# Technical Data

| Essential Specifications | ULTRA PLUS | ULTRA 55 | ULTRA 60 |
|---|---|---|---|
| **Resolution**<br>**(optimal WD)**<br>*All resolution specifications are dependent on the system configuration.* | 0.8 nm @ 30 kV (STEM mode)<br>0.8 nm @ 15 kV<br>1.6 nm @ 1 kV | | |
| **Magnification** | 12 - 1,000 ,000 x in SE mode / 100 - 1,000 ,000 x with EsB® detector | | |
| **Emitter** | Thermal field emission type, stability > 0.2 %/h | | |
| **Acceleration Voltage** | 0.02 kV - 30 kV | | |
| **Probe Current** | Configuration 1: 4 pA − 20 nA / Configuration 2: 12 pA − 100 nA | | |
| **Detectors** | EsB® detector with filtering grid (0 − 1500 V),<br>High efficiency in-lens SE detector,<br>Chamber mounted Everhart-Thornley detector, | | |
|  | Integrated AsB® detector | | |
| **Chamber** | 330 mm (Ø) x 270 mm (h),<br>3 EDS ports 35° TOA,<br>CCD-camera with IR illumination | 330 mm (Ø) x 270 mm (h),<br>3 EDS ports 35° TOA,<br>CCD-camera with IR illumination | 520 mm (Ø) x 300 mm (h),<br>2 EDS ports 35° TOA,<br>Integrated 8" airlock,<br>CCD-camera with IR illumination |
| **Vacuum System** | Complete dry pumping system composed of Backing Pump,<br>Turbomolecular Pump and Ion Getter Pump, | | |
|  | Automatically controlled Quiet Mode to switch off Backing Pump<br>after sample transfer when vacuum threshold is achieved | | |
| **Charge Compensator** | Fully automated and pneumatic retractable local gas injector | —— | —— |
| **Specimen Stage** | 5-Axes Motorised Eucentric Stage<br>X = 130 mm, Y = 130 mm, Z = 50 mm, T = -3 to 70°<br>R = 360° (continuous) | | 6-Axes Motorised Super-Eucentric Specimen Stage<br>X = 152 mm<br>Y = 152 mm<br>Z = 43 mm<br>Z' = 10 mm<br>T = -15 - 60°<br>R = 360° (continuous) |
|  | 6-Axes Eucentric Stage<br>X = 100 mm, Y = 100 mm, Z = 42 mm, Z' = 13 mm, T = -4 to 70°<br>R = 360° (continuous) | | |
| **Image Processing** | Resolution: Up to 3072 x 2304 pixel,<br>Noise reduction: Seven integration and averaging modes | | |
| **Image Display** | High end 19" flat panel TFT colour display monitor with SEM image displayed at 1024 x 768 pixel | | |
| **System Control** | SmartSEM®* with Windows®XP, operated by mouse, keyboard and joystick with optional control panel | | |
| **Space Requirement** | Minimum footprint: 1.97 m x 1.73 m,<br>Minimum working area: 3.5 m x 5.0 m | | Minimum footprint:<br>2.81 m x 1.73 m,<br>Minimum working area:<br>3.5 m x 5.0 m |

*SmartSEM® – Fifth generation SEM control Graphical User Interface*

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