



LPKF ZelPlace & BGA Placer

LPKF ZelPlace 110, 220, 330, 340

Manual Pick and Place systems for prototype circuit boards and small batches

General product description

LPKF ZelPlace is a manual Pick & Place system for professional SMD assembly of prototype PCBs and small production batches. The basic unit of all LPKF ZelPlace machines is a multi-function dispenser for applying various media, and a vacuum pick-up nozzle to place the components.

All LPKF ZelPlace models are based on the same platform. Upgrading to a more sophisticated system is possible at any time. Each ZelPlace system comes with a multifunctional dispenser unit that features both manual and automatic dispensing mode.

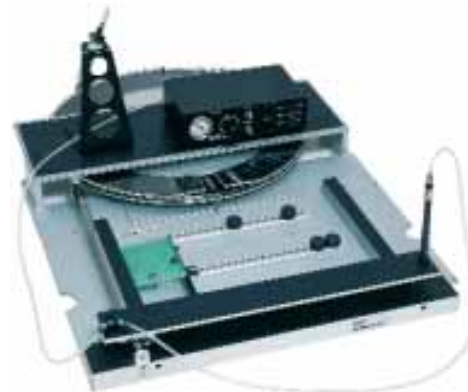
LPKF ZelPlace 110

The LPKF ZelPlace 110 system is the ideal solution for the assembly of SMD components (surface mounted devices) with a pitch between 1 mm (39 mil) and 1.27 mm (50 mil), such as SOIC, SOT, PLCC and passive components 1206 and 0805.

The components are picked with a vacuum pick-up nozzle and placed on the PCB with the help of a guided hand support. Feeders and turntables can be mounted to LPKF ZelPlace 110 on three sides.

Product features

- Fine-pitch assembly
- Vacuum pick-up nozzle and precision manipulator
- Modular system design
- Dispenser
- Various feeders
- Upgradable at any time



LPKF ZelPlace 110 with component turntable

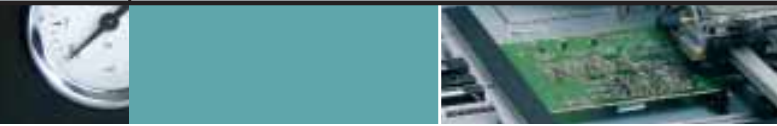
LPKF ZelPlace 220

LPKF ZelPlace 220 has a guided manipulator head and integrated illumination. This allows precise and vibration-free placement of a component in the desired position. When placing the component the vacuum is controlled by the LPKF ZelDisp multifunction dispenser unit and turned on and off automatically. In addition to classic areas of application, this system is capable of dispensing adhesives and solder paste. Turntables (for bulk components) and feeders can be conveniently placed on all three sides.

LPKF ZelPlace 220 enables the assembly of digital SMDs with a large number and high density of leads. Components such as SSOP with 0.65 mm (26 mil) pitch, TSOP with 0.5 mm (20 mil) pitch, QFP with 0.65 mm (26 mil) pitch and 160 leads, or 0402 passive components, can be precisely placed with this system.



LPKF ZelPlace 220 with component turntable, tape and stick feeder



LPKF ZelPlace 330/340

LPKF ZelPlace 330 and 340 are the most advanced LPKF ZelPlace systems. Both systems allow the placing of fine-pitch components such as QFP with 0.5 mm (20 mil) and 0.4 mm (16 mil) pitch with up to 300 pins, as well as 0402 components. The edge centring of BGA components up to 1.27 mm (50 mil) pitch is also no problem for LPKF ZelPlace 330/340.

The X-Y-guided manipulator can be locked in x and y direction with fine adjustment using micrometer screws. This allows high levels of placement accuracy for SMD components. The vacuum of the pick-up nozzle is automatically turned on and off when placing the component.

