Market evolution: Orthopaedic appliances (CN 9021) — 2015–2025

Introduction

The EU’s external trade in orthopaedic appliances (CN 9021) has undergone a profound transformation over the past decade. Between 2015 and 2025, the sector moved from a solid net-export position to a dramatically widened surplus, driven far more by soaring unit prices than by increased physical volumes. The data reveal three interlinked dynamics: a sharp appreciation in the value-per-tonne of EU exports, the rise of the Netherlands and Ireland as dominant trade hubs, and a series of price shocks that reshaped key bilateral relationships. This report interprets those dynamics using the annual external trade figures for the EU with non-EU partners.

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1. A Widening Trade Surplus Underpinned by Soaring Export Prices

Overall trade flows show a marked divergence between value and volume. While both exports and imports grew in value, export prices rose much faster than import prices, propelling the surplus to more than double.

EU total trade of orthopaedic appliances

Indicator	2015	2025	Change (%)
Exports (EUR million)	12 274.2	21 432.5	**+74.6**
Imports (EUR million)	9 074.9	14 543.3	**+60.3**
Trade balance (EUR million)	3 199.3	6 889.1	**+115.3**
Export unit value (EUR/tonne)	661 742	942 877	**+42.5**
Import unit value (EUR/tonne)	274 621	305 014	**+11.1**
Export volume (tonnes)	18 422.1	22 684.0	**+23.1**
Import volume (tonnes)	32 753.1	47 516.4	**+45.1**

Export prices have risen sharply while import prices stagnated, fueling the surplus

Export unit values jumped by 42.5 %, allowing the value of EU exports to expand far beyond what the modest 23.1 % increase in tonnage would have produced. In contrast, import unit values rose only 11.1 %, so the import bill grew mainly because of a 45.1 % increase in physical volume. The result was a trade surplus that went from €3.2 billion to €6.9 billion.

The EU's export propensity surged, reflecting a growing role as a global re-export hub

The ratio of exports to domestic production (export propensity) rose from 83.0 % in 2015 to 147.2 % in 2024, peaking at 224.7 % in 2023. This means the value of extra-EU exports now comfortably exceeds the EU's own production of orthopaedic appliances.

Export propensity and net-import reliance

Simultaneously, net import reliance dropped from –17.8 % in 2015 to –168.1 % in 2024, indicating that the EU is a massive net exporter of these goods relative to its domestic apparent consumption. This pattern is consistent with a large volume of high-value devices being imported, processed or simply redistributed through EU logistics hubs before being shipped out again.

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2. The Dutch-Irish Axis and the Reconfiguration of EU Trading Gateways

A striking geographical shift has occurred among the EU member states that report the trade. The Netherlands and Ireland have overtaken traditional industrial powers to become the dominant import and export centres for CN 9021.

Top reporting EU countries – imports and exports

Reporter	Extra-EU imports 2015 (EUR m)	Extra-EU imports 2025 (EUR m)	Change (%)	Extra-EU exports 2015 (EUR m)	Extra-EU exports 2025 (EUR m)	Change (%)
Netherlands	2 167.9	6 260.2	**+188.8**	2 563.7	6 472.9	**+152.5**
Ireland	458.7	1 250.8	**+172.7**	2 913.9	4 929.1	**+69.2**
Germany	2 237.7	2 552.7	**+14.1**	2 552.7	3 626.8	**+42.1**
Belgium	1 555.9	2 182.2	**+40.3**	1 874.4	2 473.6	**+32.0**
Poland	84.2	311.4	**+270.0**	197.2	1 265.1	**+541.6**

The Netherlands and Ireland emerged as the EU's dominant hubs for orthopaedic trade

By 2025 the Netherlands alone accounted for 43 % of extra-EU imports and 30 % of extra-EU exports of orthopaedic appliances. Its imports jumped 188.8 %, while exports grew

152.5 %. Ireland's imports expanded 172.7 % and exports 69.2 %. Together with Belgium, these three countries concentrate a large share of the EU's gateway and redistribution activity. The strong revealed comparative advantage – Netherlands' RSCA of 0.45 and Ireland's RSCA of 0.64 – confirms that these are highly specialised players.

