



Instruction manual

English

# **SYLVAC-REFLEX**

## **Vista**

**Version 2.4**

**Application software  
for vision machines**

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We thank you for having purchased SYLVAC-REFLEX Vista for your non-contact metrology applications.

**Note**

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Read this manual to guide you through each program step of your SYLVAC-REFLEX Vista application software.

**Precautions**

For your own safety and that of your measuring equipment, always take the following precautions:

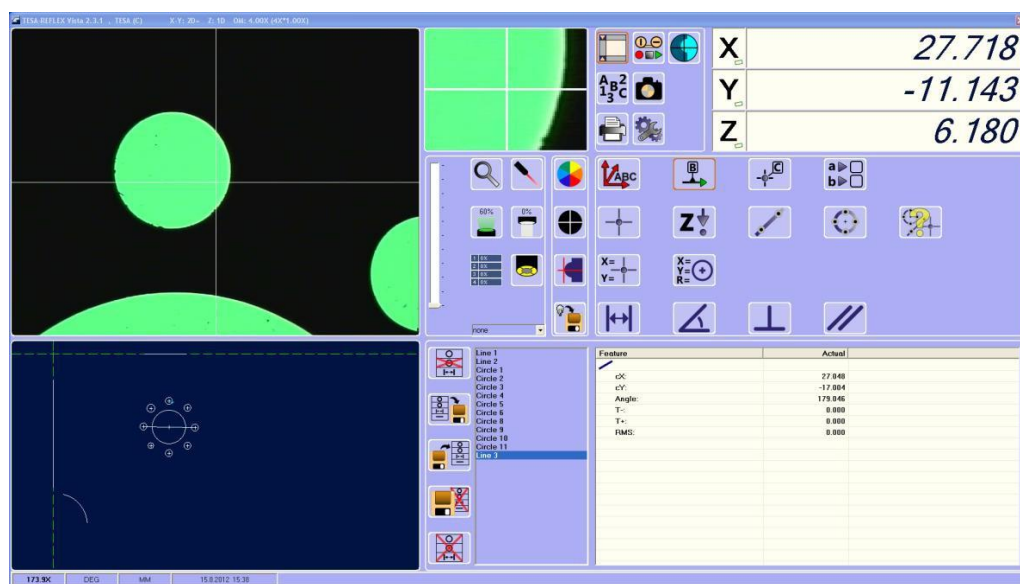
- Make regular backup copies of SYLVAC-REFLEX Vista installation directory along with all sub-directories to avoid your data to be lost if any problem occurs as you're running the program.
- The French version of this manual serves as reference. Any other version is a translation only.

## 2 OVERVIEW

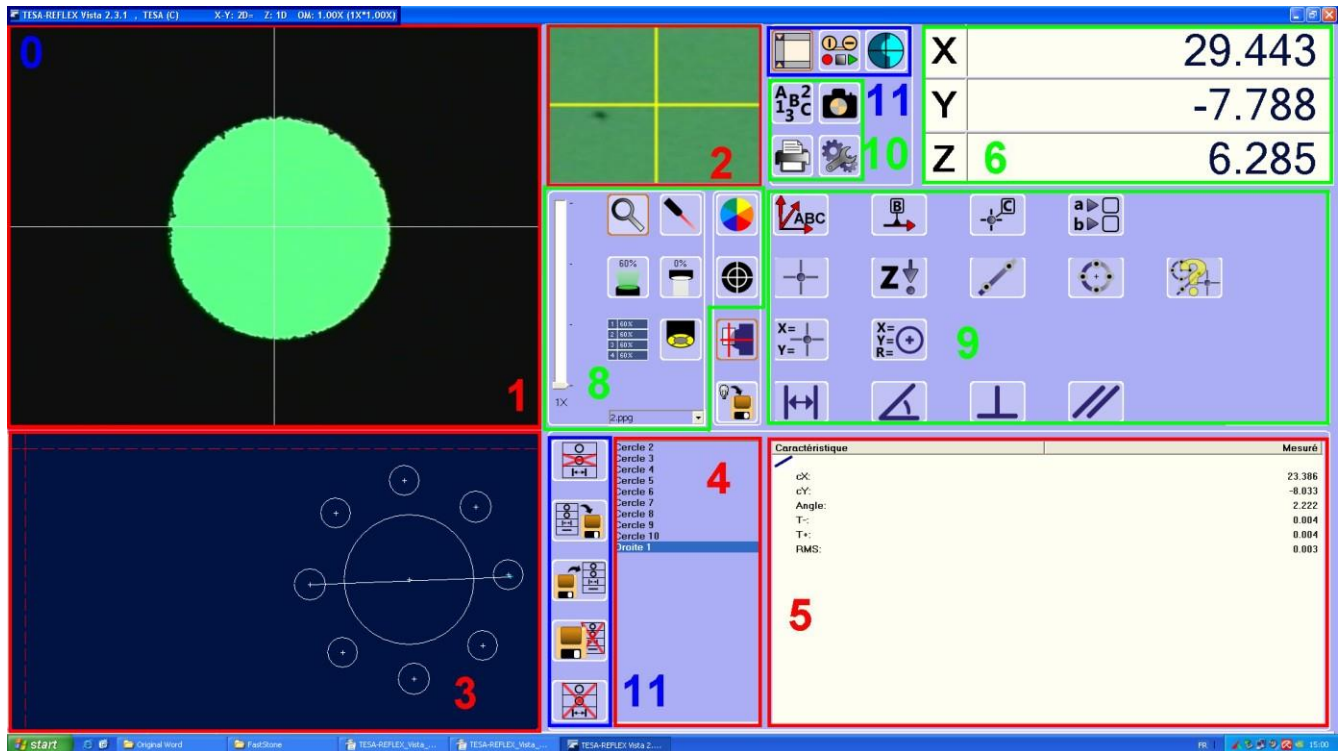
### 2.1 General

SYLVAC-REFLEX Vista is customizable to the size of the screen used with the machine (15", 17", 20" 16/9 or higher).

The various icons and screens will automatically be re-arranged.



## 2.2 Description of the User's interface



- 0 Software version along with some information on the machine calibration.
- 1 Screen area for the video image.
- 2 Digital zoom, centered in the middle of the reticule. Magnifying function.
- 3 Graphical representation of any measured or calculated form elements.
- 4 List of the measured or calculated elements.
- 5 Measurement results of active element.
- 6 Display Read Out (DRO) to each XYZ-axis, screen centre.
- 7 System parameters.
- 8 Control buttons used for setting the light illumination, but also the zoom, the reticule and the laser pointer.
- 9 SYLVAC-REFLEX Vista main functions
- 10 Utility functions.
- 11 Measurement mode with associated icons.

### Note

If the message **WARNING your system is not calibrated** appears on the screen, this means that your machine needs absolutely to be calibrated. Thank you for getting in touch with your SYLVAC's agent for this purpose.

### 3 GETTING STARTED

#### 3.1 Startup screen

So that the whole system can operate properly whilst guaranteeing the accuracy of each measured value, each coordinate axis of your machine must be initialized.



Whenever the system is started up, your screen shows \*-----\*.

Although the machine operates correctly, this display prompts you to initialize each axis before you get any usable value appearing on your screen.

#### 3.2 Initializing the three axes

Move each axis as shown below (in this example, the machine used is a SYLVAC-VISIO 200).

##### X/Y-axes

The sensors for both axes are located in the middle of the machine.

##### Z-axis

The sensor for this axis is located at the upper end of the scale.

The numerical value appearing instead of \*-----\* tells you that each axis could be conveniently initialized.

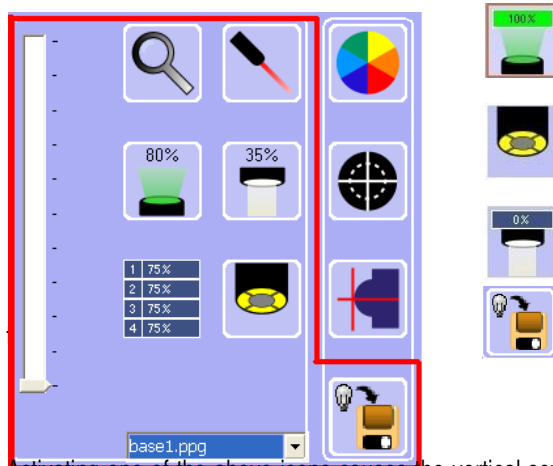




## 4 BASIC FUNCTIONS

### 4.1 Light illuminations

Light illumination is most important in non-contact measuring. There are different kinds of illumination available (whether optional or not).



Diascopic illumination (Back light)

Episcopic illumination with ring light

Coaxial light

Saving of the light parameters

Activating one of the above icons causes the vertical scroll bar to be assigned to the chosen illumination. Moving the cursor up or down increases or decreases the light intensity. But, this can also be done using the mouse scroll wheel.

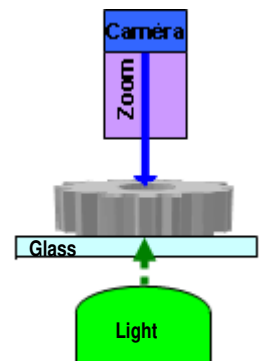
Setting value is expressed as a percentage (%).

### 4.2 Diascopic illumination (Profile)



This light, often green, emanates from the underside of the stage.

**Note:** The use of an optional filter on some machine-types makes it possible for the light rays to lie parallel, thus avoiding any mirroring effects on cylindrical parts measured horizontally.

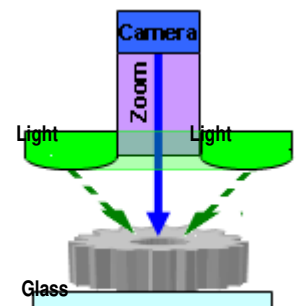


### 4.3 Ring light



Consisting of white and red concentric rings, this light escaping from the camera down to the upper workpiece surface reproduces a surface illumination.

Depending on the machine-type being used, the ring light can either include a single ring or 4 individually adjustable segments. This ring can also consist of a number of segments on several concentric circles, offering varying angles of incidence.



### 4.3.1 Four-segment ring light

Click once on desired icon to change from a segment to another over the scroll bar. Setting value is expressed as a percentage (%).



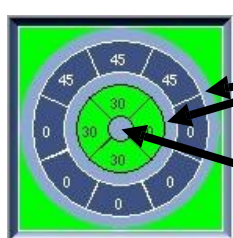
The segments are first selected all together, then separately (0° 90° 180° 270°).

### 4.3.2 Multi-segment ring light

If your machine is equipped with a ring light consisting of several rings and segments, a button reproducing this light illumination replaces the standard one.

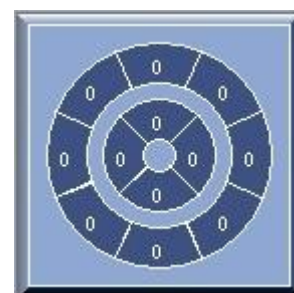
**Example:** The ring light opposite includes 2 rings of 8 and 4 segments, respectively.

To activate any segment, just click on the one you want to use. Various shortcuts can help you to fit the ring to the convenient illumination for your measuring job.



Click here to choose the convenient ring.

Click here to have the 4 segments switched off.



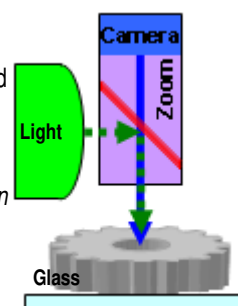
### 4.4 Coaxial light



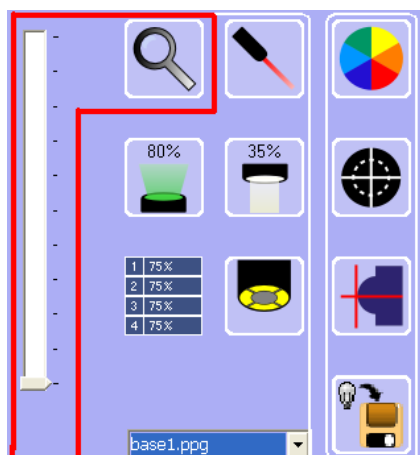
The coaxial Light is a white light passing through the optical path of the zoom.

The use of this light, which allows blind bores to be inspected, for example, is recommended when measuring in the Z-axis, but also when inspecting the profile on cylindrical parts.

**Note:** The coaxial light is often optional. Unless your machine includes this option, the icon will be disabled.

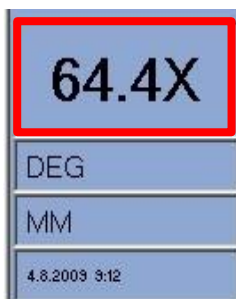


## 4.5 Magnification



The magnification value appears within the screen area to the system parameters. This value matches the true magnification between the part and the video image (the size of the screen may affect the chosen value).

If the selected magnification isn't calibrated, displayed value appears in red. In such a case, the automatic edge detector cannot be used.

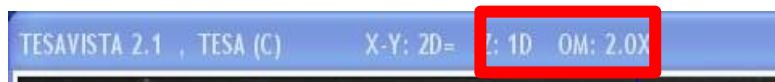


### 4.5.1 Fixed objective

For the machine versions equipped with a fixed objective, a mouse click on the relevant icon allows to choose another objective. Just select the one you want. The system then prompts you to mount the new objective.



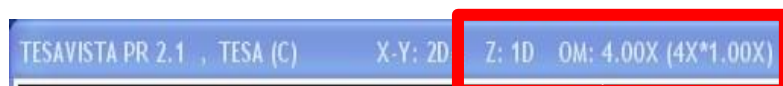
Magnification value is shown on top of the screen.



**Note:** The chosen objective and the one mounted on the machine must be alike. Should you swap the fixed objective against another one, you'll have to select its value. Furthermore, a Quick Optical Calibration may be requested for use of the automatic edge detector (for further information with regard to this, see chapter 10.11).

### 4.5.2 Manual Zoom

For the machine versions equipped with a manual zoom, a mouse click on the zoom icon assigns the scroll bar to this item. Moving the cursor up or down increases or decreases the zoom value whilst a message prompting you to change the indexing position of the zoom is displayed. Set value is shown below the scroll bar as well as on top of the screen.



#### Example

OM: 4.00X (4X \* 1.00X).

Total value (Magnification value \* Additional lens).

**Note:** Should the zoom value be changed on the machine, the one displayed through SYLVAC-REFLEX Vista will also need to be changed, so that both values are matched. A Quick Optical Calibration may additionally be requested for use of the automatic edge detector. For further information, see chapter 10.11.

### 4.5.3 Motorized Zoom



For those machine versions equipped with a motorized zoom, a mouse click on the zoom icon allocates the scroll bar to the motorized zoom. Moving the cursor up or down increases or decreases the magnification value.

### 4.6 Laser pointer



The laser pointer helps you to easily find the geometric feature you want to measure. Set the sharpness of the surface to be inspected first. You'll then be able to locate the feature precisely.

**Note:** If a lens with either a 0,5x, 0,75x, 1,5x or 2x magnification is added on some vision machines, the value that relates to the laser pointer will be wrong for the reason that this component is not coaxial to the zoom. A further setting according to the used lens will consequently be needed. (Conversely, changing the magnification value on the zoom will not affect the laser pointer).

### 4.7 Shape of the reticule



A mouse click on the **Reticule** icon lets you change the type of the sight you want to use for your measurements.

Available reticules



The angle between the lines as well as the alignment of the reticule can be changed, but only for the sight.



(For a further description, see chapter 10.9).

### 4.8 Colour of the reticule



To change the colour of the reticule, click on the **Reticule Colour** icon.

