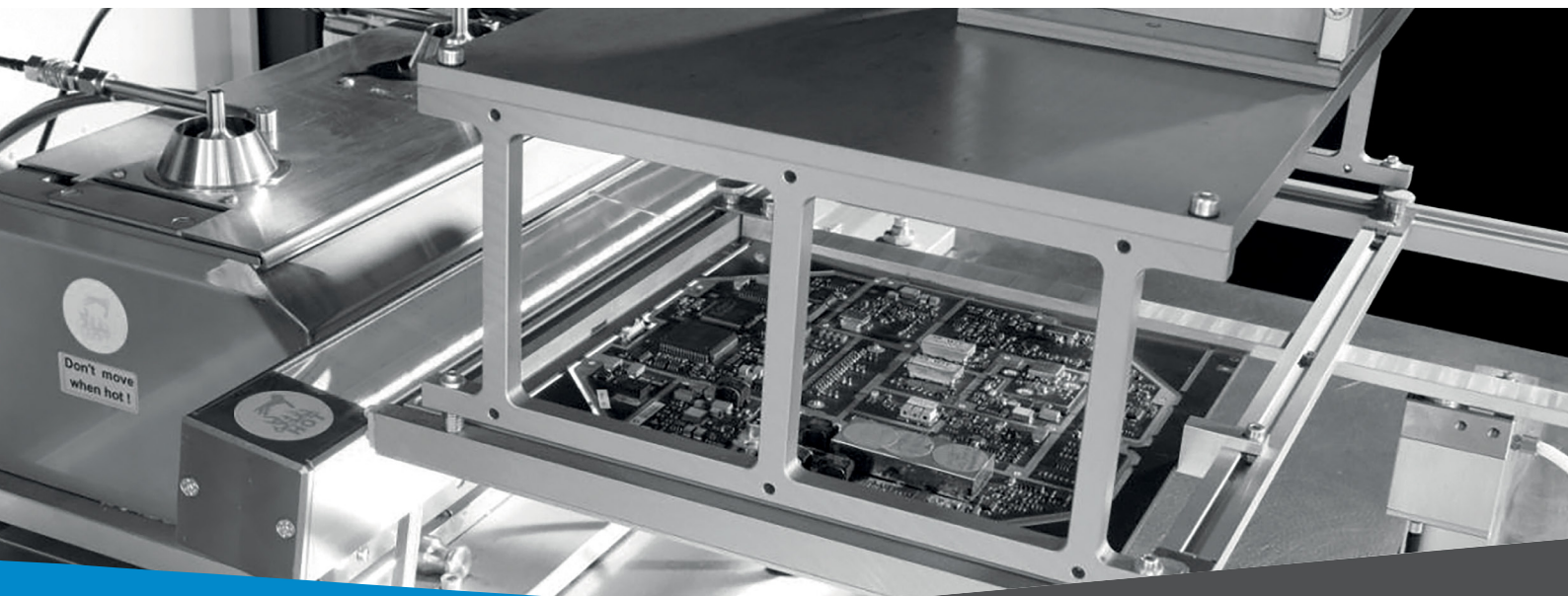
Our soon to be partners are welcomed to be helped via telephone, fax or e-mail. We use different ways of delivery, depending on the preference of our partner. We can deliver your purchased product by ourselves, by freight or courier service. The way of delivery might be negotiated previously. We offer you cash on delivery nation-wide!

# TABLE OF CONTENT

Many components can due to there 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.

## Selective Soldering

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## Selective Soldering with the EBSO SPA line

Miniwave with  
overflow wettable  
solder nozzle



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.

Furthermore 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 made of fully 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.

„QUICK RELEASE“  
solder pump



Simply turn pump 45°  
and the pump is ready  
to remove



Solder pot with dual nozzle technology and IR-preheat

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

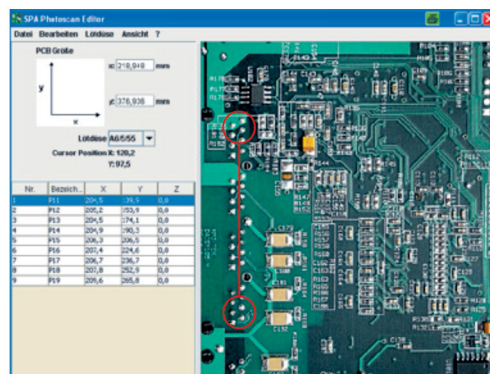


Photo-Editor makes programming easy  
and comfortable



## SPA 300 NC Automatic Selective Soldering System



### Reliable Soldering Quality at easy Operation and highest Flexibility

The Ebso SPA 300 NC is a high flexible Miniwave soldering system.

A XYZ axis carrier system moves the PCB over the fluxer, preheater and solder module. To reduce surface tension of the solder wave in order to achieve high quality solder results nitrogen is provided to the solder bath and solder pump unit. Bath and Pump is made of Titanium ready for lead free solder alloy.

The SPA300 NC is designed for selective soldering through hole components like Connectors, transformers, relays, coils etc.

