

E.3 Contact Probe calibration

E.3.1 Description

A contact probe (ball stylus probe, point probe, Touch triggering probe) must be calibrated measuring a plane.

The calibration consist by measuring first a reference plane by 3 points with the reference 15mm probe, then remeasuring the same plane by 3 points with 5 orientations of the probe to calibrate.

● Necessary artefact

Any flat plane (flatness lower that 10 µm) can be used.

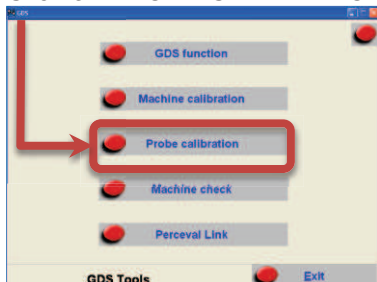
E.3.2 Operating mode

● Prepare the calibration

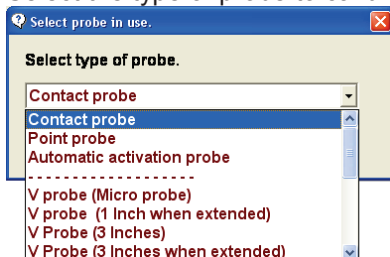
- Start GDS.
- Check (GDS Function) that the communication parameters configuration is correct and note the path to the machine data.
- Check whether the standard deviation of the gauging machine is within tolerances with Probe 15mm.

● Run the script

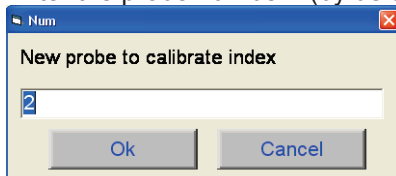
- Click on PROBE CALIBRATION.



- Select the type of probe to calibrate , then OK.



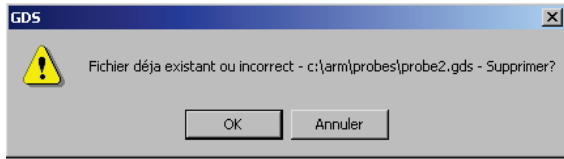
- Enter the probe number : (by default, GDS creates an additional probe), then OK.



NOTICE

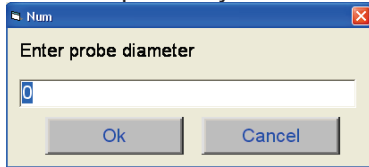
If the arm and the probe are using Probe ID recognition, the index of the probe must be respected.

- If the probe already exists, a message appears.



- Answer OK.

- Enter the probe stylus diameter, and then OK (point probe is 0)

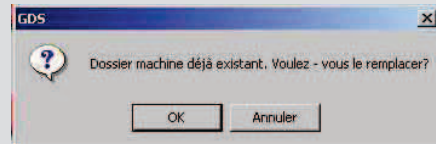


- Answer OK to the message “machine file already existing”.

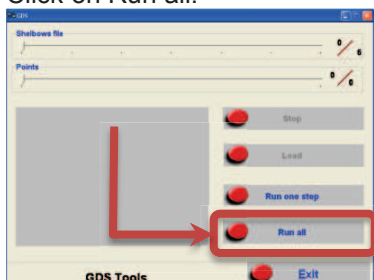


A directory having the serial number of the machine is systematically created in ... \GDS\Calib to save files relating to calibration.

If it already exists, a warning message appears to confirm the deletion. If the saved information in this directory is not useful anymore, validate with **OK** otherwise press **Cancel** and make a back-up of the data thanks to Microsoft Explorer®.



- Click on Run all.



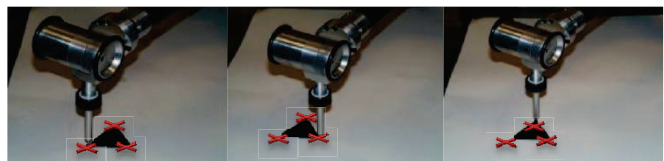
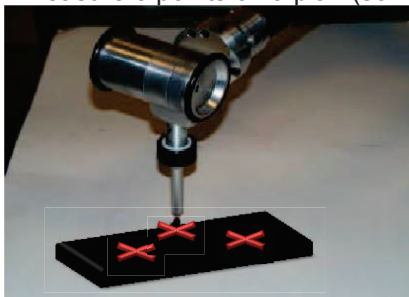
- Follow stages indicated on the screen:

Step 1 : Reference plane

- Install reference probe #1 Dia 15mm.



