



CBI  
*Ministry of Foreign Affairs*

## **CBI Product Factsheet:**

**Engines and Engine parts for  
passenger vehicles in Poland,  
the Czech Republic, Hungary,  
Bulgaria, Romania, Slovakia  
and Slovenia**

## Introduction

Engines and engine parts are and will likely continue to be an interesting market for Eastern Europe, especially in the aftermarket sector. The greatest opportunities for trade exist in those engine parts that are most prone to wear, such as oil pumps, flywheels, injection system parts, power take-offs and exhaust system parts. The easiest way to market these components would be to approach the local automotive parts wholesalers or the Original Equipment Manufacturers (OEMs) and/or component/systems suppliers with a subcontracting offer. In the next few years, the developing country exporters' focus should be on internal combustion engine system components and on providing cost saving and eco-friendly products made of alternative and lightweight materials. In the longer term, driven by the demand for increased CO2 reduction, market potential will move to new propulsion technologies, such as fuel cells and electric cars.

## Product description

Engines in general are used for an infinite amount of purposes, but the scope of this survey only considers the usages of engines in passenger cars. Geographically, we focus on the Eastern European market, which includes Poland, the Czech Republic, Hungary, Bulgaria, Romania, Slovakia and Slovenia.

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). We focus on the differences between internal combustion engines, which mainly use diesel and petrol, and (semi) electric engines.

**Figure 1: Engines and engine parts**



Source: Fotolia

## Product specifications

### Quality

The quality of the engine parts used in European vehicles is very high, with consumers paying attention to reliability, followed by durability, fuel consumption and cost of repair. The quality of materials used in the manufacturing of spare parts needs to be high to ensure their durability, heat resistance and safety. The supplied parts have to be carefully manufactured and inspected, as defective parts will be returned.

### Materials

Most modern engines are made of aluminium, hardened- and toughened steel, white-metal (lead and tin mix), bronze faced steel and some rubber components. There is a clear trend towards the use of more lightweight materials (e.g., combination of aluminium and magnesium). Engine spare parts include mainly:

Engine blocks, cylinders and cylinder heads, crankshafts, bearings, pistons, valves, camshafts, gaskets, spark plugs, alternators, oil filters, fans, coils, pumps, connecting rods, intake and exhaust valves, carburettors and air cleaners.

### Tip:

- The EU's technical requirements differ per product. To explore the technical requirements of your product, please see the online [EU Export Helpdesk](#) and the [International Trade Centre's Standards Map](#)

## Packaging & Labelling

In general, packaging is determined by the buyer: either the OEM or the end user (retailer, or wholesaler in the aftermarket). Returnable packaging is most often used by OEM suppliers, in order to reduce costs and to improve the

efficiency of packaging operations. Returnable packaging is not discarded after use and the empty packaging is recycled by the OEM or by a designated packaging operator. In the aftermarket sector, the packaging is typically disposable, as it is discarded after being used just once.

The packaging of engines requires a high degree of care. Engines are typically packaged on steel plates and/or on pallets, packed with protective foam and/or plastic in wooden or cardboard boxes.

**Tip:**

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

In order to export to the EU, product packaging must comply with EU standards and legislation, for example:

- Wood packaging materials used for transport (including dunnage) ([Directive 2000/29/EC](#)): Europe sets requirements for wood packaging materials such as packing cases, boxes, crates, drums, pallets, box pallets and dunnage (wood used to wedge and support non-wood cargo).
- Another packaging-related directive is the general directive about packaging and packaging waste ([Directive 94/62/EC](#)). This directive stipulates the marking of the kind of packaging material used, and the maximum levels of heavy metals allowed in the packaging material.

Due to increased outsourcing of engine parts, packaging costs are expected to rise in the coming years.

**Figure 2: Packaging of engines and engine parts**



Source: Fotolia/Internet

## Design

The design of parts is customised to the make and model of the engine (end product). Automotive 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 only the expert can identify the commonality. Developments in engine design relate to researching alternative propulsion technologies (e.g. biogas, fuel cells, etc.), the electrification of vehicles, and the increasing of engine power. In general, demand is moving towards high-performance vehicles. Another trend is the reduction of the engine weight. Steel is increasingly replaced with combinations of aluminium and magnesium applications.

