



CBI
Ministry of Foreign Affairs

CBI Product Factsheet:

Metal welded constructions in Europe

Introduction

After peaking in 2011, European imports of metal welded constructions are expected to stabilise around €9.7 billion, with a 12% share for developing country suppliers. As Europe's main importers from developing countries, Germany and the United Kingdom are especially interesting target markets. Although in 2015 many constructors in Europe are not yet ready for international sourcing relations, this is likely to change in the next decade as a result of the continuing quest to lower costs.

Product description

Metal welded constructions consist of metal components, joined by fusion in which the welding process melts the base metal. The molten material creates a "weld pool", to which filler material may be added. As the pool cools, a joint is formed. This weld can be as strong as the base material. These metal welded constructions can be used in the building of large structures, such as buildings, bridges, masts and maritime and waterway structures, but of course also in smaller structures.

When metal welded constructions are referred to in this survey, this concerns the selection of products in Table 1 of the Annex (belonging to CN chapter 7308), unless stated otherwise.

Geographic scope

The geographic scope in this survey is the European Union. However, in certain parts of this survey, the focus is on a selected group of countries: Germany, the United Kingdom, the Netherlands and Denmark. These countries are among the largest importers of metal welded constructions in Europe, accounting for 42% of total imports. When 'focus countries' are referred to in this survey, this concerns the selection of these four countries, unless stated otherwise.

Product specifications

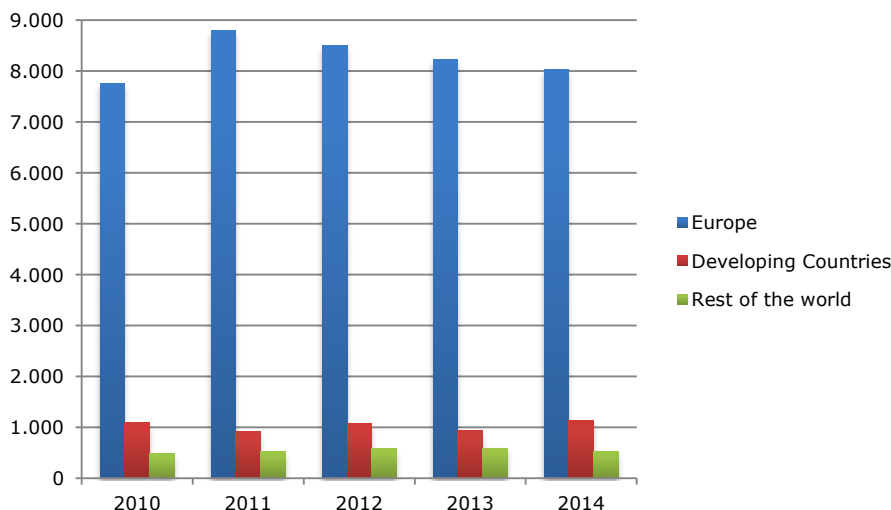
Specifications of metal welded constructions, as required by European buyers, are described below. Pictures 1-6 show some examples of metal welded constructions.

- Material: ferrous materials (iron or steel) are most suitable for welding and are widely used in construction.
- Quality and reliability: as metal welded constructions are used in buildings, quality assurance and reliability of the constructions are essential. For more information, please refer to the requirements section of this document.

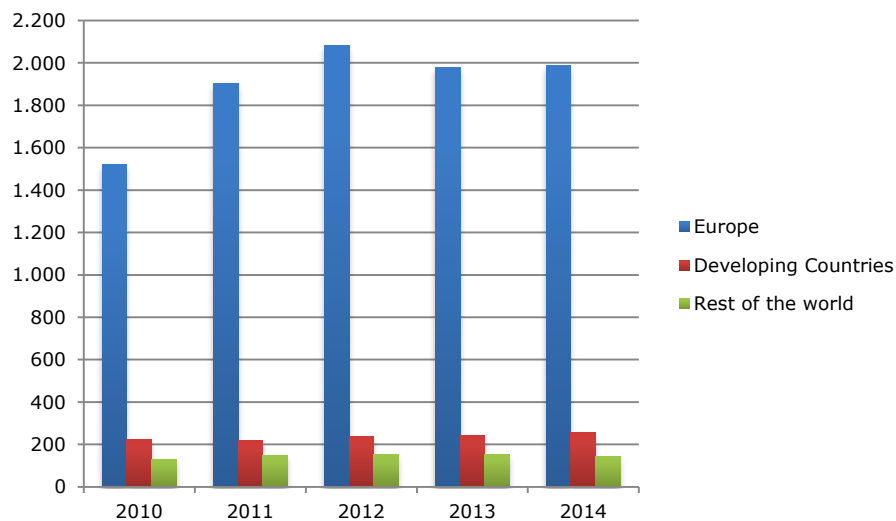
What is the demand for metal welded constructions in Europe?

