Market evolution: Medical instruments and apparatus (CN 90) — 2015–2025

Introduction

Between 2015 and 2025, the European Union's trade in optical, photographic, cinematographic, measuring, checking, precision, medical and surgical instruments (Customs Code 90) evolved into one of the bloc's most dynamic and high-value export categories. Total extra-EU exports climbed from €84.6 billion to €131.8 billion, while imports rose from €59.6 billion to €91.0 billion, expanding a trade surplus that reached €40.8 billion in 2025. This report identifies three principal dynamics: a widening export-led surplus propelled by price gains, a reconfiguration of trade partners driven by China's ascent and geopolitical shocks, and a clear shift toward high-value medical and analytical instruments that underpin the EU's specialisation.

Surging export surplus driven by price gains and structural competitiveness

Export values have grown steadily while physical volumes remained nearly flat, confirming that value creation is being driven by rising unit prices and product upgrading.

From 2015 to 2025, the value of EU exports of CN 90 goods increased by 55.8 % whereas export quantities edged up by only 2.0 %. The average export unit value consequently jumped from €118,111 per tonne to €180,380 per tonne (+52.7 %). Imports also saw a value increase of 52.7 %, but import volumes rose by 13.5 %, yielding a more moderate import unit price rise of 34.6 % (from €67,557 to €90,953 per tonne). This divergence allowed the trade surplus to swell by 63.2 %, from €25.0 billion to €40.8 billion.

Indicator (extra-EU)	2015	2025	Change
Exports (€ bn)	84.58	131.76	+55.8 %
Imports (€ bn)	59.59	90.98	+52.7 %
Trade balance (€ bn)	24.99	40.78	+63.2 %
Export unit value (€/t)	118,111	180,380	+52.7 %
Import unit value (€/t)	67,557	90,953	+34.6 %

Source: EU trade in Medical instruments and apparatus

The EU’s domestic production mirror the same value-over-volume trend, reinforcing the sector’s innovation-driven character.

EU production value of CN 90 items surged from €58.5 billion in 2015 to €92.1 billion in 2024 (+57.4 %), whereas the corresponding output volume grew by barely 0.5 % (32.56 billion to 32.71 billion units). This points to a deep structural shift toward higher-value instruments, medical devices, and precision apparatus manufactured within the EU.

Source: Production volumes and values

A more than fully export-oriented sector: net import reliance turned increasingly negative, indicating the EU’s growing role as a global supplier.

The net import reliance ratio fell from –19.6 % (already a net export position) to –36.5 %, meaning that the EU exports an ever-larger share of its domestic output. Export propensity reached 79.1 % in 2024, and trade intensity surpassed 86 %, demonstrating deep integration in global value chains.

Links: Net import reliance · Export propensity

Partner landscape reshaped by China’s ascent and geopolitical realignments

China has become the EU’s fastest-growing import source and a major export destination, doubling its role in a decade.

EU imports from China climbed from €7.8 billion to €16.1 billion (+106.7 %), while exports to China rose from €9.4 billion to €15.0 billion (+60.2 %). By 2025, China was the third-largest export market and the second-largest import supplier, trailing only the United States in total value.

Source: Top trade partners

The Russian market collapsed after 2022, while the United Kingdom’s role stabilised at a lower post-Brexit level.

Exports to Russia peaked at €4.1 billion in 2019 but plunged to €2.3 billion by 2025 (–13.2 % over the decade, entirely driven by sanctions-era contraction). Imports from the UK, once €6.3 billion, oscillated and ended at €6.1 billion (–1.9 %), with an abrupt price shock in 2021 highlighting post-Brexit trade friction (see below).

Partner (imports)	2015 (€ bn)	2025 (€ bn)	Change
United States	19.70	28.05	+42.4 %
China	7.80	16.12	+106.7 %
Switzerland	6.14	8.60	+40.0 %
United Kingdom	6.26	6.14	–1.9 %
Mexico	2.25	4.25	+89.2 %
Japan	4.58	5.53	+20.7 %
Korea, Republic of	2.18	1.73	–20.6 %

Partner (exports)	2015 (€ bn)	2025 (€ bn)	Change
United States	22.09	35.22	+59.4 %
United Kingdom	9.44	13.25	+40.3 %
China	9.37	15.02	+60.2 %
Switzerland	3.96	6.44	+62.3 %
Russian Federation	2.65	2.30	–13.2 %
Türkiye	2.31	3.91	+69.3 %
Japan	4.27	5.11	+19.6 %

Source: Top partners breakdown

Price and volume shocks reveal acute disruptions in specific bilateral relationships.

