



Application NIS Elements

Cast Iron Analysis



Inspection and measurement of the malleable cast iron

Iron castings with graphite flakes (gray iron) are not as strong or impact resistant as those with round nodular graphite (ductile iron). Nikon Imaging Software Classifies automatically the form, distribution, and size of the graphite which is useful in the determination of the mechanical behavior of the cast iron.

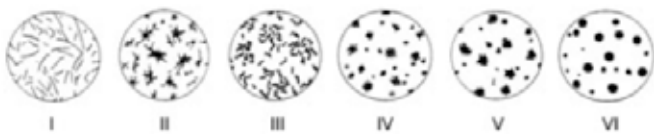


Figure 1 : Standard series images of the six basic graphite type according to DIN EN ISO 945



Figure 2 : Malleable Cast Iron, original image before grey scale thresholding.



Figure 3 : Binarisation of the graphite into different colors representing the shapes.

Graphite Shape classification:							
I	II	III	IV	V	VI		
0	0	1	5	13	14		
Graphite Size classification:							
1	2	3	4	5	6	7	8
0	0	0	0	0	0	0	0
Standard: ISO 945-75							
Field ID: 1							
Num. of graphite floids: 1							
Num. of ferrite floids: 3							
Number of graphites: 33							
Nodularity: 81.8 %							
Graphite fraction: 13.7 %							
Ferrite fraction: 14.6 %							
Pearlite fraction: 85.6 %							

Figure 4 : Graphite Shape and Graphite Size Classification according to ISO 945.



Figure 5 : Shape distribution. The reports can also be generated in excel