IN-CAL™
"Where Quality Is Measured and Certified"

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Report Date

TEMPERATURE PROFILE REPORT

To: Ms. Jane Doe
ABC CORPORATION
123 Street
City, NH 12345

PROFILE EQUIPMENT

Detailed description of the hardware used to perform the profile.

Recording Equipment

Temperature readings are recorded using one or more of the following: Micromite II, Omega Temperature Scanner or PC Notebook with TempScan 1000 temperature recording unit.

Thermocouple type

Typically, (unless otherwise requested), temperature profiles are performed using J-type thermocouple wire and connections (plugs, compensators, etc.).

Profile Options - Press

Custom Profile Board - Designed exclusively for each press (i.e. board is designed to platen size) with up to 30 test points to record temperature readings in a press opening. Used for temperature profiles and temperature rises.

Custom Profile Book - Designed to mimic a 'real' product book lay-up. Temperature test points are layered throughout the book to record various product temperatures. Used for temperature profiles and temperature rises.

Test Board - Normally, this board is used only in special situations (i.e. troubleshooting) and is used only for testing purposes.

Profile procedures are part of our Quality System Manual along with our calibration procedures.

PROCEDURE SVP001

As described in the Quality System Manual. Additional notes relevant to your profile are listed below or in the report near the related item.

A list of your equipment profiled and included in this report.

EQUIPMENT SUMMARY

Item	*Description*	*Platen Size*	*Identification*	*Serial Number*
1.0	Laminating Press	30” x 30”	Press #1	123-456

A description of the sections included in your report for equipment results.

RESULTS

Book Construction - *(if applicable)*

Book construction diagrams the book lay-up. It details the layers of the book as well as pin pointing precisely where each temperature reading was recorded.

Thermocouple Board Layout - *(if applicable)*

Thermocouple layout shows exactly where each temperature reading was taken in relation to the board layout and size. Board is centered in middle of platen, unless otherwise noted.

Temperature Profile - Detail

Detail shows a chart of the temperature readings (^{O}F) taken from each point with the layout as follows:

Top of page = *Rear* of opening

Left of page = *Left* of opening *Right* of page = *Right* of opening

Bottom of page = *Front* of opening

Temperature Profile - Statistics

Statistics show the mean and standard deviation for each profile opening.

Temperature Profile – Summary Statistics

Summary Statistics summarize the mean and standard deviation data for each machine.

Temperature Profile – Average Statistics

Average Statistics show the mean and standard deviation data from our profile history for each temperature set point and each machine type (i.e. electric, steam, hot oil).

Lawyer stuff!

DISCLAIMER

THERMOCOUPLE BOARD LAYOUT - #3030-30-01

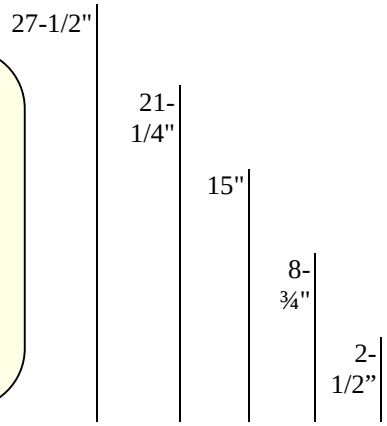
A unique number is used to track the board used in each profile. Identifies board size, number of points and board revision.

Board Size = 30" x 30"

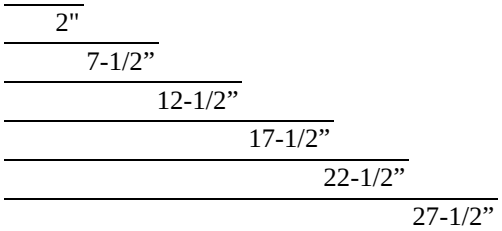
Platen Size = 30" x 30"

Total of 30 J-type thermocouple inputs

We have a large stock of profile boards ranging in size from 6 inches to over 4 feet. Of course, we are happy to customize a board for your special equipment needs!



A1 1	A6 6	B1 11	B6 16	C1 21	C6 26
A2 2	A7 7	B2 12	B7 17	C2 22	C7 27
A3 3	A8 8	B3 13	B8 18	C3 23	C8 28
A4 4	A9 9	B4 14	B9 19	C4 24	C9 29
A5 5	A10 10	B5 15	B10 20	C5 25	C10 30



A detailed layout of the thermocouple positions as they relate to the profile board.

The detail section includes data and graphs for the equipment being tested.

TEMPERATURE PROFILE - *DETAIL*

Controller set point and actual readings are recorded from the equipment.

