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.

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. Nordson DIMA, 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.
**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

**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
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.

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

Optical Alignment & 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

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

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

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.
## Specifications

<table>
<thead>
<tr>
<th><strong>C-TurnFlux</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Frame, Indexer Module, User Interface, Pulsed heat power supply, manual force control, Data logging via USB-stick</strong></td>
<td></td>
</tr>
<tr>
<td><strong>System dimensions (HxWxD)</strong></td>
<td>1750 x 1050 x 1400 mm</td>
</tr>
</tbody>
</table>

### Motion System

<table>
<thead>
<tr>
<th><strong>Indexing precision</strong></th>
<th>+/- 20° (degree seconds)</th>
</tr>
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<tbody>
<tr>
<td><strong>Indexing precision in radian measurement</strong></td>
<td>+/- 0.0035 mm at ø 700 mm</td>
</tr>
<tr>
<td><strong>Maximum cycling frequency</strong></td>
<td>max. 125 cpm</td>
</tr>
<tr>
<td><strong>Tact time</strong></td>
<td>0.48 s</td>
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</table>

### Heating

<table>
<thead>
<tr>
<th><strong>Heating profiles</strong></th>
<th>Up to 200 heating profiles can be saved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Per heating profile</strong></td>
<td>20 Programmable Points for time / temperature / force</td>
</tr>
</tbody>
</table>

### Environment/Ambient conditions

<table>
<thead>
<tr>
<th><strong>Room temperature</strong></th>
<th>Between 18-30° C</th>
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<tbody>
<tr>
<td><strong>Humidity</strong></td>
<td>20-70% non-condensing</td>
</tr>
<tr>
<td><strong>Light in the room</strong></td>
<td>min. 500 lux</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>9.7 kW max. at 3N (Three phase) 380 - 415 VAC</td>
</tr>
<tr>
<td><strong>Air supply</strong></td>
<td>6 bar, clean dry and filtered air</td>
</tr>
<tr>
<td><strong>Controller</strong></td>
<td>High Performance Microcomputer controlled</td>
</tr>
<tr>
<td><strong>Air consumption</strong></td>
<td>10 l/min at 6 Bar.</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Unpacked: 460 kg, Packed: 520 kg</td>
</tr>
<tr>
<td><strong>Noise level</strong></td>
<td>&lt;70dB (A), depends on setting of the cooling of the thermode</td>
</tr>
</tbody>
</table>

### Bond Heads and Thermode options

For more (technical) information on the Soldering Heads and Thermodes we refer to Nordson DIMA's datasheet: *Bond Heads and Thermode options.*

For **wire soldering**, special adapted 2D thermodes can be used for wire positioning during the soldering.

![2D thermode with wire alignment](image1)

2D thermode with wire alignment

![3D thermode with thermocouple](image2)

3D thermode with thermocouple

![Bonding/Soldering Head](image3)

Bonding/Soldering Head