

High Efficiency In-lens Detector for the GEMINI® column

Carl Zeiss NTS has introduced an improved High Efficiency In-lens SE detector for the ZEISS GEMINI® Field Emission SEM columns. Due to our policy of continuous innovation, the new High Efficiency In-lens Detector is also available for both GEMINI®, 1500 and 982 type columns (some restrictions may apply). The High Efficiency In-lens detector incorporates a number of innovations in the scintillator material, the shape of the detector and improved optical path. The new High Efficiency In-lens detector is now factory installed on all new GEMINI® SUPRA® and ULTRA FE-SEMs.

The previous In-lens detector used a highly effective scintillator material, but showed decreasing detection efficiency over the lifetime of the material. The new High Efficiency In-lens detector uses a non-aging scintillator material with increased sensitivity.

High Efficiency In-lens Detector Advantages

- Signal improvement between 250 and 300%
- Increased dynamics in grey levels
- Minimum aging (constant detection quality over lifetime)
- Increased signal to noise ratio
- Greatly reduced acquisition / exposure time
- Improved low magnification imaging
- Improved optical coupling

The improvements mean the operator can now visualise details with the GEMINI® FE-SEM which could not have been imaged before.

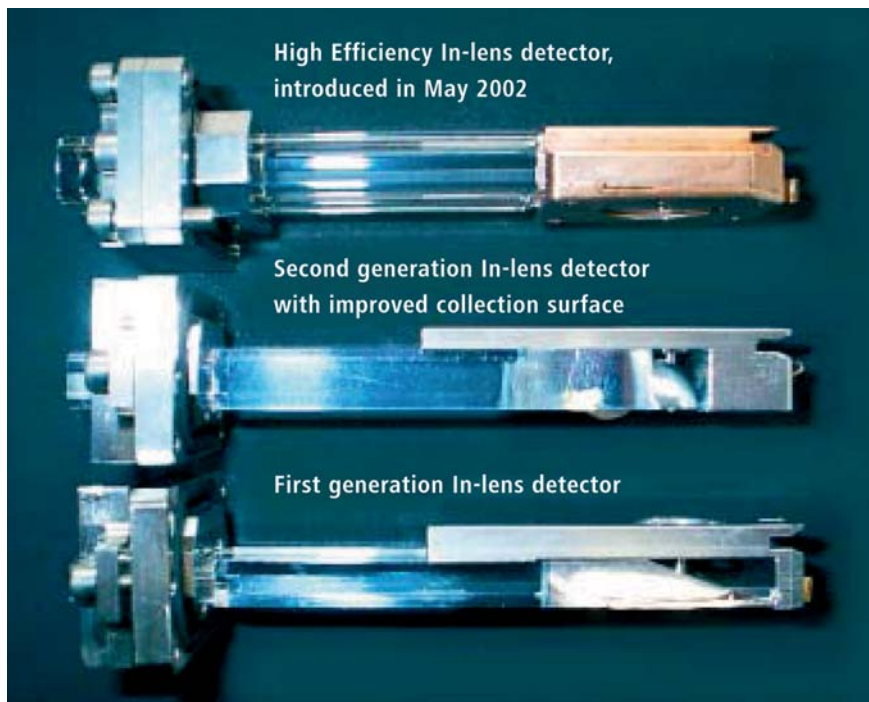
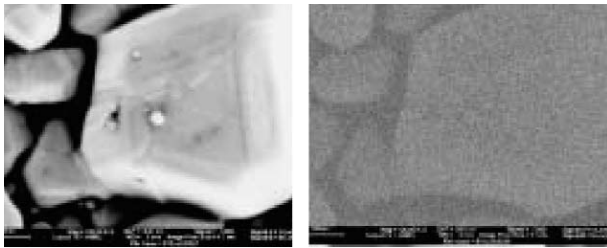


Fig. 1:
Shows the complete range
of In-lens detectors with the
new High Efficiency detector
at the top.



NEW

OLD

Fig. 2: Showing superior signal to noise ratio with signal improvement between 250-300%.