Available colours

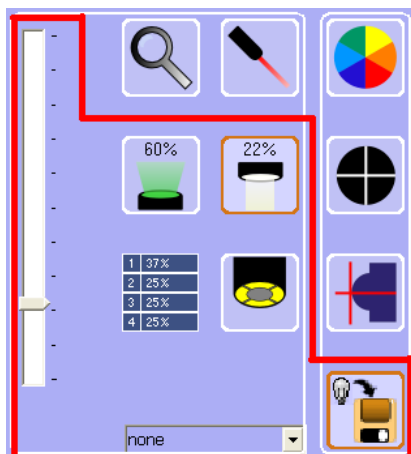
White, green, amber, yellow, red, violet, blue, black.


## SYLVAC-REFLEX Vista

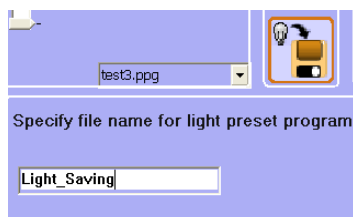
### 4.9 Saving of the light parameters



The saving of the light parameters allows to rename and save the parameters of the different lightings (diascopic, ring light, coaxial)



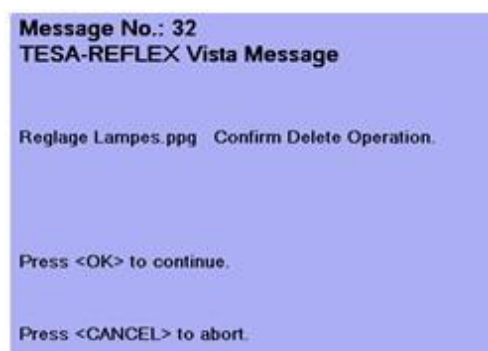
Simply set the parameters of the different lights and click on the save lights icon, choose a name and validate by clicking on the icon .



#### 4.9.1 Delete lighting parameters



Right click on the menu down-arrow to delete the lighting parameters.



Confirm or cancel delete operation to continue



## 5 MEASURING PRINCIPLE

### 5.1 General rules

In order to achieve a good accuracy level when collecting points with your vision machine, some rules must be observed.

It should be obvious that good surrounding conditions will enhance the accuracy, but also the repeatability of the measured values. Such conditions involve a constant surroundings temperature, no vibrations, a clean part as well as a stable ambient light.

In addition to these rules, paying a special attention to the chapters that follow will further improve the measurements taken with your machine.

#### 5.1.1 Magnification

The highest degree of precision is achieved when the zoom is set to its highest magnification value.

Thereby, the resolution of the video image will be optimum with the points taken most accurately. Focusing (to get a sharp image) will also be made more precisely .

**Note**

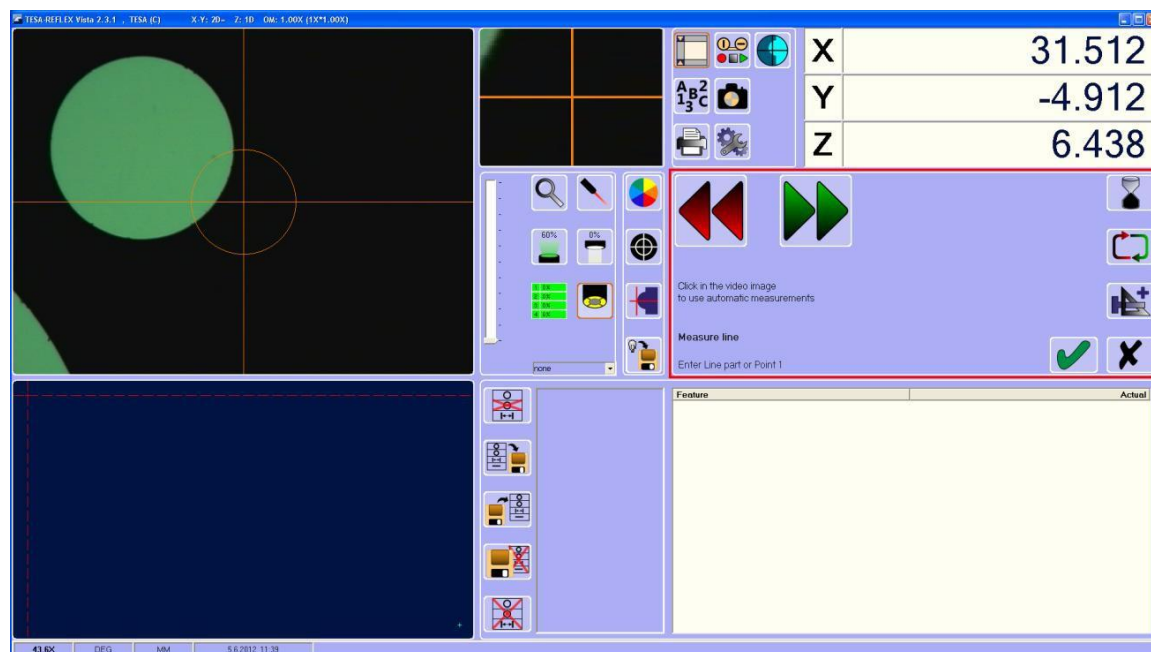
*It is advisable to maintain the magnification as set throughout a measurement series.*

#### 5.1.2 Constant illumination

Although the light intensity can be conveniently set for the part to be measured, swapping from diascope to episcopic illumination must be avoided. This rule should be observed so as to eliminate undesirable perspective effect, otherwise positional errors whose amplitude will depend on the thickness of the measured part could occur.

## 5.2 Measurement screen

Before starting measuring the features you need to achieve desired results, make sure the part is clean and firmly attached on the measuring table, if necessary. This part should be conveniently illuminated with the video image appearing as sharp as possible.



Once desired geometric feature has been selected, the icons shown below are displayed.



**Enter** Takes a data point in the middle of the reticule or capture the measurement area as defined in the automatic detect mode.



**Auto Enter** Collects data points automatically.



**Delete** Erases last captured data point.



**Loop** Repeats the calculation of a geometric function, without the need for the **Validate** icon or the one of the chosen measurement to be enabled.



**Cancel** Disables active function. Data points remain unsaved.



**Recall feature** Adds a feature previously measured or built during a new measurement.



**Validate** Calculates highlighted feature. Results of the active function are computed on the basis of each collected point.


### 5.3 Collecting data points

SYLVAC-REFLEX Vista offers various possibilities for collecting data points, i.e.:  
Manual, half-automatic or fully automatic data point acquisition. Edges can also be detected automatically.

#### 5.3.1 Taking points using ENTER




First choose the feature you want to measure (e.g. a point), and then position the reticule (sight) on desired point.  
- Click **Enter** to save the position of the chosen point (or middle mouse button).

- Press **Validate**  to end the measurement (or right mouse button). The coordinates of the point are saved.

#### 5.3.2 Taking points using AUTO ENTER



Choose the feature you want to measure (e.g. a circle).

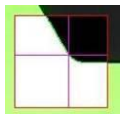
- Click **AUTO ENTER**. Default value for the waiting time is 750 ms (see chapter 10.8).
- Move the measuring table to have the reticule positioned on desired point.
- Stop moving the table for 750 ms. A beep sound confirms the acquisition.
- Continue moving the table to take another data point. Stop moving for 750 ms, get confirmation that the second point has been taken, and so on.
- Click **Validate**  to end the measurement (or right mouse button).



#### 5.3.3 Taking points using the edge detector



The automatic edge detection eliminates the need for precisely aligning the edge of the part with the cross lines of the reticule. This makes the measurement not only easier, but also faster and more accurate with increased repeatability.

The edge detector measures both XY-coordinates of the point lying nearby the centre of the video image. It works in real time, even with a low light intensity. The size of active window for the video image matches 100x100 pixels. The detected point appearing in real time will match the centre of the reticule.



- Click the **Edge Detector** icon .
- Position the edge of the part to be measured within the active window of the edge detector.
- Take the point related coordinates through **ENTER** (or middle mouse button).
- End the measurement through **Validate**  (or right mouse button).


#### **Note**

*The edge detector won't be able to achieve desired accuracy unless it is calibrated. (For more details with respect to this, report to chapter 10.11).*



### 5.3.4 Taking points using the automatic ridge detector

This program function lets you capture a circle or a line automatically from the video image.

- Click some data points on the video image (note that the mouse cursor changes into a target ).

#### Circle

Take 3 data points moving the mouse counter clockwise.

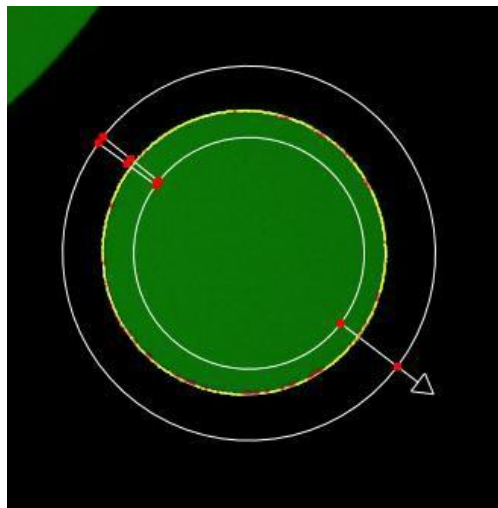
#### Line

Take 2 data points defining both ends of the detect area.

- As soon as desired zone is clearly defined, you may extend or reduce its size. You may also drag it to enable desired ridge to be selected precisely.




The feature coloured yellow matches the computed one.



- Click **Enter** to validate the measurement or use the middle mouse button.  
If the chosen feature (circle or line) appears partly only on the video image, it can be measured based on several successive detect areas.

Whenever the selected zone is unsatisfactory, double-clicking with the left mouse button will skip it.

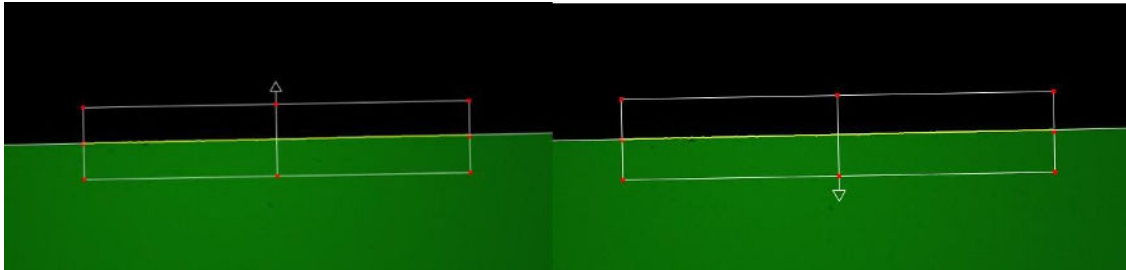
- Click **Validate**  to end the measurement.  
(Clicking the right mouse button is same as clicking the **Validate** icon).

#### Note

*Since dust particles and burs are not filtered, they may be the cause of alteration of the measured values.*

### 5.3.4.1 Targets in SYLVAC Vista

The Graphics Display window shows the scan direction using an arrow in the target. You can reverse this direction to select edges from dark to light or vice versa.



### 5.3.5 Advantages of the automatic detection

#### Greater comfort

Carrying out a measurement series without the aid of the edge detector can tire the operator's eye. This is particularly true for the measurements taken using a low light intensity.

#### Lower value dispersion

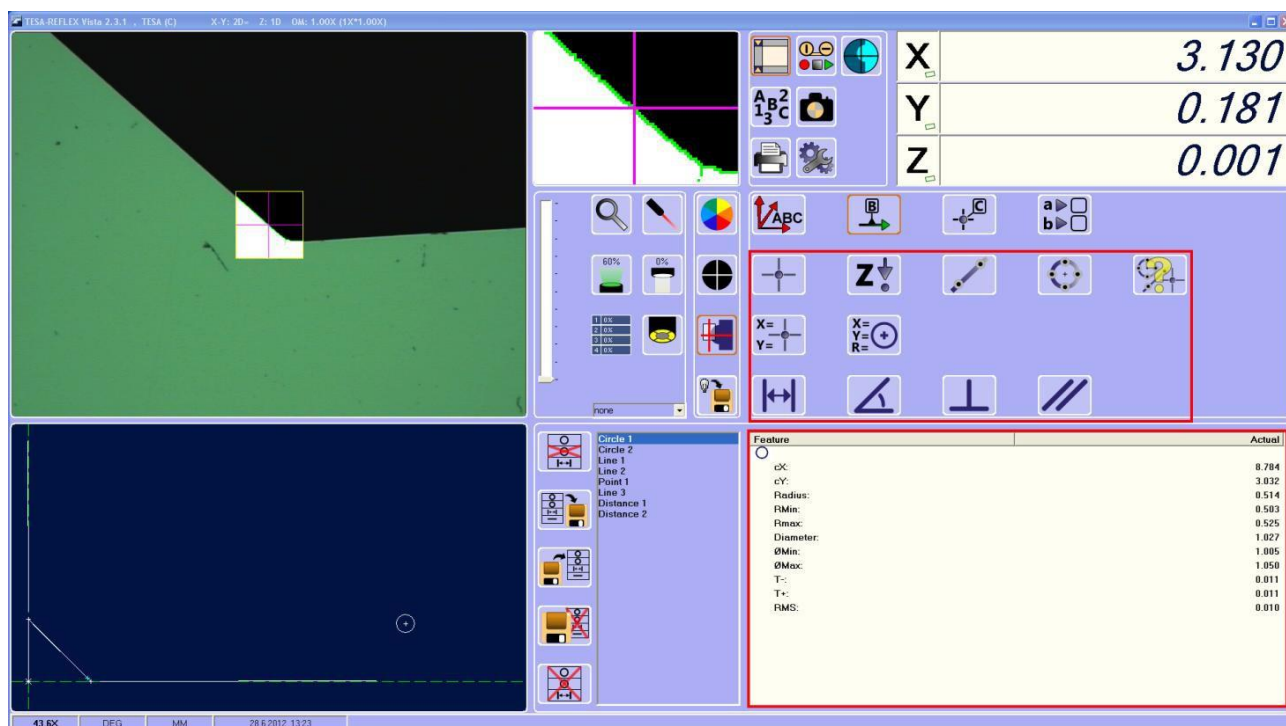
Human eye accuracy combined with the size of the reticule makes it difficult, or even impossible, to achieve a repeatability below the pixel.

#### Objective reliability

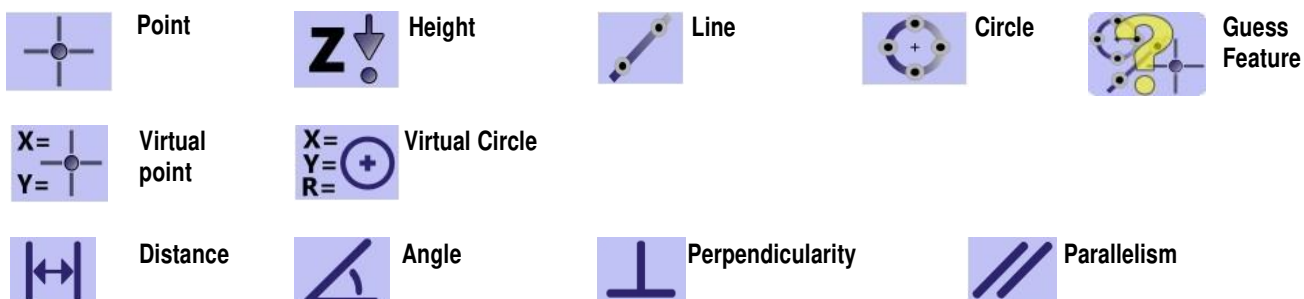
The operator needs not to ask for its visual appreciation when taking data points.

