

STP **ESSENTIA**

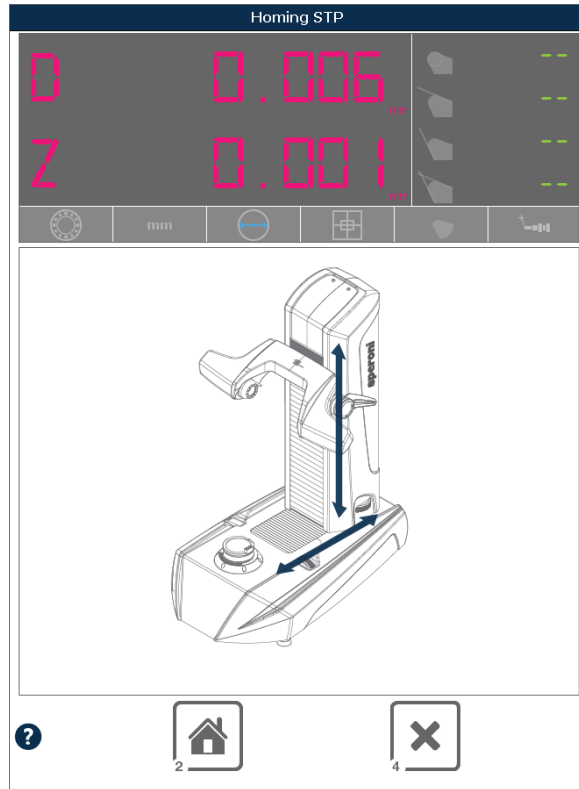
QUICK USER MANUAL

speroni

SINCE 1963

Homing the machine

Switch on the machine with the dedicated button and wait for the PC to start.
 See the "Use and maintenance" manual for more details.
 When the system starts, the homing window is displayed, allowing the user to home the machine axes.



If you have an automatic spindle



and move the axes.
 For instructions on how to move the axes, please check the "Use and maintenance" manual.
 If not, just move the machine axes.
 If the measures color is BLUE, the machine is waiting for the movement. If MAGENTA, the machine is not homed.



When the homing is done the window will disappear automatically.



Main windows layout components



Here is the list of the main components we will use in this guide:

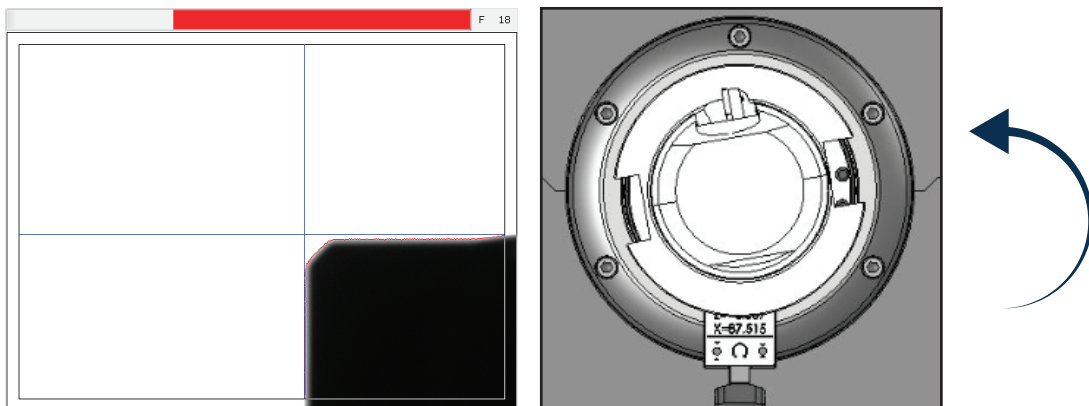
- (A)** The adapter list.
- (B)** The tool list showing the list of the tools which are using the selected adapter.
- (C)** The axes display: here you can read the actual tool measurement. If the machine is not measuring, the axes display will show the machine's position.
- (D)** The SVS window (in this guide "FOV") shows what the camera is seeing. Above the FOV there is the "Focus bar" that helps you find the right tool measurement position.
- (E)** The main menu is used to surf around the system functions.
- (F)** The measurements results list.
- (G)** The function key menu is used to interact with the system.



