

UK Laser Materials Processing statistics 2009

The figures below have been deduced from: (i) the AILU database; and (ii) discussions with some of the main suppliers of laser systems in the UK at the 2009 Munich laser show. The figures relate to mid-2008.

Size of UK industrial laser community

Number of persons in the UK who have registered an interest in Laser Materials Processing on the AILU website post 2006: **1850**

Number of UK organisations registering on the AILU website post 2006 and identified as having an activity in Laser Materials Processing: **720**

Of these:

- 200** declared a use of lasers for in-house manufacturing (excluding laser marking)
- 250** are sub-contract engineering companies using lasers (including those offering design and consultancy services)
- 120** are academic and industrial organizations who declared an activity in LMP research (N.B. This excludes commercial originations probably active in LMP research but unwilling to declare specifics)
- 150** are product suppliers and manufacturers of LMP equipment and associated equipment

With regards to sub-contract engineering companies using lasers, we estimate a total number of **500**.

Number of high power LMP installations in the UK

The total installed base of high value laser materials processing systems in the UK (excluding marking systems and low-end (~100W) cutting systems) is estimated to be **2500** of which **~1900** are CO₂ cutting machines and the remainder (**~600**) are YAG systems (excluding marking), mainly for welding. (NB Many more industrial YAG systems (**~2000**) have been sold into the UK but most are believed to have been mothballed (telecoms bubble) or shipped from the UK to Asia). These are spread over ~850 sites.

Total high value industrial laser systems purchased in UK/annum in 2008 ~ 130. Certainly in the laser job shop community there is a trend (partly fuelled by low prices and interest rates) to replace two old (say 2.5 kW) CO₂ cutting machines with one new higher power (say 6 kW) machine, as a result of which processing power and productivity increases but number of systems decreases.

Average number of high value laser materials processing systems per organisation used for in-house manufacture: **1 - 3**

Average number of high value laser materials processing systems per laser job shop:
2 - 4

Using these figures, the job shop component alone is estimated to create an income for job shops of ~£500M/annum i.e. an average laser would be working 80 hours per week; companies work 50 weeks per year, so income (not wealth) generated by 1500 lasers will be of the order of $1500 \times 80 \times 80 \times 50 = \text{£}480$ million.

UK laser system sales/annum by application

Galvo-driven laser marking system ~ **150** (for >100W. Nearly all of these are solid state lasers, including fibre. (N.B. sales figures for typically 10 – 20 W ‘sell-by’ coders, are several tens of times more than this figure)

Jewellery welding ~ **35**

Welding (other) ~ **50**

Comparison of UK with Germany

Germany is the current world leader in the use of lasers in manufacturing.

UK sales as a %age of Germany (excluding marking)

High value CO₂ laser materials processing systems ~ **8.5%**

High value fibre laser materials processing systems ~ **5%**

High value Nd:YAG laser materials processing systems ~ **5%**

The manufacturing output of Germany is about 3 times that of the UK. If an organisation’s willingness to use lasers was the same in each country then sales in the UK would be 33% that of Germany. The above ratios of 5 – 8.5% imply a greater willingness to choose the laser option in Germany by factor of between **4 and 6.5**.

Anecdotally, it is claimed that at least part of the explanation for this is that German organisations are try harder to keep a laser process within Germany (i.e. they use lasers to increase productivity and add value to the product) whereas organisations in the UK are more willing to export the process to Asia. Another factor is the relatively low level of capital investment in UK manufacturing industry; it is claimed that expected payback times on investments are 1 year in the UK, 3 years in Germany and 10 years in Japan, which discriminates against high capital cost purchases in the UK.

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