

SURGICAL INSTRUMENTS SECTOR



Table of Contents

1. Disclaimer	3
2. Introduction to SMEDA	3
3. Introduction to Pakistan's Surgical Instruments Sector	4
3.1 Sector's Overview.....	4
3.2 Contribution of Surgical Instruments Sector to the Economy of Pakistan	4
3.3 HS Codes Listing for Surgical Instruments Sector	5
3.4 Products Description	5
3.5 Product Classifications	6
4. Pakistan's Trade in Surgical Instruments Sector	6
4.1 Pakistan's Exports.....	6
4.2 Pakistan's Imports	8
5. Surgical Instruments Sector Global Perspective	8
5.1 World Exports in Surgical Instruments Sector	9
5.2 Top 5 Exporting Countries and Pakistan	9
5.3 World Imports in Surgical Instruments Sector	11
5.4 Top 5 Importing Countries and Pakistan	11
5.5 Pakistan Share in World Exports	13
6. Major Surgical Instruments Cluster in Pakistan.....	13
6.1 Back Ground and Geography of Cluster.....	13
6.2 Marketing and Sales	14
6.3 Financing	14
6.4 Human Resource Management	14
7. Way Forward	15
8. Annexures	16
8.1 Annexure 1: Authorities, Trade Bodies and Associations	16
8.2 Annexure 3: Useful links.....	17
9. References	17

1. Disclaimer

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2. Introduction to SMEDA

Small and Medium Enterprises Development Authority (SMEDA) is an apex SME development agency working under the Ministry of Industries and Production (MoI&P), Government of Pakistan. In pursuit of its mission, SMEDA has adopted an integrated strategy that comprises SME sectors & clusters development, Business Development Services (BDS), and Policy advocacy to protect and promote SME interests.

SMEDA offers a broad spectrum of business development services to SMEs which include prefeasibility studies, identification of experts and consultants, delivery of need-based capacity building programs in addition to business guidance through help desk services.

3. Introduction to Pakistan’s Surgical Instruments Sector

3.1 Sector’s Overview

The Surgical Instruments industry of Pakistan is a highly fragmented industry, with a strong export orientation, operating in the city of Sialkot, in the Punjab province of Pakistan. The industry consists of a multitude of small and medium sized manufacturers with a few large units. The industry mostly operates on an OEM (Original Equipment Manufacturer) model. Orders and specifications are received from buyers, mostly in USA, Germany, UK and China. Local manufacturers build the product according to specifications of the importing country and export these to the overseas buyers who usually brand the instruments and supply them to distributors overseas.

The sector is contributing towards the economy of Pakistan in multiple ways by providing employment opportunities, generating national income, increasing foreign exchange and contributing to national trade. The surgical instruments industry is mainly located in the industrial hub of Sialkot Punjab, where the major part of this industry is clustered and accounts for nearly 99 percent of the industry’s total production. The location of this cluster is largely a result of economies of scale with Sialkot being the centre of excellence for the production of surgical instruments for more than 100 years. Sialkot surgical instruments industry flourished in 1940’s and at the time of independence there were 17 registered surgical firms operating in Sialkot. This has been attributed to the availability of skilled labour force and entrepreneurs in the city, which also possesses favourable indicators in literacy, health, electricity and water facilities. In addition to this, Sialkot also benefits from the availability of basic infrastructure for industry including a dry port and an international airport which serves as an export hub for manufactured goods.

3.2 Contribution of Surgical Instruments Sector to the Economy of Pakistan

Some major indicators as of 2021, in the surgical instruments sector in Pakistan’s Economy are as follows:

Particulars	Indicators
Direct Employment	100,000 – 150,000
Indirect Employment	400,000 – 450,000
Contribution to Export (2021)	1.46%
Contribution to GDP	0.42%
YoY Growth in Exports	16%
Production Quantity Export (2021)	133.4 million pcs
Total Production Value Export (2021)	> USD 420.9 million
%age of Total Production Exported	> 95%
Estimated No. of SMEs	> 2300 (approx.)
Capacity Utilization	85% to 90%

Table 1: Economic Indicators of Surgical Instruments Sector

Source: SCCI and Trade Maps

3.3 HS Codes Listing for Surgical Instruments Sector

The Harmonized System (HS) is an international nomenclature for the classification of products published by the World Customs Organization (www.wcoomd.org). It allows countries to classify traded goods on a common basis for customs purposes.

Surgical instruments can be defined as the devices or tools that are used to perform cutting, holding, grasping, retracting or suturing. The basic material used in manufacturing process of surgical instruments is steel. Along with steel, radium, titanium, chromium and molybdenum are also used in the production of surgical instruments. With the introduction of new medical fields, surgical instruments have become more complicated. The nature of surgical instruments has advanced to inclusion of computerised components in them. This hi-tech era and the use of advanced technology have changed the design and prerequisites of production of surgical instruments and equipment.

The Harmonized Commodity Description and Coding System (HS Codes) designated for trade of Surgical Instruments is **HS 9018**. The brief description of sub-categories falling in this product category are described below in Table 2.