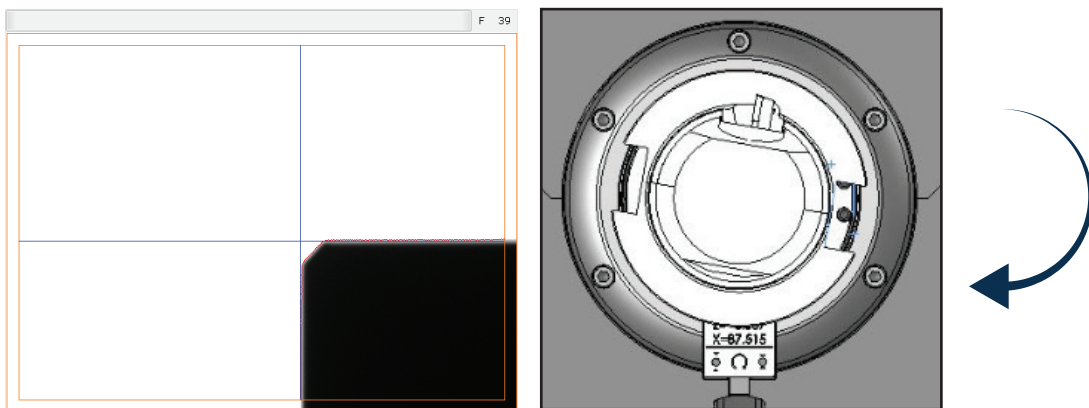
Finding the right measurement position (maximum diameter)

In order to measure correctly, you must find the right tool position.
The best position for measuring a tool is the maximum diameter of the point you need to measure.

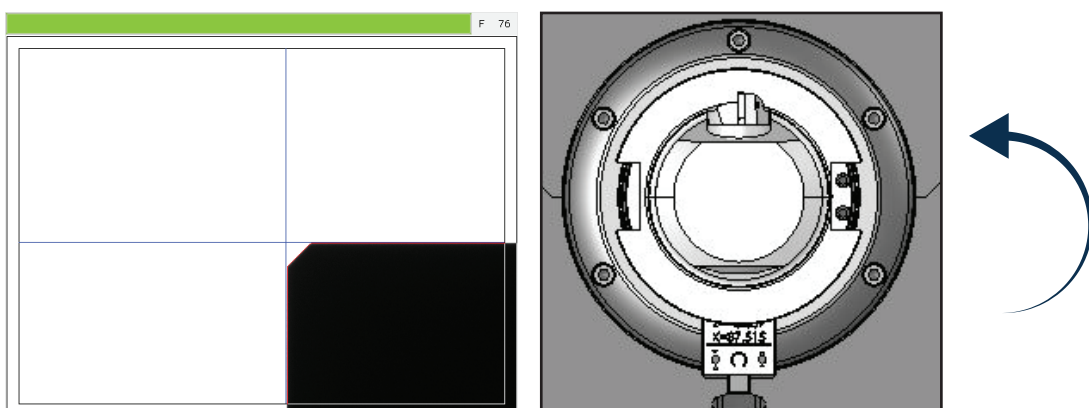
1. Move the point you need to measure in the FOV and try to center it as much as possible.
2. Rotate the spindle clockwise for 15/20 degrees



3. Invert the rotation and turn on the opposite direction for another 15/20 degrees.

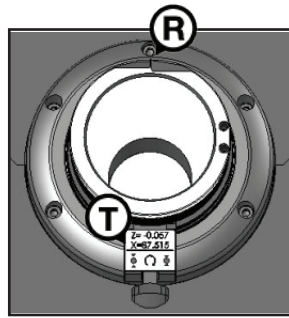


4. Go back and try to find the green focus bar

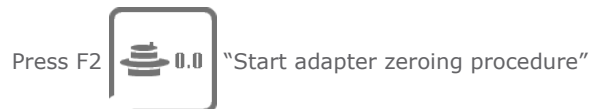


Adapter calibration

On the external part of the tool holding cone, on the machine's spindle, there is a referral notch (R), which simulates the cutting edge of a tool. On the wheel of the spindle there is always a plate (T) where you can read the referral values which define the 0 (zero).



