



### Hot bar soldering system BL40i und BL40iXXL

#### System properties

- Flatpacks, TABs, SMD
- Selective soldering
- Strands to PCBs
- Lead-free soldering

#### Advantages

- Innovative joining technology for sensitive components
- Cost-effective systems for laboratory applications and small series
- For use with flat or profiled soldering heads
- Customized machines

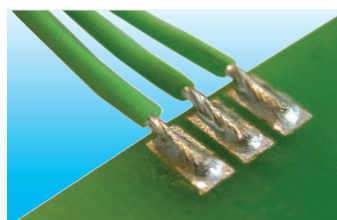
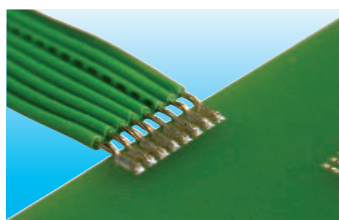
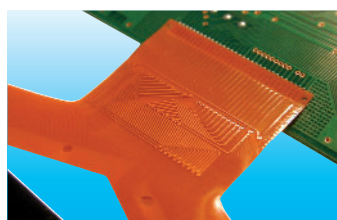
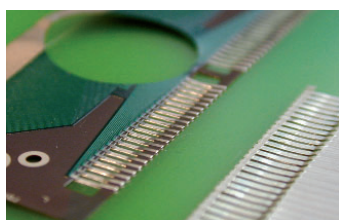
## Intelligent, innovative systems for joining components in production

The Panacol hot bar soldering systems BL40i/BL40iXXL work with pulse heating technology. The XXL version is a larger variant of the BL40i. Depending on its design, the system can be fitted with up to three soldering heads. The XXL version can be fitted with a larger tray (up to 500 x 500 mm) or a rotary table ( $\varnothing$  ~500 mm).

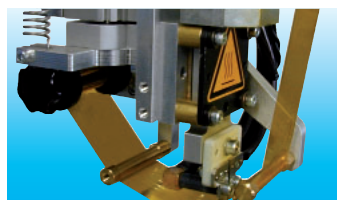
The soldering heads used work with high precision and reproducibility. They can be quickly exchanged and optionally fitted with a temperature sensor for the additional temperature monitoring system. The soldering head motion is pneumatically controlled, the required contact force being generated by a precision spring assembly. Depending on its application, the soldering head is mounted on a linear guidance system or a semi-articulated mounting suspension to allow compensation for uneven or inclined workpiece surfaces..

### Soldering applications

Flat soldering points (flexible foil circuits (FFC), flexible printed circuits (FPC), OLED/ LCD connections, etc.) and soldering strands or cables.



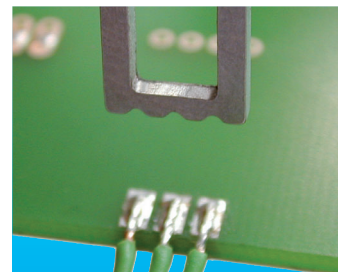
Depending on its application, the hot bar soldering system can be equipped with a flat or a profiled soldering head. For flat, open soldered points the soldering head is protected from process-related contamination – such as flux residues – with a Kapton film. The film is stored on rolls and automatically transported after a user-definable number of soldering cycles.



### Profiled soldering heads

For soldering cables, wires or strands, product-specific “profiled” soldering heads are used. These allow the wire to be optimally positioned on the soldering point and provide an efficient heat transfer.

Contamination on the soldering head is removed by an automatic cleaning system with rotating brushes. The workpiece jigs are mounted on the plant's tray or rotary table. After the workpieces to be soldered have been mounted in the jigs, the tray is slid or the table rotated into the plant and automatically arrested there.



### Rotary table version

The rotary table is electromotive driven and is operated with a two-hand control device. The soldering process can be started manually or automatically.

### Tray version

On systems fitted with a tray the operating personnel can perform other work during the soldering phase. On trays with a workpiece jig the soldering phase is tied to cycle times, so that these systems are suitable for low- and medium-volume production. Depending on the handling time (removal of the soldered workpiece and placing new workpieces in the jig), one or two workpieces per minute can be soldered.

### Rotary table version for large volumes

For larger volume production, systems with rotary table and two workpiece jigs are used. While one workpiece is being soldered, the last soldered workpiece can be removed and a new workpiece fitted in the jig. Depending on the handling time (removal of the soldered workpiece and placing new workpieces in the jig), two or three workpieces per minute can be soldered. Occupational safety is provided by a metal housing with viewing windows or ESD acrylic glass. This prevents hand contact with the soldering head and the risk of injury while the soldering head moves towards the workpiece and during the soldering phase.

