HOT BONDING CONTROLLER

The Novatech **HBC-4300 series** are feature-packed hot bonding controllers designed to suit the requirements of today's aviation and composite industries. They provide accurate and versatile temperature control for the manufacture and repair of composite or metal bonded components.

The series is based on a versatile electronic/vacuum control case and a notebook computer as the operator interface. The computer is stored in the lid of the HBC-4301 control case and can operate up to 100m away from the control case using an RS-485 communications cable.
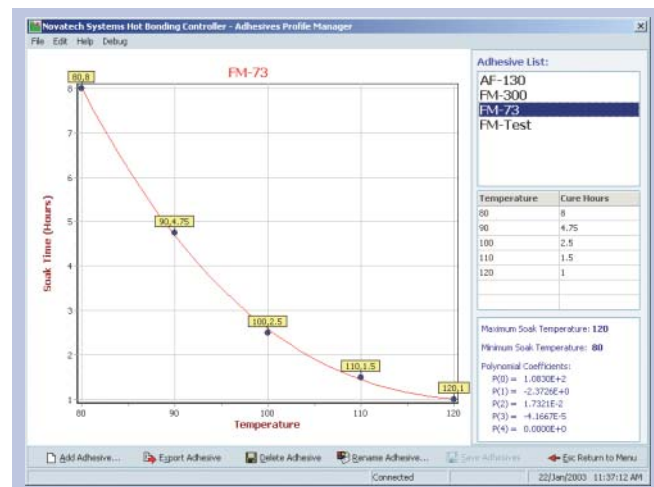
CREATING A TEMPERATURE PROFILE

Creating a temperature profile is achieved by entering the times and temperatures required.

The vacuum or pressure level can be set as easily as the temperature for each stage of the cycle. The control case will automatically control and adjust the vacuum level.

ADDING A NEW ADHESIVE

Adhesive data can be entered to allow additional adhesives to be added to the list by the user.

The record of previous repairs can be saved and recalled. The information includes:

1. The graph showing the hottest and the coldest temperature for each zone.
2. The vacuum level graph.
3. The zone/thermocouple map.
4. Linked files such as photographs and text descriptions of the repair.
5. All operator changes and alarm messages

FEATURES

- Controls 3 or 6 heat zones
- Inputs for 16 or 32 thermocouples
- Simultaneous operation of two independent jobs from one control case
- Programmable vacuum level
- Map of heater/thermocouple repair can be saved and recalled later
- Pictures of repair can be saved with a temperature profile
- Automatic adhesive cure time setting
- Automatic selection of the hottest or average thermocouple for temperature control
- Records and graphs in color the hottest, average and coldest thermocouples and vacuum
- Control using a notebook PC with a colour screen and full keyboard
- Safety earth leak detector (RCD) for each output heat zone
- Hard copy of temperature profile, vacuum, alarms, repair map, repair photograph in colour
- Automatic/manual over-ride control of each zone, both power and vacuum
- Easy configuration of the thermocouples/zones on a large colour screen using repair map
- Soft and hard copy backup

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NUMBER OF THERMOCOUPLES	➤	16, optional to 32
THERMOCOUPLE TYPE	➤	K or J
TEMPERATURE RANGE	➤	300°C (600°F)
ACCURACY	➤	+/- 1°C (+/- 2°F)
NUMBER OF HEATER ZONES	➤	3, optional to 6
TYPE OF HEATER OUTPUT	➤	Heat blanket or heat lamp
HEATER OUTPUT CURRENT	➤	10 Amps each zone (3 or 6 zones)
OVERLOAD/SAFETY PROTECTION	➤	Current limit, circuit breaker, and earth leak detector
VACUUM SOURCE	➤	2 independant air ejectors
INTERNAL VACUUM PUMP CONTROL	➤	Automatic/manual control of vacuum level
SUPPLY VOLTAGE	➤	85 to 265 vac automatic selection, single or 3 phase