In order to check and re-calibrate the zero, select the adapter you want to calibrate from the adapter list and then

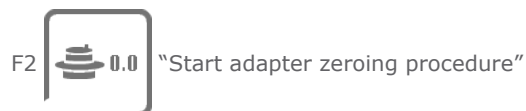


The adapter calibration window will be displayed.



Here you can simply follow the steps in the diagram:

1. Move the referral notch in the FOV. Try to center it as much as possible.
2. Find the maximum diameter using the "Focus bar".
3. Check if the referral notch is perfectly cleaned using the "Tool cleaning kit"
4. Store the zero point measurement with



A message will let you know if the procedure is carried out correctly. Press F10 to exit.



Tools measurement

Measuring a boring tool



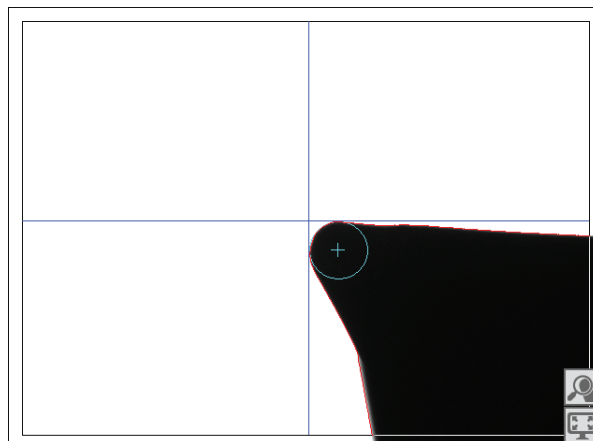
For the boring bar tools you need to measure diameter, length and, if needed, the insert's radius.


1. Place the tool inside the tool holding cone. See the "Use and maintenance" manual for more details.
2. Move the machine in order to have the point you need to measure in the FOV.
3. Find the maximum diameter using the "Focus bar".

4. If you need to measure the insert's radius, press the radius button on the axes display



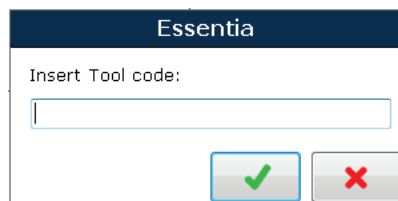
5. You will see blue lines passing through the maximum diameter and the maximum length.




Press F3  "Store the current measurements"

in order to add the measures to the "Measure results" grid.

6. The system will ask you to insert the tool code, if you need it.



Here is the result

2	09/13/2016 01:59	01	BORING_BAR_001		Radius	A1	A2	A3
					0.260	0.00	0.00	0.00



Measuring a drilling tool



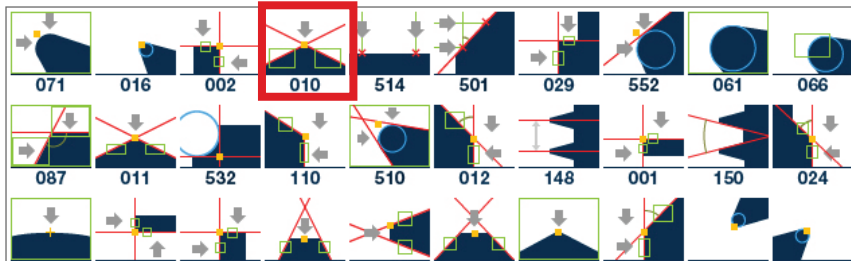
For drilling tools you need to measure the overall length at center.

1. Move the machine in order to have the top center point of the tool in the FOV.
2. In order to measure in the best way, you need to use the MaxP function. This special function allows, while rotating the spindle, to generate the biggest profile of the tool. Switch on the MaxP using the dedicated button on the display axis.



3. Rotate the spindle by 360 degrees.
4. In most cases you can use the automatic measurement but, if needed, you can use a macro for measuring, for example, the theoretical intersection point of the drill.

If you need so, select the macro number 010 in the SVS Macro list.



