Document Introduction and Revision Approval

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Approval Signatures:

	Title	Name	Signature	Date
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AMENDMENT RECORD SHEET

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ISO 10360 Verification Procedure

Swift & Swift Pro Elite

with

Mx200

As Found and As Left 10360 Verification Procedure

This procedure requires using the Pyser Glass Scale and follows ISO-10360 Part 7 - 2011, Section 6.2.5.

1. **Enter the supervisor password** – Password 111004

- Enter the Mx200 Information and Setup Screens by pressing the touchscreen "**Mx**" button in the top left corner of the screen
- Navigate to the **Setup Menu** and Scroll to the **Password** menu item.
- Press Enter and then key in supervisor password "**111004**" using the numeric keypad.
- Press "**Finish**" to confirm the entered password.
- A small message should appear briefly indicating "supervisor mode".
- Press the **FINISH** key to return to the DRO.

2. Make sure system units is set to "mm" and resolution to "0.0001"

- Press **Mx>Setup>Display Formats** to display the setup screen and then highlight the Display format.
- Highlight the **MM Disp** Res data field and change the display resolution index numbers from **0.001** to **0.0001** and press **Enter**
- Press the **FINISH** key to return to the Setup menu.
- Press the **FINISH** key to return to the DRO.

3. Set up the thermometer close to the machine. Make a note of the Temp and Humidity. The Ideal temperature is approx. 20 °C / 68.0 °F and Humidity 50%

4. Place the 5X objective lens into the machine.

5. Using a soft lint-free cloth, clean the Stage, and glass calibration scale/rule.

10360 Verification requires 5 different measurements, 3 times each, in 4 different locations yielding total of 60 measurements. The 4 different locations of the measuring scale are parallel to the X axes, parallel to the Y axes, perpendicular to the X and Y axes from top left to bottom right, and perpendicular to the X and Y axes from bottom left to top right. See table 1 & 2 below.

Scale Position	Length 1	Length 2	Length 3	Length 4	Length 5
Parallel to X	20 mm Line	40 mm Line	80 mm Line	120 mm Line	160 mm Line
Parallel to Y	20 mm Line	40 mm Line	50 mm Line	60 mm Line	80 mm Line
Perpendicular to X & Y	20 mm Line	60 mm Line	100 mm Line	140 mm Line	180 mm Line

Table 1 200mm X 100mm Stage

Scale Position	Length 1	Length 2	Length 3	Length 4	Length 5
Parallel to X	20 mm Line	40 mm Line	80 mm Line	120 mm Line	140 mm Line
Parallel to Y	20 mm Line	40 mm Line	50 mm Line	60 mm Line	80 mm Line
Perpendicular to X & Y	20 mm Line	60 mm Line	100 mm Line	140 mm Line	160 mm Line

