CBI
Ministry of Foreign Affairs

CBI Product Factsheet: Agricultural Radiators in EU5

'Practical market insights for your product'

Germany is the largest European market for radiators, with €660 million in imports. While imports are increasing in strength in Germany, the UK and Spain, they are likely to stagnate or decline in France and Italy. Italy and the UK, however, are the nations most likely to import radiator parts from developing countries, as over one-tenth of their radiator imports already originate from there. The greatest opportunities in this market lie in aluminium radiators, while the copper/brass segment is declining. The best way of accessing the market would be through OEM/OES subcontracting or selling through pan-European or national wholesaler/importer networks.

Product definition

Radiators are grouped under "Radiators and parts thereof" (HS codes 87089110, 87089120, 87089135, 87089190, 87089191 and 87089199). This Product Factsheet analyses the market for radiators and their parts as used in the agricultural machinery for EU5 countries (i.e. the biggest EU economies: Germany, France, the UK, Italy and Spain).

Product specifications

Quality: Compliance with international standards and European standards on safety is required, as well as conformity to existing EU and national legislation and practices. The ISO/TS 16949 standard is considered to be the highest level of quality. This standard is important for the European automotive industry as it outlines the best practices when designing, developing, manufacturing, installing or servicing automotive products.

The quality, reliability and expected durability of radiators used in agricultural machinery in Europe is very high because the machines are used daily for extended periods of time and do not always have extensive maintenance schedules. The quality of materials used in the manufacture of spare parts needs to be high to ensure their durability and safety and the supplied parts have to be carefully produced and inspected, as defective parts may be returned.

Materials: Radiators are typically made of stacked layers of metal sheet, pressed to form channels and soldered or brazed. Modern OE manufacturers use aluminium in the production of radiators, although there is still a large

Considerations for action

- For more information on requirements for exporting casting and forgings to the EU, please refer to the CBI Buyer Requirements database for more information on Labels and Standards: Sustainability in Casting and

aftermarket demand for brass/copper applications.

Forging

***Packaging & Labelling**:* Radiators are typically packaged in cardboard and/or wooden boxes with foam to protect them from being damaged. The industry practice is to label the packages with a description of content, including the technical parameters of the radiators, such as core size, model application, material, certifications, and serial number (e.g. XPROD139635 – where XPROD is the prefix which gives the model (XP), the assembly plant (R), and the production year/month (OD), followed by the serial number 139635). These numbers should match the serial prefix and serial number on the ID tag which is either on the radiator support panel or the inner guard, depending on the model.

In general, packaging is dependent on the buyer, either OEM or end-user consumer (aftermarket). For aftermarket applications, the packaging is typically one-way packaging, in which the packaging is discarded after a single use. Returnable packaging is the most often used by OEM suppliers, in order to reduce cost and improve efficiency of the packaging operations. Returnable packaging is not thrown away after use. The empty packaging is circulated by the OEM or a designated packaging operator. If you want to export to the EU, you must ensure that the packaging you use for your products meets all EU requirements. To reduce the harmful impact of packaging on the environment, the EU has specified legislation concerning the management of packaging and packaging waste.

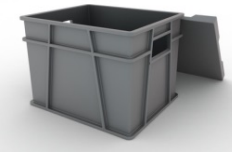
Considerations for action

- For more information on requirements for packaging and packaging waste, please refer to the European Commission.

***Design**:* In Europe, agricultural machinery radiators can be divided into radiators for gas engines, for diesel engines, or those compatible with both types of engines. Typically, radiators are specific to the type, make and size of the engine they are destined for and therefore they will have different dimensions and designs. The dimensions of radiators are typically dictated by the engine capacity (with higher capacity engines calling for bigger and more efficient radiators).

Figure 1: Agricultural radiators and radiator parts






Source: Fotolia/Internet

Buyer Requirements

Legislative Requirements: The most important requirement for automotive components is that they comply with the technical standards set by EU legislation in order to guarantee vehicle and environmental safety.

Type-approval is a certification for various types of motor vehicles and their components, which includes agricultural and forestry tractors. The type-approval or certification is valid in all EU Member States and is required when selling any products in the EU. Many automotive components are not approved until the final assembly, in which case certification of individual components is not necessary, although these components will still have to comply with type-approval requirements.

The End of Life Vehicles (ELV) Directive aims to avoid environmental pollution during the scrapping process through reducing the hazardous materials used in vehicle production. Vehicles must be designed to facilitate proper dismantling and recycling (by coding the components) and the use of heavy metals such as lead, mercury, cadmium and hexavalent chromium is prohibited (with the exception of a few applications).