The volatility analysis captured four significant price shocks:

- **United Kingdom (imports, 2021):** import quantities from the UK halved (–46.9 % relative to the 2019-2020 baseline) while unit prices jumped 59.0 %, reflecting post-Brexit customs barriers and supply reconfiguration.
- **United Arab Emirates (exports, 2022):** export volumes collapsed by 68.9 % and prices soared 272.7 %, indicative of an abrupt shift in high-value equipment deliveries.
- **United States (exports, 2022):** a modest quantity increase (+8.5 %) was accompanied by an 18.2 % price surge, partly attributable to inflationary pressures and a product-mix upgrade.
- **Tunisia (exports, 2023):** a 12.2 % quantity contraction coincided with a 27.8 % price jump, suggesting supply-side tightening for certain components.

Links: Volatility overview · Supply shock events

High-value medical devices and analytical instruments anchor EU specialisation

Medical instruments (code 9018) dominate both flows and have expanded far faster in value than in volume.

Instruments and appliances for medical, surgical, dental or veterinary sciences (HS 9018) accounted for the largest share of imports and exports. Extra-EU imports of 9018 rose from €15.8 billion to €28.3 billion, while exports climbed from €20.8 billion to €35.6 billion. Import quantities increased by 33 %, but import unit prices rose from €60,425 to €81,271; export unit prices moved from €94,721 to €129,236, confirming strong price-led growth.

Source: Product segment breakdown

Orthopaedic appliances and imaging equipment command the highest unit prices, underlining technological intensity.

Orthopaedic appliances (9021) and X-ray apparatus (9022) displayed the highest unit prices among the top segments. Import unit prices for 9021 rose from €274,645 to €305,036 per tonne, while export unit prices for 9022 advanced from €133,421 to €153,004. The following table summarises the seven largest import and export segments in 2025.

Top import segments (2025)

HS code	Description	Value (€ bn)	Unit price (€/t)
9018	Medical instruments	28.3	81,271
9021	Orthopaedic appliances	14.5	305,036
9031	Measuring/checking instruments	6.1	115,403
9001	Optical fibres, lenses, etc.	3.2	81,664
9032	Regulating/controlling instruments	3.0	75,307
9026	Flow/level/pressure instruments	3.5	105,251
9019	Mechano-therapy/respiratory apparatus	2.7	17,121

Top export segments (2025)

HS code	Description	Value (€ bn)	Unit price (€/t)
9018	Medical instruments	35.6	129,236
9031	Measuring/checking instruments	11.8	162,266
9027	Physical/chemical analysis instruments	12.2	252,340
9022	X-ray/ionising radiation apparatus	8.1	153,004
9032	Regulating/controlling instruments	4.7	99,521
9026	Flow/level/pressure instruments	5.6	156,520
9028	Supply/production meters	1.1	39,044

Source: Product segment comparison

Ireland, the Netherlands and Germany exhibit the strongest revealed comparative advantage in CN 90 goods.

In 2025, Ireland held the highest RCA (2.65) and RSCA (0.45), followed by the Netherlands (RCA 1.51, RSCA 0.20), Germany (RCA 1.36), Malta (RCA 1.28) and Romania (RCA 1.03). These countries' export structures are disproportionately concentrated in high-value medical and analytical instruments. Conversely, larger economies such as Spain (RCA 0.40) and Poland (RCA 0.54) displayed below-average specialisation, suggesting that scale does not automatically translate into comparative advantage in this technology-intensive sector.

Links: Specialisation map · Concentration indices

Conclusion

The decade to 2025 has seen the EU's trade in CN 90 instruments transform into a €40 billion surplus engine, driven overwhelmingly by price gains and a concentration on high-value medical, analytical and orthopaedic devices. While the United States remains the dominant partner, China has emerged as a pivotal two-way player, and the fallout from Brexit and the war in Ukraine has redrawn some traditional flows. The sector's resilience is reflected in its growing export propensity, but the observed price shocks and high volatility in certain partner relationships warn against complacency. Continued investment in innovation, careful diversification of both import sources and export markets, and monitoring of strategic dependencies will be essential to sustain this remarkable performance.

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