

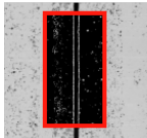


5 - S62 CALC Bad Penetration Gradient

■ Description

Calculate and classify "bad penetration" – used if the bad penetration is visible only as a vertical grey stripe. Searches for the edge gradients with **Hough trafo** in a separate ROI (**R**egion **O**f **I**nterest). There the found line parts will be connected to build a longest possible straight line. The two lines with the (summed up) longest parts are used as "Hough lines" for further analysis.

■ Icon



5 S62 CALC Bad Penetration Gradient

Calculate Bad penetration - edge gradient with Hough trafo

■ Parameters

Filters of
5 S62 CALC Bad Penetration Gradient



02 Binarize



04 HoughChecker

Attributes of

02 Binarize

Verboesity level

None

Threshold / offset (see thresholding mode)

-

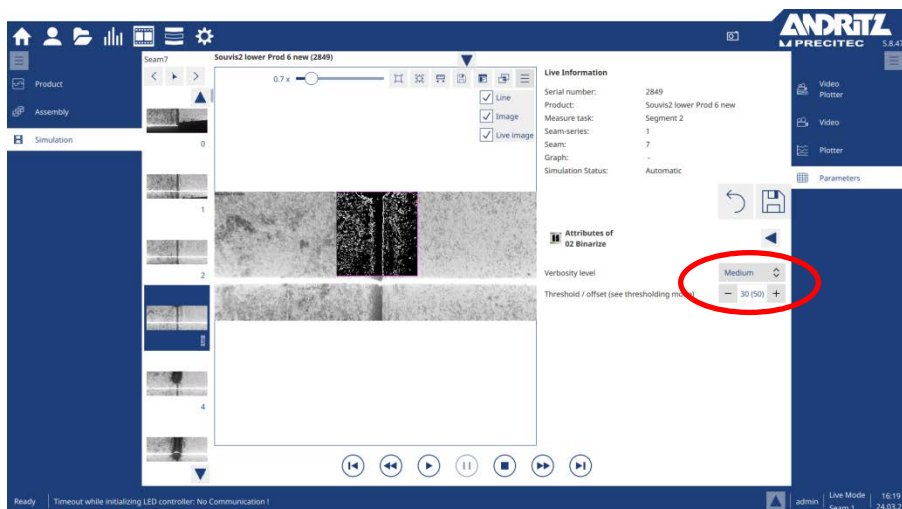
50

+


Parameter	Comment
Verboesity level	Selection of verboesity level. Larger verboesity levels offer more overlay information.
Threshold / offset	Binarizing is a dimensioning for the grey scale value of a bad penetration. The higher this value is set, the darker a bad penetration must be, compared to the blank intensity. The smaller the value is set, the more bad penetration candidates are extracted from the image. [Greylevel]

Verboesity example:

If the "Verboesity level" value is "*Medium*" or *bigger*, the found gradient parts inside the ROI are displayed.






**Attributes of
04 HoughChecker**

Verbosity level
None

Check intersection?
☒ On/Off

Min. Length Max1 %
70.000

Min. Length Max2 Pixel
50.000

Max. Distance Pixel
- 50 +

Max. Distance to ROI center Pixel
- 100 +

Max. Jump Pixel
- 20 +

Min. Line Sum %
50.000

Max. Interruption Pixel
- 50 +

Max. Brightness
- 50 +

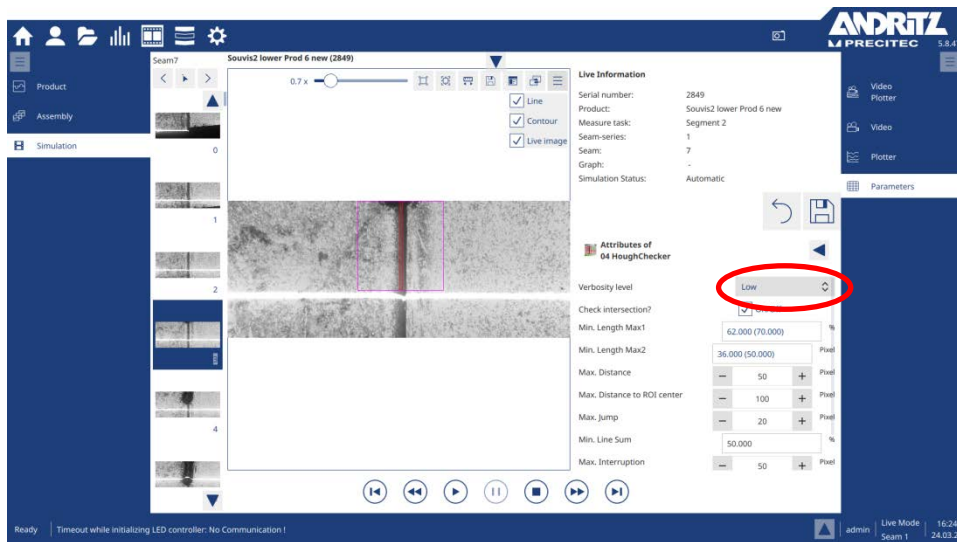
Parameter	Comment
Verbosity level	Selection of verbosity level. Larger verbosity levels offer more overlay information.
Check intersection?	On/Off of the intersection check. If the two lines intersect inside the Hough ROI, this image is as OK defined. [Active / inactive]
Min. length Max1	Length of the longest 'Hough' line in relation to the ROI height. For detection of a missing penetration this threshold must be exceeded. [Percent]
Min. length Max2	Length of the second longest Hough line in relation to the ROI height. For detection of a missing penetration this threshold must be exceeded. [Percent]
Max. Distance	Allowed maximum distance between the two 'Hough' lines. [Pixel]
Max. Distance to ROI center	Allowed maximum horizontal distance of each of the two 'Hough' lines to the center of the ROI. [Pixel]
Max. Jump	Allowed deviation of the gap position from image to image. [Pixel]