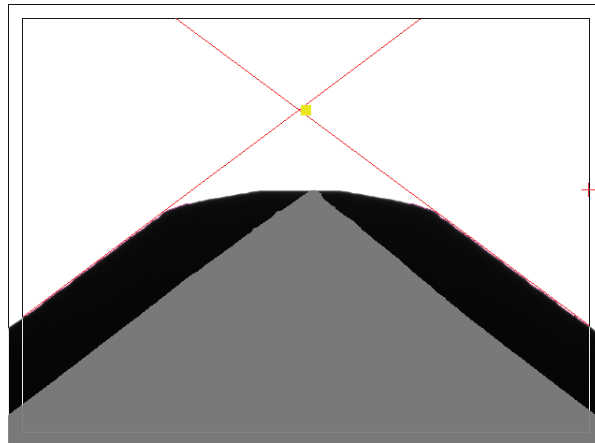
If the Macro 010 is not in the list as shown above, click on the big macro area to show the macro search menu, type "010" and press "Ok"



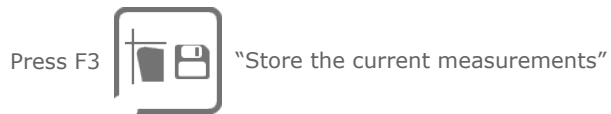
The SVS Macro list will only show the macro you are looking for.



5. Here is what you will see.



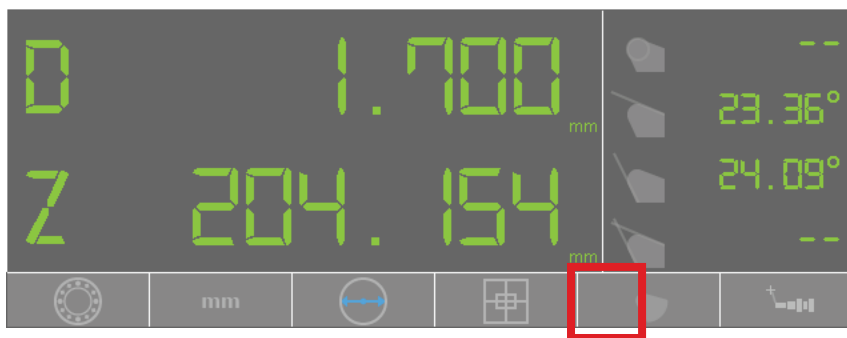
6. Now you are ready to store the measurement in the results grid.



Here is the result

5	09/13/2016 02:27	01	DRILL_004		Radius	A1	A2	A3
				010	0.000	36.84	36.66	0.00

Remove the selected macro clicking on the big macro area and switch off the MaxP function by clicking on the dedicated button



Measuring a milling tool

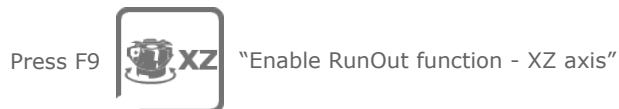


For milling tools you need to measure maximum diameter, maximum length and the runout.

1. Move the machine in order to have the right point to measure in the FOV.
2. In order to measure a milling tool you can use the RunOut function. Click the RunOut icon in the menu.



3. You can choose to measure X and Z runout or, if you don't want to measure the length, you can measure only X runout.
4. In this example we will measure X and Z, so



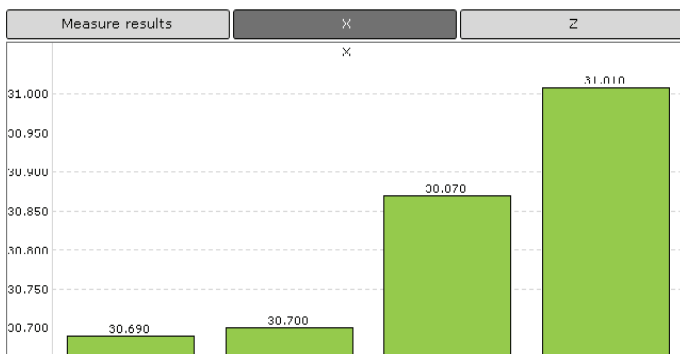
5. Start rotating the spindle manually and turn 360 degrees.