## Buyer Requirements

Requirements can be divided into:

- (1) musts; these are legal and non-legal requirements you must meet in order to enter the market and
- (2) common requirements; i.e. those requirements which most of your competitors have already implemented; in other words, the ones you need to comply with in order to keep up in the market.

**Musts:** The most important requirement for automotive components such as engines is that they comply with the technical standards set by EU legislation in order to guarantee vehicle- and environmental safety.

[Whole Vehicle Type Approval](#) (WVTA) is a certification for various types of motor vehicles and their components, which include agricultural and forestry tractors. The WVTA is valid in all EU Member States and is required when selling any products in the EU. Many automotive components including engines 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.

**Tips:**

- 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](#).

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).

In addition, more legal requirements are stated in our study on [buyer requirements](#). When exporting chemicals, we refer to the [REACH regulation](#). In the EU, buyers are responsible for [CE marking](#), which means that they will have to meet additional requirements on safety, health and environmental protection.

**Common buyer requirements:**

Common requirements can be those put in place by public sector (such as standardisation bodies), or they may be industry-led requirements (such as buyer requirements and private standards). Private standards are on the rise in Europe, and include industry-led (niche) initiatives used to create enhanced quality, traceability and unity in design and dimensional specifications.

In general, there are product quality standards and production process standards (mainly regarding social issues and environmental issues).

Quality Management: In order to apply for type-approval, production processes need to meet quality management criteria. ISO TS/16949 focuses on the design, development and production of automotive-related products and ISO 9001 is a more general quality standard. Both are accepted as standard requirements and EU buyers and manufacturers often insist on them.

**Tips:**

- Implement [ISO 9001](#) and [ISO TS/16949](#), as a standard requirement of EU buyers.
- For more information, see [our study on buyer requirements](#) in the automotive industry.

The EU has set [binding emission targets for new cars and vans](#). This means that every new car or van sold is permitted a certain level of CO<sub>2</sub> and NO<sub>x</sub> emission. Note that pollution levels are currently only measured in the lab. Recent scandals with respect to real-world pollution levels versus the levels in lab tests have led to the introduction of the Real Driving Emissions (RDE) test by the EU in February 2016. This means that cars sold in the EU must pass an RDE test, starting from September 2017. Since the emission targets will become stricter on a gradual scale, new cars need to become less thrifty every year. This will lead to increasing demands OEMs will make of their engine suppliers.

**Tip:**

- Be prepared that the requirements stated by your buyer might become even stricter in the future, in order to comply with binding emission targets.

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.

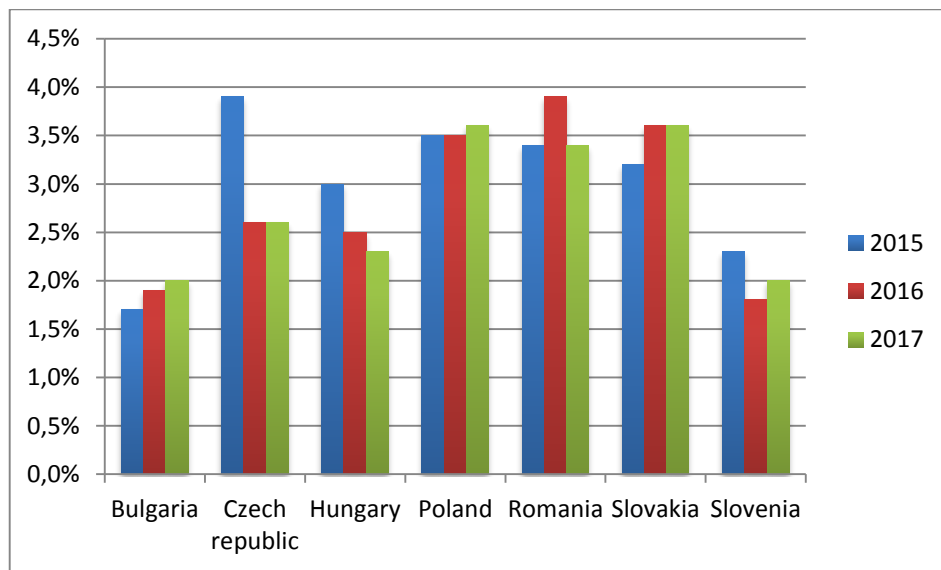
**Tips:**

- 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. Furthermore, adjust your social and environmental policy to your most important buyers.
- 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.

