

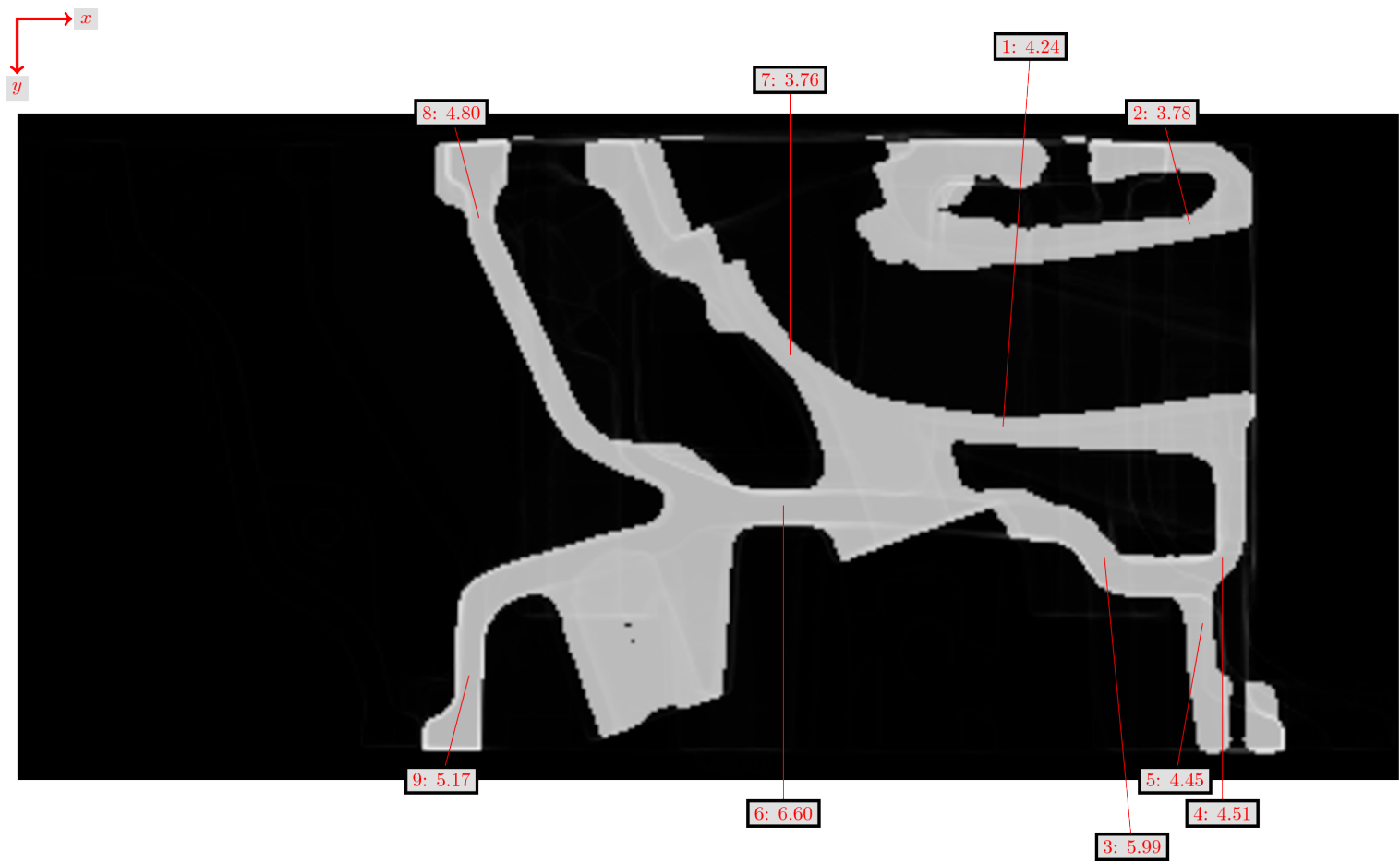
# **Report of wall thicknesses**



**Medicopus Nonprofit Ltd**

Cylinderhead

<b>CT:</b>	Siemens Somatom Definition AS+
<b>Voxelsize:</b>	0.6×0.6×0.6 mm
<b>Software:</b>	OpenIP