Measure results		X			Z	
X Tol.	0.000	Z Tol.	0.000	Character	0	0
	Theoretical	Inf. Tol.	Up Tol.	Range	Minimum	Maximum
X	0.000	0.000	0.000	0.320	30.690	31.010
Z	0.000	0.000	0.000	0.007	278.664	278.671
Conicity		0.00	Cutt. #	4	Out Tol. Cutters	0

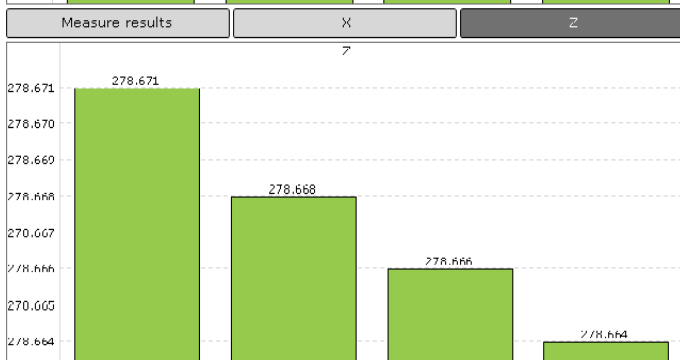
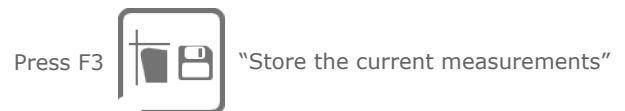
6. The graph will update in real time with the measurements of each cutting point and, in the grid above, you will see:

- A** The X and Z range column values
- B** The X and Z minimum column values
- C** The X and Z maximum column values

Store minimum Z



7. Now you are ready to store the measurement in the result grid.




Measuring a step tool



For step tools, as well as to measure maximum diameter, maximum length and the runout, you may need to measure the distance between the steps.

1. Move the machine in order to have the first measure point (it is best to start from the bottom) in the FOV.
2. Find the maximum diameter using the "Focus bar".
3. Click on the "Z" label on the display axis.
4. In the appearing contextual menu

Press  "Incremental function"


5. You will see that the Z axis will become white and zeroed.




6. Repeat points 1 and 2 in the next phase, in order to see the distance.



7. Now you are ready to store the measurement in the result grid.

Press F3  "Store the current measurements"

8. Click on the "Z" label of the display axis and switch off the incremental function

Press  "Incremental function OFF"

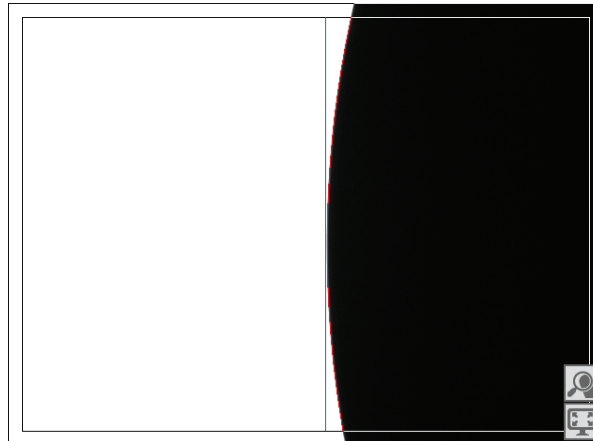


Measuring a full radius mill



For the full radius mill tool you need to measure the maximum diameter and the maximum length. If the tool has a big radius, you will not see both maximum X and maximum Z in the same position. In order to properly measure the tool you must measure one dimension first (in this example X) and then the other dimension (Z), blocking the first measure and moving the machine to the other position.

1. Move the machine to the tool diameter.
2. Find the maximum diameter using the "Focus bar".



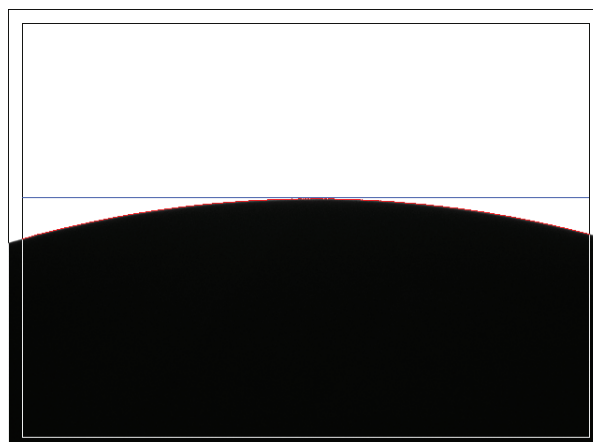
3. Click on the "X" label on the display axis.
4. In the appearing contextual menu

Press  "Freeze function"

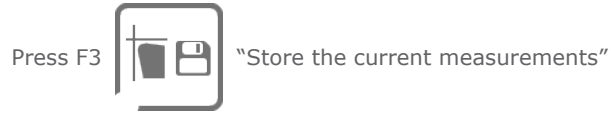
5. You will see that the X axis will become cyan. Now you can move freely and the X value will not change.