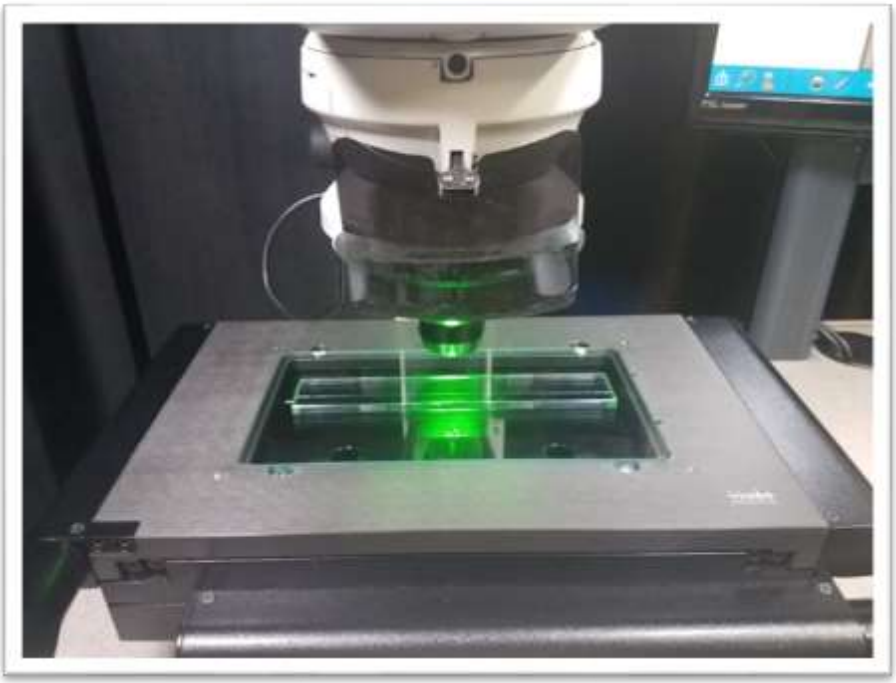
Table 2 150mm X 100mm Stage

Parallel to the X - Axes of the machine

6. On a **200mm X 100mm Stage**, position the glass calibration scale so that it is parallel to the **X -axes** of the machine. The zero Line needs to be on the left-hand side of the stage and making sure you can drive the X axes and reach both the zero Line and 160 mm Line for measuring.
   (Use hot glue / putty to avoid any shift)

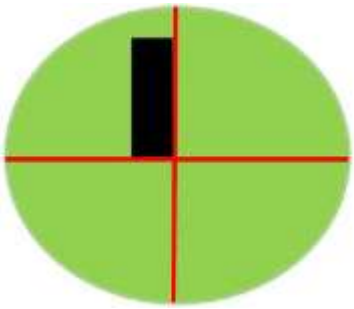
   (Follow the same instructions as for 200m x 100mm Stage as explained below and Table 2)

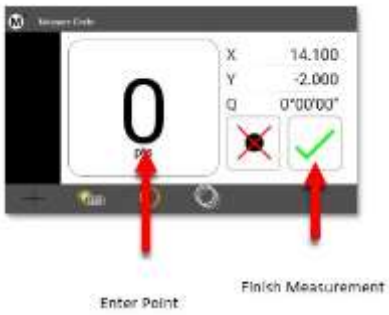
   On a **150mm X 100mm Stage**, position the glass calibration scale so that it is parallel to the X -axes of the machine. The zero Line needs to be on the left-hand side of the stage and you can drive the axes and reach both the zero Line and 140 mm Line for measuring. (Use hot glue / putty to avoid any shift)



(200mm x 100mm Stage)

7. Perform rule alignment **(Skew)**
   - Press the **Skew** key.
   - Move the stage to position the *crosshairs center* over the Bottom Right of the **Line 0** and press **Enter or** large **point counter**
   - Move the stage along X axis to position the crosshair center over the Bottom Right of the Line 160 and press **Enter or** large **point counter**
   - Press the **FINISH** or **Green** check mark key to complete measuring the skew line.





