

# *Genus\_3D*

Fully automated serial sectioning 3D microscope

Development and manufacture

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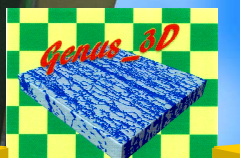
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# Genus\_3D

Fully automated serial sectioning 3D microscope

*Finally born from several decades  
of experience!*

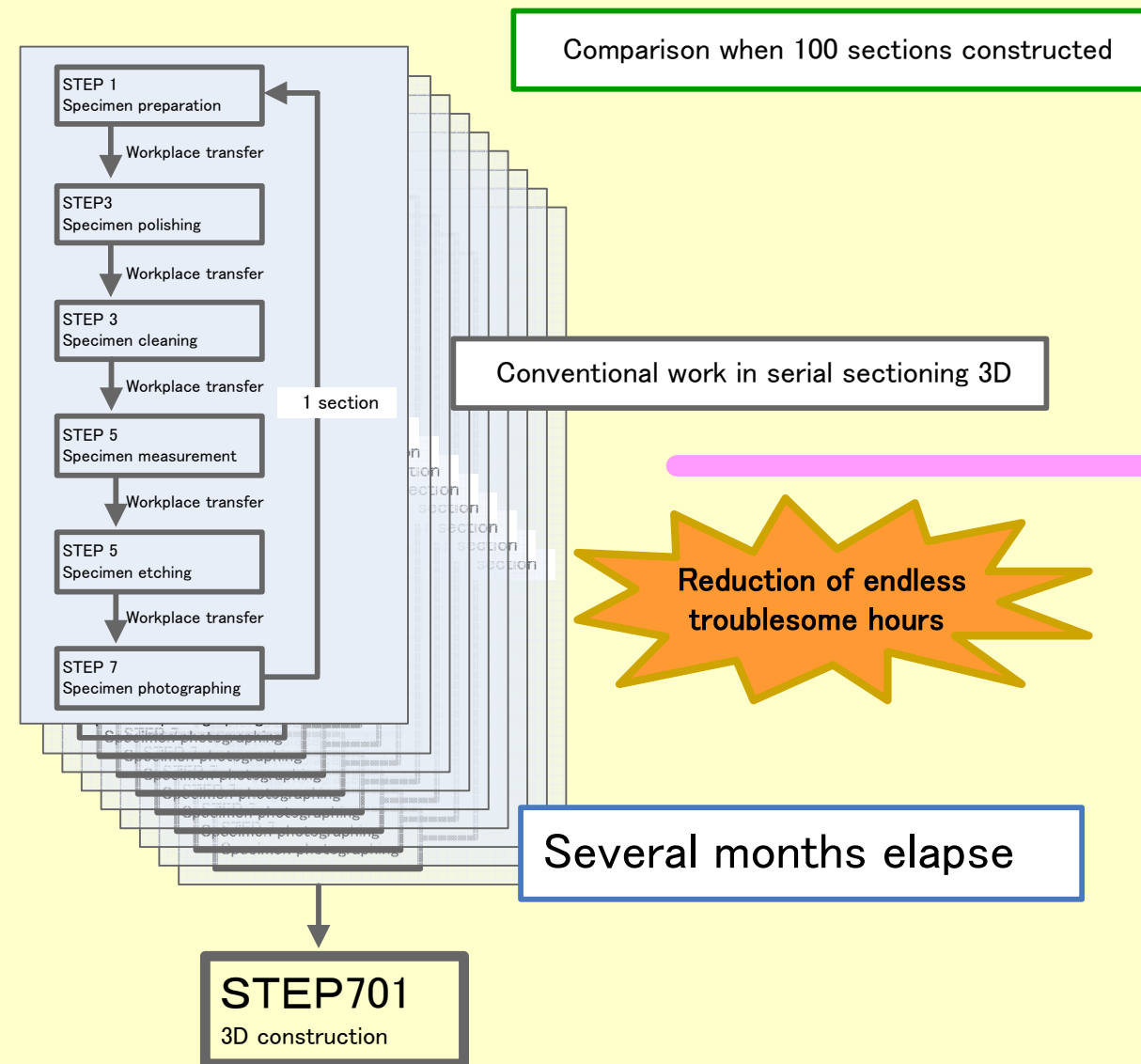


Photographs obtained with this  
equipment were awarded the 61<sup>st</sup>  
Japanese Institute of Metals Photograph  
Prize Honorable Mention