3.4 Products Description

Under the **HS Code 9018**, surgical instruments contain number of products; the major products manufactured in this category with significant production quantities and having export potentials include the following:

Sr. No.	HS Codes	Product Description
1	901811	Electro-Cardiographs
2	901812	Ultrasonic Scanning Apparatus
3	901813	Magnetic Resonance Imaging Apparatus
4	901814	Scintigraphic Apparatus
5	901819	Electro-Diagnostic Apparatus
6	901820	Infra-Red Ray Apparatus
7	901831	Needles and Syringes
8	901832	Tubular Metal and Suture Needles
9	901839	Needles, Catheters, Cannulas Etc.
10	901841	Dental Drill Engines
11	901849	Dental Science Instruments
12	901850	Ophthalmic Instruments and Appliances
13	901890	Instruments for Medical, Surgical or Veterinary Sciences

Table 2: List of Surgical Instruments HS Codes

3.5 Product Classifications

The industry makes specialized instruments used in the various branches of modern surgery. Production can be made in accordance with British, German, American or any international standards / specification. The advanced countries of Europe and America are the leading buyers of Pakistan's surgical instruments. A broad range of surgical instruments as given below are being manufactured:

• Diagnostic	• Anaesthesia	• Sterilization
• Vaccination	• Suture	• Obstetrics
• General Instruments	• Neurology	• Oral Instrument
• Plasters	• Lung Surgery	• Urology
• Bone Surgery	• Dermatology	• Gynaecology
• Tracheotomy	• Ophthalmology	• Intestine
• Cardiovascular	• Tonsil	• Stomach
• Otology	• Rhinology	• Rectum

Table 3: Surgical Instruments Product Range

4. Pakistan's Trade in Surgical Instruments Sector

Pakistan exports surgical instruments in all sub-categories of HS 9018 as listed in the section below.

4.1 Pakistan's Exports

The total US dollar value of Pakistan's exports in the HS Code 9018 surgical instruments sector sub categories from 2017 to 2021 is shown in the table below:

Pakistan Exports in Surgical Instruments Sector HS - 9018					
HS - 9018	2017	2018	2019	2020	2021
Sub - Category	Amount US \$ Thousands				
901811	0	0	0	0	0
901812	4	21	65	50	17
901813	0	20	111	19	0
901814	0	0	0	0	0
901819	2	93	290	194	245
901820	0	0	1	9	0
901831	8	13	31	21	33
901832	8	12	12	36	59
901839	61	41	62	32	3,060
901841	0	5	10	2	13
901849	4,320	4,960	2,888	496	682
901850	15	91	83	54	29
901890	361,132	375,515	405,512	361,436	416,799

Total	365,550	380,779	409,065	362,349	420,937
% Growth	5%	4%	7%	-11%	16%

Table 4: Pakistan Exports in Surgical Instruments HS 9018

Source: Trade Map [www.trademap.org]

Pakistan exports surgical instruments in various categories especially in the category of HS 901890 i.e. Instruments for Medical, Surgical or Veterinary Sciences. Over the years, export figures have shown mixed growth, with a negative growth in the year 2020 of 11% and then sheer increase of 16% in year 2021. During the year 2021, the exports value of Surgical Instruments was USD 421 million out of which USD 417 million (approx.) was the export of Instruments for Medical, Surgical or Veterinary Sciences. The decline in surgical instruments sector during the FY 2020 was mainly due to the outbreak of the COVID-19 pandemic.

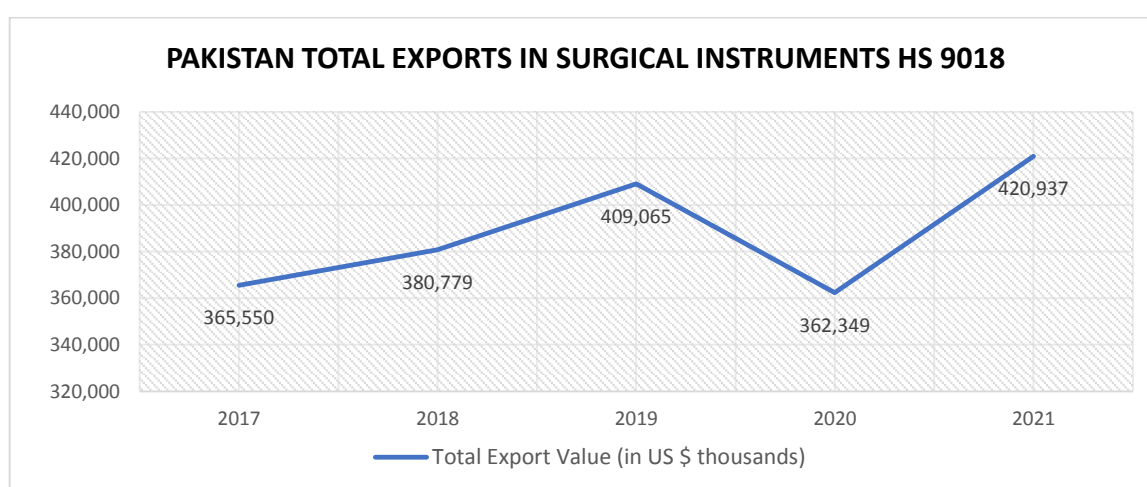


Figure 1: Pakistan Exports in Surgical Instruments HS 9018

The above illustration shows total value of Pakistan's surgical instruments sector exports (in US dollar thousand) as a five-year trend from 2017 to 2021. Over the said period of time the exports of surgical instruments increased after 2017 to 2019 but declined in 2020 and then again increased in year 2021.