Min. Line Sum	Sum of Max1 and Max2. For detection of a missing penetration this threshold must be exceeded. [Percent]
Max. Interruption	Max. distance for single line pieces of the 'Hough' lines. [Pixel]
Max. Brightness	Max. allowed mean intensity between the two 'Hough' lines. [Greylevel]

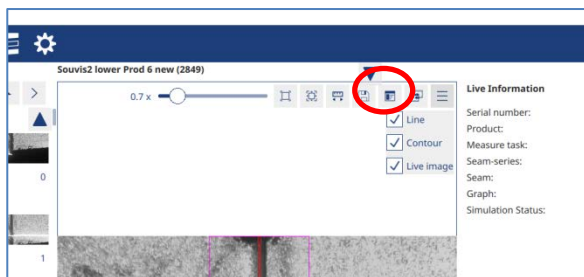
■ Parameter Check

The actual parameter setting can be checked with the "Infobox".

Set "Verbosity level" of "04 HoughChecker" to "Low" or bigger.

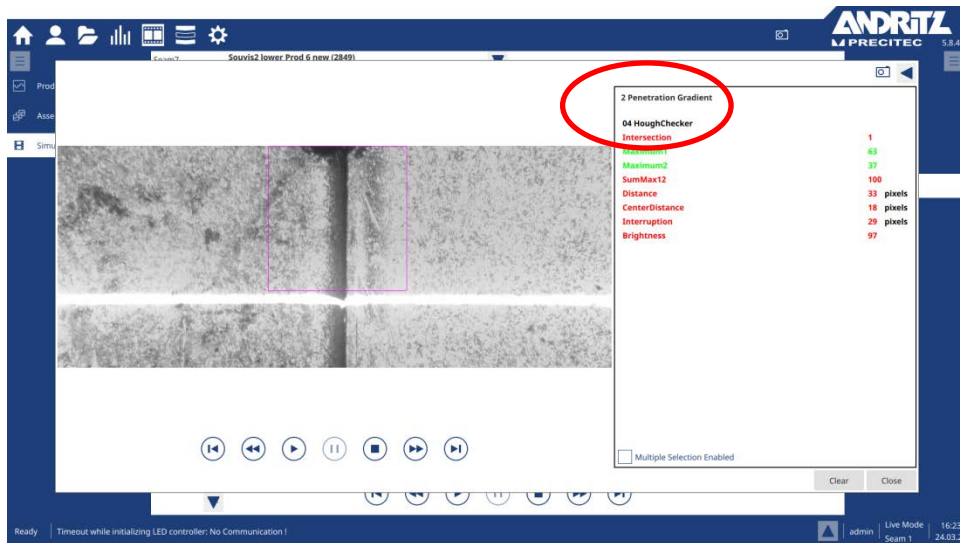


Click on the "Infobox" symbol.





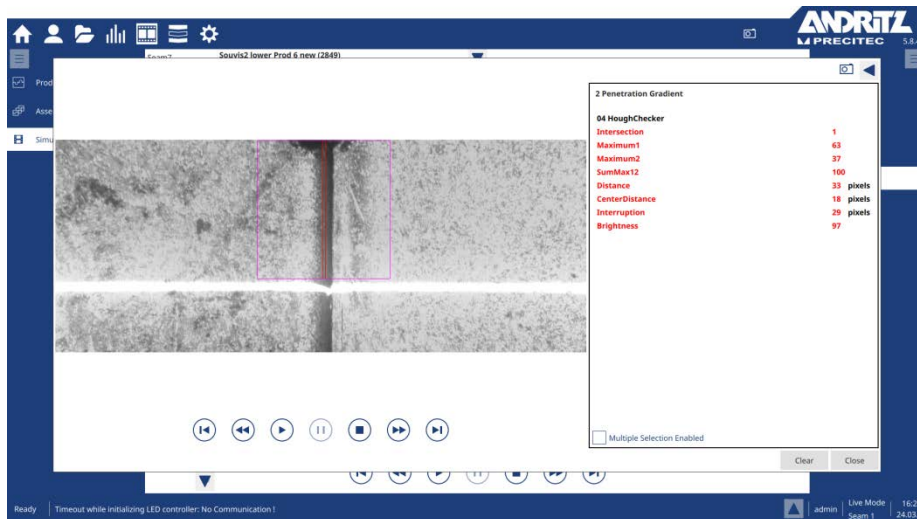
The actual data from the "Penetration Gradient" detection are visible.



Green values: The actual value declares that it's NO bad penetration.

Red values: The actual value declares that it's a possible bad penetration.

Only if **all values are red** then it's declared as a real "Bad penetration" case!



It's also visible in the Plotter section, value = 2.





Measured values for plotter

725		Bad Penetration Gradient
-----	--	--------------------------

Subgraphs interface

IN bridges

OUT bridges

 image	ROI penGradient		
 value	ROI grey valid		

Graph block diagram