- Single-phase and diploid phase complex structure analysis
- Clarification of materials destructive mechanism (void, crack)
- Defect evaluation (inclusion, cavity, etc.)
- Analysis of material internal boundaries (phase interface, grain boundary)

*Do several months work in one day!*

# Genus\_3D



STEP1  
Specimen preparation

STEP 2  
Specimen mounting

STEP 3  
Setting

STEP 4  
3 dimensionalization

1 day

\*1

Fully  
automatic

Several months of verification in 1 week  
Development taking several years in 6 months  
Dramatic reduction in time

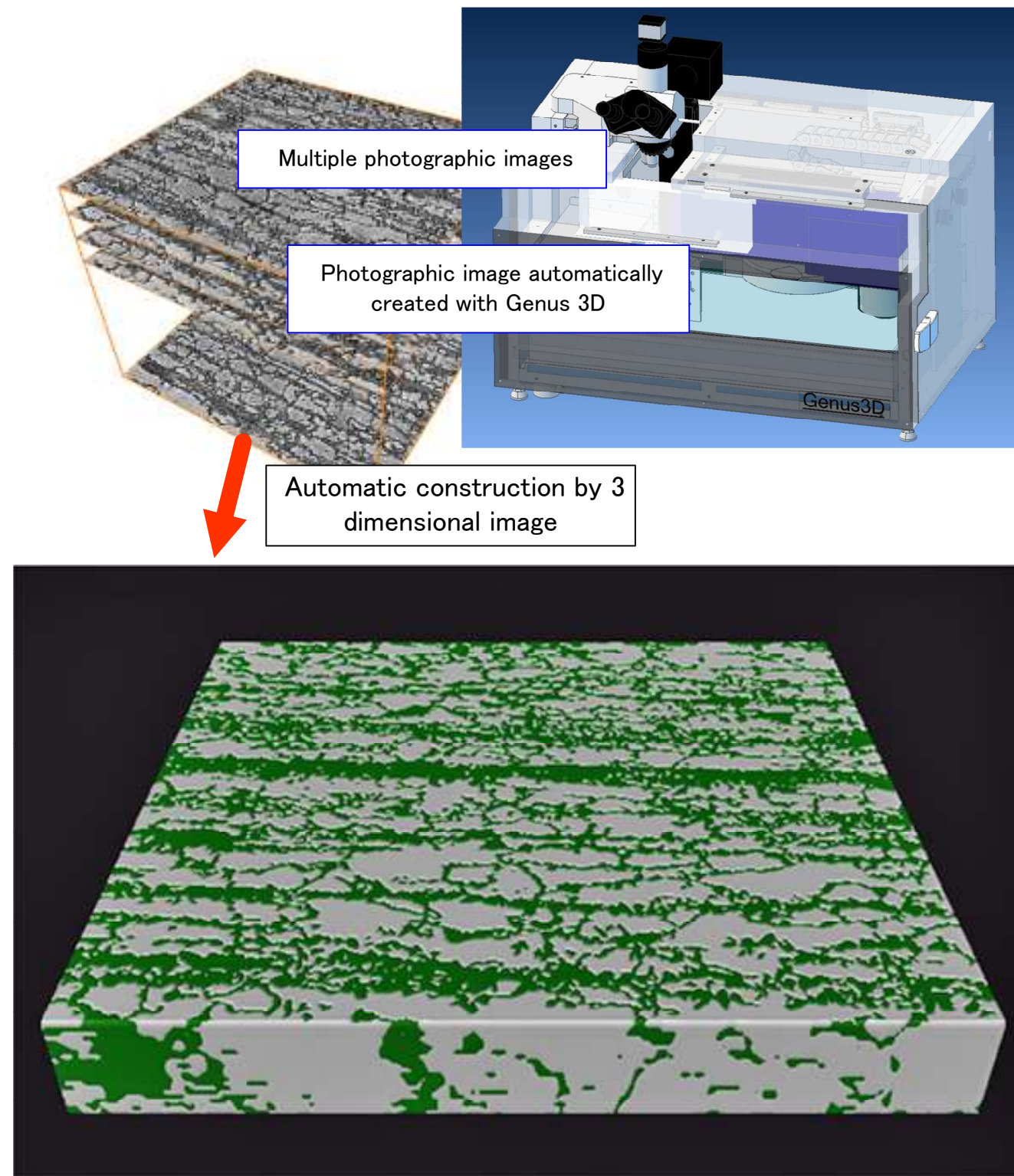
\*2

- Polishing amount unknown, takes up work time, frequent excessive polishing
- Polishing work required constant manpower to check the polishing state
- Specimen must be cleaned manually simultaneously with chapped hands
- Manual measurement takes time
- Continuous trouble without the same etching finish each time
- Photographing at last by troublesome focusing by microscope each time a photograph is taken.

