MODERN

OPTIMA

Upright Trinocular Metallurgical Microscope

Technical Specifications

Trinocular Observation Head

- Sidentopf observation head inclined at 30˚ rotatable at 360˚
- Vertical focusable phototube for micro photography.
- Diopter adjustment ring on ocular tube(±5).
- Interpupilary distance from 50mm to 75mm.

Eyepiece(anti fungal treated)

- Extra wide field 10x(paired)
- F.O.V.22mm Ocular dia 30mm.

Objective(infinity corrected & anti fungal treated)

- LWD Plan Achromatic Metallurgical Objective 5x
- LWD Plan Achromatic Metallurgical Objective 10x
- LWD Plan Achromatic Metallurgical Objective 20x
- LWD Plan Achromatic Metallurgical Objective 50x(S.L.)
- LWD Plan Achromatic Metallurgical Objective 100x (Dry)

Mechanical Body

- Co-axial focusing control with large knob.
  PRE-FOCUSING LEVER & TENSION ADJUSTMENT RING.
- Reverse angle quintuple nosepiece revolving on Ball bearing with slot for polarizer & DIC attachments.
- Rotatable & rackless motorized mechanical stage size 150mm x 150mm.
- Low positioned co-axial controls on ball bearing guide ways.
- XY sample stage = Motorized
- XY stagetravel = 100mm x 100mm
- Z focusing stage = Motorized with autofocusing algorithm
- Z focusing stage travel = 25mm

Sub Stage Condenser

- Swing out front lens, abbe condenser N.A. 0.9, filter holder and ilris diaphragm

Reflected Illumination

- 5W LED, Warm color, Koehiers with illumination with oblique device, center adjustable field and aperture diphagram

Standard Accessories

- 5W LED bulb, dust cover, blue filter, guarantee card operating manual and Styrofoam molded pack

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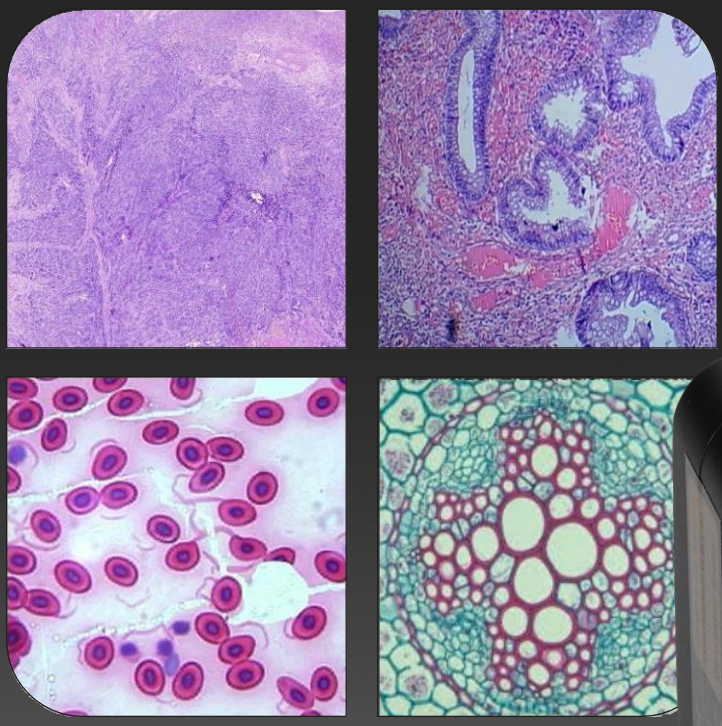
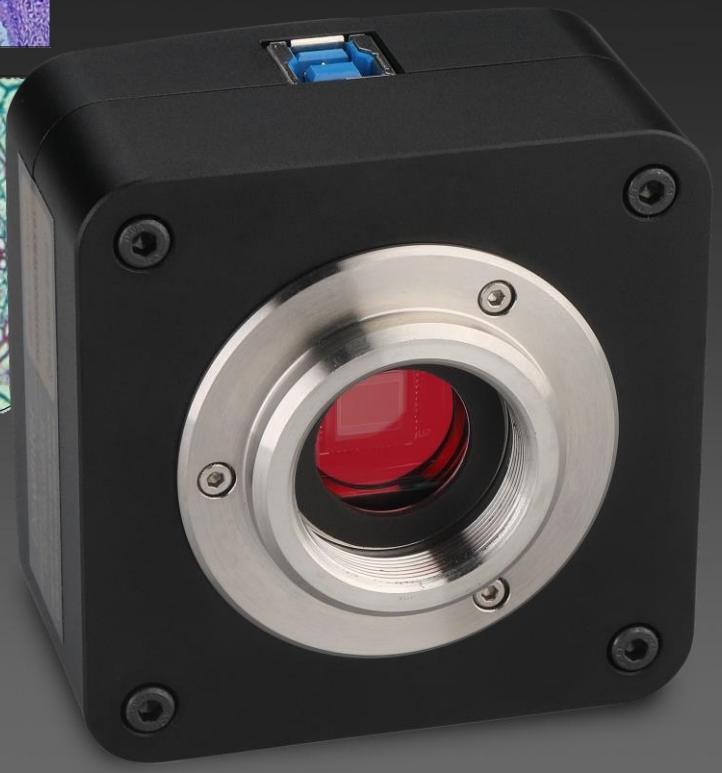
Digital USB CMOS Microscope Camera