1.0 Laminating Press

1.1 Top Platen #1 (Bottom Surface), unit = degrees Fahrenheit

Description	Type	Set Point	Reading
Platen 1	Temperature	360	361

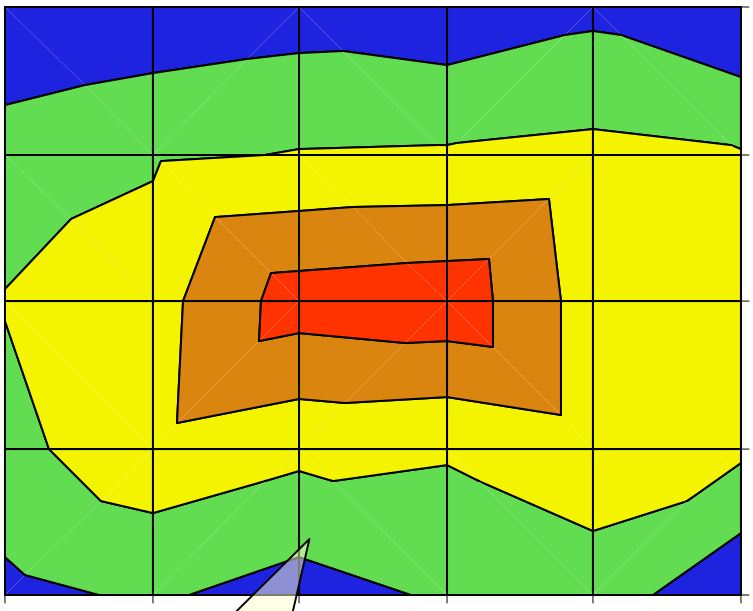
Data:

rear

	343	349	350	349	351	347
	355	357	358	358	359	358
left	358	361	370	371	360	361
	356	361	359	358	360	359
	351	353	350	353	356	348

Detailed data corresponding to the thermocouple board layout is recorded.

Graph:



This graphic representation of the data allows quick and easy comparison between different platens and equipment.

Although five colors are typically used for displaying the graph, additional colors showing greater detail are available with a simple request - *no additional charges*.

1.2 Platen #2 (Top Surface), unit = degrees Fahrenheit

Description	Type	Set Point	Reading
Platen 2	Temperature	385	385

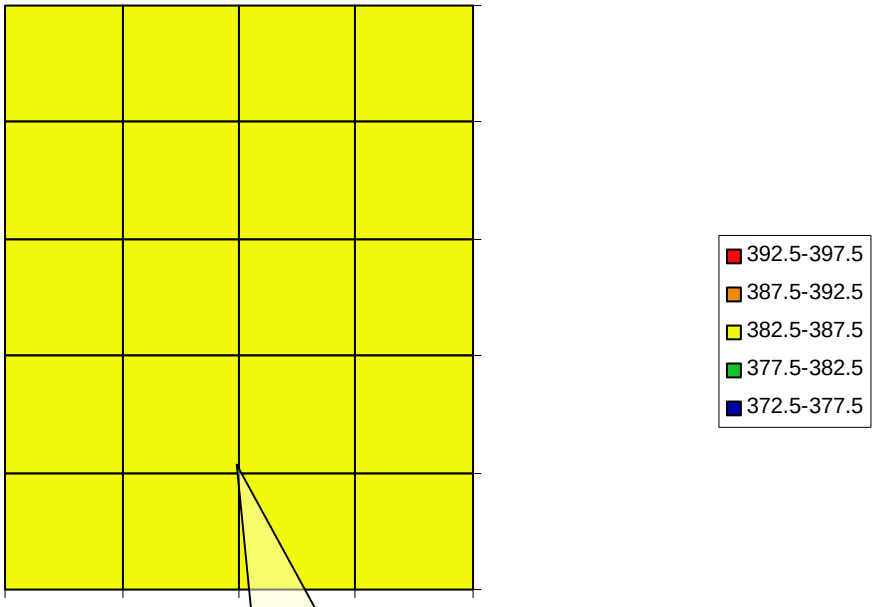
Data:

rear

	383	384	385	385	383
	384	383	385	384	383
left	383	384	384	385	383
	383	384	385	384	383
	384	384	383	384	385
	384	384	384	384	385

Actual results like these (with temperature variations within a couple degrees) are typical with oil heat presses – even over large platen surfaces.

Graph:



Yellow represents the optimum temperature on the graph. Typically, it is centered at the set point.