A large selection of nozzles for all component shapes and sizes assures best results for different applications.

The **Ebso Offline Editor** is a Windows based programming software.

The easy „**point&click**“ procedure makes it possible to produce a soldering program within a few minutes.

Due to the unique EBSO

„**FAST REMOVE**“ solder Pump access to the solder pot is within seconds.

Many options such as Dual Fluxer/Nozzle unit or custom made solder fixtures underlines the flexibility of the SPA.

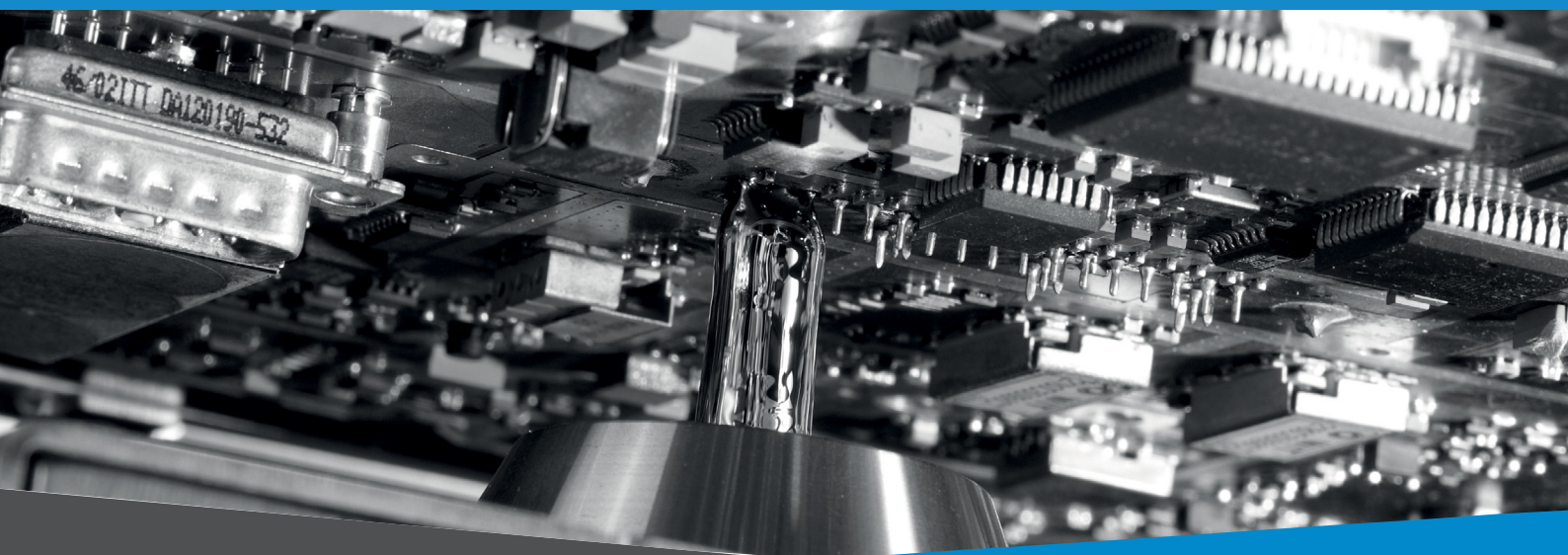
# SPA 300 NC SPECIFICATIONS

## EBSO Selective Soldering System SPA 300NC

The Ebso SPA400 NC is an automatic selective soldering system with manual loading. Solder bath and solder pump is covered with nitrogen. Designed for automatic soldering of connectors, transformers, coils and other conventional components. Especially for applications which are not suitable for a wave soldering process or to automatize hand soldering.

### Equipment base system

- ☐ 3 – axis **CNC** Portalsystem with **Servo drives**
- ☐ Transport angle 7° fix (0° possible, please mention on order)
- ☐ Max. pcb size (Solder area) 300 x 300 mm
- ☐ Max. frame/fixture size 340 x 340 mm
- ☐ **Microdropfluxer** for single point and line fluxing with 2 L flux pot and flux level control
- ☐ Approx 12 kg Titanium pot and pump unit suitable for lead free solder alloys with unique **EBSO Fast Remove** solder pump
- ☐ **1 precise milled Universal Solder Frame with spacers**
- ☐ Incl. one Standard Nozzle (i.e. 6mm wetable, or similar) and standard N2 cover ring
- ☐ **CNC control SPS** incl. Windows CE colour display
  - Digital N2 control** with standby function (minimizes N2 consumption)
  - Timer
  - Monitoring Functions and Maintenance time
  - Passwordprotection
  - Connection to Network via FTP interface**
  - Software Update via USB port or CF card**
- ☐ Interface for Exhaust control
- ☐ **Solder Pot including solder level float**
- ☐ Signal Light-Tower
- ☐ Nozzle Changeover tooling, Safety Cloves, Solder tool
- ☐ Programming Software
- ☐ Security Light Grid at loading position
- ☐ **Glas Cover and ESD safe painting (RAL 7035 lightgrey / RAL 7016 anthrazit)**
- ☐ **Huge Oddments Storage Compartment under machine**
- ☐ **Solder Level sensor included**
- ☐ **Interface for Barcode reading included (activation of solderprogram via Bardcode reader)**
- ☐ **Closed Loop N2 control**
- ☐ **Internal solder program memory**
- ☐ **Maintenance kit (grease and grease gun)**