Imports

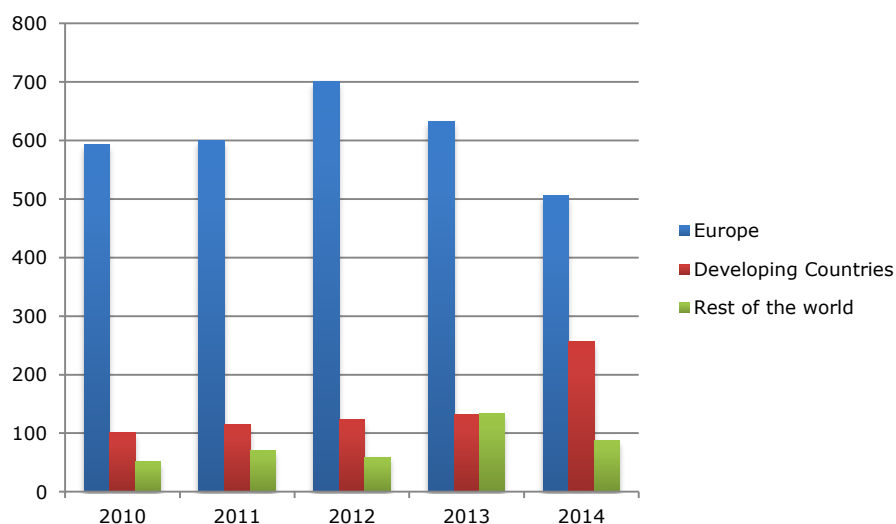
Europe



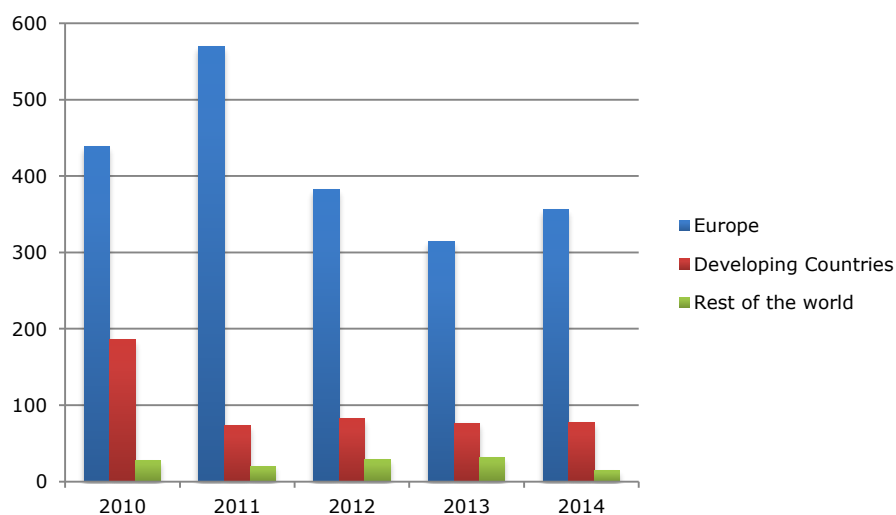
Germany



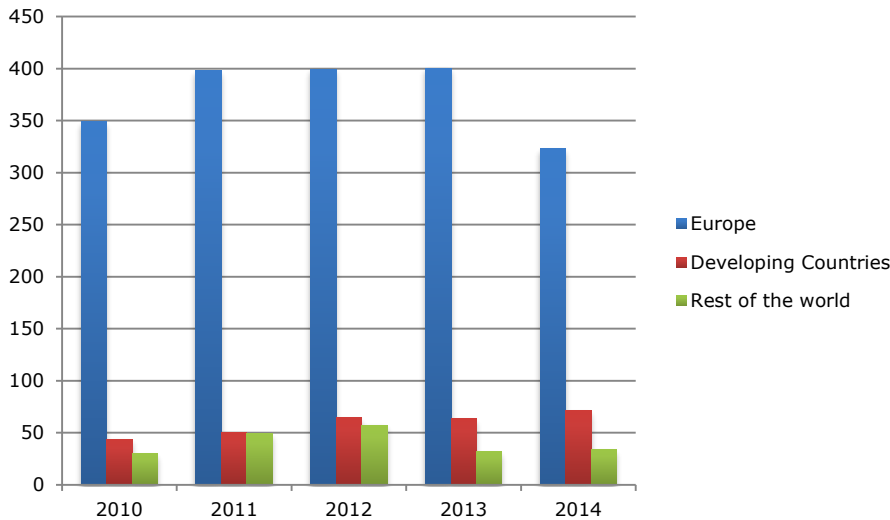
United Kingdom



Netherlands

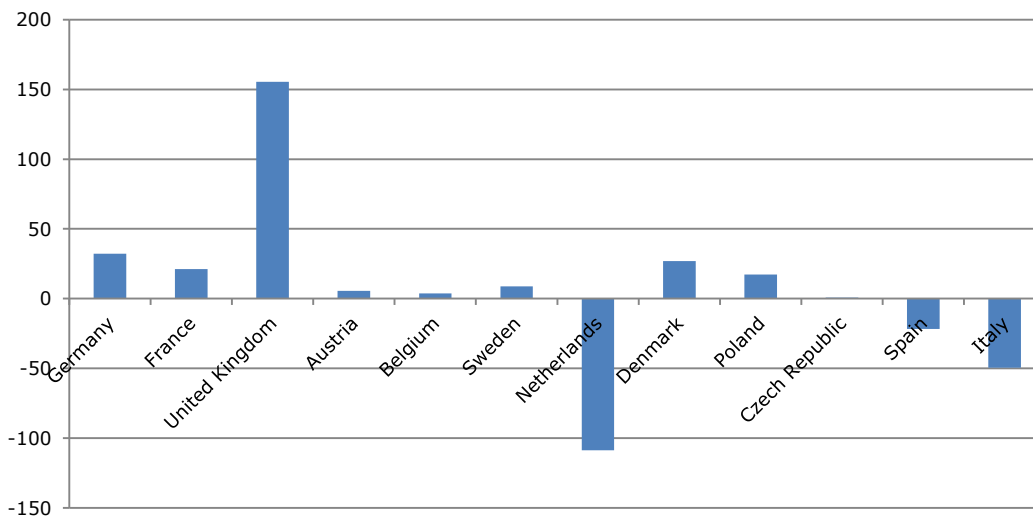


Denmark



Source: Trademap

Figure 6: Absolute developing country import growth of metal welded constructions, 2010-2014, € million (countries in range of largest importers)



Source: Trademap

- European imports of metal welded constructions peaked before the crisis in 2008 at a value of more than €11 billion. It was not until 2011 that they reached €10 billion again. The value in 2014 totalled €9.7 billion. Average annual growth in 2010-2014 was 1.0%.
- Most imports originate from intra-European sources (83% of all imports), led by Germany and Poland.
- The four focus countries represent 42% of European imports in 2014.
- The leading importer is Germany (25% of total European imports), followed by France (13%), the United Kingdom (9%), Austria (7%), Belgium, Sweden and the Netherlands (each with 5%). In terms of developing country imports, Germany and the United Kingdom are leading (each with 23% of European imports from developing countries), ahead of France and the Netherlands (each with 7%) and Denmark (6%).
- Imports of metal welded constructions are expected to show slight growth in the next few years, in the range of 0-2%.