MODEL: DIGI 510+

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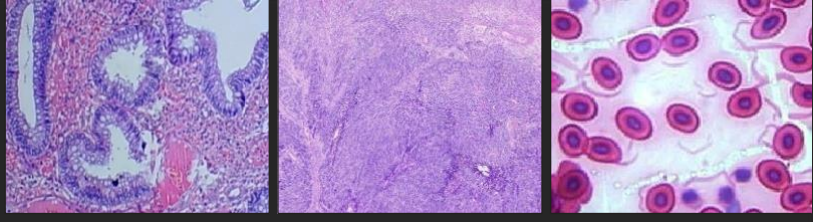

DIGITAL CAMERA

Feature:

- 5.0 Megapixels with progressive scanning CMOS image sensor.
- No compression, no interpolation.
- Support still image capture (JPG, BMP)
- **USB 3.0** interface, up to 480MPS, external power no need.
- Interfaced to a computer via **USB 3.0** technology for rapid image download.
- Plug-to-use, suitable for shooting of any standard biological, stereo and metallurgical microscopes.
- Ease of operation; only take 5 minutes to master the friendly software.
- Standard C-Mount makes connection to any microscope easy. Macro lens setups are also supported
- Fully integrated package with digital camera and imaging software for managing your imaging work ·ow.
- Data can be shared, stored and edit, real-time preview function offers you the greatest experience with the microscope.
- Video taping is available, simple to store and transfer when compression mode is selected;

Speci▫cation:

Sensor:	1/ 2.5" CMOS, MICRON (MT9P031)
Resolution:	2592×1944(8bit)
Pixels Size:	2.2μm×2.2μm
Frame Rate:	8fps@2592×1944, 30fps@640 ×480
Shutter:	Electronic
S/N Ratio:	43 dB
Scanning Mode:	Progressive scanning
Sensitivity:	1.0 V/ lux-sec (550nm)
Data Interface:	USB 3.0 (480 Mbit / sec)
Power Supply:	DC 5V ± 5%
Electricity:	≈200 mA
White Balance0:	Manual/Auto one-touch
Exposure control:	10μs–32ms,Auto exposure
Software:	Display/Film/Video
Operating Temp:	0°C ~ 60°C

MODEL: DIGI 510+

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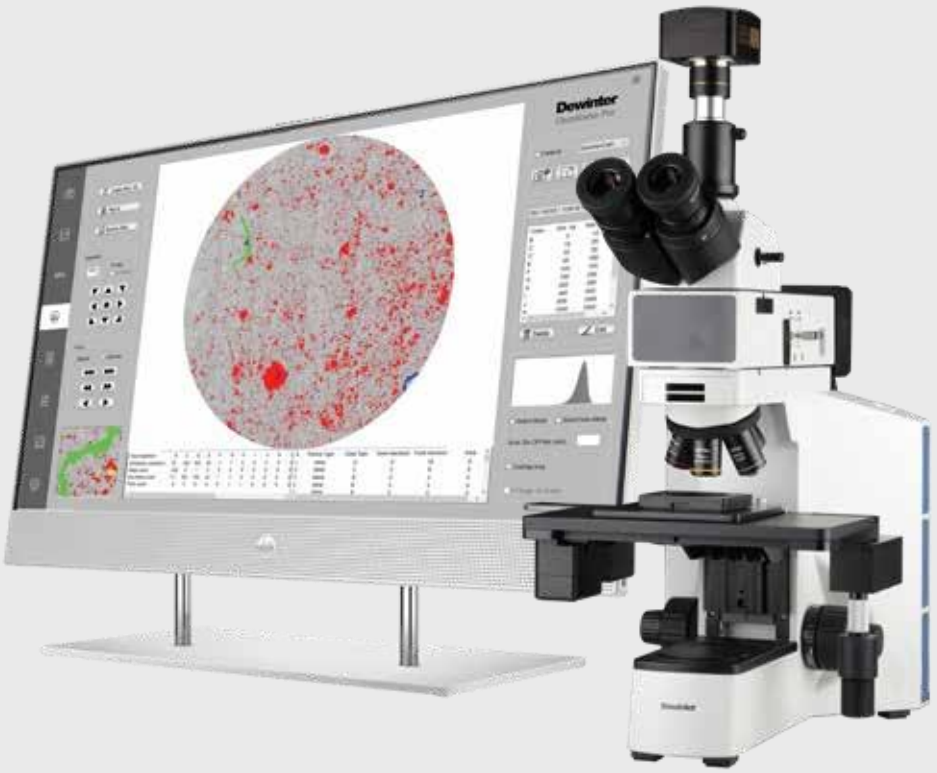
Cleanliness & Particle Inspection System

Automatic Millipore Filter based Particle Analysis System

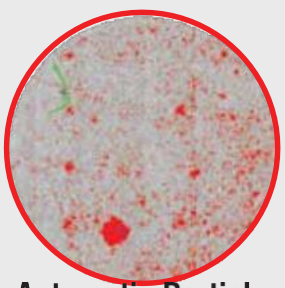
Cleanliness & Particle Inspection System is an easy-to-use, optimal solution to provide you with reliable, repeatable analysis results specific to your application needs in minutes.



