

## CBI MARKET SURVEY

# The castings and forgings market in the UK

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### Report summary

This CBI market survey discusses the following highlights for the castings and forgings sector in the UK:

- The British engineering industry is a major end-user of castings and forgings. It is among the largest in the EU and is expected to show a slightly increasing output in 2008.
- British production of metal castings and forgings increased by 5.5% and 3.8% per year respectively. Both industries ranked in the top five in the EU, behind Germany, Italy and France, but ahead of Poland.
- The UK was a large importer of castings and forgings, ranking behind Germany, France and Italy, running the largest trade deficits for articles of iron, steel or base metal (€1.2 billion), plastic and rubber products (€568 million), light and ultra light products (€293 million), and parts of machinery, railway equipment and vehicles (€253 million). In the period 2002-2006, total import value annually increased by 4%.
- Imports from DCs annually increased by 16% in value. Compared to 2002, the total share of DCs in import value increased from 7.3% to 11% in 2006. The DCs' shares in imports of plastic and rubber products grew the fastest: from 3% to 5.5%.
- China accounted for 40% of all imports coming from DCs, followed by Turkey (15%), India (13%), South Africa (6%), Saudi Arabia (4%) and Brazil (3%). The Chinese share of DC exports to the UK did not grow as fast as in the EU on average (46% compared to 57%). The DCs that saw a larger increase of their share to the country were Cuba, Tunisia, Jordan, Chile, Pakistan, Nigeria, Vietnam and Peru.
- The price pressure on components and systems as a result of strong global competition, in combination with an ongoing strong demand for engineering and construction products, has made room for an increase of sourcing in DCs. However, DC exporters are still not capable of supplying the quality yet that is necessary for the EU market. Although DCs saw an increase in exports of castings and forgings to the UK, these parts are assembled into products that are directed to markets with lower quality standards, such as Africa and South America.

This survey provides exporters of castings and forgings with sector-specific market information related to gaining access to the UK. By focusing on a specific country, this survey provides additional information, complementary to the more general information and data provided in the CBI market survey 'The castings and forgings market in the EU', which covers the EU in general. That survey also contains an overview and explanation of the selected products dealt with, some general remarks on the statistics used as well as information on other available documents for this sector. It can be downloaded from <http://www.cbi.eu/marketinfo>.

## 1 Market description: industrial demand and production

### Industrial demand

Because no data for the demand for castings and forgings are available, this survey puts a focus on two major end-user industries in the UK that offer good opportunities for developing country (DC) exporters: the engineering and the construction industry. Since both industries use many cast and forged parts and products, the production output of both industries is a good indication of the demand for cast and forged parts in these industries.

### Engineering industry

The British engineering industry is a leading end-user of ferrous metal castings, accounting for 22% of locally produced ferrous metal castings. It is also a major end-user of forgings,

consuming between 10-45% of all forgings. British production in the engineering industry declined 0.2% per year in the period 2002-2006, totalling €54.7 billion in 2006. This decrease is quite exceptional, as virtually all other EU countries experienced production growth in the period mentioned. While production in the mechanical engineering industry increased slightly (+1.1% per year) in the period 2002-2006, and even did well in the period 2004-2006 (5.2% growth per year), the production in the electrical engineering industry declined by 2.5% on average per year in the period 2002-2006, due to an increase in outsourcing and relocation of production to low cost countries (LCCs) as a result of the difference in wage costs as well as the strong sterling. A recent example is the announced closure of the Electrolux cookers plant in Spennymore, with production set to be relocated to Poland.

The large British engineering industry ranked fourth in the EU, behind Germany, Italy and France, but ahead of Spain and Sweden. Refer to Table 1.1 for more information on the market size of the several engineering categories, as well as the estimated shares of castings and forgings in these categories.

**Table 1.1 British engineering production, by category and including the production value share of castings and forgings, 2002-2006, € million**

	Share of castings and forgings*	2002	2006	Annual change '02-'06
<b>Total engineering</b>		<b>55,253</b>	<b>54,726</b>	<b>-0.2%</b>
<b>Mechanical engineering</b>		<b>34,221</b>	<b>35,726</b>	<b>1.1%</b>
Non domestic cooling and ventilation equipment	10%	5,005	5,712	3.4%
Lifting and handling equipment	10%	4,813	5,470	3.3%
Engines and turbines	40%	2,826	4,471	12.2%
Machinery for mining, quarrying and construction	15-25%	3,821	4,295	3.0%
Pumps and compressors	50-70%**	3,710	3,900	1.3%
Agricultural tractors and machinery	30%	2,841	2,387	-4.3%
Machine tools, woodworking mach., welding equipm.	***	2,579	1,966	-6.6%
Valves and taps	60-70%	2,061	1,749	-4.0%
Bearings, gears, gearing and driving elements	50%	1,461	1,452	-0.2%
Machinery for food, beverage and tobacco processing	25%	1,488	1,402	-1.5%
Industrial furnaces and furnace burners	10%	443	570	6.5%
Machinery for paper and paperboard production	25%	302	292	-0.8%
Machinery for metallurgy	20-25%	157	237	10.8%
Machinery for textile, apparel and leather production	60-70%	250	120	-16.8%
<b>Electrical engineering</b>		<b>21,032</b>	<b>19,000</b>	<b>-2.5%</b>
Electric distribution and control apparatus	5-10%	5,307	4,400	-4.6%
Electric motors, generators and transformers	30-40%	3,519	3,700	1.3%
Other electrical equipment	5-25%	3,659	3,400	-1.8%
Electric domestic appliances	5-25%	3,339	3,100	-1.8%
Lighting equipment and electric lamps	5-25%	1,898	1,550	-4.9%
Electric equipment for engines and vehicles	5-25%	1,202	950	-5.7%
Accumulators, primary cells and primary batteries	5-25%	592	500	-4.1%

Source: European Union Enterprise and Industry (2007)

\* Based on estimations of industry experts and the German Foundry Association.

\*\* Pumps consist for about 70% of castings and forgings, while compressors consist for about 50% of castings and forgings.