# SPA 300 NC TECHNICAL DATAS

## Technical Datas SPA 300 NC

<b>Measurements</b>	
Length	1300 mm
Width	900 mm
Hight	1600 mm
Weight	Approx. 450 kg
Colour	RAL 7035 + RAL 7016
<b>Transportsystem</b>	
Type: XYZ axis carrier system with Servo motors and CNC Schleicher SPS	
Transportangle	7° fix or 0° fix
Max. PCB size	300 x 300 mm
Max. Frame / Fixture size	340 x 340 mm
Max. clearance on solder side	40 mm
Max. Transportspeed	Max. 18 m/min
Position accuracy over Fluxer, Preheater and Solder Nozzle	< +- 0,1 mm
<b>Fluxermodule</b>	
Precise AIRLESS Drop Fluxer	
Flux Pot	2 L Stainless Steel Flux Pot and Fittings incl. Flux level monitoring
<b>Preheater</b>	
Top and Bottom IR Emitters	
Power	TOTAL MAX 7,5 KW Standard 2,5 KW bottom and 2,5 KW Top Preheater
<b>Soldermodule</b>	
Titanium Solder bath and Pump	
Nozzles (refer to Data sheet)	Jet Wave Nozzle Overflow wetable Nozzles 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. 22 kg (35 kg big pot)
Max Temperature	350 °C
Upheat Time	Approx. 45 Minutes
<b>Nitrogen Tecnology</b>	
N2	by user (bottles, tank, generator are suitable)
N2 supply	N2-covering over solder bath and pump unit
Pressure	2 bar
Consumption	1,0 – 3 m3/h adjustable
N2 type	From 99,999 % N2
<b>Air</b>	
Pressure ( <b>Optional only if needed i.e. when equipped with Spray Fluxer or Convection Heat</b> )	6 bar only if needed Standard machine needs no Air
<b>SPS</b>	
Schleicher SPS	
Automatic Timer	
Workinghours counter	
Maintenance control	
Password Protection	
<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 KW max 15 KW
Fuse rate	Max. 3 x 16 A max 3 x 25 A
<b>Exhaust</b>	
Exhaust Power	150 m3/h
Extension Tube	□ 100 mm
Enviroment temperature	15 – 30°C
<b>Further</b>	



# SPA 300 NC OPTION

## Programming the SPA

### **Offline Editor incl. Import functions and Picture Editing**

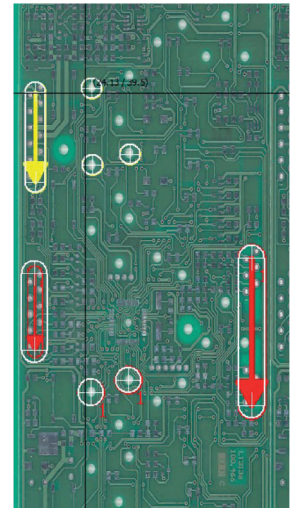
Easy point & Click Offline Programming of solder programs. No production Free adjustments of all solder parameters

Entering of solder positions with simple measuring of X and Y Position of Solderjoint or via

Import of CV Data of i.e. Drill Gerber Datas

Simply scan a bare PCB. Point and Click on the image where you want to solder.

The software automatically calculates the correct X and Y coordinate.