Leading suppliers

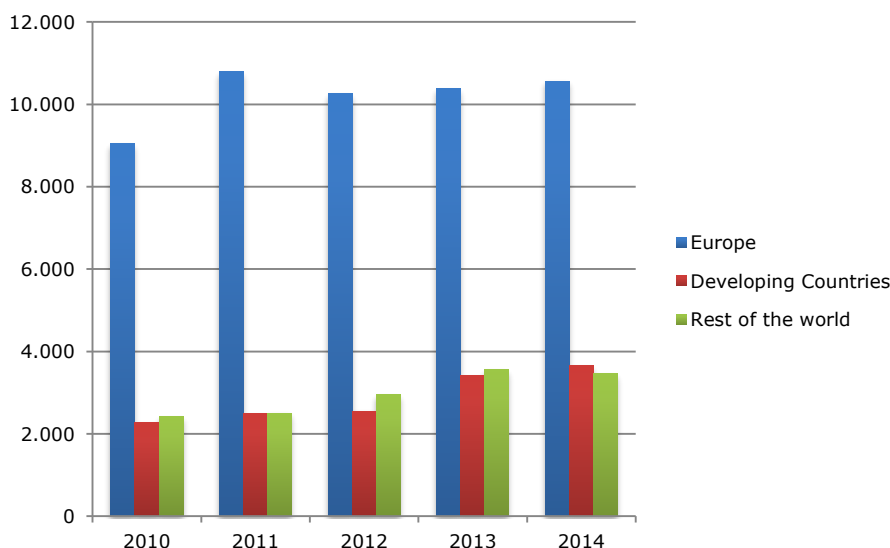
- Leading suppliers of metal welded constructions are European countries, with the exception of China, which is also the only developing country in the list of top suppliers. Germany, Poland, China, the Netherlands, the Czech Republic, Belgium, Spain, Italy, Austria and Denmark are the top 10 suppliers of metal welded constructions in 2014.
- The developing country share of European imports reached 12% in 2014, up from 9.7% in 2013, but at the same level as in 2010. China exported €774 million to Europe in 2014 (which is 70% of imports from developing countries).
- Other developing countries that export (smaller amounts of) metal welded constructions to Europe are Turkey, India, Bosnia and Herzegovina, and Serbia. Exports from the southeastern European countries (Bosnia and Herzegovina and Serbia) have been growing over the last decade, also driven by some foreign direct investments of Western European producers. One example is the Dutch company [Groenewegen](#), which produces trailers in Bosnia. In the next two years, the developing country share is forecast to remain relatively stable.
- Switzerland is by far the largest supplier in the 'rest of the world' category, followed by South Korea, Norway and Russia.

Tips:

- Benchmark your company against your peers from European countries and China. Several factors can be taken into account, such as market segments served, perceived price and quality level and countries served. A useful source for finding exporters/producers of metal welded constructions in each country is the [ITC Trademap](#).
- The best opportunities for developing country producers are for metal welded constructions that fit (with one or multiple pieces) in a container, while larger constructions may also have opportunities if the cost savings sufficiently outweigh the transport costs.

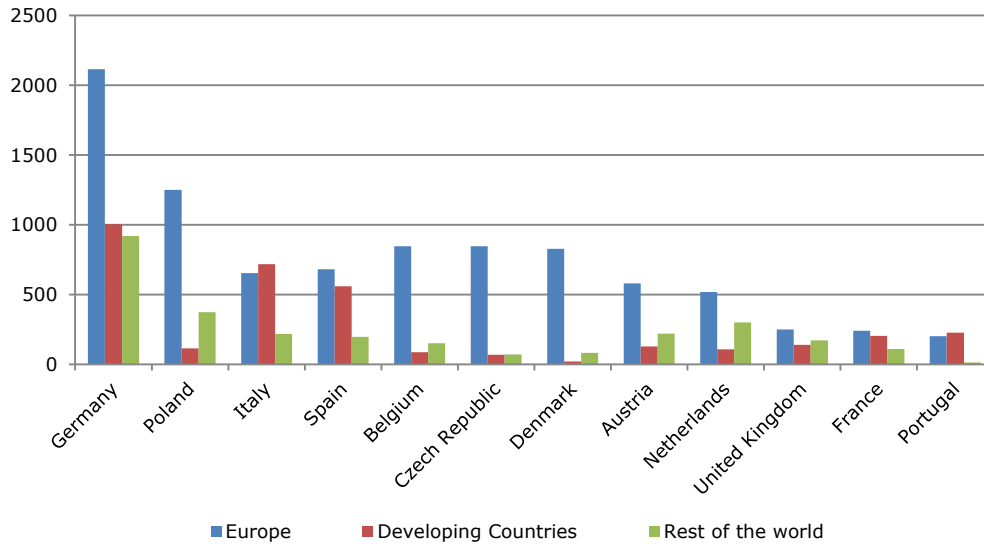
Exports

Figure 7: Exports of metal welded constructions from Europe by main destination, € million, 2010-2014