A swiveling micro camera can be mounted directly on the manipulator to ease placement of large components. Other options include a stereo microscope with or without a CCD camera, and a monitor, so ZelPlace 330 or 340 can also be used as an inspection unit.

A turntable for bulk components and a range of different feeders can be placed ergonomically on all three sides (ZelPlace 330).

LPKF ZelPlace 340 contains an additional reworking station for selective soldering of SMD components. In this case, the feeders can be placed on the left side with the turntable sitting in the back. Instead of a feeder rail a second turntable can be placed on the left side of the system.



LPKF ZelPlace 330 with component turntable, feeder carrier and feeder



LPKF ZelPlace 330/340 with optional stereo microscope and CCD camera

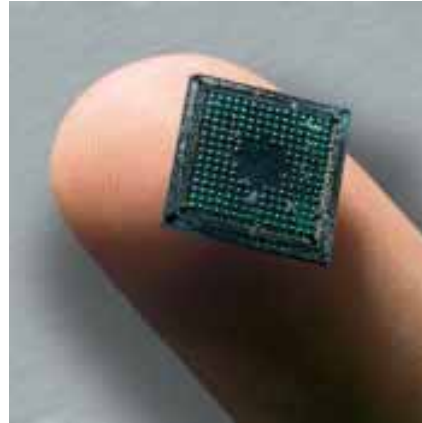


LPKF ZelPlace BGA

Semi-automatic placement of new generation components to assemble highly integrated circuit boards.



LPKF ZelPlace BGA with monitor



BGA component

Product description

The placing of components with pins hidden from the top and sides requires reliable and precise alignment to avoid expensive and difficult rework.

LPKF ZelPlace BGA Placer is designed for the accurate placing of different types of BGA, CSP and flip chip components, as well as fine-pitch and ultra-fine-pitch components. The system is suitable for R&D labs as well as production facilities focusing on custom designs and small batches.

Special optics and adjustable two-colour illumination help to simultaneously view and align the PCB leads and the component pins. Coarse and fine adjustment is achieved using an air-bearing positioning table with micrometer screw adjustment.

As soon as the component is aligned, it is automatically placed at a single push of a button.

Product features

- Semi-automatic placement of BGA and QFQ components from 5 mm x 5 mm (0.2" x 0.2") up to 45 mm x 45 mm (1.77" x 1.77")
- Granite base plate
- Air-bearing positioning table
- Optical placement verification



Placing components with CCD camera and monitor



Specifications LPKF ZelPlace BGA	
Max. PCB size	220 mm x 300 mm (8.6" x 11.8")
Max. size of components	45 mm x 45 mm (1.8" x 1.8")
Min. size of components	5 mm x 5 mm (0.2" x 0.2")
Pitch	0.3 mm (12 mil)
Placement accuracy	± 50 µm (± 2 mil)
Power supply	230 V/50 Hz oder 115 V/60 Hz, 20 VA
Compressed air	6 bar (87 psi), min. 5 l/min (0.18 cfm), oil-free
Dimensions (W/H/D)	600 mm x 430 mm x 435 mm (23.6" x 17" x 17.1")
Weight	35 kg (77 lb)