- Equally spaced precision specimen polishing
- Polishing slab conditioning function for long-term stable operation.
- Specimen cleaning function which makes a good photographing possible.
- Automatic precision laser measurement
- Etching taking advantage of experience.
- 3D dedicated development auto focus photography



# 3D age of analysis also!



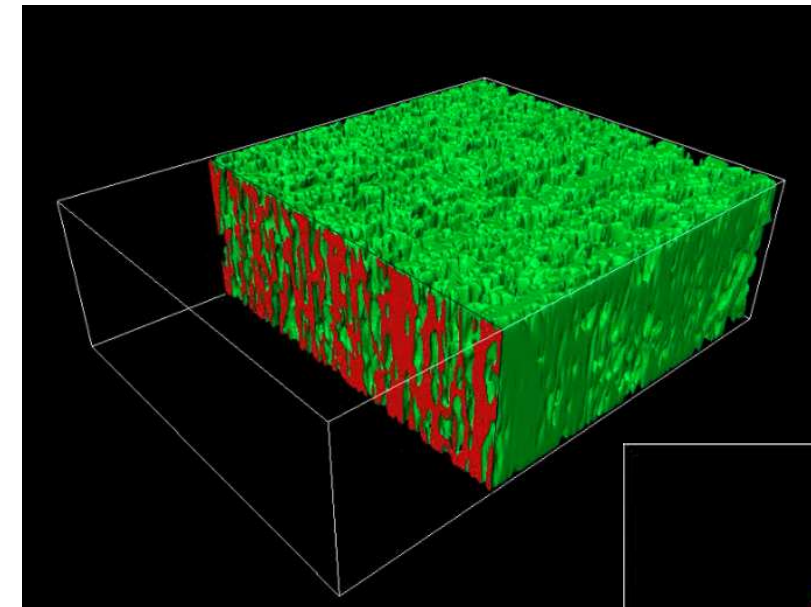
Can be used to convert from 3D image data to numbers and perform numerical analysis and evaluation!

Application to fusion observation of structure + cracks and inclusions. A holder that also allows application to observe fusion with EBSD, etc. is available.

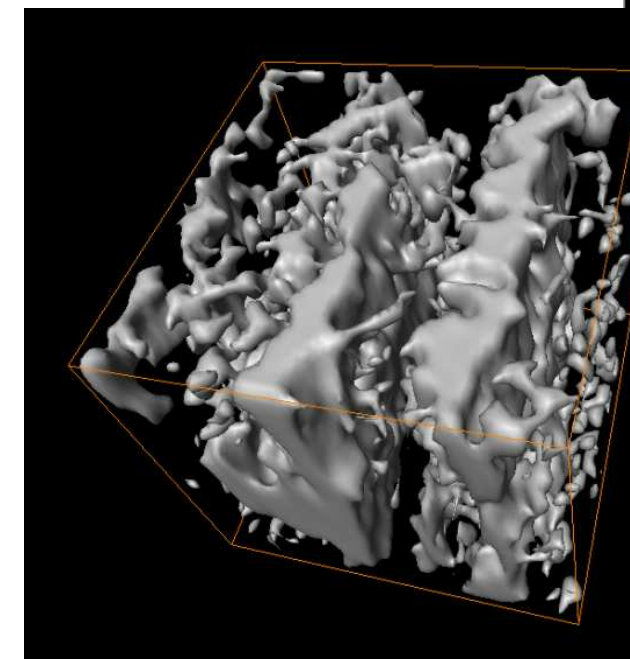
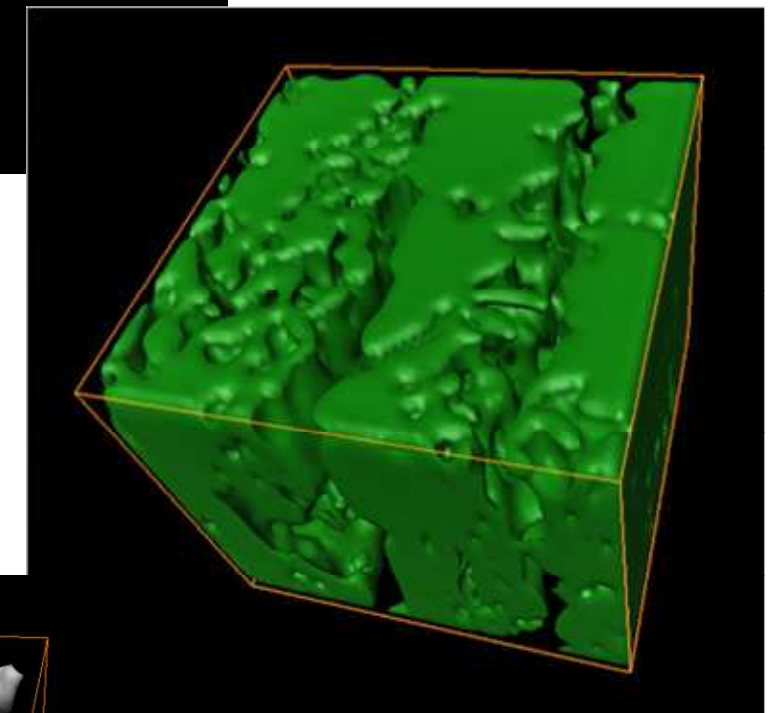
Photography