Considerations for action

- Check with your buyer, or with the approval authority of the country you want to export to, what the specific standards are for the parts you are manufacturing.
- Read more about type approval at the EU Export Helpdesk.

- Check if your buyer uses the International Material Data System (IMDS). This is a collective, computer-based data system developed by automotive OEMs to manage environmentally relevant aspects of the different parts used in vehicles. It has been adopted as the global standard for reporting on material content in the automotive industry.

Common buyer requirements: In addition to legislative approval, there are other common buyer requirements. While these are not obligatory in the legal sense, they are implemented by various competitors in the market and are thus necessary in order to compete effectively.

Quality Management: In order to apply for type-approval, production processes need to meet quality management criteria. ISO TS/16949 and ISO 9001 are accepted as standard requirements and EU buyers and manufacturers often insist on them.

Corporate social responsibility (CSR) and the extent to which buyers expect a certain level of social and environmental performance is becoming increasingly important. Bigger EU companies have developed their own CSR policies and require their suppliers (and their

Considerations for action

- Implement ISO 9001 and ISO TS/16949, as it is a standard requirement of EU buyers. Click here for more information on ISO TS/16949 at the ISO website

- Most big car brands publish their CSR policies and supplier code of conduct on their websites. An internet search for these may give valuable insight into assessing your company's performance by

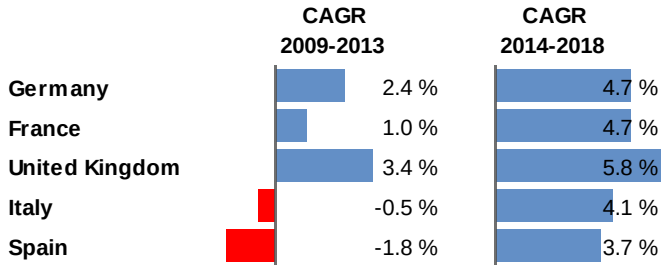
sub-suppliers) to conform to these. Signing a supplier code of conduct is often a prerequisite. These codes of conduct generally cover compliance with local laws, protection regarding workers' health and safety, respecting basic labour rights and also business ethics. The implementation of an environmental management system is often a requirement for core suppliers.

comparison.
- Implement an environmental management system, such as ISO 14001, as it is a common requirement.

Macroeconomic statistics

The GDPs of the EU5 countries have on average grown by only 1.3% between 2009 and 2013. However, the IMF predicts considerable GDP growth in all of the EU5 countries between 2014 and 2018. The estimated UK GDP CAGR for 2014-2018 is an impressive 5.8%, followed by solid increases in all other EU5 countries. Italy and Spain, in particular, have gone from negative growth during 2009-2013 to close to 4% estimated growth for 2014-2018.

Figure 2: GDP Compound (current prices) Annual Growth Rate (CAGR) for 2009-2013 and 2014-2018 in EU5



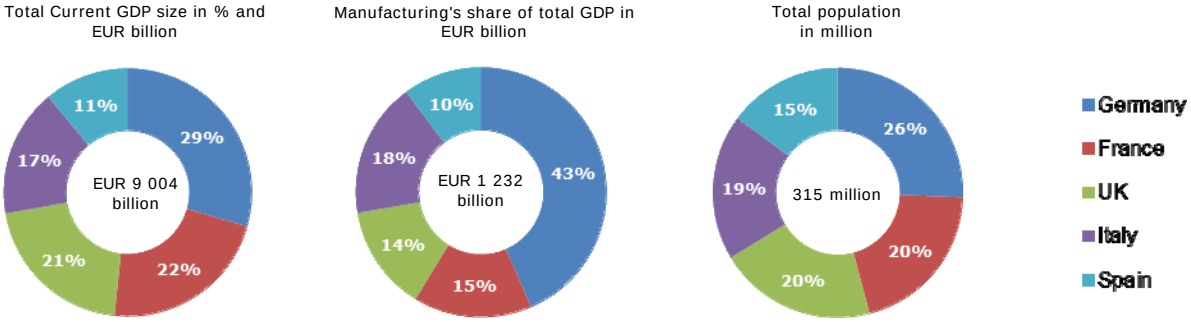
Data source: IMF 2014, World Economic Outlook Database

The total GDP value for the EU5 countries was estimated at more than €9 trillion in 2013. Germany is the largest market in the EU5 with a GDP of €2.65 trillion accounting for almost one third of the total GDP and with by far the strongest manufacturing base of all EU5 countries (€535 billion in 2013). Germany is followed by France and the UK, each of which represent roughly one fifth of the GDP value and 15% of the total manufacturing value for the five countries. With the 2013 GDP close to €1 trillion and the manufacturing value of €125 billion, Spain is the smallest of the five economies.

