



Gooch & Housego's headquarters in Ilminster, England.

OPTICS INNOVATIONS

Gooch & Housego: Building upon History

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From small-town shop to global photonics leader, Gooch & Housego has evolved over six decades through a series of smart product developments and strategic acquisitions.

When Gooch & Housego was founded 64 years ago in a quiet British town, no one could have envisioned the modern global corporation it would become. Founders Archie Gooch and Leslie Housego, who had worked with quartz crystal-based radio in World War II, began with a modest optics fabrication shop and led the company through many decades of steady growth. Today, the company is a central player in the photonics industry.

In 1980, G&H introduced the acousto-optic Q-switch—a major milestone resulting in the company's transition from manufacturing precision OEM optics to working with active crystal components. The now-ubiquitous Q-switch technology helped to transform modern materials processing and manufacturing—as well as G&H itself.

Initially, G&H supplied to domestic clients in government, industrial scientific research and academia.

Courtesy of Gooch & Housego

However, by the mid-1990s, most of their revenue had come from acousto-optics and overseas markets in the United States, Germany and Japan. Today, China is the company's single largest segment. When G&H went public in 1997, its leaders gained enough funds to make strategic acquisitions that built on their high-growth, high-margin business.

Growth through strategic acquisitions

G&H's management saw the photonics sector as an opportunity to assemble a portfolio of world-class companies across a broad range of specialties, including acousto-optics, crystals, fiber optics and electro-optics. They also seized the chance to move up the value chain to integrated systems and solutions while discovering new markets. Aerospace/defense and life sciences were the two big areas that they felt could benefit from such an approach with photonics.

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Over several decades, these acquisitions included Cleveland Crystals, Crystal Technology, EM4, General Optics, Optronics Laboratories, NEOS and SIFAM Fiber Optics. Today, G&H employs over 500 personnel (27 with doctorates) across eight facilities that have design, engineering, sales and marketing and manufacturing capabilities.

All successive acquisitions were made with the business plan in mind. For example, in 2007, G&H acquired SIFAM Fiber Optics to gain access to fiber-optic technology. General Optics, a supplier of polished and coated optics for applications such as ring laser gyroscopes, provided inroads into the

U.S. aerospace and defense industry, a market that is extremely hard to address from the United Kingdom because of ITAR (International Traffic in Arms Regulations).

Broadening product spectrum

Continued innovation, along with acquisitions, resulted in an impressive product range of components and systems. Leveraging its history in acousto-optics and acquisition in fiber optics, G&H introduced the Fibre-Q acousto-optic modulator in 2008. The product was designed to take fiber-coupled acousto-optic products to a new level, offering a reliable, rugged and compact package manufactured in a cost-effective manner. Demand has grown since its launch, and G&H has since developed hermetic and non-hermetic versions as well as options for polarization maintaining fiber and fast rise times. The product has also been qualified for space applications.

Many of G&H's newest products are the result of collaborative efforts across sites. An example of such vertical integration is the hyperspectral imaging system, which incorporates G&H's proprietary acousto-optic tunable filters and expertise in instrumentation to create an innovative solution for life sciences imaging as well as stand-off detection. At the same time, the company remains a key contributor to large, high-profile programs such as the National Ignition Facility at Lawrence Livermore National Laboratories in the United States.



Gareth Jones,
CEO Gooch & Housego

URL
www.goochand-housego.com

HEADQUARTERS
Ilminster,
United Kingdom

PRODUCTS
Precision optics, infrared optics, super polish optics, crystal optics, nonlinear optics, acousto-optics, fiber optics, spectral imaging equipment and light measurement instrumentation.

FOUNDERS
Archie Gooch and
Leslie Housego

PRESIDENT/CEO
Gareth Jones

NUMBER OF EMPLOYEES
500+

Courtesy of Gooch & Housego



Acousto-optic Q-switches are special modulators designed for use inside laser cavities. They have exceptionally low insertion loss and can withstand very high laser powers.

The main themes of G&H's strategy:

- ▶ **Consolidate** in order to maintain and strengthen a leading position.
- ▶ **Diversify** so it can develop a presence in new markets that offer growth potential.
- ▶ **Acquire** companies that give G&H the right skills, products, technologies, capabilities and routes to market.
- ▶ **Balance** between organic and acquisitive growth.
- ▶ **Specialize** to be the market leader in the technology and product niches in which they operate.
- ▶ **Differentiate** with a uniquely broad portfolio of world-class photonics products.

Looking ahead

In 2011, G&H's aerospace and defense business grew by 36 percent, while its industrial laser market expanded 56 percent, driven by the demanding laser-processing requirements of smart phones and tablet devices. G&H seeks to broaden its offerings by expanding its presence in biomedical applications.

Coordinating efforts across two continents and various sites can be a challenge. "If we don't create something that integrates and works well together, then all we've got is a loose confederation of small businesses," notes G&H CEO Gareth Jones. "The whole has to be greater than the sum of the parts."

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— G&H CEO Gareth Jones

Jones' objective is for G&H to design and develop its own solutions, taking all the complex work away from customers and serving as a strategic partner to its clients. "One of our principle objectives is to achieve long-term sustained growth," comments Jones. "In our industrial area, we are the leader and can't grow by gaining market share. It comes down to how quickly the market grows."

G&H's vision is of a world in which photonics will play a pivotal

role in delivering technological advances affecting many aspects of our everyday lives. This has already happened in fields such as telecommunications, electronics manufacturing and the fabrication of semiconductor chips.

In other areas, photonics has only begun to have a significant impact. These include biomedical research, surgery and diagnostics; renewable energy sources; and sensing and guidance systems for the aerospace industry. "As photonics emerges as the key to realizing these opportunities, a new breed of business will come to the fore—companies that have the vision and leadership to recognize and exploit the opportunities, as well as the enabling technologies to make them possible," observes Jones.

According to Jones, the company's principal target markets—

aerospace, defense and the life sciences—may offer the greatest potential to achieve growth by virtue of their large size and the fact that they allow G&H to move

more rapidly up the value chain; this is because they favor supplier-partners that can provide goods at the complex sub-system level. "By virtue of having acquired best-in-class business to give us a uniquely broad portfolio of photonics capabilities, G&H is ideally positioned to be a partner to our key customers," Jones says. **OPN**

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