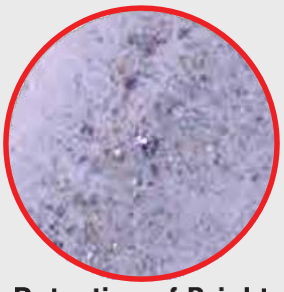
Various Application:

- Particle Analysis System for Component Cleanliness & Pharma
- Particle Analysis System for Medical Industry
- Particle Analysis System for Aerospace
-
- Particle Analysis System for Hydraulics

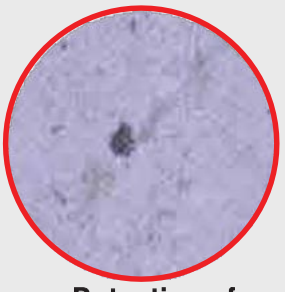
Option to choose between various standards such as ISO 16232, ISO 4406-4407, IEST-STD-CC1246D or USP 788, VDA 19.1 etc. The system has option to create standards for in-house customized analysis. FDA 21 CFR Part 11 Compliant Particle System with D Particle Size distribution.



Automatic Particle Count and Classification



Detection of Bright Reflective Particle

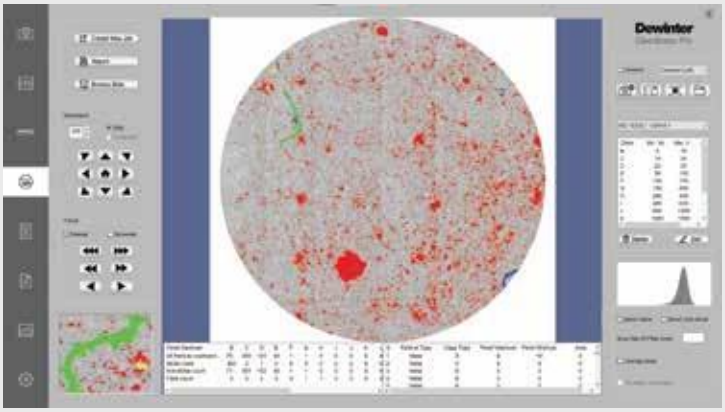


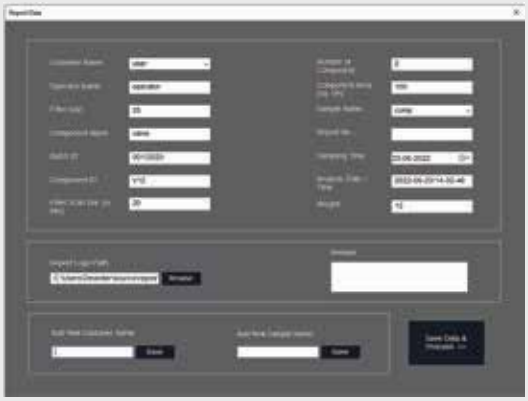
Detection of Non-Reflective Particle

Detection of Fibre Particle

EASY TO USE AND OPERATE:

- This module performs high speed real time filter scanning and Faster cleanliness analysis
- It Provides accurate and auto detection of different types of particles present on the filter As per the User Standards.
- This software also helps user to create different analysis classifications and operate in real time in a hassle free manner.
- It continuously allows manual as well as automated Z focusing and Z stacking.
- The user can create, modify, edit as well as delete different classes based on different standards.



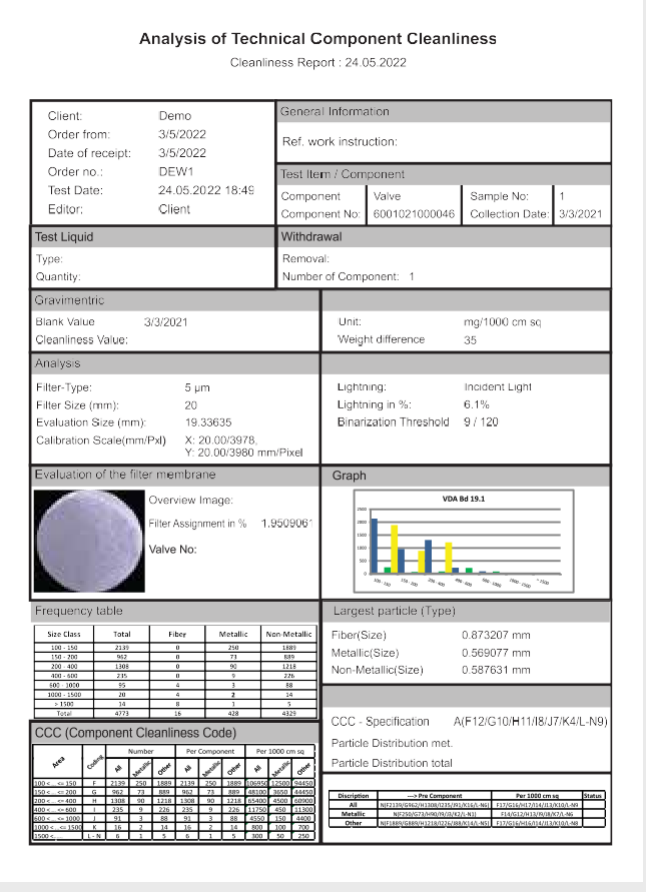


FLEXIBILITY IN ANALYSIS:

- It's designed in a way where it automatically scans and adjusts to all sizes and types of filters in real time as input by user.
- The portion of filter which is supposed to be scanned can also be adjusted as per the requirements of the user.
- the software comes with interactive annotation and measurement tools for better and enhanced analysis.
- It is compatible with producing multiple report format as per the user's requirement.

