Market evolution: Electric motor parts (CN 8503) — 2015–2025

Introduction

This report examines the evolution of European Union (EU) trade with non-EU countries in parts for electric motors and generators (customs code 8503) over the period 2015–2025. The data cover annual flows of value, quantity, unit price, partner and reporter structures, concentration, volatility and price shocks. Over the decade, the EU's position shifted dramatically from a net exporter to a net importer, driven by a more than doubling of import values while export values stagnated. Exports underwent a steep volume contraction that was offset by soaring unit prices, pointing to a structural upgrading of the product mix or significant cost inflation. Import dependence became more concentrated around a handful of suppliers, particularly China, while the geography of export destinations and of member state involvement was markedly redrawn.

1. The trade balance turns negative: import boom meets falling export volumes compensated by soaring prices

Import values more than doubled, with the largest gains registered from China, India and Japan

Overall trade evolution shows that EU imports climbed from €1 463 268 095 in 2015 to €4 008 813 698 in 2025, an increase of 174 %. The main engine was China, whose shipments jumped from €500 056 927 to €1 867 296 761 (+273.4 %), making it by far the dominant source. India, Japan and Serbia also recorded very strong growth, while Switzerland maintained a more modest upward trend. Only Brazil among the top seven suppliers saw a slight decline (–9.1 %).

Export values stagnated despite a 43.5 % volume collapse, because unit prices surged by 63.5 %

Exports fell by 7.7 % in value terms, from €2 738 161 828 in 2015 to €2 528 143 890 in 2025. Yet the volume shipped dropped far more, by 43.5 % (from 279 932 t to 158 024 t). The average unit price therefore rose from €9 781/tonne to €15 994/tonne (+63.5 %). This divergence suggests either a shift toward higher-value, technology-intensive components or substantial cost-push inflation in the EU export basket. Whatever the cause, the price effect fully neutralised the volume collapse and kept export value close to its initial level.

The EU moved from a surplus of €1.3 billion to a deficit of €1.5 billion

The combined result is a complete reversal of the trade balance. In 2015 the EU recorded a surplus of €1 274 893 732. By 2025 the balance had swung to a deficit of €1 480 669 808, a deterioration of 216.1 %. The crossing point occurred around 2021, after which imports permanently outstripped exports.

2. Partner-country dynamics: China's growing dominance and the erosion of several traditional export markets

China consolidates its position as the overwhelmingly dominant import source

Top trade partners data underline the one-sided nature of the import surge. China alone supplied 46.6 % of extra-EU imports of these parts in 2025, up from 34.2 % in 2015. Its absolute value rose from €0.50 billion to €1.87 billion.

Other Asian partners and Serbia also expand, but concentration increases

Other import partners grew even faster in percentage terms – India (+332.4 %), Japan (+260.6 %), Türkiye (+180.3 %) – yet their combined weight remained far behind China. The Herfindahl-Hirschman Index (HHI) for imports climbed from 1 587 to 2 512, an increase of 58.3 %, Market concentration, signalling a higher degree of dependency on a few suppliers.

European exports lose ground in large emerging markets while gains are concentrated in the US and Serbia

On the export side, the United States became the largest destination, rising to €565 million (+39.2 %). Serbia and the United Kingdom also recorded moderate increases. In contrast, exports to Mexico fell by 55.6 %, to Brazil by 73.9 %, and to China by 15.5 %, reflecting a shrinking EU presence in major developing-country markets. The export HHI also rose, from 549 to 812 (+47.8 %), indicating that exports are likewise becoming less diversified by destination.

Export partner	2015 (€)	2025 (€)	Change (%)
United States	405 833 867	564 990 116	+39.2
China	269 024 687	227 391 375	–15.5
Mexico	152 375 947	67 585 885	–55.6
Brazil	152 495 738	39 823 346	–73.9
Serbia	136 442 067	179 690 612	+31.7
United Kingdom	164 546 015	185 409 572	+12.7

3. Volatility, price shocks, and the reshuffling of member-state roles

Price shocks hit several export destinations in 2022-2023, most notably Mexico, Russia and Türkiye

Price shock events for exports reveal abrupt price jumps. In 2022, exports to Mexico experienced a 45.1 % price shift even as volume temporarily spiked; the unit price rose from an average of €8 629/tonne in 2020-2021 to €12 520/tonne. Exports to Russia, after the onset of sanctions, saw a 61.3 % price jump in 2022 while volumes collapsed. For Türkiye, a 39.4 % price shock occurred in 2023, followed by a volume rebound. These episodes illustrate how geopolitical and supply-chain disruptions can sharply alter price dynamics for specific partners.

Import volatility is high for Japan, Turkey and the UK, adding sourcing uncertainty

Volatility analysis shows that quantity-based volatility (coefficient of variation) was highest for Japan (0.67), the United Kingdom (0.61) and Türkiye (0.46). Such instability can complicate production planning for EU manufacturers that rely on these inputs, especially in sectors where just-in-time delivery is common.

The Netherlands emerges as a major export hub while traditional exporters Spain and Finland lose ground

Reporter-level data show a striking re-organisation among member states. German exports remained stable (+10.5 %), but Spain's extra-EU exports plummeted from €349 million to €93 million (–73.4 %), Finland's from €381 million to €219 million (–42.5 %) and Italy's by 24.2 %. By contrast, the Netherlands more than tripled its exports (from €100 million to €329 million, +227.7 %). The centre of export gravity has shifted towards Germany and the Netherlands, while southern and Nordic traditional exporters have retreated.

Conclusion

Between 2015 and 2025, the EU's trade in electric motor parts underwent a profound transformation. Imports more than doubled, turning a sizeable surplus into a deficit of €1.5 billion. The import side became heavily reliant on China, with rising concentration adding to supply-chain fragility. Exports survived a massive volume drop only because unit prices rose sharply, hinting at a move towards higher-value goods or inflationary pressures. The destination map for exports narrowed, and price shocks in 2022-2023 underscored the sector's exposure to geopolitical and logistical disruptions. Within the EU, the Netherlands gained export prominence while Spain, Finland and Italy lost significant ground. Together, these dynamics point to a segment where dependency on external suppliers and exposure to volatile partner-country conditions have increased, even as the internal geography of production and trade continues to evolve.

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