

U P D A T E

Bulletin #: TN 0295-1

Subject: Certified Standards

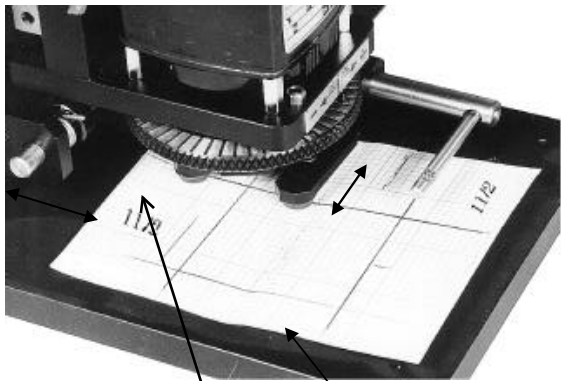
Scope: Use of the Certified Standard

The Certified Standard is a silver plated copper substrate, the copper substrate is precision ground prior to plating. Once the substrate has been silver plated, it is again ground on a precision surface grinder. The Standards are then sent to a independent laboratory for measurement and certification. Each Standard is certified and traceable to the National Research Council (NRC) in Canada, In the U.S. this is traceable to the National Institute Of Standards and Technology (NIST). Each Standard comes with a copy of the Calibration Report.

How to use the Certified Standard

The Certified Standard is a expensive piece of equipment, When it is not in use it should be kept in its protective case. Do not bore craters arbitrarily all over its surface, this will lead to you using up the standard in a very short period of time (it also makes it difficult to find which crater you have just bored).

The primary use of the Certified Standard is to provide a means of auditing the Film Thickness System. It is not necessary to check the borer machine on a daily, weekly basis. If you are in question of the readings you are obtaining, or a customer wants proof of how this works (i.e. to settle a discrepancy) you would use the standard for reference.



1 Cut a piece of graph paper (10 squares to the inch provided in kit) 4"x4" square. Cut along the main inch lines. Draw cross lines 1 1/2" from the top and the right hand edge of the graph paper(this is your target point).

2 Tape this piece of graph paper on the boring stage against the stop pins as you would with a sample panel.

3 Place your Certified Standard on the boring stage using the graph paper as your alignment grid.

4 Align your Certified Standard using the graph paper as shown. Begin your first crater in the top right corner, for the next crater simply move 1/2 or 1 full square to the left (left as shown in diagram). This will maximize the use of the Certified Standard (it also make it easier to find the crater for measurement). Once a row is completed move 1 full square over and begin again from the top of the Standard.

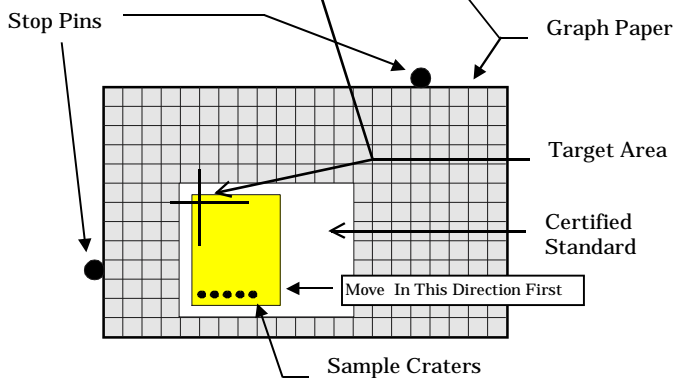
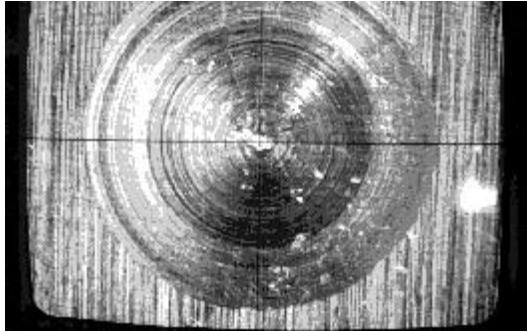


Illustration not drawn to scale

Actual View From Microscope



5 Set the Depth Control Ring to nominal 1.5 mil before boring the Standard.

6 Place the Certified Standard on the microscope stage.

7 Refer to the Certified Standard Calibration Sheet supplied with your standard. Look for the datum point in the area of the crater and compare the readings (i.e. referring to the diagram on the previous page, if we were to bore a crater in the target area, looking at the Calibration sheet the target area is in the region of datum point 9. Looking at the readings for these datum points in the left column of the chart, we see that datum point 9 = +.00089, we would then compare our readings to this reference).

<p>CANADIAN CENTRAL GAUGE LABORATORY D.N.D. RECOGNIZED FACILITY 40 WEST DRIVE, BRAMPTON, ONTARIO, CANADA, L6T 3T6 TELEPHONE (905) 457-9190 · FAX (905) 457-2130</p>																
<p><u>CALIBRATION REPORT</u></p>																
<p>CLIENT: <u>DJH Designs</u> ARTICLE: <u>DJH STANDARD</u></p>	<p>DATE: <u>OCT. 21 /94</u> OUR ORDER NO: <u>V 70381</u> I.D. NO: <u>S-10xx</u></p>															
<p>THIS ARTICLE HAS BEEN CALIBRATED AT 20°C (68°F).</p> <p>MASTER INSTRUMENT NO: <u> L-525 H-138 </u> WAS USED WHICH IS TRACEABLE TO <u>NRC</u> THROUGH REPORT NO: <u>LMS-516</u>. IT HAS BEEN PREPARED AND CALIBRATED AS PER CCGL PROCEDURE NO: <u>4</u>, OR AS SPECIFIED BELOW.</p> <p>OUR READINGS: IN UNITS OF .00001"</p>																
<p>REF. DATUM "0"</p> <p>A = <u>+.00002</u> B = <u>+.00001</u></p> <p>1 = <u>+.0009</u> 2 = <u>+.00089</u> 3 = <u>+.0009</u></p> <p>4 = <u>+.00089</u> 5 = <u>+.0009</u> 6 = <u>+.00089</u></p> <p>7 = <u>+.0009</u> 8 = <u>+.00088</u> 9 = <u>+.00089</u></p>	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">7</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">9</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">6</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> </tr> <tr> <td style="padding: 5px;">A</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">B</td> </tr> <tr> <td colspan="3" style="padding: 5px; text-align: center;">DATUM</td> </tr> </table>	7	8	9	4	5	6	1	2	3	A	0	B	DATUM		
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<p>INSPECTOR: <u> J.C. Inspector </u> <u> Luis Supervisor </u></p> <p style="font-size: small;"> J.C. Ins: • GAUGE BLOCKS • SETTING RINGS • THREAD GAUGES • PLAIN GAUGES • SETTING MASTERS • LENGTH STANDARDS • MEASURING INSTRUMENTS </p>																
<p style="font-size: x-small;">CALIBRATION OF:</p> <p style="font-size: x-small;">TRACEABLE TO: CANADA - THE NATIONAL RESEARCH COUNCIL (NRC) • U.S.A. - NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY (NIST) FORMERLY NBS • ENGLAND - THE NATIONAL PHYSICAL LABORATORY (NPL)</p> <p style="font-size: x-small; text-align: center;">THE LABORATORY PROVIDES A COMPLETE INSTRUMENT REPAIR SERVICE SALES AGENT: FRANK J. COX SALES LTD.</p>																