## 6 MEASURING FUNCTIONS


### 6.1 Results screen



### Geometric Features



### Geometric Features results' visualization window

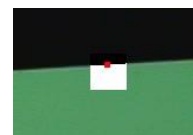
Feature	Actual
	
cX:	17.323
cY:	-7.947
Radius:	0.501

## 6.2 Point



This function stores each XYZ coordinate of a data point in the memory.

By selecting a point on the video image, SYLVAC-REFLEX Vista automatically detects the closest edge and position the measuring point on it.



If several points are taken as arguments, the middle position – or mass centre – of this set of points will be calculated.

Each relevant data point can either be measured or computed over a mouse click on this icon



### Results obtained

Feature	Feature	Actual
X:		0.448
Y:		0.237
Z:		1.750

### Feature construction (examples)

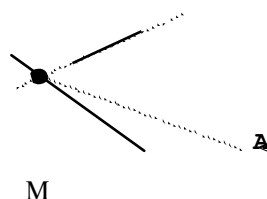
#### Line M

(Midpoint of the measured line).



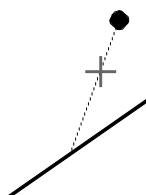
#### Angle A

(Intersection of two lines forming an angle).

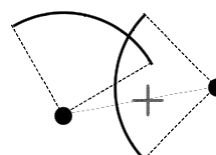


### Mass centre calculation (examples)

#### Point and Line



#### 2 Circles

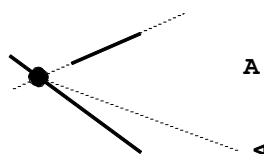


Whenever existing features are used (mouse click on the **Recall Feature** icon ), SYLVAC-REFLEX Vista will

calculate all possible intersection points (note that you'll be unable to use the **Slot** function).

### 6.2.1 Intersection Line-Line

The resulting point matches the intersection of both lines. Should these two lines be strictly parallel, you'll get an error message.



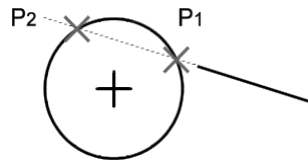
#### Note

If the two lines form an angle that's very small, the resulting point might be significantly distant.

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### 6.2.2 Intersection Line-Circle

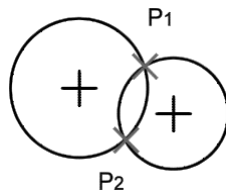
If the extended segment of the line intersects the circle, two points will be built.



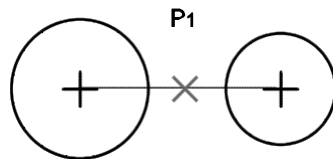
If the extended segment of the line is tangent to the circle, a single data point only will be built (contact point).  
If this segment doesn't intersect the circle, you'll get an error message.

### 6.2.3 Intersection Circle-Circle

If both circles intersect, a pair of data points will be built.



If not, the midpoint between the centres of each circle will be built.

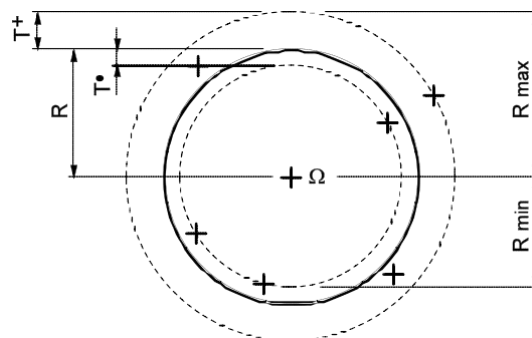


### 6.3 Circle



The **Circle** function delivers many results obtained from a set of data points forming a circle. This function uses a least square algorithm to compute the mean circle passing through the centre of the measured points. At least 3 points are required for calculating a circle. Should this number be higher, additional results will be displayed.

#### Computed results



- (Cx, Cy, ...) = Coordinates of the centre of the calculated circle.
- R, D = Radius with associated diameter ( $D=2R$ ).
- $T+ T- =$  Max/Min tolerances of the radius defined as the longest or the shortest distance between the calculated radius R and the most inside or outside data point ( $T+ = T- = 0$  where the number of measured points is as high as 3).

Feature	Actual
	
cX:	-1.978
cY:	-3.190
Radius:	0.746
RMin:	0.728
Rmax:	0.754
Diameter:	1.492
ØMin:	1.457
ØMax:	1.508
T-:	0.018
T+:	0.008
RMS:	0.000

- RMS = Standard deviation of the radius (RMS = 0 where the number of measured data points is as high as 3).

- Rmin, Rmax = Min/Max radius calculated by combining R value with both tolerance values T+ T-.  
Rmin = Rmax = R where the number of measured data points is as high as 3).
- Ømin, Ømax = Min/Max diameter calculated by combining D value with both tolerance values T+ T-.  
Ømin = Ømax = D where the number of measured data points is as high as 3).

#### Note

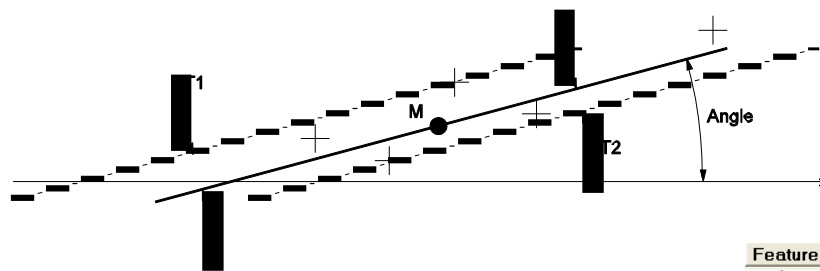
Best results will be attained when the points are distributed all around the circle to be measured (minimum 30% of the full circle). Precision also increases with the number of points defining the circle.

### 6.4 Line



The **Line** function uses a least square regression algorithm to compute the best-fit line segment. This requires at least two points. If more than two points are taken for the calculation, additional results will be displayed.

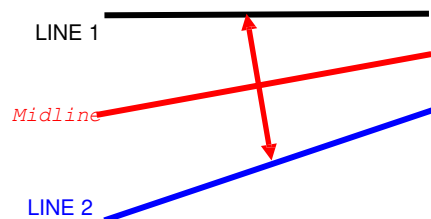
#### Computed results



- M = (Mx, My ...) Midpoint on the best-fit line segment.
- Angle = Relative angle between X-axis and line segment.
- T1 and T2 = Transverse deviations around the line segment.  
(T1 = T2 = 0 where the number of points used for this calculation matches 2).
- RMS = Standard deviation (RMS = 0 where the number of points used for this calculation matches 2).

Feature	Actual
cX:	18.847
cY:	-7.619
Angle:	86.351
T-:	0.005
T+:	0.005
RMS:	0.003

Should you build a line including two additional lines, the system will calculate the midline between both of them.



### 6.5 Angle



The **Angle** function calculates the angle between the two lines and the intersection point where these lines intersect).

#### Computed results:

- A = Intersection related coordinates. Note that this point might be located outside the segments defining the lines.
- = True angle formed by the lines. This angle can either be expressed in decimal degrees or in degrees/minutes/seconds. Screen also shows auxiliary angles (i.e. A-90°, A-180°, A-360°).


Feature	Actual
X:	-0.000
Y:	-0.000
Angle:	89.988
90-A:	0.012
180-A:	90.012
360-A:	270.012

## 6.6 Distance



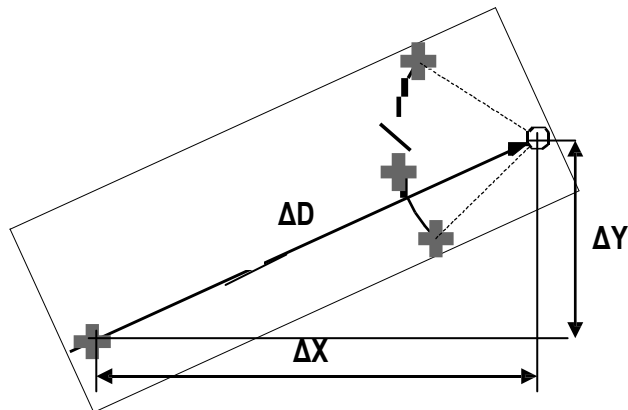
The **Distance** function calculates the distances  $X$ ,  $Y$ ,  $Z$ , but also the two-dimensional Euclidean distance between two geometric features.

Cases where the distance is computed (see opposite).

Feature	Actual
	
$\Delta X$ :	0.000
$\Delta Y$ :	16.993
$\Delta Z$ :	0.008
Distance:	16.993
Min:	12.990
Max:	20.997

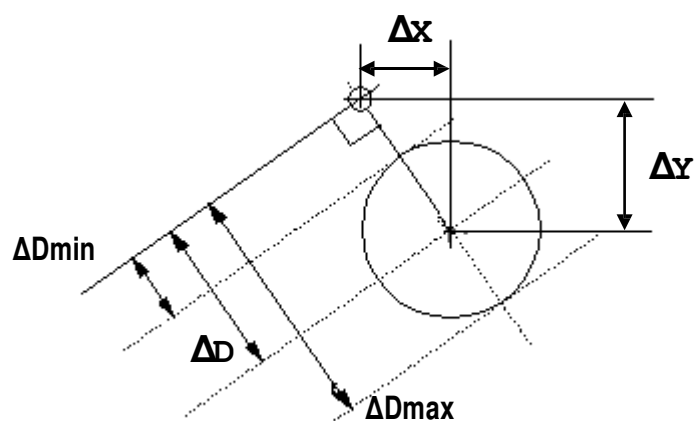
### 6.6.1 Distance Point-Point

This distance is calculated from a distinctive point of each feature, e.g. the one of the intersection of both lines for the angle or the centre for the arc of circle.



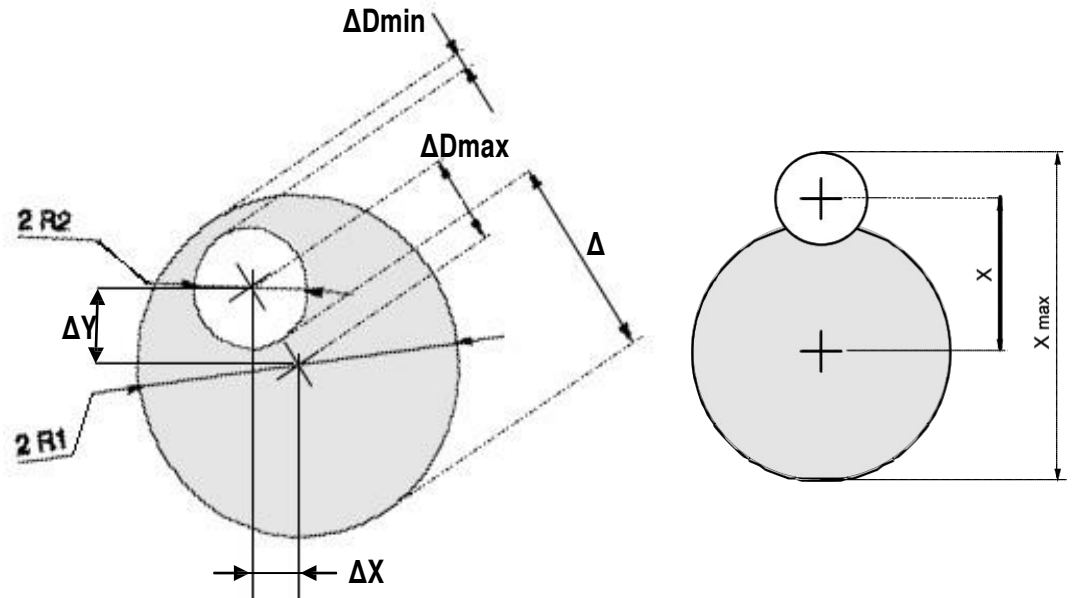
### 6.6.2 Distance Circle-Line

This distance is computed between the centre of the circle and the nearest point on the line (perpendicular distance to the line). Note that this data point could well be lying outside the segment that defines the line. Two other distances will additionally be computed between both nearest and farthest points on the circle and on the line. Should the line intersect the circle, the shortest Euclidean distance will match zero.



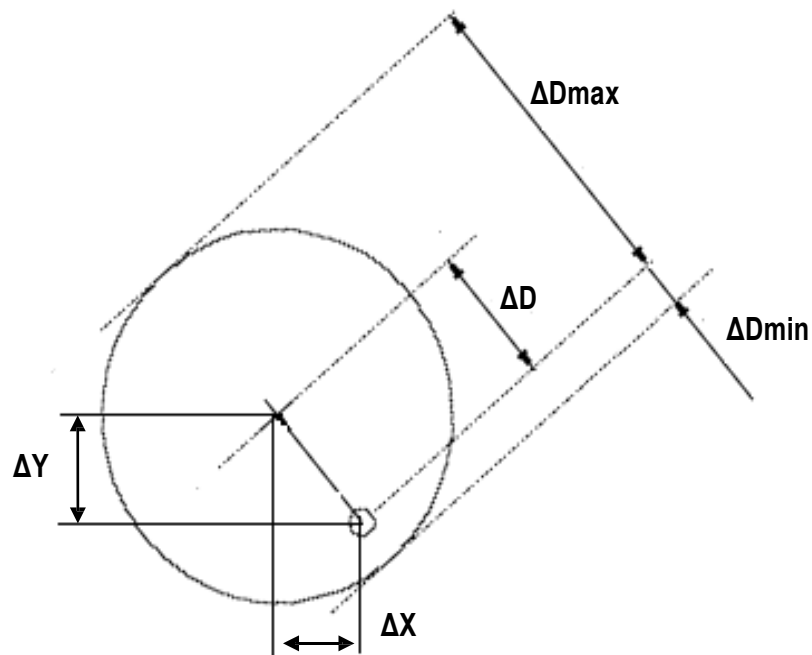
### 6.6.3 Distance Circle-Circle

The distance between the centers of the two circles is calculated. Two other distances will additionally be computed between the nearest and the farthest points on the circumference of the circles (minimum distance). If both circles intersect, the shortest distance will match zero.



### 6.6.4 Distance Circle-Point

The distance is calculated between the centre of the circle and the point, along with two additional distances between the point and the circumference of the circle (longest and shortest distances).

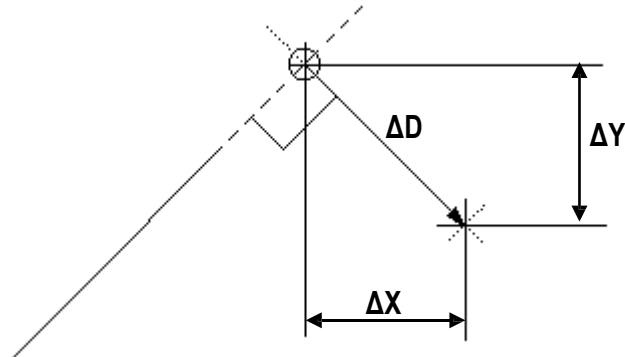




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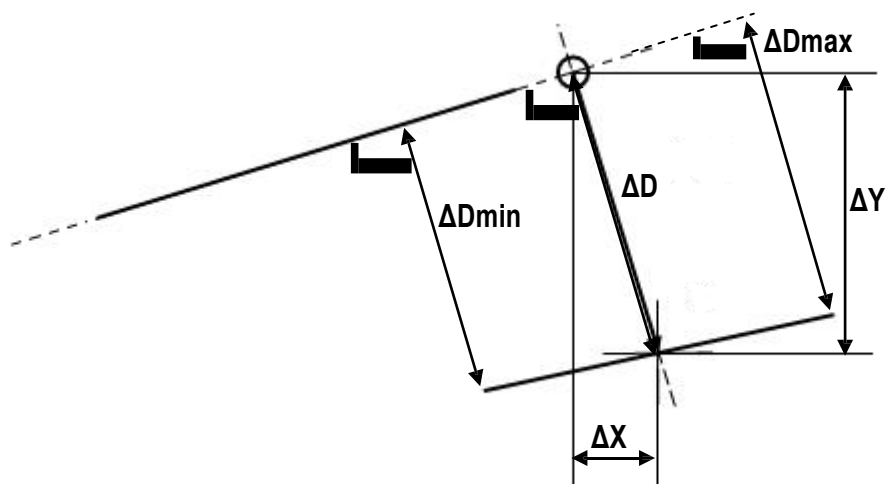
### 6.6.5 Distance Line-Point

The distance is calculated between the line and the nearest point on this line (perpendicular distance to the line). Note that this point could well be lying outside the segment that defines the line.