In 2013, the EU agricultural machinery market was estimated to be worth €24.8 billion – equivalent to 30% of global sales. The EU is also the biggest manufacturer of agricultural machinery, with sales of more than €26 billion in 2011.

Although the European agricultural machinery industry is in a solid economic position, with many markets in high demand, over the short/medium term it is expected to stagnate.

Figure 3: Key 2013 macroeconomic indicators for EU5, in € billions (population in millions)



Data source: IMF and OECD 2014

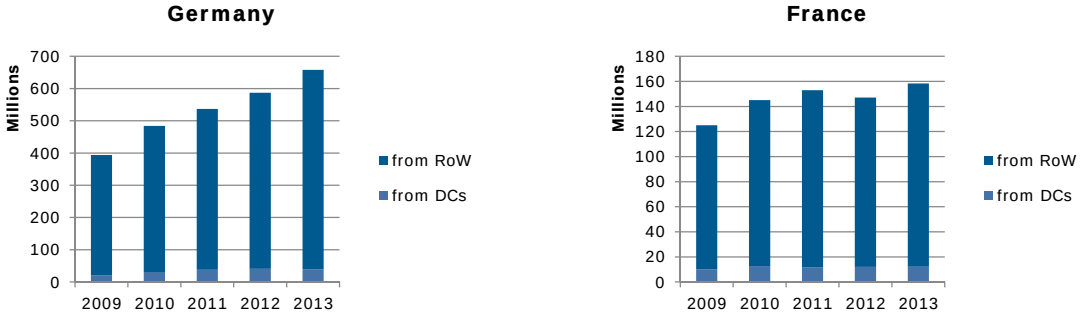
Trade Statistics

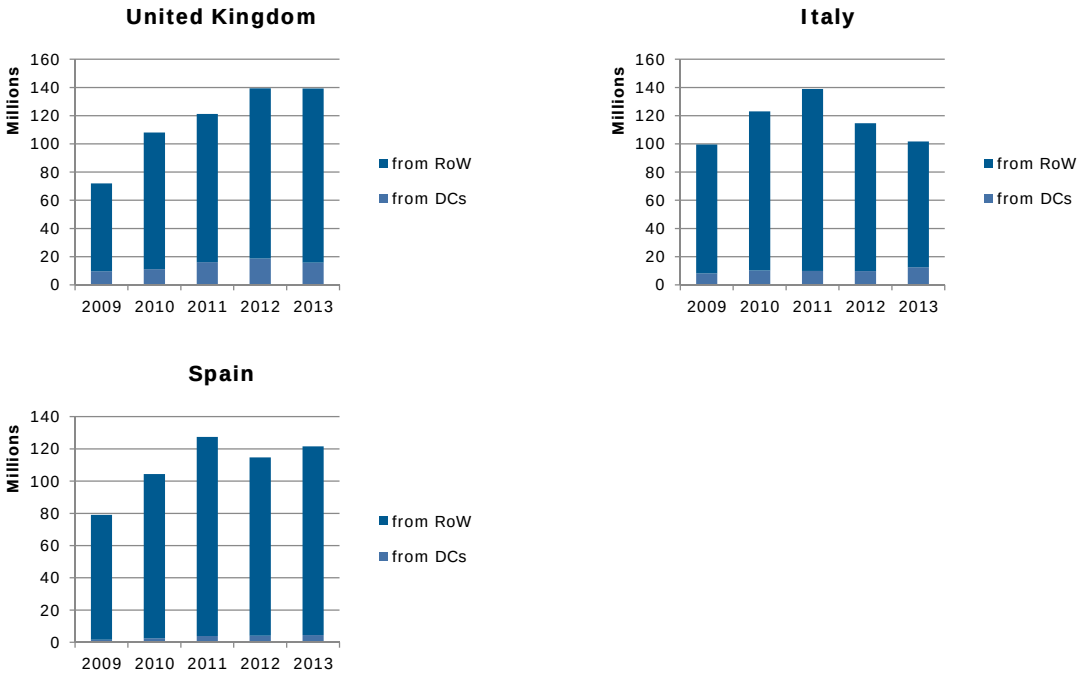
Imports and exports

EU5 imports roughly €1.18 billion worth of radiators and parts each year. Germany alone represents 56% of the imports with an import value of €658 million in 2013. It is followed by France with €158 million and the UK with €139 million. The imported radiators and parts are mainly shipped from Western and Eastern Europe as well as from other developed countries such as The United States and Japan.

