



CBI Product Factsheet: Agricultural Engines and Engine Parts in EU5

'Practical market insights for your product'

Agricultural machinery engine parts are a growing market in the EU5, exhibiting a yearly compound growth rate of 8% since 2009. Germany is the biggest market, with its multibillion euro imports amounting to almost half of total engine imports to the EU5. The UK is the second largest with an 18% share and a yearly growth of 16%. The greatest opportunities lie in engine parts that are subject to wear and tear, as well as in accessories for agricultural machines. The best way of accessing these markets would be through OEM subcontracting or selling through pan-European or national wholesaler networks.

Product definition

Engines and their parts are grouped under "Spark-Ignition Reciprocating Piston Engines", "Spark-Ignition Rotary Internal Combustion Piston Engines", "Compression Ignition Internal Combustion Piston Engines" and "Parts suitable for use only with these engines" (HS codes 84073100, 84073210, 84073290, 84073310, 84073390, 84073410, 84073430, 84073491, 84073499, 84079050, 84082010, 84082031, 84082035, 84082037, 84082051, 84082055, 84082057, 84082099, 84099100 and 84099900). This Product Factsheet analyses the market for engines and their parts as used in the agricultural machinery for EU5 countries (Germany, France, the UK, Italy and Spain).

Product specifications

Quality:

Compliance with international standards and the 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 the engine parts used in European agricultural machinery is very high because the machines are used daily for extended periods of time and are not always subjected to extensive maintenance schedules. When purchasing agricultural engine parts, consumers also attach importance to fuel consumption and the cost of repairs. The quality of materials used in the production of spare parts must 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: Most heavy agricultural machinery, such as tractors, combine harvesters, forage harvesters, mowers, tedders and rakes, balers, ploughs, seed drills and field sprayers use predominantly diesel engines, while smaller and more outdated machinery may still use gasoline engines. Engine spare parts include mainly:

- o Pistons and piston rings, connecting rods, water pumps, oil pumps, crankshafts, valves, fuel pumps, cylinder heads, cylinder liners, injection parts, gaskets and engine bearings.
- o These parts can be purchased individually or as a complete “engine rebuild kit”. The spare parts would typically need to be compatible with the specifications of the engine manufacturer and may vary in design and size depending on the make and model of the specific engine they have to fit. There are six main manufacturers of tractors and other agricultural machinery in Europe operating under a number of different brands.

Packaging & Labelling: Spare engine parts are typically packaged in plastic bags and placed in cardboard boxes to protect them from being damaged. The packages are typically labelled with a picture and description of the contents, including the technical parameters of parts, the type/make of engine compatibility, and their specific part serial number.

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.

Design: In general, demand in Europe is shifting towards high-power and high-performance machinery. The design of parts depends on the make and model of the engine they must be fitted into. Agricultural machinery manufacturers use a platform strategy within a brand but may also use the same or similar engines or engine parts for different brands under the manufacturer’s umbrella. The complexity lies in the fact that they all have their own specific part number so the expert is thus able to identify their common attributes. Currently, the compatibility of machines and equipment from different manufacturers still poses a challenge, which means that the suppliers will need to produce parts to the exact specifications of their buyers and will need to be

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 Forging](#)

Considerations for action

- For more information on requirements for packaging and packaging waste, please refer to the [European Commission](#).

able to adapt their production processes and the resulting product for different buyers. The latest developments in engine design relate to researching alternative propulsion technologies (such as biogas, fuel cells, etc.), the electrification of vehicles, and increasing engine power.

Figure 1: Agricultural engine and engine 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 producing.
- 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 a standard requirement and EU buyers and manufactures 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 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.

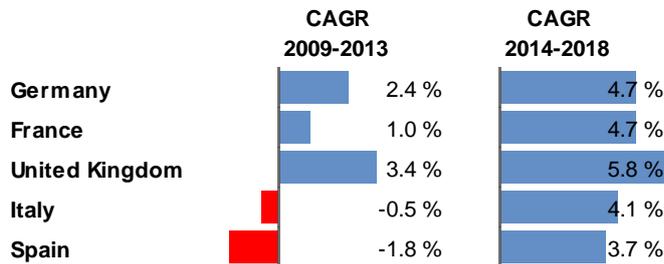
Considerations for action

- 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 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

