EU TRADE EXPLORER

Market evolution: Thermal processing machinery (CN 8419) — 2015–2025

Introduction

This report examines the European Union's extra-EU trade in thermal processing equipment (Commodity Code 8419) over the eleven-year window from 2015 to 2025. The heading covers a broad range of industrial and laboratory machinery – from heat-exchange units and distilling plant to food-processing equipment and non-electric water heaters – as well as parts thereof. Drawing exclusively on the data provided by the EU Trade Dashboard, the analysis highlights the main dynamics in values, volumes, prices, trade partners, member-state specialisation and product segments.

A decade of value appreciation: How unit prices lifted exports and imports despite volume declines

Export value rose 31 % while shipped tonnage contracted, reflecting a strong shift toward high-unit-value equipment

Between 2015 and 2025 the value of EU exports of CN 8419 machinery rose from €8.38 billion to €11.00 billion, a gain of 31.2 %, even peaking at €11.40 billion in 2024. However, the physical quantity exported fell from 497.1 thousand tonnes to 409.8 thousand tonnes (–17.6 %). Consequently, the average unit price (i.e. value per tonne) rose by 59.1 %, from €16 863 to €26 830. This pattern indicates that EU producers are increasingly selling higher-value, more sophisticated capital goods rather than simply expanding volumes.

Indicator	2015	2025	Change
Export value (€ bn)	8.38	11.00	+31.2 %
Export quantity (k t)	497.1	409.8	–17.6 %
Export unit price (€/tonne)	16 863	26 830	+59.1 %

Source: EU trade overview

Import growth of 98 % was fueled by both volume expansion and moderate price increases, partly catching up from a lower base

Imports of CN 8419 products into the EU nearly doubled in value terms, from €2.29 billion in 2015 to €4.54 billion in 2025 (+98.2 %). Imports rose in quantity from 148.6 k t to 238.3 k t (+60.4 %), while the average import price increased by 23.5 %, from €15 424/t to €19 056/t. The combination of strong volume growth and a more moderate price uptick suggests that the EU has been absorbing a wider range of competitively priced equipment, predominantly from Asian suppliers.

Indicator	2015	2025	Change
Import value (€ bn)	2.29	4.54	+98.2 %
Import quantity (k t)	148.6	238.3	+60.4 %
Import unit price (€/tonne)	15 424	19 056	+23.5 %

The EU's trade surplus in this sector therefore remained robust, edging up from €6.09 billion to €6.45 billion (+5.9 %), though the surplus reached a peak of €7.40 billion in 2023 before easing back.

Shifting trade lanes: Geopolitics and partner diversification redefine EU thermal equipment trade

The United States consolidated its position as the top export destination, absorbing one-fifth of EU thermal equipment exports

EU exports to the United States grew from €1.25 billion in 2015 to €2.25 billion in 2025 (+80.3 %), making the US the largest single market with a share of roughly 20 % of extra-EU exports. By contrast, exports to China increased more modestly (+33.6 %) and to the United Kingdom (+45.9 %), while sales to Switzerland (+59.9 %) and Türkiye (+51.8 %) also performed well.

Export partner	Value 2015 (€ mn)	Value 2025 (€ mn)	Change
United States	1 247.2	2 248.3	+80.3 %
China	748.5	1 000.2	+33.6 %
United Kingdom	628.7	917.0	+45.9 %
Switzerland	353.7	565.7	+59.9 %
Türkiye	275.5	418.3	+51.8 %
United Arab Emirates	129.1	259.6	+101.1 %

Source: Top trading partners

Sanctions decimated exports to Russia, while China and the UK posted robust but more moderate growth

The most dramatic shift was the collapse of exports to the Russian Federation, which fell from €661.8 million in 2015 to just €51.7 million in 2025 (–92.2 %). After reaching a high of €1 470 million in 2017, the Russian market virtually disappeared following the imposition of sanctions in 2022, forcing EU manufacturers to redirect their sales. At the same time, exports to the UAE more than doubled, reflecting increased demand from the Middle East, while exports to the United Kingdom stabilised after the initial Brexit uncertainty.

Import sources diversified markedly, with China and Türkiye recording triple-digit percentage increases

On the import side, China strengthened its position as the leading supplier, with deliveries rising from €537.3 million to €1 314.8 million (+144.7 %). Türkiye (+186.9 %), the United Kingdom (+122.1 %), India (+152.9 %) and the United States (+89.1 %) also saw enormous growth. Switzerland, historically a major source, stagnated (–0.0 %). The import concentration (HHI) declined from 1 782 to 1 521 (–14.7 %), indicating that the EU's external sourcing is becoming broader and less dependent on any single partner.

