

HITACHI
Inspire the Next

Regulus

Scanning Electron Microscope

Expanding the Boundaries
of Electron Microscopy

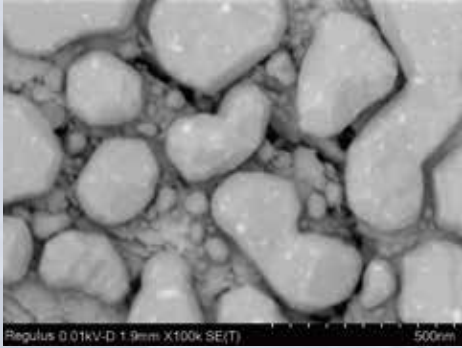


Regulus Series FE-SEM

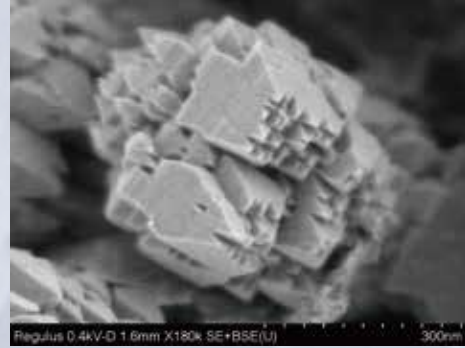
The solution for ultra-high resolution imaging + analysis from ultra-low to

The Regulus Series systems are built upon Hitachi's highly reliable core technologies representing the next generation of FE-SEM for superior UHR imaging with the most advanced cold field emission gun technology and detection systems.

UHR imaging at low kV

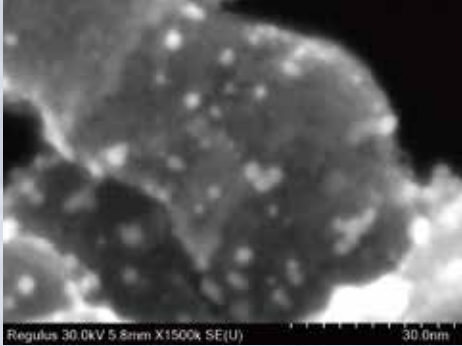


Regulus 0.01kV-D 1.9mm X100k SE(T)
Specimen: Gold on carbon, Landing voltage: 10 V*1

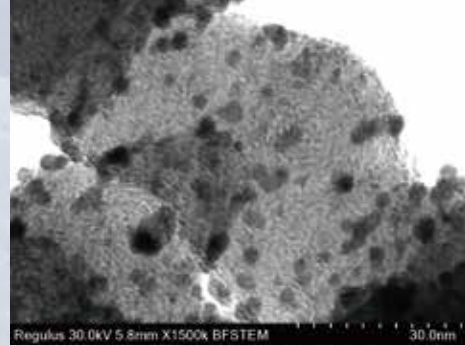


Regulus 0.4kV-D 1.6mm X180k SE+BSE(U)
Specimen: Zeolite (Beta), Landing voltage: 0.4 kV
Specimen courtesy: Dr. Yoshihiro Kamimura, National Institute of Advanced Industrial Science and Technology

