

PRODUCT DESCRIPTION

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.



The Novatech HBC-4301 is a feature-packed hot bonding controller designed to suit the requirements of today's aviation and composite industries. It provides accurate temperature control for the manufacture and repair of composite or metal bonded components.

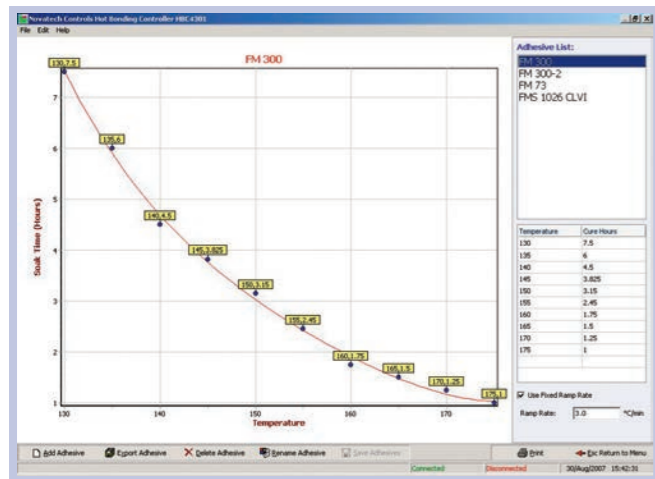
The HBC-4301 is a versatile electronic/vacuum control case and uses a notebook computer as the operator interface. The computer is stored in the lid of the HBC-4301 control case and can operate up to 100m away from the control case using an RS-485 communications cable.

HOT BONDING CONTROLLER



ADDING A NEW ADHESIVE

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



Date	Time	Operator	Item Description	Item Number	Size
04/02/2007	02:02:31	Paul Power/002	Testing Testrig (Revised Task)	7055798	3.02 MB
04/02/2007	08:23:50	Authentication Bypass	Novatool	10036	6.40 MB
04/02/2007	11:26:46	Authentication Bypass	Novatool	10035	6.43 MB
04/02/2007	14:15:05	Authentication Bypass	Novatool	10037	6.56 MB
04/02/2007	13:53:36	Authentication Bypass	Novatool	1005	6.49 MB
28/02/2007	14:11:26	Authentication Bypass	Test Cycle For S/N 10043	007	6.38 MB
28/02/2007	15:05:08	Authentication Bypass	Test Cycle For S/N 10039	007	6.45 MB
10/02/2007	10:32:58	Authentication Bypass	Test run for version 62-PC software	int	6.62 MB
07/02/2007	10:42:36	Authentication Bypass	Test Cycle For S/N 10041	007	6.74 MB
07/02/2007	13:02:24	Authentication Bypass	Test Cycle For S/N 10043	007	6.34 MB
07/02/2007	15:36:47	Authentication Bypass	Test Cycle For S/N 10041	001	6.39 MB
06/02/2007	13:17:18	Authentication Bypass	Test Cycle For S/N 10042	007	6.17 MB
20/01/2007	13:23:53	Authentication Bypass	Test Cycle For S/N 10032	007	6.02 MB
14/08/2007	09:20:11	Authentication Bypass	Novatool	1006	6.38 MB

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

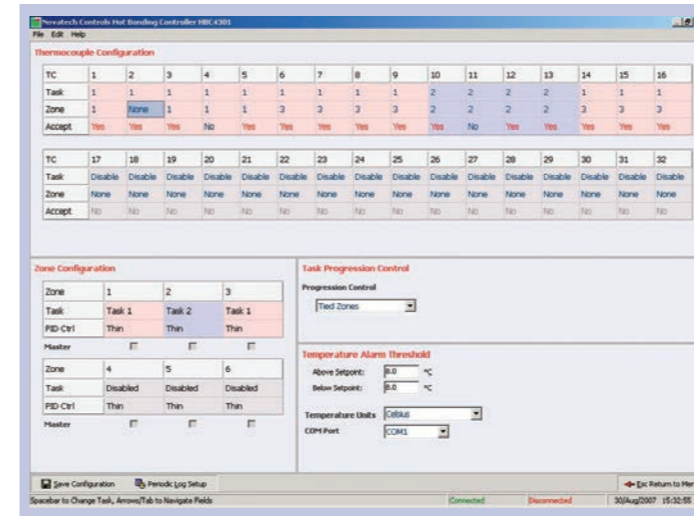
- Controls 3 or 6 heat zones
- Inputs for 16 or 32 thermocouples
- Simultaneous operation of two independent jobs from one control case
- Programmable vacuum level
- Map of heater/thermocouple repair can be saved and recalled later
- Pictures of repair can be saved with a temperature profile
- Automatic adhesive cure time setting
- Automatic selection of the hottest or average thermocouple for temperature control
- Records and graphs in colour 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

SYSTEM SPECIFICATIONS - HARDWARE

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	➤	100 to 240 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.