3D

Digitalization



Magnified image



Photographic observation example: Metal structure image (DP copper)

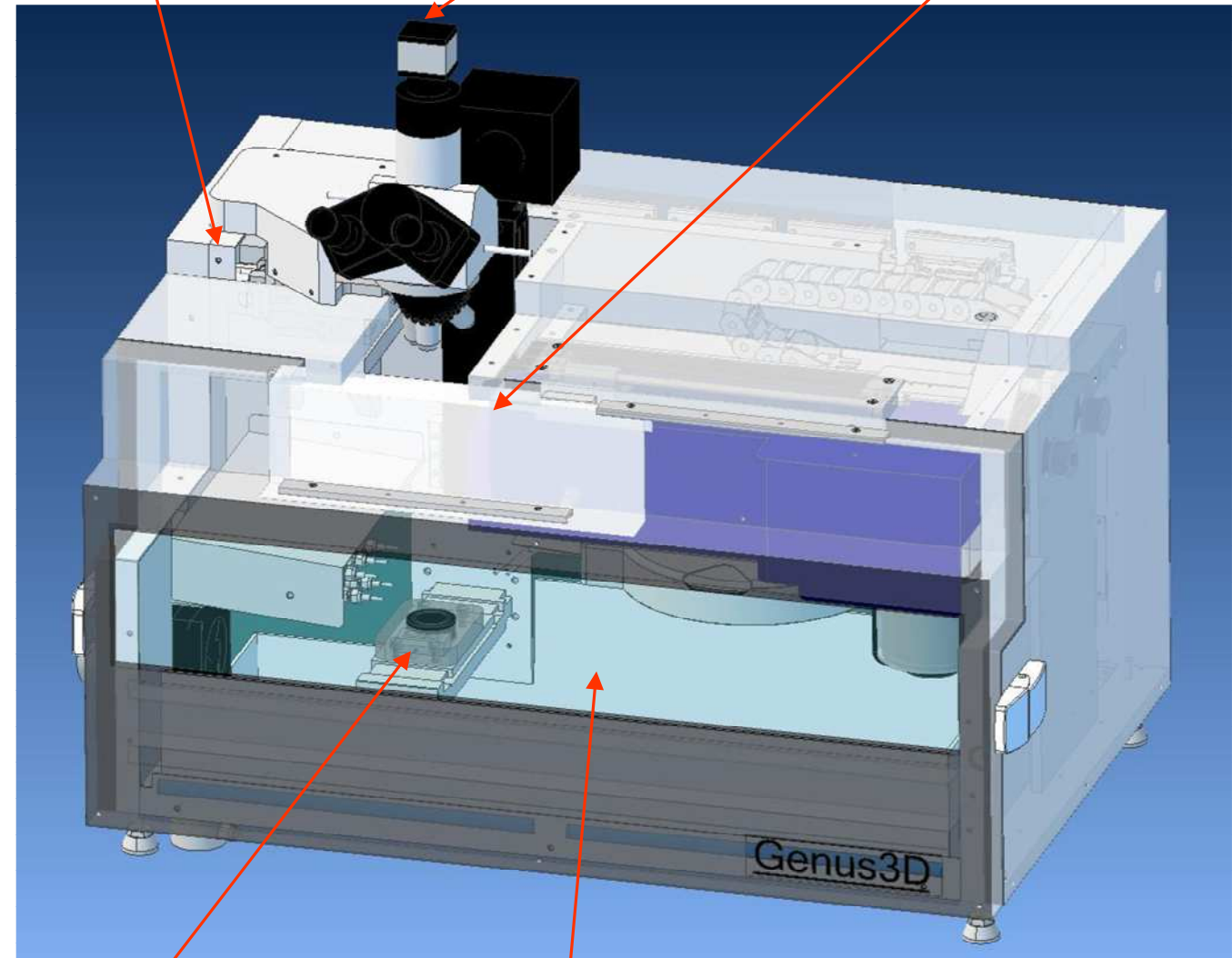


Crystallization in a Combination of Technologies !