Specifications LPKF ZelPlace	Entry level LPKF ZelPlace 110	Professional system LPKF ZelPlace 220	High-end system LPKF ZelPlace 330	High-end / repair system LPKF ZelPlace 340
Part number	106839	107953	106840	106842
Max. PCB size	370 x 290 mm (14.56" x 11.42")	370 mm x 340 mm (14.56" x 13.39")	370 mm x 340 mm (14.56" x 13.39")	370 mm x 340 mm (14.56" x 13.39")
Max. placement area	220 x 300 mm (8.66" x 11.81")	370 mm x 300 mm (14.56" x 11.81")	370 mm x 300 mm (14.56" x 11.81")	370 mm x 300 mm (14.56" x 11.81")
Operating air pressure	0.1 - 2.5 bar (1.45 - 36.25 psi)	0.1 - 2.5 bar (1.45 - 36.25 psi)	0.1 - 2.5 bar (1.45 - 36.25 psi)	0.1 - 2.5 bar (1.45 - 36.25 psi)
Vacuum	0 - 0.8 bar (0 - 11.6 psi)	0 - 0.8 bar (0 - 11.6 psi)	0 - 0.8 bar (0 - 11.6 psi)	0 - 0.8 bar (0 - 11.6 psi)
Pulse/Pause ratio	0.1 - 2s/0.1 - 5s	0.1 - 2s/0.1 - 5s	0.1 - 2s/0.1 - 5s	0.1 - 2s/0.1 - 5s
Number of dispensing points	up to 300 /min	up to 300/min	up to 300/min	up to 300/min
Dispensing quantity	minimum 0.2 mm ³	minimum 0.2 mm ³	minimum 0.2 mm ³	minimum 0.2 mm ³
Turntable location	left/right/back	left/right/back	left/right/back	left/back
Feeder location	left/right	left/right	left/right	left
Power supply	120V or 230V, 50/60Hz, 7VA	120V or 230V, 50/60Hz, 7VA	120V or 230V, 50/60Hz, 7VA	230V, 50/60Hz, 780VA
Air supply	6 bar (87 psi), 10 l/min (0.35 cfm)*	6 bar (87 psi), 10 l/min (0.35 cfm)*	6 bar (87 psi), 10 l/min (0.35 cfm)*	6 bar (87 psi), 10 l/min (0.53 cfm)*
Max. device dimensions (W/H/D)	1,000 mm x 500 mm x 900 mm (40" x 20" x 35")	1,000 mm x 500 mm x 900 mm (40" x 20" x 35")	1,000 mm x 500 mm x 900 mm (40" x 20" x 35")	1,000 mm x 500 mm x 900 mm (40" x 20" x 35")
Weight	15 - 40 kg (33 - 88 lb)	15 - 40 kg (33 - 88 lb)	15 - 40 kg (33 - 88 lb)	15 - 40 kg (33 - 88 lb)
Ambient conditions	Temperature: 5 - 35 °C (41 - 95 °F) Humidity: 30 - 95%	Temperature: 5 - 35 °C (41 - 95 °F) Humidity: 30 - 95%	Temperature: 5 - 35 °C (41 - 95 °F) Humidity: 30 - 95%	Temperature: 5 - 35 °C (41 - 95 °F) Humidity: 30 - 95%

* clean, dry, oil-free

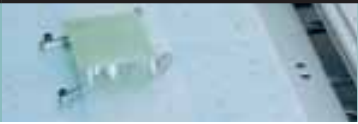
LPKF ZelPlace accessories	Part number	LPKF ZelPlace 110	LPKF ZelPlace 220	LPKF ZelPlace 330	LPKF ZelPlace 340
ZelDisp dispenser		•	•	•	•
Bridge-guided unit for stereo-microscope and CCD camera	104766	–	+	+	+
Zoom stereo-microscope unit SM143	104767	–	+	+	+
CCD Camera	109190	–	+	+	+
Color monitor 14"	105614	–	+	+	+
Ball socket turntable 150 mm (5.90")	105615	–	+	+	+
Turntable set with 45 antistatic component bins	101339	+	+	+	+
Turntable set with 90 antistatic component bins	101344	+	+	+	+
Feeder-carrier	101377	+	+	+	+
Tape feeder 8 mm (0.31")	101352	+	+	+	+
Tape feeder 12 mm (0.47")	101351	+	+	+	+
Tape feeder 16 mm (0.63")	101350	+	+	+	+
Stick feeder S08 - S028, S08L - S028L	101356	+	+	+	+
Stick feeder PLCC28 - PLCC44	101357	+	+	+	+
Stick feeder PLCC52 - PLCC84	103897	+	+	+	+
Monochrome micro camera (swiveling)	106055	–	+	+	+
Upgrade kit for LPKF ZelPlace 110 to 220	Upon request	+	–	–	–
Upgrade kit for LPKF ZelPlace 110 to 330	Upon request	+	–	–	–
Upgrade kit for LPKF ZelPlace 220 to 330	Upon request	–	+	–	–
Upgrade kit for LPKF ZelPlace 330 to 340	Upon request	–	–	+	–
Set of consumables K1		•	–	–	–
Set of consumables K2		–	•	•	•
Stand for 2 cartridges*		+	+	+	+
Vacuum gripping device*		+	–	–	–
Vacuum switch*		+	–	–	–
Foot switch with 2 m (6 ft.) cable		+	+	+	+
Set of 10 dispensing and vacuum needles*		+	+	+	+

