Desktop System C-Turn

For Heat-Seal Bonding, Reflow soldering, ACF Laminating and Heat-Staking applications

The Desktop Series is a product range for Heat-Seal Bonding, ACF Laminating process applications and Reflow Soldering. All kind of LCD, Flex foil and PCB connections can be made using these systems. Nordson DIMA has the most intelligent system designs, very rigid base constructions with exchangeable soldering/bonding heads which minimizes your production down time when switching over to another head. But more revolutionary are the exchangeable product movement modules! They make it possible for you to upgrade your C-Prime to a C-Slide or C-Turn in minutes. You don't need to buy a complete new desktop, only a product movement module which will be a considerable cost benefit for you.

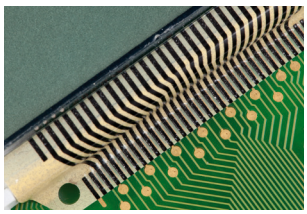
C-Turn
with interposer

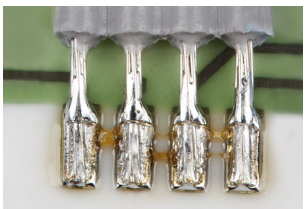
C-Turn handles the product in a pneumatic turning unit for easy access and preparation of the application.

Options

- Automatic force control
- Soldering/Bonding Head Modules in different force ranges for optimal process adjustment
- Interposer Module for soldering and bonding processes
- Product Alignment for fine pitch applications
- Quality control modules, e.g. automatic force control, joint penetration depth measurement, multiple thermocouples.

Features →	Benefits
Most rigid frame construction	**High performance processing**
Smartest Hot Bar exchange design	**Untighten the screws in seconds**
Exchangeable product handling and process modules	**Maximum flexibility for upgrades and new products**
User friendly touchscreen, easy progammable	**Set up is easy and takes seconds**
Controller for time, temperature, force and joint penetration	**Process qualtiy control is guaranteed as never before**


Heat Seal Bonding application


Reflow Soldering application


ACF Laminating application

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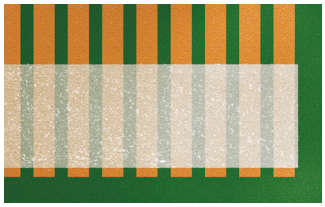
DIMA

Application processes

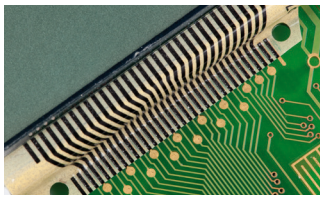
For Heat-Seal Bonding, Reflow soldering, ACF Laminating and Heat-Staking applications

ACF Laminating / Pre-Bonding

Electrical conductive adhesive bonds can be made between flexible and rigid circuit boards, glass panel displays and flex foils. Conductive adhesive contains small conductive particles or spheres, which are separated by an isolating adhesive material. Anisotropic Conductive Film (ACF), is a lead-free and environmentally friendly interconnect system to make electrical and mechanical connections between two parts. ACFs are widely used to perform flex-to-board or flex-to-flex connections.
Prior to Pre-Bonding the ACF to the substrate, the ACF tape is pre-cut at the required length from a reel of ACF. The tape is half-cut; only the actual ACF material is cut. The cover layer is used for tape transport. The ACF can now be applied to the bond surface, by using the thermode (Hot bar).



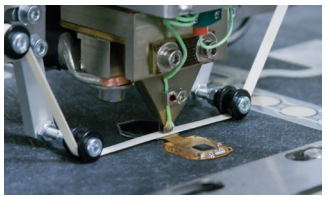
ACF Laminating application



Heat Seal Bonding application

Heat Seal Bonding

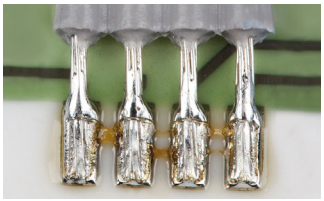
Two parts to be joined are brought together in a fixture. This fixture (or jig) makes sure that the bonding parts fit perfectly together and ensured the repeatability of the process. Temperature, time and pressure are applied and cause plastic deformation of the adhesive and compression of the particles. The particles that are trapped between the conductors form a conductive interface between the pads on the two mating surfaces and conduct only in the Z axis. Subsequent cooling and full curing of the adhesive while still in the compressed condition stabilize the joint.



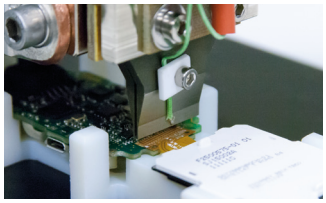
Heat Seal Bonding process

Hot Bar Reflow Soldering

Mobile electronics such as telecom equipment and electronics in motor vehicles require increasing packing density and thus arrangement of the circuits in multiple layers. The connection of the layers are favorably produced with flexible circuit carriers and/or foil connectors, ideally for Hot Bar Relow Soldering. Also for equipping electronic devices with digital displays, display drivers on flexible carriers can be used, as connection to the rigid circuit board. Another application is to join flat cable and foil cable with rigid components like plug connectors and PCBs. HBR Soldering is a selective soldering process where two parts, pre-fluxed and solder coated, are heated with a thermode (hot bar) to a sufficient temperature to melt the solder. After this the parts are cooled below the solidification temperature to form a permanent electro-mechanical bond.



