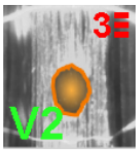
5 - S52 CALC Pore_Blob 3rows V2

Description

In the found seam area the pore/blob characteristics will be calculated and classified.

For the check up to 3 different parameter sets may be used to detect pores with different characteristics.

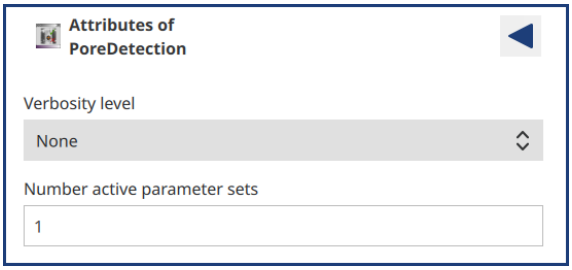
Icon



5 S52 CALC Pore_Blob 3rows V2

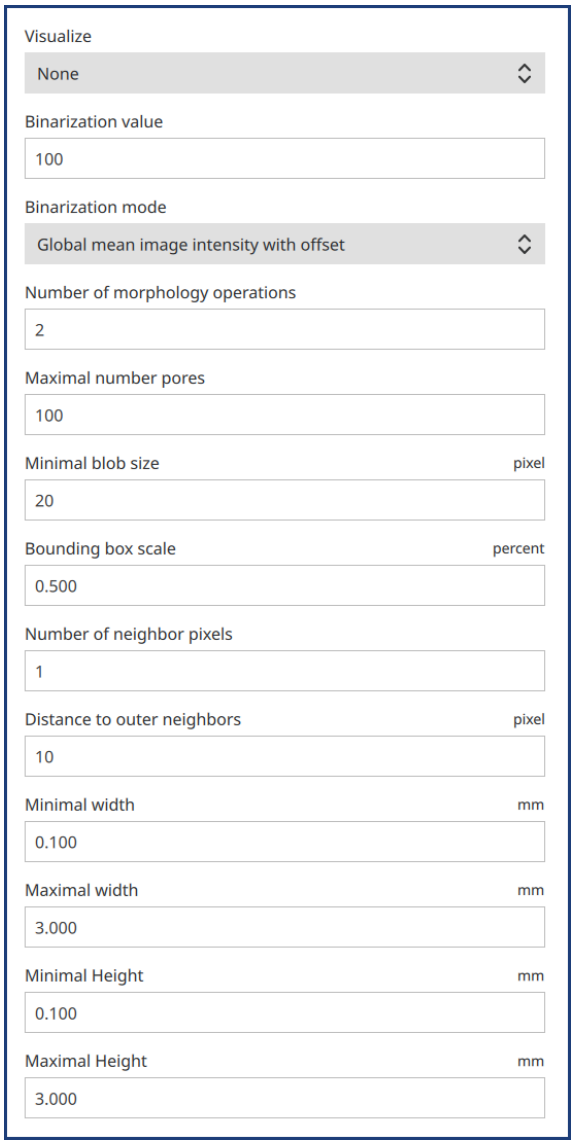
Calculate and classify the characteristics of the pores/blobs with 3 different threshold sets