### 6.6.6 Distance Line-Line

The distance is calculated perpendicular to the first selected line and the midpoint of the segment defining the second line.



#### Computed results

- $D$  = Perpendicular distance of the first line against the centre of the second line.
- $D_{min}$  = Shortest perpendicular distance of the first line, from the nearest point of the second line.
- $D_{max}$  = Longest perpendicular distance of the first line, from the farthest point of the second line.
- $\{ X; Y \}$  = Cartesian distance of the centre of the second line, at its projection point on the first line.


## 6.7 Perpendicularity



This function is used to determine the perpendicularity error of two lines.

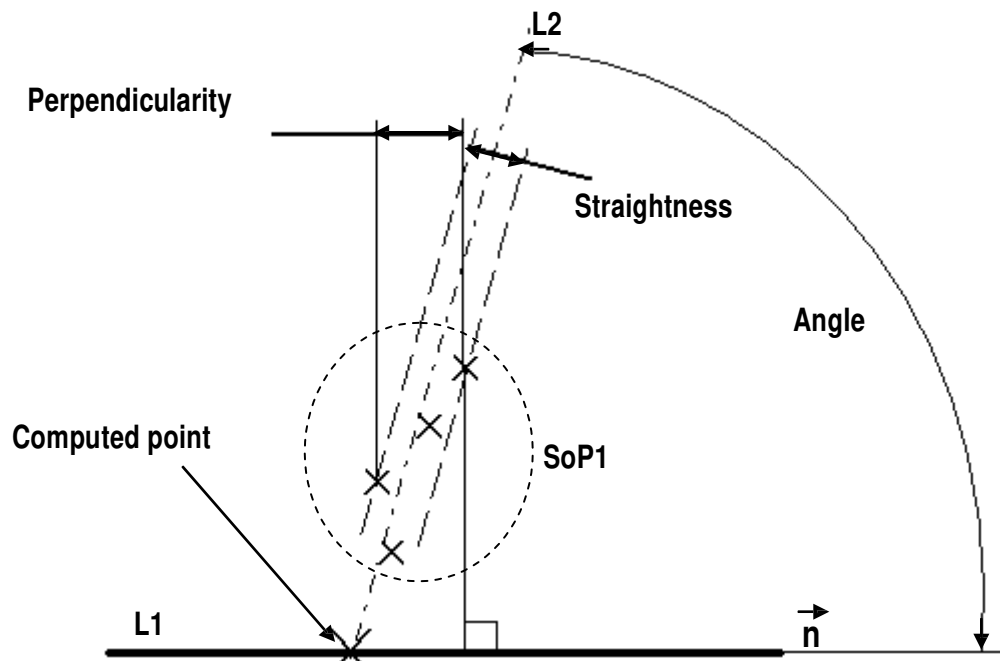
### Computed results

- Angle = Angle formed by both lines.
- X, Y = Coordinates of the intersection of both lines.
- P = Perpendicularity error between the first selected line (datum line) and the second line (feature).
- Straightness = Straightness error of the second line (feature).

Feature	Actual
	
X:	-0.000
Y:	-0.000
Z:	6.191
Angle:	90.012
Perpendicularity:	0.005
Straightness:	0.000

### Detailed computation

The perpendicularity error is computed based on the first line taken as datum line. This line is defined as the extension (width) of the second feature in a direction lying parallel. This extension is measured using the points of the second feature.



On the above example, the line **L1** is the datum line whereas line **L2**, drawn from a set of points (**SoP1**), is the feature related line. The perpendicularity error **P1** is determined through the points distributed along the **n** direction, which is defined through the datum line **L1**. Straightness of Line **L2** is shown for information only.

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### 6.8 Parallelism



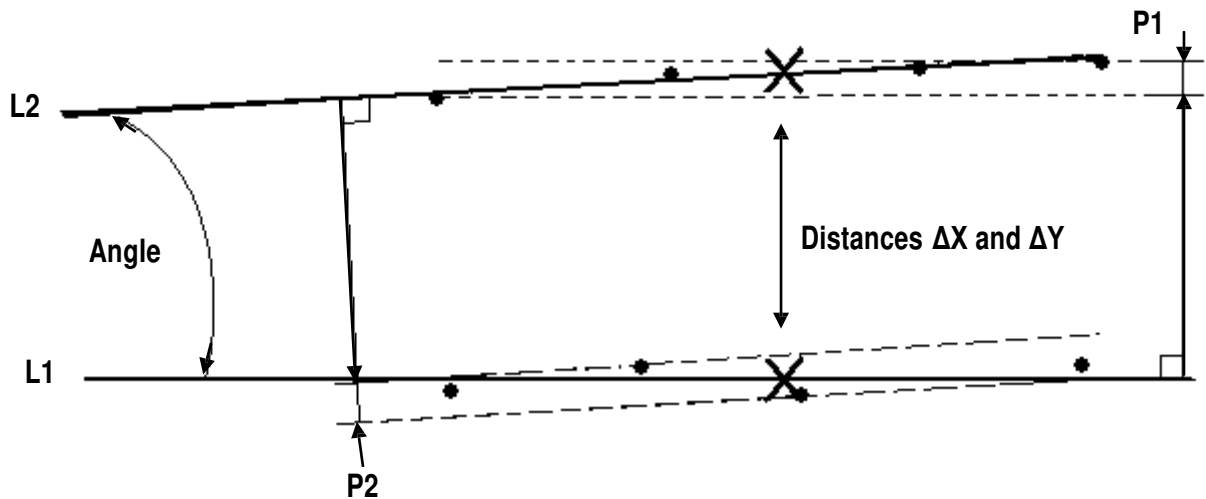
This function is used to calculate the **parallelism error** of two lines.

#### Computed results

- Angle = Angle formed by the two lines.
- $\Delta X$ ,  $\Delta Y$  = Distance between both mass centres of the lines (midpoints).
- P1 = Parallelism error of the second line against the first line (datum line).
- P2 = Parallelism error of the first line against the second line (datum line).

Feature	Actual
	
$\Delta X$ :	-26.212
$\Delta Y$ :	-18.499
Angle:	90.012
Parallelism:	24.977
Parallelism2:	9.783

#### Detailed computation



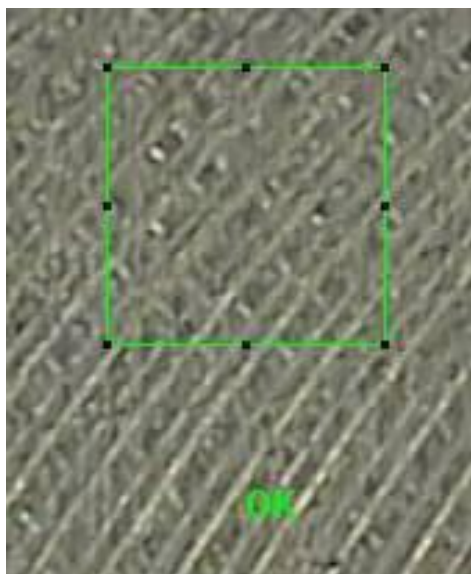
### 6.9 Height




The **Height** function can be run to measure a point  $P = \{X, Y, Z\}$  on a flat, textured surface. This function is based on an algorithm used for image analysis. Both the size and position of the relevant image are varying (default value matches 50x50 pixels at the centre of the image). Four images need to be captured subsequently while both XY-axes remain into position.

### Procedure

- Enable **height** function.
- Set the size and position of the area you're interested in using the mouse.




- Move Z-axis until you get a sharp image. Click the **Validate** icon .
- Move up Z-axis slowly until **OK** is displayed, then validate. The message **Move Up** or **Move Down** tells you the correct direction.
- Adjust Z-axis until you get a sharp image, then validate. As soon as this is done, display shows **OK** instead of **Set Focus**.
- Move down Z-axis slowly until **OK** appears, then validate.
- Measurement is completed.

**Note:** To achieve the highest precision level, we advise to take the following precautions:

- Use the highest magnification.
- Adjust Z-axis until you get the sharpest possible image.
- Avoid vibrations.
- Make sure the surface to be measured is centred on the reticule.

### Computed results

Note that both XY-coordinates are displayed for information only.


Feature	Actual
	
X:	31.179
Y:	-11.893
Z:	6.174

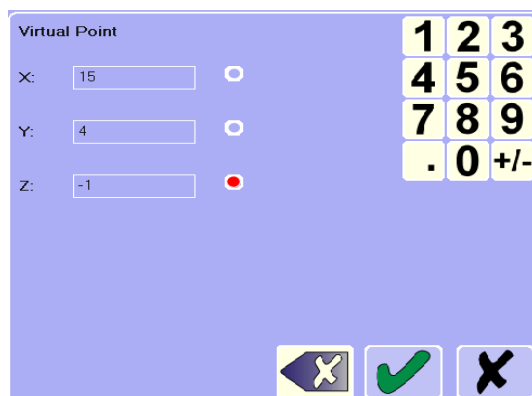
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### 6.10 Virtual Point



Run this function to create a virtual point after you've entered its XYZ coordinates along with its radius R against its origin.

- Choose desired coordinate axis using the pointer (e.g. X).
- Enter relevant value (e.g. 15 mm).
- Proceed in the same way for all other axes.
- Finally click this icon  to validate.




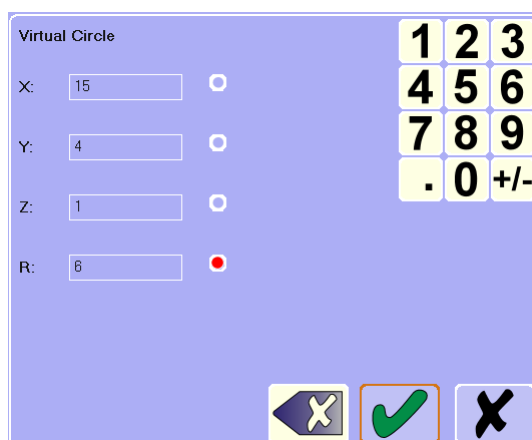
Clicking this icon will erase a wrong entry.

### 6.11 Virtual Circle



Use this function to create a virtual circle after you've entered its XY-coordinates along with its radius R against its origin.

- Choose desired coordinate axis using the pointer (e.g. X).
- Enter relevant value (e.g. 15 mm).
- Proceed in the same way for all other axes along with radius R.
- Finally click this icon  to validate.



Clicking this icon will erase a wrong entry.



## 6.12 Guess Feature

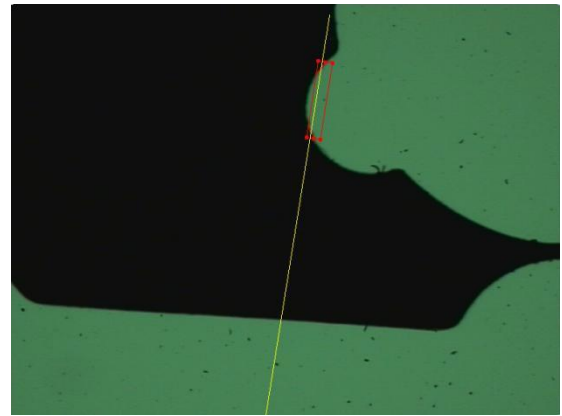


The Guess Feature function automatically recognizes the shape of the measured elements according to the number of selected points. Like on other functions, select the elements on the shape either by clicking on the video image or with the help of the edge detector.

1 selection = 1 point




2 selections = 1 line





3 selections = 1 circle



Once the points are selected, validate by clicking on the icon  , then press the following button



### 6.12.1 Constructing elements with the Guess Feature function

It is also possible to construct elements with the Guess Feature function by clicking on the following icon  then selecting the features either with the video screen or with the graphic view, once the features are selected, validate with the  tab.

The principle remains identical, 2 selected elements build a line and a third one will build a circle. These elements have the same functionalities as those that are explained in the chapters 6.2, 6.3 and 6.4.

## 6.13 Rename a feature




It is possible to rename the features by double-clicking on their name and validate with the enter tab.

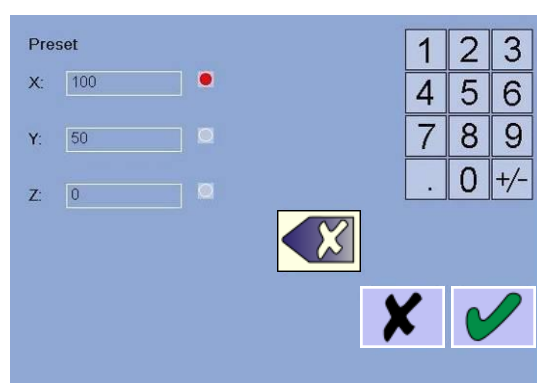
## 7 PART ALIGNMENT (SKEW)

### 7.1 Preset




The **Preset** function is used to enter XYZ numerical values manually. Each entry will redefine the position of the reticule, thus moving the origin of the part.

- Choose desired coordinate axis using the pointer (e.g. X).
- Enter relevant value (e.g. 100 mm).
- Proceed in the same way for both YZ-axes.
- Finally click this icon  to validate.



X	100.000
Y	0.070
Z	-0.245

Clicking this icon will erase a wrong entry. 

### 7.2 Zeroing any axis


Choose desired axis with the aid of the pointer (e.g. Y).. The origin of the part is moved.

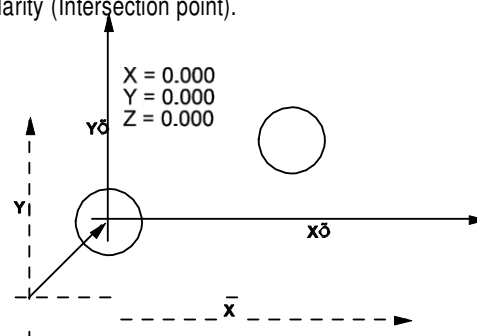
X	-0.114
Y	0.000
Z	-0.245

### 7.3 Origin



The **Origin** function enables you to move the origin of each X, Y and Z axis to desired feature. This function can be run for a circle, a point, an arc of circle, an angle or a perpendicularity (Intersection point).

- Select desired circle.
- Click this icon  to move the origin to chosen feature.



## 7.4 Creating a datum system

Before starting measuring, it is advisable to build a datum system for the part to be measured. This system will help you to accurately measure the part features between them.

A datum system takes a misalignment of the part on the machine into account, and delivers an absolute zero (coordinates of the part). All the part features will then be measured based on this zero value.

Run the **Alignment** function to create a datum system.

## 7.5 Alignment



Enabling this function lets you create an alignment (skew) besides an origin for the part being inspected. All feature related coordinates will refer to both of them during any subsequent measurement.

The User's interface displays some information, telling you that a skew has been created (see below).

The colours on the icon and those of the axes on the graphical screen are no longer the same (red to green).



The letters XYZ appearing in the DRO are in italics, and a graphic sign has been added.