Import partner	Value 2015 (€ mn)	Value 2025 (€ mn)	Change
China	537.3	1 314.8	+144.7 %
Switzerland	627.4	627.2	–0.0 %
Türkiye	71.9	206.3	+186.9 %
United Kingdom	202.6	449.9	+122.1 %
United States	435.0	822.7	+89.1 %
India	51.3	129.6	+152.9 %
Korea, Republic of	53.2	76.8	+44.2 %

Source: Top trading partners

Price shocks in Korea, Iran and the UAE underscore the sector's sensitivity to geopolitical and supply-chain disruptions

The volume-based volatility analysis reveals that Russia (CV 0.67 on export quantity), Korea (CV 0.54 on imports) and Malaysia (CV 1.59 on imports) were among the most erratic trade flows. Specific price-shock events were detected: a 99 % price surge for exports to Korea in 2020 (abnormality 9.6), a 53 % price increase for Iran in 2022 (abnormality 14.0) and a 34 % jump for the UAE in 2022, all accompanied by sharp falls in volumes. On the import side, a 23 % price rise for India in 2022 also qualified as a shock, linked to a sudden jump in quantity. These episodes reflect stress factors such as pandemic-era logistics bottlenecks, sanctions and sudden shifts in industrial demand.

Specialisation patterns and product-segment divergence

Italy, Sweden and Denmark display the strongest revealed comparative advantage within the EU, while smaller service-oriented economies lag

In 2025, the member states most specialised in CN 8419 extra-EU exports (measured by RSCA) were Sweden (0.407), Italy (0.394) and Denmark (0.342). Their RCA coefficients (2.37, 2.30 and 2.04 respectively) confirm a comparative advantage far above the EU average. At the other end, Malta (–0.982), Ireland (–0.911) and Cyprus (–0.831) show virtually no specialisation, reflecting the dominance of other industries in their export baskets.

Member state	RSCA 2025	RCA 2025
Sweden	0.407	2.37
Italy	0.394	2.30
Denmark	0.342	2.04
Finland	0.146	1.34
Hungary	0.120	1.27

Source: Revealed comparative advantage & specialisation

Germany remains the largest exporter by value (€3.27 billion in 2025, +9.6 % vs 2015), followed by Italy (€2.88 billion, +51.5 %) and France (€0.80 billion, +49.3 %). Italy's rapid advance highlights its growing weight in the sector, while Germany's slower growth reflects its already very high base.

Heat-exchange units (CN 841950) are the cornerstone of EU exports and imports, with consistently higher export unit values than imports

Heat-exchange units (excluding boiler-associated ones) dominate both flows. In 2025, they accounted for €2.82 billion of exports and €1.57 billion of imports. The average export price (€24 794/t) substantially exceeded the import price (€19 640/t), underlining the EU's strong position in high-specification equipment.

Product code	2025 export value (€ mn)	2025 export price (€/t)	2025 import price (€/t)
841950 (Heat-exchange units)	2 821.9	24 794	19 640
841989 (Machinery n.e.s.)	2 615.2	29 342	28 735
841990 (Parts)	1 642.2	24 277	14 641
841981 (Food/hot-drink machinery)	1 808.3	40 876	26 421

Source: Product segment comparison

Food-processing machinery and parts show resilient growth, while liquefying gas equipment remains a volatile niche

Machinery for hot drinks or cooking/ heating food (841981) maintained strong export values, reaching €1.81 billion in 2025 with a unit price of €40 876/t, the highest among the major segments. The parts segment (841990) also expanded, with export values up 19.8 % over the period. The niche “machinery for liquefying air or other gases” (841960) exhibited extreme price volatility: export unit values swung from €16 910/t in 2015 to €70 770/t in 2025, reflecting the lumpy, project-based nature of such installations.

Conclusion

Over the 2015–2025 period, the EU’s external trade in thermal processing machinery evolved along two major axes: a strong value-upgrading trend, visible in the 59 % rise in export unit prices, and a geopolitical reorientation that shattered the once-large Russian market while amplifying flows toward the United States and diversifying import sources away from historical suppliers. The EU’s trade surplus remained comfortably above €6 billion, underpinned by the technological edge of member states such as Germany, Italy and specialised Nordic economies. The product-level data confirm that heat-exchange units, food-processing equipment and high-tech machinery n.e.s. are the engines of export success, whereas imports are increasingly composed of lower-priced equipment from China, Türkiye and India. The detected price shocks in Korea, Iran and the UAE serve as reminders that this sector is highly exposed to both supply-chain disruptions and the machinery of economic sanctions, making diversification and innovation central to its future resilience.

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.