TÜRKİYE MACHINE TOOLS AND RELATED EQUIPMENTS

SECTOR REPORT 2024

TİAD

MACHINE TOOLS INDUSTRIALISTS AND BUSINESS ASSOCIATION

PREFACE

Dear Stakeholders,

As the Machine Tools Industrialists' and Business Association (TİAD), we are proud to lead the transformation of Türkiye's industry with machine tools and related technologies at the heart of production. This sector report has been prepared to analyze the present and shed light on the future of the technologies that form the basic building blocks of our manufacturing industry.

Machine tools, which are indispensable production tools for the manufacturing industry, are one of the main factors that determine the value-added production and export power of our country, together with many complementary elements such as tools, clamping systems, metrology and quality control equipment, production technology software, robots, automation systems, additive manufacturing technologies. As TİAD, we represent the sector with a holistic approach by bringing together industrialists and business people operating in this ecosystem; we ensure that our members are represented in the best way possible on domestic and international platforms.

Our industry not only supports production, but also contributes to Türkiye's manufacturing economy with a strong multiplier effect. In 2024, the total export value of strategic sectors such as automotive, defense, aerospace, medical, white goods, shipbuilding, railway, machinery-equipment, molding and metal goods, where machine tools are used extensively, was 85 billion USD. The export value created by the direct contribution of machine tools in these sectors was USD 28 billion. In other words, each machine tool introduced to our industry in 2024 created an export potential 15.6 times its own value on an annual basis.

This multiplier effect clearly demonstrates the strategic importance of the machine tools sector for our country. It is of vital importance to support our sector in order to improve our domestic production capabilities, strengthen our high value-added production structure through technology transfer and increase our competitiveness in international markets.

We sincerely believe that this report, which we have prepared in order to evaluate the data about the sector today and to create a healthy vision for its future, will contribute to the establishment of a stronger cooperation environment between public authorities, private sector representatives and educational institutions. I would like to take this opportunity to thank all our stakeholders and the TIAD family for their contributions, and to state that we will continue to work together for new breakthroughs that will add value to our industry and our country.

Murat AKYÜZ
Chairman of the Board of Directors
Machine Tools Industrialists and Business Association (TİAD)

PRESENTATION AND ANALYSIS

This report has been prepared to comprehensively analyze the machine tools sector, which is the cornerstone of Turkish industry. As one of the most strategic components of the production infrastructure, machine tools create a strong multiplier effect in the economic development process by being a basic investment good and directly affecting the production capabilities of the sectors they serve. The fact that every product produced in industry is either produced directly with a machine tool or through a machine or mold manufactured using a machine tool clearly demonstrates why this sector is in a strategic position. Machine tools form the basis of production in many sectors from automotive to defense industry, from medical technologies to white goods, from shipbuilding to molding. For this reason, machine tools are considered as a sub-sector of special importance within the machinery manufacturing industry.

In 2024, the direct contribution of the machine tools sector to Türkiye's exports amounted to USD 28 billion, once again demonstrating the potential of the sector in terms of production and export capacity. However, the sector has faced many structural and cyclical challenges in recent years. Developments such as additional customs duties, the exclusion of some types of machinery from the scope of support in investment incentive projects, high credit costs, exchange rate pressure, ruptures in the global supply chain, US-China trade tensions and the Russia-Ukraine war have dragged the actors in the sector into a tough competitive environment.

Country-based import data for the last five years show that the trend towards cheaper investment goods has increased during this period. Machine tool imports from China increased by 239%, followed by 59% from Germany, 65% from Japan, 44% from Italy and 5% from Taiwan. Protective foreign trade measures were not supported by long-term and macro-scale strategies, which did not have the desired effect. This situation reveals that firms are oriented towards short-term cost advantages rather than long-term investments.

In this report, published in June 2025, in addition to the general outlook of the Turkish economy and manufacturing industry, the main indicators of the machine tools sector such as production, employment, exports, imports and domestic market dynamics are analyzed in detail. The report covers only machine tools for metalworking and shaping and their complementary equipment. In the analysis process, information obtained from reliable national and international data sources such as Turkish Statistical Institute (TURKSTAT), Central Bank of Türkiye, World Government Bonds, Gardner Intelligence, Fortune Business and VDW were used. I hope that this study will provide a valuable reference for the public, private sector and academia to better understand the machine tools sector and contribute to the creation of strategic road maps for the sector.

Samet Burçin AYDOĞMUŞ
Deputy Secretary General
Machine Tools Industrialists and Business Association (TİAD)

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1. GENERAL ECONOMIC ASSESSMENT FOR 2024

For the global economy, 2024 was a period characterized by uncertainties, the search for transformation and structural challenges. Overshadowed by the geopolitical tensions and economic vulnerabilities of the last decade, this year was a transitional period in which the global economy continued its efforts to reach a new equilibrium but has yet to stabilize.

Sustainability and digital transformation have become a necessity rather than a choice. Both public policies and private sector strategies have started to transform these topics into concrete action plans. Reducing carbon footprint, energy efficiency and digital infrastructure investments stood out as the key components of this transformation.

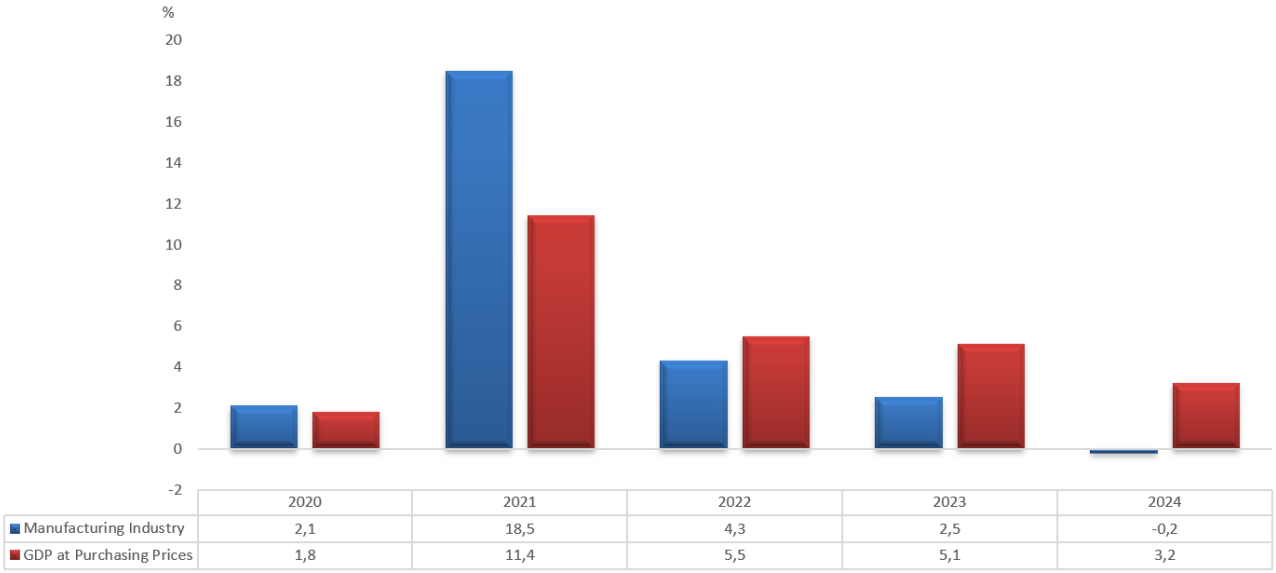
The fight against high inflation, which started in 2022 and deepened in 2023, continued under the shadow of tight monetary policies throughout 2024. The decisive stance of central banks in advanced economies achieved a certain progress in terms of price stability. However, the pressures of this tightening on growth and employment were offset by gradual interest rate cuts in the second half of the year.

As for the Turkish economy, the rational economic policies adopted after the 2023 elections were resolutely pursued throughout 2024. Steps were taken towards balanced growth within the framework of these policies, which pursued price stability, fiscal discipline and external balance. However, in the disinflation process, rigid price behavior in services items and the resistance in expectations caused the disinflation process to proceed more gradually than expected.

The new global dynamics that started to take shape at the end of 2024 stand out as strategic determinants for 2025. The reacceleration of protectionist tendencies with the start of the second Trump era in the US has the potential to create new balances in world trade. The European Union's structural reforms aimed at increasing its global competitiveness and the Border Carbon Regulation Mechanism, which will enter into force in 2026, make 2025 a year of transition. This will be a period requiring strategic adaptation and preparation, especially for companies exporting to Europe.

Digitalization and technological transformation will continue to be among the top priorities on the agenda of the global economy in 2025. The effects of these transformations on production, supply chain and labor force structures will be among the developments that need to be carefully monitored, especially in Asian economies.

From Türkiye's perspective, in the transition to 2025, the risks as well as the opportunities that global developments will create need to be carefully managed. In this framework, a period is envisaged in which traditional economic policies aimed at ensuring macroeconomic stability will be maintained, while the steps taken in the areas of green transformation, digitalization and social development will continue with increasing momentum.



	2020	2021	2022	2023	2024
Manufacturing Industry	2,1	18,5	4,3	2,5	-0,2
GDP at Purchasing Prices	1,8	11,4	5,5	5,1	3,2

Source: TURKSTAT

Chart 1: Average Growth Rate of Gross Domestic Product

# Percentage Distribution	2022	2023	2024
Consumption by resident households	57,0	59,1	59,2
Consumption by non-profit organizations serving households	0,3	0,3	0,3
Government final consumption expenditures	11,7	13,1	14,7
Gross fixed capital formation	29,2	31,9	31,0
Changes in stock	5,9	-1,9	-5,5
Balance of foreign trade og goods and services	-4,0	-2,4	0,3

Source: TURKSTAT

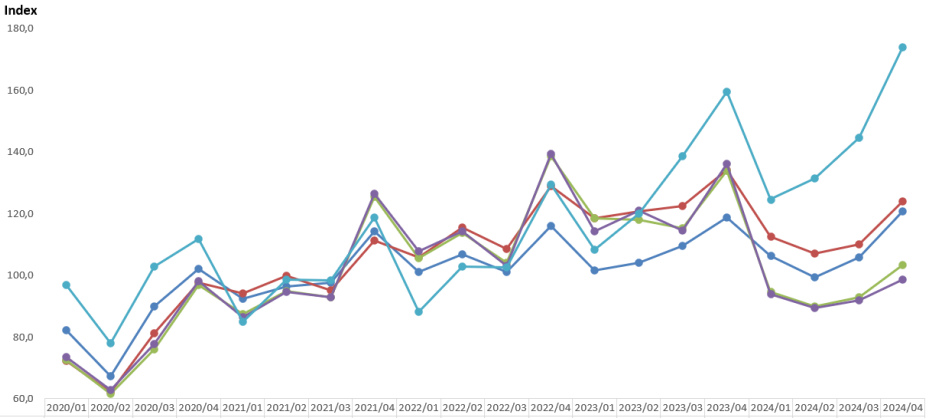
Chart 2: Distribution of GDP

In terms of Gross Domestic Product (GDP) at constant prices, the Turkish economy's growth performance in 2024 was limited and, as in the previous year, growth was largely driven by the services sector and financial activities. While GDP increasedby 3.2% throughout the year, the manufacturing industry, the backbone of industrial production, continued to sound the alarm, contracting by 0.2%.

Gross Fixed Capital Formation (GFCF), which includes the machine tools and machinery manufacturing sectors, showed a more pronounced decline, contracting by 0.9%. This indicates that investments to increase and renew production capacity continued to lose momentum and a cautious approach prevailed, especially in machinery-equipment investments.

2. GENERAL SITUATION OF THE SECTOR

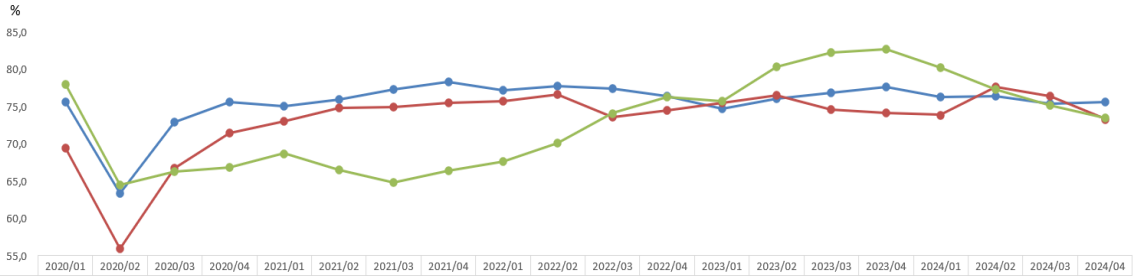
2.1. Efficiency and Costs in the Sector



	2020/01	2020/02	2020/03	2020/04	2021/01	2021/02	2021/03	2021/04	2022/01	2022/02	2022/03	2022/04	2023/01	2023/02	2023/03	2023/04	2024/01	2024/02	2024/03	2024/04
C - Manufacturing	82,1	67,2	89,7	101,9	92,2	96,3	97,5	114,0	101,0	106,7	100,9	115,9	101,5	104,0	109,4	118,6	106,2	99,3	105,7	120,7
28 - Machinery and Equipment Manufacturing	72,1	61,9	81,0	97,5	94,1	99,8	95,0	111,1	105,6	115,3	108,4	128,8	118,3	120,5	122,3	134,0	112,4	106,9	110,0	123,9
28.4 - Metal Processing Machinery and Machine Tools Manufacturing	72,4	61,4	75,8	96,7	87,3	94,7	92,6	125,3	105,4	113,5	103,9	138,5	118,3	117,8	115,0	133,6	94,5	89,8	92,7	103,3
28.41 - Metal Processing Machinery Manufacturing	73,4	62,6	77,6	98,0	86,3	94,6	92,8	126,4	107,6	114,1	103,0	139,3	114,2	120,9	114,4	136,0	93,7	89,2	91,8	98,4
33 - Installation and Repair of Machinery and Equipment	96,7	77,9	102,6	111,7	84,7	98,5	98,1	118,6	88,1	102,7	102,5	129,4	108,2	119,8	138,4	159,3	124,4	131,4	144,5	173,7

Source: TURKSTAT

Chart 3: Industrial Production Index

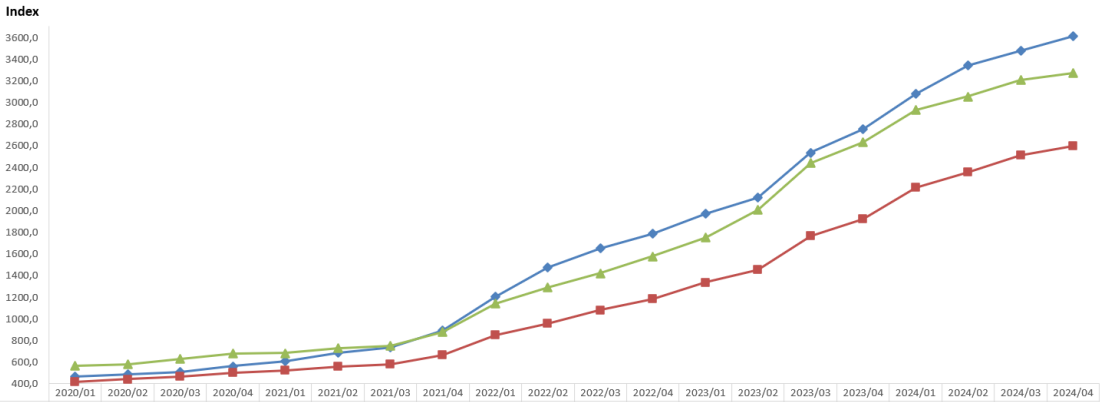


	2020/01	2020/02	2020/03	2020/04	2021/01	2021/02	2021/03	2021/04	2022/01	2022/02	2022/03	2022/04	2023/01	2023/02	2023/03	2023/04	2024/01	2024/02	2024/03	2024/04
C - Manufacturing	75,6	63,4	72,9	75,6	75,0	75,9	77,3	78,3	77,2	77,8	77,4	76,4	74,7	76,1	76,8	77,6	76,3	76,4	75,4	75,6
28 - Machinery and Equipment Manufacturing	69,4	56,0	66,7	71,5	73,0	74,8	74,9	75,5	75,7	76,6	73,6	74,5	75,5	76,5	74,7	74,2	73,9	77,7	76,4	73,3
33 - Installation and Repair of Machinery and Equipment	78,0	64,5	66,3	66,9	68,7	66,5	64,8	66,4	67,6	70,1	74,1	76,3	75,8	80,3	82,2	82,7	80,2	77,3	75,1	73,4

Source: Central Bank of the Republic of Türkiye

Chart 4: Manufacturing Industry Capacity Utilization Rate

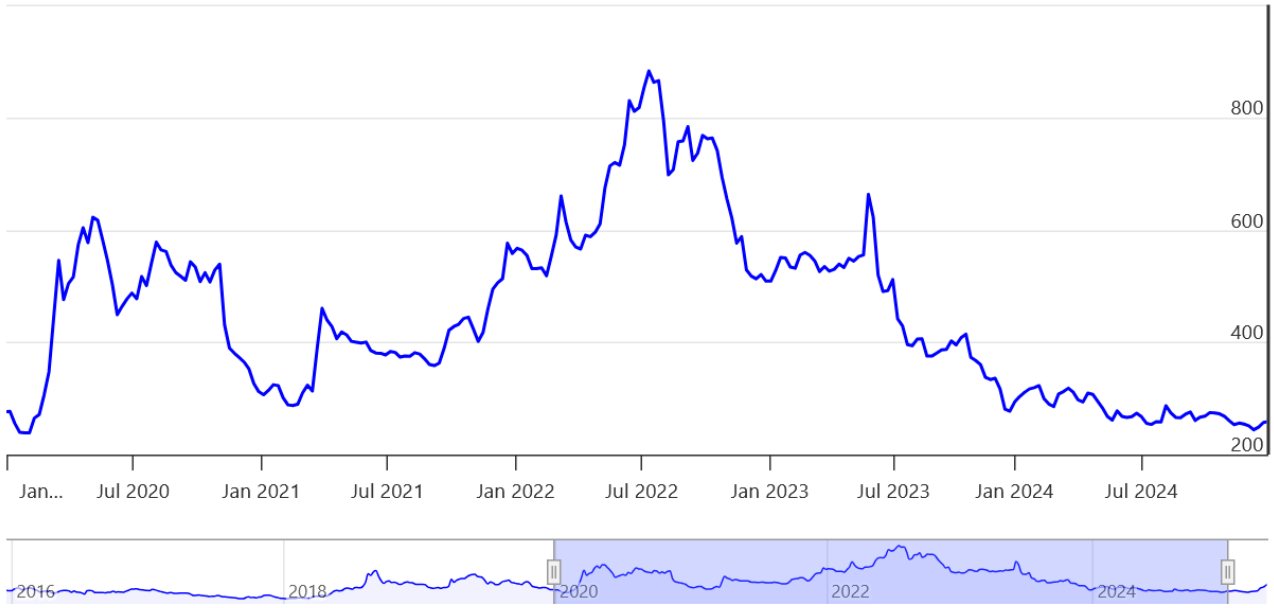
In light of the data for the last five years, it is observed that capacity utilization rates in the general manufacturing industry and in the manufacture of machinery and equipment and their installation and repair have followed a flat course since the beginning of 2021. This stagnation shows that the sector has not achieved a real growth momentum and has not reached its potential production level. In order to achieve a visible improvement in the manufacturing industry and increase social welfare by achieving a permanent increase in Gross Domestic Product (GDP), capacity utilization rates need to be increased to at least 80-85%, as in developed and developing countries. Achieving this goal is only possible through an industry-oriented growth strategy. To this end, it is of utmost importance to implement structural reforms that will increase production capability and strengthen the investment environment.