## Macroeconomic statistics

The national Gross Domestic Products (GDPs) of the Eastern European countries together saw an average growth of 2.7% in 2014. The International Monetary Fund (IMF) predicts an average GDP growth of 5.0% in Eastern Europe between 2015 and 2017, which is about 3% higher than the GDP growth in the 5 biggest EU economies (Germany, France, Spain, Italy and the United Kingdom). The GDP growth factor is an important economic indicator. This positive economic forecast in Eastern Europe is one of the reasons we expect the production and demand for vehicle engines and engine parts to rise as well.

**Figure 2: GDP (constant prices) Compound Annual Growth Rate (CAGR) forecast for 2015 - 2017 in Eastern Europe**

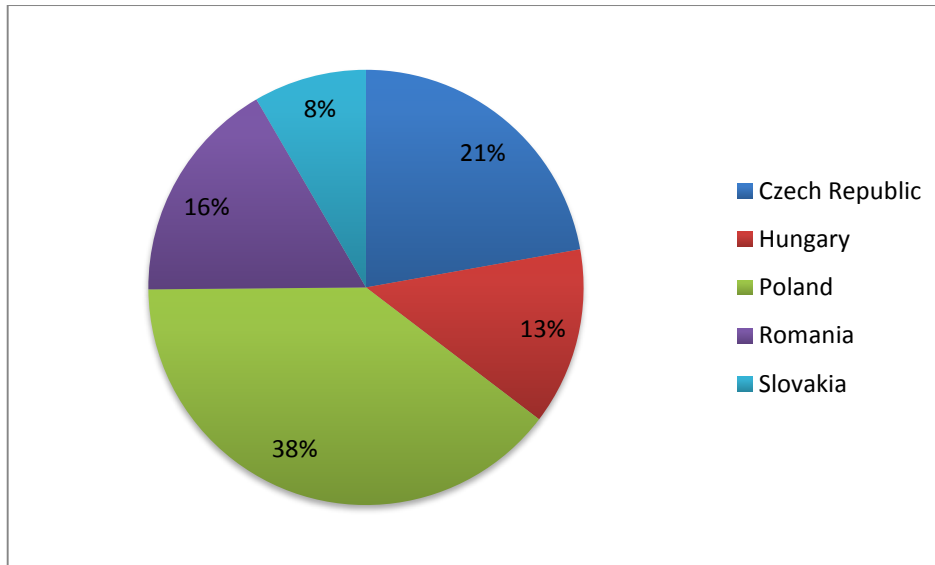


Data source: IMF 2015, World Economic Outlook Database

The value of total Gross Domestic Products (GDP) for the seven Eastern European countries covered by this document was estimated at €975 billion (or roughly one-tenth of the GDP value for the biggest Western European economies Germany, France, the UK, Italy and Spain: the EU5) in 2014.

Poland is the largest market in Eastern Europe, with a GDP of approximately €413 billion and a total national manufacturing value of €74 billion, accounting for a share of almost 40% of the total GDP and manufacturing values for the seven Eastern European countries in question. The Czech Republic is the second largest Eastern European economy with a strong manufacturing base, followed by Romania and Hungary. Bulgaria and Slovenia are relatively small economies, which together account for less than 10% of the total Eastern European GDP.