Imports of radiators and their parts from the Developing Countries (DCs) to EU5 represented €84 million (7.1% of total) in 2013 and have grown at a CAGR of 14% between 2009 and 2013. Germany and the UK combined, represent over 65% of DC radiator imports with €39 and €16 million, respectively. The biggest DC exporters of radiators to EU5 are China (€46 million), Turkey (€16 million) and South Africa (€5.8 million), together accounting for over 80% of radiator imports from DCs to EU5. Radiator imports from China have nearly tripled in the last five years. The future outlook is that the import of radiators and radiator parts from the DCs will continue to grow at the same as or at a slightly higher rate than total imports, which currently stand at about 2% annually.

Figure 4: Imports of radiators and radiator parts in the EU5, € million (the range of the y-axes varies by country due to different import levels)

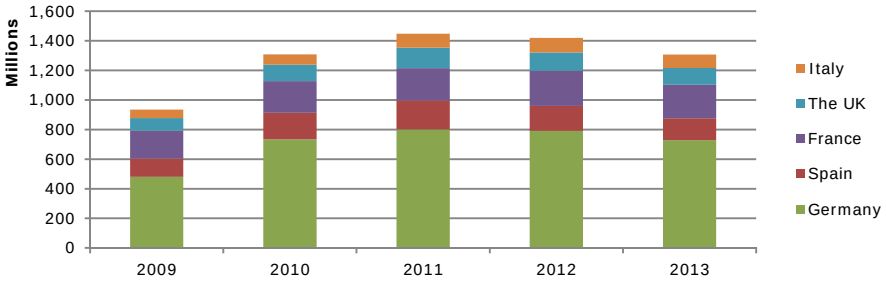




RoW: Rest of the world
Data source: Eurostat 2014

EU5 is a net exporter of automotive radiators. In 2013, it exported close to €1.3 billion worth of these. Germany is by far the largest exporter of radiators among the EU5 countries, with €728 million in exports (comprising a 56% share of all EU5 radiator exports). It is followed by France with €227 million (17% share of the total). EU5 radiator exports have been quite resistant against economic disruptions and have remained at a stable level since 2010. The export market is subject to European demand, as nearly 70% of the exports end up sold in Western and Eastern Europe. However, it must be noted that the exports to DCs have nearly doubled, growing from €131 million to €252 million between 2009 and 2013, with the biggest recipients being China and Turkey.

Figure 5: Exports of radiators and radiator parts, in € million



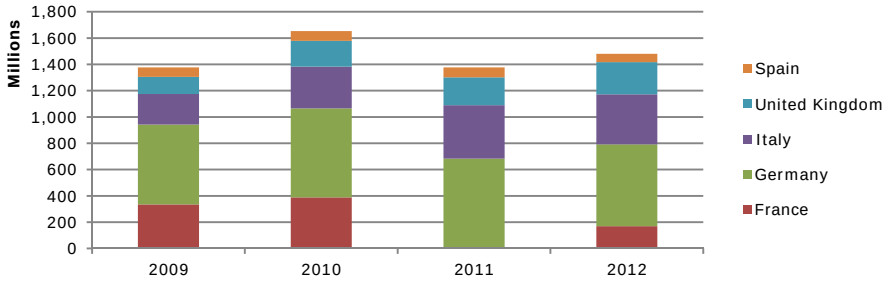
Data source: Eurostat 2014

Production and consumption

Total radiator production in EU5 was estimated at €1.48 billion in 2012. Germany is the biggest producer with a 2012 production value of €622 million, representing close to 42% of the total EU5 radiator production. It is followed by Italy with €381 million and the UK with €244 million. These three countries represent close to 85% of the total radiators manufactured in the region. Production has experienced cycles of growth and decline, but with a net upward

trend between 2009 and 2012. It is expected to continue this upward trend in the years to come.