Adjustable observation position viewing moving stage

5 million pixels color camera takes excellent photographs

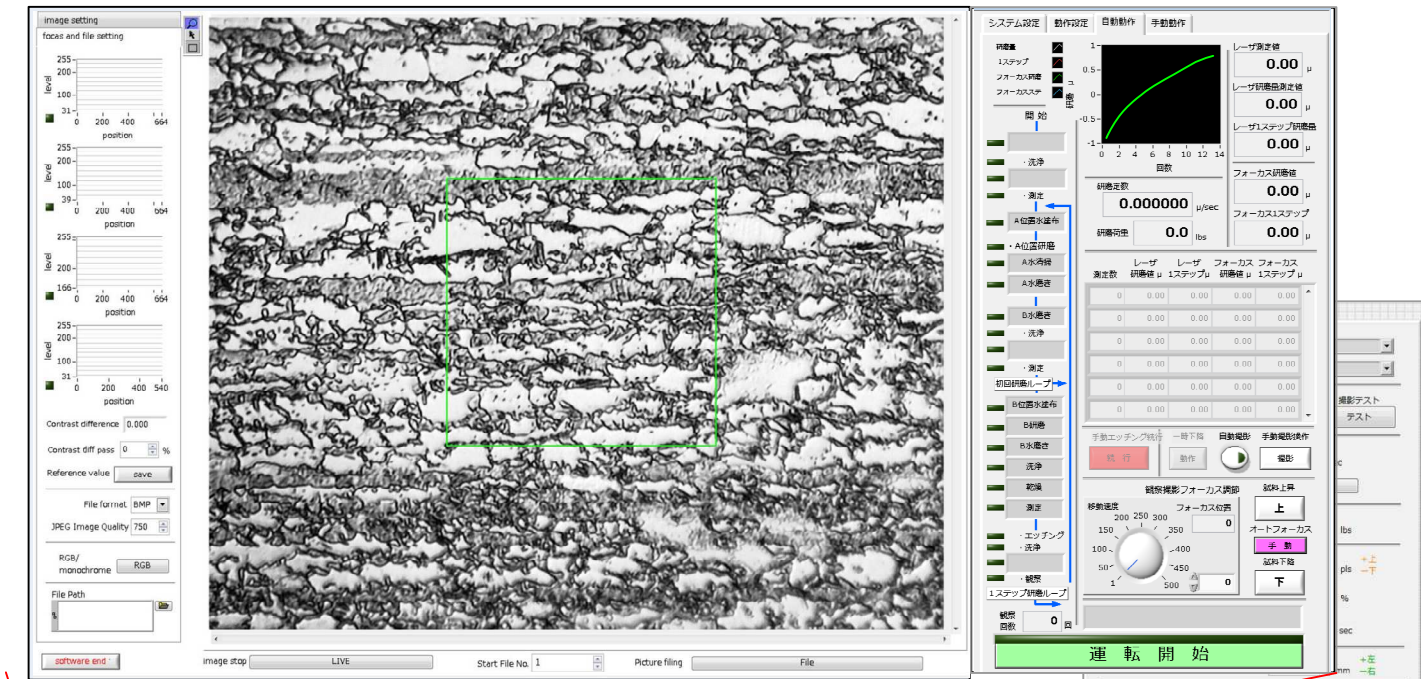
Fully automatic contactless precision twin laser measurement