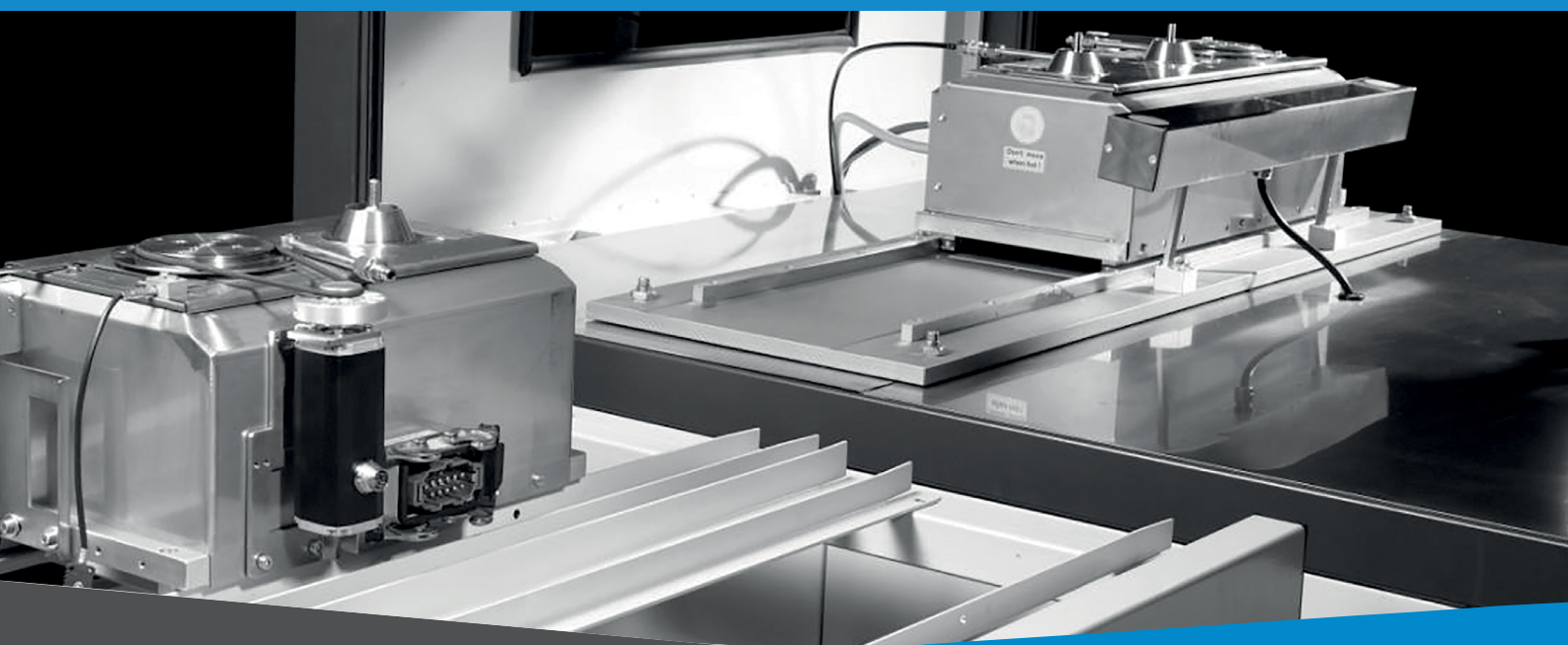
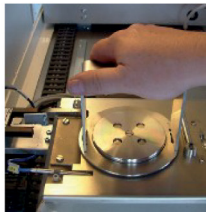
## Solder Pump

The unique flat solder pump design with the EBSO "**Fast Remove Pump System**"

Enables maintenance within minutes.

No adjustments, no screws to open.

Just an easy 45° turn with the included tool.



## SPA 400 NC Automatic Selective Soldering System



### Reliable Soldering Quality at easy Operation and highest Flexibility

The Ebso SPA 400 NC is a high flexible Miniwave soldering system.

A XYZ axis carrier system moves the PCB over the fluxer, preheater and solder module. To reduce surface tension of the solder wave in order to achieve high quality solder results nitrogen is provided to the solder bath and solder pump unit. Bath and Pump is made of Titanium ready for lead free solder alloy.

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A large selection of nozzles for all component shapes and sizes assures best results for different applications.

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The easy „**point&click**“ procedure makes it possible to produce a soldering program within a few minutes.

Due to the unique EBSO „**FAST REMOVE**“ solder Pump access to the solder pot is within seconds.

Many options such as Dual Fluxer/Nozzle unit or custom made solder fixtures underlines the flexibility of the SPA.