X	-0.114
Y	0.000
Z	-0.245



X	<i>0.024</i>
Y	<i>-0.646</i>
Z	<i>0.356</i>

### Note

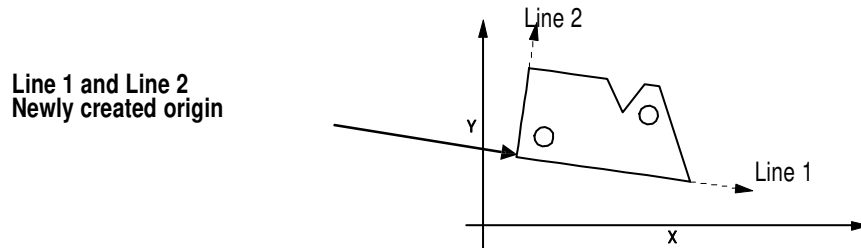
Once a new alignment has been created, any displacement in a single table axis may cause both X and Y values to change.








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### 7.5.1 Alignment with two lines

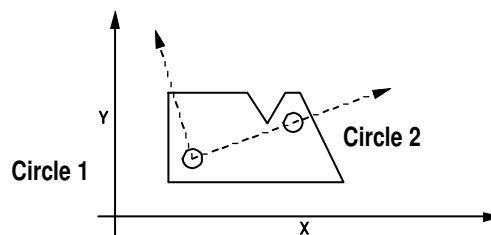
The use of two lines allows a positioning at the corner of the part to be measured.






- Click the **Skew** icon 
- Take several points for the first line (1) while either clicking the icon  or recalling existing measurements (point, arc of circle or angle) over this icon 
- Click  to validate the computation of this line.
- (An existing line can also be used by clicking the **Recall Feature** icon ).
- Proceed in the same way for the second line (2).
- New datum system is built.

The **first line** matches the **datum line** (coordinate axes positioned against this line).  
The **origin** passes through the **intersection point** of these two lines.

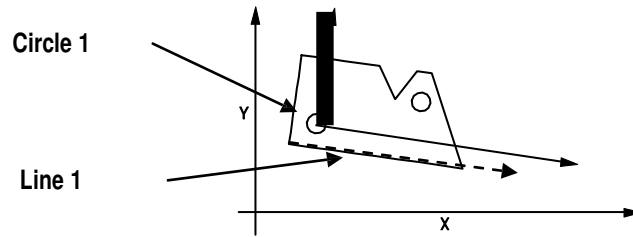
### 7.5.2 Alignment with two circles









- Measure both circles using the **Circle** function 
- Click the **Skew** icon 
- Select the first circle, and click the **Recall Feature** icon 
- Proceed in the same way for the second circle.
- New datum system is built.

The **line** passing through both circles 1 and 2 matches the **datum axis** (coordinate axes positioned against this line).  
The **first circle** is the new **origin**.





### 7.5.3 Alignment with a line and a circle



- Click the **Skew** icon 
- Take several points for the line whilst either clicking the icon  or recalling existing measurements (point, arc of circle or angle) over this icon 
- Click  to validate the computation of this line.  
(An existing line can also be used via the **Recall Feature** icon 
- Select the circle, and then click this icon 
- New datum system is built.

The **line** matches the **datum axis** (coordinate axes positioned against this line).  
The **Origin** is lying on the centre of the **circle**.

### 7.5.4 Alignment with a single line

- Click the **Skew** icon 
- Take several points for the line whilst either clicking the icon  or recalling an existing line over this icon 
- Click  to validate the computation of this line.


### 7.6 Alignment A-B-C (3D)



This function is used to create a new datum point based on a datum plane of the part to be measured. The calculation will then take the perpendicularity error between the part and the measuring table (mounting) into account.

#### Computation


- A** – Calculation of the datum plane  
This plane is defined on the basis of three **Height** data points (XY PLANE).
- B** – Calculation of the position  
This position is established on the basis of 2 data points (X-AXIS POSITION).
- C** – Calculation of the origin  
The origin is computed on the basis of a single data point.

Before **Skew A-B-C** can be enabled, you will have to collect 3 height data points (Z-axis) through the icon 

These points will shape the plane.

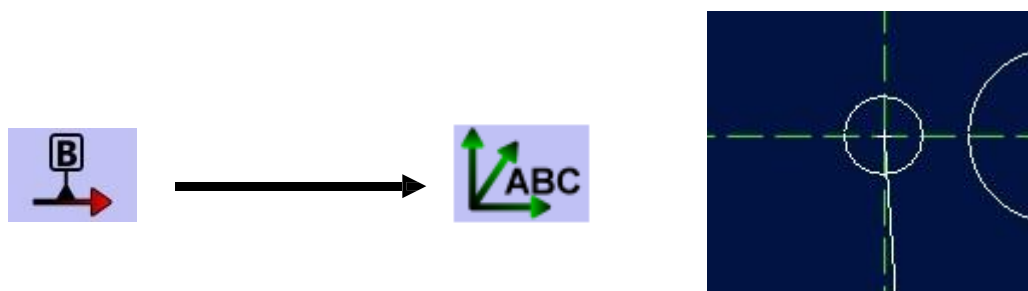
You'll also need to activate the **Recall Function** over the icon 

Two data points will shape the Z-axis position whilst the last point will create the origin of the datum point. These points can either be those of a point, an arc or a circle (midpoint), an angle (intersection of the two lines).

Some points can be taken over this icon 

The User's interface displays some information, so that you know that a skew has been created (see below).

The colours on the icon and those of the axes on the graphical screen are no longer the same (red to green).



The letters XYZ appearing in the DRO are in italics, and a graphical sign has been added.

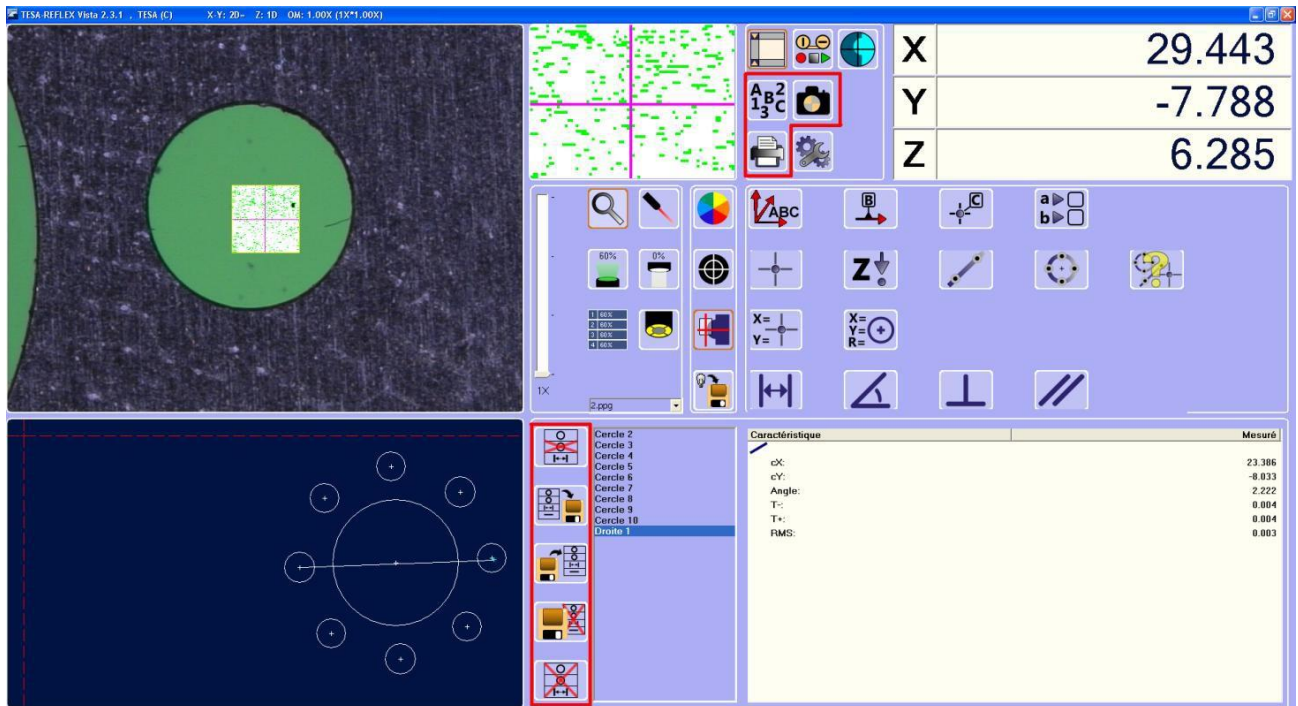
X	-0.114	→	X	<i>0.024</i>
Y	0.000		Y	<i>-0.646</i>
Z	-0.245		Z	<i>0.356</i>

## 7.7 Cancellation of a datum system

Enabling and exiting the **Skew** function causes actual datum point to be cancelled.

## 8 VALUE PROCESSING

### 8.1 Function related overview



Skipping selected feature.



Saving a measurement series.



Recalling a measurement series previously saved.



Cancelling a measurement series.



Deleting measured part features.



Generating measurement reports.

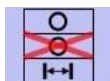


Screen capture.



Virtual keyboard

## 8.2 Skipping selected feature

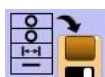


To skip a geometric feature:

- Choose desired feature.
- Click the **Delete** icon.

**Note:** Selected feature will be definitely skipped. Consequently, you'll need to remeasure or rebuilt it.

## 8.3 Saving a measurement series



This function makes it possible for geometric features to be saved in their whole. Assign a name to this measurement series.

The file containing the measured values is stored in the **Features** directory linked to the installation folder of SYLVAC-REFLEX Vista. (File extension SET)

**Note:** The file name can be an alphanumerical combination.

## 8.4 Recalling a measurement series



This function allows you to recall a measurement series previously saved. All the measurements can further be used for any new computation.

**Note:** Should you measure any new part feature, ensure that the part has remained into position, also that no origin on the machine was created in the meanwhile. Otherwise, the measurement results could be distorted due to the use of geometric features already saved.

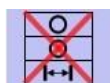
## 8.5 Cancelling a measurement series



Use this function to cancel the measurement series stored in the memory once appropriately selected.

Before this occurs, a warning message prompts you to confirm.

## 8.6 Deleting measured features



This function serves for deleting all measured features.

Before this occurs, a warning message prompts you to confirm.

## 8.7 Screen capture



Enable this function to save a full screen image in JPG-format.

This file (filename with the extension .jpg) will be available from the **Images** directory in the installation folder of SYLVAC-REFLEX Vista. Its name **CaptureScreen\_01.jpg** will be automatically incremented.

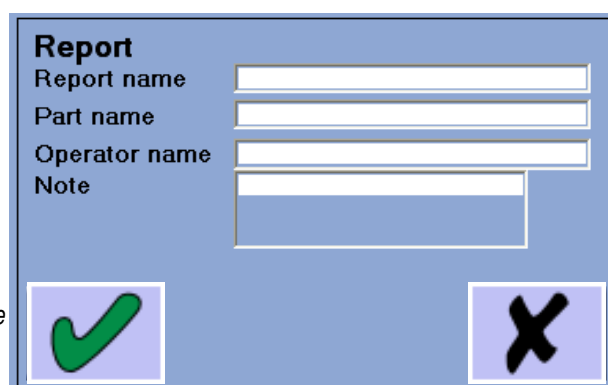
## 8.8 Measurement reports



This function permits measurement reports containing all measured part features to be generated.

Various data can be entered, which will then be used in the report header.

- **Report name** (used later as file name)
- **Part name**
- **Operator name**
- **Note** (3 lines available)



**Note:** If you don't assign a name to the report, it will be automatically input as follows:

**REPORT-hour-minute-second-date.**

The list containing all measurement reports will be displayed once Internet Explorer opens. The report appearing first will be the one lastly generated.

**Reports list**

Report name	Operator name	Part name	Date	Time	Software version
<a href="#">Report.html</a>	Jean-Philippe CHADRIN	TESA	28.8.2009	9:27	2.1.0
<a href="#">rapport_1.html</a>			25.8.2009	8:00	2.1.0
<a href="#">rapport2.html</a>			25.8.2009	8:00	2.1.0
<a href="#">Manuel d'utilisation.html</a>	JP CHADRIN	Tesa	19.8.2009	10:11	2.1.0
<a href="#">Cercle_0.html</a>			9.7.2009	8:34	2.1.0
<a href="#">cercle.html</a>			9.7.2009	7:58	2.1.0


Terminé My Computer

Reports are saved in reports directory in the installation folder of SYLVAC-REFLEX Vista with HTML extension.

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To view any report, just click its name.

Report name: **Report.html**  
 Operator name: Duain Brisco  
 Part name: SYLVAC  
 Machine name: SYLVAC-VISIO 300  
 Serial number: 068304003U020-1  
 Date/Time: 28.8.2009 / 9:27  
 Software version:  
 UNIT:  
 Skew:



Note:

measure for  
 manual  
 English

ELEMENT	POSITION	VALUE
Circle 1	cX:	3.709
	cY:	2.247
	Radius:	0.466
	Diameter:	0.932
	RMin:	0.453
	Rmax:	0.485
	ØMin:	0.906
	ØMax:	0.969
	T-:	0.013
	T+:	0.019
	RMS:	0.000
Circle 2	cX:	4.021
	cY:	-0.940
	Radius:	0.746
	Diameter:	1.492
	RMin:	0.728
	Rmax:	0.754
	ØMin:	1.457
	ØMax:	1.508
	T-:	0.018
	T+:	0.008
	RMS:	0.000
Oblong 1	X:	2.512
	Y:	-0.192
	Radius:	0.354
	Angle:	85.98
	X2:	2.422
	Y2:	-1.471
	Radius2:	0.356
Line 1	cX:	3.865
	cY:	0.654
	Angle:	95.60
	T-:	0.000
	T+:	0.000
	RMS:	0.000

### Notes

For optimum printing quality, set the margins as follows:

- LEFT                    10 mm
- RIGHT                  10 mm
- TOP                     10 mm
- BOTTOM                10 mm

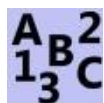
To edit the logo on the measurement report, simply replace the file **logo.bmp** in the directory **reports/res** available from the installation folder of SYLVAC-REFLEX Vista. If you experience any problem, reload the file **logo.bmp** from the installation disc of your machine.

The report header in HTML format is available under **header.html**.

Should you wish to send a report to another computer, then the entire **report** directory should be transferred so as to have all the logos available along with the listing.

You can, also, open this report with a like Word or Writer (OpenOffice) to modify contents.

## 8.9 Virtual keyboard



Enable this function to get the virtual keyboard provided with Microsoft Windows XP on your screen.

