

Desktop System C-Prime

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-Prime with interposer



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.

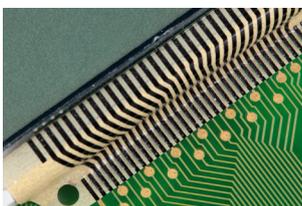
Features

- Most rigid frame construction
- Smartest Hot Bar exchange design
- Exchangeable product handling and process modules
- User friendly touchscreen, easy programmable
- Controller for time, temperature, force and joint penetration



Benefits

- High performance processing
- Untighten the screws in seconds
- Maximum flexibility for upgrades and new products
- Set up is easy and takes seconds
- Process quality control is guaranteed as never before



Heat Seal Bonding application



Reflow Soldering application



ACF Laminating application

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).

Heat Seal Bonding

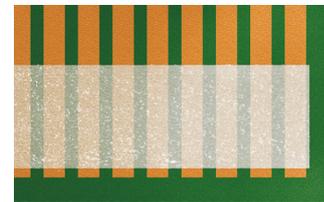
Two parts to be joined are brought together in a fixture. This fixture (or jig) makes sure that the bonding parts fit perfectly together and ensured the repeatability of the process. Temperature, time and pressure are applied and cause plastic deformation of the adhesive and compression of the particles. 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.

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 Reflow 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.

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.



ACF Laminating application



Heat Seal Bonding application



Heat Seal Bonding process



Reflow Soldering application



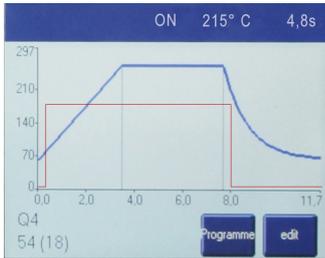
Reflow Soldering process



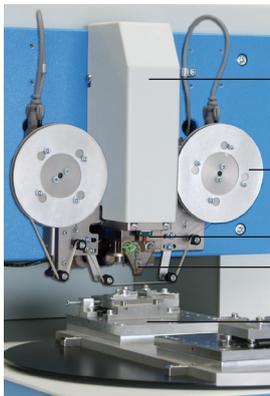
Heat Staking application

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Temperature and force control



Bonding/Soldering Head

Interposer

Mounting block

Thermode

Fixture/Jig



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

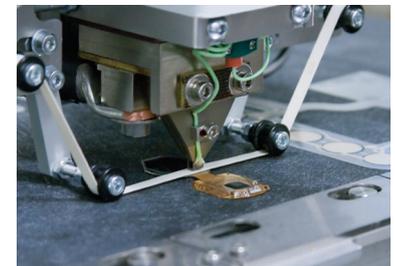
UO-4000 Interposer Manual for Kapton tape
UO-4050 Interposer Automated for Kapton tape
UO-4100 Kapton tape for Reflow Soldering

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

Desktop System C-Prime

Specifications

C-Prime Desktop System	
Standard configuration	
Base Frame, Prime Module, User Interface, Pulsed heat power supply, Manual force control, Data logging via USB-stick	
CP-100	C-Prime with low force Bonding/Soldering Head, 5 - 100 N
CP-110	C-Prime with mid force Bonding/Soldering Head, 20 - 250 N
CP-120	C-Prime with high force Bonding/Soldering Head, 50 - 700 N
CP-130	C-Prime with extra high force Bonding/Soldering Head, 100 - 1750 N
System dimensions (HxWxD)	450 x 700 x 600 mm
Max. Fixture dimension (optional)	300 x 200 mm
Product handling	Fixed position
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	70 kg
Easy exchangeable modules	Bonding/Soldering heads, Interposer, Thermodes, Motion and product handling



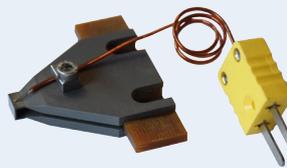
2D custom made thermodes



2D custom made thermode with thermocouple



Heat Staking Thermode with thermocouple



3D thermode with thermocouple