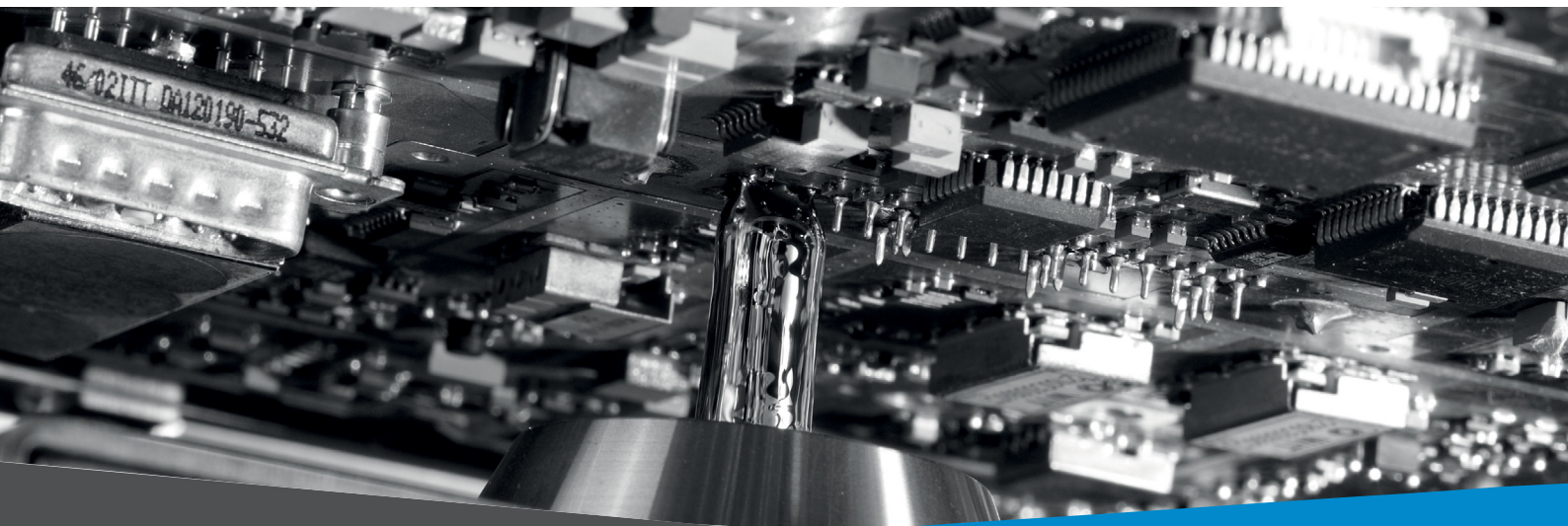
# SPA 400 NC SPECIFICATIONS

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### *Equipment base system*

- ◆ 3 – axis **CNC** Portalsystem with **Servo drives**
- ◆ Transport angle 7° fix (0° possible, please mention on order)
- ◆ Max. pcb size (Solder area) 400 x 400 mm (optional on demand up to 500 x 500 mm)
- ◆ Max. frame/fixture size 440 x 440 mm
- ◆ **Microdropfluxer** for single point and line fluxing with 2 L flux pot and flux level control
- ◆ Approx 12 kg Titanium pot and pump unit suitable for lead free solder alloys with unique **EBSO Fast Remove** solder pump
- ◆ **1 precise milled Universal Solder Frame with spacers**
- ◆ Incl. one Standard Nozzle (i.e. 6mm wetable, or similar) and standard N2 cover ring
- ◆ **CNC control SPS** incl. Windows CE colour display
  - ◆ **Digital N2 control** with standby function (minimizes N2 consumption)
  - ◆ Timer
  - ◆ Monitoring Functions and Maintenance time
  - ◆ Passwordprotection
  - ◆ **Connection to Network via FTP interface**
  - ◆ **Software Update via USB port or CF card**
- ◆ Interface for Exhaust control
- ◆ **Solder Pot including solder level float**
- ◆ Signal Light-Tower
- ◆ Nozzle Changeover tooling, Safety Cloves, Solder tool
- ◆ Programming Software
- ◆ Security Light Grid at loading position
- ◆ **Glas Cover and ESD safe painting (RAL 7035 lightgrey / RAL 7016 anthrazit)**
- ◆ **Huge Oddments Storage Compartment under machine**
- ◆ **Solder Level sensor included**
- ◆ **Interface for Barcode reading included (activation of solderprogram via Bardcode reader)**
- ◆ **Closed Loop N2 Control**
- ◆ **internal solder program memory**
- ◆ **Maintenance kit (grease and grease gun)**





# SPA 400 NC TECHNICAL DATAS

Technical Datas SPA 400 NC

<b>Measurements</b>	
Length	1600 mm
Width	1250 mm
Hight	1600 mm
Weight	Approx. 750 kg
Colour	RAL 7035 + RAL 7016
<b>Transportsystem</b>	
Type: XYZ axis carrier system with Servo motors and CNC Schleicher SPS	
Transportangle	7° fix or 0° fix
Max. PCB size	400 x 400 mm (max. 510mm on special request)
Max. Frame / Fixture size	440 x 440 mm
Max. clearance on solder side	40 mm
Max. Transportspeed	Max. 18 m/min
Position accuracy over Fluxer, Preheater and Solder Nozzle	< +- 0,1 mm
<b>Fluxermodule</b>	
Precise AIRLESS Drop Fluxer	
Flux Pot	2 L Stainless Steel Flux Pot and Fittings incl. Flux level monitoring
<b>Preheater</b>	
Top and Bottom IR Emitters	
Power	TOTAL MAX 7,5 KW Standard 2,5 KW bottom and 2,5 KW Top Preheater
<b>Soldermodule</b>	
Titanium Solder bath and Pump	
Nozzles (refer to Data sheet)	Jet Wave Nozzle Overflow wettable Nozzles 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. 22 kg (35 kg big pot)
Max Temperature	350 °C
Upheat Time	Approx. 45 Minutes
<b>Nitrogen Tecnology</b>	
N2	by user (bottles, tank, generator are suitable)
N2 supply	N2-covering over solder bath and pump unit
Pressure	2 bar
Consumption	1,0 - 3 m3/h adjustable
N2 type	From 99,99 % N2
<b>Air</b>	
Pressure ( <b>Optional only if needed i.e. when equipped with Spray Fluxer or Convection Heat</b> )	6 bar only if needed Standard machine needs no Air
<b>SPS</b>	
Schleicher SPS	
Automatic Timer	
Workinghours counter	
Maintenance control	
Password Protection	
<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 KW max 15 KW
Fuse rate	Max. 3 x 16 A max 3 x 25 A
<b>Exhaust</b>	
Exhaust Power	150 m3/h
Extension Tube	Ø 100 mm
<b>Enviroment temperature</b>	15 - 30°C
<b>Further</b>	
Welded Iron Frame	