## 8.10 Importing data in spreadsheet program

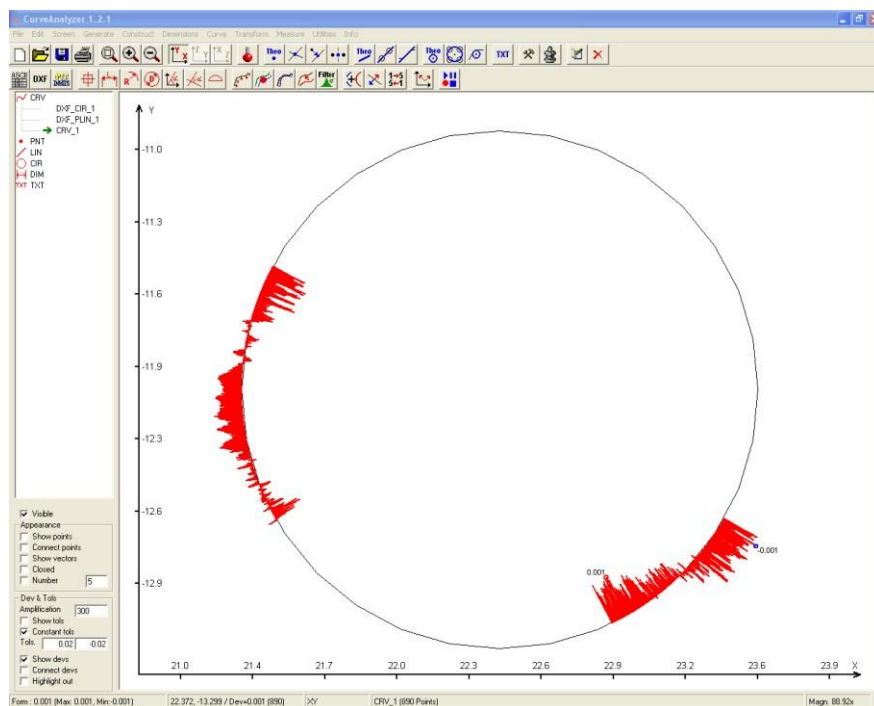
You may import data in spreadsheet program like EXCEL or CALC (OpenOffice) using the files **CSV** in the **Features** directory available from the installation folder of SYLVAC-REFLEX Vista. These files will be automatically generated as soon as a measurement series is saved. (See chapter 8.3).

## 8.11 Exporting data in DXF-format

SYLVAC-REFLEX Vista has the capability to generate a CAO DXF file (filename extension.dxf). This file will then provide you with all needed information on the measured part features. To open any of these files, access the **Features** directory in the installation folder of SYLVAC-REFLEX Vista. Each file will be automatically generated once a measurement series is saved. (See chapter 8.3).

### Note

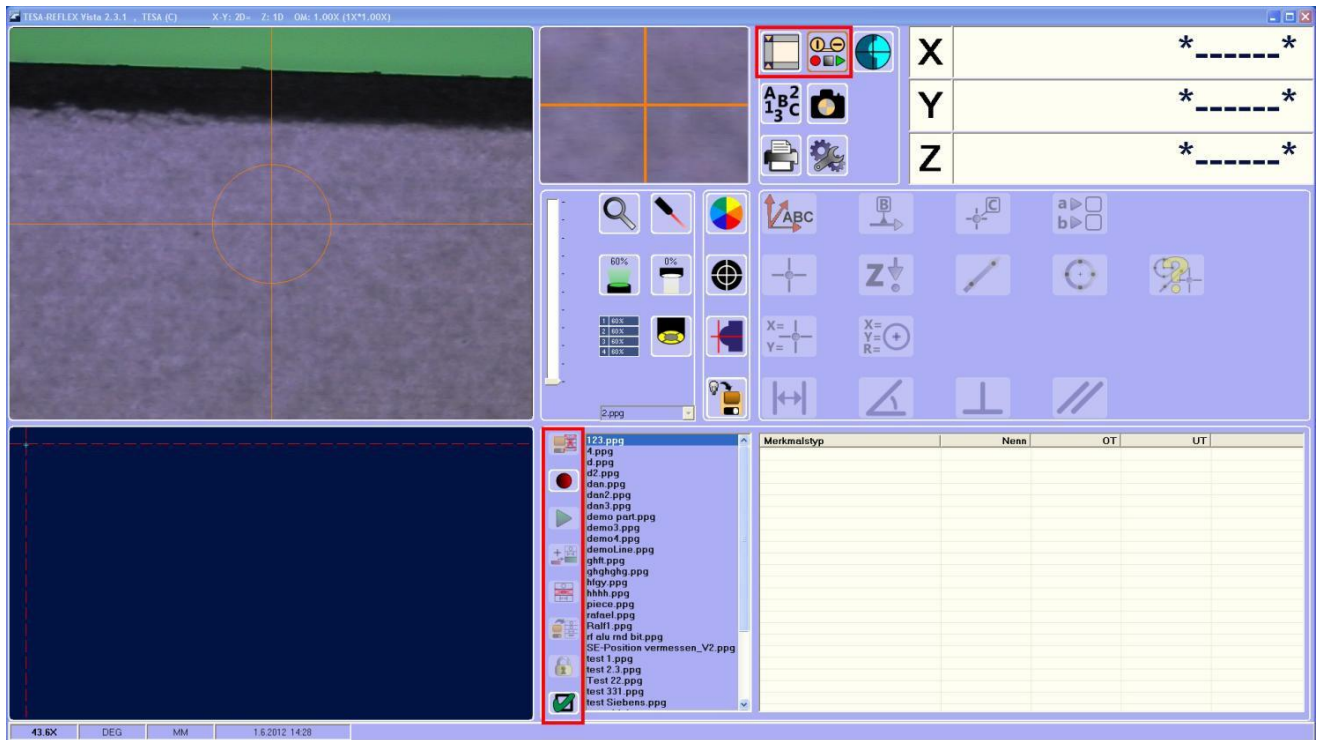
There are two data files available. The first one, whose name is identical to that of the measurement series stored in the memory, contains all part features (point, line, circle, arc of circle, slot). The second one, linked with the suffix **complete**, includes each measured data points for both the lines and circles. For example, this file allows comparisons using the **CurveAnalyser** software. (For further information with regard to this, visit the website <http://ams3d.astrei.com/>).





## 9 PROGRAMMING MODE

### 9.1 User's interface



Accessing programming mode



Accessing standard mode



Deleting a part program



Creating a part program (Teach Mode)



Executing a part program



Inserting a program step



Cancelling a program step



Loading a part program



Editing a program step



Setting default parameters (print outs)

## 9.2 General

SYLVAC-REFLEX Vista uses the **Teach** mode to generate a part program. Since all instructions are saved in the memory as soon as the first measurement of the part is completed, running this mode is very simple.




Taking the measurements involve that some rules are observed, i.e.:

- A part alignment should be built as soon as possible.
- Being the only datum point within the program, this alignment will have to match the drawing provided with the part.
- Changing light illumination and zoom value must be done before opening a measuring function, otherwise the program will not take these changes into account.
- All the functions available in the standard mode of SYLVAC-REFLEX Vista are not necessarily available in the programming mode. If so, all related icons are invalid (greyed).


## 9.3 Saving a part program



Follow the procedure described hereafter to save a part program.

- Enable the **Save** function 
- Enter the name of the part program.
- The **Programming Mode** changes to the save mode (animated icon).
- Measure 2 geometric features needed for building the alignment. **Line** and **Circle** are the only functions available at this time. Use for the automatic function is neither possible for these features.
- Recall both features previously measured over the icon  and click  to create the alignment.
- Measure the part using the following geometric features: point, line, arc, circle, slot, height, distance, angle, perpendicularity and parallelism. You may enter nominal values and tolerances for the features that were saved earlier, and choose which values should be printed out, whenever you will.

Feature	Meas	Nom	+Tol	-Tol
<input checked="" type="checkbox"/> cX:	26.406			
<input checked="" type="checkbox"/> cY:	29.529			
<input type="checkbox"/> Radius:	1.006	1.000	0.050	-0.050


- Click the **End** icon  replacing the **Save** icon to complete value storage.

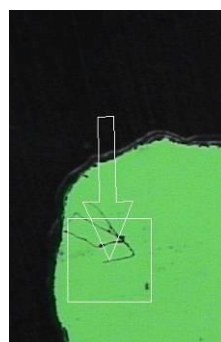
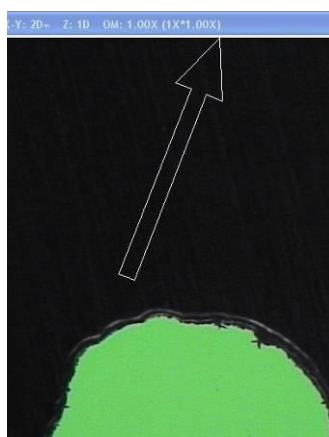
**Remark:** SYLVAC-REFLEX Vista saves 2 files with PPG and SFL extension, on the **program** directory in the installation folder of SYLVAC-REFLEX Vista



## 9.4 Executing a part program



In the programming mode, this routine allows reading a part program stored in the memory.

- Highlight desired part program and click this icon 
- If your machine is equipped with a manual zoom, a message prompts you to set or check the zoom value.
- Measure both features used to align the part. Once this is done, the feature to be measured starts flashing on the graphics screen. At first, all features appear in red, then in green as the program runs further. The last executed feature is highlight on the list.
- Alignment is automatically generated. All axes on the graphics screen are coloured green.
- At this stage, follow the instructions to measure the part. The needed settings are executed automatically (light illumination and magnification). If your machine is equipped with the manual zoom, you'll have to set the zoom manually. The arrow, on the video image along with the flashing square on the graphical screen, shows the position where to move in order to measure each feature. So that the detection tool can be displayed, position the square right in the middle of the video image.



- As soon as the last feature is measured, a message suggests executing a new measurement.
- At the end of the measurements (one single or several parts), you're prompted to enter the name of the report, that of the part and the one of the operator besides a final note. The measurement report is then saved in the **Reports** directory available from the installation folder of SYLVAC-REFLEX Vista. You can then view the measurements you move in the list of items of measurement. To return to the main menu and complete the performance press 
- To stop execution press 

**Note:** The program routine for use of the edge detector isn't stored. Therefore, this routine must be enabled manually as the program is being executed.

## 9.5 Loading a part program




To access all listed part programs available, click this icon



## 9.6 Editing a part program

### 9.6.1 Deleting a program step



Once a part program has been loaded from the list, the routine **Deleting a program step** is active as soon as the program option Modification is enabled  you want a line to be cancelled, highlight desired line, and then click the Delete icon.

To return press , the system will offer to save your changes or not.

#### Notes

- If this line is used within the program (e.g. a circle for building a line), you'll get a message, telling you that the selected program step cannot be deleted as long as dependents remain stored in the memory.
- The first two measurements on top of the list cannot be deleted since they match the program steps needed to compute the alignment.


### 9.6.2 Inserting a program step



So that a program step can be inserted, the part needs to be repositioned within the measuring volume.

- Highlight the program to be edited. Next start its execution, and measure both features needed for aligning the part.

The program routine **Inserting a program step** is now active.

- If you choose **no step** from the list before clicking the icon , then each step will be added at the end of the list.
- If you choose a program step from the list before clicking the icon, then each step will be added below the highlighted one.

**Note:** When one of both program steps on top of the list is selected (matching the measurements for the part alignment), each step will be added below the second line, thus appearing always after the alignment

If you insert a program step, you can not use the items found after the line you insert (they are not even measured!).

### 9.6.3 Editing a program step



Nominal values and tolerances along with printed results can be edited in any existing part program.

- Choose the part program you want to edit from the list.

- Click the icon , and then highlight desired program step. Finally edit relevant values.

**CAUTION:** The results displayed in this window correspond to the initial measurement (when the program has been created) and not far from the last piece.

- Click the icon  to quit this mode.

## 9.7 Setting default parameters



This function allows direct access to default parameters, which will be used when generating a measurement report.

The screenshot shows the SolidWorks interface with the 'Angle' feature selected in the Feature Tree. The PropertyManager on the right displays the 'Angle' feature with a value of 0.000 and a tolerance of 0.500. The 'Angle' feature name in the PropertyManager is highlighted with a red circle, and the 'Angle' feature in the Feature Tree is also highlighted with a red circle.

Choose the default parameter you want to be ticked for each function as a part program is being created. Proceed in the same way for nominal values and tolerances.

**Note**


Any parameters you want to be printed out can be edited for each single part feature throughout the programming operations.


## 9.8 Generating a measurement report



In the **Programming mode**, all needed data such as the report name that will be used later for data backup, the name of the part and that of the operator together with the final note must be entered accordingly.

<b>Report</b>	
Report name	<input type="text"/>
Part name	<input type="text"/>
Operator name	<input type="text"/>
Note	<input type="text"/>

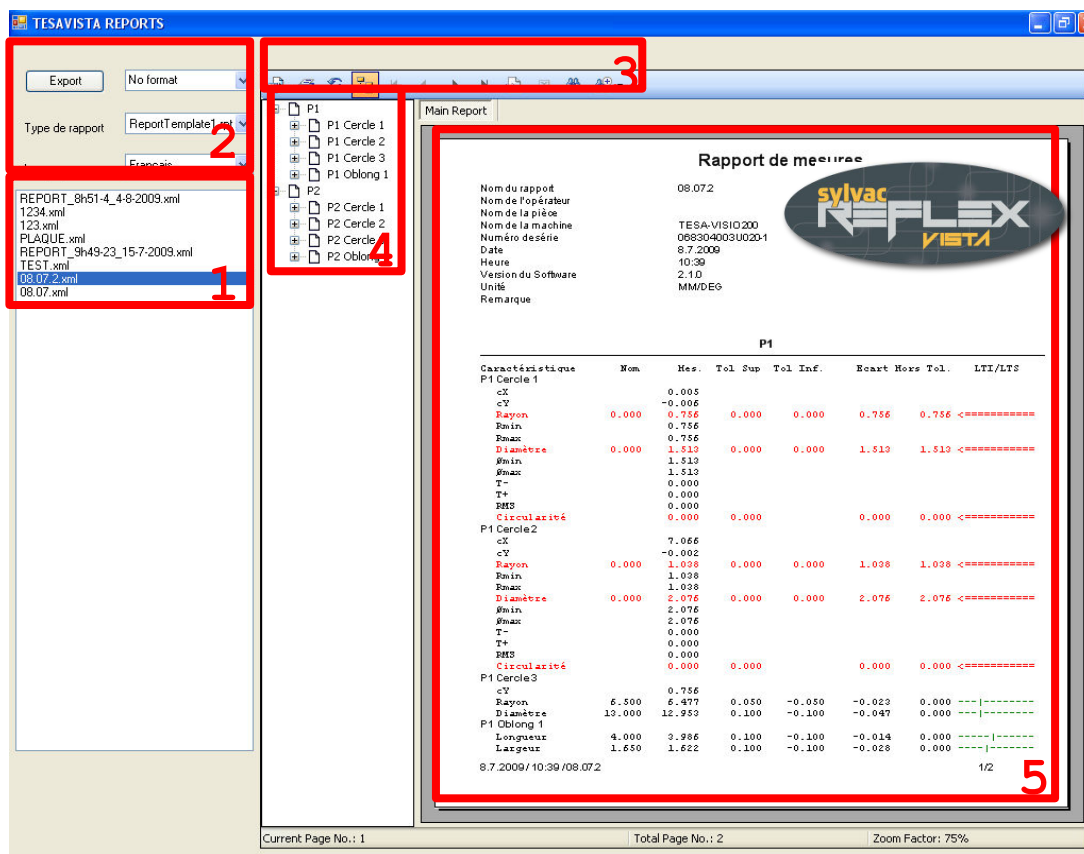






The measurement report is then saved into the **reports** directory of the installation folder SYLVAC-REFLEX Vista. A report in text format is also generated (CSV extension) to import into a spreadsheet like Excel or Calc from OpenOffice

Once this is done, a new window appears, listing all the reports that were previously issued.



## 1 List of all existing reports

The lastly created measurement report is shown on top of the list. If no name has been assigned to this report, it will automatically be named as follows:

**REPORT + Time and Date.**

## 2 Output parameter settings

These display fields let you set all relevant output parameters, i.e.:

### - Export format

The files are saved in the directory **reports/XML/Export** of the installation folder of SYLVAC-REFLEX Vista. The formats are Crystal report (RPT), PDF, Excel (XLS), Word (DOC), WordPad (RTF), HTML.

### - Report type

Two types of reports are currently available, but some other ones can be originated over Crystal Report, exclusively.