- Measure 3 points on a plan (some cm²)



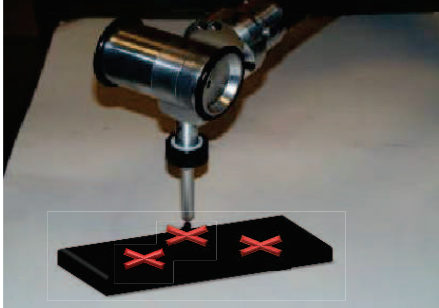
The cursor indicating the machine position advances and the graphic representation changes as each position is taken. To repeat one or more machine positions, simply move the cursor one or several spaces.

Steps 2-6 : Probe to calibrate

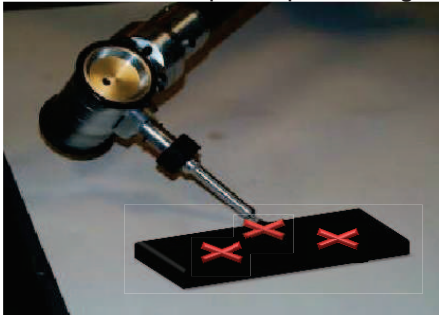
- Install probe to calibrate.



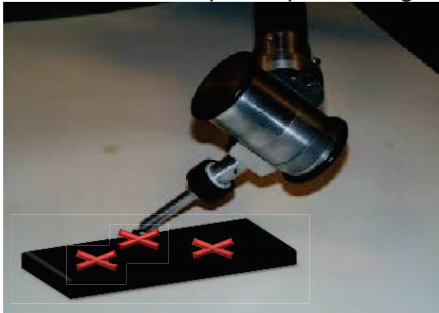
- Measure same plane (same 3 points) positioning the probe vertically



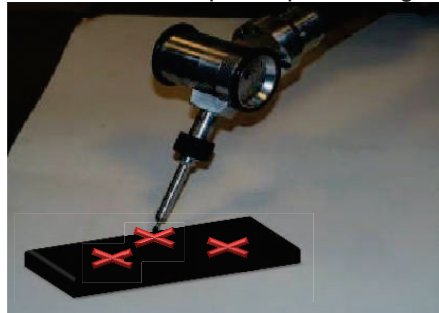
- Measure these 3 points positioning the probe inclined buttons up.



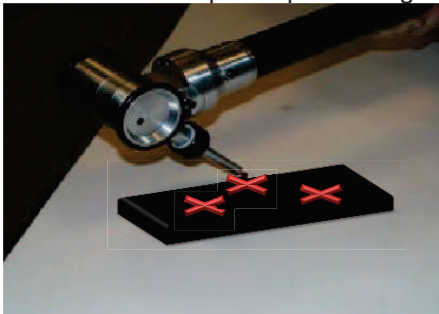
- Measure these 3 points positioning the probe inclined buttons down



- Measure these 3 points positioning the probe inclined



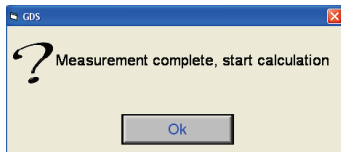
- Measure these 3 points positioning the probe inclined



Step 7 : Calculation

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- Click on OK when the message “finished measurement” appears – calculation starts.



- Wait for the end of calculation (Message “Finished Calculation”)
- Click on Details, to check the deviations.



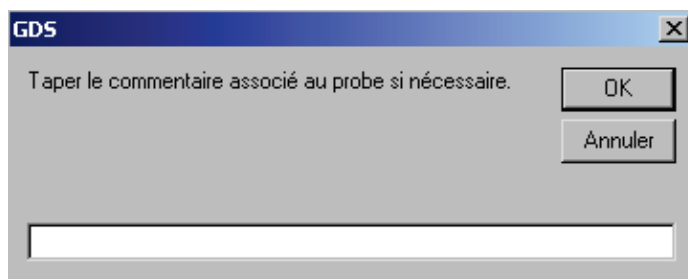
Acceptable value :

The probe is correct when it is able to measure a distance in the volume within the accuracy of the arm.

Example : Arm Sigma 2030 at +/- 0.054. for all standard probes, the arm must stay within the announced tolerances.

Attention, for other non-standard probes, there is no acceptance criteria. They are considered as special accessories, to answer special applications.

- Click on OK to accept the calculation or cancel not to keep values.
- GDS suggests to add a comment to the probe (comment will appear instead of “X mm probe” in software).



- If you start again calculation (moving higher cursor to extreme right limit and clicking « run one step ») will optimize calibration of the probe.

This is the end of the procedure. Click on Exit to come back to the main menu.