# SPA 400 NC OPTION

## Programming the SPA

### **Offline Editor incl. Import functions and Picture Editing**

Easy point & Click Offline Programming of solder programs. No production stop during programming.  
Free adjustments of all solderparameters

Entering of solder positions with simple measuring of X and Y Position of Solderjoint or via

Import of CV Data of i.e. Drill Gerber Datas

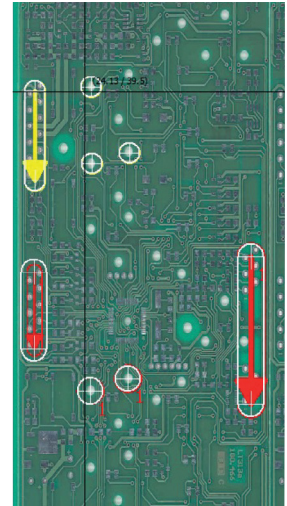
Simply scan a bare PCB. Point and Click on the image where you want to solder.

The software automatically calculates the correct X and Y coordinate.

#### **Advantages.**

You see the PCB on the image thus you can instantly consider neighbour SMD Components and enter the solderpoint according to your nozzle size.  
No complicated and expensive teach-in camera is necessary.

***You can't have programming much easier.***



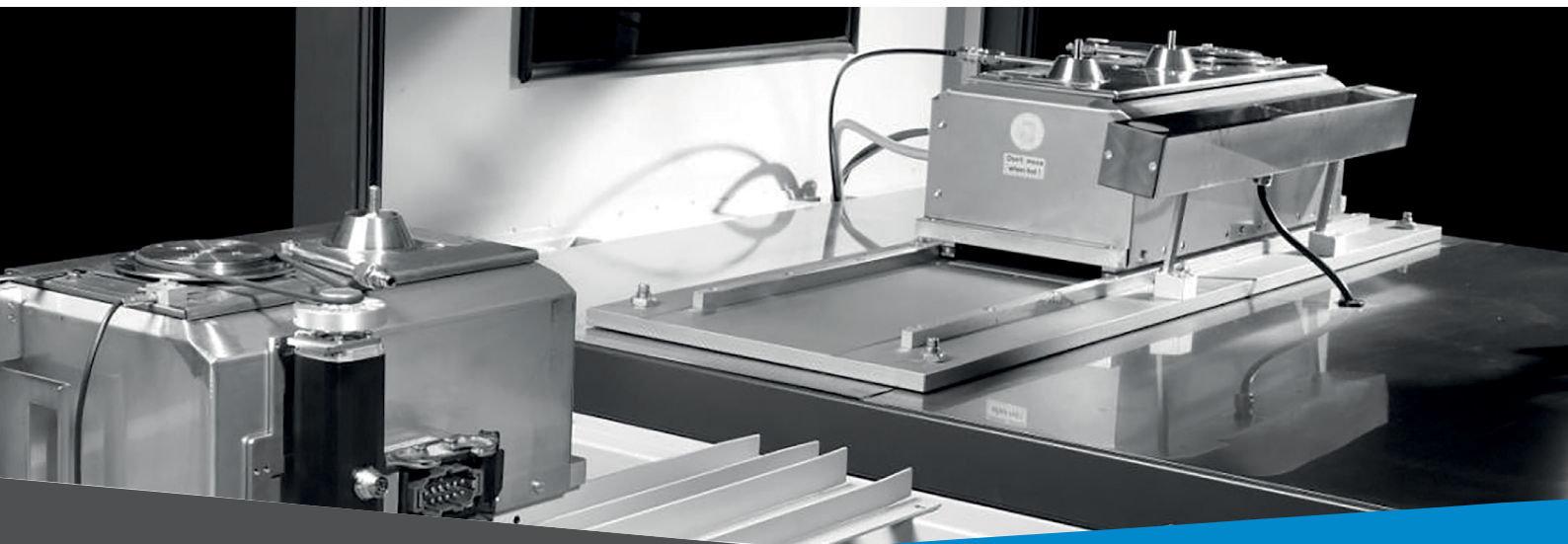
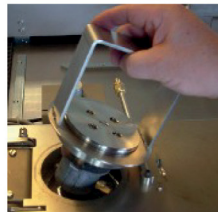
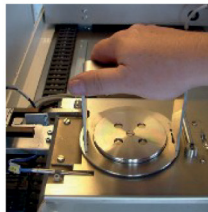
## Solder Pump

The unique flat solder pump design with the EBSO "**Fast Remove Pump System**"

Enables maintenance within minutes.

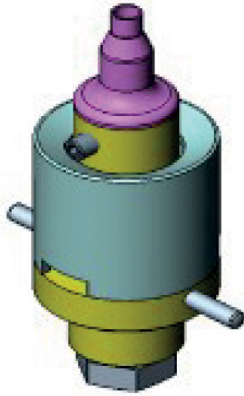
No adjustments, no screws to open.

Just an easy 45° turn with the included tool.