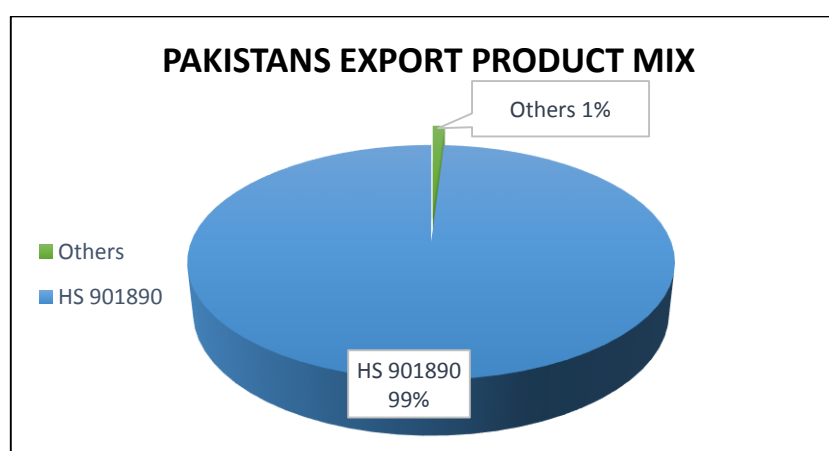


Figure 2: Pakistan Exports Product Mix

The above pie chart indicates Pakistan's export product mix for surgical instruments sector, based on total value of products exported in the year 2021. It can be seen that the major value contributor in Pakistan's surgical instruments sector exports is product category HS: 901890 which represents Instruments for Medical, Surgical or Veterinary Sciences constitute 99% of the total exports of HS 9018. For Others category in the following pie chart reflecting the HS codes that forms a negligible portion of the mix includes HS-901811, HS-901812, HS-901813, HS-901814, HS-901819, HS-901820, HS-901831, HS-901832, HS-901839, HS-901841, HS-901849 and HS-901850.

4.2 Pakistan's Imports

The total US dollar value of Pakistan's imports in the HS Code 9018 surgical instruments sector from 2017 to 2021 is shown in the table below:

Pakistan Total Imports in Surgical Instruments Sector					
HS Code # 9018	2017	2018	2019	2020	2021
	Amount US \$ Thousand				
Total	344,546	344,141	288,243	242,205	299,751
Growth %	28%	0%	-16%	-16%	24%

Table 5: Pakistan Imports in Surgical Instruments HS 9018

Source: Trade Map [www.trademap.org]

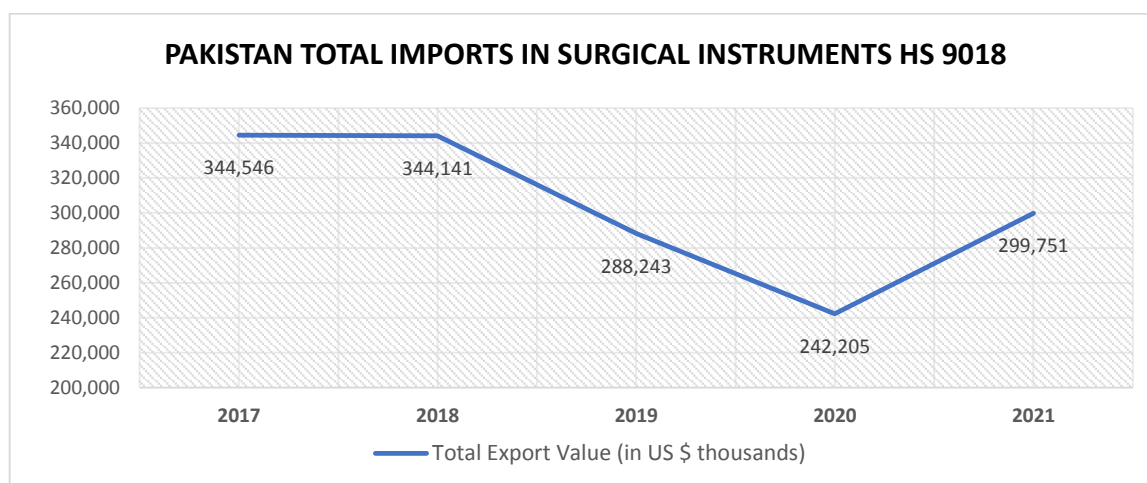


Figure 3: Pakistan Imports in Surgical Instruments HS 9018

Source: Trade Map [www.trademap.org]

5. Surgical Instruments Sector Global Perspective

HS product category HS-9018 covers trade in "Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraph apparatus, other electro-medical apparatus and sight-testing instruments, etc."