Source: Trademap

Figure 8: Main exporters of metal welded constructions, € million, 2014

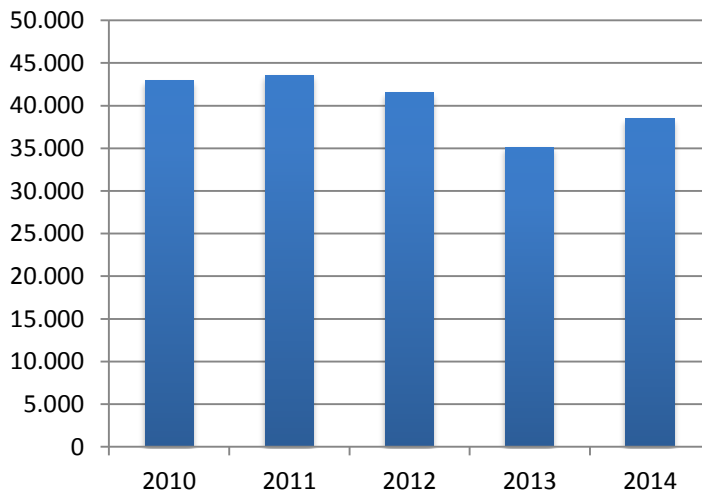


Source: Trademap

- European exports of metal welded constructions peaked in 2014, reaching €18 billion. Average annual growth in 2010-2014 was 6.5%. European exports represent almost 50% of the total world trade.
- The developing country share of European exports also peaked in 2014 at the level of 21%, compared to 17% in 2010. Still, most exports are intra-European (60% of all exports). Note, however, that this also includes some re-exports of imports originally from developing countries. In the coming years, the developing country share in exports is forecast to grow to 22-23%.
- The four focus countries represent 37% of European exports in 2014.
- The leading exporter is Germany, accounting for 23% of total European exports. Poland is in second position (10%), followed by Italy (9%) and Spain (8%).
- In terms of exports to developing countries, Germany is in the lead, accounting for 28% of European exports to developing countries. Italy is in second position (20%), followed by Spain (15%).
- European exports of metal welded constructions are expected to show small to moderate growth in the next few years, in the range of 2-4%.

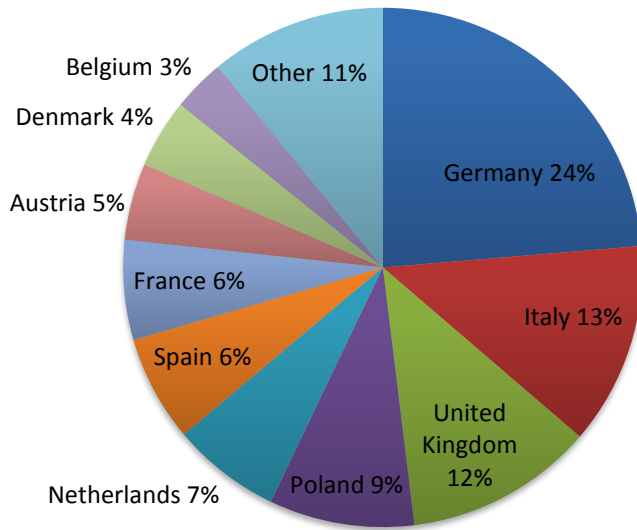
Production and apparent demand

Figure 9: European production of metal welded constructions, 2010-2014 € million



Source: Eurostat Prodcom

Figure 10: Main European producers of metal welded constructions, 2014



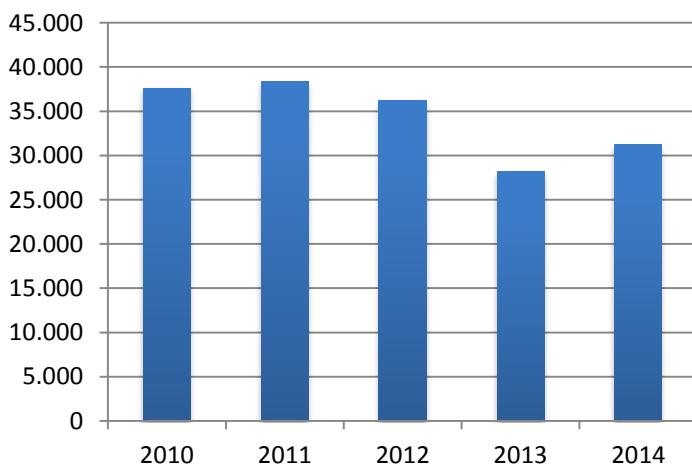
Source: Eurostat Prodcorn

- The lion's share of the European market is supplied by local production, which is also the conclusion of a comparison of Figure 9 and Figure 1. European production totalled €38 billion in 2014, after an average annual decrease of 2.7% in the period 2010-2014. However, after a dip in 2013, production is recovering in 2014-2015.
- Germany accounted for 24% of total European production in 2014, Italy for 13% and the United Kingdom for 12%.

Tip:

- Figure 10 reveals that in addition to Germany, the United Kingdom, the Netherlands and Denmark, there is also considerable production output in Italy, Poland, Spain, France and Austria. The presence of producers in these countries offers subcontracting opportunities for developing country exporters.