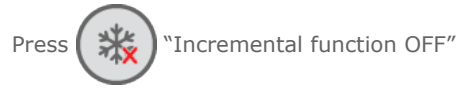
6. Move the machine to the top of the tool



7. Now you are ready to store the measurement in the result grid.



8. Click on the "X" label of the display axis and switch off the freeze function



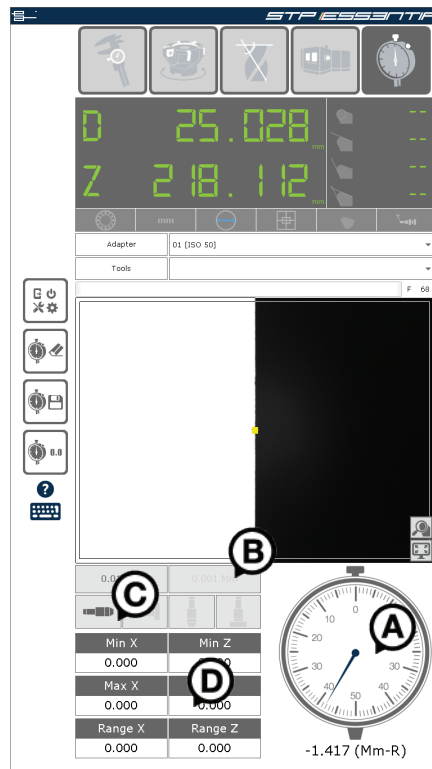
Here is the result

6	09/20/2016 10:02	01	BALL_NOSE_005	mm	abs	25.285	D	267.413
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Checking the off-center

Sometimes you need to check if a tool is properly assembled by verifying its off-center. In order to do this, click the "Dial gauge" button on the main menu.



In the dial gauge window you can see:

- (A)** The dial gauge
- (B)** The dial gauge accuracy menu
- (C)** The dial gauge measure types. Starting from the left: one point diameter, maximum diameter, one point length and maximum length.
- (D)** The measurements results



1. Move the machine in order to have the right point to measure in the FOV.
2. Start rotating the spindle manually. The dial gauge's indicator will move and you will see the value of that movement.
3. You can store this value using



4. Saving the measurements will allow for the minimum, maximum and range values to be calculated

Min X	0.006
Max X	0.006
Range X	0.000



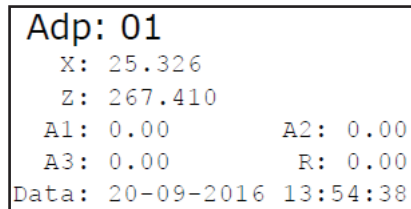
Printing measurement results

After the measurement procedure you may want to print the measurements out.

You can choose, instead of storing the measures in the measurements results grid, to print a label with the actual measurements. In order to do that



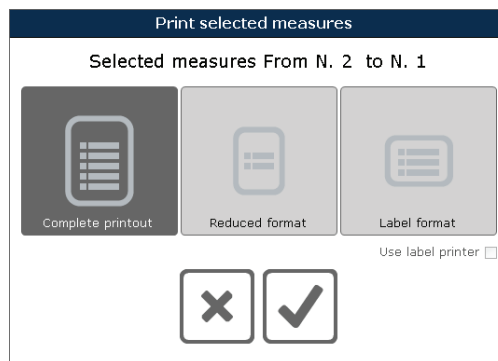
The system will ask you to confirm and will print a label with this format



You can print all the selected measurements in the results grid on one page, using