\*\*\* While machine tools have a large share of castings and forgings (40-50%), woodworking machinery (10-20%) and welding equipment (5%) have a far smaller share of castings and forgings.

As becomes clear from Table 1.1, several categories contain a relatively large production value share of castings and forgings. Of the most relevant categories, "engines and turbines" grew by 12.2%, "pumps and compressors" by 1.3% and "electric motors, generators and transformers" by 1.3% per year in the period 2002-2006. All other relevant categories declined. The UK is the only EU country that saw a decline in the production of "bearings, gears and other driving elements" in the period 2002-2006. In no other EU country the decline of the production of "electric distribution and control apparatus" (-4.6%), "valves and taps"

(-4.0%), "machine tools, woodworking machinery and welding equipment" (-6.6%) and "machinery for textile, apparel and leather production" (-16.8%) was as large as in the UK. The position of the UK in the EU in these main castings and forgings consuming engineering categories was as follows:

- Pumps and compressors: the UK ranked fourth with 11% EU market share, behind Italy (14% EU market share) and France (13%), but ahead of Belgium (5%) and the Netherlands (4%).
- Engines and turbines: the UK ranked second with 18% EU market share, behind Germany (28%), but ahead of Italy (18%) and France (12%).
- Electric motors, generators and transformers: the UK ranked fifth with 8% EU market share, behind Italy (9% EU market share) and France (8%), but ahead of Denmark (6%) and Finland (5%).
- Valves and taps: the UK ranked fourth with 6% EU market share, behind Italy (22% EU market share) and France (10%), but ahead of Denmark (6%) and Sweden (3%).
- Bearings, gears, gearing and driving elements: the UK ranked fourth with 4% EU market share, behind Italy (18% EU market share) and France (9%), but ahead of Sweden (3%) and Spain (3%).
- Agricultural tractors and machinery: the UK ranked fourth with 8% EU market share, behind Italy (23% EU market share) and France (14%), but ahead of the Netherlands (5%) and Finland (4%).
- Machine tools, woodworking machinery, welding equipment: the UK ranked fourth with 4% EU market share, behind Italy (21% EU market share) and France (6%), but ahead of Spain (4%) and Sweden (4%).
- Machinery for textile, apparel and leather production: the UK ranked tenth with 1% EU market share, behind Austria (1% EU market share) and the Netherlands (1%), but ahead of Denmark (1%) and Portugal (1%).

The demand for engineering products is expected to remain stable or perhaps to grow slightly in the next few years, due to the world, EU, and British economic growth forecasts for 2008 (+3.8%, +1.7% and +1.7% respectively) and 2009 (+3.9%, +1.8% and +2.1%). Economic growth will stimulate industrial spending activity, the major determinant of engineering products demand. Because subcontracting to foreign companies or imports from other countries may also increase, it is uncertain whether British manufacturers will be able to remain competitive and increase their production output or not. Please also note that, although the EU is far from running the risk of recession, the EU and British economy are and will be clearly affected by the housing and credit crisis in the United States.

### **Construction industry**

After a total growth of 7% in the period 2002-2005, the British construction industry amounted to €190 billion in 2005. In line with the industry's growth in the period 2002-2005, the European Network for Construction Forecasting (Euroconstruct) expected a comparable total growth (8%) in the period 2006-2008 to more than €205 billion in 2008. After a small decline in 2005 (-0.8%), growth of construction output is expected to pick up. However, recent critics mentioned the outlook for 2008 and beyond to be the worst in over a decade, as both the commercial and residential housing sectors face a double decline. It is expected that the demand for steelwork follows a different trend, with some growth in 2006 and 2007 (0.1% and 0.5% respectively) and better growth in 2008 (1.5% to a volume of 1.36 million tonnes). The large British construction industry ranked second in the EU, behind Germany, but ahead of Italy and France. The British construction industry uses 8% of locally produced iron castings.

### **Market segmentation**

As far as data are available, the market segmentation of some of the most important processes and materials covered by this survey is discussed in this section.

### **Castings**

As shown by the data in Table 1.2, (malleable) iron castings largely go to the automotive and the engineering industry, while nodular iron castings are mainly used in (pressure) pipes and fittings. Please note that these data are only of domestically produced castings, as other data are not available. Although the automotive industry still represented 34% of the use of iron castings in 2006, its share decreased 4 percent points compared to 2004.

**Table 1.2 British ferrous\* metal casting production, by segment, 2006, shares**

	<b>Pipes and fittings</b>	<b>Construction**</b>	<b>Engineering industry</b>	<b>Automotive industry</b>	<b>Other***</b>
Iron	9%	8%	30%	34%	19%
Nodular iron	39%	-	12%	22%	27%
Malleable iron	10%	-	50%	30%	10%

Source: Committee of European Foundries Associations (2007)

\*data of non-ferrous metals are not available.

\*\*including domestic goods

\*\*\*This category includes ingot moulds and several industries such as the aeronautics and the electronics industries.

### **Forgings**

Unfortunately, no segmentation data for forgings are available. However, according to industry experts, it can be assumed that the major end-user of forged products is the automotive industry (40-60%), followed by engineering (10-45%). Other industries that may have a small share are railways, aerospace equipment, construction, maritime and the power generation industry.

### **Steel**

In 2006, the construction industry accounted for 29% of total British steel demand. This share increased compared to 2005, mainly at the cost of the automotive industry. The engineering industry took a second place (24%), followed by automotive (15%), forging and stamping (8%) and cold forming (5%). The balance was left for several industries and segments such as packaging, furniture, wire drawing and oil and gas.

### **Aluminium**

In 2006, total consumption of aluminium was estimated at about 800,000 tonnes. While some 25% of consumption is for beverage cans and foil products, the second largest market is in transport (road, rail, aerospace and marine; 16%). Most steel is used in the form of semi-finished products (82,000 tonnes) while 70,000 tonnes are used in the form of castings. The third largest market is the construction industry (11%) with a large portion for extruded and rolled products.