SYSTEM PARAMETERS SELECTION
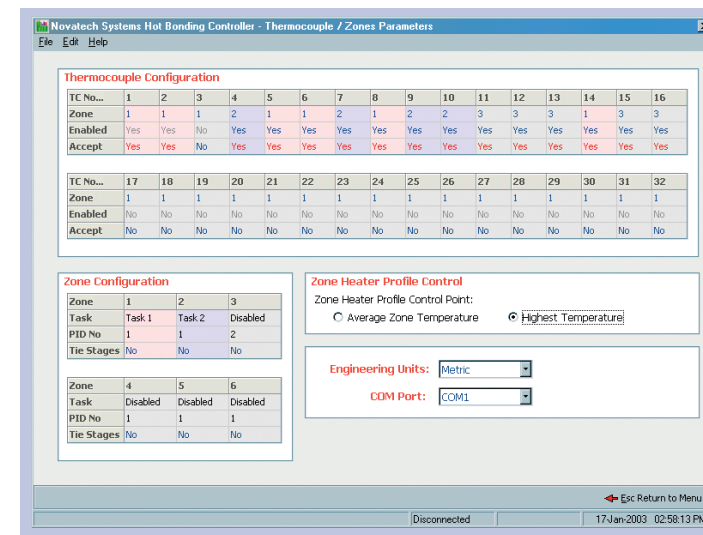
The thermocouples are configured into the zones in which they are mounted using either the table or automatically by drawing the repair map as shown below.
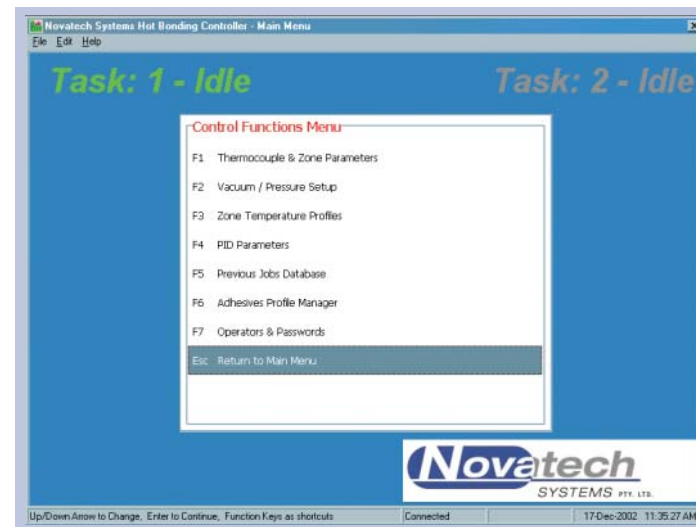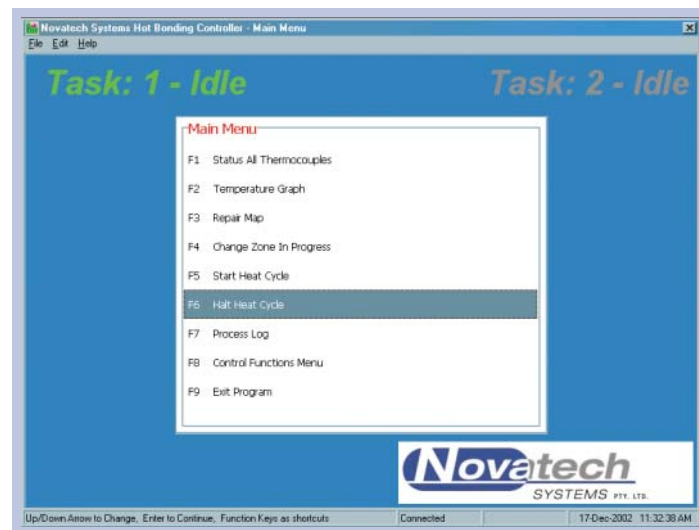
THERMOCOUPLE/ZONE CONFIGURATION MAP
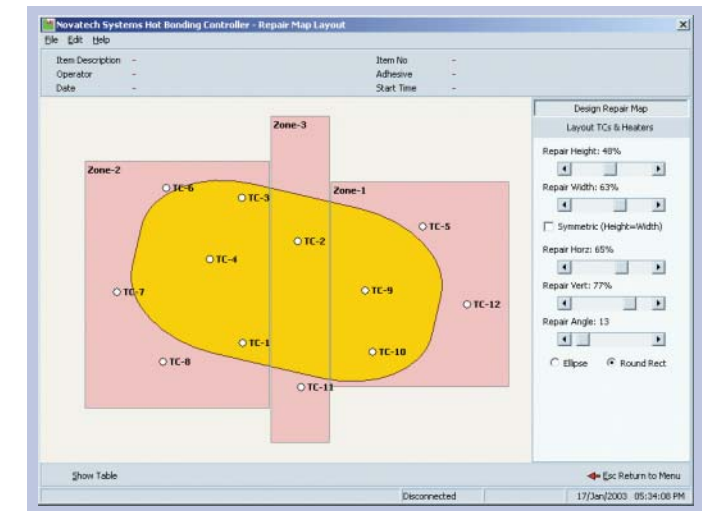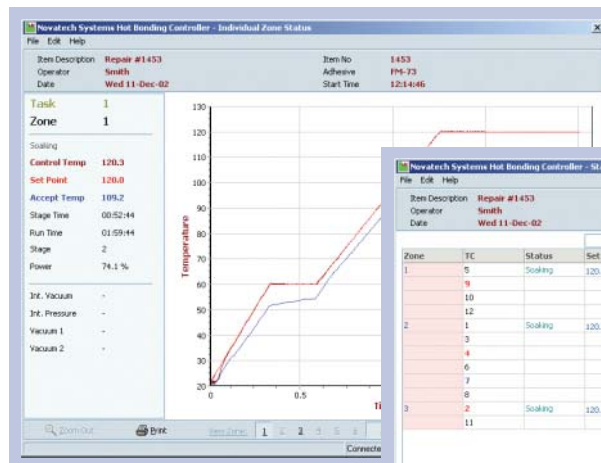