### - Language

English, Deutsch, Français, Español, Italian, Chinese, Japanese, Russian, Portuguese, Polish, Turkish, Slovenian, Korean, Hebrew, Bulgarian or Arabic.

### - Export

Export facility for the report in the desired format.

## 3 Tool bar

Includes all menu options necessary for processing the report (Print, Find etc.)

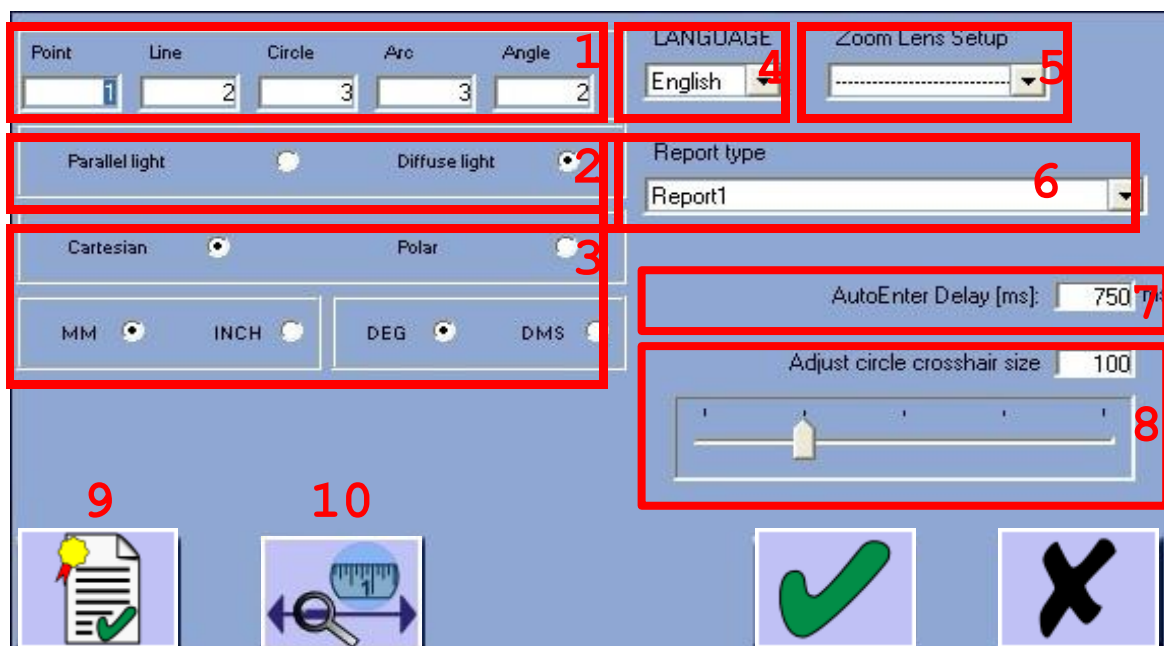
## 4 Feature list

List of each single feature included in the report.

## 5 Measurement report along with all measured values

## 10 PARAMETER SETTINGS

### 10.1 Setting screen

The screenshot shows the parameter settings screen with the following numbered callouts:

- 1: Feature selection buttons (Point, Line, Circle, Arc, Angle) with input fields.
- 2: Light source selection (Parallel light, Diffuse light).
- 3: Coordinate system selection (Cartesian, Polar).
- 4: Language selection (English).
- 5: Zoom Lens Setup dropdown.
- 6: Report type dropdown (Report1).
- 7: AutoEnter Delay [ms] input field (750 ms).
- 8: Adjust circle crosshair size slider (100).
- 9: Validate icon (green checkmark on a document).
- 10: Skip icon (magnifying glass over a ruler).

Use this screen to set the parameters for all operations listed hereafter. Click either of both icons below to validate or skip your settings.



### 10.2 Setting the loop function (Screen area 1)



The **Loop** function lets you measure a single feature several times, without the need for clicking the **Validate** icon or open back that of the measurement previously selected.

The boxes appearing within screen area 1 allows you to enter the number of desired data points for each program routine. So, should a circle be measured, SYLVAC-REFLEX Vista will automatically validate the feature coming after the third point will have been taken. This occurs before opening a second circle for a new input of the requested points.

Your input must be as high as:

- 1 for a data point
- 2 for a line
- 3 for a circle
- 3 for an arc of circle
- 2 for an angle

(To know more about this, report to chapter 5.2)

### 10.3 Diascopic illumination (Screen area 2)

If your machine is equipped with a parallel diascopic illumination (emanating from the underside of the measuring table), choose the **Parallel light** menu option. Since the parallel light intensity is superior, the machine uses an electronic filter, so as to avoid the need for recalibrating this type of light.

### 10.4 Display settings (coordinate and unit systems) (Screen area 3)

You may choose between the following display settings:

Coordinate system

- Cartesian coordinates (X,Y,Z)
- Polar coordinates (Radius, Angle, height) (DATUM PLANE XY)

Unit system

- Metric units (mm) (black coloured)
- Inch units (green coloured)

Angle units

- Decimal degree (DEG)
- Degree, minute, second (DMS)

### 10.5 Choosing a language (Screen area 4)

Click **Language** to scroll all Languages available. No need to validate your choice since the chosen language will automatically be saved.

Languages currently available: English, Deutsch, Français, Español, Italian, Chinese, Japanese, Russian, Portuguese, Polish, Turkish, Slovenian, Korean, Hebrew, Bulgarian and Arabic.

### 10.6 Adding lenses (Screen area 5)

If you add a lens at the end of the zoom, enter the relevant magnification value in this field.

- Lens        0.5X - 0.5x
- Lens        0.75X - 75X
- Lens        1.5 X - 5X
- Lens        2X - 2x
- None        -----

Should any additional lens be ordered after the purchase of a vision machine, the optics may need a recalibration. For this operation, please ask your SYLVAC's agent.



## SYLVAC-REFLEX Vista

### 10.7 Choosing a report-type (Screen area 6)

The standard mode of SYLVAC-REFLEX Vista lets you choose the type of measurement report you want to be printed out along with the results.

### 10.8 Auto Enter (Screen area 7)



If you need to change the waiting time, input desired value in milliseconds (ms) (See chapter 5.3.2).

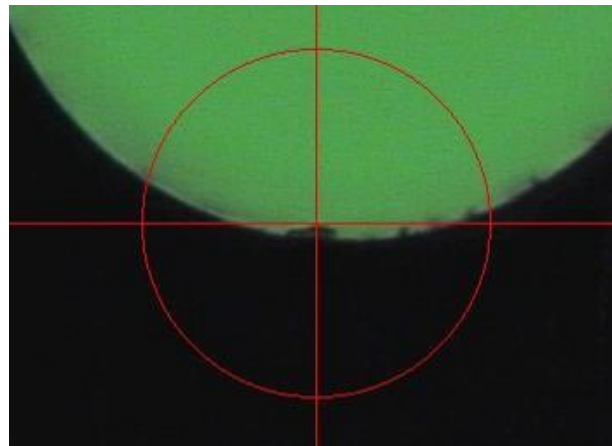
### 10.9 Changing the size of the sight (Screen area 8)



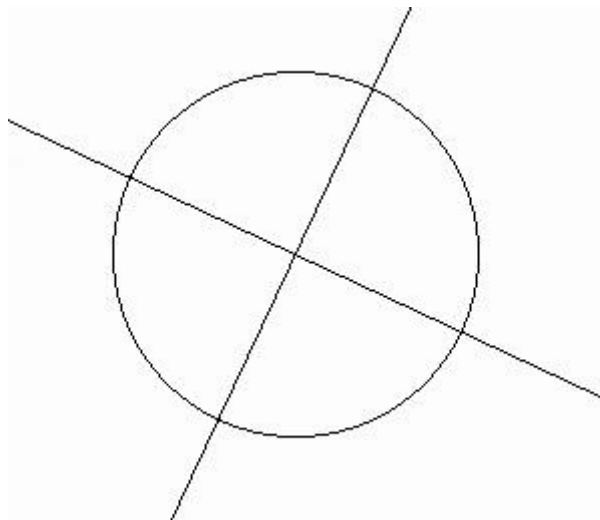
– To change the size of the sight, it's enough to scroll through displayed values with the aid of the cursor or the mouse scroll wheel.

**Note**

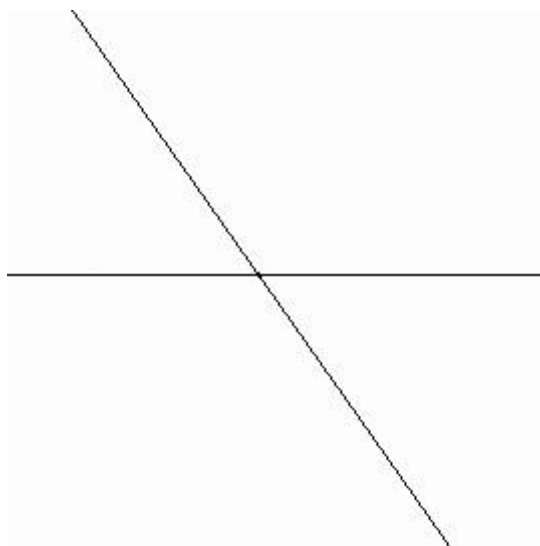
*Displayed value is expressed in pixels (this sight cannot be used for graphical representations).*



– To align the reticule differently, just change displayed value using the cursor or the mouse scroll wheel.



- To change the angle of the reticule, just select the option **Reticule Angle** then modify displayed value using the cursor or the mouse scroll wheel.



#### 10.10 Certificate (Button 9)

This program routine can only be run by your SYLVAC's agent when installing the machine or executing the annual calibration needed to save all related values.

## SYLVAC-REFLEX Vista

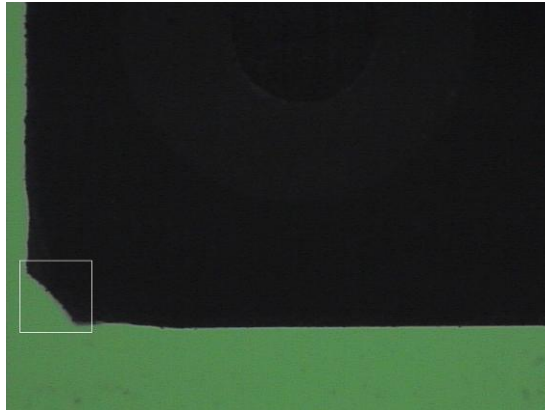
### 10.11 Quick Optic Calibration (Button 10)

Run this routine to calibrate the size of the pixel that will be used with the edge detector or the automatic detect function.

**Warning!** If the optics of your machine was initially calibrated in our factory, it is preferable not to repeat this operation as highly accurate standards (calibration sights) are used for this purpose.

#### Calibration procedure

- 1 A square of 100x100 pixels is shown at the bottom left of the video image. Move the measuring table until a specific area of the part is correctly positioned (e.g. a corner of the part).

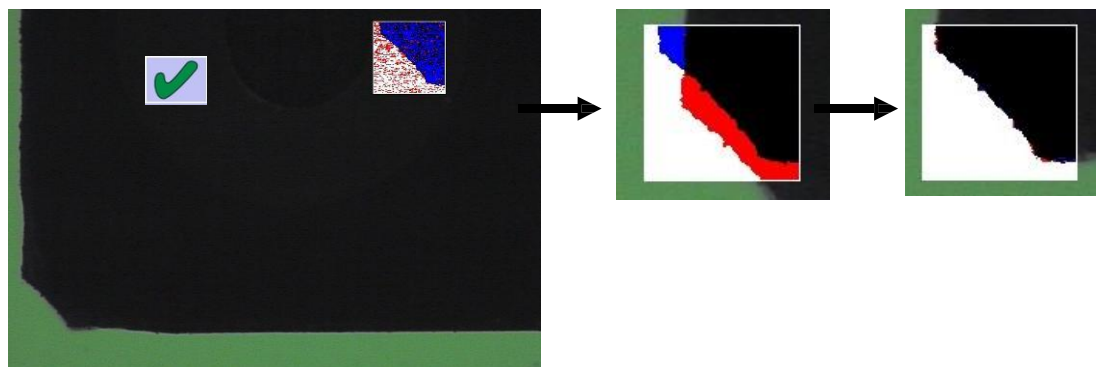



Click this icon  to validate.

#### Special note

*Optimum accuracy of the edge detector is achieved using the diascope illumination alone. Excessive light intensity should be avoided (about 20-50 %).*

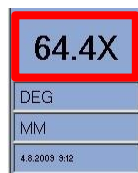
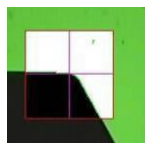
- 2 Another square of 100x100 pixels is now displayed at the top right of the video image. This square shows the contour you've validated under point 1. Align the contour of the part against this model while moving the measuring table.



Use the colour coded information to help you to proceed accurately. If the model overlaps the part precisely, both red and blue colours will disappear. Click  to validate.

A colour code tells you if the edge detector is calibrated or not.

The contour of the edge detector window, but also the magnification value in the parameter screen area changes as described below.



Red: Both the zoom and edge detector were not calibrated. We highly recommend not to use the edge detector.

Yellow: The zoom alone is calibrated. Magnification value appears in black. In this case, calibrating the edge detector is unnecessary, that of the zoom being more precise.

Green: Both the zoom and edge detector are calibrated.


## 10.12 Exiting SYLVAC-REFLEX Vista



To exit SYLVAC-REFLEX Vista, click  the icon displayed on the top right of the screen

.

### Notes

- Clicking the **Setting** icon  for more than 2 seconds, also exit SYLVAC-REFLEX Vista.
- Quitting the program causes all measured values that were not previously saved to be erased.

## SYLVAC-REFLEX Vista

### 11 SYLVAC-REFLEX Vista compare (optional)



Press the key to access « compare » the CAD option in SYLVAC-REFLEX Vista.

This option allows the comparison of a piece with its CAD model. The comparison can be visual, the operator defines if the edge is outside the tolerances, but also automatic, by precisely measuring the gap with the SYLVAC-REFLEX Vista detection tools

#### 11.1 Description of the user's interface



- 1 Video window (CAD and Camera).
- 2 Coordinate of the center.
- 3 Video window setting.
- 4 Alignment functions
- 5 Measure functions.
- 6 Video functions (See standard SYLVAC-REFLEX Vista).
- 7 Miscellaneous.
- 8 System parameter

## 11.2 CAD file loading

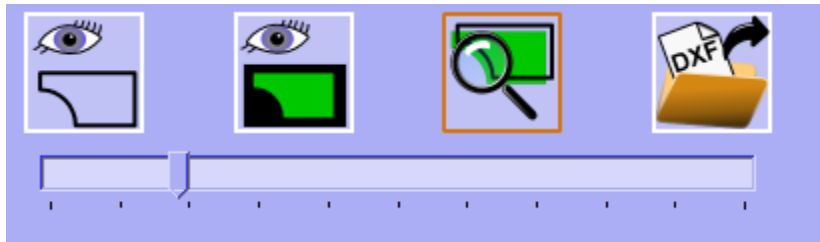


To load a CAD press the icon, the CAD file must be a DXF format, and contains 2 layers named:

- part For nominal profile.
- tol For tolerances

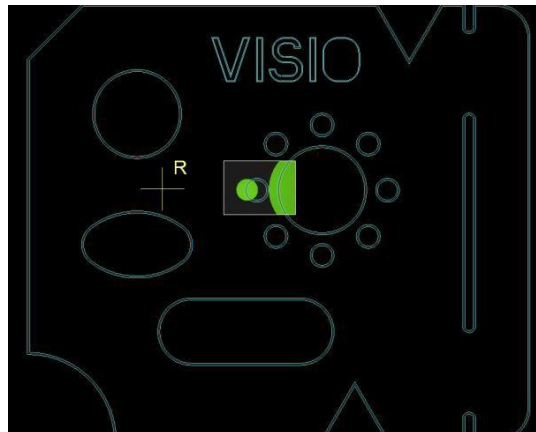
If the layer "part" doesn't exist, compare create it automatically with all its content.