## **Production**

### **Castings**

In 2006, the large British foundry industry ranked fifth in the EU, behind France and Spain, but ahead of Poland and the Czech Republic. Table 1.3 shows an indication of the production of castings in the UK. The data have been collected by the British Cast Metals Federation (CMF) and are based on data of member companies. In 2006 the British production of castings totalled 1.1 million tonnes. The group of ferrous metals remained virtually stable in the period 2002-2006, but be aware of the absence of the 2002 volume of steel castings. In the period 2004-2006 the group of non-ferrous metals showed a slight decrease as well. Although no data of steel foundries were available, these foundries were reported to flourish in 2005/2006, with strong demand from many segments but in particular pumps and valves for petroleum and offshore applications for oil and gas. Capacity utilisation of the steel foundries even increased, and many of them found it necessary to extend lead times. The light and ultra light alloy

foundries showed decrease in the period 2004-2006, despite good demand from a number of industries. Reason for the decrease was the continuous weak demand from the passenger car industry, as this industry continued to be under pressure due to severe overseas competition in the period mentioned. Other non-ferrous foundries reported a slight decrease as well. Zinc die casters suffered severe competition from foundries in China and Eastern Europe. The investment castings sector continued to improve, with most end-user segments reported to show healthy growth. China continued to be the main competitive threat for this sector with some customers already looking to other countries such as Vietnam and India.

**Table 1.3 British production volume of castings by type, 2002-2006, 1,000 tonnes**

	2002	2004	2006	CAGR '02-'06
<b>Total</b>	<b>886</b>	<b>1,277</b>	<b>1,098</b>	<b>5.5%</b>
<b>Ferrous</b>	<b>886</b>	<b>1,046</b>	<b>878</b>	<b>-0.2%</b>
Iron	545	572	421	-6.2%
Nodular iron	326	362	335	0.7%
Malleable iron	15	14	10	-10.1%
Steel	-	98	112	-
<b>Non-ferrous</b>	-	<b>231</b>	<b>220</b>	-
Copper alloy	-	16	13	-
Light and ultra light	-	190	185	-
Zinc	-	23	20	-

Source: Committee of European Foundries Associations (2007)

After a number of closures in 2005-2006, the country was still home to 249 ferrous metal foundries in 2006. The iron foundries that closed between the third quarter of 2005 and the fourth quarter of 2006 accounted for almost 25% of iron castings production in the UK. The foundries in question produced both grey and ductile iron castings and a number of these closures related to medium to large volume production facilities with Disa moulding lines. Additionally, it is interesting to note that most of the closed foundries were foreign owned. The remaining iron foundries experienced a strong demand from a number of market segments in 2006. One of them was the commercial vehicles segment, as well as turbocharger castings. While prospects for the power generation sector continued to improve, the ductile iron pipe production remained stable, although largely dependant on export markets. In the coming years, some more closures may be expected, as the country is still home to some low added-value serial production. For example, the UK still has a strong domestic supply base of castings for the manhole cover, water and drainage segment, despite the intense competition from low-cost countries.

The country was home to 210 large non-ferrous metal foundries in 2006, down from 224 in 2004 and 216 in 2005. In 2005 and 2006, several foundries closed, (partly) as a result of the bankruptcy of the automotive company MG-Rover in 2005. In recent years, the average turnover per employee in the ferrous metal foundries increased, although the exact growth is not known. In 2003, the average turnover per employee (€90,314) was comparable to the Finnish average, but below the German, French and Dutch average. With regard to the non-ferrous metal sector it is only known that the average number of employees per foundry is around 50.

### **Forgings**

Table 1.4 shows an indication of the volume of forgings production in the UK. In 2006, the members of the National Metal Forming Centre produced 342 million tonnes of forgings, after increasing 3.8% per year in the period 2002-2006. The medium-sized British forge industry ranked fourth in the EU, behind Italy and France, but ahead of Spain and Poland.

**Table 1.4 British production volume of forgings by type, 2002-2006, 1,000 tonnes**

	2002	2004	2006	CAGR '02-'06
<b>Total</b>	<b>295</b>	<b>294</b>	<b>342</b>	<b>3.8%</b>
<b>Drop forging, press and upset forging</b>	<b>191</b>	<b>198</b>	<b>248</b>	<b>6.7%</b>
• Production of forging industry (subcontracting)	191	198	248	6.7%
<b>Cold forging</b>	<b>62</b>	<b>56</b>	<b>41</b>	<b>-9.8%</b>
• Production of cold forging industry	62	56	41	-9.8%
<b>Open die forging</b>	<b>42</b>	<b>37</b>	<b>53</b>	<b>6.0%</b>
• Ring rolling	27	21	26	-0.9%
• Other open die forging**	15	16	27	15.8%
<b>Close die forging for non-ferrous metal</b>	<b>0</b>	<b>3</b>	<b>-</b>	<b>-</b>

Source: Euroforge (2007)

\* i.e. producers of flanges and fittings, piping, connectors, armatures, tools, machineries, etc.

\*\* excluding forged steel bar, blanks and railway rolling stocks.

As shown by Table 1.4, in the period 2002-2006 drop forging, press and upset forging grew 3.8% per year and open die forging increased 6%, while cold forging decreased 9.8%. The average output per forge showed a continuous increase in the period 2002-2006, while the number of employees per forge decreased. This is in indication of an increasing efficiency in the British forge industry.

### Interesting players

Some examples of British foundries are:

- Chamberlin & Hill – <http://www.chamberlin.co.uk>
- Doncasters - <http://www.doncasters.com>
- Eurac Group - <http://www.eurac-group.com> - specialised in the manufacturing of brake discs and drums; the company comprises two foundry operations (PDC in the UK and BAK in the Czech Republic) and two machining companies (HPM in the UK and PBS in Germany)
- Newby Foundries - <http://www.newbyfoundries.co.uk>
- Thomas Dudley - <http://www.thomasdudley.co.uk>
- William Cook Burton - <http://www.william-cook.co.uk>
- William Lee - <http://www.wmlee.co.uk>

Some examples of British forges are:

- Bloxwich - <http://www.bloxwich.co.uk>
- Brockhouse - <http://www.brockhouse.co.uk>
- Chapmans - <http://www.chapmans-uk.com>
- Firth Rixson – <http://www.firthrixson.com> - also production of castings
- Metsec - <http://www.metsec.co.uk> - part of Voestalpine from Austria
- Philidas Fasteners - <http://www.philidasfasteners.co.uk> – a few years ago, Philidas secured a large order from a Chinese facility of a major EU/US Tier 1 automotive component supplier. Philidas is not always able to compete with Asian suppliers on massive production runs for standard parts, but the company can compete for smaller production runs and customer specific special parts in terms of price.
- Sheffield Forgemasters Rolls – <http://www.sheffieldforgemasters.com> - also production of castings
- Stokes Forgings - <http://www.stokesforgings.com> - in 2006 Stokes was acquired by Mahindra from India. In the period 2002-2005, the company invested significantly and entered several new markets such as Belgium, Slovakia and Spain. The company even won back business from a forging company in China, at some cost.
- Ultraframe – <http://www.ultraframe.co.uk> - construction profiles

Most of the above mentioned websites offer comprehensive information on production capacity, products made as well as details of the production process and equipment.

## Trends

The major trends that influence the castings and forgings demand and production in the UK are:

- **Growing number of innovative applications of aluminium and magnesium.** This trend is expected to continue, as the automotive industry seeks new ways to save weight and gain fuel efficiency and performance. Moreover, other segments will benefit from these experiences.
- **Care for the environment has become a strategic political issue.** In the power generation industry, the search for energy efficiency and the limitation of CO<sub>2</sub> and NO<sub>x</sub> emissions – which is sometimes called the “Kyoto Effect” – has led and should lead to the increased use of electric variable speed drives. The engines, turbines, motors and generators markets will also show good growth due to the Kyoto effect. As a result, prospects for cast and forged parts in such applications are bright.
- **Product innovation focuses on better features at a lower price.** For virtually all components it is a trend to offer increased features and functionality combined with cost reduction. For example, in pneumatic cylinders or actuators, costs have been steadily reduced by improvements in materials - such as a shift from steel barrels and die-cast end caps to extruded aluminium - and the introduction of advanced moulded polymer materials for the internal piston and bearings.
- **Reduction of waste.** The care for the environment and the increasing material costs also drive companies to reduce waste. A good example is the innovative helical drive gear of the company South Wales Forgemasters (<http://www.swforgemasters.co.uk>). Traditionally, such components are made by boring solid metal, which is inevitably wasteful. However, SWF has invented and patented a method of pushing out the core during the forging process, allowing the surplus hot metal to fill the mould. The level of waste has been reduced so dramatically that a billet of only 5.2 kilos is needed to produce the 4.9-kilo component.
- **Reduction of energy expenditure at foundries and forges.** Forced by the increasing energy prices (refer to Section 4) and the stringent environmental legislation, British companies look for ways to reduce their expenditure on energy. This goes particularly for those companies which have to use large amounts of energy as part of their production process. A typical example of this is the hot forging industry. One of the British hot forges that aims at reducing its energy usage is Doncaster Precision Forgings in Sheffield. At the site of Doncaster in Sheffield, large investments in energy saving have been made, among which are the conversion of two gas fired furnaces to recuperative burners with upgraded insulation and also installation of highly efficient electric furnaces for a specific application. In a way to continually monitor and reduce energy consumption, the company also works with an energy management company.
- **Investments are necessary to survive.** Historically, the UK has been a strong production base for engineering, railroad equipment, shipbuilding, aircraft, motor vehicles and parts. In recent years, industry critics mentioned that in the last three decades, British production has steadily dropped. Since the nineties, the industry’s ability to create wealth through manufacturing and exporting high added value, high technology goods, has been severely diminished by a lack of investment and very low levels of confidence. Although the developed economies of the Euro Zone are able to compete more efficiently with the low wage/low cost economies than the UK, the British industry performed well in 2006-2007. On company level, a few examples of companies that did very well in recent years are Barton Cold-Form (<http://www.bartoncoldform.co.uk>) and Tinsley Bridge (<http://www.tinsleybridge.co.uk>). Barton Cold-Form invested more than €2.5 million to remain competitive with Asia. The investment included a new warehouse, a new production site with fully automated CNC secondary operation facilities and the acquisition of a fully CNC controlled multi-die heading machine. Tinsley Bridge, a specialist supplier of springs and suspension components, won more than €10 million of new business in one year. The company transformed its operations, mainly via a supplier improvement programme with a major customer, Leyland Trucks. The result was an improvement of quality, lower costs and improved delivery times. One other example is an SG, grey iron and ADI foundry

(name unknown), which recently made an investment of €17 million in a new facility and equipment. By 2008, a new horizontal foundry will be opened, with 30% more capacity and new jobs for 80 people. According to one of the partners of this foundry, it is the result of the success of this foundry. The new foundry will produce all grades of SG, grey iron and ADI, covering all aspects of manufacture from casting and processing.

- **British industry benefits from low-cost production in CEE countries.** The transformation of Central and Eastern European (CEE) countries into market-oriented economies is beneficial to the British engineering, foundry and forge industry. A division of labour has arisen which enables British firms to utilise a cheap labour supply to improve price competitiveness in international markets. One example of a company that benefited from the cheap labour in CEE countries is Majorfax (<http://www.majorfax.co.uk>). This company is an importer of castings from both China and CEE, and also has a few joint ventures with CEE foundries (the import from CEE countries involves medium to large sized batch quantities). Generally speaking, especially for end products that face quick price erosion, the price pressure on components and systems leads to relocation of production. Industry experts expect the trend to continue even more in the future, which may lead to a deceleration of demand growth for castings and forgings in the British engineering industry.
- **Outsourcing to Low Cost Countries (LCCs) continues to increase.** In recent years, a lot of – especially electrical – engineering production has been replaced to LCCs. So far, outsourcing often concerns large volumes of labour-intensive and standard products and parts that can easily be made in LCCs. Industry experts expect the trend to continue even more in the future, which may lead to a deceleration of demand growth for castings and forgings in the British engineering industry.
- **British companies import castings and forgings from DCs, but often not for engineering products destined for the EU market.** Also in the UK, engineering companies have been looking for new sources of castings and forgings. Because of the strong demand for their products, they have started to differentiate their sourcing policy. Although no company will admit officially that castings and forgings are imported from DCs, several British companies have started to do so. The castings and forgings they source from DCs are imported to the UK and assembled into the final product. However, in several cases these final products are directed to markets with lower quality demands, such as Africa and South America. For the products for the European market, these companies continue to use castings and forgings from Europe, due to the strict quality demands of EU customers.
- **Strong sterling.** The strength of the sterling as well as low wage costs of international competitors has made outsourcing very inexpensive. This has caused significant growth in outsourcing.