5.1 World Exports in Surgical Instruments Sector

The total world exports in Surgical Instruments Sector stood at USD 32,003.9 million in the year 2020. There has been an upward trend in world exports from year 2017 to 2021 and can be seen in the table below:

World Exports in Surgical Instruments					
HS Code # 9018	2017	2018	2019	2020	2021
	Amount US \$ Million				
World Total	117,010	127,203	134,439	133,719	153,273
Growth %	5%	9%	6%	-1%	15%

Table 6: World Exports in Surgical Instruments Sector

Source: Trade Map [www.trademap.org]

Based on the table above, the following illustration demonstrates the data on world exports:

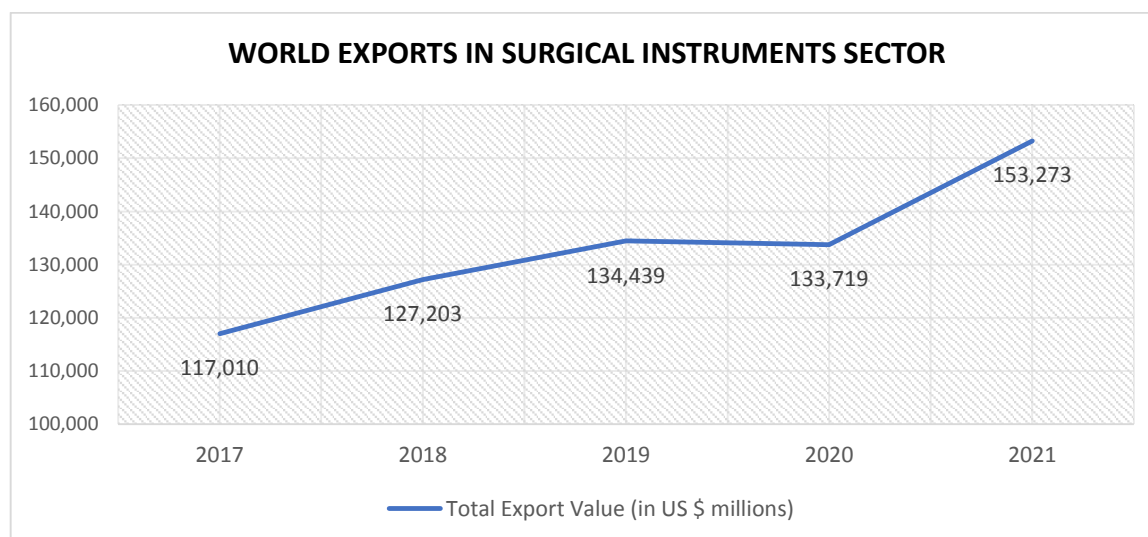


Figure 4: World Exports in Surgical Instruments Sector

5.2 Top 5 Exporting Countries and Pakistan

The data of world exports of surgical Instruments sector under the HS Code 9018 is as follows:

Top 5 Exporting Countries & Pakistan					
HS - 9018	2017	2018	2019	2020	2021
	Amounts US \$ Million				
USA	26,562	28,564	29,786	27,782	30,967
Germany	14,082	15,536	16,255	16,763	19,018
Netherlands	9,579	11,506	12,981	12,965	15,685
Mexico	7,135	7,698	8,298	8,433	9,243
China	5,926	6,656	7,421	8,904	9,077
Pakistan	366	381	409	362	421

World Total	117,010	127,203	134,439	133,719	153,273
Growth %	5%	9%	6%	-1%	15%

Table 7: Top Five Exporting Countries and Pakistan

Source: Trade Map [www.trademap.org]

