



## XFlash<sup>®</sup> 5030 T - the SDD for (S)TEM applications

Bruker Nano's successful XFlash<sup>®</sup> Silicon Drift Detector (SDD) series now includes a detector specially designed for operation on (scanning) transmission electron microscopes (TEM/STEM). It has also proven itself on the latest aberration-corrected STEMs.

Like all other XFlash<sup>®</sup> SDDs, the 5030 T permits much faster and more efficient data collection than any Si(Li) detector. Furthermore, it achieves its resolution specifications at extremely high TEM count rates while maintaining very low dead times. Bruker's TEM detector is available with an excellent energy resolution of 127 eV at Mn K $\alpha$  (54 eV C K $\alpha$ , 64 eV F K $\alpha$ ) allowing the analyst to achieve unsurpassed light element / low energy performance. The XFlash<sup>®</sup> 5030 T also performs well at higher X-ray energies. Peaks with an energy above 12 keV can be identified and used for analysis as easily as those with lower energies.

Since no liquid nitrogen is required, the inconvenience, disturbance, and vibration associated with heavy liquid nitrogen-filled dewars on the microscope column are eliminated. Furthermore, the detector chip needs only moderate cooling to temperatures around -25 °C for optimum performance.

Therefore the gradient between chip temperature and ambient temperature is relatively small, which results in very stable measurement conditions. The detector's safe and convenient cooling makes the system ready for measurement within 1 minute.

The design of the XFlash<sup>®</sup> 5030 T probe tip and collimator maximizes the solid angle for X-ray collection. Additionally, well adapted electronics and Bruker's powerful hybrid pulse processor guarantee excellent detection efficiency and low dead times shown as high output versus input count rate (see reverse). The throughput efficiency is superior to that achieved by any Si(Li) detector at low count rates in high magnification mode.

The XFlash<sup>®</sup> 5030 T is capable of handling extremely high count rates and can easily withstand X-ray overload conditions. The spectrometer will not be "locked up" when crossing a support grid but will be immediately available for data acquisition. This enables the analyst to acquire element maps and line profiles, even at medium magnifications and during in-situ experiments. Thus the XFlash<sup>®</sup> 5030 T provides superb capabilities for even the most demanding analysis task.

## Technical Data

Energy resolution of 133 eV (Mn  $K\alpha$ ) guaranteed at 100,000 cps, 65 eV C  $K\alpha$ , 73 eV F  $K\alpha$   
(in compliance with ISO 15632 : 2002)

129 eV and 127 eV also available

Detection from boron (5) to americium (95)

Maximum pulse load 750,000 cps

Active area of 30 mm<sup>2</sup>

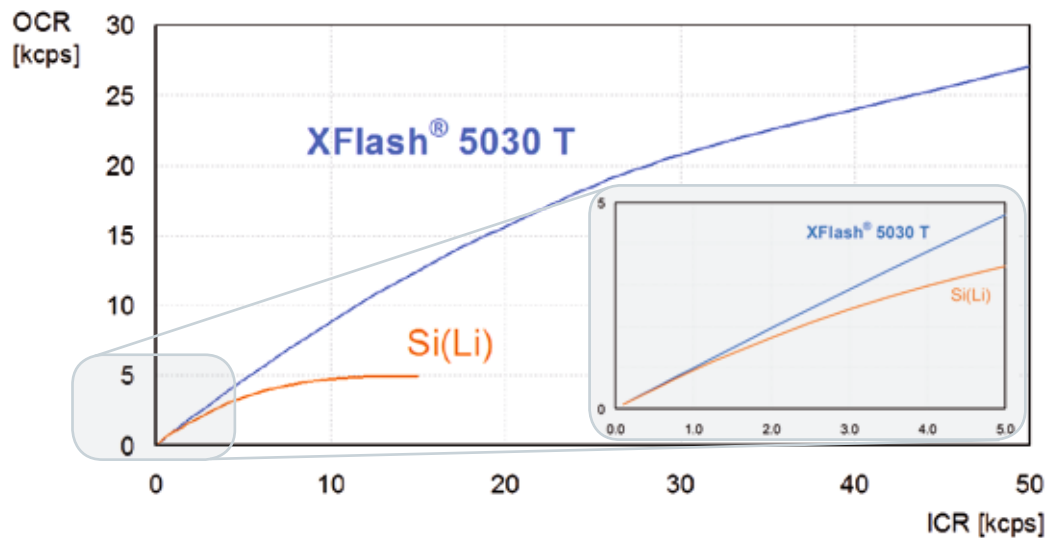
High precision drive with shutter, motorization optional

Peltier cooling (no liquid nitrogen or other cooling agents required)

Optimum performance in conventional and Cs-corrected S/TEM

### XFlash<sup>®</sup> 5030 T / Si(Li) Detector throughput efficiency comparison

Output Count Rate (OCR) versus Input Count Rate (ICR)



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