

**Specification of the tungsten SEM**

**VEGA3LMU**

**(Large Chamber, Extended Motorized Stage, Variable Pressure Operation)**

A fully PC controlled SEM with conventional tungsten (optionally LaB6) heated cathode intended for both - for high vacuum as well as for low vacuum operations. Outstanding optical properties, flicker-free digital image with super clarity, sophisticated user-friendly software for microscope control and image capturing uses WindowsTM platform, standard formats of stored images, easy image management, processing and measurements, automatic set up of the microscope and many other automated operations are characteristic features of the equipment.

**The Most Important Features:**

• Unique four-lens **Wide Field Optics™** design offering the variety of working and displaying modes embodying the TESCAN proprietary Intermediate Lens (IML) for the beam aperture optimization

• The proprietary Intermediate Lens (IML) that works as an ,Aperture Changer" makes the exchange of the effective final aperture in an electromagnetic way

• Real time **In-Flight Beam Tracing™** for the performance and beam optimization integrating the well-established software Electron Optical Design

• Fast imaging rate

• The column construction, without any mechanical centering elements, allows fully automated column set-up and alignment

• High-throughput large-area automation, e.g. automated particle location and analysis

• Superior specimen handling using a fully motorized compucentric stage

• Ideal geometry for EDX, WDX, EBSD; non-distorted EBSD pattern

• Fast and easy obtaining of the clean chamber vacuum by powerful turbomolecular and rotary fore vacuum pump

• Fully automated microscope set-up including electron optics set-up and alignment

• Sophisticated software for SEM control, image acquisition, archiving, processing and analysis; multi-user environment localized in many languages

• Network operations and built-in remote access/diagnostics, all come as the TESCAN

standard

• Unique live stereoscopic imaging utilizing the **3D Beam Technology**

• Extended low vacuum mode with chamber pressure up to 2000 Pa for non-conducting specimens imaging

TESCAN technologies are protected by patents, for instance US7193222, EP2082413, DE202008018179, CZ 301692, US8779368, CZ305388, EA021273, CZ 304824, CZ305883 and others.



**Electron Gun:** Tungsten heated cathode *I*

**Resolution:**

High Vacuum Mode (SE):

3 nm at 30 kV

8 nm at 3 kV. ' ''. -

Low Vacuum Mode

(BSE, LVSTD): 3.5 nm at 30 kV

**Magnification:** 2x - 1,OOO,OOOx

**Electron Beam Energy:**

200 eV to 30 keY

**Probe Current:** 1 pA to 2 11A

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**Scanning:**

**Scanning Speed:** From 20 ns to 10 ms per pixel adjustable in steps or continuously

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| **Chamber Vacuum:** High Vacuum Mode: | < 9x 10·3 Pa\* | (with Tungsten heated cathode/LaB6) |
| Low Vacuum Mode: | 3 - 500 Pa\*\* | (with Tungsten heated cathode/LaB6) |

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**Chamber:**

**Chamber:** Internal dimensions: 0 230 mm

Number of ports:



*r* •

11'

**Chamber and Column Suspension:**

*Standard:* Pneumatic

**Specimen Stage:**

Type: Movements:



Rotation: Tilt:

Compucentric, fully motorized

X= 80 mm (-40 mm to +40 mm) Y = 60 mm (-30 mm to +30 mm) Z=47mm

360° continuous

-80° to +80°



**Detectors:**

*Standard:*

SE

**Retractable BSE\***

**pAMeter Touch Alarm IR TV Camera**

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Secondary electron detector of Everhart-Thomley type (monocrystal scintillator)

Retractable annular detector (scintillator type) for wide-angle back-scattered electrons with high sensitivity and atomic number resolution (0.1)

Probe Current Measurements

Stops movements when sample touches any part of the chamber

For live ,Chamber View"

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**EasyEDX\*\*\***

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Super-integrated O.E.M. EDX microanalyser

*1Possible combinations of optional detectors and other accessories must be discussed with TESCAN Brno.*

**Microscope Control:**

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**Computer:**

**lmage Display: Image Size:**

**Image Formats: Image Depth:**

**PC Standard**

Intel® Core i3-4160 Dual Core 3.60 GHz, RAM 8GB, HDD 500GB, nVIDIA GT730 2GB DDR3, Windows 10 Pro 64-bit, Certification: CE



24" LCD HP FullHD

16,384 x 16,384 pixels,

BMP, TIFF, JPEG, JPEG2000, GIF, PNG, PGM, PPM Up to 16 bits per channel