**Figure 3: Relative national manufacturing value 2014 in Eastern Europe**



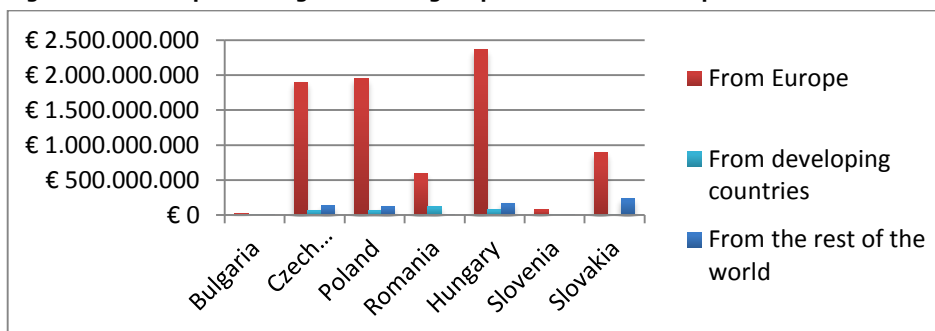
\*No data available for Bulgaria. Romania's percentage of the GDP, which is produced by manufacturing, is based on an estimate from 2012.  
Data source: IMF 2015, World Economic Outlook Database

## Trade Statistics

### Imports and exports:

Eastern Europe imports roughly €8.8 billion worth of engines and engine parts. Poland, Hungary and the Czech Republic combined represent over 77% of the total imports of engines and engine parts into Eastern Europe. The imported engines and engine parts are mainly shipped from within the European Union (88.4%), while 11.6% is imported from elsewhere. The import of engines and engine parts has grown with a CAGR of 9.4% between 2010 and 2014.

**Figure 5: Total import of engines and engine parts in Eastern Europe in 2014**

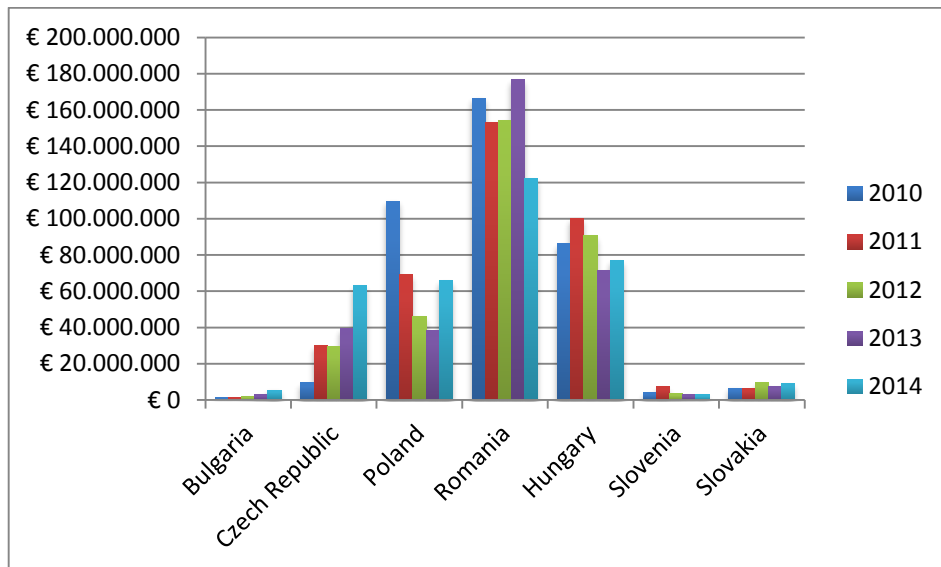


Datasource: Eurostat, 2016

The value of engine imports from the developing countries to Eastern Europe was estimated at €346 million (3.9% of total engine imports) in 2014 and shrank by a -2.6% CAGR rate between 2010 and 2014. Romania imports the most from the developing countries in terms of value (€122 million), although it has seen a sharp drop since 2013, when imports from developing countries were at a value of €177 million. Hungary comes in second after Romania (€77 million), then Poland (€66 million) and finally the Czech Republic (€63 million). The biggest developing country exporters of engines to Eastern Europe are Turkey (€169 million), China (€55 million) and Brazil (€34 million) together accounting for roughly €260 million or close to 75% of all engine imports from developing countries.

