

Market evolution: Analytical instruments (CN 9027) — 2015–2025

Introduction

The EU's trade in analytical instruments (CN 9027) – a broad category encompassing spectrometers, chromatographs, mass spectrometers, gas analysers and microtomes – has expanded significantly over the 2015–2025 decade. Extra-EU exports rose from €7.9 billion to €12.2 billion (+53.8 %), while imports climbed from €5.3 billion to €7.9 billion (+47.5 %), generating a growing trade surplus of €4.3 billion in 2025. Behind these headline figures, major structural shifts have occurred in the sector's geography, domestic production base and exposure to price shocks. This report unpacks those dynamics in three thematic sections.

1. A widening trade surplus despite a structural decline in net export reliance

The EU's export and import values both grew strongly, with the trade surplus expanding by two-thirds

Between 2015 and 2025, extra-EU exports climbed from €7.9 billion to €12.2 billion, while imports rose from €5.3 billion to €7.9 billion, as shown in the General trade overview. This resulted in a trade surplus that jumped from €2.6 billion to €4.3 billion (+66.8 %).

Indicator (€ million)	2015	2025	Change
Extra-EU exports	7 933	12 203	+53.8 %
Extra-EU imports	5 338	7 874	+47.5 %
Trade balance (surplus)	2 595	4 328	+66.8 %

Source: General trade overview.

Net import reliance moved closer to zero, signalling a less dominant net-export position relative to production

Despite the expanding surplus in value terms, net import reliance (negative because the EU is a net exporter) rose from -32.3 % in 2015 to -14.3 % in 2024, a 55.7 % change of the indicator (i.e. its magnitude shrank by more than half). This suggests that the EU's net

export advantage, measured against domestic production, has been eroding steadily. The evolution can be seen in the Net import reliance chart.

Import sourcing became more diversified, with the US and Japan remaining dominant while China and Singapore gained share

The concentration of imports, measured by the Herfindahl-Hirschman Index (HHI), fell from 2 114 to 1 834 (-13.3 %), indicating a broader supplier base. The United States remained the largest source (€2.0 billion to €2.7 billion), but China's imports grew by 64.6 % and Singapore's by 88.9 %. Japan and Switzerland also posted solid increases. The shift is visible on the Top partners dashboard.

Import partner	2015 (€ million)	2025 (€ million)	Change
United States	1 987	2 699	+35.9 %
Japan	1 039	1 314	+26.5 %
China	492	810	+64.6 %
Switzerland	651	926	+42.2 %
United Kingdom	458	613	+33.9 %
Singapore	322	608	+88.9 %

2. A domestic production surge redefines the sector's trade profile

EU production value more than quadrupled, far outpacing the growth of trade flows

EU-wide production value soared from €1.9 billion in 2015 to €8.1 billion in 2024 (+319.3 %), according to the Production value data. Production volume (units) also expanded, though with large year-on-year fluctuations (from 3.3 million units in 2016 to a peak of 20.9 million units in 2021 and 13.0 million in 2024), partly reflecting changes in the product mix (e.g., more high-value instruments and parts). This domestic ramp-up has outpaced the 53.8 % export growth, altering the trade-to-output ratios.

Trade intensity and export propensity declined sharply, as more output was absorbed domestically

Trade intensity (total trade relative to production value) fell from 105.0 % to 71.8 % (-31.6 %), and export propensity dropped from 109.2 % to 58.8 % (-46.2 %) between 2015 and 2024. These trends, displayed in the Trade intensity and Export propensity dashboards, confirm that a growing share of EU-made analytical instruments is now used within the single market, rather than being exported.

Production specialisation is concentrated in a handful of Member States, led by Germany and Romania

In 2025, the most specialised Member States (revealed symmetric comparative advantage, RSCA) were Romania (0.388), Germany (0.270), Denmark (0.188), Ireland (0.171) and Finland (0.138). Germany alone accounted for 36.9 % of the EU's output in this sector, while Romania punched above its weight with an RCA of 2.27. The full specialisation map can be explored under Most specialised reporters.

3. Price shocks and volatility expose vulnerabilities in a technology-intensive value chain

Brexit triggered a structural price shock on UK imports, with unit values more than doubling

In 2021, the unit price of imported analytical instruments from the United Kingdom jumped by 112.9 % compared with the 2019-2020 baseline, while volumes roughly halved. The shock persisted into 2022-2023, with prices remaining more than twice the pre-shock level. This event, likely driven by new customs requirements and regulatory divergence, is documented in the Shocks and volatility panel.

Import price spikes from Japan and an export price spike to South Africa reflected supply-chain disruptions in 2022

Japan's import prices rose by 24.4 % in 2022, accompanied by a drop in volumes (-17.3 %), with an abnormality score of 16.3. Similarly, EU export prices to South Africa jumped 44.2 % in the same year, while volumes contracted. Both events coincide with global semiconductor shortages and logistics bottlenecks that hit the high-tech instrumentation supply chain.

Volatility is concentrated among smaller trading partners, while major markets remain stable – except Russia

Quantity volatility (coefficient of variation) was highest for imports from Thailand (1.18), Canada (0.87) and Mexico (0.57); for exports, the Russian Federation stood out with a CV of 0.57, reflecting the sudden drop after sanctions. In contrast, large partners such as the United States, China and the United Kingdom exhibited low export volatility (CVs of 0.10–0.14). The full volatility bars are on the Volatility page.

Conclusion

The EU's analytical instruments sector has experienced a decade of remarkable growth, with a €4.3 billion trade surplus in 2025 underpinned by both strong global demand and a domestic production boom. However, the structural decline in net export reliance and the sharp drop in export propensity reveal that production is increasingly oriented towards the home market. The concentration of specialisation in a few Member States, combined with price shocks linked to Brexit and post-pandemic supply disruptions, underscores the sector's exposure to geopolitical and operational risks. Looking forward, the EU's ability to sustain its competitive edge will depend on maintaining technological leadership, diversifying supplier and client bases, and further strengthening the resilience of its internal production network.

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If you need advice on European trade policy, or representation for your interests in Brussels, feel free to contact me at support@tradedashboard.eu. You can find my CV at [this address](#).