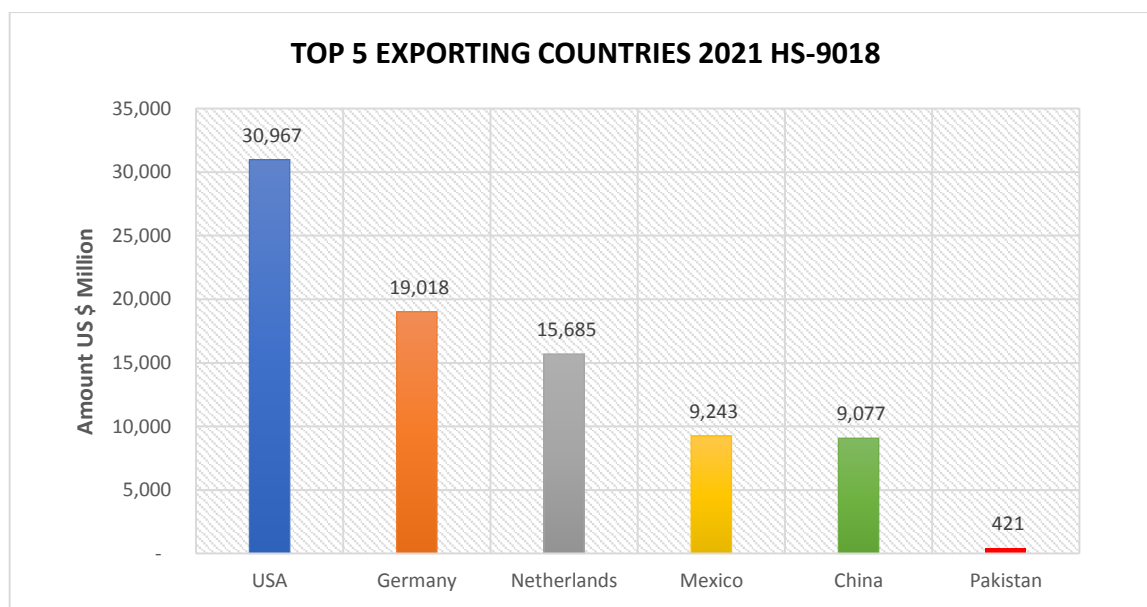


Figure 5: Top Five Exporting Countries & Pakistan

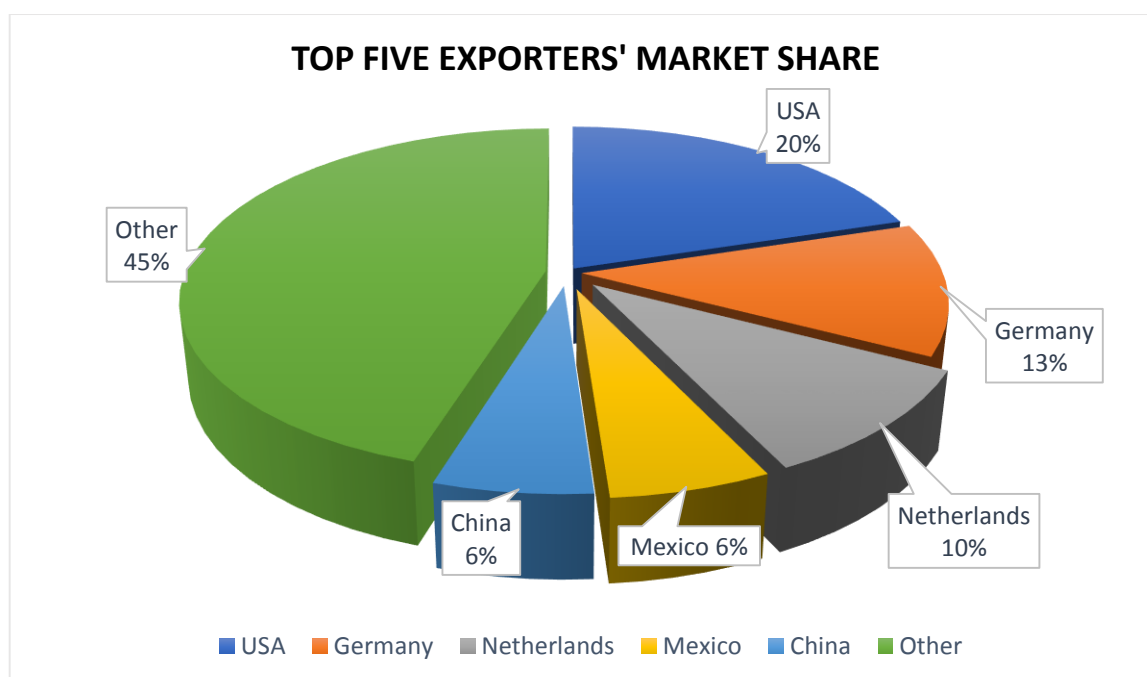


Figure 6: Top Five Exporter's Market Share

According to the above trade statistics of Surgical Instruments Sector, USA is found to be the top exporter of surgical instruments in the world. USA's exports for the year 2021 were USD 30,967 million whereas Pakistan's exports for the same period were amount to only USD 421

million. After the coronavirus brought a halt to economic activities across the globe, even though, USA's export growth jumped during the year 2021. China has 20% of the market share of Surgical Instruments in the world. It has been observed that USA's export increased in 2021 while the other players also followed the trend. The increase in exports of developed countries is their timely recovery from the pandemic while other underdeveloped countries were still managing the extreme situation. Their resilience lies not only in the country's cost-benefit, skilled labour and good infrastructure but also in a state-controlled banking system that has been offering small and large businesses extra loans to cope with the pandemic.

5.3 World Imports in Surgical Instruments Sector

The total world imports in surgical instruments sector stood at USD 152,253 million in the year 2021. There was a dip in world imports in the year 2019 and then increased by 12% in 2021. The imports increased during the period as shown in the table below:

World Imports in Surgical Instruments Sector					
HS Code # 9018	2017	2018	2019	2020	2021
	Amount US \$ Million				
World Imports	115,856	127,563	137,947	136,453	152,253
Growth %	5%	10%	8%	-1%	12%

Table 8: World Imports in Surgical Instruments Sector

Source: Trade Map [www.trademap.org]

5.4 Top 5 Importing Countries and Pakistan

The data of world imports of surgical instruments under the HS Code 9018 is as follows:

Top 5 Importing Countries & Pakistan					
HS - 9018	2017	2018	2019	2020	2021
	Amounts US \$ Million				
USA	22,907	25,322	27,938	27,318	31,991
Germany	8,934	9,890	10,187	11,155	12,455
Netherlands	8,070	9,392	9,794	9,647	11,567
China	7,420	8,637	9,815	9,715	11,432
Japan	5,739	6,371	7,000	6,476	6,893
Pakistan	345	344	288	242	300
World Total	115,856	127,563	137,947	136,453	152,253
Growth %	5%	10%	8%	-1%	12%

Table 9: Top Five Importing Countries and Pakistan

Source: Trade Map [www.trademap.org]

The above Table no. 9 shows data of world imports of Surgical Instruments Sector of last five years. It shows that USA is the top importer of Surgical Instruments and its imports for the

year 2021 were amount to USD 31,991 million. Pakistan's imports for the year 2021 were amount to USD 300 million.