<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall A			

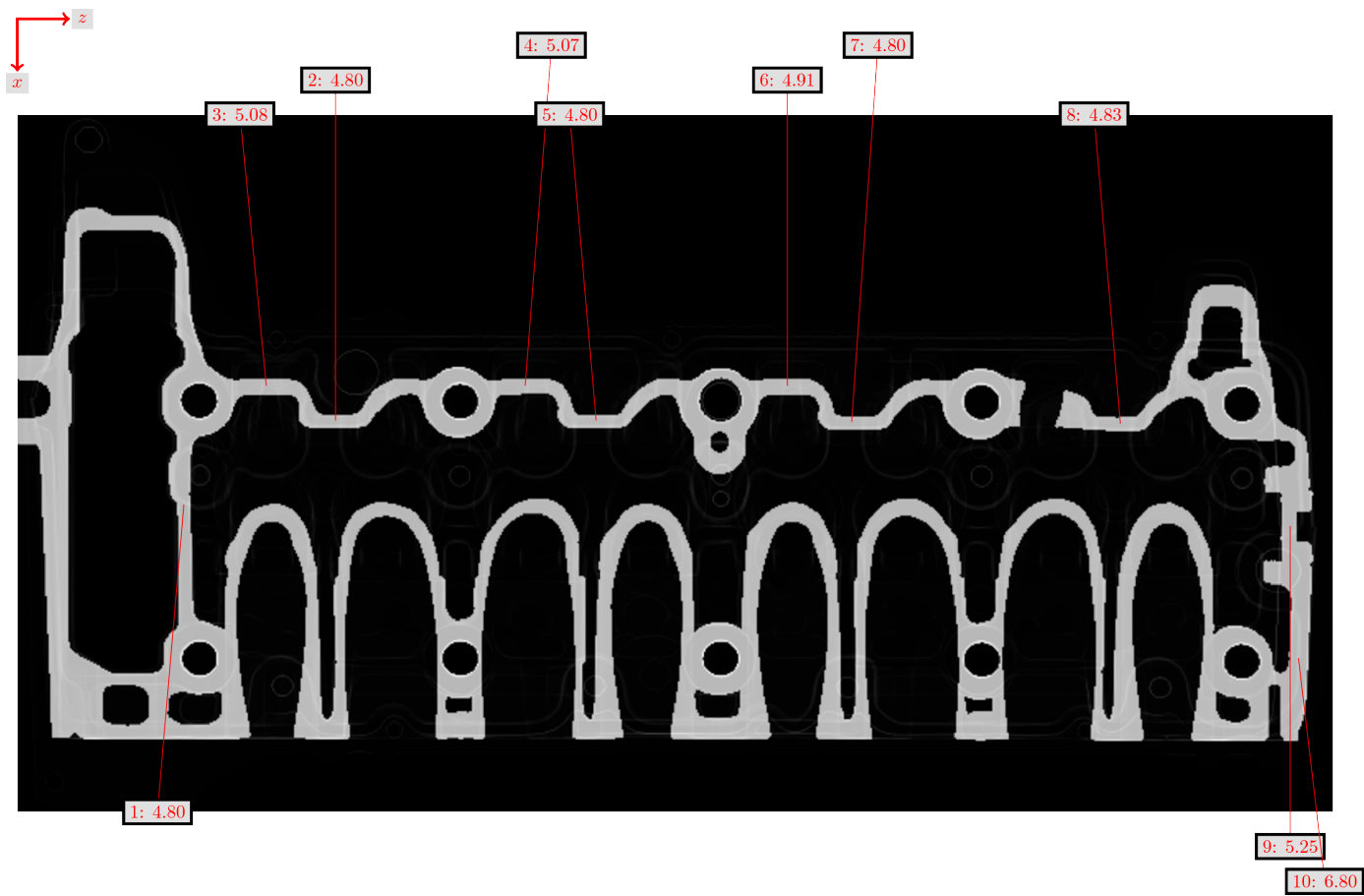


ID	thickness(mm)
1	4.24
2	3.78
3	5.99
4	4.51
5	4.45
6	6.60
7	3.76
8	4.80
9	5.17

<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall A			



<b>CT:</b>	Siemens Somatom Definition AS+
<b>Voxelsize:</b>	0.6×0.6×0.6 mm
<b>Software:</b>	OpenIP