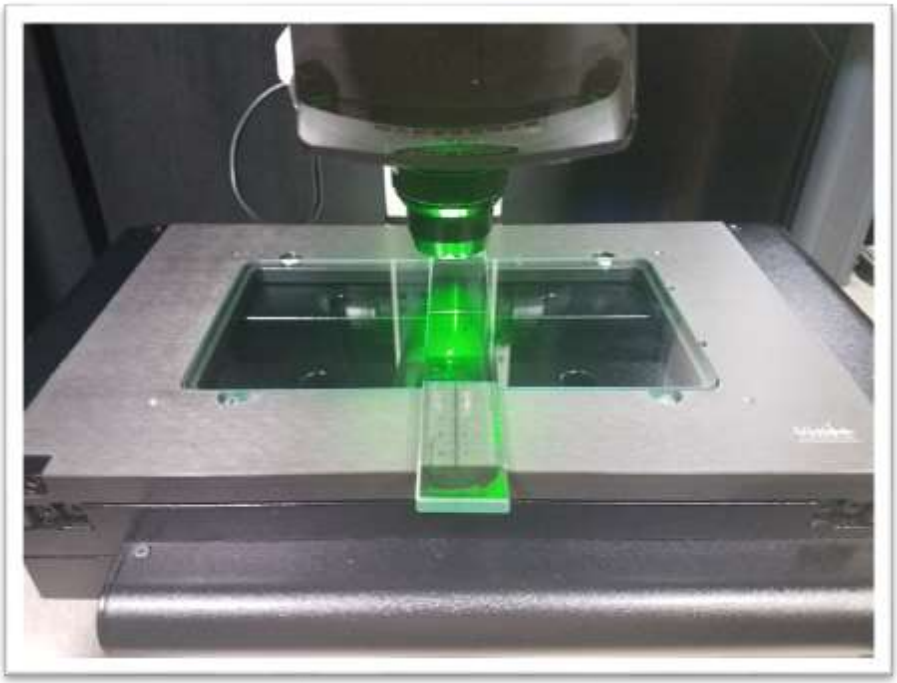
8. **Length 1** - Measure the zero Line and the length 1 Line on the glass scale and construct a distance between the two Lines.
   - Press the **Distance Measurement** key.
   - Move the stage to position the crosshairs center over the Bottom Right of the **Line 0** and press **Enter** or large **point counter**
   - Move the stage along X axis to position the crosshair probe center over the Bottom Right of the Length 1 Line and press **Enter** or large **point counter**
   - Press the **FINISH** or **Green** check mark key to complete measurement.
   - The Length 1 Distance feature will be added to the feature list. **Make a Note** of the distance.

9. Repeat step 8 for **Length 2**, 3, 4, and 5.

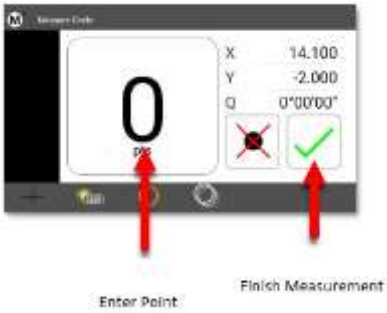
10. Repeat steps 8 and 9 two more times to have three runs with a total of 15 distance measurements

Parallel to the Y - Axes of the machine

11. Reposition the glass calibration scale so that it is parallel to the **Y-axes** of the machine. The zero Line needs to be on the Top side of the stage and making sure you can drive the Y axes and reach both the zero Line and 80 mm Line for measuring. ***(Use hot glue / putty to avoid any shift)***



12. Perform rule alignment **(Skew)**
    - Press the **Skew** key.
    - Move the stage to position the *crosshairs center* over the Bottom Right of the **Line 0** and press **Enter or** large **point counter**
    - Move the stage along X axis to position the crosshair center over the Bottom Right of the Line 80 and press **Enter or** large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measuring the skew line.



