

VISIONS 3000 Control System

Technical Data Sheet 8 Tool Validation



- **Pre-Production Validation Of New Or Refurbished Tools**
- **Tools Should Be Validated Before Putting Them In A Press**
- **Improves Quality And JIT Scheduling Effectiveness**
- **Verification Reports For Future Reference and Customer Certification**

Tool Validation:

The VISIONS 3000 offers a complete suite of functions which allows a tool to be completely tested prior to placing it in a molding press. The validation process can be done on a test bench, on the floor beside the machine or anywhere convenient for either the tool builder or molder.

When temperature stability has been reached, the Diagnosis function will apply power to Zone #1 and monitor the response to determine its status before moving on to Zone #2, Zone #3, etc. The results of these tests are displayed on the screen.

Zones which report an error are shown in **red**, while zones which pass are displayed in **green**.

Example: The Screen shot to the right shows zone #1 to #5 have an Open T/C and no load,. This would indicate that either there is no zone in that position, or that the mold cable has not been connected, or that there is a wiring error in the tool.

Zone #6 to #10 passed the test, while showing on the screen the temperature increase and time it took to achieve the increase. The right hand column shows the load of the heater fitted to that particular zone.

This example is displayed in Amps. However it can be set to show Ohms, Wattage or Current.

1	T/C OPEN, No Load	---
2	T/C OPEN, No Load	---
3	T/C OPEN, No Load	---
4	T/C OPEN, No Load	---
5	T/C OPEN, No Load	---
6	Zone OK 27-33C 23s	1.03 A
7	Zone OK 28-35C 29s	1.03 A
8	Zone OK 28-34C 26s	1.03 A
9	Zone OK 28-34C 25s	0.76 A
10	Zone OK 28-34C 29s	0.76 A
11	Testing... 33°C	0.75 A

This information is useful in diagnosing unbalanced tools as zones which should be similar in performance, i.e. use the same bushings, should return results very similar results to each other. Widely differing times would indicate that the bushings had different amounts of work to perform, perhaps as a result of mold differing water cooling, material flow or an improperly seated or defective heater.

Report:

A complete tool diagnosis report can be printed for customer certification and a bench mark for future trouble shooting. The printout includes the following: Zone Number, Zone Name, Thermocouple Status, Heater Load Status (which includes Wattage, Current, Resistance, Test Temperature Increase and Time to Perform the Increase), providing an overall zone by zone tool status.

Skip Zone:

Any zone not used can be skipped during the diagnosis test by depressing the "Skip Zone Hotkey".

Tool Diagnosis Error Messages:

Error Message	Explanation	Possible Causes
No Response	<p>Even though current is being drawn by the heater in the zone under test, and the associated thermocouple sensor is responding with a valid temperature, the change in the measured value of the temperature is not within the limits of the diagnosis test.</p> <p>Cavity zones: The expected response is an increase in temperature of 5 degrees within 1 minute.</p> <p>Manifold zones: The expected response is an increase in temperature of 5 degrees within 3 minutes.</p>	<p>A 'No Response' error message can be displayed if the number of manifold zones is incorrect due to the wrong value being setup (setup parameter numbers: 1 & 6). If the number of cavity zones is too large, some manifold zones will incorrectly be assigned as cavities. These zones will not increase in temperature by the required amount in the time allotted and will, therefore, report a 'No Response' error.</p> <p>If the thermocouple cable for the tested zone is trapped/pinched, forming a secondary junction, any increase in temperature for that zone is not measured by the corresponding thermocouple resulting in a 'No Response' error.</p>
Zone Skipped	Message shown when the user has pressed the [Skip Zone] hotkey.	
Thermocouple Open	Error message reported when there is no signal from the thermal sensor assigned to the zone under test	Faulty thermocouple cable. Faulty thermocouple.
Thermocouple Reversed	Error message reported when the measured sensor value decreases in response to power being applied into the zone under test.	Faulty thermocouple cable. Incorrect wiring of the thermocouple.
Zone * Up	The thermocouple reading on another zone increases in temperature in response to power being applied to the heater of the zone under test. The thermocouple connected to the zone under test fails to respond.	The thermocouple connected to the zone under test has been swapped with the thermocouple of another zone which would be indicated in the error message
Zone * Down	The thermocouple reading on another zone decreases in temperature in response to power being applied to the heater of the zone under test. The thermocouple connected to the zone under test fails to respond.	The thermocouple connected to the zone under test has been swapped with the thermocouple indicated in the error message and has been connected with the leads reversed.
No Load	No current being drawn by the heater connected to the zone under test.	Blown fuse in output card. Faulty mold power cable. Faulty heater. No heater connected.

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