Figure 11: Apparent demand for metal welded constructions in Europe, 2010-2014 € million



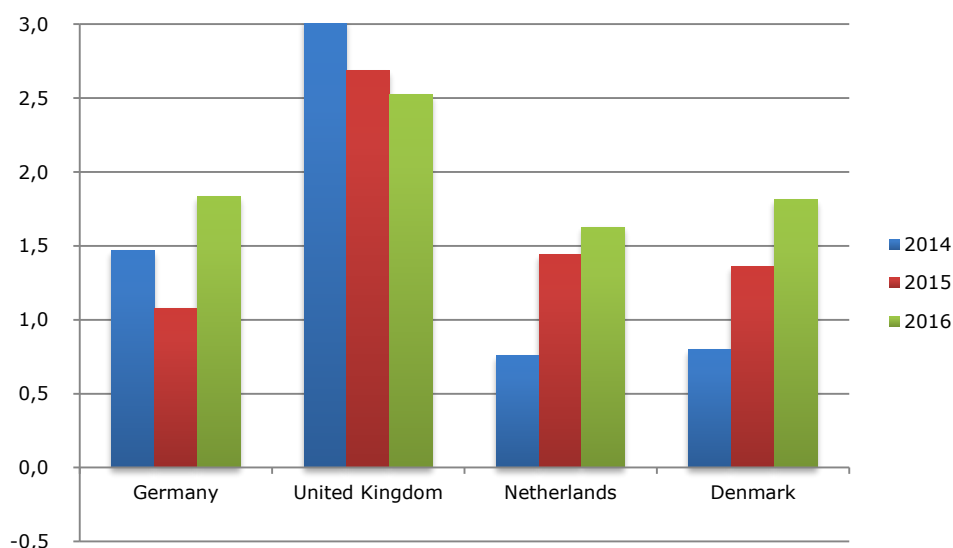
Source: Eurostat Prodcorn

- European apparent demand totalled €31 billion in 2014, after an average annual decrease of 4.6% in the period 2010-2014. Like European production, demand is currently recovering from a dip in 2013.
- Germany, Italy and the United Kingdom are the dominant metal welded construction production countries in Europe, because these countries also are home to Europe's largest markets.

- The market for metal welded constructions is rather similar in the four focus countries, although the shares of the different segments may vary slightly. The market consists of:
 - commercial construction, covering frames, roofs etc.;
 - residential construction, covering frames, roofs etc.;
 - stadia, sports and leisure buildings;
 - transportation and infrastructure includes a wide variety of applications:
 - bridges,
 - electric utility distribution frames, poles etc.,
 - process equipment and engineering construction work (also large tanks),
 - waterworks construction (landing platforms for example);
 - framework construction (small to medium-sized pieces) for machine building, shipbuilding and other engineering industries.

Macro-economic indicators

Figure 12: Real GDP, % change from previous year



Source: OECD Economic Outlook 96 database

- The major determinant of metal welded constructions demand is spending activity in the various end-user segments, several of which are related to the construction sector. Spending activity can be influenced by both governmental and private spending, as infrastructure projects often involve governmental projects. In turn, this demand is stimulated, as a rule of thumb, by economic growth.
- In each focus country, GDP is expected to show continued growth year on year in the years to come. Evidently, it is a profound basis for continuous demand and import growth in the coming years.
- The profitability of metal welded construction imports is influenced by the EUR:USD exchange rate, as these globally sourced products are paid for in USD. Although the EUR:USD exchange rate was not forecast to go beyond 0.80 until 2020, this actually happened in 2015, with an exchange rate of 0.90 in June 2015. This has a large effect on the price level of imports. Especially if this situation persists for years, it will have a negative impact on the level playing field of European imports paid for in USD versus local European production.

Tip:

- Although GDP growth forecasts are improving, pricing is and will continue to be a leading influential competitive factor. Competitive pricing is elementary for developing country exporters planning to enter the European market.

What trends offer opportunities on the European market for metal welded constructions?

Also refer to [CBI's Trends for Metal Parts and Components](#) for general trends in the metal parts and components sector.

High labour costs have fuelled automation trend

Traditionally, welding is an industrial process performed manually and, therefore, it has a high labour content. Labour costs depend on the deposition rate (the rate of welding), the wage per hour and the total operation time (including fitting, welding, surface treatment, coating and handling the metal part).

In addition to labour costs, other types of costs are equipment cost, material cost (cost of the base and filler material, and the cost of shielding gases) and energy costs (which depend on arc time and welding power demand).

High labour costs have driven the development of new welding processes, such as shielded metal arc welding, oxy-fuel welding, laser beam welding and electron beam welding. These processes are often highly automated with the use of welding robots, and are basically applied in high volume production only because of the high fixed costs involved.