### Opportunities and threats

Trends and market developments offer opportunities and threats to exporters. A given trend can be a threat to some and an opportunity to others at the same time. The following trends should, therefore, always be analysed in relation to your specific circumstances. The main opportunities and threats for DC exporters are the following:

- + Although the engineering industry faced a small decline in production, it remains among the largest in the EU. In the electric engineering segment there are good prospects for cast and forged parts in energy efficient applications.
- + Growing construction market leads to an increasing demand for castings and forgings.
- + The UK is still home to some low added-value serial production of castings. This offers opportunities for DC foundries that can take over this kind of production.
- ± The price pressure on components and systems (refer to Section 4) as a result of strong global competition, in combination with an ongoing strong demand for engineering products, has made room for an increased sourcing in DCs.
- ± Rising demand for innovative applications of aluminium and magnesium, although this will be at the expense of ferrous metal castings.
- Often, DC companies are still not capable of supplying the desired quantity.

- Shift of engineering production towards LCCs, which may lead to a deceleration of demand growth for castings and forgings of the British engineering industry. Refer to Section 7 of the CBI market survey covering the EU market for more information on opportunities and threats.

### Useful sources

- Cast Metals Federation - <http://www.castmetalsfederation.com>
- Engineering Construction Industry Association - <http://www.ecia.co.uk>
- Engineering Industries Association - <http://www.eia.co.uk>
- European Foundry Association - <http://www.caef-eurofoundry.org>
- European Network for Construction Forecasting - <http://www.euroconstruct.org>
- European Union Enterprise and Industry - <http://ec.europa.eu/enterprise>
- Federation of National Forging Associations - <http://www.euroforge.org>
- National Metal Forming Centre – <http://www.britishmetalforming.com>

## 2 Trade channels for market entry

### Trade channels

The most common trade channels for DC exporters are direct sales to end-users, trade via traditional importers, supply agents, traditional agents, or subcontracting by EU foundries or forges. Although there are several options, supplying directly to end-users has some advantages and could be one of the most interesting trade channels, because there is a larger chance of a long-lasting relationship. DC exporters should therefore put efforts into building up supplier relationships with end-users. Refer to the CBI market survey covering the EU market for a detailed explanation of relevant trade channels in this market. Some examples of companies in the UK that may be interesting to DC exporters are:

- Arrows International - <http://www.arrowcastings.co.uk/aboutai.html> - as can be read from the website, due to ongoing customer requests, Arrow International was set up to source components which could not be manufactured by Arrow Castings. The company regards itself as one of the largest sourcing agents of castings in the UK, importing on average 130 tonnes per month. They manage accounts for many companies, large and small by sourcing a range of castings and forgings making use of a network of manufacturers throughout the UK and CEE countries.
- Asco Fixings - <http://www.ascofixings.co.uk> - import and distribution of castings
- Barden - <http://www.bardenbearings.co.uk> - production; bearings
- Cooper Roller Bearings - <http://www.cooperbearings.com> - production; bearings
- Components Worldwide - <http://www.componentsworldwide.com> - production and import; metal parts
- Darian Trading - <http://www.dariantrading.com> - import, distribution; castings, forgings
- David Brown - <http://www.textronpt.com> - production; transmissions
- Doncasters - <http://www.doncasters.com> - production; mechanical engineering
- Expocet - <http://www.expocet.com> – sales agent for five British companies, among which are an iron (grey and SG, Disa and shell moulding processes) foundry and a steel and stainless steel foundry (lost wax or investment process, with production in the UK and also in China)
- Fenner - <http://www.fenner.com> - production; transmissions
- Forged Products - <http://www.forged-products.co.uk> - import and agency of forgings from Italian forges such as Fromas
- GKN - <http://www.gknplc.com> - production; transmissions
- Hepco - <http://www.hepcomotion.com> - production; bearings
- John Crane - <http://www.johncrane.co.uk> - production; mechanical engineering
- Joy Mining Machinery - <http://www.joy.com> - production; mining machinery
- Nacco Materials Handling - <http://www.nacco.com> and <http://www.hyster.co.uk> - production; handling equipment
- Stannah Lift Services - <http://www.stannah.com> - production; lifting equipment
- The 600 Group - <http://www.600group.com> - production; mechanical engineering

**From practice** – China and India are the main supplying countries for one of the British importers interviewed by Facts Figures Future. This importer is specialised in matching British demand and global supply. The company receives a customer's request for a certain tailor-made part and provides the component, sourced from the most competitive supplier, selected from its global supply base. Although China is the country that is normally used as a supply base, the company sometimes also selects Indian foundries and forges to supply the British customer. The DC foundry or forge is always visited and audited before supply starts.

Generally, the components are completely finished, with a quality according to the customer's specification and do not need any more working or finishing in the UK. On time delivery is very important. According to a spokesman of the company, a recent trend is the increasing demand from British customers for aluminium castings. Clearly, this is the result of the high energy prices in the UK (refer to Section 4), making locally produced aluminium castings very expensive.

The company often uses a local sourcing agent, if available, when looking for new suppliers in DCs. Therefore, the advice to DC exporters is to present your company in a professional way on the internet and with sourcing agents in your own country. It is also important to be present at trade fairs. Beside Subcon, which is among the most important fairs in the UK, other trade fairs are mentioned in Section 6.