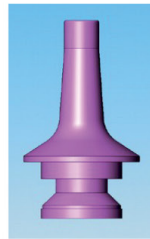


## Solder Nozzles

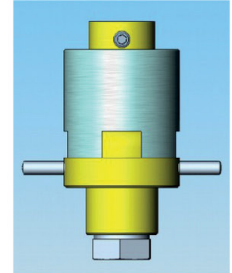
### 1) Overflow wetable Nozzles



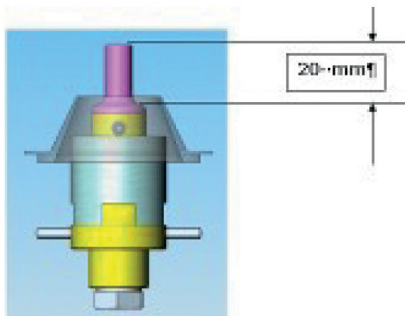
Complete Nozzle



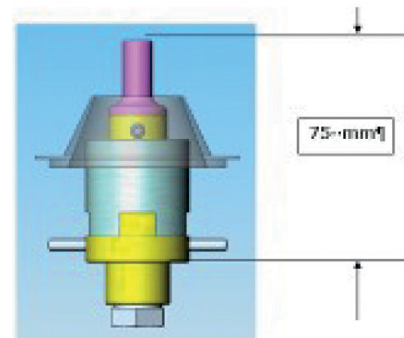
Nozzle Tip



Nozzle Socket



Standard Component Clearance  
Standard 20 mm  
30 mm möglich



Nozzle height ,Standard 75 mm

- ◆ For Single Point and Line Soldering
- ◆ For small distances to neighbour components due to smallest inner diameter of 2,5 mm
- ◆ Wetable nozzle provides best peel off performance
- ◆ Soldering in both X and Y direction

*Standard Overflow Nozzle (refer also to nozzle list)*

Part number	Ø outer	Length / Clearance
250_23358	6 mm	75 mm / 20 mm
250_22908	Nozzle Socket	



## 2) Jet Wave Nozzles



← Height

- ◆ For Single Point and Line Soldering
- ◆ Smallest Inner Diameter 4 mm.
- ◆ Wave flows in one direction only to front
- ◆ Soldering in Y direction only
- ◆ Long lifetime

*Standard Jet Wave Nozzles (refer also to nozzle list)*

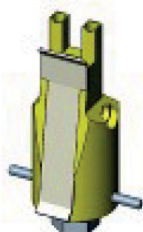
Part Number	Ø outer	Ø inner	Length
A6/5/75 (Standard)	6 mm	5 mm	75 mm

## 3 ) Special Nozzles

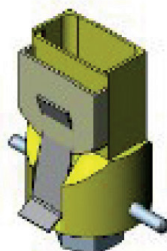
Special shaped nozzles to minimize solder time  
Depends on application

Samples:

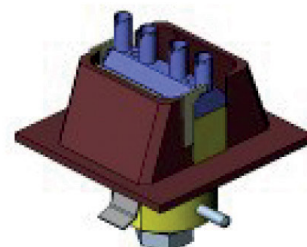
Nozzle with Dual outlet



35 mm Nozzle for wide connectors

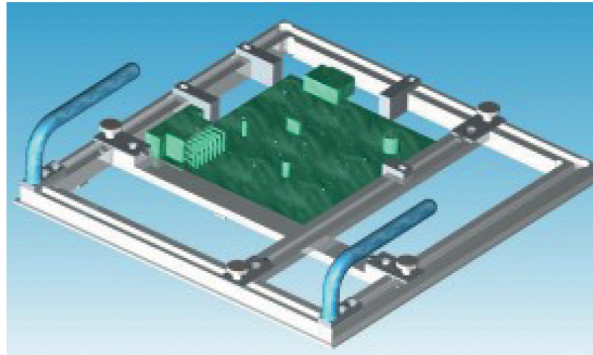


Multi-Single-Shot-Nozzle



# SPA 300/400 NC OPTIONS

## Universal Solder Frame



For fixing different PCB shapes

### ***New Precise Universal Solder Frame for SPA 400 NC***

Advantages against Standard Universal Solder Frame

- Precise Spacers with 5/10/15/20 mm width for an easy fixing of PCB 's with components going outside of the board-edge
- Open handles for comfortable fixing of the middle paths over the complete frame size
- Easy adjusting of middle paths
- Frame can be stored in a standard PCB cassette
- Precise milled and anodized aluminium frame

Content of delivery:

Frame

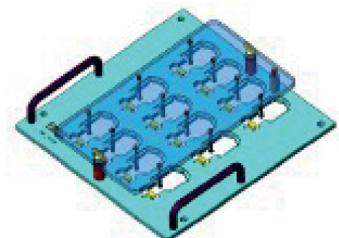
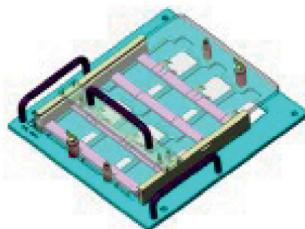
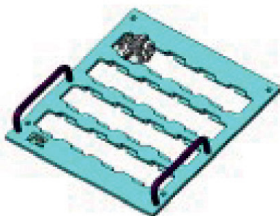
Handles

