Process Equipment C-Base

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

The C-Base Bonding/Soldering system is a combination of a C-Flow and a C-Drive module and stands alone from other pulsed heat controllers with its unique integration of responsive temperature control and useful tools such as displacement monitoring and force control, all packaged into an easy to use, multi-language, touch screen interface. Whether you require a system for Heat-Seal Bonding, Reflow soldering, ACF Laminating, Heat-Staking, or other demanding application, the C-Flow can get the job done.

C-Base

The C-Flow was designed for easy stand-alone applications and complete factory integration with RS-485, compact size, and external I/O. The C-Flow is a revolutionary concept in intelligent pulsed heat controllers. It is an industry first, by combining precision temperature control with micron level displacement monitoring and real time control of thermode pressure, providing its users with capabilities usually requiring multiple pieces of equipment.

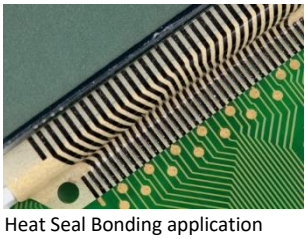
The C-Drive is designed to deliver quality solder joints and Heat Seal bonds consistently. When coupled with a C- Flow Controller, the C-Drive shows its true colors. Temperature, Force, and Displacement Monitoring give instant feedback on what's occurring at the joint on a full color touch screen display, alarming the operators instantly if the temperature and displacement are out of specifications. The C-Drive series was engineered to deliver repeatable and accurate force for a wide range of applications. Four different models are available: extremely low forces for delicate applications to very high forces for the most challenging heat seal connectors.

Features

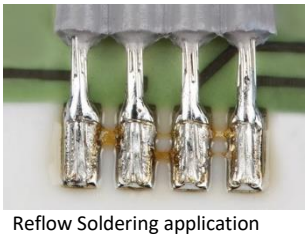
- Displacement monitoring
- Multi-language user-friendly touchscreen UI
- Easy Thermode change overs and planarity
- Four distinct force ranges
- Integrated Force Control
- Data output to PC via RS-485
- Options: camera and interposer

→ Benefits

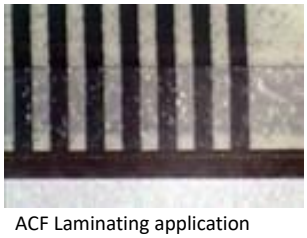
- Control your joining connections
- To easily transfer proven process
- Saving set up time
- Accurate forces for all applications
- Easy force programming by touch screen
- For Quality Assurance and SPC collection
- All possible process requirements controlled by one controller.



Heat Seal Bonding application



Reflow Soldering application



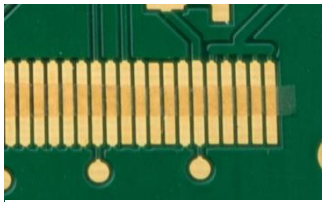
ACF Laminating application

Application processes

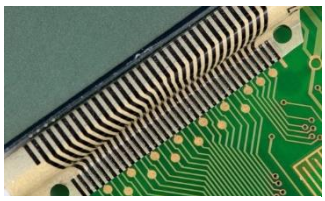
For Heat-Seal Bonding, Reflow soldering, ACF Laminating and Heat-Staking applications

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 conduc- tive particles or spheres, which are separated by an isolating adhesive material. Aniso- tropic 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).



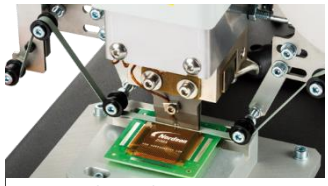
ACF Laminating application



Heat Seal Bonding application

Heat Seal Bonding

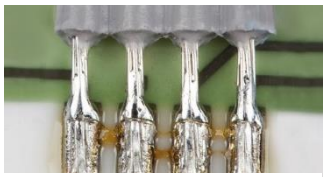
Two parts to be joined are brought together in a fixture. This fixture (or jig) makes sure that the bonding parts fit perfectly together and ensured the repeatability of the pro- cess. Temperature, time and pressure are applied and cause plastic deformation of the adhesive and compression of the particles.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



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 appli- ances. 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 Stake application

