



MODEL HBC-4301A Hot Bonding Controller

The Novatech Controls HBC-4301A is a feature-packed hot bonding controller designed to suit the requirements of today's aviation and composite industries

Providing accurate temperature control for the manufacture and repair of composite or metal bonded components.

The HBC-4301A is a versatile electronic / vacuum control case, capable of controlling both temperature and vacuum, using a computer that can be operated up to 100m away. The computer interface has been designed to provide simple graphical configuration of the device, as well as a comprehensive overview and logging during operation.

Summary of features

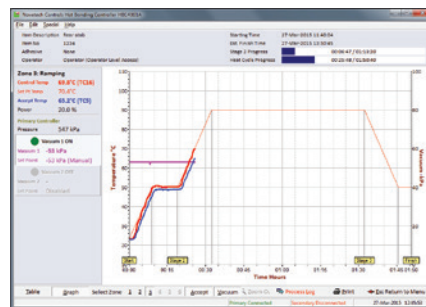
- Controls 3 independent heat zones
- Inputs for 16 thermocouples
- Two programmable vacuum pumps
- Configuration and monitoring done on a PC connected via USB
- Comprehensive graphical displays showing thermocouple temperature and vacuum control in realtime
- Loud built-in buzzer (~85 decibel) to alert the operator of any alarms
- Built-in adhesive profiles with the ability to automatically adjust soak times during operation for optimal results
- Detailed records and logs of all cure cycles are produced on completion
- Database of completed cycles is archived to the PC for later review

Connect two controllers together for twice the power

For jobs that are too large for one controller, two controllers can easily be connected together and operated as one, expanded to 6 heat zones with 32 thermocouple inputs. This allows for greater flexibility with larger or more complex jobs while minimising the physical size and weight of each controller case.

Constant visual feedback via the computer interface

The HBC-4301A Hot Bonding Controller is configured and monitored using a PC connected via USB. While in operation, all thermocouple temperatures can be viewed in a single table, or the control temperature for each heated zone can be viewed on a graph against the zone set-point.



With this information the operator will know immediately if there are any problems with temperature control and can respond before it escalates.

Temperature profiles

The PC Interface provides simple configuration of the device using tables and graphs. Temperature profiles can be created and saved with meaningful descriptions for later use. This allows a simple means of quickly reconfiguring the hot bonder for different applications while minimising user error.

Adhesive profiles and guaranteed soak completion

Temperature, vacuum and time are all critical when it comes to good bonded repairs. With this in mind the HBC-4301A interface has several features specifically designed to ensure that every bond is given the correct conditions to fully cure.



Adhesive profiles can be created using the PC Interface and selected by the operator before commencing a cure cycle. When an adhesive profile is selected the bonder will perform several checks before commencing the heat cycle, as well as automatic adjustments during the cycle to vacuum and temperature to ensure that the adhesive is fully cured in optimal time.

Logging and record management

At the completion of each cycle the HBC-4301A PC interface produces a full set of graphs for each heated zone as well as detailed logs listing configuration, progress indication and any alterations made by the operator while in progress.

This information can be printed for physical record keeping, it is also stored locally and can easily be recalled for review.

Internally the PC interface also data-logs all inputs and outputs every 5 seconds. This information is auxiliary to the main logs which can be used as a 'black-box' for diagnosing any unusual behaviour.

The HBC-4301A Hot Bonding Controller is designed with safety and reliability as its key features. Each power output is equipped with its own overload / safety circuit breaker guaranteed to trips in <30 milliseconds if it detects any earth leakage, short-circuit or overload.

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SPECIFICATIONS

Thermocouple inputs

Number of inputs	16 thermocouple, marlin-mini
Thermocouple type	Type 'K' or 'J'
Temperature range	300°C (570°F) max
Accuracy	±1°C (±2°F)

Additional inputs

Vacuum	2 external transducer input 4-20mA sync
Pressure	Max 600kPa (87PSI)

Mains supply voltage

Mains	100VAC to 240VAC automatic selection, single or 3-phase
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Heater outputs

Number of outputs	3 mains powered
Type of output	Phase angle or burst fired, with soft-start to control heat blanket or heat lamp
Heater current	10A max
Heater power	7.2kW total @ 240VAC (2.4kW per output) 3.3kW total @ 110VAC (1.1kW per output)
Overload protection	RCCB with RCBO (earth leakage detector, circuit breaker with overvoltage protection)

PC interface

Operating systems supported:

Microsoft Windows XP or newer (32bit or 64bit)

Environmental rating

Temperature:	
<i>Operating</i>	-25°C to 55°C (-10°F to 130°F)
<i>Storage</i>	-25°C to 70°C (-10°F to 160°F)
Humidity	5% to 95% (non-condensing)

Degree of protection

IP65 with case closed
IP30 with case open

Physical dimensions

Case size	520mm x 425mm x 220mm (W x D x H) (20.4" x 16.7" x 8.7")
Weight	14kg (31lb)