<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall B			

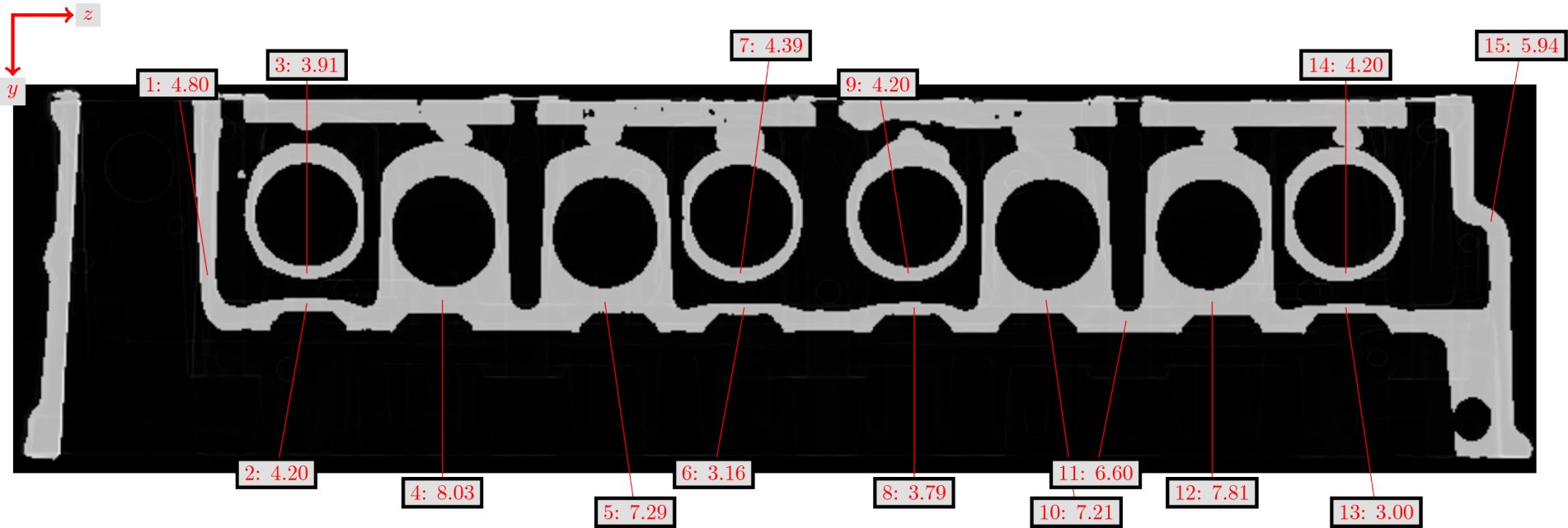


ID	thickness(mm)
1	4.80
2	4.80
3	5.08
4	5.07
5	4.80
6	4.91
7	4.80
8	4.83
9	5.25
10	6.80

<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall B			



<b>CT:</b>	Siemens Somatom Definition AS+
<b>Voxel size:</b>	0.6×0.6×0.6 mm
<b>Software:</b>	OpenIP



