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## **Features & Benefits of NEX Torr® pumps in e-beam systems**

### **Abstract**

Due to the complexity of vacuum systems in a variety of applications (i.e. Lithography, Electron Microscopes, Surface Science, Thin Film Deposition, Portable Systems, Cold Atomic Trap,...), the space available for mounting vacuum pumps is getting smaller.

SAES GETTERS is the inventor of NEG pumps, which can mitigate this issue. In particular, Non Evaporable Getter (NEG) and ion pumping technologies are properly combined and integrated in one single extremely compact pumping device patented by SAES: the NEX Torr® pump concept.

In such a device, the getter cartridge acts as the main pumping element, leaving to a small sputter ion pump the ancillary task of removing noble gases and methane, not pumped by the NEG. This design allows to achieve large pumping speed in a very small package.

This combination pump concept features other advantages as the ability to pump in total absence of power, and the absence of vibrations.

Theoretical and practical aspects of NEG pumps technology will be presented, and its usage in a variety of vacuum applications will be discussed, with particular focus on electron microscopes.