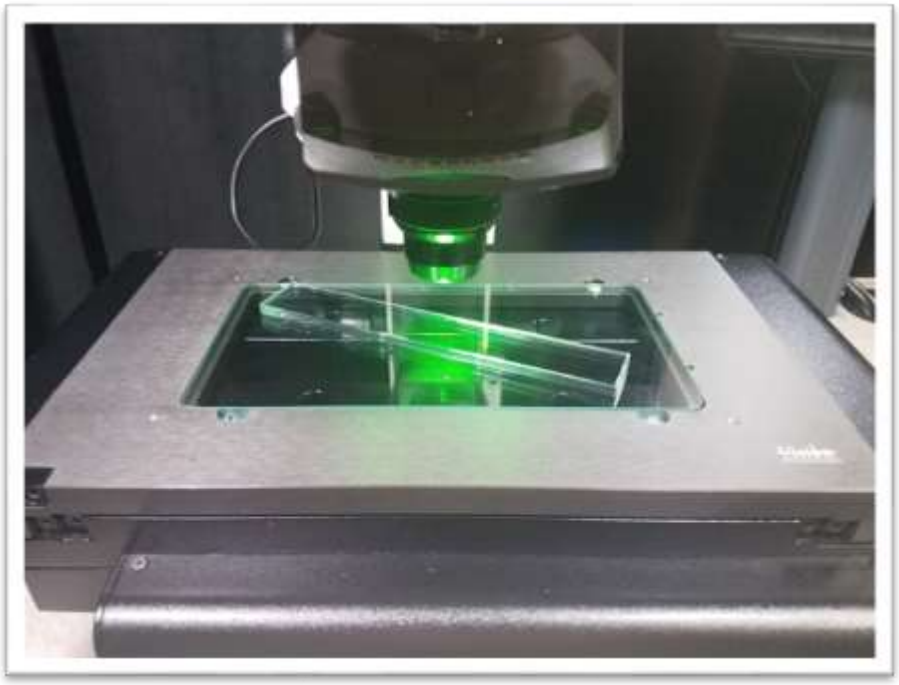
13. **Length 1** - Measure the zero Line and the length 1 Line on the glass scale and construct a distance between the two Lines.
    - Press the **Distance Measurement** key.
    - Move the stage to position the crosshairs center over the Bottom Right of the **Line 0** and press **Enter** or large **point counter**
    - Move the stage along X axis to position the crosshair probe center over the Bottom Right of the Length 1 Line and press **Enter** or large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measurement.
    - The Length 1 Distance feature will be added to the feature list. **Make a Note** of the distance.

14. Repeat step 13 for **Length 2**, 3, 4, and 5.

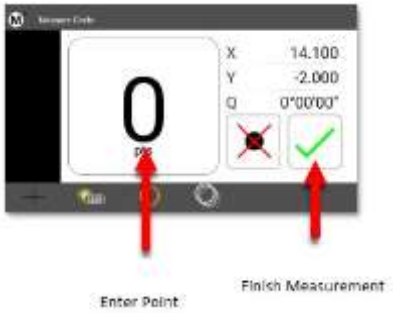
15. Repeat steps 13 and 14 two more times to have three runs with a total of 15 distance measurements

Perpendicular to the XY - Axes of the machine

16. Reposition the glass scale so that it is **perpendicular to the X and Y** axes with the zero Line in the top left corner of the stage, and the 180 mm Line is in the bottom right corner. Check that both the zero Line and 180 mm Line are within the travel range of the stage. See picture below.



17. Perform rule alignment **(Skew)**
    - Press the **Skew** key.
    - Move the stage to position the *crosshairs center* over the Bottom Right of the **Line 0** and press **Enter or** large **point counter**
    - Move the stage along X axis to position the crosshair center over the Bottom Right of the Line 180 and press **Enter or** large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measuring the skew line