Set of spacers with each 4 x 5/10/15/20 mm width

Middle paths

PCB-holding plates

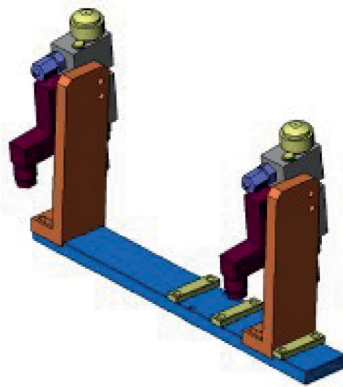
## Special PCB Fixtures



Ebso provides custommade pcb fixtures. This assures a safe and easy process during component placement. The PCB and the components are always accurate for a reliable solder process.

# SPA 300/400 NC OPTIONS

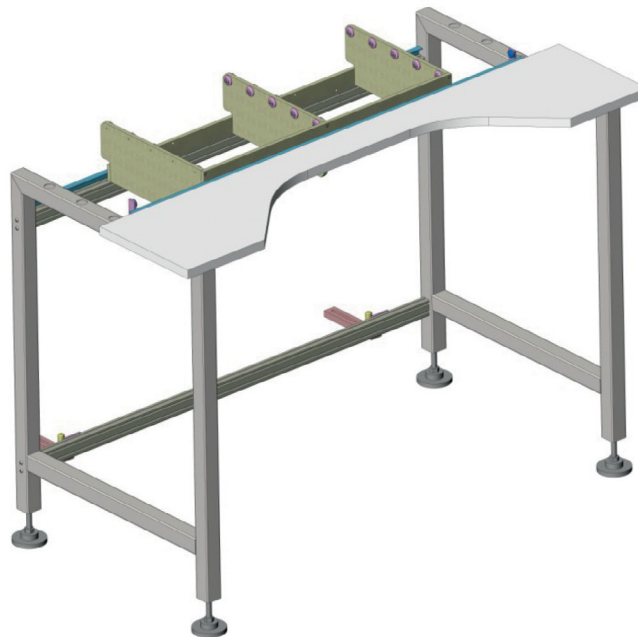
## The Dual-Fluxer



### *Dual Fluxer with dual Nozzle*

On suitable applications a Dual Fluxer/Nozzle unit can be used. Herewith 2 pcb's can be soldered simultaneously to double the throughput. However, it is not possible to adjust the nozzles independently. For a changeover to another product simply cover one nozzle shaft and switch of one fluxer. The SPA remains flexible at shortest changeover times.

## Manual Handlingsystem



Working table set up in front of the SPA.  
Incl. 2 sliding supports for the frames or custommade fixtures.  
You can move the sliding support to a left and to a right stopper. Each position is accurate with the home position of the carrier. Simply slide frames/fixtures in and out of the machine. During the machine is soldering the operator has a comfortable working place to prepare the next board.  
ESD safe table



## SPA - R System

### 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 painful. Furthermore, for manual soldering of small and medium batches the SPA-R can be used as well.



XY-Table with position fixing



Different solder nozzle sizes and customized nozzles



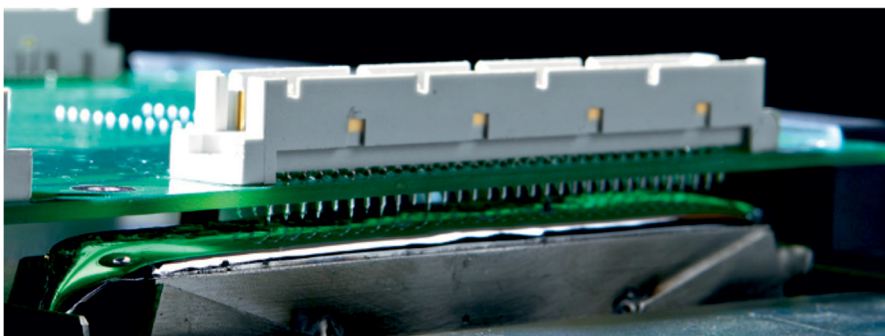
SPA-R insight straightforward engineering



SPA-R with laserpointer to ease component centering over nozzle

#### 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 height regulation
- Wave standby-function to reduce tack time
- Save of 5 programs
- Easy solder nozzle interchange
- No limits in board size
- Optional N2-supply
- Optional laserpointer to ease component centering over nozzle
- XY-table



## The solder pump system

The unique flat pump design with a superb "Fast Remove" system allows maintenance within minutes. Just an easy turn with the supplied tooling gives instant access to the pump and solder bath.



Technical Data	
Power	220 V (50/60 Hz ) / 2 KW
Temperature	0-400 °C
Solder spacing	ca. 20 kg
PCB size	no Limits
Measurements	400 (B) x 700 (L) x 250 (H) mm
Weight	ca. 35 kg with empty solder pot

# **The Preforming Machines Catalog is available.**







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