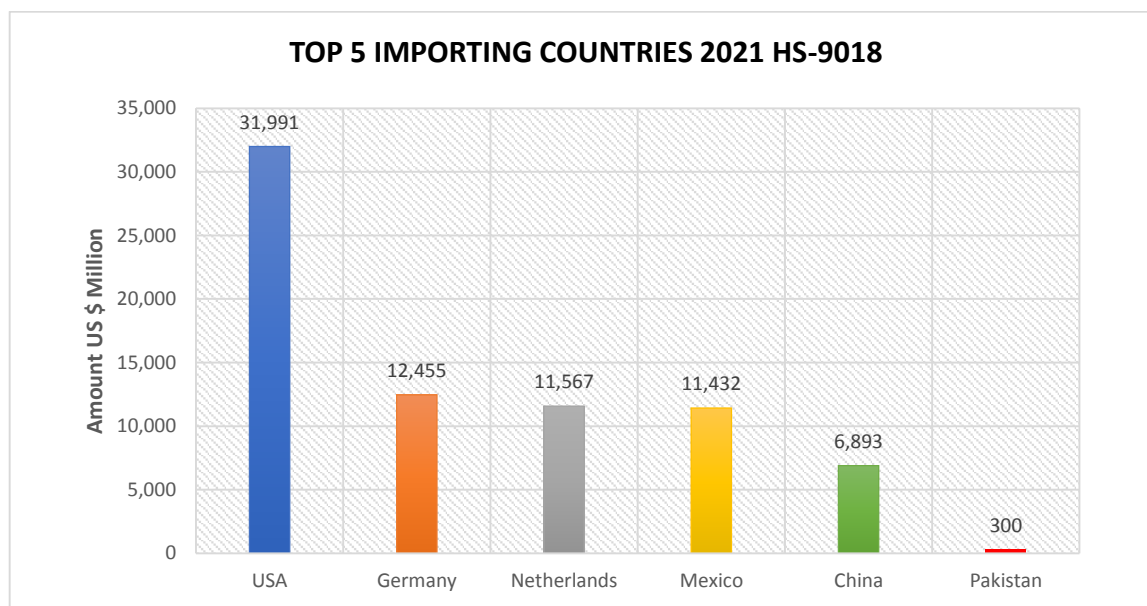


Figure 7: Top Five Importing Countries in 2021

Source: Trade Map [www.trademap.org]

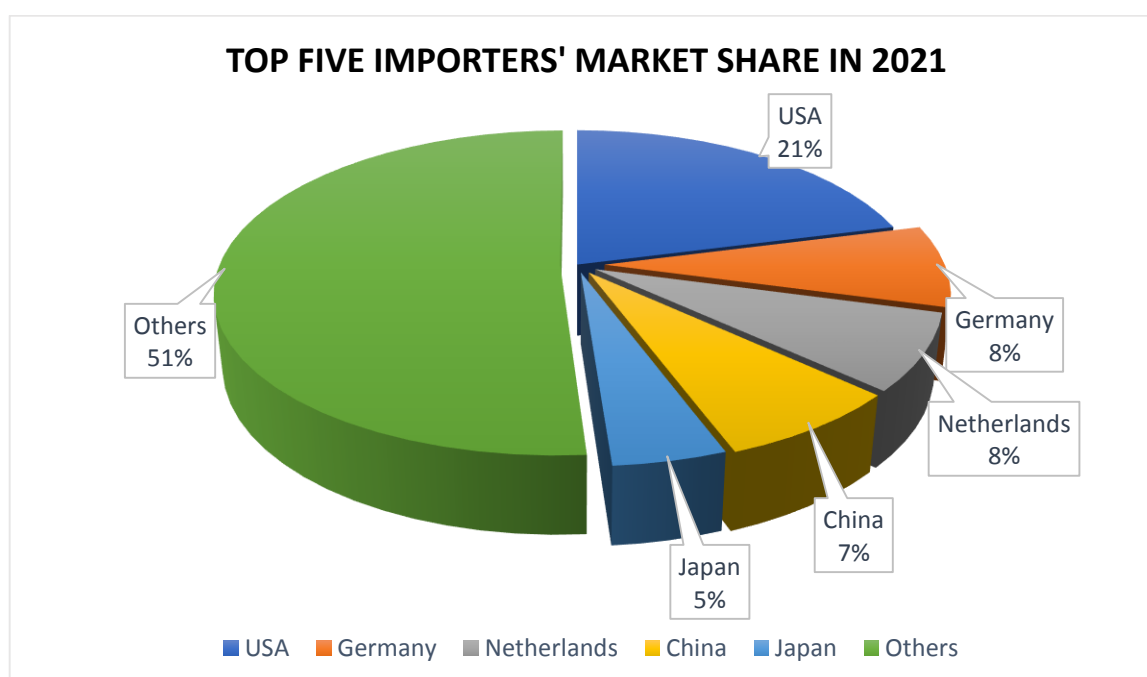


Figure 8: Top Five Importer's Market Share in 2021

The above Pie Chart in Fig. no. 8 shows market share of world's top five importers of Surgical Instruments in year 2021. It shows that USA is the top importer of Surgical Instruments with market share of 21% for the year 2021. Germany and Netherlands have 8% each market share whereas China has 7% and Japan has 5% of Market Share in 2021. Others includes majorly France, Belgium, UK, Italy, Mexico, Canada, Spain, Australia, Russia, Korea, Switzerland, India, Singapore, Hong Kong, etc.