Source: Interview Facts Figures Future (2008)

### Price structure

It is very difficult to give a general idea of the price structure in this industry, as prices and margins differ to a great extent. They may depend on size of the order, length and type of distribution chain, terms of delivery, added value / finishing and materials concerned. Bearing this in mind, some rough indications of margins in the chain could be given. Agents work with margins between 3-7%, for importers this is 15-35%. The margin depends on the level of care and attention an intermediary has to give to the process. Products that do not need much extra care, like finished and ready-to-use products, such as valves, will be sold with a smaller margin than products that need extra handling or even need to be stored.

### Selecting a suitable trading partner

There are many ways to find potential trading partners in the UK. The following country-specific websites may be very useful to find potential British trade partners:

- Applegate Directory - <http://www.applegate.co.uk> - a database which contains UK based companies.
- British Association for Amenity, Environmental and Agricultural Industries - <http://www.aea.uk.com> – click on 'The Directory'.
- British Constructional Steelwork Association - <http://www.steelconstruction.org> – click on 'Find a Steelwork Contractor or Product Supplier'.
- British Electro Technical Manufacturers' Association - <http://www.beama.org.uk> - click on 'Membership directory'.
- British Fluid Power Association - <http://www.bfpa.co.uk> – go to 'Resources' and click on 'Find a manufacturer'.
- British Gear and Mechanical Power Transmission Association - <http://www.bga.org.uk> – click on 'Members list'.
- British Pump Manufacturers' Association - <http://www.bpma.org.uk> – click on 'BPMA members'.
- British Textile Machinery Association - <http://www.btma.org.uk> – members are listed on the left-side of the screen.
- British Valve & Actuator Manufacturers' Association - <http://www.bvama.org.uk> – click on 'our members'.
- Buyer's guide of the Engineering Industries Association - <http://www.eia.co.uk>
- Chamber of Commerce in the UK - <http://www.britishchambers.org.uk>

- Copper Development Association – <http://www.cda.org.uk> - click on 'links' to find members.
- Engineering - <http://www.engineering.co.uk> – a database which brings together British demand and international supply of engineering parts. Registration is necessary.
- Engineering Capacity (subcontracting) - <http://www.engineering-capacity.co.uk> – click on 'Capacity directory'.
- Member list of the British Electrotechnical & Allied Manufacturers' Association - <http://www.beama.org.uk>
- National Aluminium Federation - <http://www.alfed.org.uk> – go to 'about Alfred' and click on 'Alfed Associations'. Click on a sub association to view its members.
- Shipbuilders and Ship repairers Association - <http://www.ssa.org.uk> - click on 'members'.
- UK Steel - <http://www.uksteel.org.uk> – click on 'Buyers' guide'.

Usually, agents are a member of one of the three UK agents associations:

- British agents register - <http://www.agentsregister.com>
- Manufacturers' Agents' Association of Great Britain and Ireland - <http://www.themaa.co.uk>
- National Sales Agent Register - <http://www.sales-agents.com>

Refer to Section 6 for main sales promotion tools.

### 3 Trade: imports and exports

#### Imports

In 2006, the UK was a large importer of castings and forgings, ranking fourth in the EU, behind France and Italy, but ahead of Spain and Belgium. Between 2002 and 2006, the total import value annually increased by 4% to €24.8 billion (12.3 million tonnes) in 2006. The increase in value was partly caused by the increasing prices of raw materials (refer to Section 4). The product group shares were as follows:

- Parts of machinery, railway equipment and vehicles: 36% of total. Annual decrease in import value of 1%.
- Iron and steel products: 22% of total. Annual increase in import value of 10%.
- Articles of iron, steel or base metal: 17% of total. Annual increase in import value of 7%.
- Plastic and rubber products: 13% of total. Annual increase in import value of 4%.
- Light and ultra light products: 9% of total. Annual increase in import value of 6%.
- Copper and zinc products: 4% of total. Annual increase in import value of 17%.

Of all intra-EU imports a small part may be re-exports, but the exact value of re-exports is unknown because Eurostat does not allow for such detailed analysis.

**Table 3.1 Imports by and leading suppliers to the UK, 2002 - 2006, share in % of value**

Product	2002 € mln	2004 € mln	2006 € mln	Leading suppliers in 2006 (share in %)	Share (%)
Total	12,231	13,108	14,583	Intra-EU : Germany (20), France (8), Italy (7), Belgium (6), the Netherlands (4)	61
	6,681	5,638	6,761	Extra-EU ex. DC : USA (14), Japan (4), Norway (1), Canada (1), Russia (1)	28
	1,466	1,825	2,576	DC : China (4), Turkey (2), India (1), South Africa (1), Saudi Arabia (<0.5), Brazil (<0.5), Malaysia (<0.5), Thailand (<0.5), Mexico (<0.5), Iran (<0.5)	11
Parts of machinery, railway equipment and vehicles	4,004	3,663	3,476	Intra-EU : Germany (14), Italy (5), France (5), the Netherlands (4), Sweden (2)	41
	4,367	3,454	4,272	Extra-EU ex. DC : USA (29), Japan (8), Canada (3), Singapore (2), Switzerland (2)	50
	610	651	765	DC : China (3), Saudi Arabia (1), India (1), Turkey (1), South Africa (1), Malaysia (<0.5), Brazil (<0.5), Thailand (<0.5), Mexico (<0.5), Indonesia (<0.5)	9

