C-TurnFlux Stand-alone system

Automated Flux dispensing and Hot Bar Reflow Soldering

The C-TurnFlux is the topline product for automated Flux Dispensing in combination with automated Hot Bar Reflow Soldering. An ultimate system for high end applications, where output and quality inspection are required. A motorized, five position indexer offers high speed product handling and a guaranteed position repeatability.

The heating process is easy programmable by using Pulsed Heat Technology. Having the shortest heating up and cooling down times that result in the shortest process cycles. The world smartest Thermode/Hot Bar design offers an easy, fast and reliable exchange of thermodes and its co-planarity ensures the best quality joints! The programmable automated flux dispensing process with constant fluid dispense volumes contributes to a constant, high level product quality.

C-TurnFlux

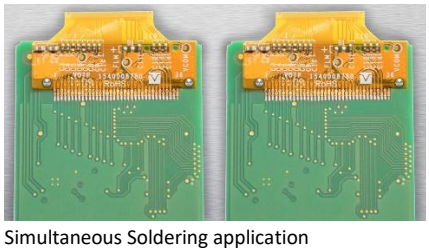
The C-TurnFlux can be configured in two ways.
Option 1: System with automated flux dispensing and two soldering heads for high volume manufacturing.
Option 2: System with automated flux dispensing, one soldering module and one quality inspection module. This module consists of a colored camera and a monitor displaying the solder joint for quality check and approval. An operator safety cover, a rigid frame construction, customized product jigs and quality process options like force control, Z-displacement measurement and interposer tape complete the system detailed set up. C-Tech Systems, with many years of experience in supplying Dispensing and Hot Bar Systems, stands for reliable systems with global Sales and Service support

Features

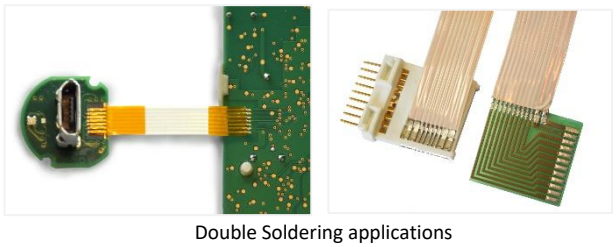
- Pulsed Heat Technology
- 3D Thermode design
- Process control options
- Flexible Design

→ Benefits

- Shortest process times by a fast temperature heat up and cool down as well as a precise, closed loop temperature cycle control.
- Our unique Thermode/Hot Bar design offers the fastest exchange, co-planarity and fastest heating up/cooling down times.
- Add-ons like vision inspection, height measurement, closed-loop force control offer a customized functionality for an ultimate product quality and constant manufacturing processing.
- System concept offers easy future upgrades to higher output levels, improved quality control integration options and simple jig exchanges for new product manufacturing.



Simultaneous Soldering application



Double Soldering applications

Flux Dispensing and Applications

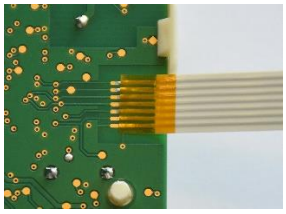
Hot Bar Reflow soldering

Typical Hot Bar Reflow Soldering Applications:

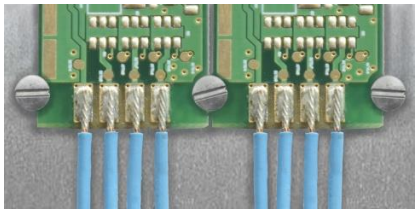
- Soldering an LCD with Flex attached to a PCB
- Soldering multiple wires to a PCB board
- Connector or other component soldering

The C-TurnFlux fits extremely well for all kind of Hot Bar Reflow Soldering processes that:

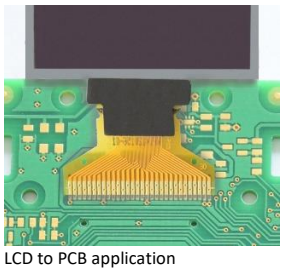
- Require two soldering connections per product
- Need simultaneously soldering of two small size products fitting into one jig
- Demand integrated automatic flux dispensing due to high quality process conditions
- Require soldering of bigger sized products
- Need a controlled operator quality inspection



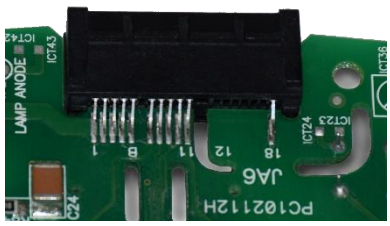
Flex to PCB application



Wires to PCB application



LCD to PCB application



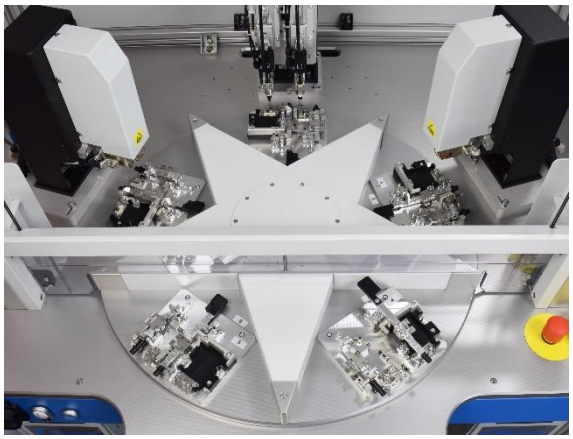
Connector soldering application

How the system works

The operator activities can be easily explained by using the indexer sequence. The positions #1 to #5 indicate the product process sequence. Every stop is two steps of the indexer:

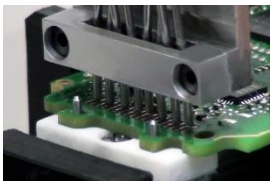
1. Unloading the soldered products prior to loading the new substrates
2. Automated flux dispensing on one or two products at the same time
3. Loading and aligning the flex/wire/connector or whatever needs to be soldered to the substrate
4. The (first) automated soldering process
5. The second automated soldering process OR quality inspection process.

Next step: return to position 1



Indexer C-TurnFlux (double soldering)

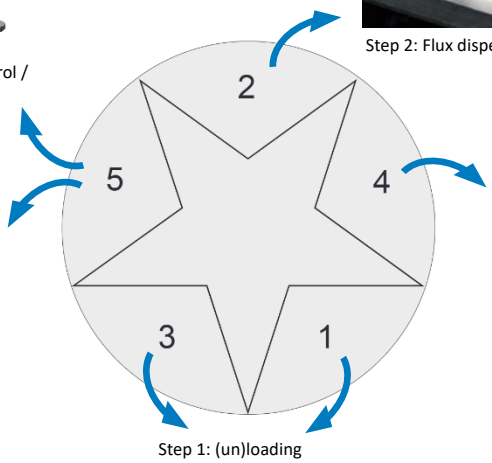
Step 5: product alignment control / quality inspection of the joint



Step 2: Flux dispensing

Step 4: (first) soldering process

Step 5: Second soldering process



Step 1: (un)loading
Step 3: loading and aligning

C-TurnFlux Options

For Hot Bar Reflow Soldering applications with Flux Dispensing

C-TurnFlux Options
To ensure quality, reliability and repeatability in the production process

Process Control

UO-5000	Z-Displacement sensor, which measures miniscule (µm) vertical displacements of the thermode.
UO-5220	Programmable Automated Force Control, ideal if different forces are needed in one process cycle.


