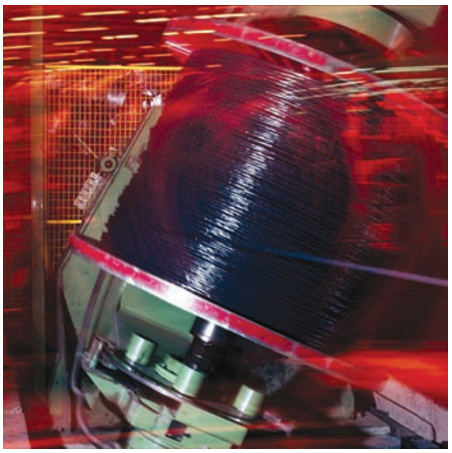
New ownership for fibre firms

Two specialty fibre companies have changed hands in recent months. Fibercore, based in Southampton, UK, was sold by networking company Cisco Systems to the private equity firm H.I.G. Europe, which backed a management buyout led by Fibrecore's chief executive officer Chris Emslie. In an unrelated deal, the Dutch cable company Draka was purchased by the Italian cable manufacturer Prysmian, following a bidding war with other interested parties.

Fibercore was founded in 1982 and provides specialty fibres to the aerospace and defence industries for navigation and stabilization systems in aeroplanes, helicopters, satellites and space probes, among other applications. The company manufactures a wide range of optical fibres, including photosensitive, erbium-doped, bend-insensitive and polarization-maintaining models. Fibercore's erbium-doped fibres are used in power amplifiers for high-speed data transmission in telecommunications. When announcing the acquisition, Matthias Allgaier, managing director at H.I.G. Europe, said: "Fibercore is a genuine UK export success story and we look forward to supporting the business in its continued international expansion."



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Cable specialist Draka is now part of the Prysmian group.

The financial details of the deal were not disclosed. The Fibercore deal is H.I.G. Europe's tenth investment in the last 12 months and fourth since the start of 2011. In June, Fibercore was awarded £0.92 million by the British government's Technology Strategy Board to help develop polarization-maintaining fibre components. The project is a collaboration between Fibercore and two other UK photonics firms: components specialist Gooch & Housego and fibre laser manufacturer Fianium.

Prysmian acquired Draka for €900 million in cash and shares after a bidding war with China's Xinmao Group. Prysmian had initially bid €840 million, or €17.20 per share, for the company last November, but Xinmao upped the ante to €1 billion, or €20.50 per share. Draka stockholders had previously rejected an offer of €15 per share from Nexans, a cabling systems company in Paris. Xinmao then retracted its bid, saying it had to wait for approval from the Chinese government and would therefore not be able to launch its offer in time to compete with Prysmian. Draka, based in Amsterdam, has 9,400 employees and last year reported revenues of more than €2.4 billion. In June, Draka teamed up with the Technical University of Berlin and VI Systems, a German developer of high-speed optoelectronic transmitters and receivers, to test its 50-μm-core multimode fibre for long-distance, high-speed optical data communication. The resulting link operated at 12.5 Gbit s^{-1} over a distance of 1 km. The group hopes to create optical links of 40 Gbit s^{-1} and 100 Gbit s^{-1} in the near future. ❐

Medical market provides opportunities

Optical fibres continue to make significant progress in medical applications. Omniguide, a Massachusetts-based developer of laser delivery systems based on novel optical waveguide technology, says its CO_2 laser scalpel is now being used to target brain tumours deep within the base of the skull, where traditional treatments cannot reach. The system uses hollow-core photonic-crystal fibre, which is capable of carrying the long infrared wavelengths produced by CO_2 lasers (10.6 μm). Traditional fused silica fibres, which are designed to carry the telecommunications wavelength of 1.5 μm, are opaque to such beams. The advent of suitable flexible waveguides for CO_2 laser light greatly simplifies the delivery of light for clinical applications by alleviating the need for a line-of-sight path or close proximity to the laser source. "Carbon dioxide lasers have been around in neurosurgery for quite a while, but they were large, bulky devices," says Eric Lee Tessler, a neurosurgeon in New York who is now using Omniguide's fibre-based laser. He says the device allows him to remove the tumours quickly and with high precision. Omniguide has also introduced a version of its fibre laser for treating gynaecological conditions such as endometriosis, in which cells from the lining of the uterus extend into the ovaries and other areas. The CO_2 fibre laser allows doctors to vaporize excess tissue in a minimally invasive procedure.

Specialty fibres are also having an impact in other areas of medical science. Researchers at the TecInTex project, a collaboration between academia and the Swiss textile industry, are developing a bandage that contains embedded optical fibres. The fibres are coated with a material that changes colour in response to changes in pH levels, thereby indicating how well a wound is healing. A measurement device delivers light to the fibre and then checks for colour changes to monitor the state of a bandaged wound in real-time. The process could be safer than taking samples from a wound for laboratory testing, which often introduces a risk of infection. The fibre was developed by Lukas Scherer, a researcher in polymeric optical fibres at the Swiss Federal Laboratories for Materials Science and Technology.

"We are currently looking for partners to validate and commercialize this technology," explains Stephanie Pasche from the Centre Suisse d'Electronique et de Microtechnique, who also worked on the project. Pasche says the group may soon begin monitoring other wound parameters such as enzyme activity or protein level. The researchers are also hoping to make fibre-based on-body sensors such as clothing that can monitor an athlete's sweat.

The TecInTex project is part of Nano-tera, a programme funded by the Swiss government to promote technical innovation. ❐