SYSTEM SOFTWARE

THE MAIN MENU AND CONTROL FUNCTIONS MENU SCREENS

The main menu and the control functions menu provide quick access to all the configuration and monitoring screens.
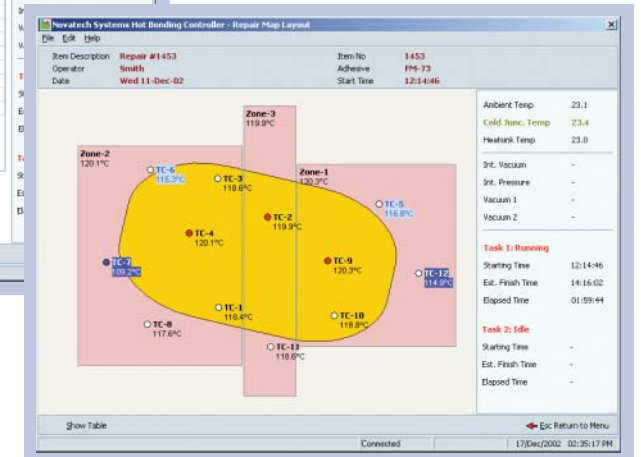

MONITORING THE REPAIR PROGRESS

The repair progress can be monitored in three ways.

1. A graph shows multiple zones, coldest thermocouple and the vacuum on one graph.

2. A table of all enabled thermocouples in both tasks shows temperatures, times, zone power, adhesive type and more.

3. A map shows the position of the thermocouples and zones with the temperatures on a colored background for easy hot/cold identification.