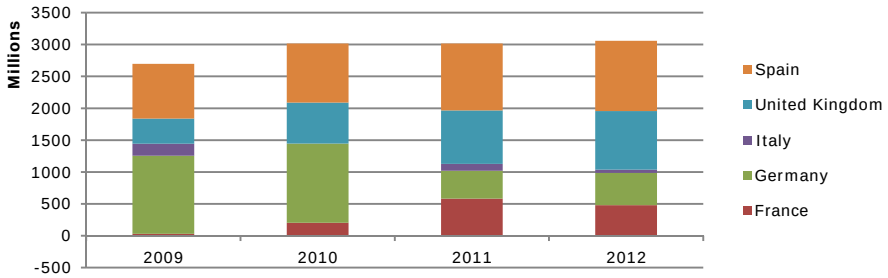
Figure 6: Apparent production of radiators and radiator parts in the EU5, in € million



Data source: Eurostat (Prodcom) 2014

The apparent level of consumption of radiators has been declining between 2009 and 2011. In 2012, the consumption went up to €1.16 billion, which is still roughly 4% below the 2009 levels. Germany and Italy represent approximately 70% of the total EU5 consumption, however the German consumption has been steadily declining over the past four years, as has the French consumption. Conversely, Italy, Spain and most notably the UK have been observing consumption growth in the same period, meaning that these countries are increasingly exporting more radiator parts and components.

Figure 7: Apparent consumption* of radiators and their parts in the EU5, in € million



*Apparent Consumption = Production + Imports – Exports
Data source: Eurostat (Prodcom) 2014

For more information on automotive trade statistics, please refer to CBI Market Trade Statistics

Market trends and opportunities

There are some opportunities to be explored in the OEM market as well as in the aftermarket sector (including new spare parts and overhauled components). These opportunities for the OEM sector lie in aluminium radiators, as they are the modern standard to which the industry is increasingly turning. There is still some demand for copper/brass radiators but this trend is declining. In order to be successful in this market, it is important to include accessories like radiator caps, hoses and thermostats. The easiest way to market these components would be to approach the local agricultural parts wholesalers or the OEMs and/or component/systems suppliers with a subcontracting offer. A limited number of radiators could also be sold through industrial online shops. In the aftermarket sector, there is still demand for copper and brass applications.

With €658 million in estimated imports, Germany is the largest importer of radiators and parts in Europe, with an annual average compounded growth of 14%. The share of the DC imports stands at just under 6% (almost €40 million) and it has not grown much since 2011, indicating a temporary focus on European components.

Spain, France, the UK and Italy each have import markets valued between €100 million and €160 million, with a combined sum of €520 million). The UK and Spain have experienced the strongest growth in the last five years, with an average compound rate of 18% and 11% respectively), while Italy's imports have largely remained the same during this timeframe. The UK and Italy have the highest share of radiator imports originating in developing countries – 11-12% – indicating a willingness to source their components from the DCs.

For more information on automotive market trends, please refer to CBI Market Trends

Price

Apart from the distribution of new parts, the aftermarket for agricultural parts also encompasses a lively distribution of used or overhauled parts and components. Pricing depends on the supply chain positioning. The aftermarket, in particular, is very discount-driven and has varied mark-ups at each distribution step, and for different parts and components. Due to large variation in types and models of parts, it is difficult to provide a general overview of agricultural radiator prices, but it is possible to provide some insight into margins imposed by different players in the supply chain. Based on the margin ranges, DC suppliers selling to the tier 3 supplier in the OEM supply chain could price their products at between 64% and 81% of the OEM delivery price. In order to better ascertain prices of specific products and models, search the internet to determine the appropriate range, or talk directly to wholesalers and/or retailers. The differences in price of branded spare parts will not be great among the various countries. Those players who are present in several European countries have largely harmonised their prices; any differences in pricing may occur because of different logistics and local costs.

OEM supply chain	**Margin**
Tier 1 supplier delivering to OEM	6-8%
Tier 2 supplier delivering to tier 1	6-15%
Tier 3 supplier delivering to tier 2	10-25%
Aftermarket OES supply chain	**Margin**
Tier 1 delivering to OEM for OES sales through approved service chain	10-30%
Tier 1 delivering to OEM for OES sales through independent outlets	10-25%
OEM delivering OES parts through its approved service chain	25-65%
OEM delivering OES parts through independent outlets	30-40%

Main sources

- European Commission's macroeconomic publications
- IMF – good source for macroeconomic information
- OECD – good source for macroeconomic and industry-specific information
- European Commission's Directives and Regulations pertaining to wheeled agricultural or forestry tractors
- CEMA – Agricultural Machinery in Europe
- Trade fairs are a good place to network, to meet buyers and to promote your company. The most prominent agricultural machinery trade fairs in EU5 are: Paris International Agri Business Show: SIMA-SIMAGEMA, German Agricultural Machinery and Equipment Fair: Agritechnica Hannover, Italian Agricultural Machinery Fair: EIMA

This survey was compiled for CBI by Global Intelligence Alliance