### Temperature control

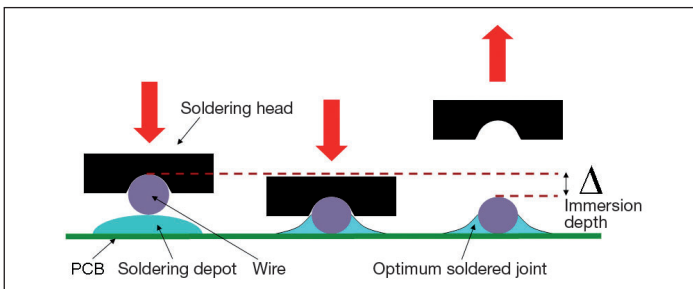
The pulse heating temperature control circuit is controlled by a standard PLC with operator panel (standard or touch panel). All system parameters (such as preheating, heating, and cooling phase) can be quickly and flexibly programmed and saved and the readings viewed through the operator panel. Operation of the system can be learned in just a short time.

## Customer-specific complete solutions for individual production requirements

Additional control functions, such as the actuation of an electronic component inspection, communication with an AOI (automatic optical inspection) system, interaction with a bar code or data matrix code scanner, etc. can be implemented with the system PLC. In addition, all process-relevant parameters and readings are recorded for each soldering cycle and can be transmitted to an external PC for data collection or to the customer's own database system.

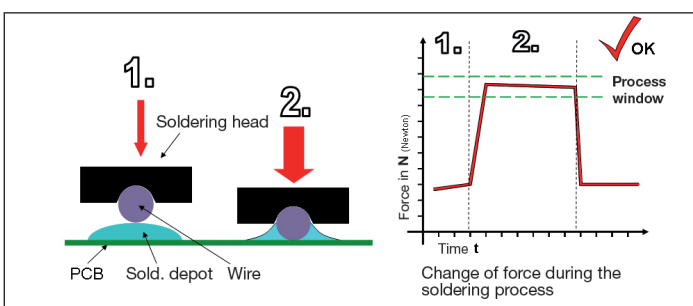
### Process monitoring

There are numerous possibilities for process monitoring. In addition to simple temperature monitoring of the heating electronics the soldering head temperature can be monitored with an additional temperature sensor. In addition a workpiece height or immersion distance measurement and a continuous soldering force measurement can be implemented. For the measuring procedure the soldering head is moved towards the soldering point and the height of contact is measured and compared with programmed limit values.



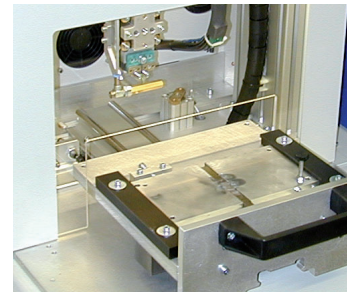
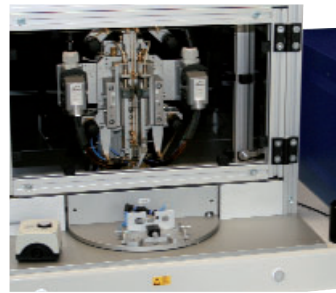
If the readings lie within the limit values, the soldering process is started. After the soldering phase another reading is taken to determine the path travelled during soldering. The continuous force measurement monitors the contact force of the soldering head during the entire soldering process according to programmed values.

The path and force readings are important indicators for successful and process-reliable soldering. Any faults are indicated on the display and must, depending on their severity, be acknowledged by an authorised person with a key-operated switch.



We offer hot bar soldering and heat sealing systems as complete solutions or as units for integration in production lines, rotary indexing tables and customer-specific production concepts. All hot bar soldering systems of the BL40i family can be equipped with customised functions, from simple camera systems through operating personnel support to the integration of electronic inspection systems.

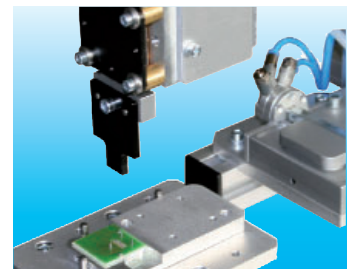
Our customised complete solutions include manufacturing systems with automated rotary indexing table, in which the production tasks are split into separate operations. The workpieces are usually placed onto the table by the operating personnel on this type. The subsequent steps can include an automatic flux application with various application systems, the actual hot bar soldering or heat sealing process as well as further inspection or monitoring tasks.