RESULTS AND REPORTING:

- The software provides automatic and fast detection of metals, non-metals and fibre particles
- It also classifies the particles into different cleanliness classes as per the required standard.
- This module is fully compliant with the latest standards implemented in cleanliness detection.
- It includes extensive reporting with class specification, largest particles parameters and component cleanliness code as per the standards.
- This software allows an easy generation of reports as per the requirement through EXCEL (default), HTML or PDF format.



Analysis of Technical Component Cleanliness

Cleanliness Report : 24.05.2022

Client:	Demo	General Information	
Order from:	3/5/2022	Ref. work instruction:	
Date of receipt:	3/5/2022		
Order no.:	DEW1	Test Item / Component	
Test Date:	24.05.2022 18:49	Component	Valve
Editor:	Client	Component No:	6001021000046
		Sample No:	1
		Collection Date:	3/3/2021

Test Liquid		Withdrawal	
Type:		Removal:	
Quantity:		Number of Component:	1

Gravimentric			
Blank Value	3/3/2021	Unit:	mg/1000 cm sq
Cleanliness Value:		Weight difference	35

Analysis			
Filter-Type:	5 µm	Lightning:	Incident Light
Filter Size (mm):	20	Lightning in %:	6.1%
Evaluation Size (mm):	19.33635	Binarization Threshold	9 / 120
Calibration Scale(mm/Pxl)	X: 20.00/3978, Y: 20.00/3980 mm/Pixel		

Evaluation of the filter membrane

Overview Image:

Filter Assignment in % 1.950906

Valve No:

Graph

Frequency table

Size Class	Total	Fiber	Metallic	Non-Metallic
100 - 150	2139	0	250	1889
150 - 200	962	0	73	889
200 - 400	1308	0	90	1218
400 - 600	235	0	9	226
600 - 1000	55	4	3	88
1000 - 1500	20	4	2	14
> 1500	10	0	1	5
Total	4773	15	428	4325

Largest particle (Type)

Fiber(Size)	0.873207 mm
Metallic(Size)	0.569077 mm
Non-Metallic(Size)	0.587631 mm

CCC (Component Cleanliness Code)

KHO	Code	Number			Per Component			Per 1000 cm sq		
		in	cumm	class	in	cumm	class	in	cumm	class
100 < <= 150	F	2139	250	1889	2139	250	1889	68450	12500	94450
150 < <= 200	G	962	73	889	962	73	889	48100	3650	44450
200 < <= 400	H	1308	90	1218	1308	90	1218	65400	4500	60900
400 < <= 600	I	235	9	226	235	9	226	11750	450	11300
600 < <= 1000	J	91	3	88	91	3	88	4550	150	4400
1000 < <= 1500	K	16	2	14	16	2	14	800	100	700
1500 <	L - N	6	1	5	6	1	5	300	50	250

CCC - Specification A(F12/G10/H11/I8/J7/K4/L-N9)

Particle Distribution met.

Particle Distribution total

Discription	---> Per Component				Per 1000 cm sq				Status
All									
Metallic									
Other									

Upright Metallurgical Microscope

- XY sample stage = Motorized
- XY stagetravel = 80mm x 80mm
- Z focusing stage = Motorized with autofocusing algorithm
- Z focusing stage travel = 25mm
- Magnification = 50X-1000X
- Eyepiece (Anti fungus) = wide field 10x (paired) F.O.V.22mm.
- Illumination = 3W warm LED lamp with variable bright nose control.
- Standards available with the system ISO 16232-10 and VDA 19.1
- Sample holders = 75mm x 25mm, 25mm diameter, 47mm diameter
- Additional standards can be developed or customized as per customer need as and when required.

Monozoom /Stereozoom Microscope

- XY sample stage = Motorized
- XY stagetravel = 75mm x 55mm
- Z focusing stage = Motorized with autofocusing algorithm
- Z focusing stage travel = 25mm
- Magnification = 50X
- Sample holders = 75mm x 25mm, 25mm diameter, 47mm diameter
- Top ring LED illuminations = 8mm LEDs with intensity adjustable option via software
- Standards available with the system ISO 16232-10 and VDA 19.1
- Additional standards can be developed or customized as per customer need as and when required.

Contemporary Design blended with
Optical Excellence

The Dewinter Cleanliness & Particle Analysis System is a revolutionary solution to meet the requirements of all automated cleanliness inspections. The system provides an optimized solution for repeatability, accuracy, and minimizing inspection human error and contamination risk. The system provides a unique high-performance optical system resulting in accurate analysis.

Revolutionary Imaging

The Dewinter Cleanliness & Particle System comprises Dewinter Optima Microscope with best-in-class objectives and a high-resolution camera that provides exceptional picture quality with extreme clarity in enabling accurate particle detection and measurement analysis.