SE/BF-STEM*2 simultaneous imaging



Regulus 30.0kV 5.8mm X1500k SE(U)
SE image



Regulus 30.0kV 5.8mm X1500k BFSTEM
BF-STEM image
Specimen: Catalyst, Vacc: 30 kV

Regulus series lineup

Regulus 8240

Large chamber with high-precision stage

Regulus 8230

Large chamber/stage

Regulus 8220

Standard model with various detection systems

Regulus 8100

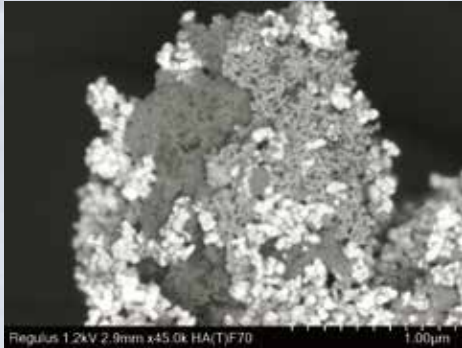
Entry model UHR FE-SEM

Regulus

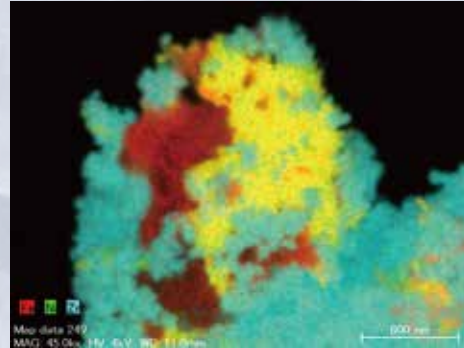
Scanning Electron Microscope

high voltage and everything in between!

BSE imaging and EDX*² analysis at low kV

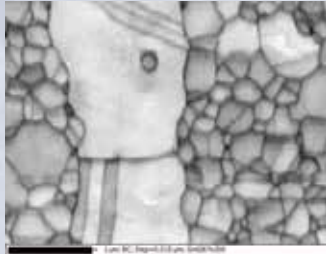


BSE image (Vacc: 1.2 kV)

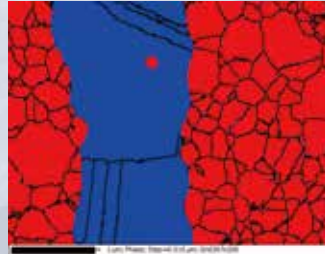


EDX map (Vacc : 4 kV, Acquisition time : 10 min.)
Specimen : Catalyst (FeNi-ZrO₂)
Specimen courtesy: Prof. Kohsuke Mori, Osaka University

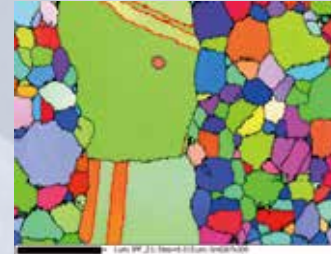
EBSD*³ analysis



Band Contrast Map



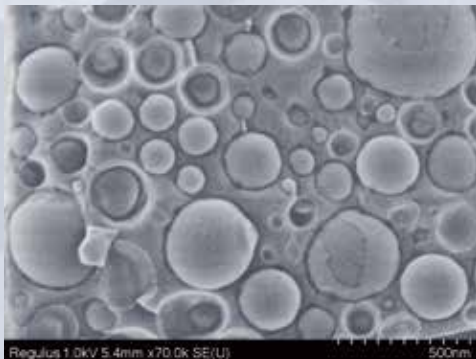
Phase Map (Blue : Ni, Red : BaTiO₃)



IPF Map (Z)

Specimen : Capacitor
Vacc: 20 kV, Probe current : 3 nA

Cryo-SEM*⁴



Specimen: Liposome
Vacc: 1 kV, Stage temperature: -140°C, Pt coated



* 1 Regulus8240/8230/8220 are available.
* 2 Option
* 3 EBSD is option for Regulus8240/8230.
* 4 Cryo system (Quorum PP3010T) is option for Regulus8240/8230.