	2020/01	2020/02	2020/03	2020/04	2021/01	2021/02	2021/03	2021/04	2022/01	2022/02	2022/03	2022/04	2023/01	2023/02	2023/03	2023/04	2024/01	2024/02	2024/03	2024/04
C - Manufacturing	464,0	480,4	503,9	558,1	606,3	681,1	733,6	888,6	1202,9	1471,3	1650,5	1786,5	1965,78	2120,307	2532,81	2748,303	3076,787	3341,723	3473,733	3610,52
28 - Machinery and Equipment Manufacturing	413,3	437,0	463,2	498,5	519,0	553,1	573,5	662,6	847,0	951,9	1076,4	1177,8	1332,213	1448,697	1760,773	1921,003	2212,62	2352,99	2507,043	2597,327
28.4 - Metal Processing Machinery and Machine Tools Manufacturing	561,1	572,8	626,3	675,1	678,5	724,5	747,4	871,2	1135,3	1288,6	1417,3	1574,0	1744,997	2005,74	2439,163	2627,977	2929,473	3051,7	3204,977	3268,1

Source: TURKSTAT

Chart 5: Domestic Producer Price Index (D-PPI)



Source: World Government Bonds

Chart 6: Türkiye CDS Score

In 2024, the Domestic Producer Price Index (D-PPI) in the Metal Working Machinery Manufacturing (NACE Rev.2 - 28.4) sub-sector increased by 24.3% compared to the previous year. This increase was 26% higher than the average price increases in the overall machinery and equipment manufacturing industry, clearly demonstrating the cost pressure faced by the sector.

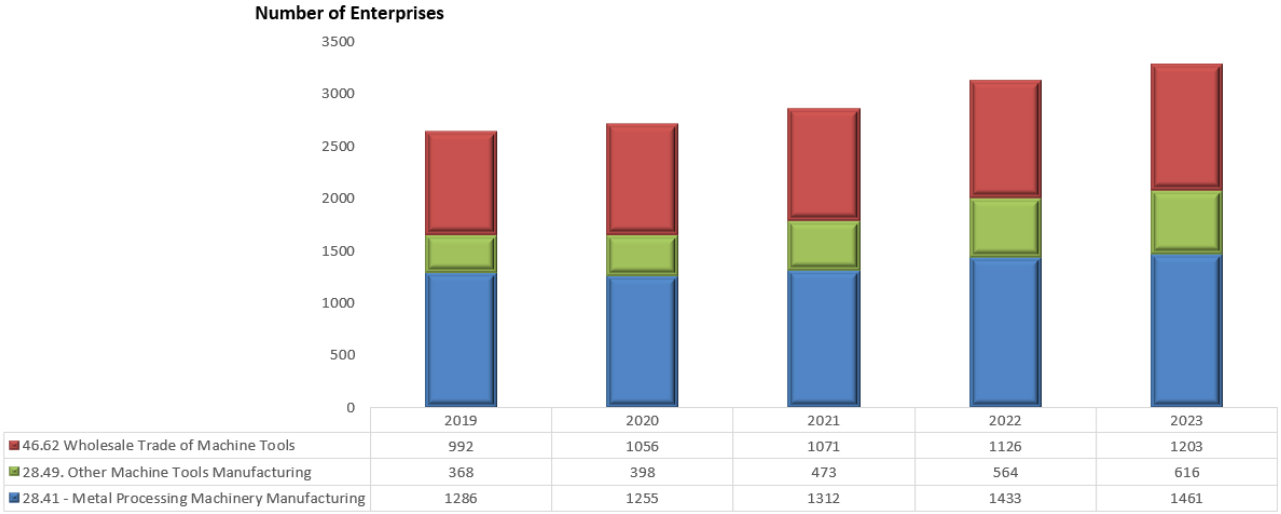
This development reflects the unpredictable impact of inflationary pressures on fixed operating expenses, as well as the rise in the prices of raw materials and intermediate inputs, particularly those denominated in foreign currency. Another factor pushing up production costs is productivity losses due to stagnant capacity

utilization rates. When all these factors come together, it is clear that current economic policies have had a limited impact on the fight against inflation.

On the other hand, the burden on producers also remains on the financing side. Although Türkiye's risk premium (CDS) has gradually declined since June 2023, the CDS rate, which stood at 258.6 points at the end of 2024, still requires an average risk premium of 2.6% to access foreign currency loans. This shows that the costs incurred by producers in terms of investment financing are not only limited to production inputs, but also continue to be burdened by financing.

2.2. Structural Situation in Enterprises

2.2.1. Number of Enterprises



	2019	2020	2021	2022	2023
46.62 Wholesale Trade of Machine Tools	992	1056	1071	1126	1203
28.49. Other Machine Tools Manufacturing	368	398	473	564	616
28.41 - Metal Processing Machinery Manufacturing	1286	1255	1312	1433	1461

Source: TURKSTAT

Graph 7: Number of Enterprises in the Sector

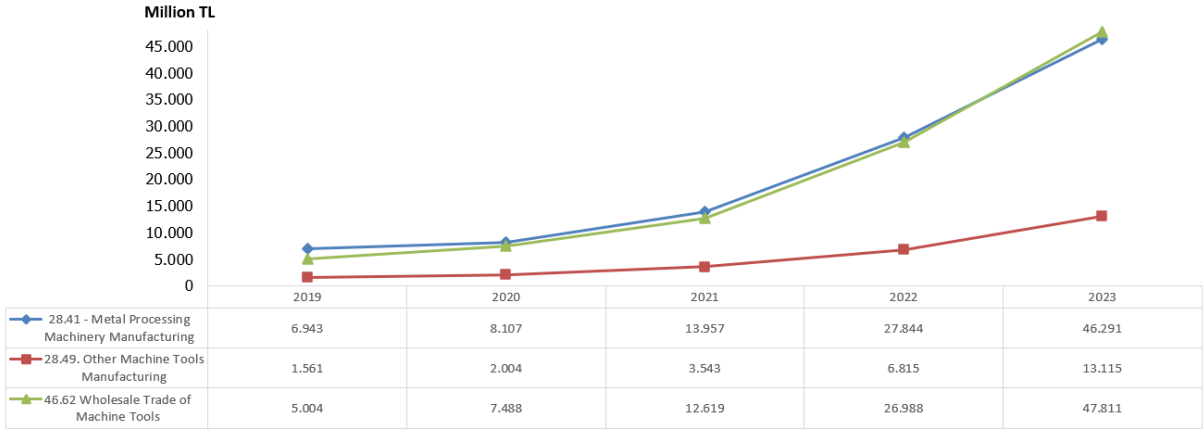
Companies operating in the machine tools sector are analyzed holistically across the entire value chain, including not only production but also technology supply and after-sales services. In the five-year period covering the 2019-2023 period, there has been a noticeable increase in the number of companies in the sector.

While 2,464 companies were operating in the sector in 2019, this number increased to 3,280 by 2023. Forecasts for 2024 indicate that the number of companies in the sector has reached approximately 3,500. This growth is a natural reflection of the Turkish industry's growing need for high-tech production tools and automation systems. The digitalization of manufacturing processes and the need for efficiency and quality-oriented transformation have led to an increase not only in the number of machine tool manufacturing companies, but also in the number and quality of companies specializing in technology supply, engineering services and after-sales technical support. In the coming period, the sector is expected to become more

structurally specialized and new business models and collaborations that will increase its competitiveness on a global scale will come to the fore.

2.2.2. Turnover, Production Value and Value Added

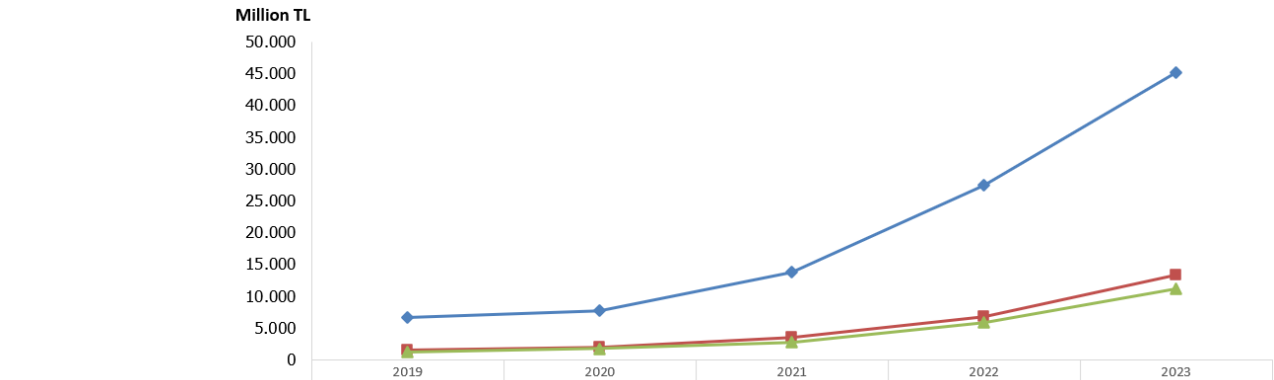
The main sub-sectors of the machine tools sector, namely manufacture of metalworking machines (NACE 28.41), manufacture of other machine tools (NACE 28.49) and wholesale trade of machine tools (NACE 46.62), were analyzed comparatively in terms of turnover, production value and value added generation capacity. In terms of the direct contribution of the investment to the economy, the highest value added was realized in the metalworking machinery manufacturing sub-sector. This sub-sector stands out in terms of both engineering intensity in production processes and technology content, which leads to higher value added compared to other sub-sectors. Therefore, in line with the objective of high value-added production, it is critical to prioritize investments in this area in terms of both public policies and private sector strategies.



	2019	2020	2021	2022	2023
28.41 - Metal Processing Machinery Manufacturing	6.943	8.107	13.957	27.844	46.291
28.49. Other Machine Tools Manufacturing	1.561	2.004	3.543	6.815	13.115
46.62 Wholesale Trade of Machine Tools	5.004	7.488	12.619	26.988	47.811

Source: TURKSTAT

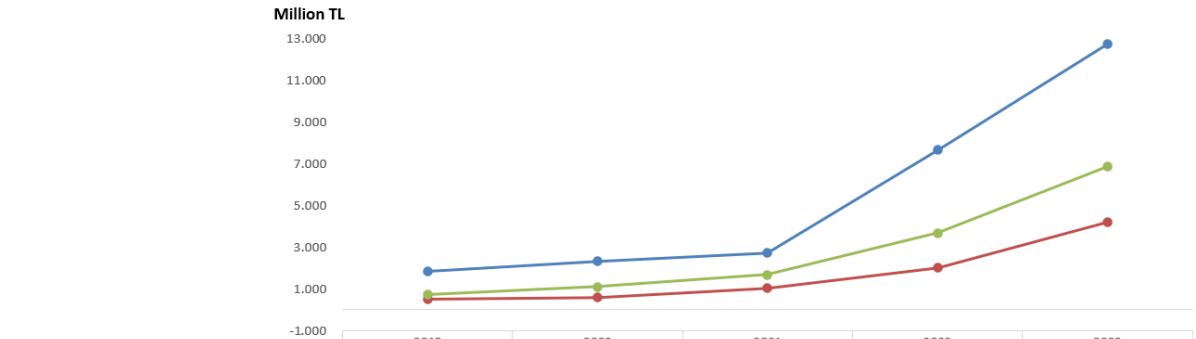
Chart 8: Annual Turnover of the Sector (Million TL)



	2019	2020	2021	2022	2023
28.41 - Metal Processing Machinery Manufacturing	6.557	7.633	13.750	27.351	45.092
28.49. Other Machine Tools Manufacturing	1.550	1.923	3.525	6.790	13.301
46.62 Wholesale Trade of Machine Tools	1.235	1.705	2.656	5.841	11.123

Source: TURKSTAT

Graph 9: Annual Production Value of the Sector (Million TL)

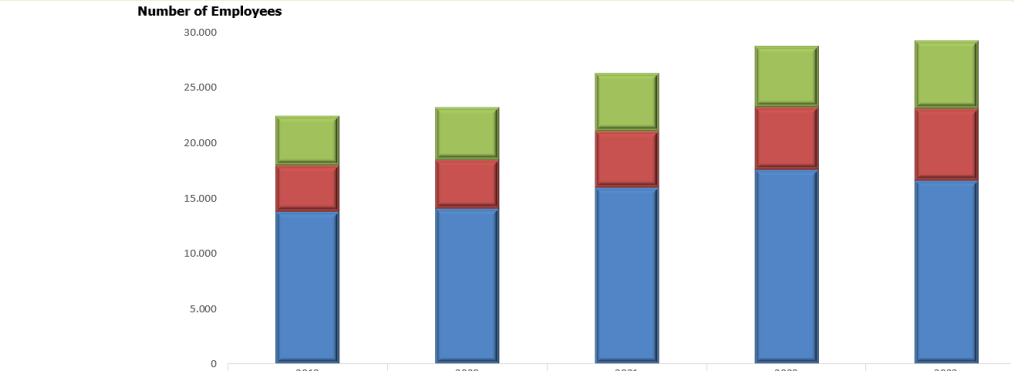


	2019	2020	2021	2022	2023
28.41 - Metal Processing Machinery Manufacturing	1.816	2.310	2.728	7.637	12.713
28.49. Other Machine Tools Manufacturing	505	582	1.021	2.009	4.206
46.62 Wholesale Trade of Machine Tools	707	1.088	1.669	3.663	6.865

Source: TURKSTAT

Graph 10: Sector's Value Added at Factor Cost (Million TL)

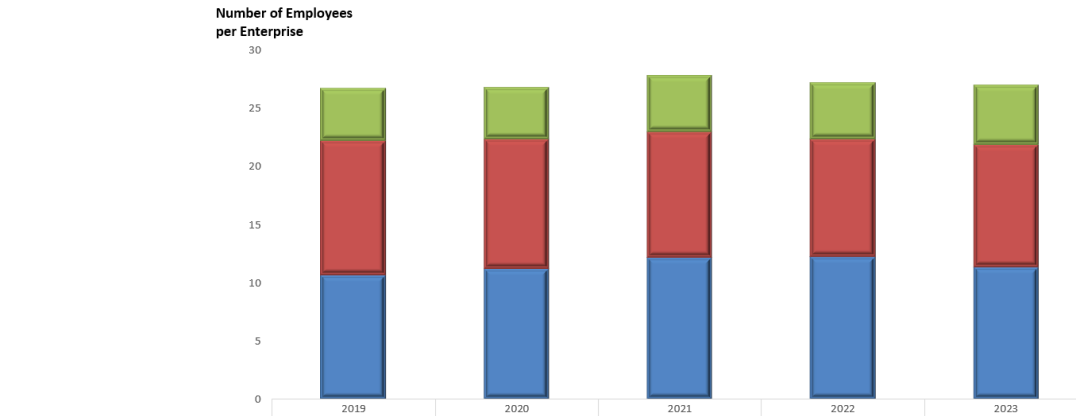
2.2.3. Developments in Employment



	2019	2020	2021	2022	2023
46.62 Wholesale Trade of Machine Tools	4.488	4.736	5.204	5.486	6.155
28.49. Other Machine Tools Manufacturing	4.236	4.420	5.127	5.703	6.493
28.41 - Metal Processing Machinery Manufacturing	13.732	14.057	15.929	17.523	16.589

Source: TURKSTAT

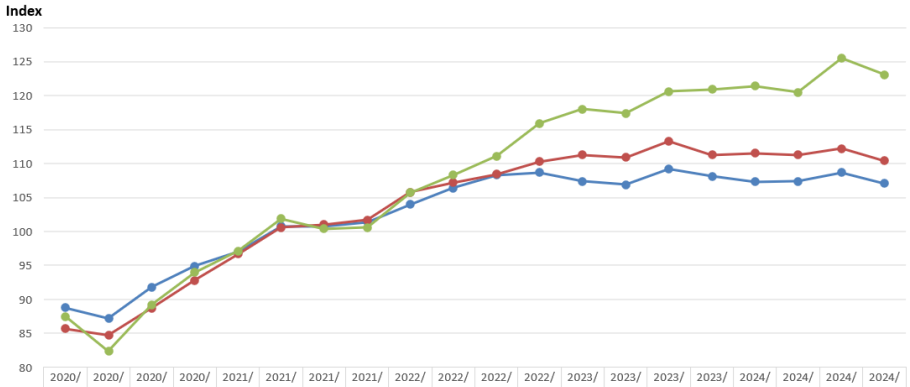
Graph 11: Number of Employees in the Sector



	2019	2020	2021	2022	2023
46.62 Wholesale Trade of Machine Tools	4,5	4,5	4,9	4,9	5,1
28.49. Other Machine Tools Manufacturing	11,5	11,1	10,8	10,1	10,5
28.41 - Metal Processing Machinery Manufacturing	10,7	11,2	12,1	12,2	11,4

Source: TURKSTAT

Graph 12: Number of Employees per Enterprise in the Sector



	2020/01	2020/02	2020/03	2020/04	2021/01	2021/02	2021/03	2021/04	2022/01	2022/02	2022/03	2022/04	2023/01	2023/02	2023/03	2023/04	2024/01	2024/02	2024/03	2024/04
C - Manufacturing	88,8	87,2	91,8	94,9	97	100,8	100,8	101,4	104	106,4	108,3	108,7	107,4	106,9	109,2	108,1	107,3	107,4	108,7	107,1
28 - Machinery and Equipment Manufacturing	85,7	84,7	88,7	92,8	96,7	100,6	101	101,7	105,8	107,2	108,4	110,3	111,3	110,9	113,3	111,3	111,5	111,3	112,2	110,4
33 - Installation and Repair of Machinery and Equipment	87,5	82,4	89,2	94	97,1	101,9	100,4	100,6	105,7	108,3	111,1	115,9	118	117,4	120,6	120,9	121,4	120,5	125,5	123,1

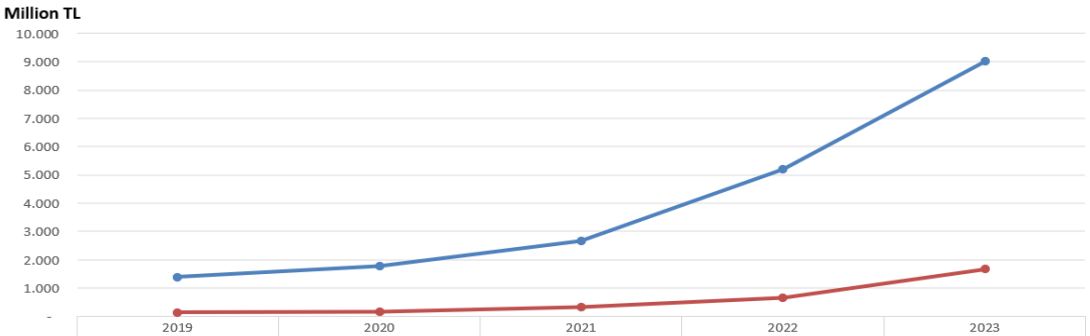
Source: TURKSTAT

Chart 13: Employment Index

The machine tools sector, which includes the sub-sectors of metalworking machinery manufacturing, other machine tools manufacturing and wholesale trade of machine tools, shows a limited growth in terms of firm and employment data for the 2019-2023 period. In the five- year period, both the number of firms and the total number of employees increased gradually but at low rates, while there was no significant increase in the number of employees per enterprise across the sector. This shows that a significant portion of firms in the sector are still in the micro-scale enterprise category and that institutional scaling has not been realized sufficiently.

