

Hitachi Field Emission
Transmission Electron Microscope

HF-3300

"The Cold FE-TEM" with stable ultrahigh resolution and next-generation analytical capabilities !!

Combination of high reputation Hitachi cold field emission electron source and 300kV accelerating voltage realizes both ultrahigh resolution imaging and high sensitivity analysis. Double bi-prism electron holography*, spatially resolved EELS*, and high precision parallel nanobeam electron diffraction* open a new avenue for efficient and high precision material analysis.



Features

High brightness Cold Field Emission (Cold FE) electron source

Cold field emission electron source benefits nanoscale analysis with its high brightness and high energy resolution. Its inherent high coherency greatly contributes to ultrahigh resolution imaging and electron holography*.

300kV accelerating voltage

300kV accelerating voltage allows atomic resolution imaging for thick specimens. Metals and ceramics with high atomic numbers are less electron transparent and often need to be observed at 300kV accelerating voltage.

Unique analytical capabilities

Newly introduced double biprism electron holography*, spatially resolved EELS*, and nanobeam electron diffraction provide sophisticated and unique analytical capabilities.

Holder linkage with FIB system*

Hitachi FIB-compatible specimen holder* requires no tweezer handling of TEM grid between FIB fabrication and TEM observation and ensures high sample throughput TEM analysis. Hitachi's unique specimen rotation holder* enables real-time multidirectional structural analysis together with STEM unit*.

User-friendly operation

Windows-based TEM/STEM* computer control, motor-driven movable aperture, and 5-axis motor stage make the high-end TEM more easily to access. 10 minutes high voltage ready and one minute specimen exchange result in high sample throughput for TEM analysis.

* Optional accessory

● Windows is a registered trademark of Microsoft Corp. in the U.S. and other countries.

■ Specification (*1)

Item	Description	
Electron source	W (310) cold field emission electron source	
Accelerating voltage	300kV, 200kV (*2), 100kV (*2)	
Resolution	Lattice	0.10nm
	Point-to-point	0.19nm
	Information limit	0.13nm
Magnification	Low Mag mode	200~500×
	High Mag mode	2,000~1,500,000×
Image rotation	±5° or less (High Mag mode, below 1,000,000×)	
Specimen tilt	±15°	
Camera length	300~3,000mm	
EDX (*2)	Solid angle	0.15sr

(*1) Specifications at 300kV.

(*2) Optional accessory.

■ Utilities

Items	Description	
Temperature	15~22°C, Variation:±1°C/hr or less	
Humidity	40~60%RH	
Power	Main unit	Single phase AC200V±10%, 20kVA, 50/60Hz
	Baking unit	Single phase AC200V±10%, 8kVA, 50/60Hz
Grounding	D class, Grounding resistance:100Ω or less	
Water	A water circulator is recommended.	
	Flow rate	22l/min or more (at 0.1MPa)
	Water temperature	5~25°C, variation:±0.1°C or less
	Water pressure	0.12MPa or more
	Cooling capacity	11/12kW (50/60Hz) or more
Gas	SF6	99.99% or higher in purity pressure regulator:0~500kPa adjustable
	N2	99.99% or higher in purity Pressure regulator:0~20kPa adjustable

■ Optional accessories

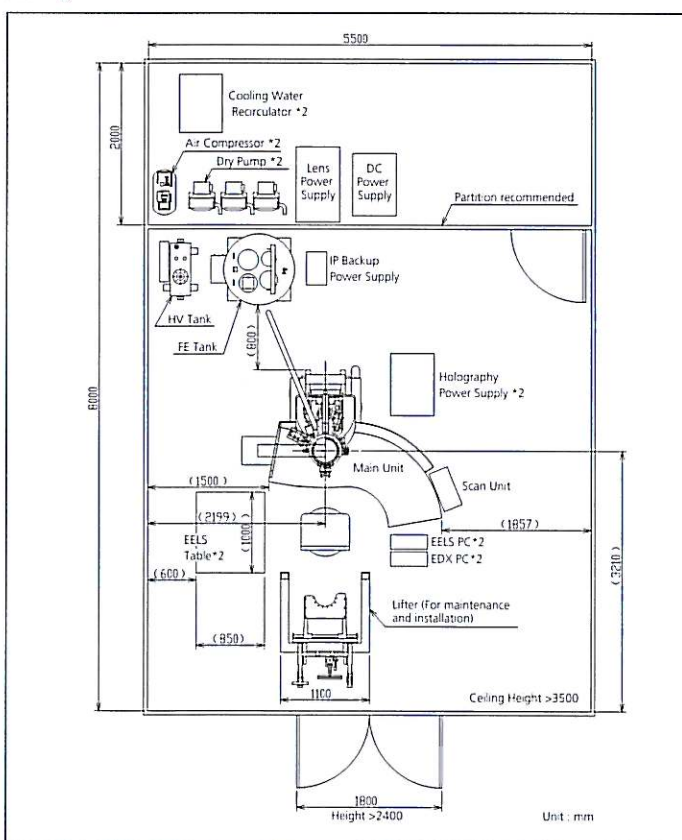
STEM unit, Energy Dispersive X-ray spectrometer (EDX), Electron Energy Loss Spectrometer (EELS), Energy filter system, CCD camera, Double-tilt holder, Heating holder, Biprism holder and power supply, Spatially-resolved EELS function, Nanobeam electron diffraction function, Focused Ion Beam system (FIB), FIB-compatible specimen holder, Specimen rotation holder, Water circulator, Air compressor

■ Dimensions and weight

Item	Width×Depth×Height (mm)	Weight (kg)
Main unit	2,142×1,941×2,860	2,190
FE tank	940×1,110×1,677	423
HV tank	420×650×1,215	220
Lens power supply	535×900×1,800	468
DC power supply	535×930×1,800	408
Scan unit	535×371×705	56
Dry pump (×3) (*2)	@252×400×336	@25
Air compressor (*2)	280×560×626	30
Holography power supply (*2)	535×770×982	150
IP backup power supply (*2)	250×410×350	40

(*2) Optional accessory

■ Layout



*2 Optional accessory

NOTICE: For proper operation, 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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