### Process-reliable flux application

The process-reliable application of flux receives special attention. This operation is implemented with complete application-specific application solutions. On one hand, standard dispensing systems (such as simple pressure/time dispensing) with special application nozzles are used. Especially for hot-bar soldering of cables or wires profiled nozzles are used, which guarantee an even flux application to the soldering point.

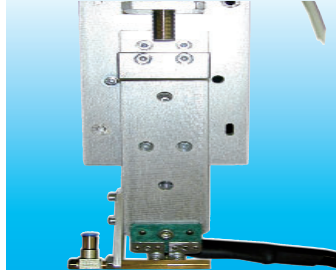
For "flat" soldering tasks (for example on flex film, FFC or FPC) the Panacol flux applicator is used. Here a stamp system takes the required flux volume from a reservoir and applies it reliably to the soldering point.



The flux applicator has been designed especially for the process-reliable application of very low amounts of soldering flux. The flux stamp is mounted on a semi-articulated mounting suspension to allow compensation for un-even or inclined workpiece surfaces to ensure an even application of the flux.

The flux reservoir is either a cartridge or a tank system with drums of up to one litre capacity. The fill level in the reservoir system is monitored by the plant control system.


For plant or manufacturing concepts with several hot-bar soldering processes per workpiece two or more soldering heads are incorporated in the plant. For production lines working on an inline principle the individual tasks are implemented with a goods transport system (for example from Bosch).



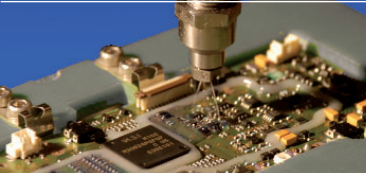
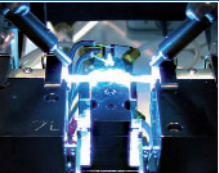
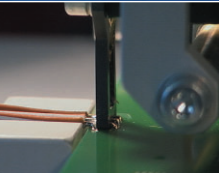



If the production system is implemented by the customer, the required hot-bar soldering units can be incorporated as individual components. These are available in a range of configurations – from simple soldering heads to complete units – according to the available space and mounting possibilities.


All systems are planned and designed using state-of-the-art 3D programs. We also design and produce the workpiece jigs and carriers required for various positioning tasks. Naturally, each component and assembly is designed with a focus on ergonomics, durability and precisely reproducible positioning.

<b>Dimensions, BL40i / BL40iXXL</b>	Width x depth x height: 770 / 470 / 540 mm / 1200 / 720 / 600 mm
<b>Weight BL40i / BL40iXXL</b>	Approx. 50 kg/Approx. 70 kg
<b>Electrical data</b>	230V – 50/60 Hz, max. 8 A
<b>Compressed air</b>	5 – 6 bar, dehydrated and filtered
<b>Maximum workpiece height</b>	100 mm
<b>Tray/rotary table surface, BL40i / BL40iXXL</b>	250 x 250 mm or Ø 330 mm / 500 x 500 mm bzw. Ø 500 mm
<b>Soldering process trigger</b>	two-hand control or automatic process start
<b>Operating environment</b>	20 - 40 °C/air humidity up to 90 % at 40 °C
<b>Soldering force</b>	10 - 100 N/accuracy/repetition accuracy < ± 1 N
<b>Soldering head positioning</b>	Pneumatic
<b>Soldering force generation</b>	Pretensioned spring or spring pack
<b>Soldering temperature (preheating and heating phase)</b>	30 - 600 °C
<b>Heating time adjustment (preheating and heating phase)</b>	0,1 to 99.9 seconds
<b>Temperature gradient</b>	1 to 400 K/s, depending on soldering head
<b>Product parameters</b>	10 parameter sets standard, flexibly expandable
<b>Parameter selection</b>	Manual or automatic through coded soldering head connector
<b>Communication channels</b>	Digital I/Os/analogue 24 V AC/analogue 0–10V
<b>Data communication</b>	MPI/Optional PROFIBUS, TCP/IP, RS232
<b>Path measurement sensor (optional)</b>	Measurement range 0 – 4 mm/resolution 0.001 mm
<b>Force measurement (optional)</b>	Measurement range 0.1 – 100N/resolution 0.1 N
<b>Message hierarchy</b>	Message, error, fault
<b>Fault authorisation levels</b>	2 (operating and maintenance personnel), optionally expandable
<b>Counter</b>	Workpiece counter (total, OK/NOK) maintenance and downtime counter
<b>Force measurement (optional)</b>	



Curing
Dispensing
Bonding
Potting
Hot bar soldering



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