Product	2002 € mln	2004 € mln	2006 € mln	Leading suppliers in 2006 (share in %)	Share (%)
Iron and steel products	2,810	3,779	4,139	Intra-EU : Germany (20), Belgium (11), France (8), Spain (7), Sweden (6)	77
	587	646	669	Extra-EU ex. DC : Russia (4), USA (1), South Korea (1), Taiwan (1), Norway (1)	12
	256	314	583	DC : China (3), Turkey (2), South Africa (2), India (2), Brazil (1), Iran (1), Tunisia (<0.5), Indonesia (<0.5), Kazakhstan (<0.5), Egypt (<0.5)	11
Articles of iron, steel or base metal	1,613	1,851	2,095	Intra-EU : Germany (17), Italy (9), France (6), the Netherlands (4), Belgium (4)	57
	792	693	763	Extra-EU ex. DC : USA (7), Japan (3), Taiwan (3), Switzerland (1), Norway (1)	19
	422	613	853	DC : China (14), Turkey (4), India (3), Thailand (1), Mexico (1), Malaysia (<0.5), South Africa (<0.5), Vietnam (<0.5), Brazil (<0.5), Azerbaijan (<0.5)	24
Plastic and rubber products	2,049	2,163	2,438	Intra-EU : Germany (28), Italy (11), Belgium (10), France (9), the Netherlands (6)	78
	500	437	506	Extra-EU ex. DC : USA (9), Japan (3), Switzerland (1), Israel (1), South Korea (1)	16
	79	105	170	DC : China (2), Turkey (1), India (1), Saudi Arabia (<0.5), Thailand (<0.5), Indonesia (<0.5), South Africa (<0.5), Malaysia (<0.5), Mexico (<0.5), Colombia (<0.5)	5
Light and ultra light products	1,351	1,215	1,675	Intra-EU : Germany (26), France (14), Italy (6), Spain (5), Belgium (4)	75
	369	346	440	Extra-EU ex. DC : USA (9), Norway (5), Switzerland (2), Russia (1), Israel (1)	20
	61	81	132	DC : China (2), Turkey (1), India (1), Croatia (<0.5), Malaysia (<0.5), South Africa (<0.5), Egypt (<0.5), Brazil (<0.5), Oman (<0.5), Bahrain (<0.5)	6
Copper and zinc products	404	436	760	Intra-EU : Germany (35), France (16), Italy (9), Belgium (8), Sweden (4)	81
	66	62	110	Extra-EU ex. DC : Russia (5), USA (3), Taiwan (1), Switzerland (1), Japan (<0.5)	12
	38	61	73	DC : China (3), Turkey (2), India (2), Peru (<0.5), South Africa (<0.5), Mexico (<0.5), Egypt (<0.5), Thailand (<0.5), Saudi Arabia (<0.5), Vietnam (<0.5)	8

Source: Eurostat (2007)

### Imports from DCs

Between 2002 and 2006, imports from DCs annually increased by 16% in value. Compared to 2002, the total share of DCs in import value increased from 7.3% to 11% in 2006. The DCs' shares in imports of some product groups showed better growth compared to other product groups, as can be seen below:

- Plastic and rubber products: growing from 3.0% to 5.5% in value.
- Light and ultra light products: growing from 3.4% to 5.9% in value.
- Articles of iron, steel or base metal: growing from 14.8% to 23.8% in value.
- Iron and steel products: growing from 7.0% to 10.8% in value.
- Parts of machinery, railway equipment and vehicles: growing from 6.7% to 8.8% in value.
- Copper and zinc products: growing from 7.6% to 7.8% in value.

China accounted for 40% of all imports coming from DCs, followed by Turkey (15%), India (13%), South Africa (6%), Saudi Arabia (4%) and Brazil (3%). The Chinese share of DC exports to the UK did not grow as fast as in the EU on average (46% compared to 57%). The DCs that saw a larger increase of their share to the country were Cuba, Tunisia, Jordan, Chile, Pakistan, Nigeria, Vietnam and Peru.

### Exports

In 2006, the UK was a large exporter, ranking fifth in the EU, behind France and Belgium, but ahead of the Netherlands and Austria. The total export value of the UK showed an annual increase of 7% in the period 2002-2006, totalling €25.2 billion in 2006. Exports consisted of:

- Parts of machinery, railway equipment and vehicles, accounting for 50% of total exports (€12.5 billion). Annual increase in export value of 5%.
- Iron and steel products (21% of total exports; €5.2 billion; +14%).
- Articles of iron, steel or base metal (12% of total exports; €2.9 billion; +7%).
- Plastic and rubber products (8% of total exports; €2.1 billion; +3%).
- Light and ultra light products (7% of total exports; €1.7 billion; +11%).
- Copper and zinc products (3% of total exports; €674 million; +14%).

Probably a small part of exports consists of re-exports to other EU countries, mainly to neighbouring countries, but the exact value of re-exports is unknown because Eurostat does not allow such a detailed analysis.

### Opportunities and threats

- + The UK was the fourth largest importer of castings and forgings in the EU in 2006.
- + In 2006, the UK was a net-importer of castings and forgings, running trade deficits for articles of iron, steel or base metal (€1.2 billion), plastic and rubber products (€568 million), light and ultra light products (€293 million), parts of machinery, railway equipment and vehicles (€253 million), copper and zinc products (€68 million).
- + The total import value of all product groups except for parts of machinery, railway equipment and vehicles increased in the period 2002-2006.
- + The import share of DCs was 11% in 2006, above the EU average (8.2%).
- + The Chinese share of DCs' exports to the UK did not increase as fast as in the EU on average (46% compared to 57%). Several DCs saw a larger increase of their share.
- ± The DC share of total imports grew by 52% in the period 2002-2006, which was slower than in the EU on average (81%).
- The UK ran a trade surplus for iron and steel products (€240 million).
- The total import value of parts of machinery, railway equipment and vehicles decreased in the period 2002-2006.
- China accounted for 40% of all imports coming from DCs. This was a slightly higher share than in the EU on average (39%).

### Useful sources

- EU Expanding Exports Helpdesk - <http://exporthelp.europa.eu> → go to: trade statistics
- Eurostat - official statistical office of the EU - <http://epp.eurostat.ec.europa.eu> → go to 'themes' on the left side of the home page → go to 'external trade' → go to 'data – full view' → go to 'external trade - detailed data'.
- Understanding Eurostat: Quick guide to EasyComext - [http://epp.eurostat.ec.europa.eu/newxtweb/assets/User\\_guide\\_Easy\\_Comext\\_20080117.pdf](http://epp.eurostat.ec.europa.eu/newxtweb/assets/User_guide_Easy_Comext_20080117.pdf)

## 4 Price developments

Major trends that affect the costs and revenues of British castings and forgings production are price pressure, increasing raw material and energy prices and wage costs:

- Prices and margins are and will continue to be under pressure. Global competition has placed severe pressure on the prices and therefore on margins of intermediate goods in the supply chain. Therefore, importers/agents and OEMs as well as their suppliers keep on looking for opportunities to reduce costs of parts. This can be best seen from the fact that the import price of the product group 'parts of machinery, railway equipment and vehicles' declined by 6% per year between 2002 and 2006.
- In recent years, rapidly increasing prices of among others, plastics, aluminium, steel and scrap steel, have caused problems in the industry, although British producers have tried to translate soaring raw material prices into material-cost surcharges as soon as possible.
- The rapid increase in electricity prices in the UK (average price increases of 70% for new electricity and gas supply contracts) has affected the competitiveness of the industry as far as those price increases were higher than in other regions. Especially commodity

production was badly hit by the high energy costs, as their prices are set globally and therefore increases in energy costs that occur solely in the UK can not be passed on to the customers without significant losses in their market share. While in 2004 price increases due to rising energy prices were generally accepted, in 2005 several foundries faced difficulties as customers threatened to move their sourcing to foreign countries. Although this may have happened indeed, deducing from the foundry closures in 2005-2006, the UK is still home to some low added-value serial production (refer to Section 1).

- Wage costs still account for a large share of the average production costs in the industry. In 2005, the UK ranked tenth in the EU with regard to wage costs per man-hour in the metal industry (€20.47), less expensive than Austria and France, but more expensive than Ireland, Italy, former East Germany and Spain.

Please refer to the CBI market survey covering the EU market for castings and forgings for a detailed explanation on these major trends.

### Useful sources

Sources of prices include, among other things:

- CAEF Eurofoundry - <http://www.caef-eurofoundry.org>
- Eurofer – <http://www.eurofer.org/statistics/scrap.htm>
- London Metal Exchange – <http://www.lme.co.uk>
- Eurostat - official statistical office of the EU - <http://epp.eurostat.ec.europa.eu> - by comparing import value and volume, it is possible to get an idea of development of import prices.

## 5 Market access requirements

As a manufacturer in a developing country preparing to access the UK, you should be aware of the market access requirements of your trading partners and the British government. Requirements are demanded on legislation and on labels, codes and management systems. These requirements are based on environmental, consumer health and safety and social concerns. You need to comply with EU legislation and have to be aware of the additional non-legislative requirements that your trading partners in the EU might request.

For information on legislative and non-legislative requirements, go to 'Search CBI database' at <http://www.cbi.eu/marketinfo>, select castings and forgings and the UK in the category search, click on the search button and click on market access requirements.

### Useful sources

- Additional information on packaging can be found on the ITC website on export packaging: <http://www.intracen.org/ep/packaging/packit.htm>
- Information on tariffs and quota can be found at <http://exporthelp.europa.eu>

## 6 Doing business

General information on doing business like approaching potential business partners, building up a relationship, drawing up an offer, handling the contract (methods of payment, and terms of delivery) can be found in CBI's export manuals 'Export Planner' and 'Your image builder'. Furthermore, cultural awareness is a critical skill in securing success as an exporter.

### Sales promotion

For DC exporters, trade press, trade fairs and website promotion are among the most important promotional tools; they are briefly discussed below. For more information, also refer to CBI's Export Planner and Your Image Builder – <http://www.cbi.eu>, as well as the CBI market survey covering the castings and forgings market in the EU.

### **Trade fairs**

Visiting and participating in a trade fair in the EU can be an efficient tool to communicate with prospective customers. It provides more facilities for bringing across the message than any other trade promotional tool. It can also be an important source of information on market development, production techniques and interesting varieties. Relevant trade fairs are:

- Subcon - <http://www.subconshow.co.uk> - subcontracting; annually, spring, Birmingham.
- Regional technology fairs - <http://www.industry.co.uk> – the European Trade and Exhibition Services (ETES) is the organiser of several regional manufacturing and engineering fairs.
- Mach - <http://www.mach2008.com> – technology, including a metals section; biennially, even years, April, Birmingham

Find more trade fairs at <http://www.eventseye.com> and <http://www.auma.de>.

### **Trade press**

An interesting story on your company or new product introduction will boost the company's image. In that respect, building up contacts with the trade press will be helpful and should be used whenever possible. The magazines with global coverage may present country-specific information, such as the Foundry Trade Journal - <http://www.foundrytradejournal.com>.

Furthermore, some relevant British magazines are:

- Drives & Controls - <http://www.drives.co.uk>
- Engineering Capacity - <http://www.engineering-capacity.co.uk> - subcontracting
- Industrial Technology - <http://www.industrialtechnology.co.uk>
- Machinery - <http://www.machinery.co.uk> - online engineering news
- MEPS - <http://www.meps.co.uk> - steel industry
- MSC - <http://www.aisc.org/msctemplate.cfm> - modern steel construction
- MwP - <http://www.metalworkingproduction.co.uk> - metalworking
- Plastic & Rubber Weekly - <http://www.prw.com>
- The Engineer - <http://www.theengineer.co.uk>

### **Website promotion**

These days, it is an absolute must to have a professional website, which is aimed at your main target groups. Make it interactive and promote it in the right way. More information can be found in the CBI Export Manual 'Website Promotion', available at <http://www.cbi.eu/marketinfo>.

### **Business culture**

Cultural awareness is a critical skill in securing success as an exporter. Information on cultural differences in the EU can be found in Section 3 of CBI's export manual 'Exporting to the EU'. These manuals can be downloaded from <http://www.cbi.eu/marketinfo> - go to search publications. Furthermore, refer to Kwintessential for practical tips on business culture and etiquette in the UK: <http://www.kwintessential.co.uk>. Click on 'Country Profiles' at the section 'Intercultural resources and tools' and click on 'the UK'.

### **Other useful sources**

Beside a number of relevant sources already mentioned in previous sections, other useful sources that contain market information and information on doing business in the UK are:

- UK Non-Ferrous Alliance - <http://www.nfalliance.org.uk> – this site also contains links to several non-ferrous metal related websites, such as <http://www.magnesium-elektron.com>.
- Zinc Info Centre - <http://www.zincinfocentre.org>
- Construction Confederation - <http://www.constructionconfederation.co.uk>

This survey was compiled for CBI by Facts Figures Future  
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