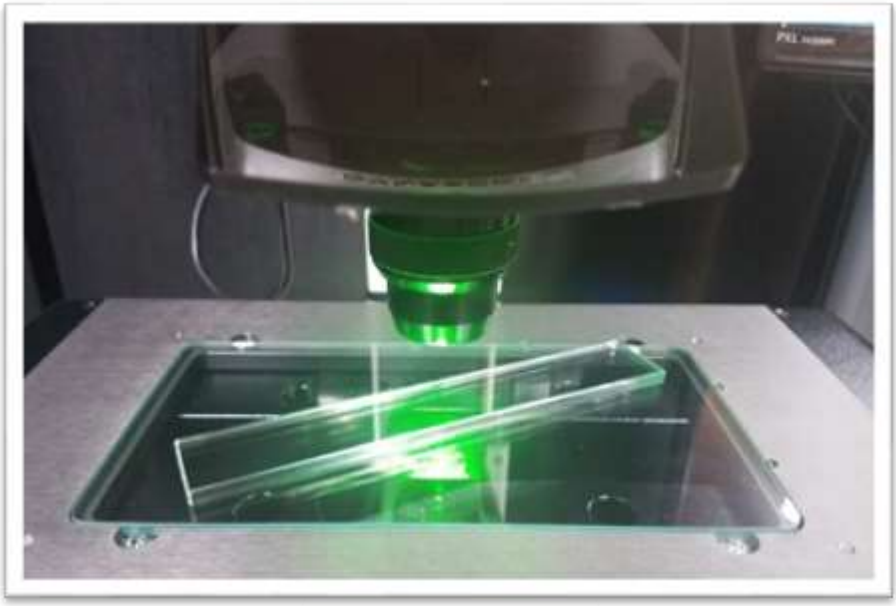
18. **Length 1** - Measure the zero Line and the length 1 Line on the glass scale and construct a distance between the two Lines.
    - Press the **Distance Measurement** key.
    - Move the stage to position the crosshairs center over the Bottom Right of the **Line 0** and press **Enter** or large **point counter**
    - Move the stage along X axis to position the crosshair probe center over the Bottom Right of the Length 1 Line and press **Enter** or large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measurement.
    - The Length 1 Distance feature will be added to the feature list. **Make a Note** of the distance.

19. Repeat step 18 for **Length 2**, 3, 4, and 5.

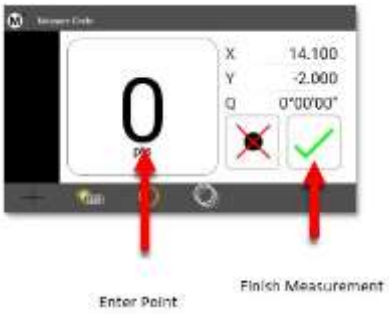
20. Repeat steps 18 and 19 two more times to have three runs with a total of 15 distance measurements

Perpendicular to the YX - Axes of the machine

21. On a 200mm X 100mm stage: Reposition the glass scale so that it is **perpendicular to the Y and X** axes with the zero Line in the bottom left corner of the stage, and the 180 mm Line is in the top right corner. Check that both the zero Line and 180 mm Line are within the travel range of the stage. See picture below



22. Perform rule alignment **(Skew)**
    - Press the **Skew** key.
    - Move the stage to position the *crosshairs center* over the Bottom Right of the **Line 0** and press **Enter or** large **point counter**
    - Move the stage along X axis to position the crosshair center over the Bottom Right of the Line 180 and press **Enter or** large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measuring the skew line



23. **Length 1** - Measure the zero Line and the length 1 Line on the glass scale and construct a distance between the two Lines.
    - Press the **Distance Measurement** key.
    - Move the stage to position the crosshairs center over the Bottom Right of the **Line 0** and press **Enter** or large **point counter**
    - Move the stage along X axis to position the crosshair probe center over the Bottom Right of the Length 1 Line and press **Enter** or large **point counter**
    - Press the **FINISH** or **Green** check mark key to complete measurement.
    - The Length 1 Distance feature will be added to the feature list. **Make a Note** of the distance.
24. Repeat step 23 for **Length 2**, 3, 4, and 5.
25. Repeat steps 23 and 24 two more times to have three runs with a total of 15 distance measurements

ISO-10360 Verification Certificate

26. Open the ISO-10360 Verification Certificate file in Excel.

27. Make sure all the required fields are populated on the Verification form.

28. Enter the scale certified values and the saved test position measurement values for ‘X” , “Y”, “XY\” and “YX/” into the Actual Values
    (If using **Copy and Paste** from CSV file, make sure you paste “**Values**” only)

29. If the Actual deviation values are within the allowable range, it is a **Pass** or else **Fail**.

End of Verification Procedure for Swift and Swift Pro with Mx200