Z-displacement sensor

Calibration tools

UO-5233	Coplanarity check paper, A4 format, Super Low Pressure (LLW)
UO-5230	Flat thermocouple type K up to 500 degrees C.
UO-5231	Handheld Temperature read out unit (no data logging)
UO-5240	Force measuring sensor up to 100N, incl. holder and top plate
UO-5241	Force measuring sensor up to 1.000N, incl. holder and top plate
UO-5242	Force measuring read-out device
UO-5243	Force measuring read-out device with RS232 interface


Flat thermocouple

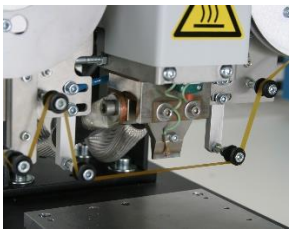
Optical Aligment & Quality Check
For high precision part alignment and/or quality check of soldered joints.

UO-5300	Optical Alignment, one camera
UO-5310	Optical Alignment, two cameras


Force measuring sensor

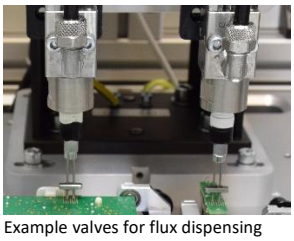
Thermode protection

UO-4050	Automated Interposer (Rolls at left and right side)
UO-4070	Automated Interposer (Both rolls at left side)
UO-4080	Automated Interposer (Both rolls at right side)
UO-4100	Kapton tape/1 reel
UO-4100-5	Kapton tape/set of 5 reels
UO-4100-10	Kapton tape/set of 10 reels


Soldering with Kapton tape

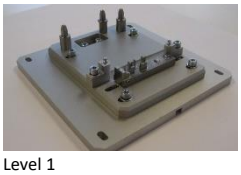
Flux dispensing

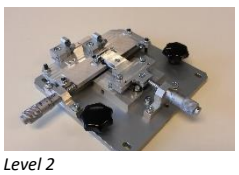
DD-5130	Stainless front closing needle valve
DD-5130-SS-50	Chemical resistant needle


Example valves for flux dispensing

Jig (Fixture) options

Spec-Eng Level 1	Engineering costs for jig Level 1
Spec-Jig Level 1	Level 1 product fixture, where products are put into nests and positioned over two reference pins, no alignment adjustment
Spec-Eng Level 2	Engineering costs for jig Level 2
Spec-Jig Level 2	Level 2 product fixture, where products are put into nests and aligned by one manual adjusted linear slide
Spec-Eng + Jig	Custom specific product fixture with multiple alignment, product clamping, complex products etc.


Level 1


Level 2


Special

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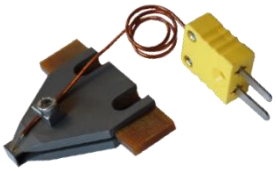
Specifications

C-TurnFlux	
Standard configuration Base Frame, Indexer Module, User Interface, Pulsed heat power supply, Manual force control, Data logging via USB-stick	
Dimensions (HxWxD)	1750 x 1050 x 1400 mm
Motion system	
Indexing precision	+/- 20” (degree seconds)
Indexing precision in radian measurement	+/- 0.0035 mm at ø 700 mm
Maximum cycling frequency	max. 125 cpm
Tact time	0.48 s
Heating profiles	Up to 200 heating profiles can be saved
Per heating profile	20 Programmable Points for process time / temperature / force
Environment/Ambient conditions	
Room temperature Between	18-30° C
Humidity	20-70% non-condensing
Light in the room	min. 500 lux
Power Consumption	9.7 kW max. at 3N (Three phase) 380 - 415 VAC
Air supply	6 bar, clean dry and filtered air
Controller	High Performance Microcomputer controlled
Air consumption	10 l/min at 6 Bar.
Weight	Unpacked: 460 kg, Packed: 520 kg
Noise level	<70dB (A), depends on setting of the cooling of the thermode

Bond Heads and Thermode options

For more (technical) information on the Soldering Heads and Thermodes we refer to C-Tech Systems datasheet: **Bond Heads and Thermode options**. For wire soldering, special adapted 2D thermodes can be used for wire positioning during the soldering.

2D custom made thermode with thermocouple



3D custom made thermode with thermocouple

Bonding / Soldering head

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