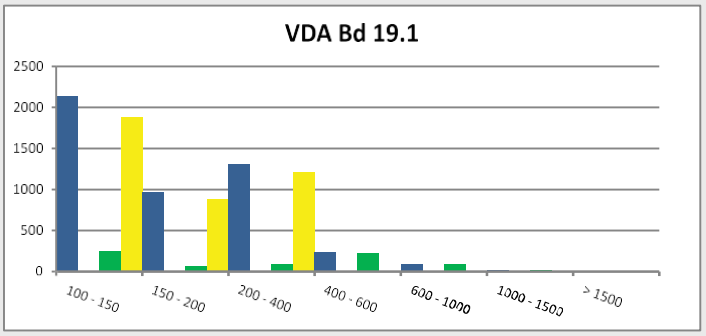
Accurate Analysis

The system comes with pre-calibrated settings and high optical performance combines to provide accurate analysis results. The system generates the same quality of results for different samples.

Seamless Real-time Scanning

The Dewinter Cleanliness & Particle System has the real-time automated filter scanning system which is adjustable to all sizes of samples in real-time. The Continuous Automated Z Focus drive ensures constant focus throughout the sample scanning.

Scanned Sample



Full Motorized Control

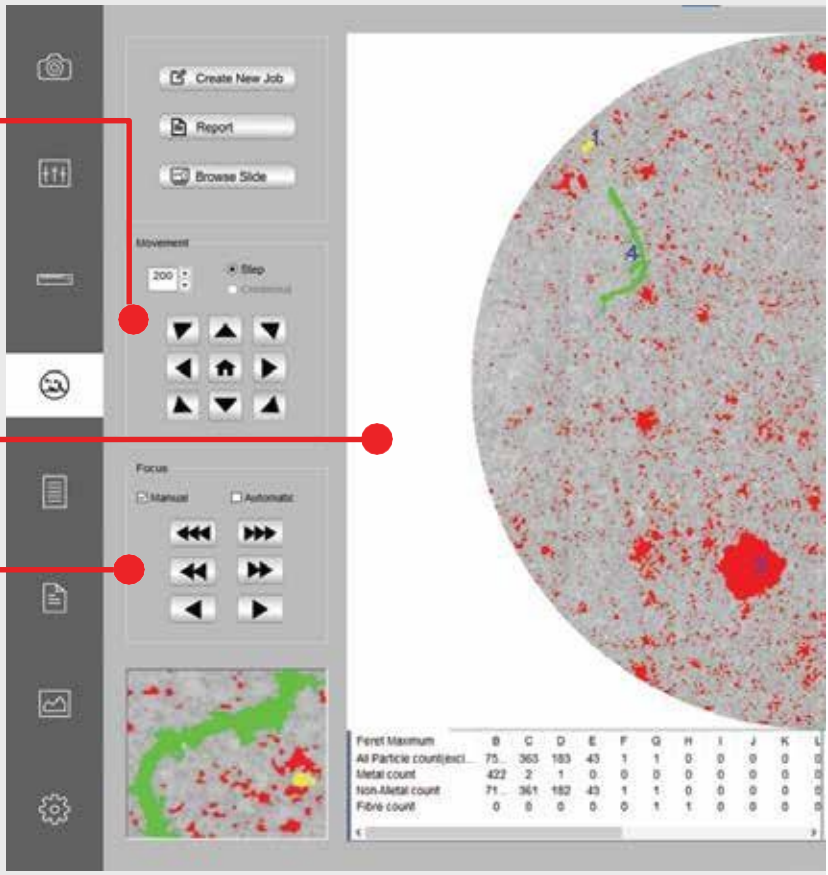
The system control comes with full motorized control of the stage through the software interface.

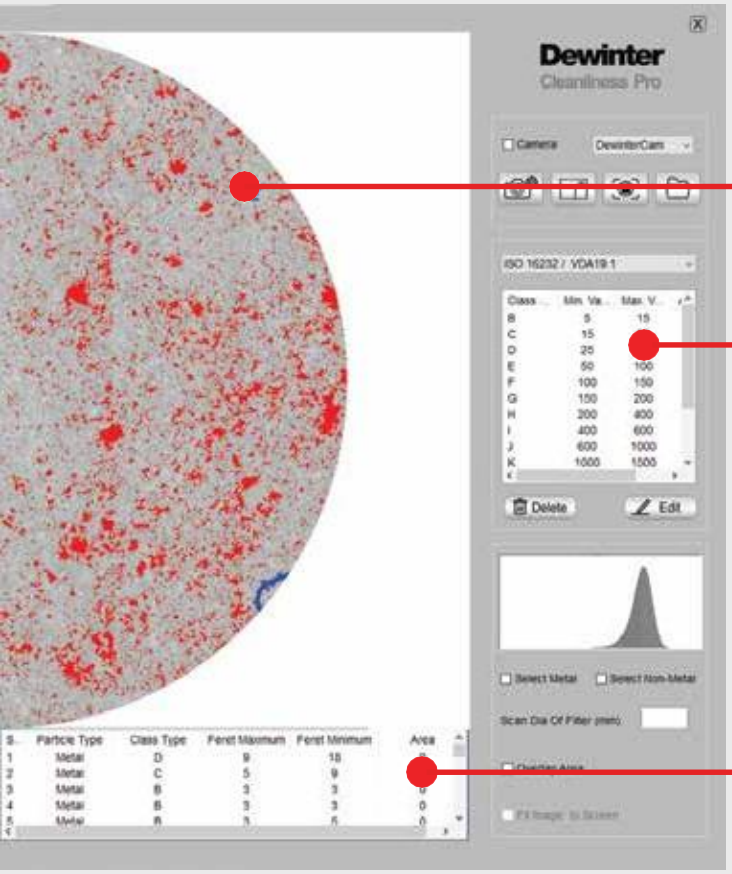
Full Screen Access

The software interface is spread full screen provides user sufficient space to view sample and minor.