5.5 Pakistan Share in World Exports

The Table no. 10 below is showing Pakistan's export data of major exports items in surgical instruments for the year 2021 and its share in world exports.

HS Codes	Pakistan Exports 2021	World Exports 2021	Pakistan's Share in World Exports
	Amounts US \$ Million		%age
901819	0.245	16,538	0%
901839	3.06	36,057	0.01%
901849	0.682	6,819	0.01%
901890	416.8	65,179	0.64%
Total 9018	420.9	153,273	0.27%

Table 10: Pakistan's Share in World Exports of Surgical Instruments

Source: Trade Map [www.trademap.org]

The data shows, Pakistan's total export of surgical instruments in 2021 is USD 420.9 million. A majority of Pakistan's exports are concentrated under HS 901890 with exports of USD 416.8 million. However, exports under this category have shown a decrease in 2020 and then increased in 2021 from USD 361.4 million to the current level of USD 416.8 million. The decline was the result of Pakistan's economic conditions during the COVID-19 pandemic.

Pakistan's major export partners in the category HS 901890 are USA, accounting for 27%, Germany 15%, UK 9%, China 5% and UAE 4%. The largest exporter of HS 9018 in the world is United States with a 20.2% share of the world market and exports of USD 30,967 million. The second largest exporter is Germany with a share of 12.4% of the world market. Pakistan's share in world exports is only 0.27%.

The other main export product for Pakistan is HS 901839 with exports of USD 3.06 million. World market for the surgical instruments mentioned in Table No. 10 is USD 153.2 billion with the largest exporter being USA, with a share of 27% of the world exports and export value of USD 30.967 billion, whereas, Pakistan has a share of only 0.27% of the world market and an export value of USD 421 million.

6. Major Surgical Instruments Cluster in Pakistan

6.1 Back Ground and Geography of Cluster

Surgical instruments manufacturing industry originated in the early 1940s in and around the city of Sialkot. Surgical Instruments are one of the most valuable and important commodities in international trade. Mainly, this cluster is located in the urban areas of Sialkot city. The major production units are in the city centre with a spread of 0 to 15 sq.km. in range. The main area of manufacturing lies in and around Commissioner Road, Air Port Road, Gohad Pur, Kulluwal Road, Jinnah Park Colony, Roras Road, and Muslim Street.

Sialkot is known internationally as a producer of quality products in surgical instruments, sports goods, leather goods, sportswear and musical instruments. The local craftsmen produce immaculate products while export oriented entrepreneurs ensure that products reach international destinations. More than 400,000+ people are engaged directly or indirectly with export activities.

Majority of surgical companies operating in Sialkot are certified with ISO-9002 standards of certification. There are more than 300 companies in Sialkot that have ISO-9002 certification while around 250 companies have good manufacturing (GM) certification. These standards enable manufacturing units to trade worldwide.

6.2 Marketing and Sales

The nature of the business at the Sialkot industrial cluster is demand-driven. The production process is generally a response based upon demand from international buyers. The supply of these surgical instruments in the local market is limited and their primary focus remains export markets. Major importers from the USA, UK, EU countries and Germany order their desired designs of surgical instruments of their own will. Despite worldwide recognition and appraise, the surgical instrument cluster is still working as a supporting organization for international brands. There is no Pakistani international brand working anywhere in the world with its own brand name. The cluster has not taken any collective initiative to do so. By registering their own logo, producers from this cluster will be able to participate in international trade exhibitions and create their own identities. It will further upgrade the status of the industry.

The marketing strategy adopted by various manufacturers of the cluster is almost similar in nature. Some large-scale manufacturers have their offices in importing countries to get business and remain in touch with international importers. This practice is limited within this cluster. There is a need to adopt this strategy by other members because it will not only enhance their knowledge about the market but also help them in staying current with advancements in the sector.

6.3 Financing

The State Bank of Pakistan (SBP) offers “Export Refinance” based short-term loans, through commercial banks at nominal rates. The scheme is offered through banks and almost all banks have their branches in the cluster. The sector also fulfils its financing requirements through Informal financing available in the form of credit on purchase of raw materials or services by suppliers.

6.4 Human Resource Management

Most firms prefer skilled labour with a certain level of formal training. Currently, training facilities are being offered by some Vocational Training Institutes (VTIs). However, there is a marked gap in the types of trainings being provided and skills required for manufacturing of sophisticated surgical instruments. This cluster lacks skilled labour, causing productivity slow

down and quality issues in the cluster, especially in the field of grinding and polishing. The industry has cited the following areas requiring skill development:

1. Milling Machine Operators
2. Lathe Machine Operators
3. CNC Machine Programmers

Training facilities at Sialkot may be divided into levels such as specialized training programs for new entrants in the market, trainings for the traditionally skilled segments of labour force and hi-tech international training programs.