The data point to the necessity of structural steps to increase the size of enterprises and encourage qualified employment in order to sustain high value-added and technology-intensive production in the machine tools sector.

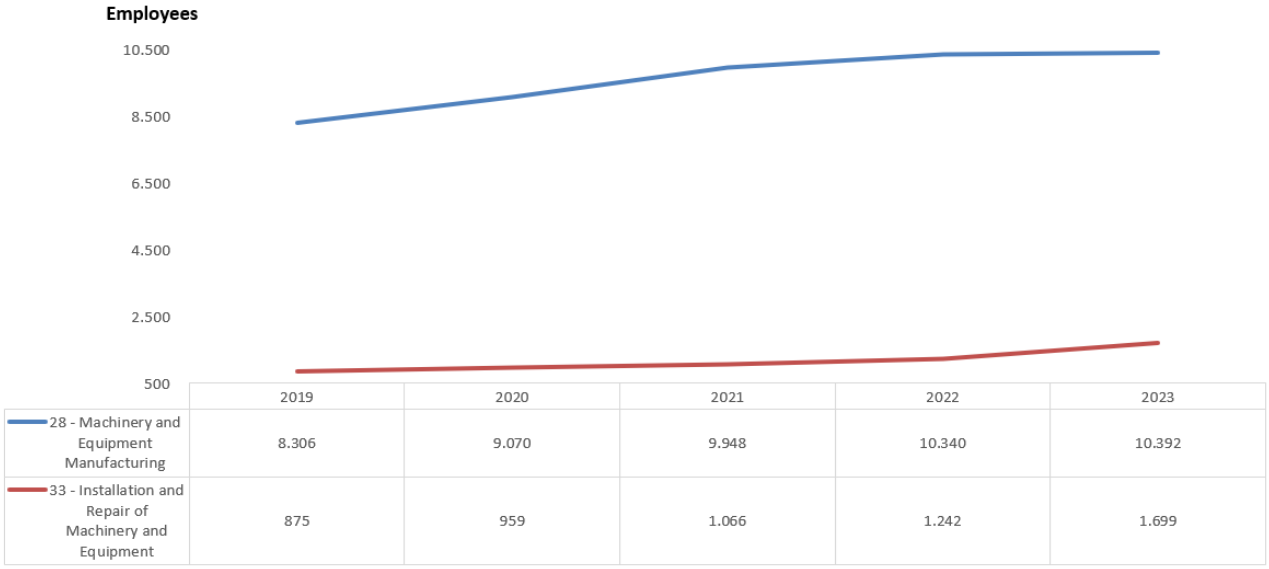
2.2.4. R&D Activities in the Sector



	2019	2020	2021	2022	2023
28 - Machinery and Equipment Manufacturing	1.393	1.772	2.670	5.195	9.010
33 - Installation and Repair of Machinery and Equipment	149	161	319	655	1.674

Source: TURKSTAT

Chart 14: R&D Expenditures in Machinery Manufacturing (28) and Maintenance and Repair (33)



	2019	2020	2021	2022	2023
28 - Machinery and Equipment Manufacturing	8.306	9.070	9.948	10.340	10.392
33 - Installation and Repair of Machinery and Equipment	875	959	1.066	1.242	1.699

Source: TURKSTAT

Chart 15: R&D Labor Force in Machinery Manufacturing (28) and Maintenance and Repair (33)

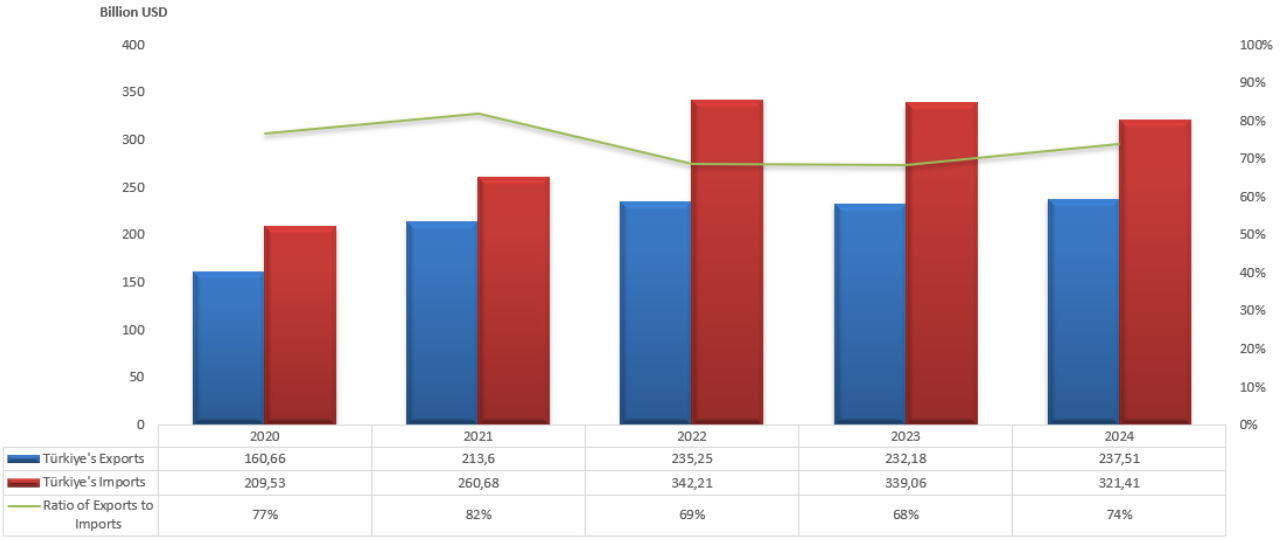
An analysis of R&D expenditures and the number of personnel employed in the machine tools sector over the last five years reveals no significant structural change in the overall picture. Although nominal data point to a remarkable increase in R&D expenditures in 2023, it is understood that this increase is largely due to the inflation-induced price effect and that no significant growth has been realized in real terms.

As of the same year, the total number of employees working in R&D in the sector was recorded as 12,091. This figure reveals the need for a stronger R&D infrastructure for the transition to high-tech production and the development of innovation capability.

In order for the sector to increase its global competitiveness and have a say in advanced production technologies, the need for strategic transformation continues, not only in terms of expenditure amounts, but also in terms of qualified human resources and sustainable R&D capacity.

3. PRODUCTION AND FOREIGN TRADE OF MACHINE TOOLS IN TÜRKİYE

3.1. Status of Machine Tools in Türkiye's Foreign Trade



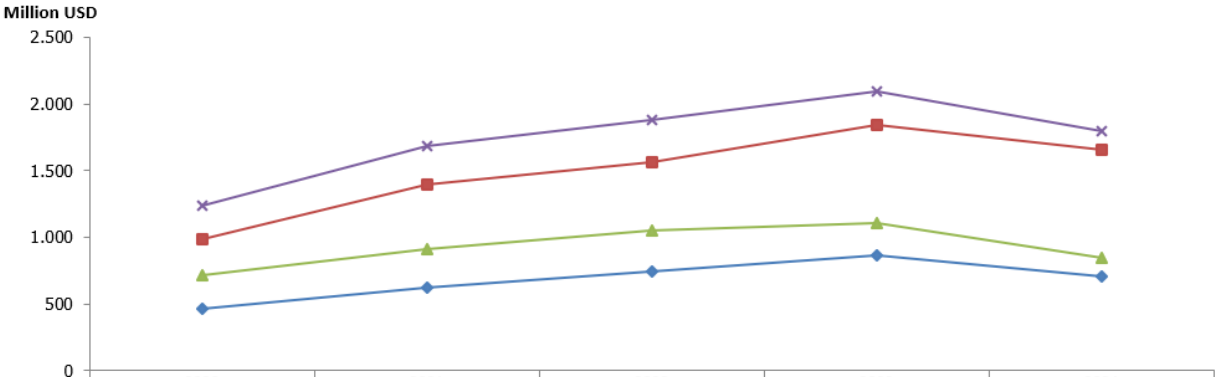
	2020	2021	2022	2023	2024
Türkiye's Exports	160,66	213,6	235,25	232,18	237,51
Türkiye's Imports	209,53	260,68	342,21	339,06	321,41
Ratio of Exports to Imports	77%	82%	69%	68%	74%

Source: TURKSTAT

Chart 16: Türkiye's Foreign Trade

In 2024, Türkiye's total exports increased by 2.3% year-on-year to USD 237.5 billion. In the same period, imports declined by 5.2% to USD 321.4 billion. While these developments point to a relative improvement in the foreign trade deficit, they also contain remarkable signals, especially for industry-oriented sectors.

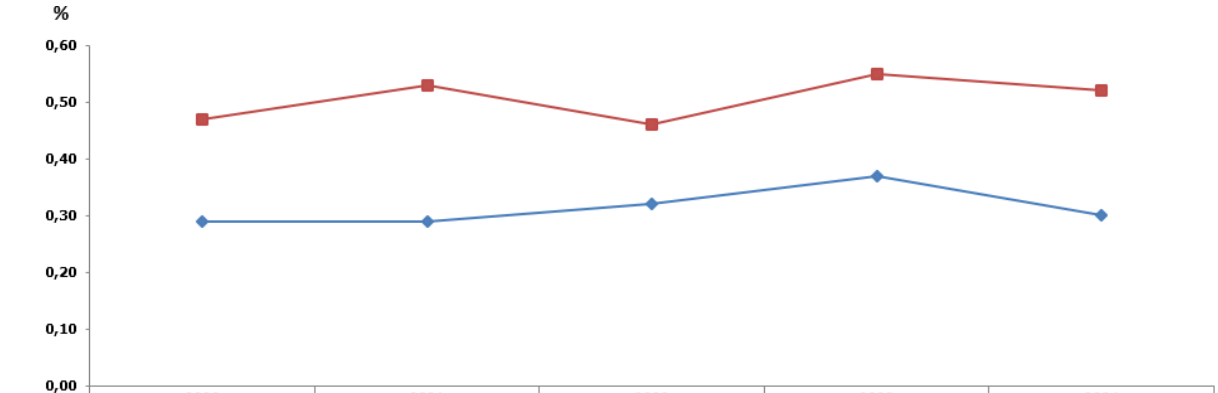
As a result of localization policies, the ratio of exports to imports increased from 65% in 2014 to 74% by 2024. This indicates an increase in domestic production capacity, especially in intermediate and investment goods, and a partial decrease in the external dependence of technology-based sectors. However, high-tech and capital-intensive sectors such as machine tools face some risks in the upcoming period. Digital transformation processes, increasing demand for automation infrastructures and carbon-neutral production targets are considered as potential factors that may increase import dependency again. In this framework, it is critical to ensure a sustainable localization momentum in the sector and to develop production capacity compatible with technological transformation.



	2020	2021	2022	2023	2024
Export	461	622	744	862	711
Import	986	1.394	1.567	1.848	1.655
Production	716	915	1.053	1.105	849
Consumption	1.241	1.686	1.877	2.092	1.794

Source: TURKSTAT

Chart 17: Türkiye's Machine Tool Production, Foreign Trade and Domestic Market Sales



	2020	2021	2022	2023	2024
Export Share	0,29	0,29	0,32	0,37	0,3
Import Share	0,47	0,53	0,46	0,55	0,52

Source: TURKSTAT

Chart 18: Share of Machine Tools in Türkiye's Foreign Trade

Following the 2009 global recession, Turkish machine tool exports have shown a long-term growth trend. In 2018, exports stood at USD 584 million, and by 2024, despite various global and regional challenges, they amounted to USD 711 million. Although this figure represents a decline from the previous year, it remains positive in terms of historical trend.

The machine tools sector is still heavily dependent on technology transfer due to its high technology and precision production requirements. Although its share in Türkiye's total export and import figures may seem limited, the multiplier effect created by the sector is remarkable. In 2024, machine tools supported production processes in many strategic sectors, particularly in the aerospace, defense, automotive, white goods, medical and molding industries, and thus contributed to indirect exports worth approximately USD 28 billion. As of 2024, each machine tool in use generated exports 15.6 times its own value.

In 2024, production in machine tools on a value basis decreased by 23.2% compared to the previous year to 849 Million Dollars, exports 710.6 million USD, down 17.5%, imports down 10.4% to 1.66 billion USD and domestic sales (utilization) down 14.2% to 1.79 billion USD. While these indicators reveal that the sector is in a contractionary trend in general, it is assessed that the contraction is directly related to global economic uncertainties, cost pressures and slowing investment appetite.

In 2024, CNC machining centers, CNC lathes and CNC grinding machines accounted for around 55% of investment imports. These segments reflect the growing impact of digitalization and automation in industrial production. Notably, imports in the presses segment, where Türkiye is strong in production and exports, increased by 16.4%, raising questions about its competitiveness in the domestic market.

As usual, guillotine, punch, press brake, other presses and pipe bending machines stood out in our exports. However, while presses and tube bending machines accounted for 70% of total exports, the lowest export value per kg (USD 7.32/kg) also belongs to this product group. This draws attention to the high volume but low value-added export structure.

When we evaluate the machine tools and complementary equipment sector as a whole as the sum of machine tools, cutting tools, holding tools, measuring and quality control equipment and other related machinery, the size of the sector decreased by 11.3% to 1.23 billion USD on export basis and by 9.2% to 3.11 billion USD on import basis in 2024.

In light of these data, the machine tools sector maintains its strategic importance in Türkiye's industrial policies, and structural steps are needed both to increase production competencies to meet domestic market demand and to develop exports of high value-added products.

3.2. Current Situation in Foreign Trade of Machine Tools

3.2.1. Exports in Machine Tools

As of 2024, the average kilogram unit value of Türkiye's overall machinery and components exports was USD 7.5 per kilogram, while this value reached USD 9.2 in the machine tools sector. This shows that the sector is able to produce higher value-added products compared to overall machinery exports. However, press machines, which account for 62.6% of Türkiye's machine tool exports, have a unit value of only USD 7.32 per kilogram, below the sector average. This situation reveals that despite its high export volume, the press group is dominated by a low value-added product structure.

On the other hand, although more limited in terms of quantity, the export value per kilogram is well above the average in product groups with advanced technology for precision manufacturing such as CNC machining

centers and CNC lathes. The value per kilogram of CNC machining center exports was 32 USD, while the value per kilogram of CNC lathe exports was 21 USD.

These data clearly show that high-tech products generate more revenue in exports. Therefore, increasing technology-intensive production in Türkiye's machine tools sector stands out as one of the most critical strategic areas that will contribute positively to the sector's foreign trade balance and economic added value creation.

PRODUCT TYPE	HS	2023	2024	Change
Electro Erosion, Laser, Water Jet Machines	8456	113.361.743	76.173.821	-32,80%
Machining Centers, Transfer Machines	8457	28.232.538	37.094.112	31,39%
Lathe Machines	8458	25.575.312	23.879.201	-6,63%
Milling, Drilling, Threading/Screwing Machines	8459	18.048.265	9.223.469	-48,90%
Grinding, Tool Sharpening, etc. Machines	8460	26.160.620	22.915.105	-12,41%
Gear Cutting/Grinding, Sawing Machines	8461	49.207.638	55.723.226	13,24%
Presses, Guillotine, Punch, Press Brake Machines	8462	562.158.222	444.675.049	-20,90%
Pipe/Wire Bending, Threading Machines	8463	39.069.379	40.897.954	4,68%
General Total		**861.813.717**	**710.581.937**	**-17,55%**

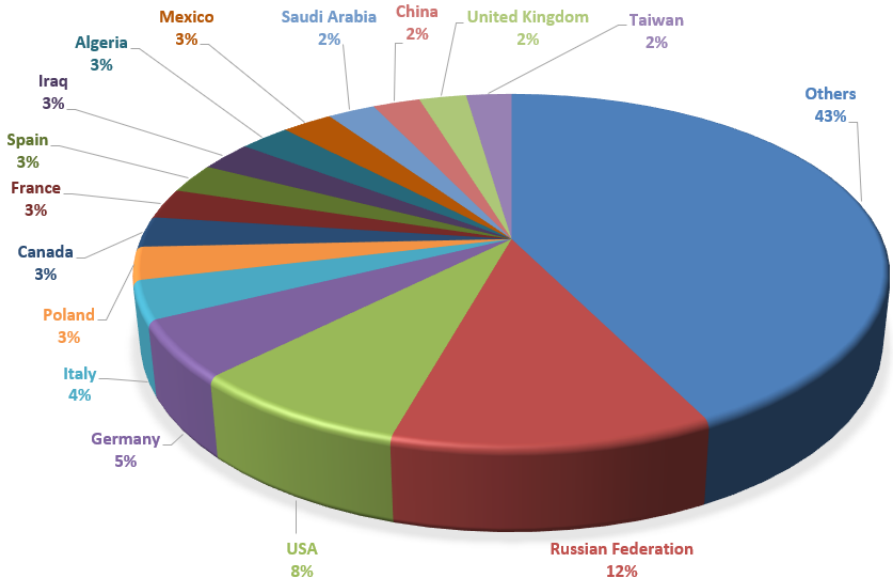
Source: TURKSTAT

Chart 19: Exports of Machine Tools by Value (USD)

PRODUCT TYPE	HS	2023	2024	Değişim
Electro Erosion, Laser, Water Jet Machines	8456	16,98	17,06	0,47%
Machining Centers, Transfer Machines	8457	16,78	31,87	89,93%
Lathe Machines	8458	15,55	21,18	36,21%
Milling, Drilling, Threading/Screwing Machines	8459	13,07	9,04	-30,83%
Grinding, Tool Sharpening, etc. Machines	8460	18,67	17,21	-7,82%
Gear Cutting/Grinding, Sawing Machines	8461	10,88	11,61	6,71%
Presses, Guillotine, Punch, Press Brake Machines	8462	7,53	7,32	-2,79%
Pipe/Wire Bending, Threading Machines	8463	12,57	14,66	16,63%
General Total		**9,06**	**9,18**	**1,32%**

Source: TURKSTAT

Chart 20: Export Kilogram Value of Machine Tools (USD)



Source: TURKSTAT

Chart 21: Country Shares of Türkiye's Machine Tool Exports in 2024 (HS: 8456 - 8463)

Looking at the last five years, there has been no significant change in the ranking of the top five countries in Türkiye's exports of machine tools. This stability indicates that Türkiye has maintained its position in traditional markets. However, a striking trend stands out when all exporting countries are taken into account. Exports to China and Taiwan, which are global exporters of technology in machinery and machine tools, have increased significantly in the recent period. This increase indicates that the competitiveness and technological competencies of Turkish producers have improved and is considered as a strategic development in terms of access to high-tech markets.

Moreover, increasing the number of countries to which exports are made stands out as a factor that increases the resilience of sector firms against external shocks and regional fluctuations. In this framework, expanding geographical diversity and strategically supporting access to new markets are critical for the sustainable growth of the sector.

3.2.2. Imports in Machine Tools

Locomotive sectors such as automotive, defense industry, aerospace, medical, machinery, molding, shipbuilding and white goods, which play a critical role in the exports of the Turkish economy, demand high precision and efficiency in their production processes. Machine tools, which directly serve the needs of these sectors, are transforming in line with these demands in terms of both their technological features and functional structures.

In 2024, imports of machine tools contracted by 10.4%, in line with the slowdown in investment appetite in these sectors. This decline is attributed to the postponement of production investments and the effects of the global economic slowdown. In the same year, 74% of Türkiye's machine tool imports came from five countries: China (23%), Germany (16%), Taiwan (12%), Japan (12%) and Italy (11%). This distribution shows that Türkiye is still highly dependent on technology transfer for imports and that global producer countries

continue to dominate the market. China's increasing market share in recent years stands out as a trend that needs to be carefully monitored in terms of price competition and product diversity.