<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall C			

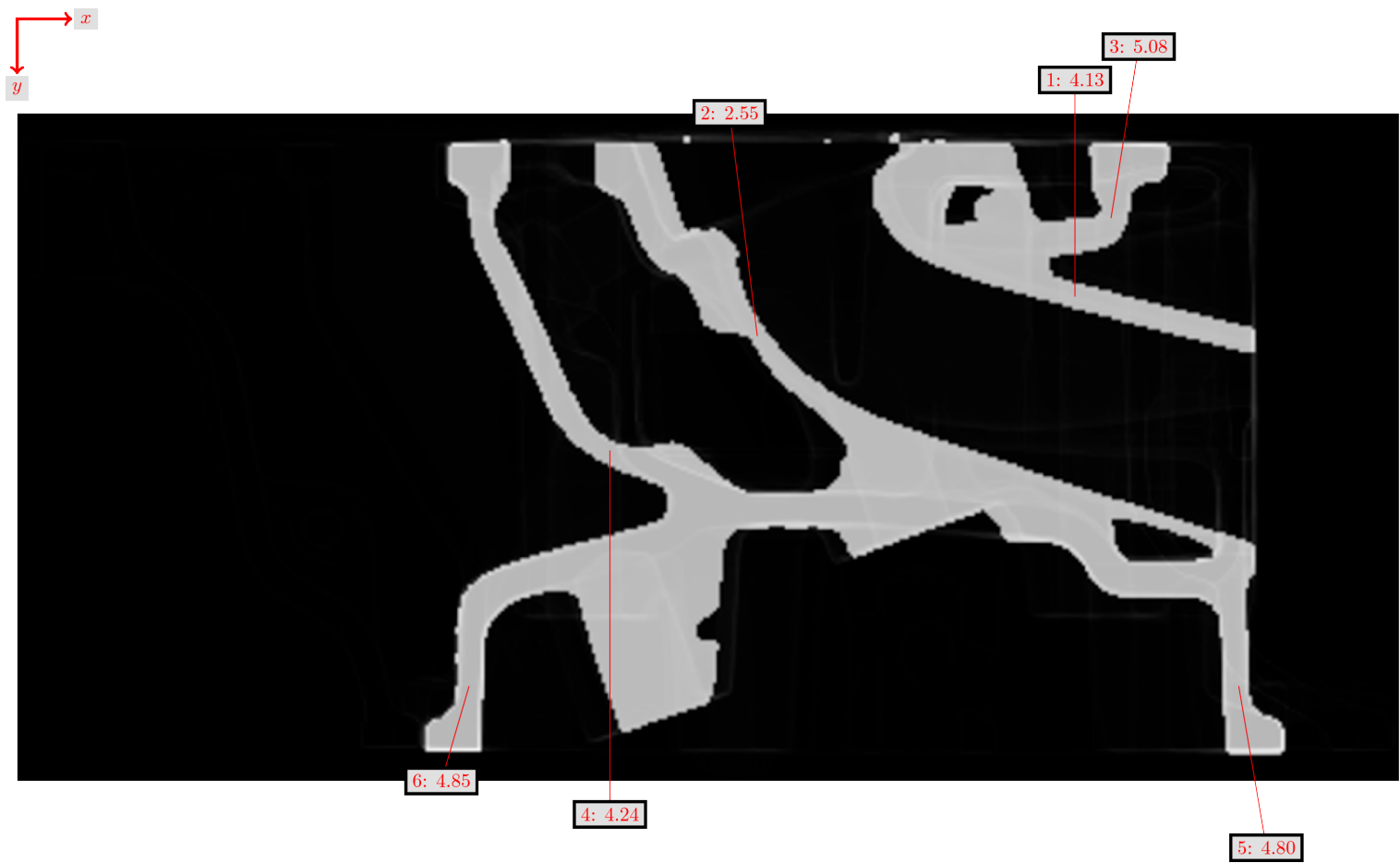


ID	thickness(mm)
1	4.80
2	4.20
3	3.91
4	8.03
5	7.29
6	3.16
7	4.39
8	3.79
9	4.20
10	7.21
11	6.60
12	7.81
13	3.00
14	4.20
15	5.94

<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall C			



<b>CT:</b>	Siemens Somatom Definition AS+
<b>Voxelsize:</b>	0.6×0.6×0.6 mm
<b>Software:</b>	OpenIP



<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall D			





ID	thickness(mm)
1	4.13
2	2.55
3	5.08
4	4.24
5	4.80
6	4.85

<b>Client company:</b>	Medicopus Nonprofit Ltd	<b>Expert:</b>	
<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Wall D			



The wall thickness is measured in various characteristic points of the object. In each point, the thickness is measured in more than 3000 different directions of the 3D space and the smallest thickness is reported.

For a given direction, the sigmoid fuzzy membership function is integrated along the line segment specified by the direction, using a uniform sampling in 1000 points.