From a product perspective, parts for internal combustion engines form the majority of the import (70.3%). The import of total engines is almost exclusively caused by the import of medium power (semi) diesel internal combustion piston engines from Turkey by Romania (25.4% of the total import of engines and engine parts from developing countries).

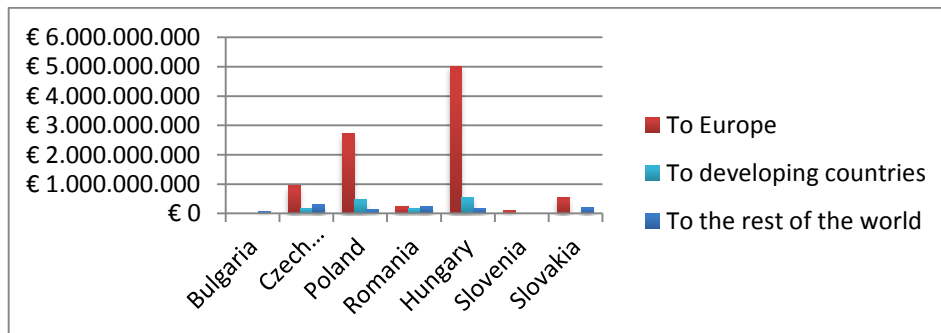
**Figure 5: Total import of engines and engine parts in Eastern Europe from developing countries**



Data source: Eurostat, 2015

The selected countries in Eastern Europe are a net exporter of engines and their parts, having exported approximately €12.1 billion of those in 2014. Hungary is the largest exporter with €5.7 billion, followed by Poland with €3.3 billion and the Czech Republic with €1.4 billion. Together these countries account for 87% of Eastern Europe's engine and related parts exports. 80% of the engines are exported within the EU countries.

**Figure 6: Exports of engines and engine parts in 2014**

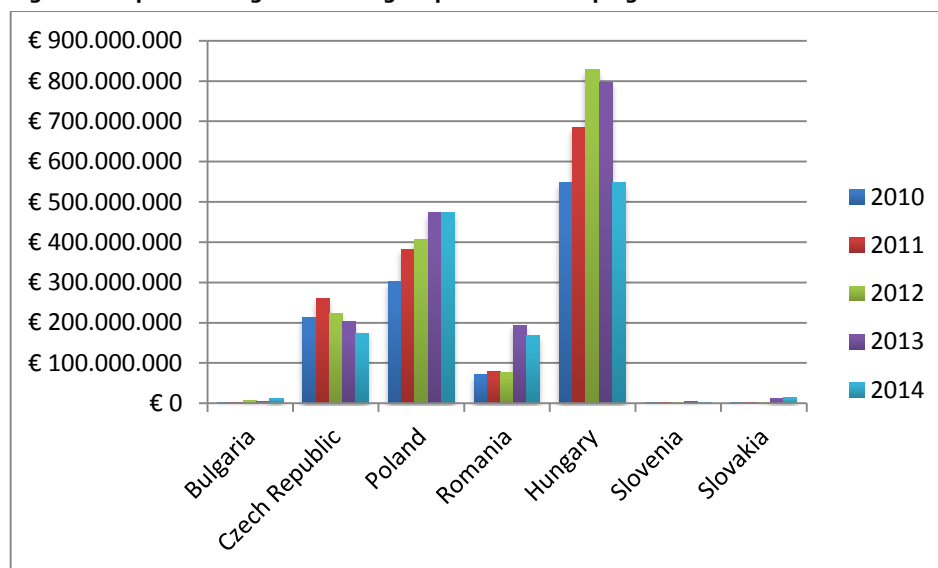


Datasource: Eurostat, 2016

Roughly one third of the export consists of spark ignition (mostly petrol) engines (€4.1 billion), one third consists of compression ignition (mostly diesel) engines (€4.4 billion) and one third consists of parts (€3.5 billion).

Eastern Europe exports approximately €1.4 billion worth of engines and engine parts to the developing countries. This value shows a negative CAGR of -17.3% compared to 2013. The biggest developing country importers of engines from Eastern Europe include China (€320 million), Turkey (€428 million) and Mexico (€268 million).