PRODUCT TYPE	HS	2023	2024	Değişim
Electro Erosion, Laser, Water Jet Machines	8456	232.076.956	189.503.044	-18,34%
Machining Centers, Transfer Machines	8457	563.407.726	495.970.485	-11,97%
Lathe Machines	8458	388.862.944	323.576.686	-16,79%
Milling, Drilling, Threading/Screwing Machines	8459	88.764.095	73.066.884	-17,68%
Grinding, Tool Sharpening, etc. Machines	8460	106.618.849	89.926.599	-15,66%
Gear Cutting/Grinding, Sawing Machines	8461	65.647.440	51.956.392	-20,86%
Presses, Guillotine, Punch, Press Brake Machines	8462	308.677.547	359.265.630	16,39%
Pipe/Wire Bending, Threading Machines	8463	94.345.953	72.088.708	-23,59%
General Total		**1.848.401.510**	**1.655.354.428**	**-10,44%**

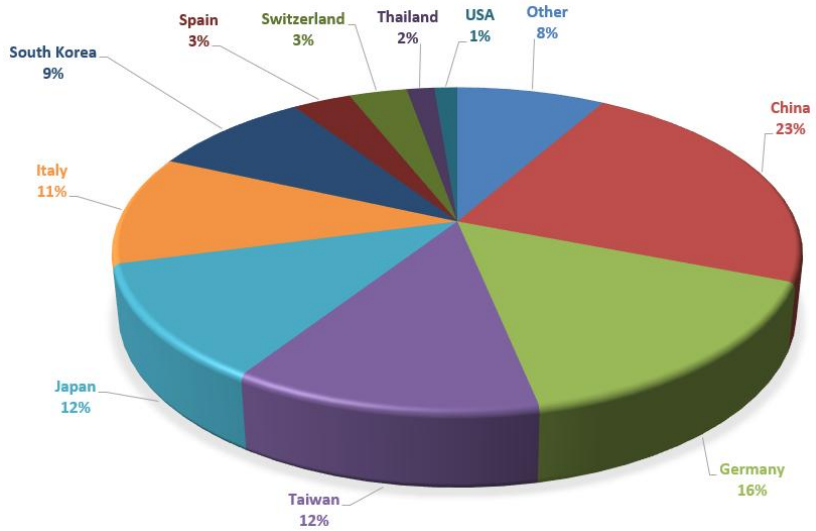
Source: TURKSTAT

Chart 22: Imports of Machine Tools by Value (USD)

PRODUCT TYPE	HS	2023	2024	Değişim
Electro Erosion, Laser, Water Jet Machines	8456	14,40	12,58	-12,64%
Machining Centers, Transfer Machines	8457	12,74	20,96	64,52%
Lathe Machines	8458	11,57	21,14	82,71%
Milling, Drilling, Threading/Screwing Machines	8459	6,57	5,03	-23,44%
Grinding, Tool Sharpening, etc. Machines	8460	19,28	22,53	16,86%
Gear Cutting/Grinding, Sawing Machines	8461	12,58	14,60	16,06%
Presses, Guillotine, Punch, Press Brake Machines	8462	7,84	8,13	3,70%
Pipe/Wire Bending, Threading Machines	8463	15,11	17,34	14,76%
General Total		11,28	13,30	17,91%

Source: TURKSTAT

Chart 23: Import Kilogram Value of Machine Tools (USD)



The most striking development in Türkiye's machine tool imports in the last five years is China's steadily rising share. With its competitive price structure and wide product range, China has increased its influence in the Turkish market every year and consolidated its position among the leading countries in imports.

Source: TURKSTAT

Chart 24: Country Shares of Türkiye's Machine Tool Imports in 2024 (HS: 8456 - 8463)

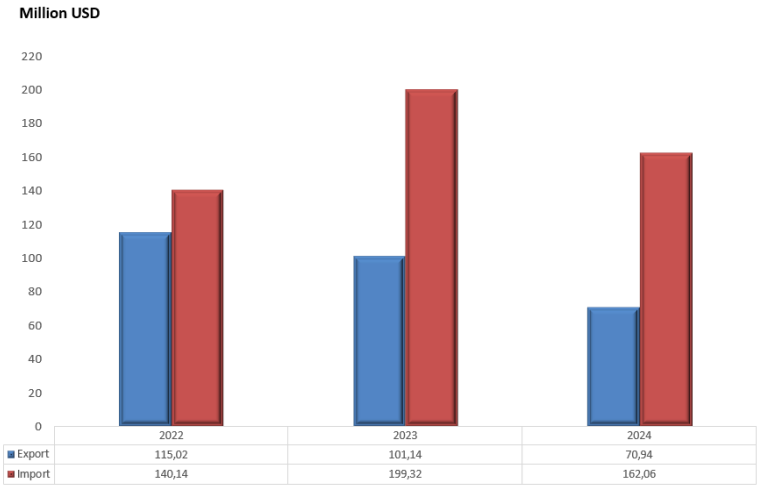
In general, there was no significant change in the number of importing countries. While the main supplier countries with which Türkiye cooperates have remained stable, the percentage share of these countries has fluctuated periodically. This should not be interpreted as a structural change in import relations, but rather as adjustments due to short-term trade policies, exchange rate fluctuations and the pace of investment.

3.3. Foreign Trade by Machine Types

3.3.1. Sheet-Metal Working Machines (Laser, Plasma, Water Jet, etc.) and Erosion Machines (HS 8456)

The machines that perform metalworking using the electrical charge erosion method are divided into two groups as sheet-metal working machines and electrical erosion machines.

3.3.1.1. Sheet-Metal Working Machines (Laser, Plasma, Water Jet, etc.)



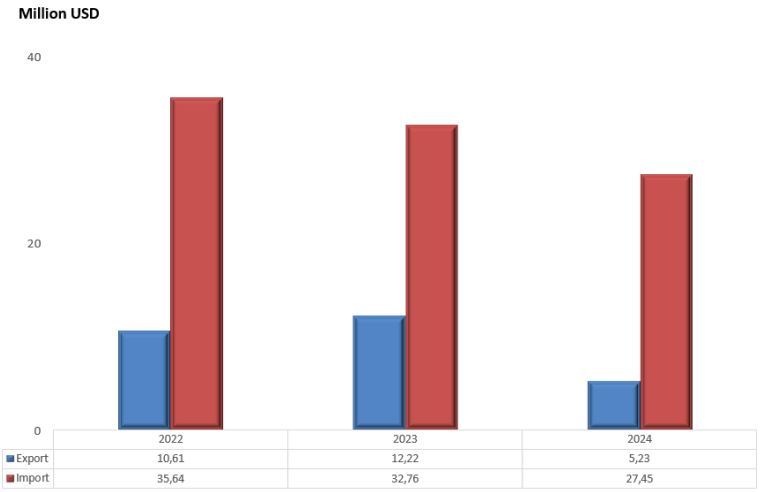
Source: TURKSTAT

Chart 25: Sheet-Metal Working Machines (Laser, Plasma, Water Jet) Foreign Trade

In 2024, Türkiye's exports of sheet-metal working machines such as laser cutting, plasma cutting and water jetting produced by internationally recognized brands decreased by 29.8% year-on-year to 70.9 million USD. This decline is attributed to the effects of global demand contraction, slowdown in investment decisions and competitive pricing pressure. The main target markets for exports of sheet-metal working machinery during the year were as follows: Canada (8.4%), France (7.2%), Germany (6.1%), the USA (5.9%) and Egypt (5.5%). This distribution shows that Türkiye maintains its ability to reach both advanced industrial countries and regional markets for exports.

On the other hand, imports of sheet-metal working machinery decreased by 18.7% to 162.06 million USD in 2024. While this decline can be partly explained by the increased capacity of domestic production, it also points to a general slowdown in investments. Imports, on the other hand, are dominated by China. China (64%), Germany (9.3%), Italy (8.0%), Switzerland (4.6%) and Poland (3.7%) make up the top 5 countries in sheet-metal working machinery imports for 2024. China's high share in this area is based on both its price advantage and its wide product diversity. This indicates that domestic producers need to increase their competitiveness in terms of price/performance balance.

3.3.1.2. Electrical Erosion Machines (EDM, WEDM)



Source: TURKSTAT

Chart 26: Electrical Erosion Working Machinery Foreign Trade

As of 2024, exports of plunge erosion and wire edm erosion machines were realized at USD 5.23 million, a sharp decline of 57.2% compared to the previous year. This sharp decline is attributed to both the contraction in the global market and the weakening competitiveness of domestic manufacturers in this field.

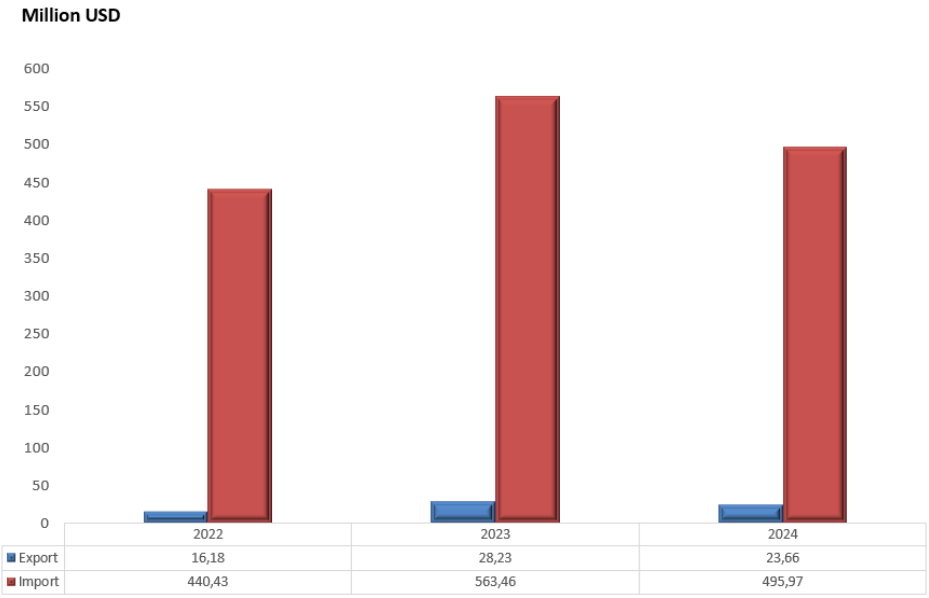
Analyzing the export markets, the top five countries for electrical erosion machines in 2024 are listed as follows Russian Federation (45.8%), Poland (11.6%), Iraq (10%), United Kingdom (5.3%) and Azerbaijan (4.2%). The high share of Russia in exports increases the dependence on this market and brings to the agenda the importance of turning to alternative markets.

In the same period, imports of this machinery group decreased by 16.2% to 27.45 million USD. This contraction is partly attributed to the decline in domestic demand and partly to the postponement of investment decisions. The distribution of imports was as follows: China (33%), Thailand (24.8%), Taiwan (13.7%), Switzerland (9.4%) and Germany (8.4%). The high share of Asian suppliers in total imports, in particular, highlights Türkiye's dependence on Far Eastern countries for technology in this field.

3.3.2. Machining Centers and Transfer Machines for Metal Working (HS 8457)

Machining centers and transfer benches, which require high precision and advanced production capability, are among the strategically important equipment in the field of metal working. In this machine group, the classification of products according to the body structure (with or without bridge type) and the number of axes (up to 4 axes and over 5 axes) became possible in 2022 with the HS code-based differentiation system thanks to the initiatives of TİAD. This development enabled foreign trade data to be analyzed more accurately and increased sectoral visibility.

Türkiye still has a clear external dependency in this segment. In particular, sufficient domestic production capacity has not yet been achieved to meet the needs of high precision demanding sectors such as aerospace, defense, automotive and medical. Therefore, imports continue to remain at very high levels compared to exports.



Source: TURKSTAT

Chart 27: Machining Centers and Transfer Machines for Metal Working (HS 8457)

In 2024, exports of machining centers decreased by 16.2% year-on-year to 23.66 million USD. The main export destinations were: Taiwan (29.7%), China (21%), Japan (15.4%), Germany (14.1%) and South Korea (8.8%).

On the other hand, imports fell by 12% to 495.97 million USD in the same period. The leading supplier countries in imports were: Taiwan (22.2%), Japan (20.5%), Germany (17.8%), China (14.3%) and South Korea (7.7%).

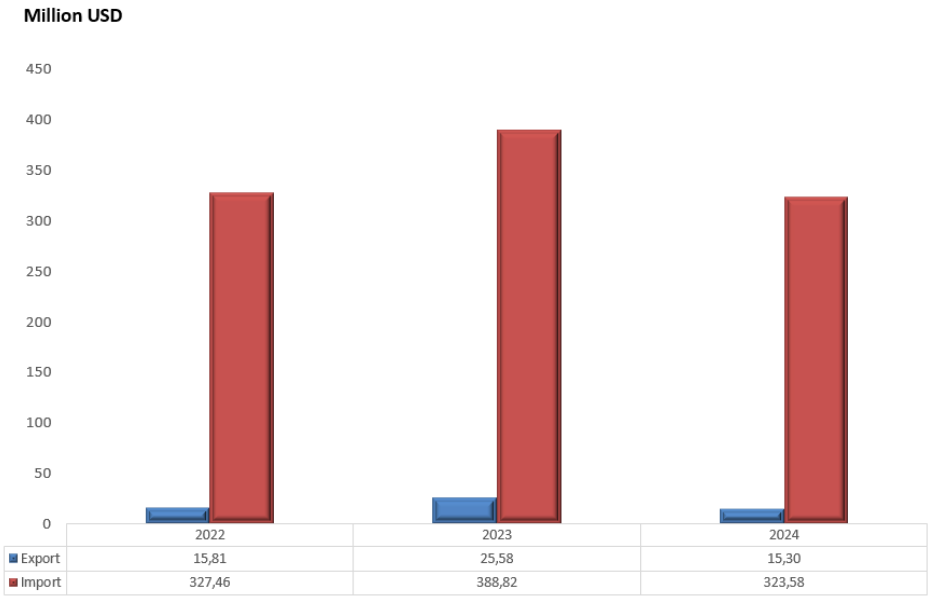
These data clearly demonstrate Türkiye's need to move towards high value-added production in this technology-intensive segment. Increasing domestic production in all sub-types of machining centers is of great importance both for narrowing the foreign trade deficit and for the sustainability of strategic sectors.

3.3.3. Lathes for Metal Working (Including Turning Centers) (HS 8458)

Lathes and turning centers with the ability to perform multiple operations at the same time are among the indispensable equipment used in the production of parts that require high precision and are indispensable for strategic sectors. However, Türkiye is a net importer in this product group. Due to limited domestic production capacity and the inability to meet advanced technology requirements, exports lag far behind imports.

Production has not yet reached a sufficient level to meet the sensitivity and quality standards of main industries such as aviation, defense, automotive and medical. This situation both increases dependence on technology transfer and creates a sectoral risk in terms of the current account deficit. Considering the high

added value provided by lathes, it is critical to strengthen domestic production in all sub-segments in this field.



	2022	2023	2024
Export	15,81	25,58	15,30
Import	327,46	388,82	323,58

Source: TURKSTAT

Chart 28: Lathes for Metal Working (Including Turning Centers) (HS 8458)

According to 2024 foreign trade data, exports of lathes decreased by 40.2% compared to the previous year to 15.3 million USD. The top five export destinations were South Korea (24.1%), China (22.5%), Taiwan (17.6%), Japan (17.3%) and Germany (6.4%).

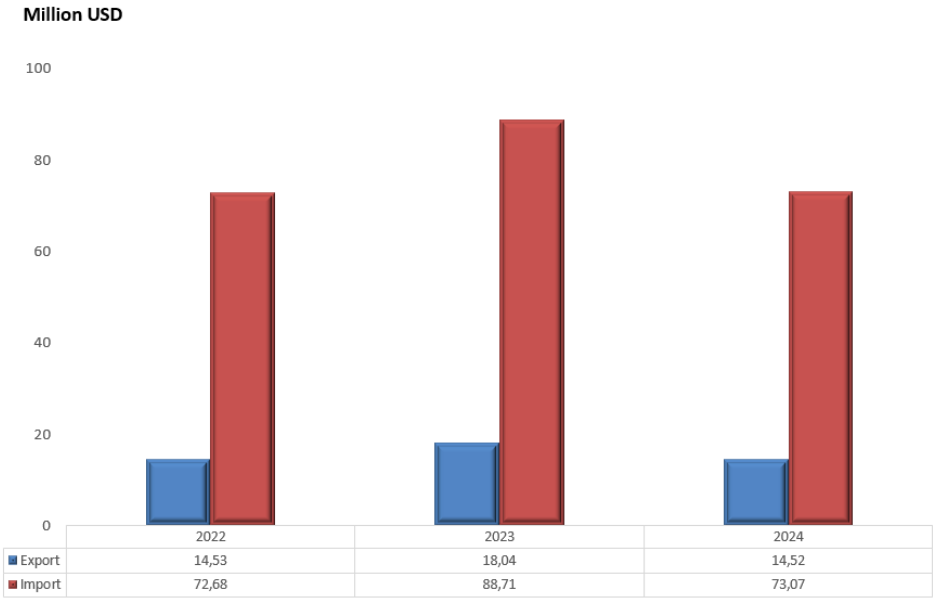
In the same period, imports of this machinery group decreased by 16.8% to 323.58 million USD. Main supplier countries: South Korea (25.3%), Japan (22.7%), Taiwan (16.9%), China (11.5%) and Germany (9.6%).

The data clearly reveals Türkiye's high technology dependency and foreign trade imbalance in the lathes segment. For sustainable growth and industrial independence, encouraging domestic producers and increasing technology investments in this area has become a priority.

3.3.4. Milling, Drilling and Threading Machines (HS 8459)

This group, which includes milling machines, specialized metalworking machines used for operations such as deep or fast drilling, reaming and screw slotting, forms the basis of high-precision machining operations. Although there has been some improvement in Türkiye's production capacity in this machinery group compared to previous years, import dependency is still significant.

The fact that the machines in this group are integrated into production processes that require high precision and are widely used in industry maintains their strategic importance for the sector. However, the limited production volume in the domestic market makes the need for external supply sources sustainable.



Source: TURKSTAT

Chart 29: Milling, Drilling and Screwing Machines (HS 8459)

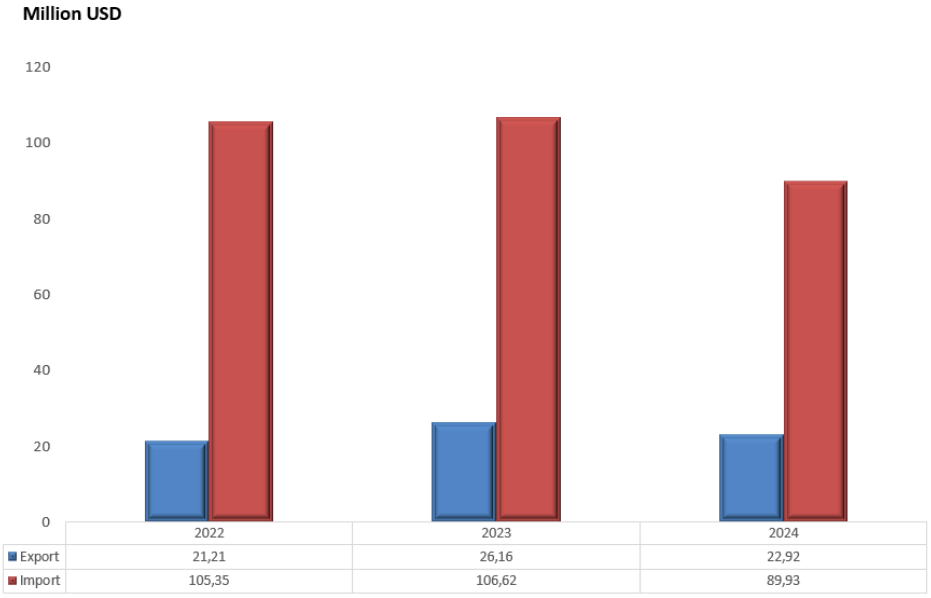
According to 2024 data, exports of milling machines decreased by 19.5% yoy to 14.52 million USD. The top five export destinations were China (27.1%), Germany (21.1%), Spain (16%), Taiwan (9.1%) and Italy (8.2%).