Automatic Z Focusing

Automatic Z focusing at different levels provides a constant focused image helping in accurate measurement.





Live Sample View

To provide easy navigation the main window has all the camera settings present at the very first itself enabling users to browse through live sample easily.

Variety of Classifications

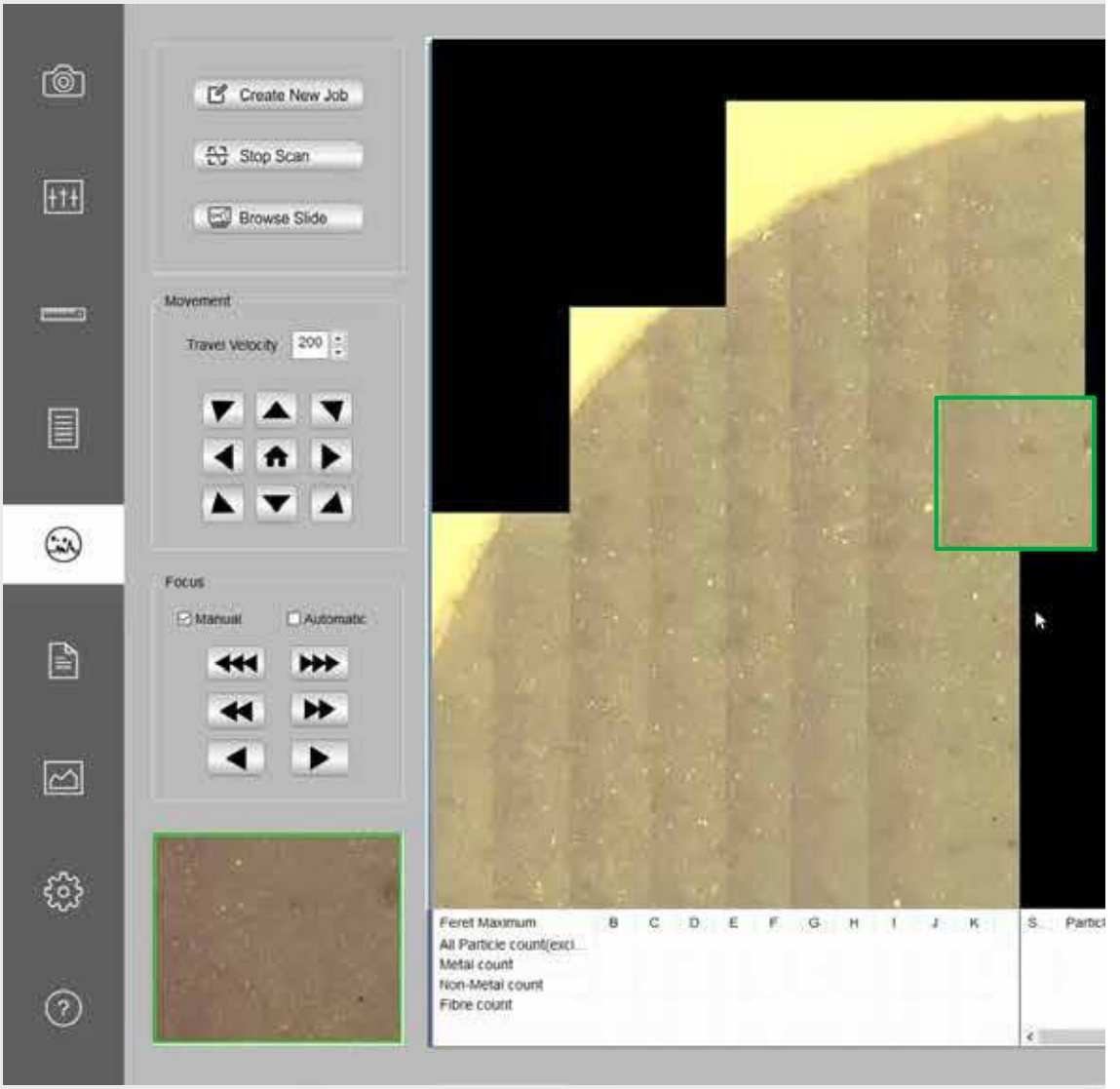
The software can accommodate as many classifications as the user requires with varying class size, description and range.