**Figure 7: Exports of engines and engine parts to developing countries**



Data source: Eurostat 2015

For more information on automotive trade statistics, read our study [on the demand for automotive products in the European market](#).

## Trends and opportunities

### Product-related trends and opportunities

- The engine parts that are subject to wear hold the greatest opportunities in this market. These include: oil pumps, flywheels, injection parts, power take-off and exhaust parts.
- Demand is moving towards high-performance vehicles. Developments in engine technology relate to researching alternative propulsion technologies (e.g. biogas, fuel cells, etc.), the electrification of vehicles and the increase of engine power.
- Manufacturers focus on the reduction of the engine weight. Steel is increasingly replaced with combinations of aluminium and magnesium applications.
- Engine manufacturers and parts suppliers should focus on CO<sub>2</sub> reduction. Worldwide, but especially European demand for cleaner engines is growing due to binding emission targets. CO<sub>2</sub> reduction is the most important issue in engine manufacturing. Suppliers able to produce engine parts that contribute to less CO<sub>2</sub> emission have great opportunities in the European market.

### Market-related trends and opportunities

- *Approach the local automotive parts wholesalers or the OEMs.* The easiest way to market your business would be to approach the local automotive parts wholesalers or the Original Equipment Manufacturers (OEMs) and/or component/systems suppliers with a subcontracting offer.
- *Approach buyer on trade fairs.* In Eastern Europe, the local OEMs are not as large as their Western counterparts and they may be easier to access for a developing country exporter. Contacts can be made at a trade fair as it is generally a good place to approach OEMs and parts and components suppliers.
- *The Czech Republic, Poland and Hungary are the biggest import markets for engines,* and therefore offer the best opportunities for the export of high volumes.
- *Eastern Europe offers opportunities for developing country suppliers.* The share of developing country imports for the selected countries is around 16%. Due to the positive forecast for the automotive industry in Eastern Europe this region offers opportunities for developing country suppliers. However, despite this positive forecast, these Eastern European countries are not very predictable due to huge fluctuations in import values.

### Tips:

- For more information on automotive market trends, read our study: [CBI Market Trends](#)



## Price

Apart from the distribution of new parts, the aftermarket for automotive 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 engine prices, but it is possible to provide some insight into margins imposed by different players in the supply chain. Based on the margin ranges, developing country 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.

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. In the Original Equipment segment, the price is set by 4+ year contracts, which usually include a 3-5% price reduction each year after the first year. In the aftermarket, the prices are negotiated every year.

OEM supply chain	Margin
Tier 1 supplier delivering to OEM	7-9%
Tier 2 supplier delivering to Tier 1	7-17%
Tier 3 supplier delivering to Tier 2	11-27%
Aftermarket Original Equipment Supplier (OES)	Margin
Tier 1 delivering to OEM for OES sales through approved service chain	11-32%
Tier 1 delivering to OEM for OES sales through independent outlets	11-27%
OEM delivering OES parts through its approved service chain	26-67%
OEM delivering OES parts through independent outlets	31-42%

### Tip:

- In order to better ascertain prices of specific products and models, you should talk directly to wholesalers and local experts. The only way to gain information about products or materials in specific markets is with inside information.

## Main sources

- [OECD](#) – good source for macroeconomic and industry-specific information
- [CLEPA](#) - European association of automotive suppliers
- [ACEA](#) - European automobile manufacturers association
- [EY's Automotive information](#) - Automotive information – good source on automotive information
- [Inovev](#) - Worldwide automotive knowledge platform that offers free-of-charge and fee- based content
- Trade fairs are a good place to network, to meet buyers and to promote your company. The most prominent agricultural machinery trade fairs in Western Europe are: [Hannover Messe](#) - World's leading trade fair for industrial technology taking place in Germany; [Internationale Automobil-Ausstellung](#) (every year) – German automotive trade fair; [Barcelona Motor Show](#) (once every two years) – Spanish automotive trade fair; [British International Motor Show](#) (organised by SMMT once every two years); [Paris Motor Show](#) (once every two years) – French automotive trade fair and [Bologna Motor Show](#) (every year) – Italian automotive trade fair.



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