In the same period, imports in this machinery group decreased by 17.6% to 73.07 million USD. The top five countries where imports are concentrated are Spain (21.6%), China (21.3%), Germany (14.9%), Italy (13.9%) and Taiwan (8.5%).

These data show that Türkiye has made progress in the production of medium-level technology in milling and drilling machines, but remains dependent on imports for high-tech machines. In order to improve the sector's foreign trade balance, domestic production capabilities in this segment should be increased and R&D support should be expanded.

3.3.5. Grinding, Tool Sharpening and Precision Machining Machines (Honing, Lapping, etc.) (HS 8460)

Precision machining machines are critical for strategic sectors, but dependence on imports continues. Machining machines used for high-precision applications such as grinding, tool sharpening, honing and lapping are among the indispensable production tools for strategic sectors such as aerospace, automotive, defense industry, molding and cutting tool production. However, Türkiye's domestic production capacity in this field remains limited and the sector is largely foreign-dependent.



Source: TURKSTAT

Chart 30: Grinding, Tool Sharpening and Precision Machining Machines (Honing, Lapping, etc.) (HS 8460)

According to 2024 data, exports of precision machining machines decreased by 12.4% compared to the previous year and amounted to
22.92 million USD. The top five export destinations are as follows: Russian Federation (15.2%), Germany (8.2%), USA (5.1%), United Kingdom (4.4%) and China (3.8%).

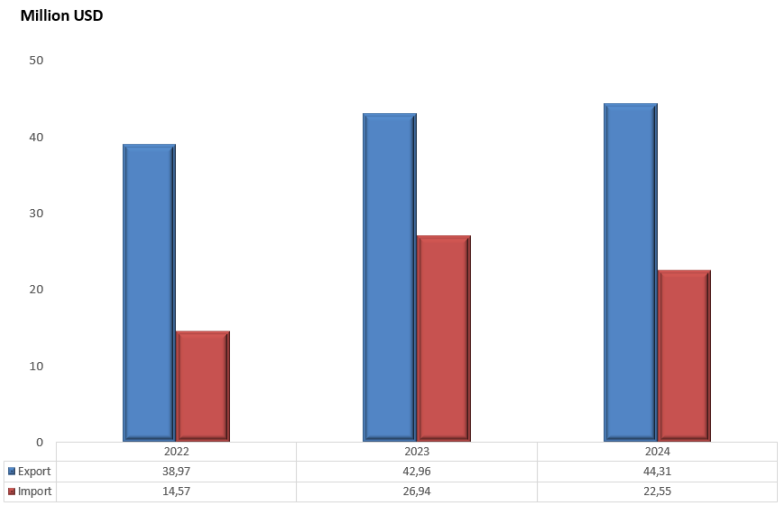
In the same period, imports in this machinery group decreased by 15.7% to 89.93 million USD. The countries with the highest imports were: Germany (25.6%), Switzerland (19.3%), China (11.4%), Italy (10.4%) and Thailand (8.3%).

This data reveals that the technological depth of precision machining machines is still insufficiently met in the Turkish industry. Grinding and sharpening systems, which are used especially in high-precision work, stand out as one of the most critical areas where domestic production needs to be increased. In order to strengthen the competitiveness and independence of the sector, it seems essential to increase qualified engineering investments, technology transfer and R&D support.

3.3.6. Sawing, Shaper, Gear Grinding and Finishing Machines (HS 8461)

In terms of product type, this machine group is divided into two groups: sawing machines and shaper, gear grinding/finishing machines.

3.3.6.1. Sawing Machines



Source: TURKSTAT

Chart 31: Foreign Trade of Sawing Machines

Türkiye's strong production of saw benches is supported by exports. Saw benches, one of the sub-segments of machine tools, stand out as one of the production items in which Türkiye has a competitive advantage. The export success achieved in this product group reflects the sector's effectiveness in the global market.

In 2024, exports of sawing machines increased by 3.1% compared to the previous year and reached 44.31 million USD. This increase shows that Türkiye maintains its production capacity in this field and its effectiveness in foreign markets. The top five export destinations are: Russian Federation (18.9%), USA (10%), Romania (3.8%), Poland (3.6%), Bulgaria (3.4%).

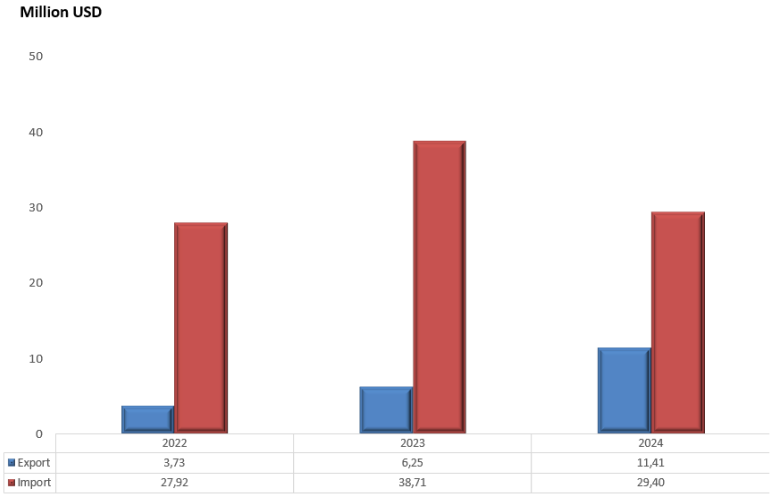
In the same period, imports of sawing machines decreased by 16.3% to 22.55 million USD. This decline can be explained by the increasing tendency towards domestic production in the domestic market. Top five importing countries: Italy (25%), China (23.7%), Germany (18.4%), Austria (10.7%), Taiwan (8.4%).

The fact that exports of sawing machines exceed imports shows that Türkiye is a net exporter in this segment and has a strong position in global competition. In order to sustain this success, it is strategically important to increase product diversity and technological equipment.

3.3.6.2. Shaper, Gear Grinding and Finishing Machines

As one of the important sub-groups of the machine tools industry, the shaper, gear grinding and finishing machines displayed a remarkable export performance in 2024. This machine group, which responds to the needs of sectors such as gear production, heavy industry and automotive, gained a strong momentum throughout the year thanks to high demand and market diversity.

In 2024, exports of this product group increased by 82.6% compared to the previous year and reached 11.41 million USD. This rate of increase stands out as one of the most remarkable export growths throughout the year. The most preferred markets for exports were: Russian Federation (13%), Germany (11.5%), USA (9.5%), Spain (8.2%), Serbia (8%).



Source: TURKSTAT

Chart 32: Shaper, Gear Grinding and Finishing Machines Foreign Trade

On the other hand, in the same product group imports decreased by 24% to 29.4 million USD. This indicates that domestic production is gradually replacing imports. Major import supplier countries: Germany (58.9%), China (9.5%), Japan (8.5%), Switzerland (6%), Spain (3.7%).

The high export growth and declining import level in this machinery group reveal Türkiye's potential to increase its competitiveness, especially in specialized production machinery. With the necessary investments and technology-oriented production infrastructure, it is possible to become a net exporter in this segment.

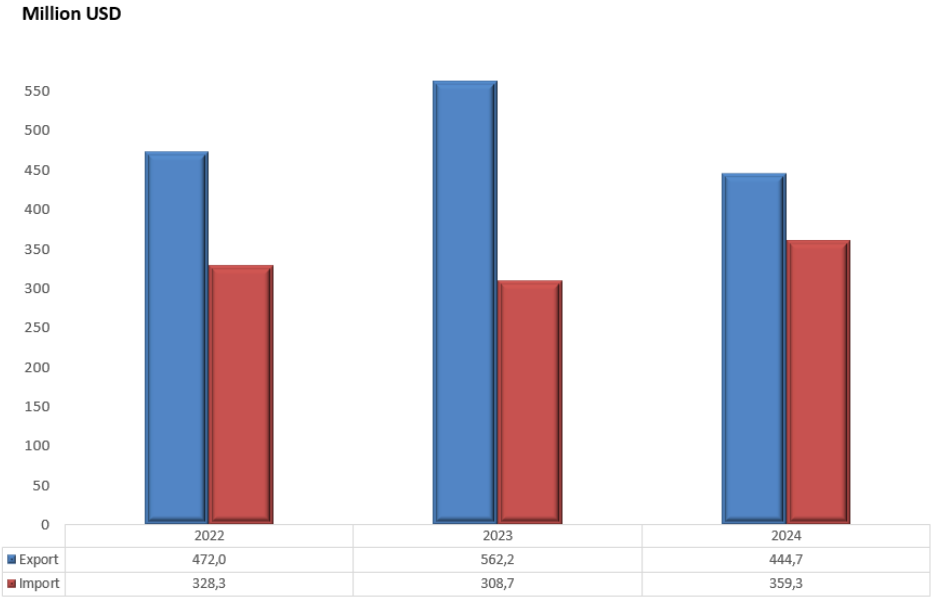
3.3.7. Sheet-Metal Forming Machines (Press Brake, Punch, Guillotine, etc.) and Presses (HS 8462)

Export volume continues to be high, value added low in presses and sheet-metal forming machines. Press brakes, punch machines, guillotine machines and various press machines stand out as basic production tools in sheet-metal forming technologies and constitute one of the areas where Türkiye is strong in machine tool production. This segment has an important place both in terms of production capacity and presence in global markets.

In 2024, total exports of this machinery group declined by 20.9% year-on-year to 444.68 million USD. However, presses accounted for 62.6% of total exports of machine tools, indicating that the group maintained its high volume share in the sector.

Prominent export markets: Russian Federation (13.8%), USA (9.3%), Germany (4.4%), Italy (4.2%), Iraq (3.5%). However, despite this high export volume, the export value per unit kg was only USD 7.32, making it the segment with the lowest value added in the machine tools group. This shows that despite Türkiye's production strength in this area, there is still room for improvement in technology intensity and product differentiation.

On the other hand, imports for this group increased by 16.4% to 359.27 million USD in 2024. The largest share of imports belongs to Far East and Europe-based producers: The main importing countries are: China (28%), Italy (25.5%), Germany (14.8%), South Korea (5.3%), Taiwan (5.3%).

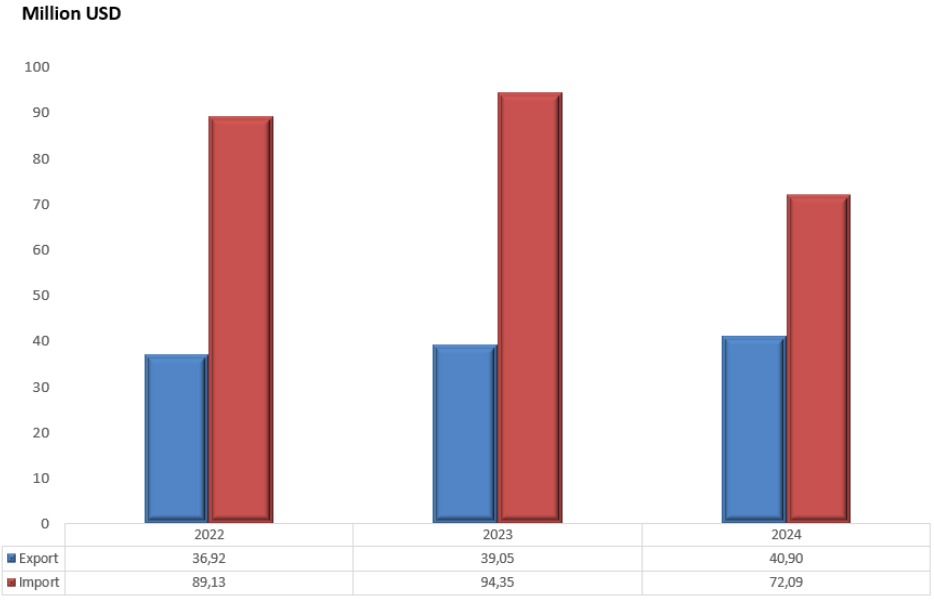


Source: TURKSTAT

Chart 33: Sheet Metal Forming Machines (Press Brake, Punch, Guillotine, etc.) and Presses (HS 8462)

The overall outlook reveals that Türkiye has room for improvement in technology-intensive exports and unit value growth, even as it maintains its production volume in presses and sheet-metal forming machines. In particular, innovative design, automation integration and the expansion of international quality standards will boost the value-added growth potential of this segment.

3.3.8. Pipe, Wire Forming and Processing Machines (HS 8463)



Source: TURKSTAT

Chart 34: Pipe and Wire Forming and Processing Machines (HS 8463)

Pipe, profile and wire bending and processing machines are among the indispensable production tools especially in the construction, furniture, automotive and infrastructure sectors. However, Türkiye's domestic production capacity in this field is still insufficient to meet the needs of the domestic market. This situation both increases import dependency and maintains the foreign trade imbalance in this field.

In 2024, exports of this machinery group increased slightly, rising by 4.7% to 40.9 million USD. The top export destinations show that, in addition to the traditional markets, buyers from the Middle East and North Africa also occupy a noticeable place: USA (13%), Russian Federation (11.3%), Saudi Arabia (10.5%), Algeria (5.6%), United Arab Emirates (3.9%).

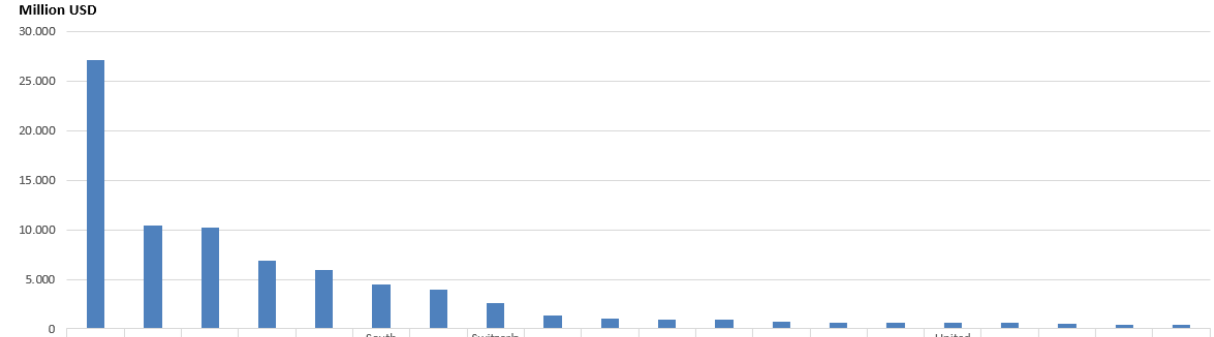
On the import side, there was a significant decline. In 2024, imports of this machinery group decreased by 23.6% to 72.09 million USD. However, despite this decline, the fact that the level of imports is almost twice the level of exports clearly reveals the weakness on the production side. The leading supplier countries for imports were: Italy (29.4%), China (27.6%), Germany (22.9%), Taiwan (5.9%), USA (4.7%).

It is critical for Türkiye to focus on R&D investments to increase technological capacity in pipe, profile and wire forming machines and policies to encourage domestic production in order to reduce foreign dependency in this field and narrow the foreign trade deficit.

4. FOREIGN TRADE, PRODUCTION, CONSUMPTION AND FUTURE FORECASTS OF MACHINE TOOLS IN THE WORLD

Türkiye maintains its stable position in production and exports in the world machine tool rankings. This section is based on reports and data from international sources such as "World Machine Tool Survey 2022" published by Gardner Intelligence, Fortune Business and VDW (German Machine Tool Manufacturers Association). It should be noted that there may be a deviation of approximately ±20% in terms of value, as the data are converted from the local currencies of the countries to US Dollars. According to these reports, Türkiye has an important position in the world machine tools sector. Türkiye ranks 17th in production, 15th in exports, 7th in imports and 11th in domestic sales (consumption). These rankings reveal that Türkiye remains globally competitive in production and exports, but still has a high level of import dependency. The strong utilization level in the domestic market, however, holds significant potential for investments to increase domestic production and reduce import dependency.

