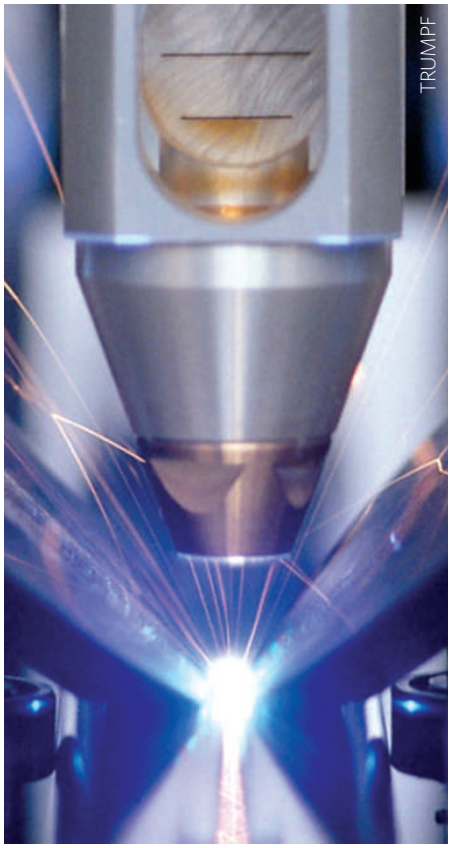

COVER IMAGE
The laser has become a popular and valuable tool for many kinds of materials processing.

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Limited visibility

In recessions, the manufacturing industry is always hit hard. So out of all the companies in the photonics industry, companies making laser systems used in manufacturing have been some of the hardest hit by the current financial crisis. What makes this downturn different from others in the past is the speed with which it has hit. Companies are reporting respectable results for the financial year up to the end of 2008, but then disastrous results for the first quarter of 2009 (see page 259).

All industries into which laser-processing equipment is sold have been affected, even the photovoltaics sector, which has, until now, seen double-digit growth for several years. But the news is not all bad. In hard times, the technologies that survive and ultimately flourish are those that have economical advantages over others. With this in mind, many laser-based manufacturing technologies should emerge from this recession stronger than ever. In almost every manufacturing environment, the laser can do things that traditional tools cannot and it can do them faster, cheaper and more efficiently. This is why the laser materials processing industry is faring better than the traditional machine tool industry in the current economic climate.

One example where laser technology is making itself indispensable is in the area of plastics welding. With the advent of diode and fibre lasers, system performance has improved and this non-contact technique gives higher-quality seams than are possible with conventional techniques (see page 270). For rapid prototyping, laser sintering enables complex shapes to be made that were previously not possible; it can not only make models but can also be used to manufacture functional products out of metal (see page 265). And for those metal parts that require strengthening, laser shock peening is now a proven successful process, especially in the aerospace sector (see page 267).

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