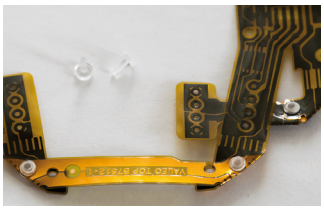
Reflow Soldering application



Reflow Soldering process

Heat Staking

Heat Staking is a pulsed heat process to join two or more parts, of which at least one is made out of plastic. The process is to deform the plastic material using heat and force at a set process time. The bond is made by partially de-forming the plastic part in order to fix the other. Heat Staking makes it easy to bond metal to plastic and is commonly used in high volume/low cost applications like automotive, IT and consumer appliances. De-forming the plastic is achieved by heating it to a temperature above the glass transition temperature via the use of super-heated air or a thermode and then applying pressure in order to create the stake. After the stake has been formed the plastic needs to cool down again below the glass transition temperature. This cooling is done under constant pressure to ensure good fixation of the parts.



Heat Staking application

Nordson DIMA

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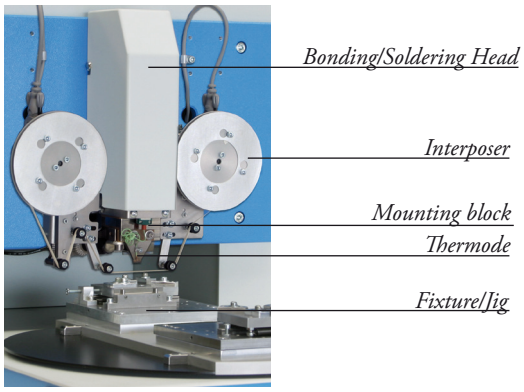
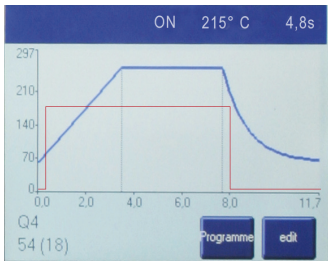
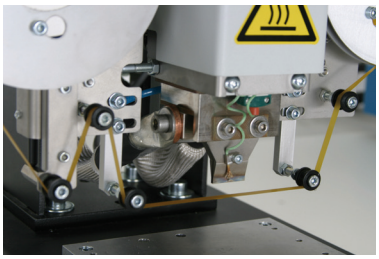




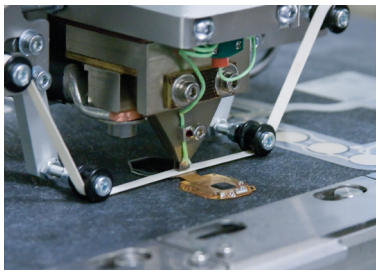
Temperature and force control

Options

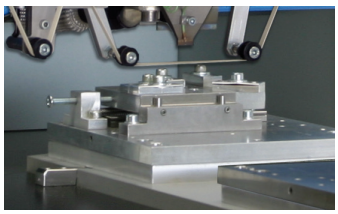
UO-5000	Z-Displacement sensor
UO-5220	Programmable Automated Force Control
UO-5230	Flat thermocouple with measuring device
UO-5231	Read out unit for thermocouple
UO-5233	Coplanarity check paper
UO-5240	Force measuring device, sensor with read-out unit
UO-5300	Optical Alignment, one camera
UO-5310	Optical Alignment, two cameras
UO-4000	Interposer Manual for Kapton tape
UO-4050	Interposer Automated for Kapton tape
UO-4100	Kapton tape for Reflow Soldering
UO-4010	Interposer Manual for Silicone tape
UO-4060	Interposer Automated for Silicone tape
UO-4150	Silicone tape for Heat Seal Bonding
Spec-jig	Custom specific product fixture



Soldering process with Kapton tape



Heat Seal Bonding process with Silicon tape



Fixture / jig

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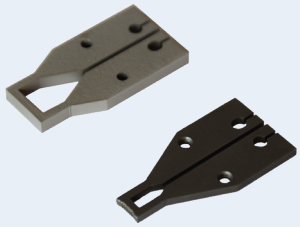
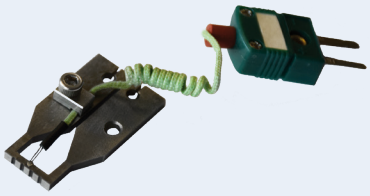
Desktop System C-Turn

Specifications

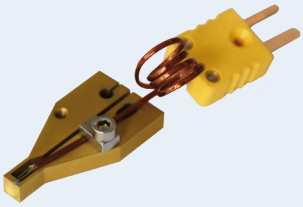
C-Turn Desktop System	
Standard configuration	
Base Frame, Turn Module, User Interface, Pulsed heat power supply, Manual force control, Data logging via USB-stick	
CT-100	C-Turn with **low force** Bonding/Soldering Head, 5 - 100 N
CT-110	C-Turn with **mid force** Bonding/Soldering Head, 20 - 250 N
CT-120	C-Turn with **high force** Bonding/Soldering Head, 50 - 700 N
CT-130	C-Turn with **extra high force** Bonding/Soldering Head, 100 - 1750 N
System dimensions (HxWxD)	450 x 700 x 800 mm
Max. Fixture dimension (optional)	160 x 160 mm
Product handling	Pneumatic turning unit with diameter 410 mm
Power Connection	Power 110/240 VAC, 50 / 60Hz, 6 baro, 16 A
Transformer	Integrated '4 step' 4.5 kVA Transformer
Heating profiles	Up to 200 heating profiles can be saved
Per heating profile	20 Programmable Points for process time / temperature / force
Noise level	<70 dB (A)
Weight	75 kg
Easy exchangeable modules	Bonding/Soldering heads, Interposer, Thermodes, Motion and product handling



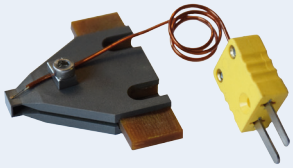
2D custom made thermodes



2D custom made thermode with thermocouple



Heat Staking Thermode with thermocouple



3D thermode with thermocouple

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