* items are included in set K1 delivered with LPKF ZelPlace

- standard equipment
- + accessories
- not available
- optimal configuration

IMPORTANT NOTE

LPKF ZelPlace 110, 220 and 330 can be upgraded to LPKF ZelPlace system 340.



Accessories for LPKF ZeIPlace 110, 220, 330 and 340

Tape and stick feeder

Up to 13 feeders can be mounted on the feeder carrier for fast changeover of components. They can be conveniently mounted on both sides of the system.



Feeder carrier with feeders

Turntable for bulk components

The turntable with either 45 or 90 ESD safe components bins can be located on both sides of the system as well as in the back.



ESD safe turntable for bulk components

LPKF ZeIDisp

Each LPKF ZeIPlace comes with a ZeIDisp dispenser unit. This multi-function dispenser with an integrated non-drop function is also designed for the dispensing of low viscosity fluids like adhesives. The dispensing pressure, time and repetition rate between the pulses can be set as required. The dispensing cycle is started by activating the foot switch (LPKF ZeIPlace 110) or pressing down the manipulator head (all other LPKF ZeIPlace versions). The Pick & Place vacuum is also generated and controlled by the LPKF ZeIDisp unit.



LPKF ZeIDisp

Consumables set K1

This set contains the following parts: foot switch with 2 m (6 ft.) cable, vacuum pick-up nozzle with vacuum valve, silicon hoses, cartridge adapter 10 ccm (4 inch³), two 10 ccm cartridges with caps and plungers, set of ten dispensing and vacuum needles, two vacuum caps, stand for two cartridges.

LPKF consumables set K2

One cartridge adapter 5 ccm, two 5 ccm cartridges with caps and plungers, set of ten dispensing and vacuum needles, two vacuum caps.



Overview of typical SMD components and recommended assembly configurations

	<i>Entry level</i> LPKF ZelPlace 110	<i>Professional system</i> LPKF ZelPlace 220	<i>High-end systems</i> LPKF ZelPlace 330 & 340	LPKF ZelPlace BGA
Passive components in Inch / mm				
1206 (3216)				
0805 (2012)				
0603 (1608)				
0402 (1005)				
0201 (0603)				
IC packages				
SOT23				
SOT323				
SC90-TR				
SOIC 1.27 mm (0.05")				
PLCC 1.27 mm (0.05")				
SSOP 0.65 mm (0.025") - 64 leads				
TSOP 0.5 mm (0.019") - 48 leads				
QFP 0.8 mm (0.031") - 120 leads				
QFP 0.65 mm (0.025") - 100 leads				
QFP 0.65 mm (0.025") - 160 leads				
QFP 0.5 mm (0.019") - 208 leads				
QFP 0.4 mm (0.015") - 256 leads				
LQFP 0.3 mm (0.011") - 168 leads				
BGA 1.5/1.27 mm (0.06"/0.05")				Edge Centring
BGA 1 mm (0.039")				Edge Centring
µBGA® 0.75 mm (0.029")				
µBGA® 0.5 mm (0.019")				

■ Compatible

■ Limited compatibility (requires skilled user or is time consuming)
additional tools may be required