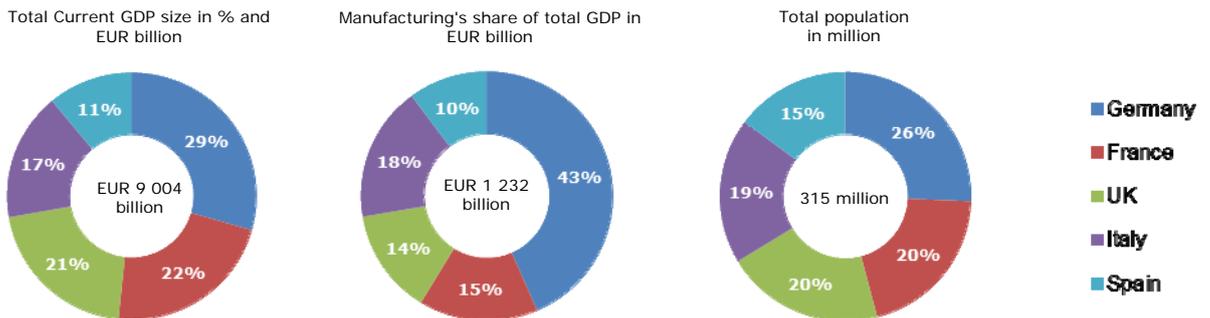


Data source: IMF 2014, World Economic Outlook Database

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 high demand in many markets, 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

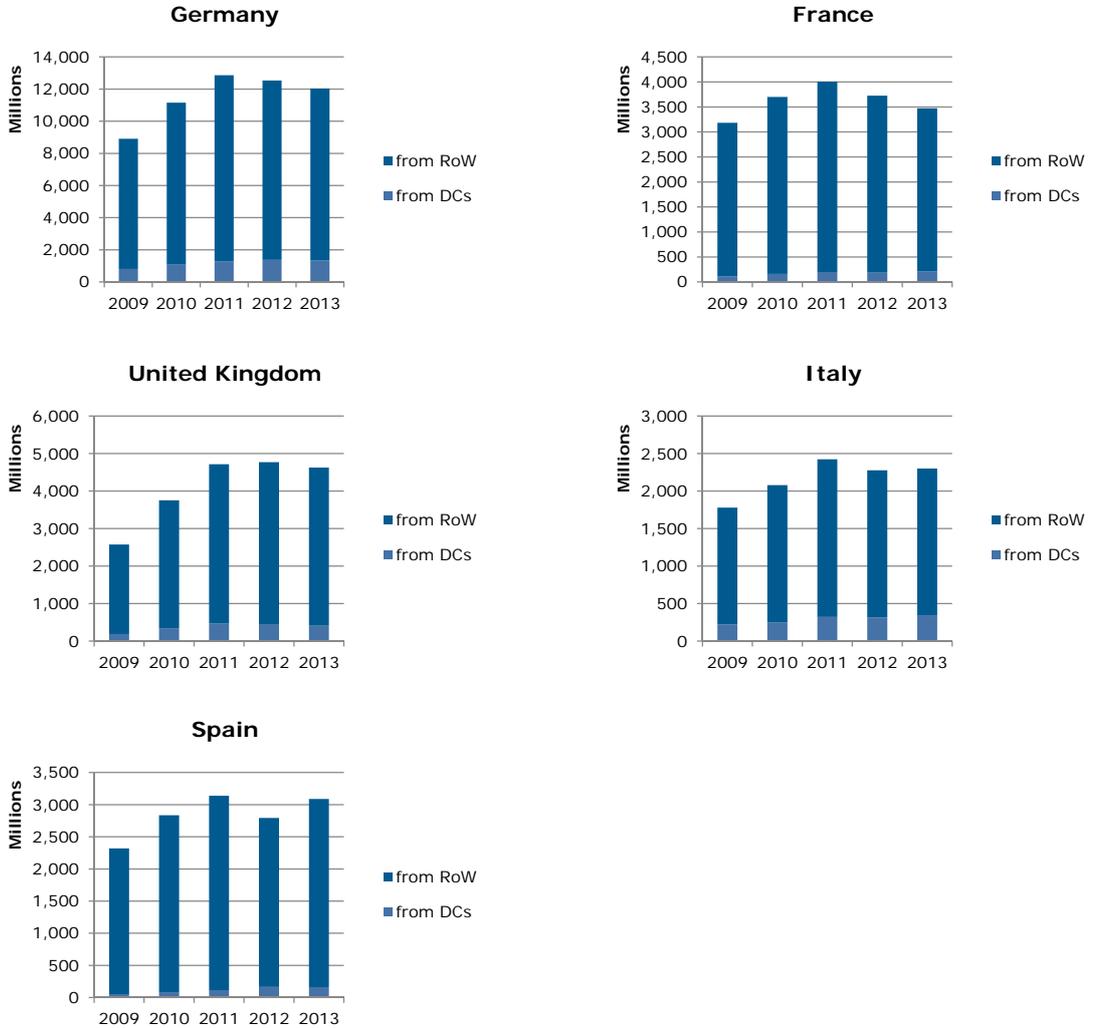
Imports and exports

EU5 has imported roughly €25.5 billion worth of engines and engine parts in 2013. Germany alone represents more than 47% of the imports with an import value of €12 billion in 2013. It is followed by the UK with €4.6 billion and France with €3.5 billion. The imported engines and engine parts are mainly shipped from Western and Eastern Europe as well as from other developed countries such as Japan and the United States.