Corrosion-resistant specimen stand that can be matched to the site specimen shape

Wet polishing that allows excellent specimen state

Supply solution container stand with built-in stirrer that allows stable operation



Genus dedicated development auto focus observation window  
Photography and operation screen



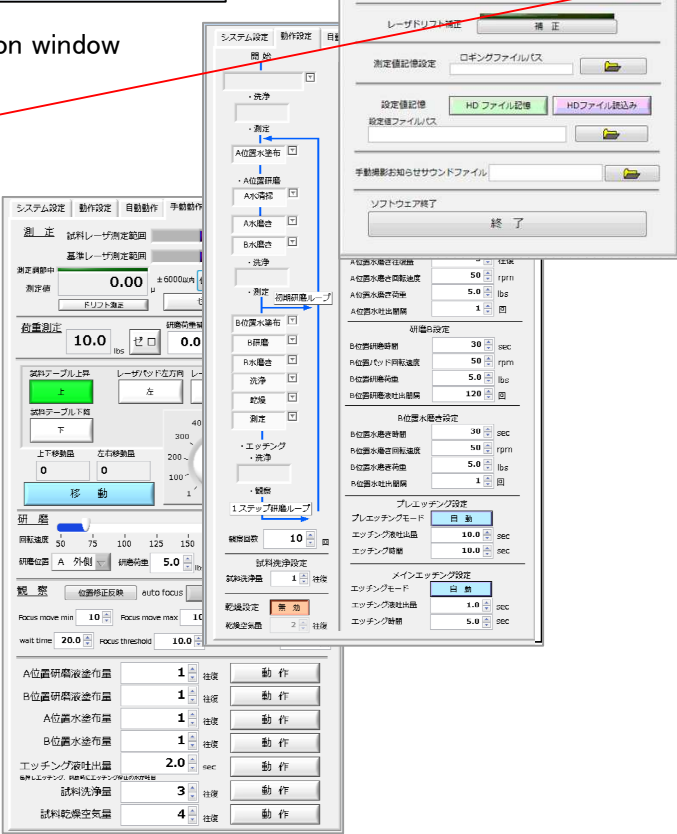
Menu selection type setup screen

Fully automatic operation and semi-automatic operation selection

Operation conditions details setting

Faithful reproduction of work necessary at polishing

Menu and setting items perfect for operation



Composite structure and cracks are photographed unchanged.