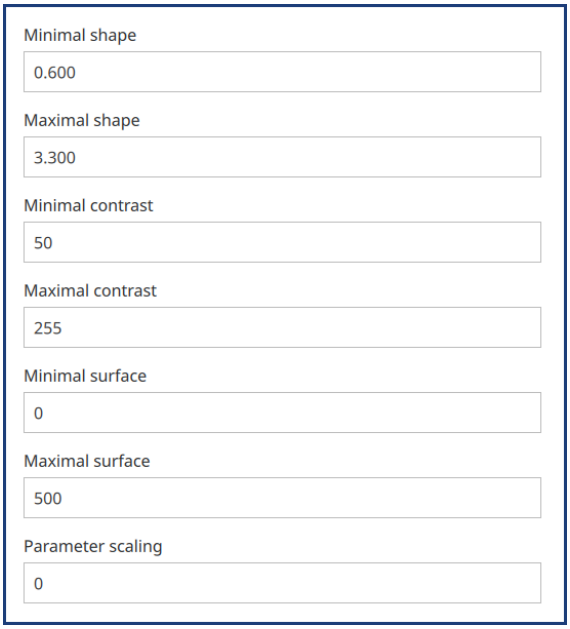
Parameters



Parameter	Comment
Verbosity level	Selection of verbosity level. Larger verbosity levels offer more overlay information.
Number active parameter sets	A measure how many of the possible 3 parameter sets will be used for the pore check.

First parameter set:



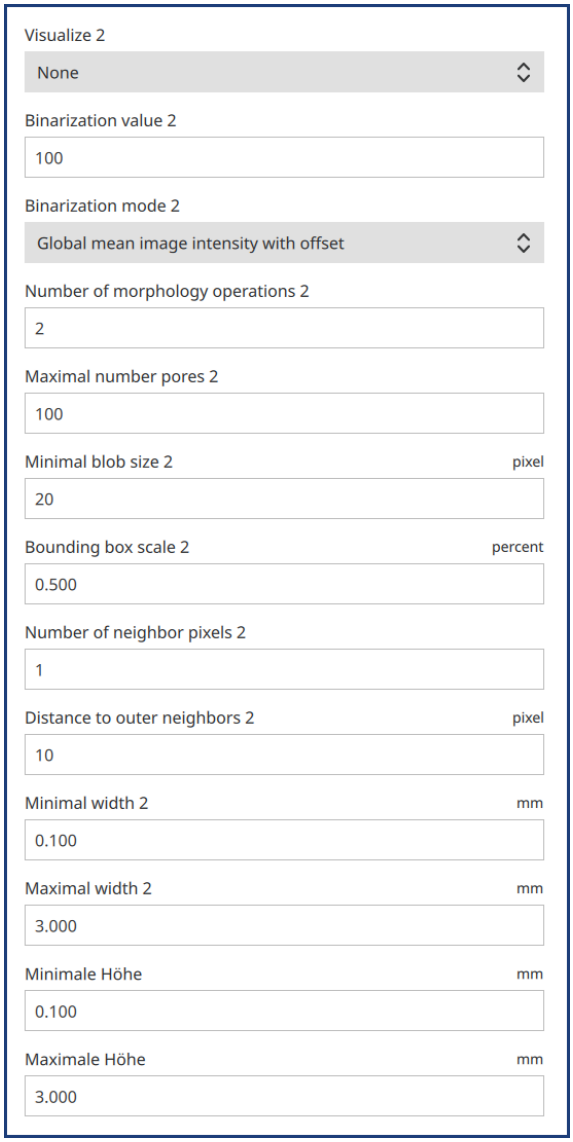


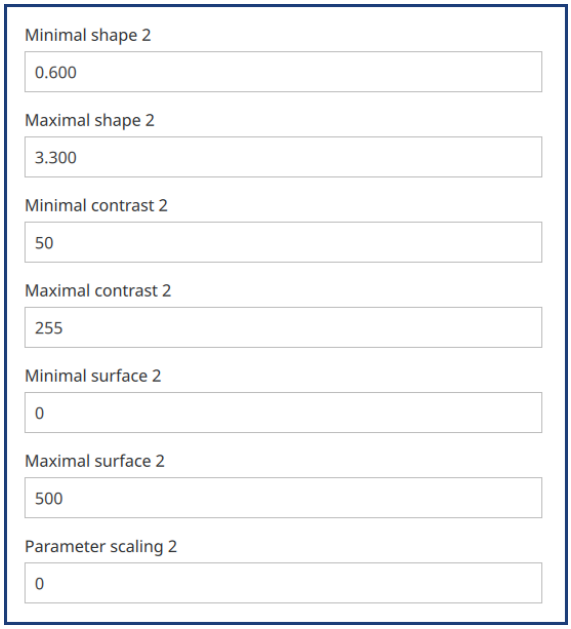
Second parameter set:

Visualize 1	None
Binarization value 1	100
Binariation mode 1	Global mean image intensity with offset
Number of morphology operations 1	2
Maximal number pores 1	100
Minimal blob size 1	20 pixel
Bounding box scale 1	0.500 percent
Number of neighbor pixels 1	1
Distance to outer neighbors 1	10 pixel
Minimal width 1	0.100 mm
Maximal width 1	3.000 mm
Maximal Height 1	0.100 mm
Maximal Height 1	3.000 mm

Minimal shape 1	0.600
Maximal shape 1	3.300
Minimal contrast 1	50
Maximal contrast 1	255
Minimal surface 1	0
Maximal surface 1	500
Parameter scaling 1	0

Third parameter set:





Meaning of the parameter:

Parameter	**Comment**
Visualize	**None:** No additional information displayed. **Contour:** The contour of all pore candidates are displayed. **Morphology image:** All areas of all pore candidates after the filtering operations are displayed. **Binarized image:** All areas of all pore candidates after the noise cancelling are displayed.
Binarization value	Binarizing is a dimensioning for the grey scale value of a pore. The higher this value is set, the darker a pore must be, compared to the weld seam. The smaller the value is set, the more pore candidates are extracted from the image. [Greylevel]

Biarization mode	**Global mean image intensity with offset:** Uses the mean intensity over the whole seam area as base for check. **Local mean image intensity with offset:** Uses the mean intensity in the “Bounding box” around the corresponding pore candidate as base for check.
Number of morphology operations	Parameter how often the “Opening” (bright disturbences are eliminated) and “Closing” (dark disturbances are eliminated) operations are done. If e.g. number = 2 is set, then are 2 times an “Opening” and after 2 times a “Closing” made.
Maximal number pores	Max. number of pore candidates that will be searched.
Minimal blob size	Min. number of pixels that must be found for a pore. [Pixel]
Bounding box scale	The scaled bounding box will be used to calculate the “Surface” value.
Number of neighbor pixels	Number of pixel inside and outside of the border of a pore to calculate the “Contrast” value.
Distance to outer neighbors	Distance of the pore to the outer neighbor pixel to calculate the contrast.
Minimal width Maximal width	Minimal/Maximal width of a pore candidate that it can be a pore. All smaller than “Minimal” resp. bigger than “Maximal” are for sure no pore. [mm]
Minimal height Maximal height	Minimal/Maximal height of a pore candidate that it can be a pore. All smaller than “Minimal” resp. bigger than “Maximal” are for sure no pore. [mm]
Minimal shape Maximal shape	Minimal/Maximal form of a pore. The form is defined by the length ratio of the main axis to the side axis of a pore. With a circle, the length ratio equals 1:1 and results in a value 1. The longitudinaler the shape of the pore, the higher is this value.
Minimal contrast Maximal contrast	Minimal/Maximal brightness difference in the area of a pore compared with the outside area. The darker a pore is, compared with the weld seam, the higher is the contrast value. [Greylevel]
Minimal surface Maximal surface	Minimal/Maximal brightness variation inside a pore. The uniform the color of a pore, i.e. the less different grey scale values inside the pore, the smaller is the measured value. [Greylevel]
Parameter scaling	Detective function that sets the above values less sensitive by the given value, and makes then an additional analysis. The end result will not be influenced by that additional analysis. [Percent] Display: • Pores that are detected only because of the scaling will be drawn in blue. • Pores that are no longer ‘pores’, but were without scaling, are drawn in magenta.

Measured values for plotter

720	0 … xxx	Pore/Blob Size
721	0 … xxx	Pore/Blob Count

Subgraphs interface

IN bridges **OUT bridges**

image	ROI seam	**value**	Pore size
value	ROI grey valid		

Graph block diagram