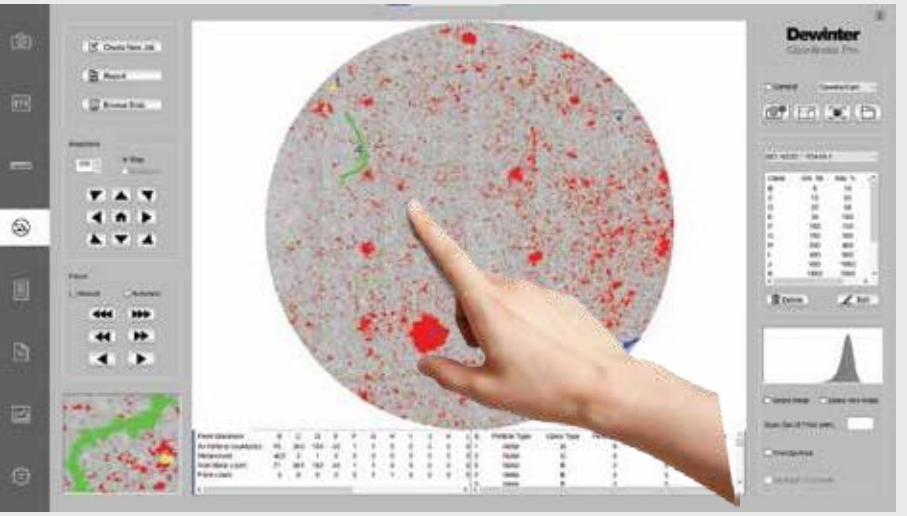
Detailed Analysis Result

The software generates a detailed result of each particle, besides classification and cleanliness coding the morphological parameters of each particle is displayed.

Live Sample Scanning

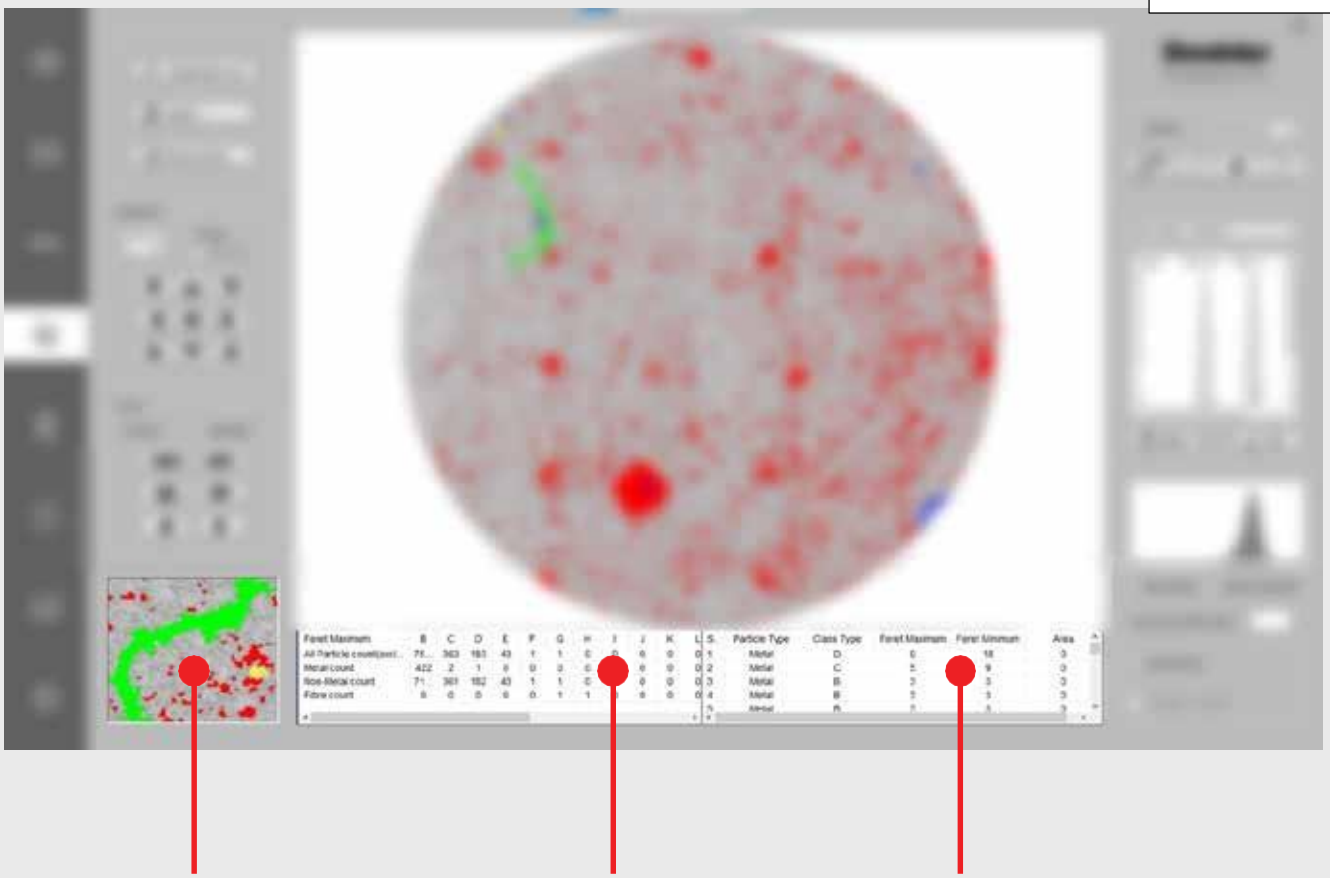
The system performs an automated scan of the sample area in real-time high speed with adjustable diameter size of the sample area.