TECH SYSTEMS

Process Equipment C-Base

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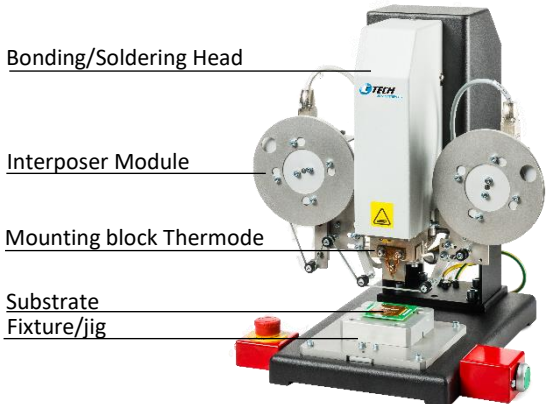
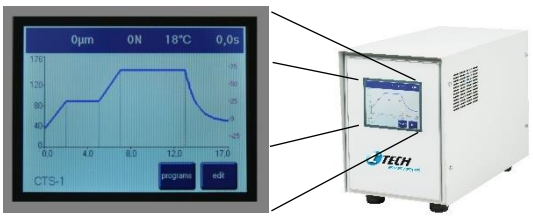
C-Drive

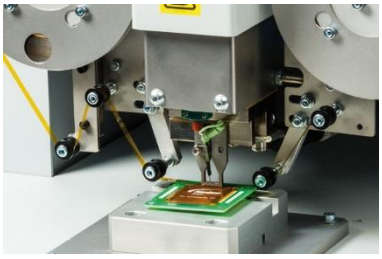


C-Flow

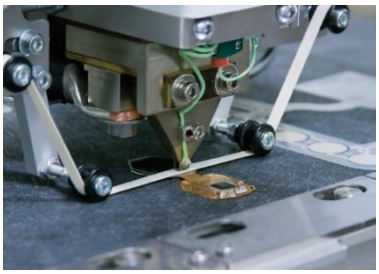


Options

UO-5000	Z-Displacement sensor
UO-5220	Programmable Automated Force Control
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 productfixture
UO-5233	Co-planarity check paper
UO-5230	Flat thermocouple with measuringdevice
UO-5231	Read out unit for thermocouple
UO-5240	Force measuring sensor up to 100 N
UO-5241	Force measuring sensor up to 1000N
UO-5242	Force measuring read-out module
UO-5243	Force measuring read-out module with RS232 interface



Soldering process with Kapton tape



Heat seal bonding proces with silicon tape

Fixture/Jig

Process Equipment C-Base

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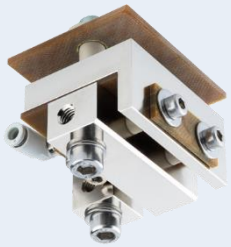
Specifications

C-Base process equipment		
Models **CB-100** **CB-110** **CB-120**	 C-Base with low force Bonding/Soldering Head, 5 - 100 N C-Base with mid force Bonding/Soldering Head, 20 - 250 N C-Base with high force Bonding/Soldering Head, 50 - 700 N	
C-Flow	Dimensions (HxWxD)	310 x 225 x 415 mm
	Power Connection	Power 110/240 VAC, 50 / 60Hz, 6 bar, 16 A
	Transformer	Integrated '4 step' 4.5 kVA Transformer
	Heating profile	200 Heating profiles can be saved
	Per heating profile	20 Programmable points for process time / temperature / force
	Noise level	<70 dB (A)
	Weight	31 kg
C-Drive	Dimensions (HxWxD)	370 x 330 cm x 400 mm
	Power Connection	supplied by C-Flow
	Forces ranges (4)	5 - 100 N, 20 - 250 N, 50 - 700 N, 100 - 1750 N
	Weight	12 kg

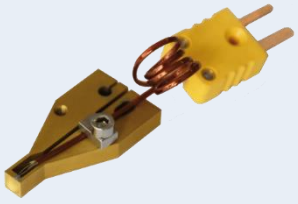
Contact block		**Thermode**	
UO-3200	3D-Block, 50 mm (Small)	PT-xxxyy	3D Heat Thermode 5 - 50 mm
UO-3202	3D-Block, 100 mm (Medium)	PT-xxxyy	3D Heat Thermode 51 - 100 mm
UO-3203	3D-Block, 130 mm (Large)	PT-xxxyy	3D Heat Thermode 101 - 130 mm
UO-3220	2D-Block, 50 mm (Small)	PT-xxxyy	2D Heat Thermode 5 - 50 mm

2D custom made thermode

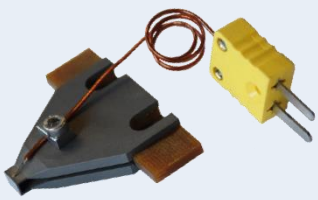
2D custom made thermode with thermocouple



Example contact block



Heat Staking thermode with thermocouple



3D custom thermode with thermocouple

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