A window will appear letting you choose the format you want to print







In this window you can choose the print format

Full data format

Reduced data format

Manual measure						
speroni <small>precision by design</small>						
02	9/13/2016 1:59:39PM	 BORING BAR 001	01			
	X	Z	Radius	A1	A2	A3
	60.152 Mm/D	126.884 Mm	0.260	0.00	0.00	0.00
03	9/13/2016 2:08:12PM	 END MILL 002	01			
	X	Z	Radius	A1	A2	A3
	34.684 Mm/D	135.190 Mm	0.000	0.00	0.00	0.00
04	9/13/2016 2:16:02PM	 STEP TOOL 003	01			
	X	Z	Radius	A1	A2	A3
	10.284 Mm/D	41.941 Mm	0.000	0.00	0.00	0.00
05	9/13/2016 2:27:51PM	 DRILL 004	01			
	X	Z	Radius	A1	A2	A3
	0.009 Mm/D	224.197 Mm	0.000	36.84	36.66	0.00

Manual measure			
speroni <small>precision by design</small>			
02	 BORING BAR 001	01	X Z
			60.152 Mm/D 126.884 Mm
03	 END MILL 002	01	X Z
			34.684 Mm/D 135.190 Mm
04	 STEP TOOL 003	01	X Z
			10.284 Mm/D 41.941 Mm
05	 DRILL 004	01	X Z
			0.009 Mm/D 224.197 Mm

If you choose the "Label format" the system will print the selected measurements with the label format described above. You can also print all the selected measurements using the label printer by checking the "Use label printer" check.



In the print preview window

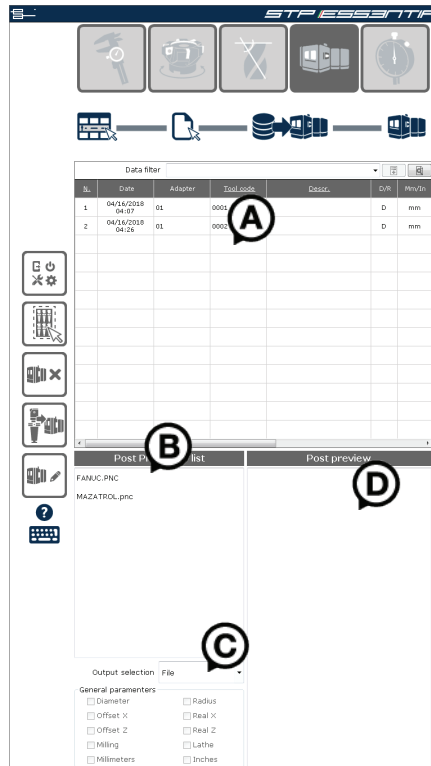


Select the printer you want to use and confirm the selection



PostProcessor

The PostProcessor allows you to send the measurements to the CNC machine.



In the PostProcessor window you can see:

- (A)** The measurements list
- (B)** The available post file list
- (C)** The post output
- (D)** The post output preview

Generating the PostProcessor output

1. Select the measurements you want to send to the CNC. If you need to send all the measures you can select them all using



2. Select the Post file you want to use from the list (B). You will instantly see the output preview (D).

3. Select the output type you want to generate from the output list (C) and

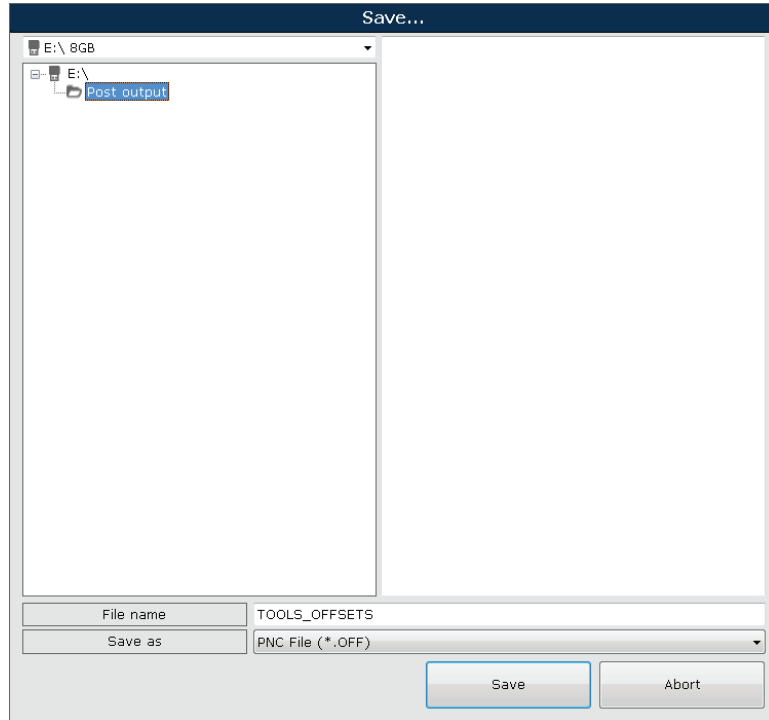


The available outputs are:

- Video:** this output will generate the post in the preview area.
- FTP:** this output will generate the post in a file on a FTP server.
- File:** this output will generate the post in a file.
- COM1:** this output will generate the post on the COM configuration number 1.
- USB:** this output will generate the post in a file on an USB stick.
- COM2:** this output will generate the post on the COM configuration number 2.



If you select, for example, the "USB" output, the system will ask you to choose the output folder where to save the file

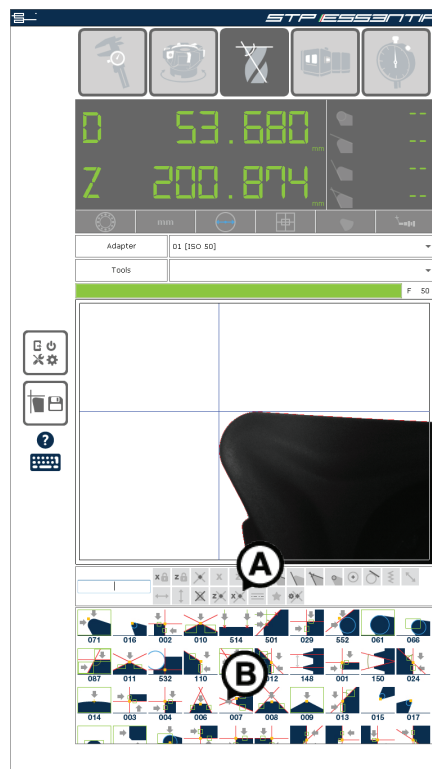


Type the file name in the "File name" text area and press "Save".



SVS Macro

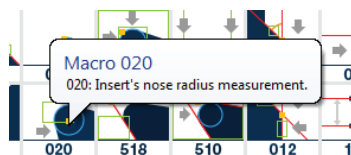
The SVS Macro allows you to do advanced measures on a tool, for example, measuring the center of a radius or the intersection between two lines.



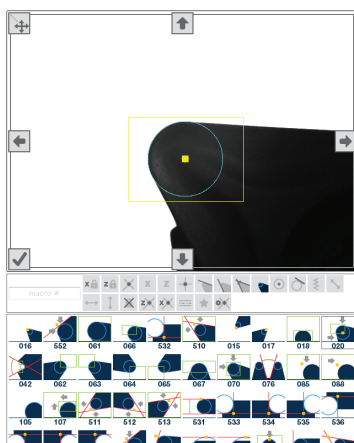
In the SVS Macro window you can see:

- A** The macro filters
- B** The complete list of the macros.

Surfing through the complete macro list (A), you can find the measure you need and drag it into the preferred list (C). The description of the macro will appear staying on the macro for a second.



It is sometimes necessary to edit a macro to ensure it works correctly. In order to do this, run a macro (in this example the macro "020") clicking on it and then click on the FOV. You will see something like this:



Click inside the area you want to change and hold down. You will see the mouse cursor change and moving it you will see the selected area moving. You can toggle from the "moving" function and the "resize" function using the upper left button.



You can also move or resize the selected area by clicking the dedicated buttons




Shutting down the machine

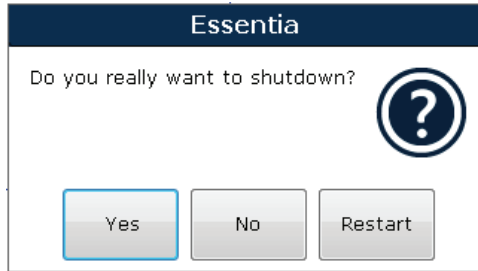
At the end of the day is always recommended to shut down the machine. To do this

press F12  "Open optional function"

In the "Other functions" window

press F12  "Shut down the machine"

Press "Yes" if you want to shut down the PC or "Restart" if you want to restart it.



Once the PC is off, switch off the dedicated button in order to shut down the machine.





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