Touch Screen Application

The Dewinter cleanliness & Particle system is fully touch responsive software which can be used on any touch screen system to increase productivity and better experience.



Easy Verification, Revise and Edit

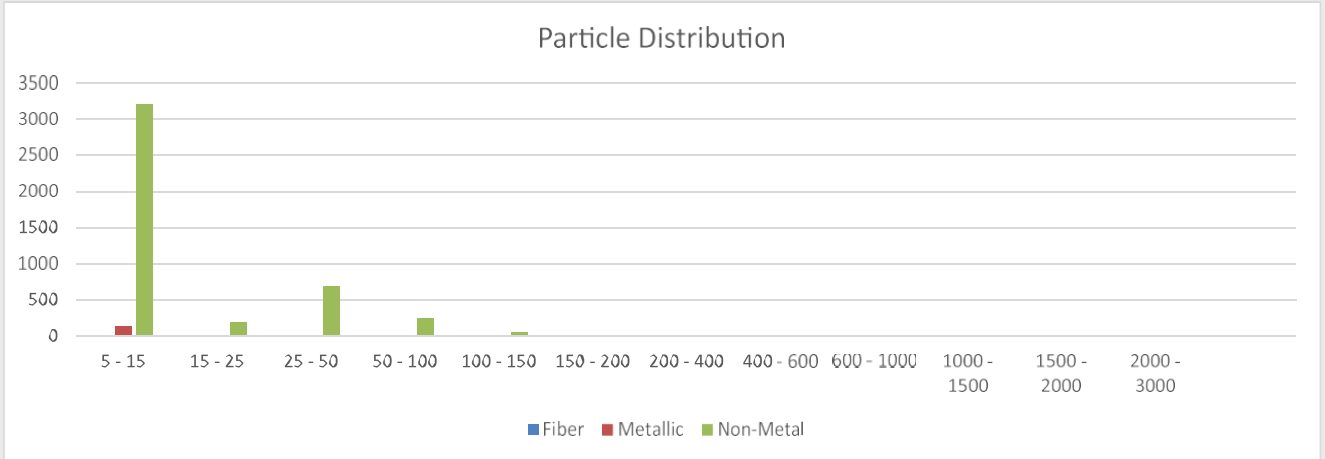
User can Easily select on any particle and get magnified view on the particle with the corresponding particle parameter highlighted on the list. One can easily have a close look on the particle and if required can changes class, type, delete as per requirement.

Particle Size Distribution

The particle count distribution of each particle type is displayed in the list and changes on real time with edit made.

Particle Description

Each detected particle is displayed in list with its type, classs and its morphological parameter.



Graphical particle count distribution in report

Size Class	Total	Fiber	Metallic	Non-Metallic
5 - 15	3345	0	136	3209
15 - 25	192	0	2	190
25 - 50	690	0	0	690
50 - 100	261	0	1	260
100 - 150	55	0	1	54
150 - 200	11	0	0	11
200 - 400	9	0	0	9
400 - 600	1	0	0	1
600 - 1000	2	1	0	1
1000 - 1500	0	0	0	0
1500 - 2000	0	0	0	0
2000 - 3000	0	0	0	0

Detailed Report Data

The Dewinter Cleanliness & Particle system has detailed report data with client formation, Particle count distribution, cleanliness coding and other count particle count parameters.

Feret Maximum	Coding	Number			Per Component			Per 1000 cm sq		
		All	Metallic	Other	All	Metallic	Other	All	Metallic	Other
15-May	B	3345	136	3209	1672	68	1604	33450	1360	32090
15 - 25	C	192	2	190	96	1	95	1920	20	1900
25 - 50	D	690	0	690	345	0	345	6900	0	6900
50 - 100	E	261	1	260	130	0	130	2610	10	2600
100 - 150	F	55	1	54	27	0	27	550	10	540
150 - 200	G	11	0	11	5	0	5	110	0	110
200 - 400	H	9	0	9	4	0	4	90	0	90
400 - 600	I	1	0	1	0	0	0	10	0	10
600 - 1000	J	2	0	2	1	0	1	20	0	20
1000 - 1500	K	0	0	0	0	0	0	0	0	0
1500 - 2000	L	0	0	0	0	0	0	0	0	0
2000 - 3000	M	0	0	0	0	0	0	0	0	0
3000 -	N	0	0	0	0	0	0	0	0	0

Particle distribution reported in actual, per component and per 1000 sq. cm.

---> Pre Component	Per 1000 cm sq
N(B1672/C96/D345/E130/F27/G5/H4/I0/J1/K0/L0/M0/N0/)	6/C11/D13/E12/F10/G7/H7/I4/J5/K00/L00/M00/N
N(B68/C1/D0/E0/F0/G0/H0/I0/J0/K0/L0/M0/N0/)	1/C5/D00/E4/F4/G00/H00/I00/J00/K00/L00/M00/I
N(B1604/C95/D345/E130/F27/G5/H4/I0/J1/K0/L0/M0/N0/)	6/C11/D13/E12/F10/G7/H7/I4/J5/K00/L00/M00/N

Particle cleanliness Code actual, per component and per 1000 sq. cm.

Marker	4
Long	81.08
Width	25.18
Area	1940.37
Type	Fiber

Largest or selected particles displayed in report with dimensional parameters