Torr Scientific Ltd.
Specialists in UHV, Optical and X-ray Components

NEWS

www.torrscientific.co.uk
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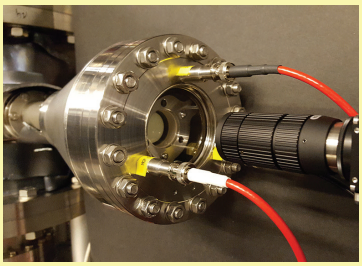
Seasonal Greetings from all at Torr Scientific

The staff of Torr Scientific would like to thank you for your support and custom throughout 2017 and we look forward to working with you in 2018. We wish you a Merry Christmas and a successful, Happy New Year! Please note that our office will be closed from 2.30pm on Friday 22nd December and reopens at 8.30am on Tuesday 2nd January.

TSL Products:

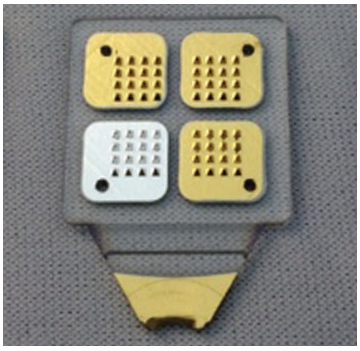
- UHV Viewports
- Anti-Reflective Coatings
- CVD Diamond
- Glass to Metal Seals
- Atom Trap Chambers
- Aerospace Vacuum Optics
- X-ray Anodes
- In-Line Monochromator (ILM)
- Synchrotron Products
- Electron Optical Components

MCP Detector in Terahertz Exploration



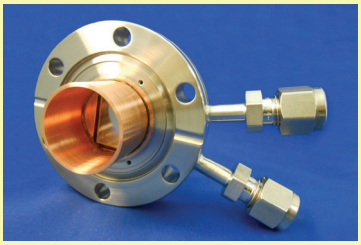
Scientists from the Cockcroft Institute are working to explore the potential of using laser-generated terahertz (THz) radiation for the manipulation of electron beams. A Torr Scientific microchannel plate (MCP) detector is being used to detect ultrashort electron pulses. The successful use of THz radiation to manipulate electron beams opens up the possibility for new diagnostic techniques and future compact particle accelerators. Torr Scientific designed and built the detector housed in a UHV conical flange adaptor together with the viewing window, power supply, gating module, camera and camera mount. The MCP detectors, including phosphor screens, electrical feedthroughs and cables are assembled in cleanroom conditions at Torr Scientific. The company has also custom built MCP detectors mounted to precise manipulation assemblies for beam visualisation synchrotron applications.

BioPAD Project for Torr Scientific!



The UK's Innovation Agency, Innovate UK, has awarded a grant to co-fund a £100k 12 month collaborative R&D programme between Imperial College London and Torr Scientific to develop thin metal conductive film microneedle devices for pain-free and minimally invasive sensing of drugs and metabolites in human skin. The aim of project 'BioPAD' is to develop coating processes, optimise designs and materials, and production engineering for larger scale manufacturing of microneedle arrays. The arrays will be used to improve medical treatments by continuously measuring the levels of drugs and biomarkers and automatically adjusting the drug dose to account for individual patient responses. This should improve the drugs' effectiveness and reduce the occurrence of side effects. The arrays comprise sets of 1mm high polymer microneedles, a bit like a miniature bed of nails, which are being coated at Torr Scientific to make them electrically conducting and then modified with molecules that bind specifically to the drug or biomarker of interest. When this happens, there is a change in the electrical properties of the microneedles that can then be used to calculate how much is present. The first substances being measured are glucose (for diabetes) and penicillin (for antibiotic resistance) and the devices have already been tested in volunteers with encouraging results. Innovate UK works with companies and partner organisations to find and drive the science and technology innovations that will grow the UK economy. Mel Thomas, Commercial Director, said 'this is very positive news for Torr Scientific. The funding will support development and scaling up of the production processes to serve researchers using biosensors which will create jobs here in Bexhill'.

CVD Diamond Viewports



Torr Scientific is manufacturing UHV viewports with CVD diamond windows. The bakeable windows are mounted in to CF flanges and can be custom designed to suit customer applications. Pictured is a cooled CVD diamond UHV window, designed and manufactured at Torr Scientific, and installed at The Diamond Light Source for X-ray beamline viewing. The thin CVD diamond wafers are vacuum brazed at the company for both vacuum window and X-ray tube heatsink applications. Torr Scientific is also able to offer CVD diamond substrates in various shapes for use in applications such as thermal mounts and IR and X-ray transmitting windows. The CVD diamond performance is very close to that of natural diamond, so customers can now take advantage of thermal conductivity that is five times that of copper and high transparency for optical wavelengths that range from 225 nanometers to beyond 100 microns.

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