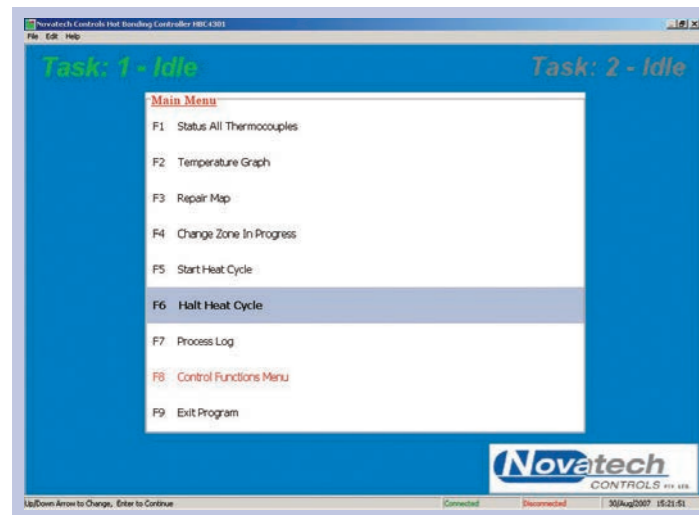
THERMOCOUPLE/ZONE CONFIGURATION MAP



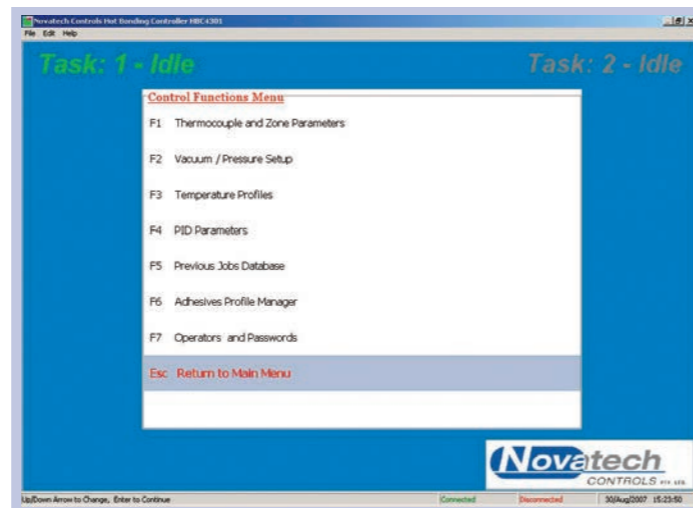
SYSTEM SOFTWARE

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.



1. The main menu allows access to the primary functions such as starting a temperature profile and monitoring the temperatures during the running of the profile, as well as providing access to the Control Functions menu.



2. The Control Functions menu allows access to the more detailed functions like setting up the adhesive characteristics and setting the password access.

MONITORING THE REPAIR PROGRESS

The repair progress can be monitored in three ways.



1. The repair can be monitored by graphing the hottest/coldest temperature and the vacuum, versus time. The panel on the left also show set point, power level, expected finish time and many more details.

Zone	TC	Status	Set	Actual	No	Signal	Stage
1	1	Soaking	120.0°C	117.9°C	2	01:07:56	
1	2			120.2°C			
1	3			119.0°C			
1	4			117.3°C			
1	5			115.9°C			
2	6	Soaking	120.0°C	117.2°C	2	01:07:56	
2	7			117.5°C			
2	8			120.2°C			
2	9			119.0°C			
2	10			117.3°C			
2	11			117.5°C			
3	12	Soaking	120.0°C	117.6°C	2	01:07:56	
3	13			117.6°C			
3	14			117.6°C			
3	15			115.8°C			
3	16			120.2°C			

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 coloured background for easy hot/cold identification.