■ Main specifications

Product name	Regulus 8100	Regulus 8220	Regulus 8230	Regulus 8240	
Electron Optics					
Secondary Electron Image Resolution	15kV 1kV*1	0.8nm 1.1nm	0.7nm 0.9nm		
Magnification	20~1,000,000 ×		20~2,000,000 ×		
Accelerating voltage	0.5~30 kV		0.5~30 kV		
Landing voltage*1	0.1~2kV		0.01~20kV		
Specimen stage					
motor drive axis	3-axis (X/Y/R) *2		5-axis (X/Y/R/Z/T)		
Movable range	X	0~50 mm	0~50 mm	0~110 mm	0~110 mm
	Y	0~50 mm	0~50 mm	0~110 mm	0~80 mm
	R	360°			
	Z	1.5~30 mm	1.5~30 mm	1.5~40 mm	1.5~40 mm
	T	-5~70 deg			
Detector					
Standard	Upper detector (ExB filter:SE/BSE signal mixing function)				
	Lower detector				
Option	Top detector				
	Top detector filtering system				
	Semiconductor type BSED				
	YAG BSED				
	BF-STEM detector, BF-STEM aperture				
	Conversion type DF-STEM holder				
	PD type DF-STEM holder				
	EBIC/EBAC image observation unit				
	Energy Dispersive X-ray spectrometer (EDX)				
	Electron BackScattered Diffraction (EBSD)				
Cryo system (Quorum PP3010T)					
Dimensions & Weight*3					
Main unit	850(W)×990(D)× 1,630 (H) mm 635kg	850 (W) ×990 (D) × 1,710 (H) mm 665kg	850 (W) ×990 (D) × 1,745 (H) mm 740 kg	850 (W) ×990 (D) × 1,745 (H) mm 745kg	
Display unit	1,100 (W) × 1,120 (D) × 730 (H) mm (Not including monitor height), 275 kg				
Dry pump*4	400 (W) × 260 (D) × 340 (H) mm, 25 kg				
Air compressor*4	420 (W) × 210 (D) × 520 (H) mm, 16 kg				
Weight	200 (W) × 160 (D) × 135 (H) mm, 26kg				
Model No.	SU8100	SU8220	SU8230	SU8240	
Utility requirements (Common contents of Regulus series)					
Temperature	15~25 °C				
Humidity	< 60 % (RH) (non-condensing)				
Power (Main unit)	4 kVA (Crimp contact for M6) AC100 V ±10 %, or AC200- 240V ±10 % with autotransformer*4				
Grounding	Class D independent grounding (100Ω or less)				
Cooling water	Dedicated cooling water circulation system*4				
Air compressor*5	600 to 800 kPa (RC1/4 tapered female thread)				
N2 purge*5	30 to 50 kPa (RC1/4 tapered female thread)				

*1 : at the deceleration

*2 : 5-axis motor drive is option

*3 : Weight does not include options

*4 : Option

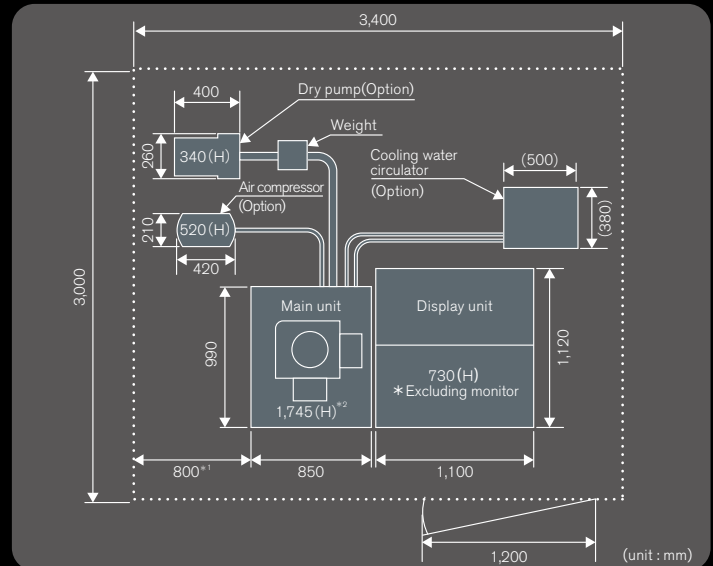
*5 : In case of connection from the installation site facilities

NOTICE: For correct operation, please follow the instruction manual when using the instrument.

Specifications in this catalog are subject to change with or without notice, as Hitachi High-Technologies Corporation continues to develop the latest technologies and products for our customers.

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■ Suggested layout



Note 1 : Please separate from wall by at least 800 mm for maintenance purposes.

Note 2: The height of main unit varies by the model.



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