1.3 Platen #6 (Bottom Surface), unit = degrees Fahrenheit

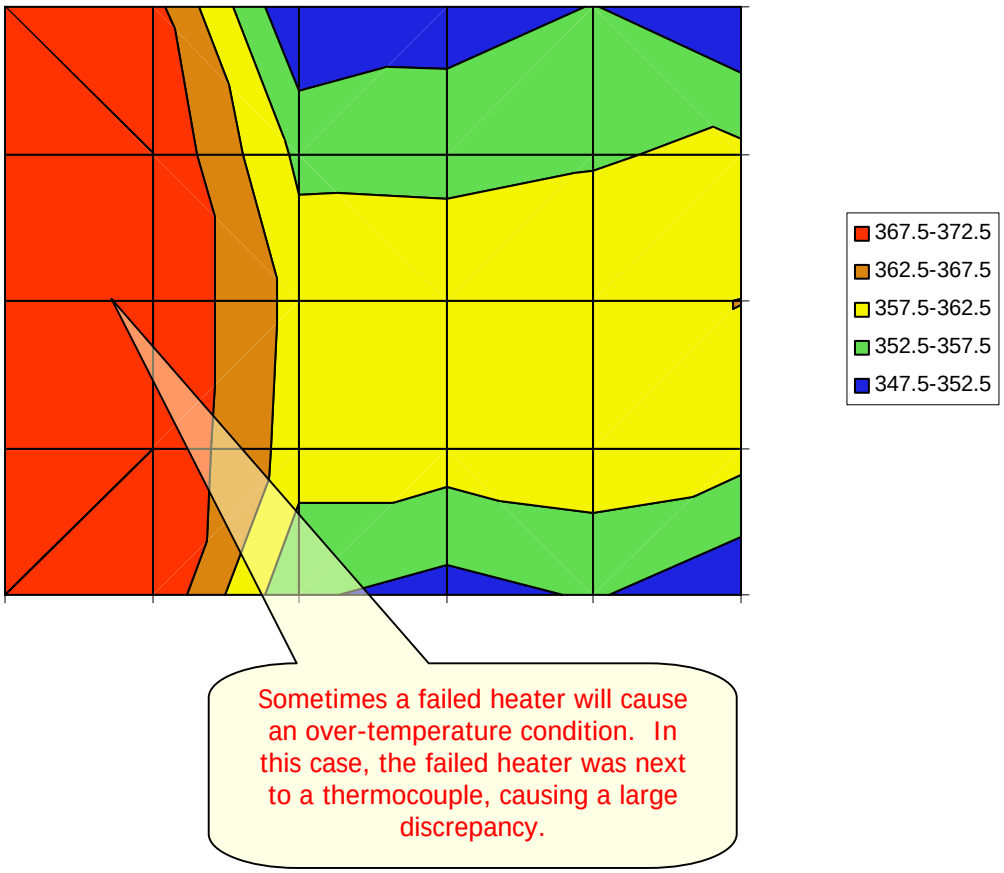
Description	Type	Set Point	Reading
Inner	Watlow/PLC	360	357
Outer	Watlow/PLC	360	361

Data:

rear

	377	369	346	350	353	346
	384	378	356	356	357	359
left	389	381	361	361	361	363
	387	380	360	360	361	360
	378	372	353	351	353	348

Graph:



1.4 Platen #3 (Top Surface), unit = degrees Fahrenheit

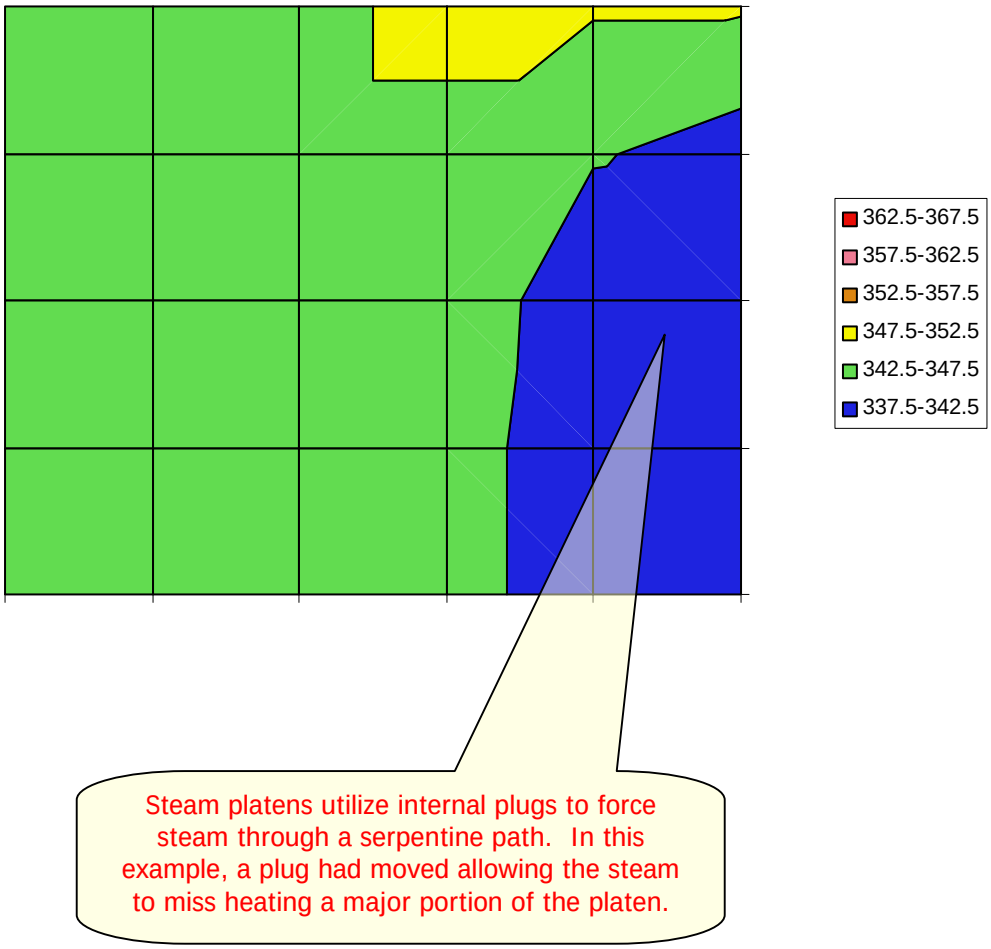
Description	Type	Set Point	Reading
Zone 5	Eurotherm	350	348

Data:

rear

	346	346	347	348	348	348
	346	346	347	347	343	340
left	345	346	347	347	338	334
	345	345	347	346	331	327
	346	346	346	346	324	319

Graph:



TEMPERATURE PROFILE –*STATISTICS*

This section provides a quick comparison between different platens, allowing you to spot problems easily. It also allows you to monitor performance over time.

1.0 TMP Vacuum Press

1.1a Top Platen #1 (Bottom Surface)

min:	373.37	Ave:	375.9
max:	380.75	StDev:	1.65
Spread:	7.38		

Identifies the minimum and maximum readings of the profile on this particular surface. The spread is the difference between the two.

1.2a Platen #2 (Bottom Surface)

min:	329.09	Ave:	355.0
max:	365.09	StDev:	10.72
Spread:	36.00		

Ave is the average temperature for all the readings on this surface.

1.7a Platen #4 (Bottom Surface)

min:	349.25	Ave:	361.7
max:	375.17	StDev:	6.96
Spread:	25.92		

StDev is the standard deviation and is used to quantify the variation in temperature over the platen surface.

TEMPERATURE PROFILE – *SUMMARY STATISTICS*

This section is a summary of the statistics section, and is provided for each piece of equipment that is profiled. This allows quick comparison between all of your equipment.

1.0 TMP Vacuum Press

Min. Reading:	323.2	Ave. Reading:	360.1
Max. Reading:	386.9		
Min. Spread:	21.2	Ave. Spread:	31.7
Max. Spread:	45.9		
Min. StDev:	5.5	Ave. StDev:	8.3
Max. StDev:	12.9		

This data also provides a useful method of monitoring your equipment performance over time.

TEMPERATURE PROFILE – *AVERAGE STATISTICS*

1.0 TMP Vacuum Press

This final section provides information from our historical database for previous profiles. Average profiles are based upon similar equipment types, and are broken into different equipment categories.

Min. Reading:	316.1	Ave. Reading:	360.1
Max. Reading:	401.8		
Min. Spread:	12.1	Ave. Spread:	23.8
Max. Spread:	85.7		
Min. StDev:	3.6	Ave. StDev:	6.4
Max. StDev:	22.8		

This data provides a useful method of comparing your equipment to the industry average.

where average = $\frac{\sum_{i=1}^{n} x_i}{n}$, and standard deviation = $\sqrt{\frac{\sum_{i=1}^{n} x_i^{\,2} - \left[\left(\sum_{i=1}^{n} x_i\right)^2 / n\right]}{n-1}}$

Formulas are provided for those needing to know how the results were obtained.

Just a final thank you for taking the time to view our "Temperature Profile Report."

If you have any questions or are interested in additional report samples, please contact our office (603-883-5558) or visit us on-line at **www.in-cal.com**.

Thank you!