4.1. Production of Machine Tools in the World

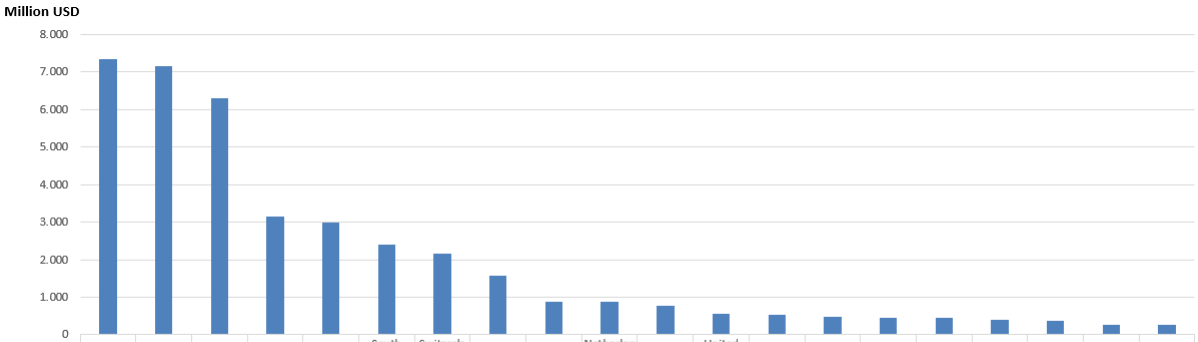


	China	Japan	Germany	Italy	USA	South Korea	Taiwan	Switzerland	India	Brazil	Spain	Russia	Austria	Thailand	Canada	United Kingdom	Türkiye	France	Singapore	Czechia
Production	27100	10458	10248	6888	5907	4490	3932	2556	1383	1031	944	934	695	646	634	581	571	546	446	418

Source: Gardner Intelligence

Chart 35: World Ranking in Machine Tools Production - 2022

4.2. Exports of Machine Tools in the World

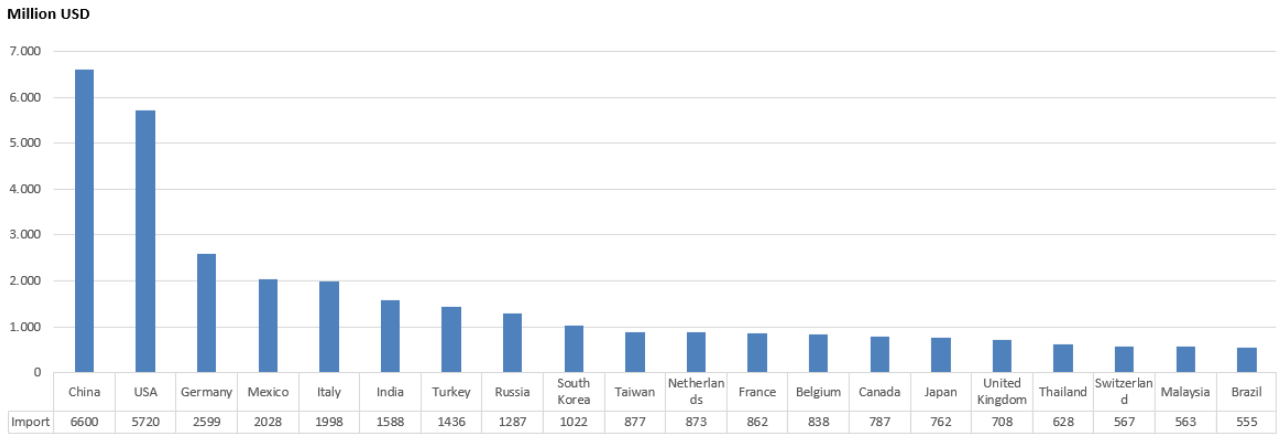


	Germany	Japan	China	Italy	Taiwan	South Korea	Switzerland	USA	Bekchika	Netherlands	Spain	United Kingdom	Thailand	Austria	Turkey	Czechia	France	Singapore	Poland	Canada
Export	7338	7164	6290	3160	3002	2402	2170	1568	885	876	772	564	524	486	456	452	395	374	265	253

Source: Gardner Intelligence

Chart 36: World Ranking in Machine Tools Exports - 2022

4.3. Imports of Machine Tools in the World

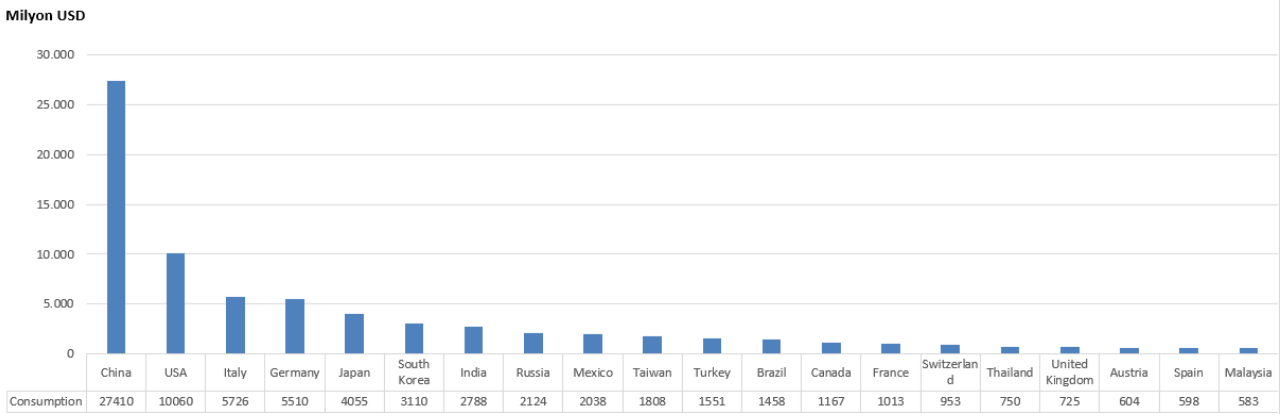


	China	USA	Germany	Mexico	Italy	India	Turkey	Russia	South Korea	Taiwan	Netherlands	France	Belgium	Canada	Japan	United Kingdom	Thailand	Switzerland	Malaysia	Brazil
Import	6600	5720	2599	2028	1998	1588	1436	1287	1022	877	873	862	838	787	762	708	628	567	563	555

Source: Gardner Intelligence

Chart 37: World Ranking in Machine Tools Imports - 2022

4.4. Consumption of Machine Tools in the World



	China	USA	Italy	Germany	Japan	South Korea	India	Russia	Mexico	Taiwan	Turkey	Brazil	Canada	France	Switzerland	Thailand	United Kingdom	Austria	Spain	Malaysia
Consumption	27410	10060	5726	5510	4055	3110	2788	2124	2038	1808	1551	1458	1167	1013	953	750	725	604	598	583

Source: Gardner Intelligence

Chart 38: World Ranking in Machine Tool Consumption - 2022

4.5. Distribution of Machine Tools Market in the World and Future Forecasts

According to data from international research organizations, the global machine tools market will reach 126 billion USD in 2024. The Asia-Pacific region (countries such as Japan, South Korea, Taiwan, China, etc.) maintained its leadership with a 54% share of the global machine tools market in 2024.

Projections for the coming period suggest that the world machine tools market will reach USD 133 billion in 2025 and USD 230 billion by 2032. Accordingly, the sector is expected to realize a compound annual growth rate (CAGR) of 8.3% over the next eight years.

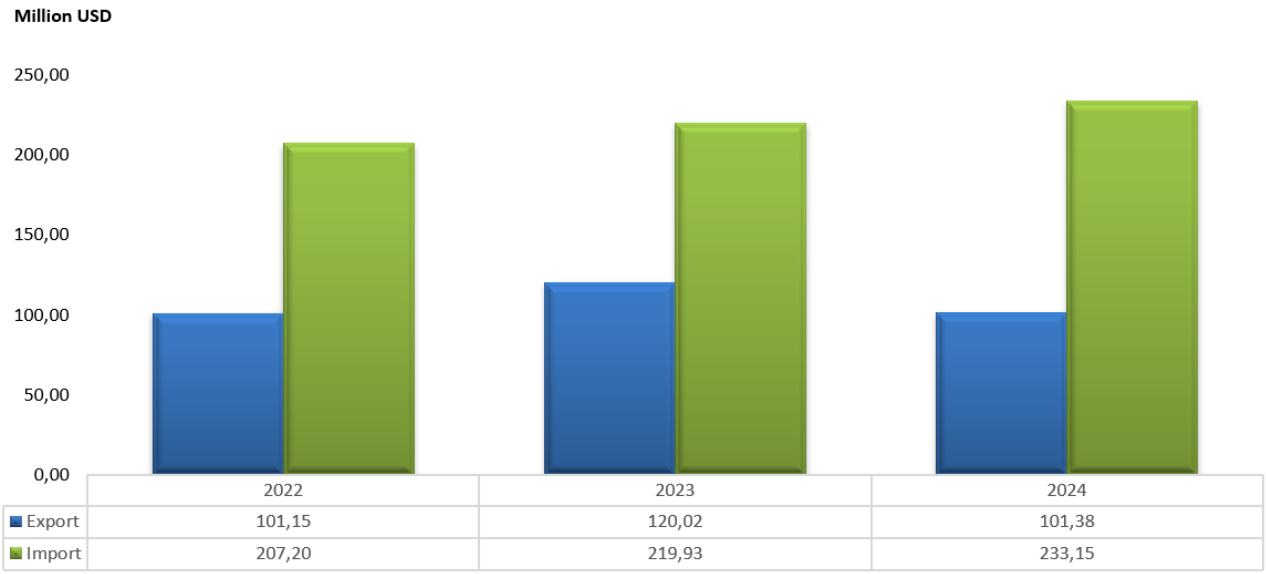
The proliferation of Industry 4.0 and artificial intelligence technologies is leading to radical changes in the use of machine tools. Robotic systems, AI-supported automation solutions and complementary software increase efficiency in production processes and strengthen real-time monitoring and data-driven decision-making mechanisms. Manufacturers are reducing equipment downtime and achieving significant savings in operational costs, especially through Artificial Intelligence (AI) and Industrial Internet of Things (IIoT) integrations.

Increasing demand for complex and high-precision components plays a decisive role in market growth. Developments in industries such as aerospace, electronics and automotive are driving the need for high-precision and multi-tasking CNC machine tools and robotic systems. As product design processes become increasingly complex, manufacturers are turning to solutions equipped with advanced technologies such as digital twin, real-time monitoring and predictive maintenance that minimize downtime and maintenance costs.

In line with these dynamics, the global machine tools industry is expected to continue to grow at an accelerated pace in the coming period. From Türkiye's perspective, increasing capacity and product diversification, especially in the production of high-tech CNC machining centers and precision manufacturing machines, will be critical for enhancing international competitiveness.

5. FOREIGN TRADE OF CUTTING TOOLS IN METAL WORKING

In the metalworking industry, cutting tools are critical to the efficiency of production processes and the maintenance of quality standards. In order to analyze the trade volume of this product group in Türkiye, the opinions of the leading companies in the sector were taken and an assessment was made based on the most intensively traded products in the market. With this method, it is aimed to create a more realistic data set on the import and export of cutting tools that reflects the dynamics of the sector.

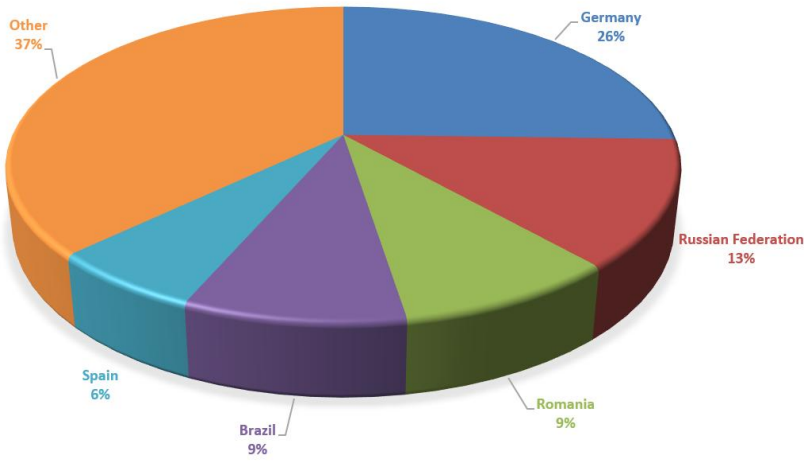


	2022	2023	2024
Export	101,15	120,02	101,38
Import	207,20	219,93	233,15

Source: TURKSTAT

Chart 39: Türkiye's Foreign Trade of Cutting Tools in Machine Tools

5.1. Cutting Tool Exports



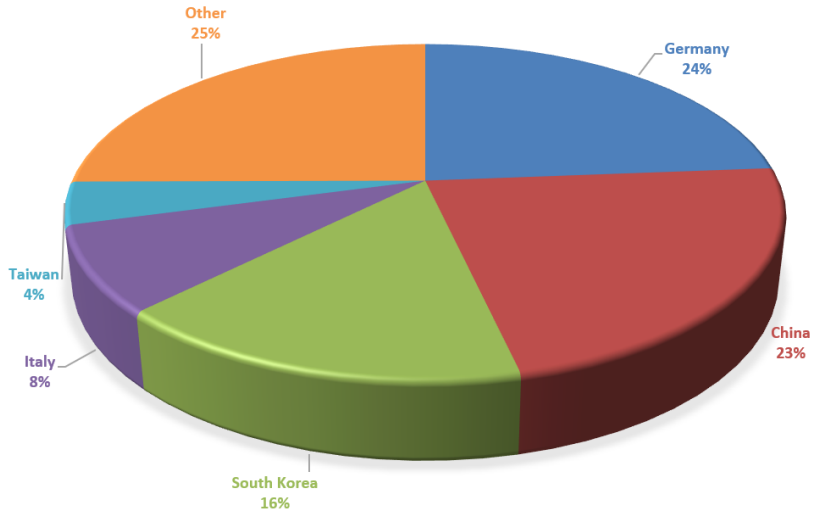
Looking at the data for the last five years, it is seen that there has been no significant change in the destination countries of Türkiye's cutting tool exports. In 2024, although a limited decline was recorded in production and exports, the overall trend remained positive.

Source: TURKSTAT

Chart 40: Cutting Tool Exports Market Shares

Especially in the last five years, Türkiye's cutting tool exports have increased by 248%. This strong growth demonstrates that the sector is increasing its competitiveness in international markets and supporting the development of its production capacity.

5.2. Cutting Tool Imports



Source: TURKSTAT

Chart 41: Cutting Tool Imports Market Shares

An analysis of the last five years reveals a steady upward trend in Türkiye's imports of cutting tools. In this process, both the increase in production needs and the rising demand for higher performance products due to technological developments have supported the import volume. The data reveals that the sector continues to be dependent on imports and that domestic production has not yet reached a sufficient level to meet this demand.

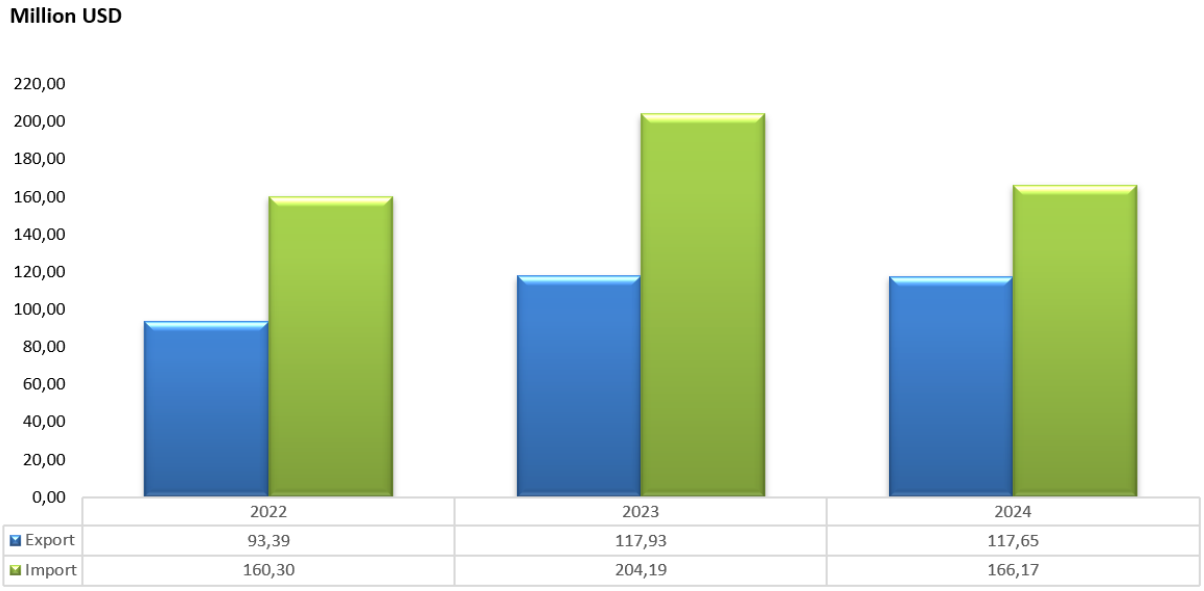
5.3. HS Numbers Used in the Analysis

Product Type	HS Number
Insert - Ceramic	6909.19.00.00.12
Punch, Press Tools	8207.30.10.00.00
Grooving Tools	8207.40.10.10.00
	8207.40.10.90.00
	8207.40.30.10.00
	8207.40.30.90.00
Drills	8207.50.10.00.00
	8207.50.50.00.00
	8207.50.60.00.00
	8207.50.70.00.00
Reamer Tool	8207.60.10.00.00
	8207.60.30.00.11
	8207.60.30.00.19
Boring Tools	8207.60.70.00.11
	8207.60.70.00.19

Product Type	HS Number
End Mills	8207.70.10.00.00
	8207.70.31.00.11
	8207.70.31.00.12
	8207.70.31.00.19
Other Milling Cutters	8207.70.37.00.11
	8207.70.37.00.12
	8207.70.37.00.19
Turning Tools	8207.80.11.00.00
	8207.80.19.00.11
	8207.80.19.00.19
Inserts	8207.90.10.00.00
	8207.90.50.00.00
	8207.90.71.00.00
	8207.90.91.00.00
Cutting Disc	8208.10.00.00.00

6. FOREIGN TRADE OF TOOL HOLDERS IN METALWORKING

While determining the trade volume of tool holders for the metalworking sector in Türkiye, the most intensively traded product groups were taken into consideration in line with the opinions of the sector companies. The analyses are based on certain HS code numbers in order to accurately differentiate the trade data of the relevant products and these numbers are presented in detail below.

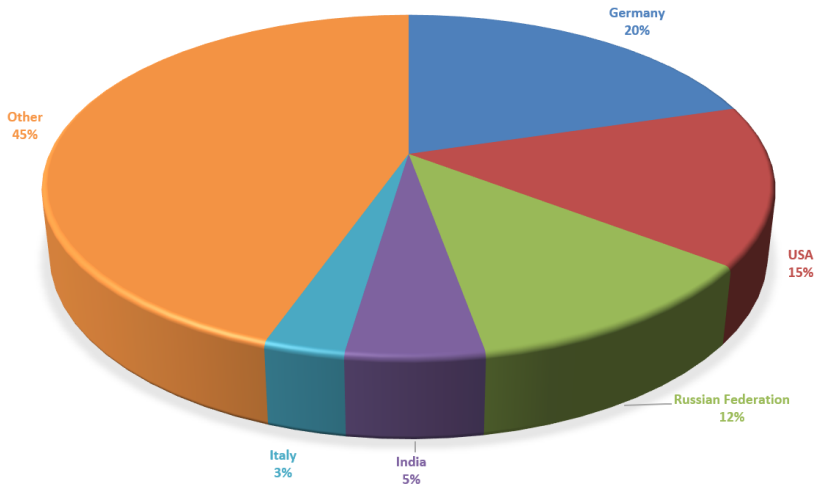


	2022	2023	2024
Export	93,39	117,93	117,65
Import	160,30	204,19	166,17

Source: TURKSTAT

Chart 42: Türkiye's Foreign Trade of Tool Holders in Machine Tools

6.1. Tool Holders Exports



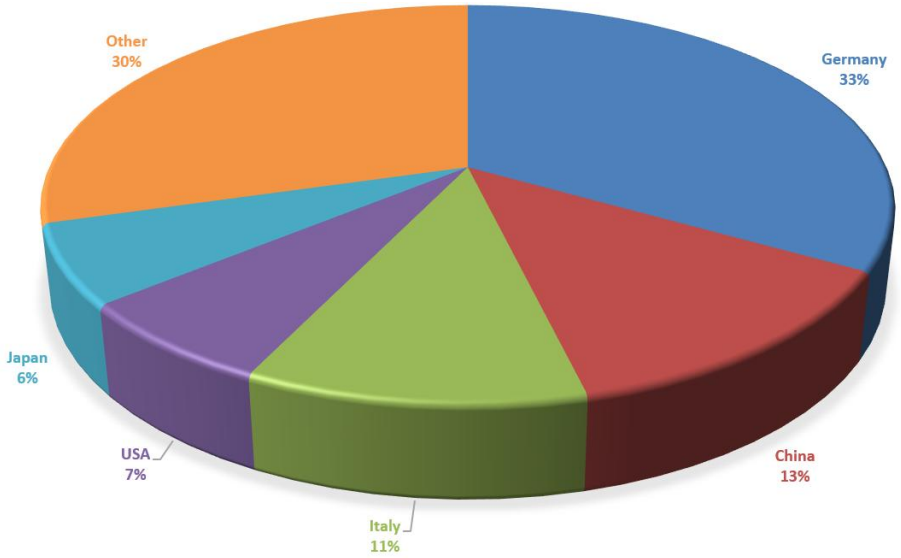
Source: TURKSTAT

Chart 43: Tool Holders Exports Market Shares

An analysis of Türkiye's tool holders export data for the last five years shows that there has been no significant change in the countries of export. Although 2024 saw a slight decline in production and export

figures, the long-term trend shows a remarkable 308% increase in exports. This strong growth shows that the export potential of the sector has increased significantly in recent years.