Pakistan Small Industries Corporation (PSIC), Technical Educational and Vocational Training Authority (TEVTA), Small and Medium Enterprises Development Authority (SMEDA) and other relevant stakeholders may collaborate to arrange sessions of awareness creation.

7. Way Forward

Pakistan's Surgical Instruments sector has been a centre of excellence for production of high-quality surgical instruments for more than 100 years, positioned in the city of Sialkot, and is acclaimed as one of the world-famous hubs of steel products manufacturing. However, there is no prominent local brand of surgical instruments acclaimed internationally from Pakistan, even though international brands source their products from Sialkot. Creating a brand for the cluster is one of the most pressing requirements of local exporters.

To support Productivity, Quality and Innovation (PQI) Initiatives, the Ministry of Science & Technology, Government of Pakistan has launched a program "Certification Incentive Programme for SMEs under PQI Initiative 2025". This program has been launched to attract SMEs who may use professional services to solve their problems, which would invariably lead to better quality products, improved industrial productivity and competitiveness and wider penetration of Pakistani products into the international market. This project provides incentives to SMEs in the export-based Manufacturing & Service Sectors including the Surgical Instruments Sector to acquire the Certification/ Accredited as relevant to their business areas. SMEs of the surgical instruments sector can greatly benefit by participating in the program.

There is significant potential for investment for expanding the scope of conventional surgical products through manufacturing of "Body Implants" and "Electro medical Equipment". Both categories of products have immense potential both in the domestic and international markets. The Government of Pakistan has announced policies and incentives for investment in the sector in Pakistan Strategic Trade Policy Framework (STPF) 2015-18.

8. Annexures

8.1 Annexure 1: Authorities, Trade Bodies and Associations

Surgical Instruments Manufacturers Association of Pakistan (SIMAP) Address: Near Sublime Chowk, Marala Road, Sialkot Tel: 052-3554890, 052-3563014, 052-3562940 Email: info@simap.org.pk chairman@simap.org.pk Web: www.simap.org.pk	Certification Incentive Programme for SMEs under PQI Initiatives-2025, Ministry of Science & Technology Address: Ministry of Science & Technology, 1-Constitution Avenue Sector G-5/2, Islamabad. Tel: 051-9216930-1 Web: www.cipmost.gov.pk Email: pmcipmost@gmail.com dpmcip@gmail.com
Sialkot Chamber of Commerce & Industry (SCCI) Address: SCCI Building, Paris Road, Sialkot Tel: (+92) 52 4261 881-3 Web: www.scci.com.pk Email: sialkot@scci.com.pk	Regional Business Center (RBC) – Small & Medium Enterprises Development Authority (SMEDA) Address: SBCC Building, Paris Road, Sialkot Tel: (+92) 52 4261 881 Web: www.smeda.org.pk Email: asim.malik@smeda.org.pk
Metal Industries Development Centre (MIDC) Address: Allama Iqbal Road, Sialkot Cantonment Tel: (+92) 52 9250 288 Web: facebook.com/Tevta.Midc.Ist	Trade Development Authority of Pakistan (TDAP) Address: Paris Road, Sialkot Tel: (+92) 52 9250 081 Web: www.tdap.org.pk Email: tdap@tdap.gov.pk
Small & Medium Enterprises Development Authority (SMEDA) Address: SBCC Building, Paris Road, Sialkot Tel: (+92) 52 4261 881 Web: www.smeda.org.pk Email: info@smeda.org.pk	

8.2 Annexure 3: Useful links

Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries and Production – MoIP	www.moip.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Baluchistan	www.balochistan.gov.pk
Government of Azad Jammu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan – TDAP	www.tdap.gov.pk
Board of Investment – BOI	www.invest.gov.pk
Security & Exchange Commission of Pakistan – SECP	www.secp.gov.pk
Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Sialkot Chamber of Commerce & Industry (SCCI)	www.scci.com.pk
Federation of Pakistan Chambers of Commerce & Industry – FPCCI	www.fpcci.com.pk
State Bank of Pakistan – SBP	www.sbp.org.pk
SIMAP	www.simap.org.pk
PCSIR	www.pcsir.gov.pk
PSQCA	www.psqca.com.pk
CIP MOST	www.cipmost.gov.pk
ITC Trade Maps	www.trademap.org
Punjab Small Industries Corporation (PSIC)	www.psic.gov.pk

9. References

1. Import/Export data retrieve form Trade Map [www.trademap.org]
2. Export potential data retrieve Export Potential Map [www.exportpotential.intracen.org]
3. Profile of Surgical Instruments Sector by SMEDA
4. Sialkot Chamber of Commerce & Industry (SCCI)
5. Cluster Profile Surgical Instruments, Sialkot by SMEDA
6. Trade Analysis Series, Pakistan Surgical Instruments Sector by SMEDA
7. Diagnostic Study of Industrial and Handicrafts Clusters in Punjab by PSIC
8. Report on “Industrial Sector” by UNIDO Trade Related Technical Assistance Program.