Specialisation map and most specialised reporters

Import sources diversified away from traditional partners, with China, Viet Nam and Mexico posting triple-digit growth

While the United States remains the single most important partner on both the import and export side, its import share has been eroded by rapidly rising shipments from lower-cost and emerging medical device producers.

Top non-EU partners by trade value

Partner	Extra-EU imports 2015 (EUR m)	Extra-EU imports 2025 (EUR m)	Change (%)
China	427.1	1 015.9	**+137.8**
Viet Nam	28.4	207.2	**+630.6**
Mexico	339.0	772.7	**+127.9**
United States	4 065.0	5 519.6	**+35.8**

The concentration of imports fell (HHI from 2 792 to 2 051), and a similar trend is visible in exports, where the HHI dropped from 1 566 to 1 175. The EU's export portfolio has become more balanced, with strong gains in Turkey (+139.1 %), the United Kingdom (+121.8 %), Russia (+136.4 %) and Norway (+100.0 %).

3. Price Shocks and Volatility Reflect Market Realignments and Policy Changes

Beneath the smooth decade-long expansion, several abrupt price adjustments disrupted bilateral trade flows. The volatility data highlight which relationships were most unstable, while the shock detection algorithm pinpoints the largest and most abnormal price movements.

Volatility of trade quantities

Detected price shock events

Entity	Flow	Year	Price shift (%)	Abnormality	Value share (%)
Norway (exports)	exports	2019	+73.6	30.1	1.9
Switzerland (imports)	imports	2018	–14.9	17.4	27.5
Türkiye (exports)	exports	2018	+355.3	12.7	2.2
United Kingdom (imports)	imports	2021	+91.2	7.2	7.2

A dramatic unit price spike in Türkiye reconfigured a major export market

In 2018 the average export price to Türkiye surged by 355 %, from roughly €98 000 per tonne to €444 000 per tonne, while exported volumes collapsed to just 16 % of their previous level. This suggests a structural break – most likely a shift towards much higher-value devices or a change in the product mix following a regulatory shock – that permanently altered the nature of the trade flow.

Brexit triggered a permanent price surge in UK imports of EU orthopaedic goods

Imports from the United Kingdom witnessed a 91.2 % price jump in 2021, with the average unit value climbing from €152 000 to €319 000 per tonne while the quantity dropped from 3 843 tonnes to 1 756 tonnes. The new trade barriers and customs formalities appear to have filtered out lower-value goods, leaving only higher-priced items in the trade stream. The price level subsequently rose further, reaching €508 000 per tonne in 2025, accompanied by a continued decline in volume (–41.2 % vs. 2021).

Other notable episodes include a price drop in Swiss imports and a spike in Norwegian exports

Swiss export prices to the EU fell by 14.9 % in 2018, a sharp one-off movement in an otherwise stable relationship (CV of just 0.15). On the export side, EU unit prices to Norway leapt by 73.6 % in 2019, an abnormality that stands out with an index of 30.1, though the value share of just 1.9 % limits its macroeconomic impact.

The most volatile bilateral flows were EU exports to Canada (CV 1.015, largely due to a one-time volume spike in 2020) and imports from the United Kingdom (CV 0.435), reflecting the upheaval caused by the post-Brexit adjustment.

Conclusion

EU trade in orthopaedic appliances entered a new era over 2015-2025. The bloc’s surplus more than doubled, underpinned by a 42.5 % rise in export unit values. The Netherlands and Ireland solidified their status as pivotal trade hubs, while traditional partners such as Germany and France lost relative weight. Imports became more diversified, with China, Viet Nam and Mexico gaining market share, yet the United States remained the largest single partner by far. Price shocks – notably the post-Brexit restructuring of UK trade and the sudden realignment in Türkiye – revealed the sensitivity of individual channels to regulatory and policy changes. Looking ahead, the EU’s competitiveness will depend on its ability to keep capturing value through innovation and on maintaining the resilience of its highly concentrated gateway hubs.

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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.