6.2. Tool Holders Imports



Source: TURKSTAT

Chart 44: Tool Holders Imports Market Shares

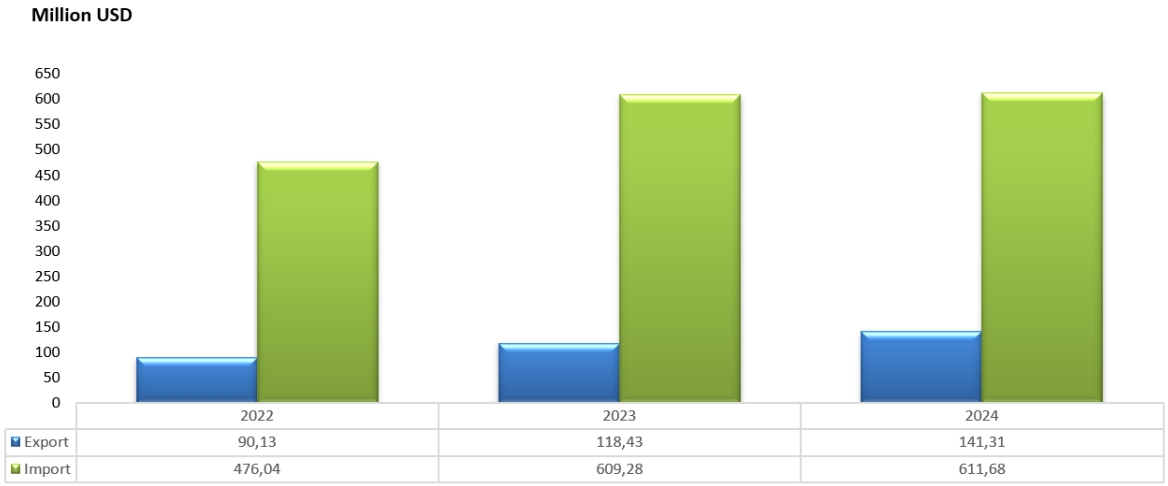
An analysis of Türkiye's import data for the last five years reveals a steady upward trend in import volume. During this period, it is noteworthy that the demand for gripper sets has been rising continuously and import dependency has continued significantly.

6.3. HS Numbers Used in the Analysis

TOOL HOLDERS	8466.10.20.00.00
	8466.10.31.00.00
	8466.10.38.00.00
	8466.10.80.00.00
	8466.20.20.00.00
	8466.20.91.00.11
	8466.20.91.00.19
	8466.20.98.00.00
	8466.30.00.00.00
	8466.93.50.00.00
	8466.93.60.00.00
	8466.94.00.10.00
	8466.94.00.90.00

7. FOREIGN TRADE OF MEASURING AND QUALITY CONTROL EQUIPMENTS

While determining the trade volume of measuring and quality control devices used in the metalworking and metalforming sector in Türkiye, the most intensively traded product groups were taken as basis in line with the opinions of the sector companies. HS numbers used in the calculation of trade data are presented in detail below.

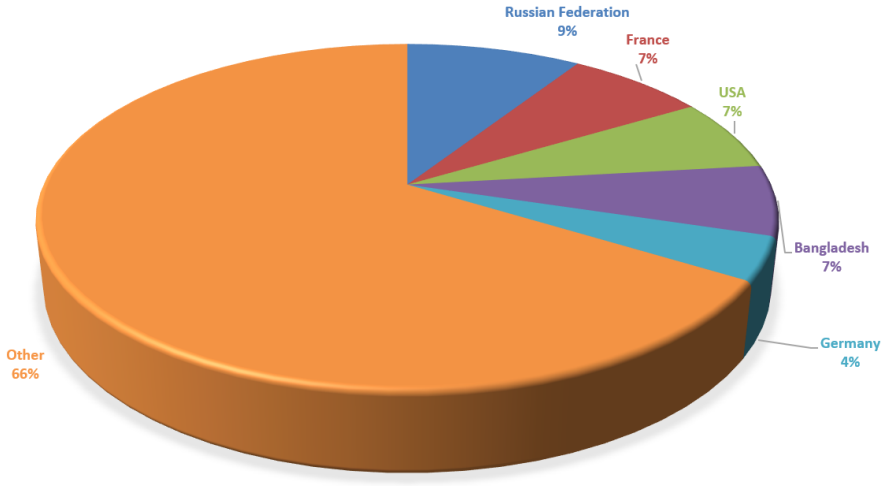


	2022	2023	2024
Export	90,13	118,43	141,31
Import	476,04	609,28	611,68

Source: TURKSTAT

Chart 45: Türkiye's Foreign Trade of Measurement and Quality Control Equipment

7.1. Exports of Measurement and Quality Control Equipments

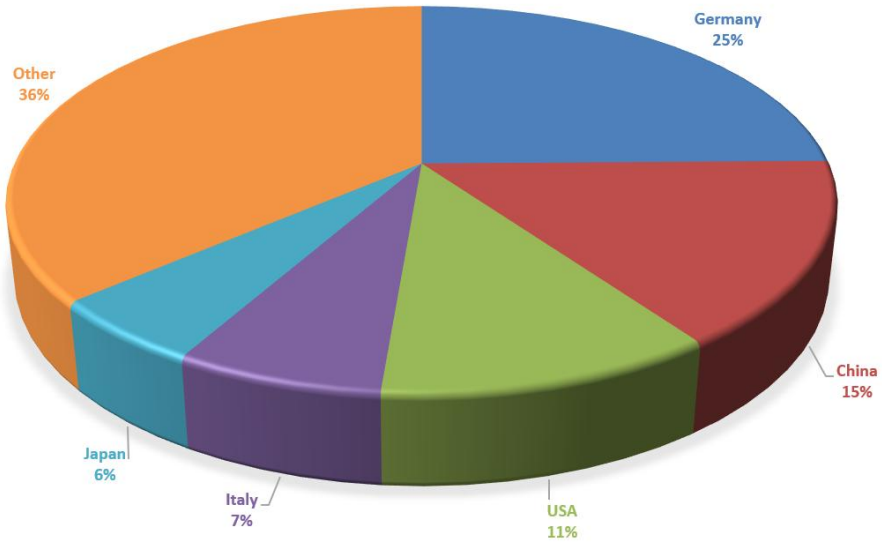


Source: TURKSTAT

Chart 46: Market Shares of Metrology Equipments Exports

An analysis of Türkiye's export data on measurement and quality control devices used in the metalworking sector reveals a steady increase in exports over the last five years. This trend can be considered as an indicator of the sector's ability to adapt to the demand in foreign markets and increase its competitiveness.

7.2. Imports of Measurement and Quality Control Equipments



Source: TURKSTAT

Chart 47: Market Shares of Metrology Equipments Imports

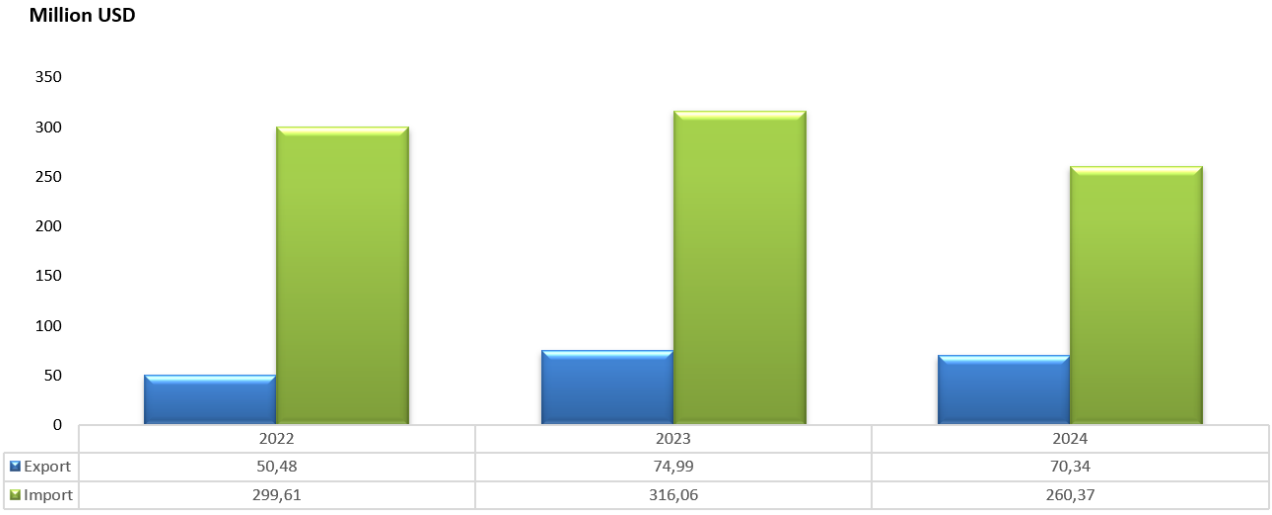
An analysis of Türkiye's import data on measurement and quality control equipments used in the metalworking sector reveals that there has been an increase in imports at variable rates in the last five years, depending on the need. This situation reveals that the sector maintains its dependence on imports in line with the objectives of accessing technology and increasing production quality.

7.3. HS Numbers Used in the Analysis

MEASURING AND QUALITY CONTROL EQUIPMENTS	8525.81.00.00.00	9024.10.80.90.00
	9011.80.00.00.11	9024.80.00.10.00
	9017.30.00.10.00	9024.80.00.90.00
	9017.30.00.90.00	9027.89.30.00.00
	9017.80.90.10.00	9031.10.00.10.00
	9017.80.90.90.00	9031.49.10.00.00
	9024.10.20.00.00	9031.49.90.00.00
	9024.10.40.00.00	9031.80.20.90.00
	9024.10.80.10.00	9031.80.80.90.00

8. FOREIGN TRADE OF OTHER MACHINES RELATED TO MACHINE TOOLS

Other machinery and equipment used in the manufacturing industry and considered to be directly related to machine tools are industrial robots, 3D printers (for metal, plastic, composite materials), optical processing machines, shrinking machines and ultrasonic welding machines. While determining the trade volume for these equipment in Türkiye, the most intensively traded products were taken into account in line with the opinions of sector companies. The HS numbers used in the calculations are presented below.

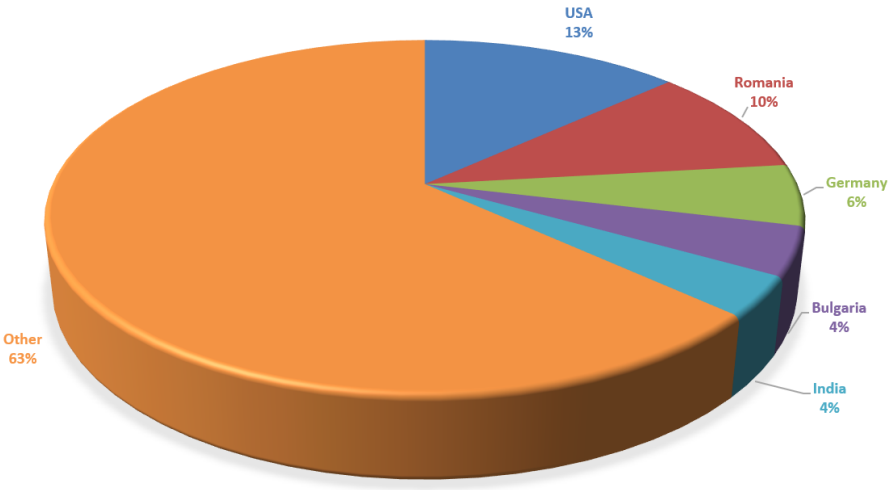


	2022	2023	2024
Export	50,48	74,99	70,34
Import	299,61	316,06	260,37

Source: TURKSTAT

Chart 48: Türkiye's Foreign Trade of Other Machines Related to Machine Tools

8.1. Exports of Other Machines Related to Machine Tools

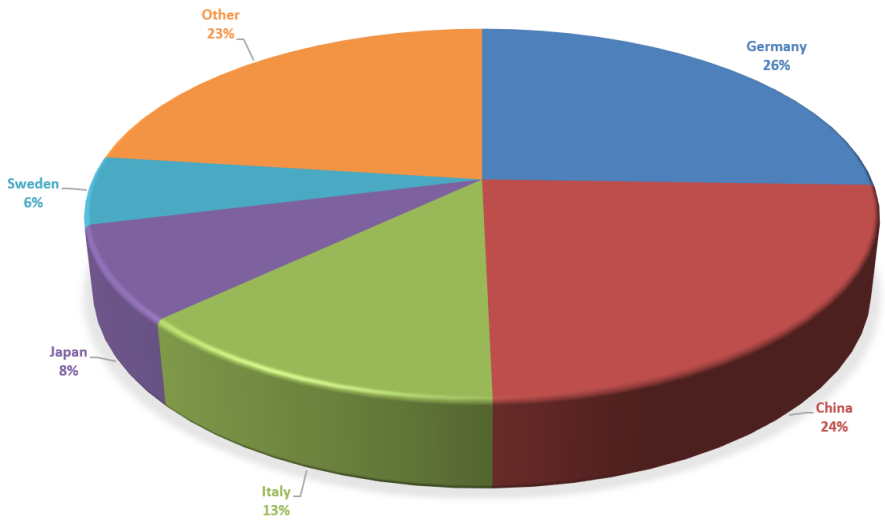


Source: TURKSTAT

Chart 49: Market Shares of Other Machines Related to Machine Tools

Industrial robots account for 50% of machinery exports in this group.

8.2. Imports of Other Machines Related to Machine Tools



Source: TURKSTAT

Chart 50: İlgili Diğer Makinelerin İthalat Pazar Payları

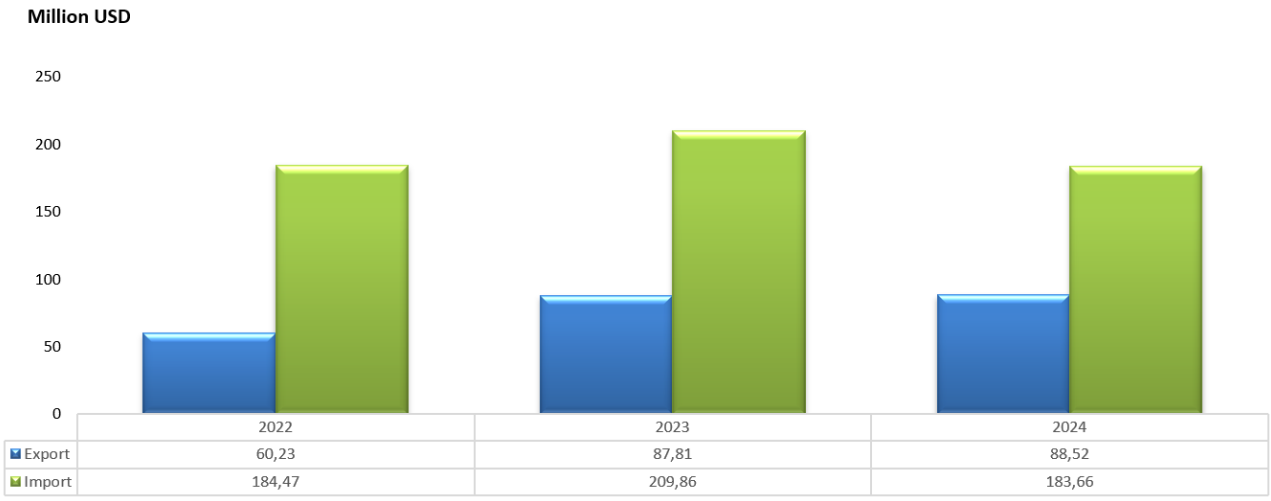
Industrial robots account for 42% of machinery imports in this group.

8.3. HS Numbers Used in the Analysis

OTHER MACHINES RELATED TO MACHINE TOOLS	8464.20.80.00.00	Optical glass processing machines
	8479.50.00.00.00	Industrial robots
	8479.81.00.00.00	Electric wire coil winding machine
	8485.10.00.00.00	Machines for additive manufacturing - Metal
	8485.20.00.00.00	Machines for additive manufacturing - Plastic or rubber
	8514.40.00.00.00	Shrink machines
	8515.80.10.10.00	Ultrasonic welding machines for metals
	8515.80.10.20.00	Hot spraying machines for cemented carbides
	8515.80.90.10.00	Other ultrasonic welding machines

9. FOREIGN TRADE OF SEMI-FINISHED PRODUCTS AND SOME SPARE PARTS

In this section, tool-steel bars, carbide plates, carbide bars and spare parts for calipers, micrometers and metrology equipments needed in cutting tool production are included. While determining the trade volume in Türkiye, the opinions of the sector companies were taken and the most intensively traded products were taken into consideration. The HS numbers used in the calculations are presented below.

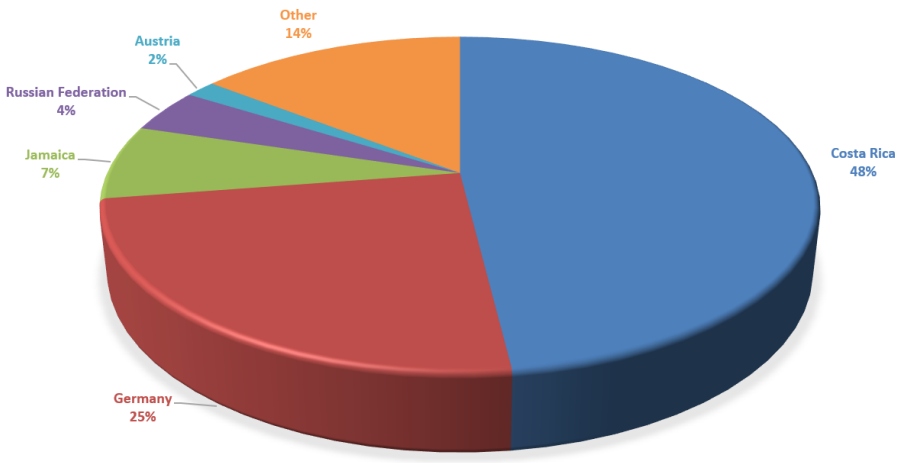


	2022	2023	2024
Export	60,23	87,81	88,52
Import	184,47	209,86	183,66

Source: TURKSTAT

Chart 51: Türkiye's Foreign Trade of Semi-finished Products and Some Spare Parts

9.1. Exports of Semi-finished Products and Some Spare Parts

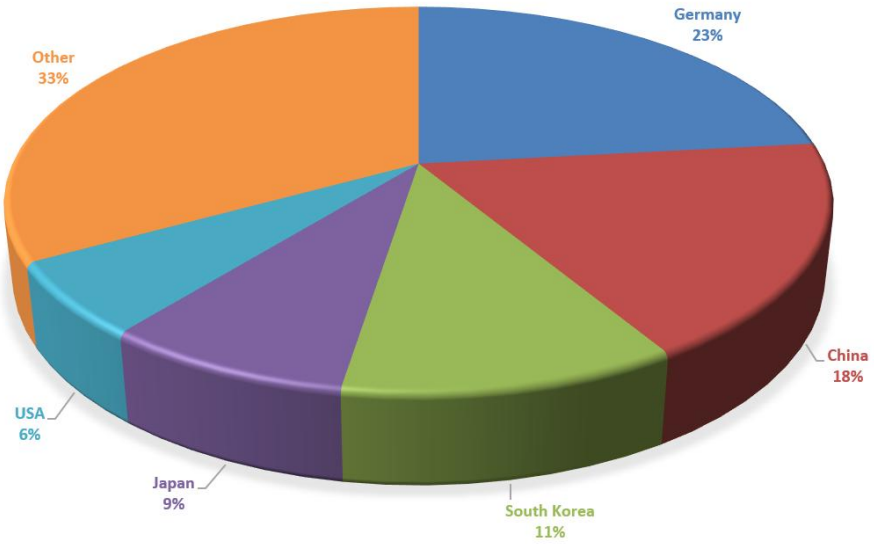


Source: TURKSTAT

Chart 52: Export Market Shares of Semi-finished Products and Some Spare Parts

In this group, 93% of exports were tool-steel bars, carbide plates and bars for cutting tools.