As automation is often too expensive, producers explore other cost-saving options aimed at reducing operation time. For this reason, welding procedures with high deposition rates can be chosen, and weld parameters can be optimised to increase welding speed. And finally, of course, in some cases European producers may decide to outsource the production to another company that is able to work at lower costs.

For the years ahead it is expected that the automation process will continue, through the use of welding robots which will increasingly be used for small to medium-sized batches. This has to do with the ongoing developments in automation technology, including software (and coupled with CAD and ERP systems) and sensor technology (for several parameters, like heat, movement etc.), which enable more flexible production and higher quality of the welds. In addition, the pre- and post-handling of the constructions can be increasingly automated through the use of smart solutions.

Tips:

- Producers from developing countries particularly benefit from relatively low labour costs. As a result, the best opportunities for exporters to Europe are for manually welded constructions.
- Producers should prepare for increasing competition from automated welding, also for small and medium-sized batches. This development, happening in Europe now and in the coming decade, will also take place in several other countries all over the world, including developing countries.
- Price and quality must balance each other. Although you may have the benefit of low labour costs, price is very important in relation to the quality. The price-quality consideration is an important reason why some manufacturing/sourcing of industrial products has been relocated from China to Europe.

Innovation taking place particularly in materials and processes

Innovation in the metal welded constructions sector is focused particularly on the welding of dissimilar materials (e.g. steel and aluminium) and innovative welding processes, such as magnetic pulse, conductive heat seam, friction stir and laser hybrid welding. The most challenging aspect of welding process development is making the process suitable for new applications, e.g. in the automotive or aerospace industry.

Other topics that researchers focus on are the microstructure and properties of welds, like residual stresses and the chance of cracking or deforming.

Order lead times have become shorter

Since 2008/2009, the financing of projects has come increasingly under pressure. This has led to lengthier first phases (frontlines) of projects, resulting in tighter project and order lead times in the end. This also affects metal welding constructions, as they are engineered and manufactured mostly in one of the final phases of a project. As a result, European constructors are increasingly under pressure to offer very short order lead times. This trend makes subcontracting to countries outside Europe often impossible.

Tip:

- Short order lead times are important. Of course, producers from Asia have to deal with lengthy ocean transport, but they should do their best to make their order lead times as short as possible, for example, by using Lean Manufacturing principles. Note that this is less an issue for high volumes of relatively standard products that fit in containers. For these constructions the demand can be predicted relatively well and long order lead times should be less of a problem.

Opportunity: shortage of qualified welders in Europe

For several years, metal associations and companies have reported a shortage of qualified welders, as employment in the metal working industry lacks attractiveness in most countries across Europe. This can in fact be a driver for outsourcing metal welded construction work to other countries.

Tip:

- Make clear that your company has sufficient availability of skilled and qualified welders and can offer a solution to other companies that lack skilled resources.

What requirements should metal welded constructions comply with to be allowed on the European market?

Requirements can be divided into: (1) musts, which are legal and non-legal requirements you have to comply with; and (2) additional requirements, which are commonly used on the market and that can give you a competitive edge.

You can find a general overview of the [EU buyer requirements for metal parts](#) on the Market Intelligence Platform of CBI. Also refer to the [EU Export Helpdesk](#), the [ITC Market Access Map](#) and the [ITC Standards Map](#) for more information related to gaining access to the European market.

Musts

The only legal requirement for exports of metal welded construction is CE-marking. Specifically, metal welded constructions must comply with the [Construction Products Regulation \(EU\) No. 305/2011](#) and the [Construction Products Directive 89/106/EEC](#). This European regulation sets out the conditions for the marketing of construction products and defines criteria for assessing their performance and the conditions of use for CE marking.

Since July 1st 2014, the Construction Products Regulation has required the CE marking of fabricated structural steelwork. Metal welded constructions have to be CE-marked according to the European standard [BS EN 1090: Execution of steel structures and aluminium structures](#) (class 2 (EXC2) is most common), specifically [Part 1: Requirements for conformity assessment of structural components](#) and [Part 2: Technical requirements for steel structures](#).

If you use wood packaging materials to export products to Europe, you must consider health (phytosanitary) requirements set for these materials. In practice this means that the wood must have undergone heat treatment or been fumigated with methyl bromide.

Packaging is always labelled, not only for the purposes of identification during transport, but also to indicate the quantity, weight, the products themselves and the producer's name.

For metal welded constructions, European imports from third countries are [duty free](#).