Automatic etching can also be performed at structure observation

Both can also be performed

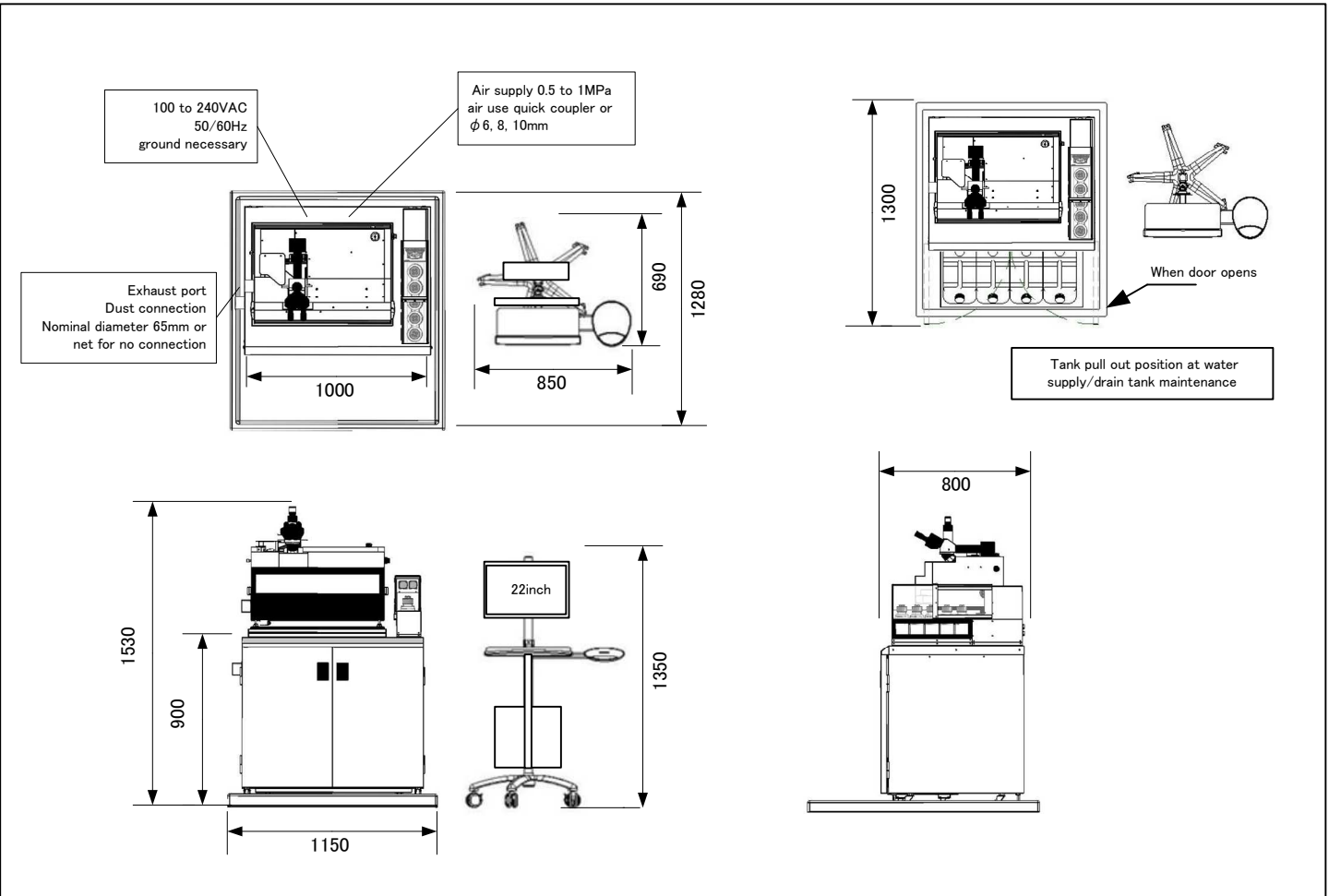
Multi-function operation and setup window

Page system combines detailed setup, high level of functionality, and check operation

\*High magnification delicate images compatible auto focus system is optional. When not equipped with the auto focus system a simple focusing function is provided and automatic photography is performed at low magnification. Focus assistance is provided at high magnification.

Performance Table

Equipment name	Genus_3D
Applicable specimens	Metal, inorganic materials, etc. (Compatible with specimens that can be wet polished)
Specimen size	Resin fixing circular (1 inch, 1.5 inch,30mm), SEM linking compatible holder
Specimen measurement method	Twin laser measurement Measurement range±1mm
Specimen polishing amount measurement	Resolution 0.01 μ
Polishing method	
Polishing buff diameter	Wet polishing
Polishing buff speed	φ 200mm
Polishing buff fixing method	0 to 100rpm/min
Photography position adjustment mechanism	Combined mechanical fitting/magnet fixing Position adjustment by XY stage
Cleaning water supply	
Solution containers	Water tank supply 20L X 2
Solution container capacity	Polish A, polish B, etching solution (Standard Nital), highly corrosive solution can be used even by hand 500ml
Solution container and path material	Container PP, path Fluororesin, nozzle SUS304, corrosive parts Fluororesin
Equipment internal ventilation	Exhaust fan, exhaust duct port
Setting method	Dedicated software setting
Setting items	Polishing amount, number of observations, etching time, polishing buff speed, etc.
Operation PC	WindowsPC accessory *1
Other performances	Specimen mounting section corrosion-resistant structure
Corrosion-resistant structure material	PEEK, fluororesin, FRP, PP, etc.
Body dimensions	Width 1000mm, height 1530mm (including microscope), depth 800mm (excluding projections, cord, and hose)
Weight	Approx. 95kg (including frame, dry state)
Power requirement	100 to 240VAC 50/60Hz
Air supply	5 to 10Kg/cm dry air free of oil, dust, etc.
Operating temperature range	10 to 35° C
Operating humidity range	30 to 95% RH (no condensation)
Others	No corrosive atmosphere, vibration, humidity changes, etc.



\*Dimensions and shape of each part may be different depending on the options selected.

3D structure numerical analysis software amira or Avizo used.

\*1 The performances needed for 3D display by 3D structure software amira are provided at the time of purchase. When advanced display and numerical analysis are to be performed, a PC sold separately is necessary.