9.2. Imports of Semi-finished Products and Some Spare Parts



Source: TURKSTAT

Chart 53: Export Market Shares of Semi-finished Products and Some Spare Parts

In this group, 93% of exports were tool-steel bars, carbide plates and bars for cutting tools.

9.3. HS Numbers Used in the Analysis

SEMI-FINISHED AND SOME SPARE PARTS	7228.30.20.00.00	Tool-Steel Bar
	8209.00.20.00.00	Unassembled plates, bars for tools; tips and similar inserts (from cermets): Plates
	8209.00.80.00.00	Unassembled plates, bars for tools; tips and similar inserts (from cermets): Others
	9017.90.00.10.00	Caliper and micrometer parts: digital
	9017.90.00.90.00	Caliper and micrometer parts: analog
	9031.90.00.90.00	Components, parts and accessories: Others

10. INTRODUCTION AND MEMBER PROFILE OF MACHINE TOOLS INDUSTRIALISTS AND BUSINESS ASSOCIATION (TİAD)

10.1. Introduction

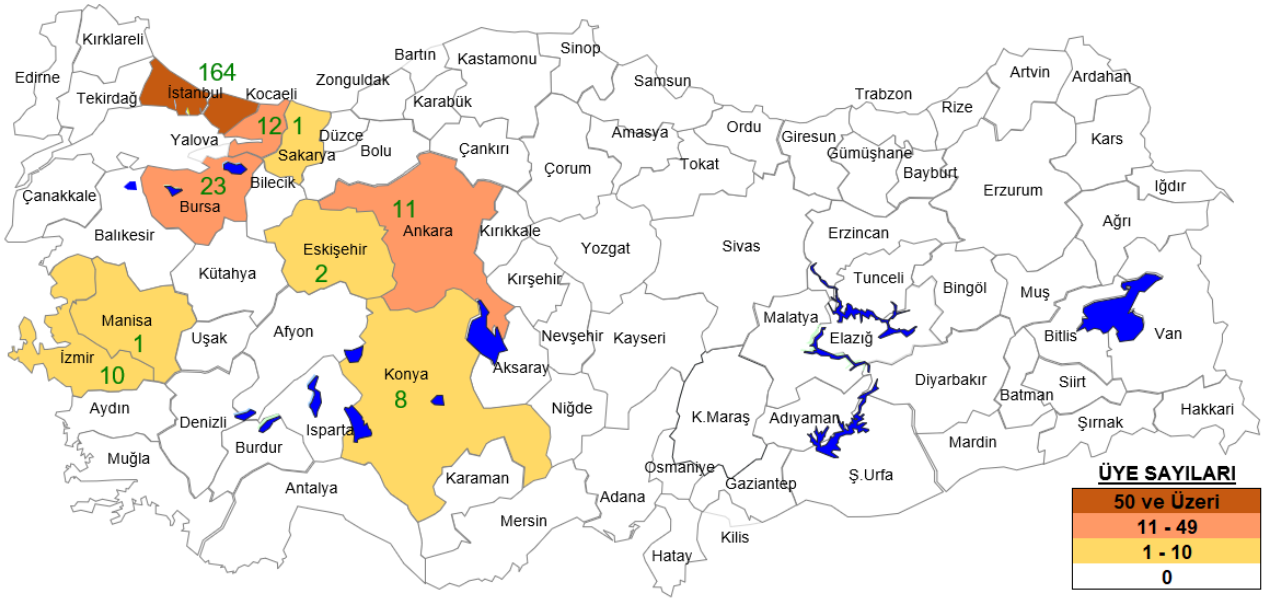
The Machine Tools Industrialists and Business Association (TİAD) was established in 1992 to bring together industrialists and business people operating in the field of machine tools and related equipments systems, which are the basic production tools of the manufacturing industry. TİAD supports the production, export, after-sales services and technology transfer of advanced technologies that support production processes such as machine tools, cutting and holding tools, clamping systems, metrology and quality control equipment, software for production technologies, additive manufacturing machines, robots, automation and mechatronic systems.

TİAD, which continues its activities at its headquarters in Bayrampaşa, Istanbul, has a continuously growing structure with 232 members today. More than 80% of Türkiye's need for machine tools and related equipment is met by TİAD members, and the association plays a key role in the development of the sector.

TİAD continues to be the voice of the sector not only on a national scale but also on international platforms. In Türkiye, TİAD plays an active role as a member of the Machinery Technical Committee of the Ministry of Industry and Technology of the Republic of Türkiye, the Machinery and Equipment Manufacturing Assembly of the Union of Chambers and Commodity Exchanges of Türkiye (TOBB), and the Turkish Machinery Federation (MAKFED); abroad, TİAD has been a member of the European Machine Tools, Tool and Technologies Trade Association (CELIMO), the umbrella organization of the European machine tools industry, since 2000. TIAD assumed the presidency of CELIMO between 2006-2008 and 2020-2023 and is currently serving as a Board Member of this organization. CELIMO has a significant representation power in the European market with over 1,000 companies with a capital of more than 15 billion Euros.

The majority of TİAD members are located in the Marmara Region. Manufacturing companies operating especially in the fields of sheet-metal working machines, metalworking machines, cutting/holding tools, part clamping systems, robotic systems and production software are located in industrial centers such as İstanbul (46), Bursa (12), Kocaeli (10), Konya (5), İzmir (5), Ankara (2), Eskişehir (1), Manisa (1) and Sakarya (1).

Representing the strength of the manufacturing industry, TIAD continues to be a leading civil society organization in Türkiye's industrial transformation.



Source: TİAD

Chart 54: Distribution of TİAD Members by City

The Machine Tools Industrialists and Business Association (TİAD) contributes to the development of the sector through the committees and working groups it has established within its corporate structure. The Fair, Legislation, After-Sales Services, Press-Publication and Promotion, Education Committees and the Tooling, Sheet-Metal Working Machinery, CAD/CAM and Metrology Working Groups, which operate within TİAD, direct the association's activities for sectoral needs.

TİAD continues its activities through different organizations. In line with the demands and needs of the sector, TİAD carries out its activities for the press-publication (TT Magazine), fairs (MAKTEK Fairs, the trademark right of which belongs to TİAD), training (TIAD Academy) and designer-industrialist cooperation development activities (Open Design İstanbul), professional competence evaluation/certification (TİAD Vocational Test Center) under a joint stock company.

TIAD Organization Services leads the organization of national and international machine tools and related equipment fairs in order to support TİAD members to reach a strong structure in the global market and to develop their customer and sales networks. In this context; MAKTEK Eurasia, MAKTEK Konya, MAKTEK Smart, and Istanbul Quality Fairs are supported by TİAD. MAKTEK Fairs are registered trademarks of TİAD.

TİAD closely follows the sector fairs organized abroad and announces these fairs to its members through its bulletin and website. Travel and accommodation organizations are organized so that members can visit the fairs deemed important by the sector under favorable conditions. As an association, member companies and the sector are promoted by participating in fairs abroad.

TIAD Press-Publication and Promotion Services; TİAD publishes "TT MAGAZINE - Machine Tools and Production Technologies Magazine" every two months. With this magazine, TIAD provides its members and machine tool users with the latest technical and technological developments in local and global markets.

Since 2004, TT Magazine has been keeping its readership rate at the highest level with its high quality and informative content, and brings advertisers together with their target audience at the maximum point through accurate and effective distribution. Currently one of the leading magazines in the sector, TT Magazin is printed in 3,000 copies and sent to companies, associations and unions, and universities in the automotive, aerospace and defense, medical, white goods, molding, shipbuilding, pipe, iron and steel, construction machinery and equipment, agricultural equipment and similar sectors; it is also delivered to chambers of industry and commerce, libraries, international commercial attaché offices, and distributed free of charge to all exhibitors and visitors at relevant sectoral fairs.

TİAD Training and Consultancy Services; With the "TİAD ACADEMY - Applied and Vocational Technical Training Center", studies are carried out to ensure more efficient operation of Machine Tools used in the production sector, to increase the production capacity of companies and to reduce business process costs by training qualified technical staff in order to improve the use of CNC systems, design and manufacturing process in the Turkish industry.

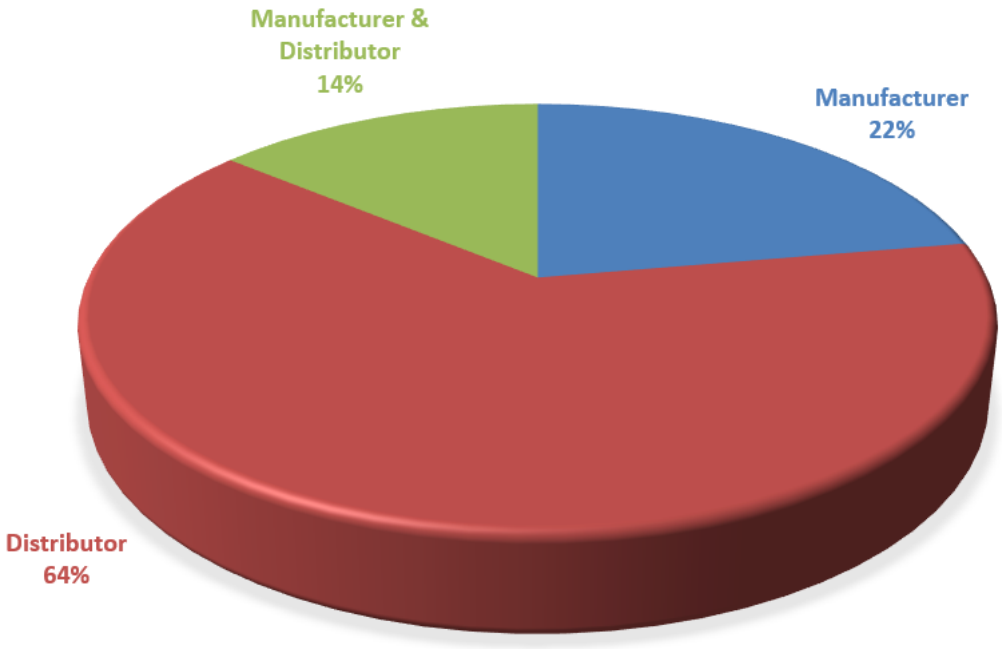
TIAD ACADEMY, which takes the knowledge and experience of TIAD members behind it; due to this advantage, unlike similar institutions that provide the same trainings, it provides technical and practical training only by covering the costs, without aiming to make a profit, in order to make our country a country that produces more.

With the Open Design İstanbul Designer-Industrialist Collaboration Platform, which is the output of the "Open Source Design Center and Collaboration Platform Project" carried out with the support of the Istanbul Development Agency between 2021-2023, a new one has been added to the value-added services provided to the sector.

TIAD Vocational Test Center (TIAD MTM); In the field of installation and repair of Machine Tools, Vocational Qualification exams are held based on the National Qualifications prepared by TIAD for the professions of "CNC Machine Tools Application and Service Staff", "CNC Machine Tools Mechanical Service Staff" and "CNC Machine Tools Electrical/Electronic Service Staff" and published by the Vocational Qualifications Authority (MYK) and "Vocational Qualification Certificate" is given according to the results.

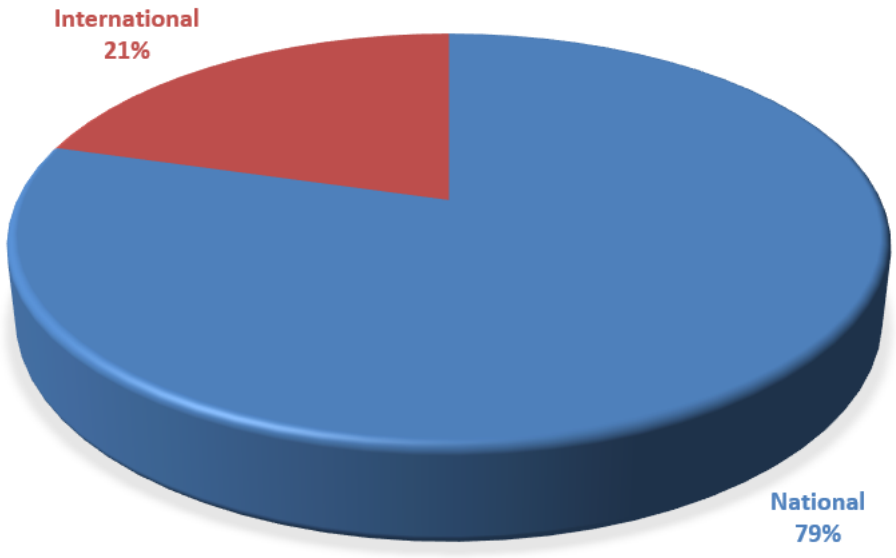
In line with its objectives, TIAD MTM has been accredited by the Turkish Accreditation Agency (TÜRKAK) and authorized by the Vocational Qualifications Authority (MYK) to issue "Vocational Qualification Certificate" for sector employees, which replaces a driver's license for their work. Accordingly, it carries out personnel certification activities in the professions within the scope of accreditation.

10.2. Member Profile



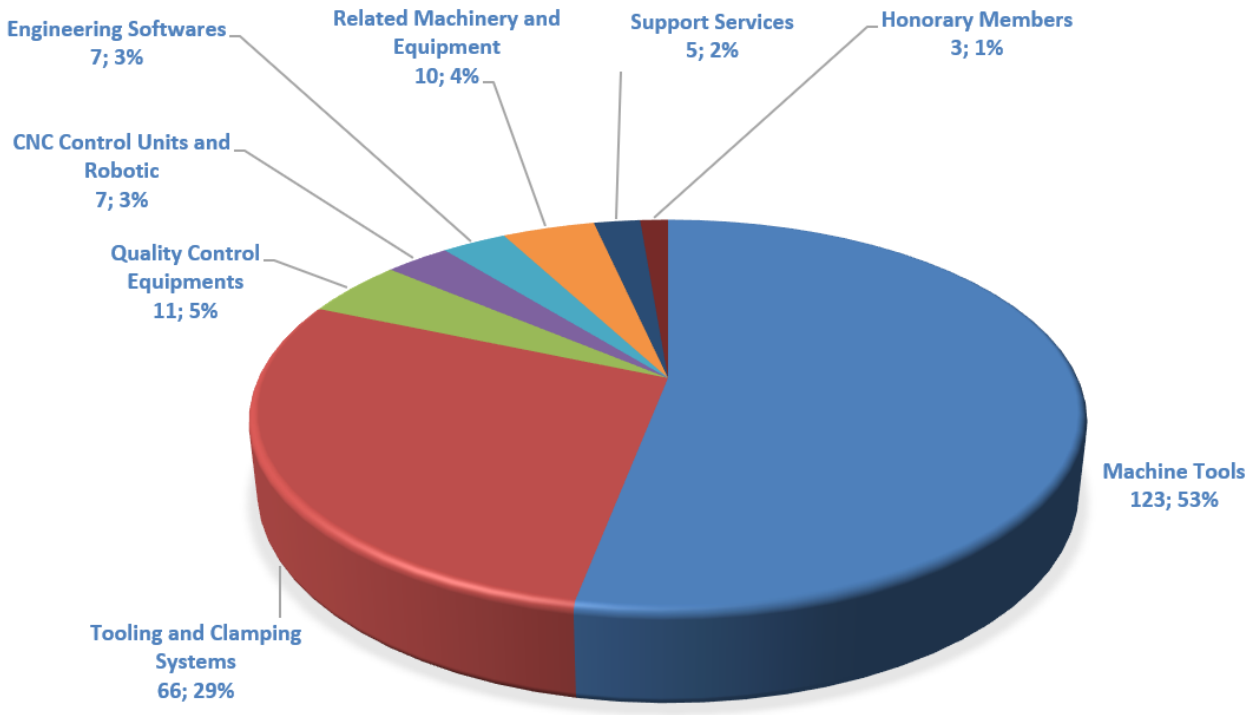
Source: TİAD

Chart 55: Distribution of Member Companies by Type of Activity



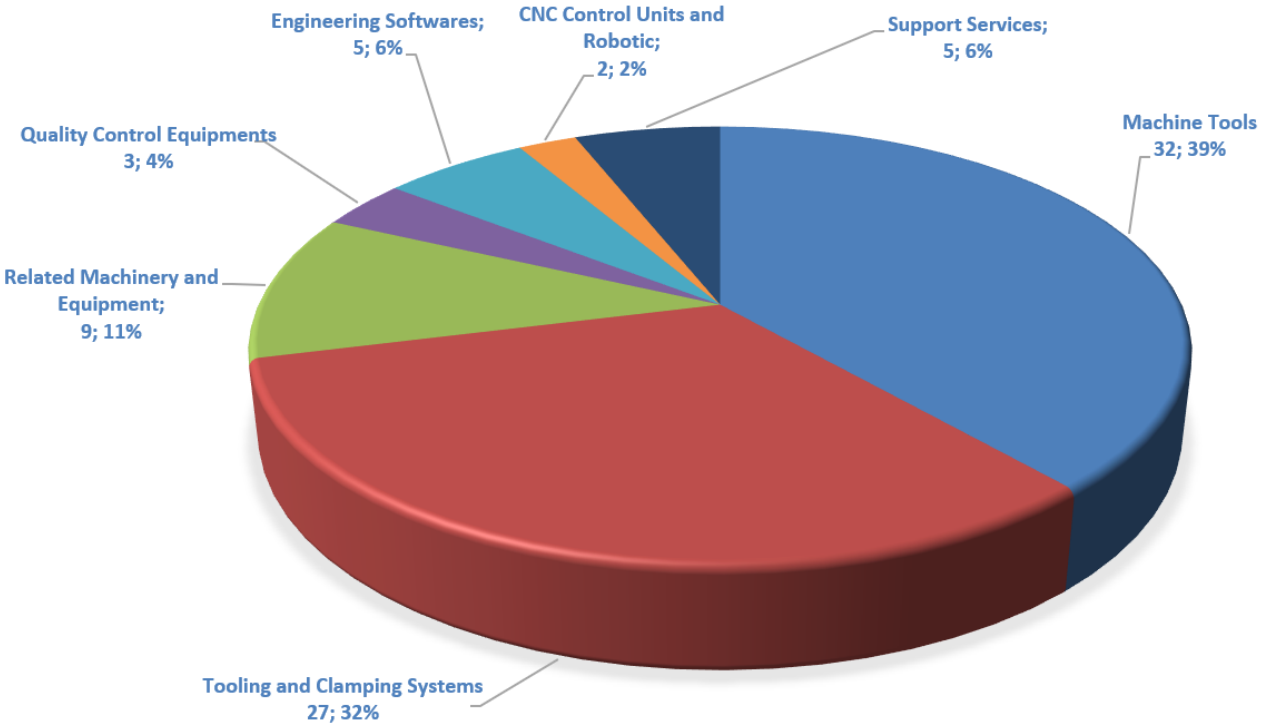
Source: TİAD

Chart 56: Distribution of Member Companies by Capital Type



Source: TİAD

Chart 57: Distribution of Member Companies by Field of Activity



Source: TİAD

Chart 58: Distribution of Manufacturing Member Companies by Field of Activity

TIAD

MACHINE TOOLS INDUSTRIALISTS AND BUSINESS ASSOCIATION