Additional requirements

There are several European (voluntary) [standards for welding](#), the most important being EN ISO 3834: Quality requirements for fusion welding of metallic materials, ensuring a welding quality management system. This system is under the control of a welding coordinator, qualified according to [EN ISO 14731: Welding coordination - Tasks and responsibilities](#).

Which further standards buyers require you to comply with may vary depending on their specific wishes.

Tips:

- For more information on CE marking, please refer to the ['Blue Guide'](#) and the [manufacturer's six steps to affix a CE marking to your product](#).
- CE certification can offer your company a competitive edge in Europe, as local producers may not even be completely ready for 100% CE-certified production.

What do the trade channels and interesting market segments look like in Europe for metal welded constructions?

You can find a general overview of the [European market channels and segments for metal parts](#) on the Market Intelligence Platform of CBI. Metal welded constructions can be considered as specialities, which are metal parts made according to the buyer's specifications. Since they are tailored to the needs of the buyer, they are not so suitable for holding in stock. For this reason, the market channels and segments for metal welded constructions do not differ significantly from those for the sector in general.

The best way to reach the European market is to work as a subcontractor for European producers of metal welded constructions. In order for imports from developing countries to be feasible, the constructions need to fit in containers, order volumes have to be big enough (large or medium-sized series) and lead times sufficient.

Tip:

- The useful sources listed in the next section offer a good starting point for your own research. Most of the associations share information about their own market and members.

Useful sources

- Associations: [European Convention for Constructional Steelwork](#), [European Welding Association](#), [the International Institute of Welding](#), and in some countries there are national associations, e.g. [Deutschen Stahlbau-Verband](#) and [German Welding Society](#) (Germany), [British Constructional Steelwork Association Ltd](#) and [Association of Welding Distribution](#) (United Kingdom), [Koninklijke Metaalunie](#), [Staalbouw Nederland](#), [Nederlands Instituut voor Lastetechniek](#) (Netherlands), [Dansk Stålinstitut](#) and [Dansk Svejseteknisk Landsforening](#) (Denmark).
- Finding prospects: [ABC Business Directories](#), [Europages](#), [Kompass](#), as well as via the associations.
- Magazines and news portals: [Metal Construction News](#), [Metal Working World Magazine](#), [New Steel Construction](#).
- Trade fairs: national industrial trade fairs are especially important, e.g. [Engineering Materials](#), [ESEF](#), [METAVAK](#) and [TIV](#) in the Netherlands. On a European level some pan-European segment-related trade fairs can be interesting, like [Agritechnica](#) in Germany.
- Trade fair databases: [AUMA](#), [Eventseye](#).
- Trade statistics: [Eurostat](#), [ITC International Trade Statistics](#).
- Other: [EU Export Helpdesk](#), [Kwintessential](#).



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This survey was compiled for CBI by Globally Cool – Creative Solutions for Sustainable Business
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Annex

Nine codes have been selected for metal welded constructions. Refer to Table 1 below for the classification. Table 1 also shows the list of Prodcom codes used for the production statistics of metal welded constructions.

Table 1: Selected products, based on CN and Prodcom nomenclature

CN code	Prodcom code	Description
73081000	25112100 Iron or steel bridges and bridge-sections	bridges and bridge-sections, of iron or steel
73082000	25112200 Iron or steel towers and lattice masts	towers and lattice masts, of iron or steel
73083000	25121030 Iron or steel doors, thresholds for doors, windows and their frames	doors, windows and their frames and thresholds for doors, of iron or steel
73084000	25112310 Iron or steel equipment for scaffolding, shuttering, propping/pit-propping, including pit head frames and superstructures, extensible coffering beams, tubular scaffolding and similar equipment	equipment for scaffolding, shuttering, propping or pit-propping (excl. composite sheetpiling products and formwork panels for poured-in-place concrete, which have the characteristics of moulds)
73084010		mine supports, of iron or steel
73084090		equipment for scaffolding, shuttering, propping or pit-propping, of iron or steel (excl. mine supports, composite sheetpiling products and formwork panels for poured-in-place concrete, which have the characteristics of moulds)
73089010	25112330 Weirs, sluices, lock-gates, fixed landing stages, fixed docks and other maritime and waterway structures of iron or steel	weirs, sluices, lock-gates, landing stages, fixed docks and other maritime and waterway structures, of iron or steel
73089098	25112355 "Weirs, sluices, lock-gates, landing stages, fixed docks and other maritime and waterway structures, of iron or steel, Structures and parts of structures of iron or steel	
73089099	25112360 Other structures of iron or steel	

Source: CN and Prodcom Nomenclature