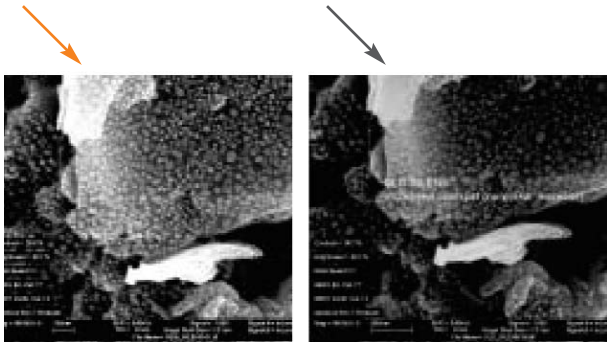
Maximum Information – Maximum Insight

More than 160 years of experience in optics has laid the foundation for pioneering electron and ion beam microscopes from Carl Zeiss. Superior integration of imaging and analytical capabilities provides information beyond resolution, unlocking the best kept secrets of your sample.

With a broad technology portfolio Carl Zeiss provides instruments both tailored to your requirements and adaptable to your evolving needs. With our highly versatile application solutions we endeavor to be your partner of choice.

Superbly equipped, regional demo centers provide you with access to our applications expertise developed in collaboration with world-class partners in industry and academia. Global customer support is provided by the Carl Zeiss Group together with an extensive network of authorized dealers.

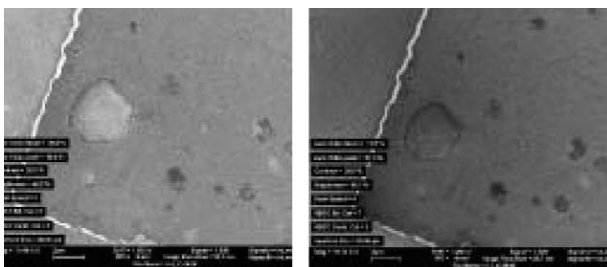
Our mission at all times: Maximum Information – Maximum Insight.



NEW

OLD

Fig. 3: Showing superior contrast; with the new High Efficiency In-lens detector the contrast setting is 29.5% against 36.7% for the previous in-lens detector and provides much better image quality. Please note that contrast is a non-linear exponential function. Note: After adapting the contrast, clipping in bright areas (upper right, indicated by arrow) occurs with the previous generation (saturation).



NEW

OLD

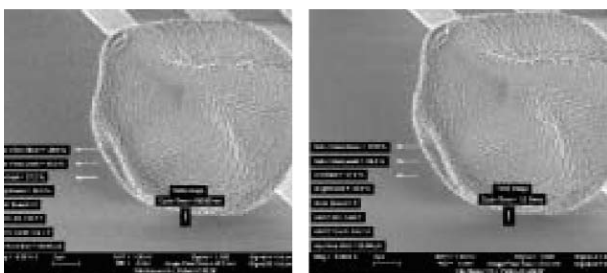
Fig. 4: Another example of the improved image quality with a lower contrast setting. 28.8% contrast setting with the new detector against 34.6% for the old one. Please note the greatly enhanced details in the high lighted feature.

Carl Zeiss NTS GmbH
 Carl-Zeiss-Str. 56
 73447 Oberkochen
 Germany
 Tel. +49 73 64/20 44 88
 Fax +49 73 64/20 43 43
 info@nts.zeiss.com

Carl Zeiss NTS Ltd.
 511 Coldhams Lane
 Cambridge CB1 3JS
 UK
 Tel. +44 12 23 41 41 66
 Fax +44 12 23 41 27 76
 info-uk@nts.zeiss.com

Carl Zeiss NTS, LLC
 One Corporation Way
 Peabody, MA 01960
 USA
 Tel. +1 978/826 1500
 Fax +1 978/532 5696
 info-usa@nts.zeiss.com

Carl Zeiss NTS S.a.s.
 Zone d'Activité des Peupliers
 27, rue des Peupliers -
 Bâtiment A
 92000 Nanterre
 France
 Tel. +33 1 41 39 92 10
 Fax +33 1 41 39 92 29
 info-fr@nts.zeiss.com



NEW

NEW

Fig. 5: Documents the 200% plus improvement in signal to noise ratio. With the new High Efficiency In-lens detector noise free images are achieved in only 0.35 sec. Extending the acquisition time by a factor of 4 (from 0.35 to 1.3 sec) gives the same image quality as with 0.35 sec.

Carl Zeiss NTS Pte. Ltd.
 50 Kaki Bukit Place #04-01
 Singapore 415926
 Singapore
 Tel. +65 65 67/30 11
 Fax +65 65 67/51 31
 info.sea@nts.zeiss.com

www.zeiss.com/nts