## 11.3 The different Windows

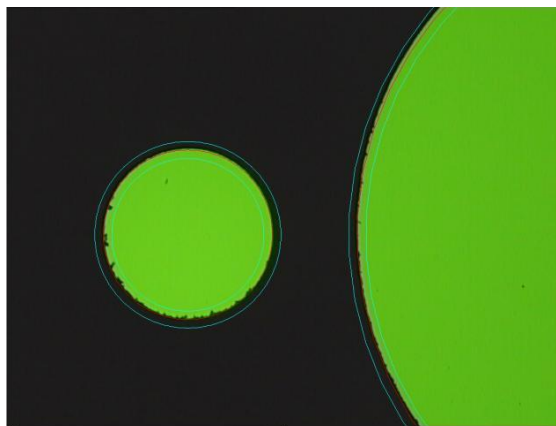


There are 3 different display modes of the graphics window:

- CAD Mode. The CAD model is fully displayed in the graphics window. The video image is reduced.

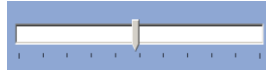


- Video Mode: The video image is fully displayed.



- Custom mode: The operator changes the area displayed. Using the mouse wheel, it's possible to resize the area (zoom) but also with the bargraph.





A digital zoom is applied to the video image.

## 11.4 Alignment

The first thing to do is alignment between the CAD model the part. The operator has 2 modes :

- A manual mode, the operator moves the model using the mouse or keyboard.
- An automatic mode, where the operator maps a model element with an element measured on the workpiece.



To access to the alignment, the operator must "unlock the model" using the function:



Alignment Locked  
Modification impossible



Alignment unlocked

### 11.4.1 Manual Alignment

It is possible to move the CAD model by clicking on the arrows, using the mouse or keyboard shortcuts.  
The displacement is made along axes X and Y, but it is also possible to rotate it.  
The resolution (step length, and increment for the rotation) can be changed.

30.0X	DEG	MM	9.12.2009 9:13	0.1 um   0.001°	24.9 frame/sec
-------	-----	----	----------------	-----------------	----------------

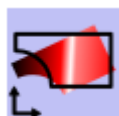
- Keyboard shortcuts :

Displacement X+	→
Displacement X-	←
Displacement Y+	↑
Displacement Y-	↓
Left Rotation	Simultaneously pressing « Ctrl & ← »
Right Rotation	Simultaneously pressing « Ctrl & → »
Resolution increased	"Page Up"
Resolution decreased	"Page down"

- Mouse :

Mouse Displacement	Hold the left mouse button to move the model.
Mouse Rotation	Use the right mouse button to set the center of rotation, then any remaining button, a shift to the left turns the design around the center of rotation in the counterclockwise direction, a rightward shift clockwise.

### 11.4.2 Automatic Alignment



The automatic alignment can precisely position the CAD model with the piece. There are 2 modes:

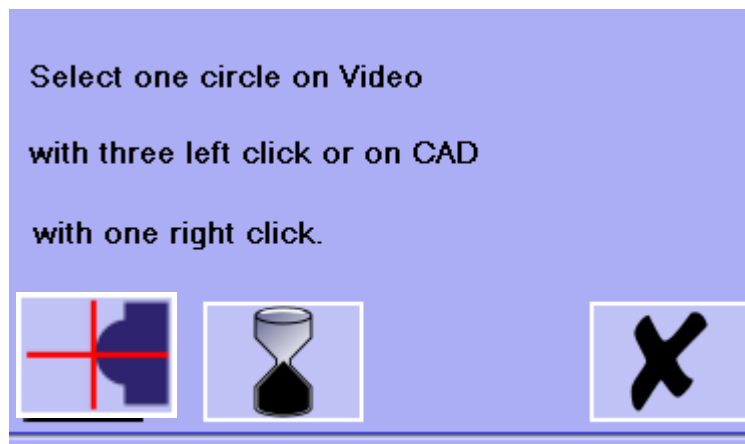
- 2 circles
- 2 lines
- 2 arcs of circles
- 1 line, 1 circle
- 1 line, 1 arc of circle

After pressing the "Auto Align", the operator selects on the CAD model a straight line, an arc or a circle (the item is highlighted) using the right mouse button.

It remains, then measuring the corresponding element on the piece (it is possible to use the edge detector):



- 2 points for a line
- 3 points for an arc of circle
- 3 points for a circle



Use left mouse button to validate the measurement points.

Then select the last item and proceed the same way for measurement

Finally the CAD model is positioned relative to the measurements, and alignment is automatically locked

### 11.5 Measure functions

These functions are used to compare the piece to the CAD model, and measure a feature on the part or on the model. The result will be automatically displayed on the graphics window. The principle of selection is always the same. Use **left mouse** button to validate the **measurement points**, the **right mouse** button to select an item from the **CAD model**.

The other functions are identical to the standard mode of SYLVAC REFLEX-Vista (edge detector and AutoEnter)



## SYLVAC-REFLEX Vista

### 11.5.1 Angle



This function allows you to measure an angle:

- Between 2 CAD features (lines)
- Between 2 measured lines (2 points for each line)

### 11.5.2 Angle between CAD and part



SYLVAC REFLEX-Vista gives the difference between a CAD model (right) and a straight line measured on the workpiece (2 points).

### 11.5.3 Circle



This function allows you to measure a circle:

- On the CAD model (left click)
- On the part (3 right click)

### 11.5.4 Normal distance



This option is useful to compare the model with the piece. Indeed it is sufficient to measure a point on the part (left click) and automatically SYLVAC REFLEX-Vista computing the difference between this and the CAD model.

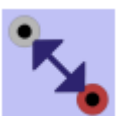
### 11.5.5 Distance between 2 circles



This function allows you to calculate the distance between 2 circles

- 2 circles on the CAD model (right click)
- 2 circles on the part (3 points, left click)
- 1 circle on the part, 1 circle on the CAD model

### 11.5.6 Distance



SYLVAC REFLEX-Vista calculates the distance between a point taken on the CAD model (right click) and a point of measurement made on the video (left click).

### 11.5.7 Perpendicular Distance



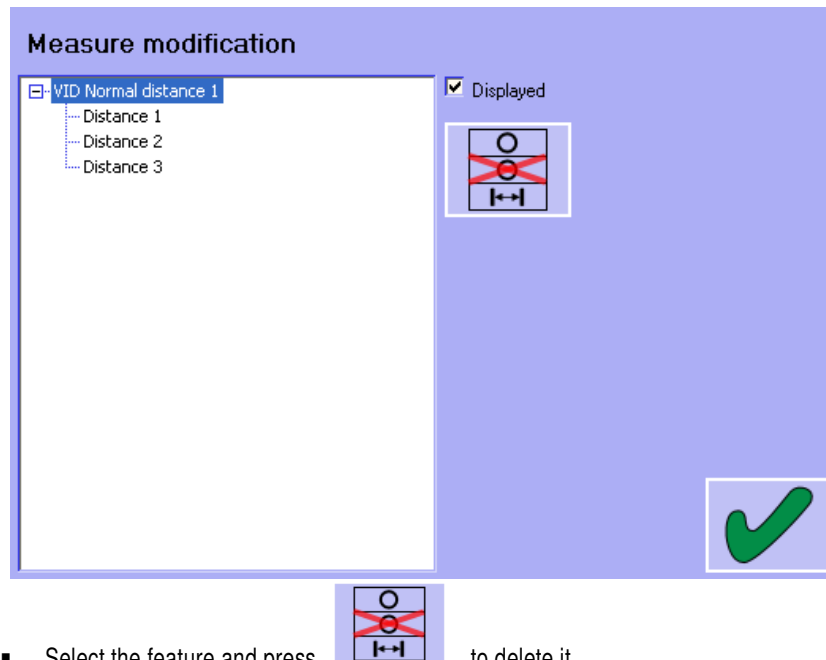
This function calculates the distance between a line and a point (distance perpendicular to the line):

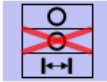
- The line can be taken on the CAD model (right click) or measured on the workpiece (2 measurement points, left click)
- The point must measure on the part (left click) or on the CAD model (right click).

### 11.5.8 Measured features



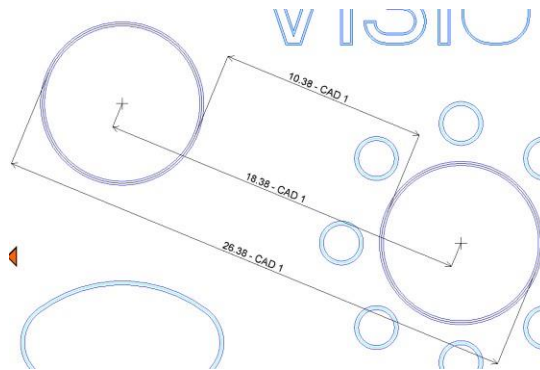
You can access the measures. It is then possible to delete a measure, to hide or show a measurement result.



- Select the feature and press  to delete it..
- To hide or show a measurement result, select it and check "Displayed».

Different results may be displayed:

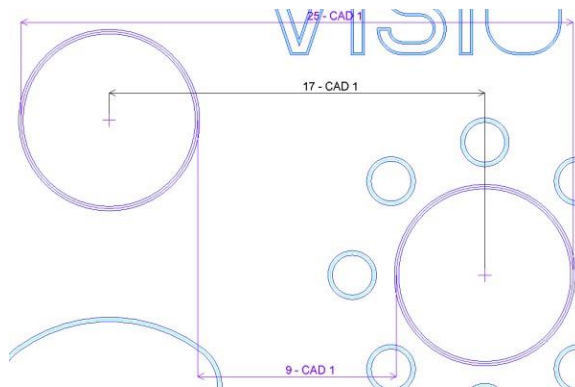
- For an angle 3 results are displayed: The value of the angle, its complement to 180 ° and 360 °.
- For a circle its diameter.
- For a distance (Perpendicular or normal), 3 results are displayed: the direct distance 2D (shortest), the X and Y distance.
- For a distance between 2 circles, 11 results are calculated :  
 2D direct distance between the circles  
 The shortest distance (- radius)  
 The biggest distance (+radius)



X and Y distances

The shortest distance in X, Y (- radius)

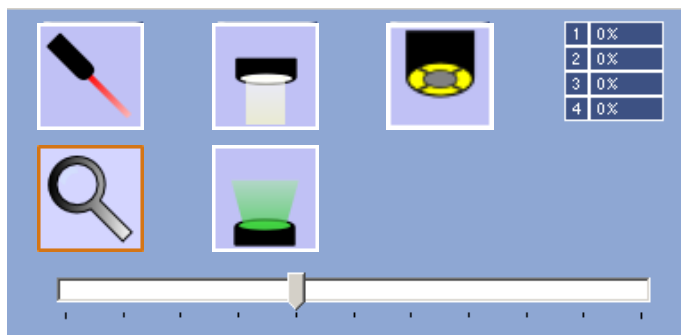
The biggest distance in X, Y (+radius)



Each diameter

## 11.6 Video functions

The functions of magnification, lights,... are identical to SYLVAC REFLEX-Vista. Simply refer to the corresponding chapter. (Chapter "4)



## 11.7 Configuration



This feature allows you to set parameters.

Cartesian <input checked="" type="radio"/>		Polar <input type="radio"/>		<b>1</b>
MM <input checked="" type="radio"/>		INCH <input type="radio"/>		
DEG <input checked="" type="radio"/>		DMS <input type="radio"/>		
LANGUAGE <b>2</b>		Zoom Lens Setup <b>3</b>		
English				
CAD color	<input type="color" value="#FF0000"/>	General color	<input type="color" value="#FFFF00"/>	<b>4</b>
Tolerances color	<input type="color" value="#FFFF00"/>	CAD selection	<input type="color" value="#FFFFFF"/>	
CAD measure color	<input type="color" value="#FF00FF"/>	Video selection	<input type="color" value="#FFFF00"/>	
Video measure color	<input type="color" value="#00FFFF"/>			
Cotations size	<input type="text" value="6"/>			<b>5</b>
AutoEnter Delay [ms]:	<input type="text" value="1000"/> ms			<b>6</b>
<input checked="" type="checkbox"/>		<input type="checkbox"/>		

## 11.7.1 General parameters (zone 1)

It is possible to choose between one or the other display settings below.

Coordinates mode:

- Cartesian X, Y and Z.
- Polar, radius, angle and Z.

Units:

- mm (Axis are displayed in black)
- Inch (Axis are displayed in green)

Degrees:

- Decimal (DEG)
- Degree, Minute, Second (DMS)

## 11.7.2 Language (zone 2)

Click the **Language** field to select the language to use. It is not necessary to validate your choice, the language displayed will be saved automatically.

## 11.7.3 Additional lens (zone 3)

If you install an additional lens at the end of the zoom, it must be mentioned in this field

- No lens -----
- Lens 0,5 – 0,5x
- Lens 0,75 – 0,75X
- Lens 1,5 – 1,5X
- Lens 2X - 2x

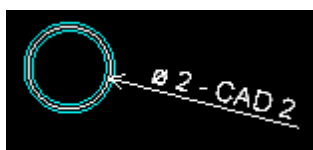
In the case of an order for additional lens after the acquisition of a machine, it may be necessary to recalibrate the optical. Please contact your dealer to perform this operation.

## 11.7.4 Color (zone 4)

It is possible to change the different colors displayed by the software. Double click on a color square to change it.

## 11.7.5 Font size (zone 5)

To increase or decrease the font size of results displayed on the graphics window.  
(minimum 1 and maximum 100).

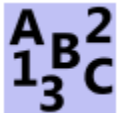


#### 11.7.6 Auto Enter (zone 6)



To change the waiting time of the Auto validation, enter the value in milliseconds (see chapter 5.3.2).

#### 11.8 Virtual keyboard



This function displays the virtual keyboard comes with Microsoft Windows XP.

#### 11.9 Screen capture



This feature allows you to record an entire screen image in PNG format. This file (extension. PNG) is stored in the Images directory of the installation folder of SYLVAC REFLEX-Vista. His name CAD\_CaptureScreen\_01.png increments automatically.

#### 11.10 Measuring report



It is possible to generate a measurement report containing all the elements measured. (Refer to chapter 8.8)

#### 11.11 SYLVAC-REFLEX Vista Standard



To return to standard-SYLVAC REFLEX Vista and leave the module « compare ».

## **SYLVAC-REFLEX Vista**

### **12 DONGLE**

A dongle is provided with each machine equipped with SYLVAC-REFLEX Vista. You won't be able to start the program unless this dongle is connected to one of the USB ports available on your computer.

### **13 GUARANTEE**

We guarantee this instrument against any fault of design, manufacture or material for a period of 24 months from the date of purchase. Any repair work carried out under the guarantee conditions is free of charge.

Our responsibility is limited to the repair of the instrument or, if we consider it necessary, to its free replacement.

### **14 DECLARATION OF CONFORMITY**

Thank you very much for your confidence in purchasing this product, which was inspected in our works.

We declare under our sole responsibility that the product conforms to the standards and technical data as specified in our sales literature (instruction manuals, leaflets, general catalogue).

**Quality Assurance**



Changes without prior notice

Sous réserve de toute modification

Anderungen vorbehalten

Soggetto a modifica senza preavviso

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