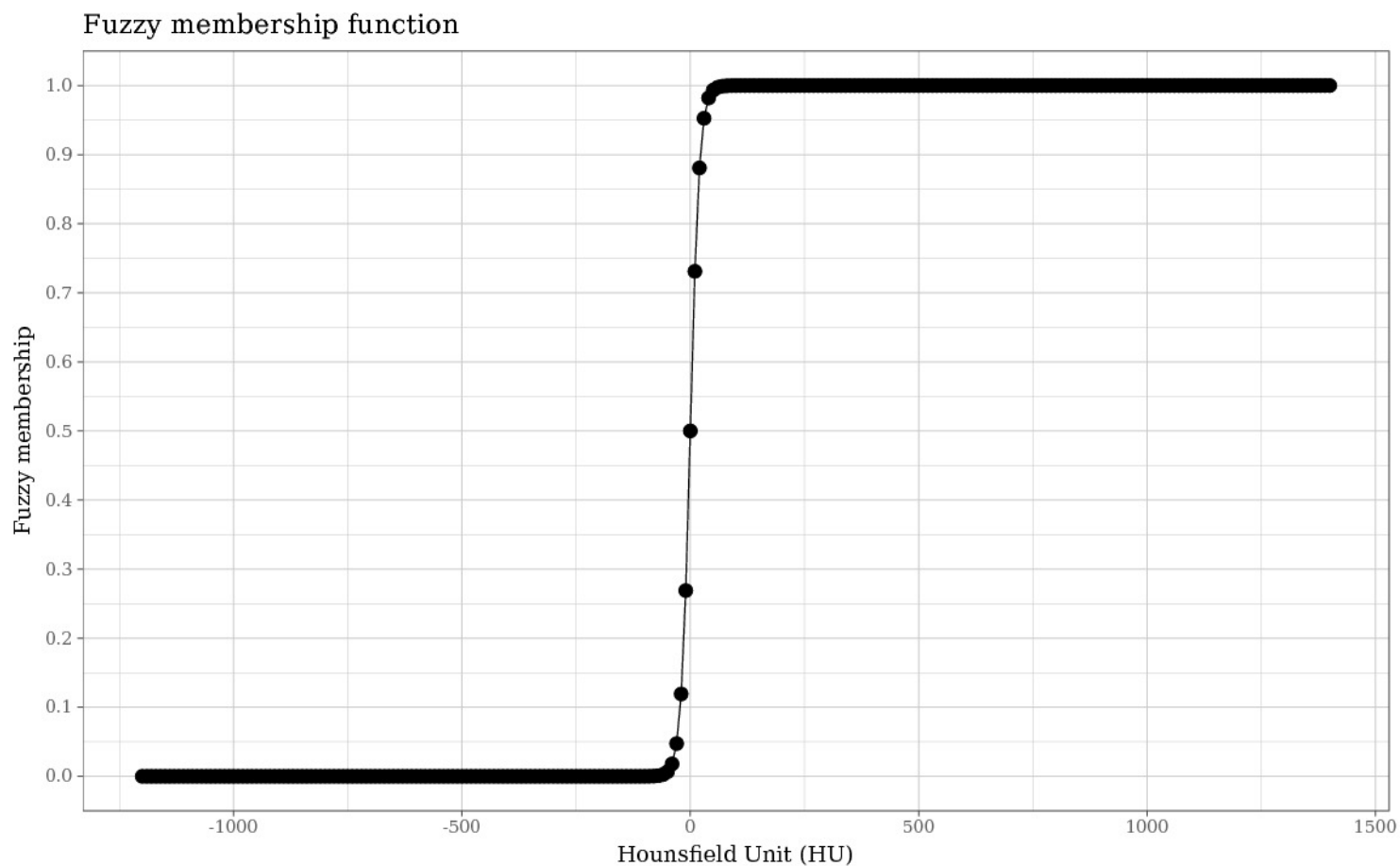
The role of the fuzzy membership function is to determine the likelihood that the voxel being examined belongs to the foreground. Thus, the fuzzy membership function assigns a membership value to each Hounsfield Unit level, and these membership function values are integrated along a given orientation.

The parameters of the membership function are selected by least squares estimation. The estimated root mean square error of thickness measurement is 0.6 mm.

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<b>Object:</b>	Cylinderhead	<b>Identity Nr.:</b>	
<b>Date:</b>		<b>Code:</b>	
Measurement			



The parameters of the sigmoid membership function are estimated empirically using the mean HU value of the metal object and the mean HU value of the air. The graph of the function is visualized in the next figure.



Client company:	Medicopus Nonprofit Ltd	Expert:	
Object:	Cylinderhead	Identity Nr.:	
Date:		Code:	
Measurement			