Imports of engines and their parts from the Developing Countries (DCs) to EU5 represented almost €2.5 billion (9.6% of total) in 2013 and have grown at a CAGR of 15.5% between 2009 and 2013. Germany and the UK combined, represent over 70% of DC engine imports with €1.3 billion and €410 million, respectively. Italy, in particular, imports nearly 15% of its engines from the developing countries.

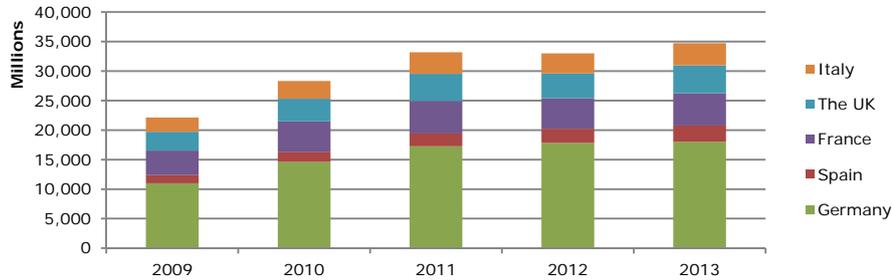
The biggest DC exporters of engines and engine parts to EU5 are Turkey (€983 million), Brazil (€404 million) and China (€356 million), together accounting for approximately 70% of engine imports from DCs to EU5. The engine imports from these three countries have doubled in the last five years. The future outlook is that the imports from DCs will continue to grow.

Figure 4: Imports of engines and engine 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 engines and engine parts. In 2013, it exported close to €34.7 billion worth of these. Germany is by far the largest exporter of engines and engine parts among the EU5 countries, with more than €18 billion in exports (comprising a 52% share of all EU5 engine and related parts exports). It is followed by France with €5.5 billion (16% share of the total) and the UK with €4.7 billion (14% share of the total). EU5 engine exports have been quite resistant against economic disruptions, growing with a 12% CAGR between 2009 and 2013. The export market is subject to developed country, as nearly 80% of the exports end up sold in Western and Eastern Europe and in countries like the United States, Russia, Japan and Korea. However, it must be noted that the exports to DCs have nearly doubled, between 2009 and 2013, growing from €3.7 billion to €7.2 billion. Turkey, China, Mexico and Brazil are the largest importers and together account for €4.7 billion or 66% of DC exports.

Figure 5: Exports of engines and engine parts, in € million

Data source: Eurostat 2014

For more information on automotive trade statistics, please refer to [CBI Market Trade Statistics](#)

Market trends and opportunities

There are major opportunities to be explored in all EU5 countries in the OEM market as well as in the aftermarket (including new spare parts and remanufactured components) with regard to engines and engine parts. The greatest opportunities lie in those engine parts subject to wear such as oil pumps, flywheels, injection parts, power take-offs and exhaust parts.

Although the OEM market is experiencing a slowdown, the EU5 economies are, despite the recent decline, very sizable markets and the decrease in demand means that they will need cheaper production alternatives. The easiest way to market this would be to arrange meetings with local agricultural parts wholesalers or the OEMs and/or component/systems suppliers and approach them with a subcontracting offer. When dealing with larger OEMs, certain criteria for manufacturing specifics will need to be in line with each individual OEM's requirements. Exporters targeting the aftermarket sector may find it advantageous to enter the sector through the independent distributor channel, as distributors tend to carry a larger variety of parts in their inventory rather than focusing on a few selected suppliers.

The German market offers the most opportunities due to its sheer size. With engines and engine parts imports for 2013 valued at over €12 billion, it comprises over 47% of the EU5 market and has been growing at a compound annual rate of 8% since 2009. Over 11% or €1.34 billion of these imports already come from developing countries, which indicates Germany's willingness to source its parts from the DCs.

The UK and France are the second and third largest importers respectively of engines and engine parts in the EU5, with imports in 2013 standing at €4.6 and €3.5 billion. The share of DC imports is 8.8% for the UK and 6% for France, revealing a degree of openness to DC trade as well as an as yet unexplored potential on the part of the DCs. UK engine imports in particular have been growing at a spectacular compound annual rate of almost 16% per year since 2009, making it a prime export target for DC exporters.

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 engines 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 the 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

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