

# Titanium Fabrication

## INVESTMENT OPPORTUNITY SCORECARD

June 2022

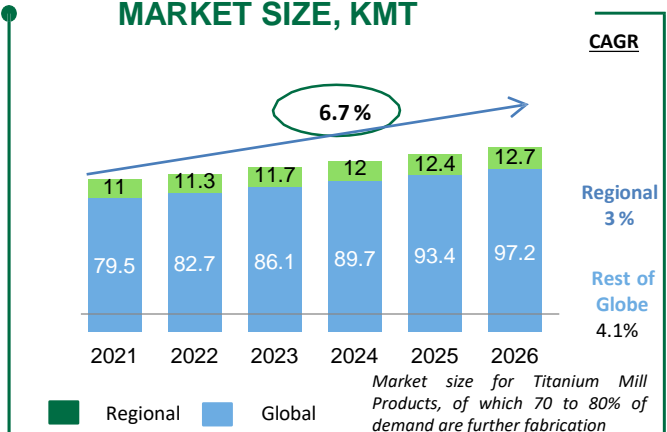


# Metals Titanium Fabrication

**OPPORTUNITY DESCRIPTION:** Opportunity to develop an exclusive Titanium Fabrication facility of 3,000 MTPA to cater regional and global demand. The fabrication is used to form different commercial Titanium alloys and mill products. This project will procure slabs to produce various Titanium Fabrication products

## DEMAND

### MARKET SIZE, KMT



## INVESTMENT OVERVIEW

### INVESTMENT HIGHLIGHTS

- Expected investment size of USD 80-100 Mn for standalone fabrication unit..
- Plant capacity: 3 KTPA (Ti Fabrication)
- Investment model options: The investment model can be through a pure private sector model, banks and institutional investors can provide the upfront capital investment, or through a JV with an existing Ti mill producer

### VALUE PROPOSITION

- The KSA is currently developing the Titanium metallurgy value chain and has a vision to develop value added Titanium downstream products.
- Increasing demand from aircraft and machinery manufacturers provide a first mover advantage
- Titanium ingots can be processed into various mill products providing optimum quality to parts, costs, and durability.
- Titanium has an excellent combination of high strength, toughness, and ductility along with good weldability fabricability.
- Titanium downstream projects such as Titanium fabrication are high investment with low volumes which yield a higher realisation per ton

### KEY DEMAND DRIVERS

- Fabrication is used for Titanium and Titanium alloys to produce advanced structural materials used for numerous key engineering applications, such as medicinal implants, aerospace industry, and marine structures.
- Fabrication is one of the optimal methods to produce titanium products, specifically in the aerospace sector, in which there is an increasing demand for titanium alloys in combat and military vehicles, in which titanium is replacing steel and aluminum.
- Unique properties such as high corrosion resistance, high specific strength, low elastic modulus, high elasticity, and high hardness are key demand drivers across different industries.

## MARKET OVERVIEW

### GLOBAL TRENDS

- The titanium mill products overall demand was 90.5 Kt in 2021 and expected to reach 110 Kt by 2026 growing at a CAGR of 6.7% from 2021 to 2026.
- Europe, North America and Asia Pacific regions account for most of the market (over than 80%), with the Europe and China being key demand drivers. The rise in aerospace development expenditure along with the new R&D initiatives from governments and private firms has provided massive potential for the titanium alloy market.
- The recovery of the air travel market has also led to an expansion in the global aviation industry.
- Latin America, Middle East and African markets are merging markets, representing less than 10% of the global demand, which could increase with new investments. The GCC region is expected to grow rapidly due to huge opportunities in the automotive industry, in which the product is a replacement of aluminum for making valves, springs, camshafts, wrist parts, connecting rods, and in-car engines reducing noise, boosting fuel efficiency, and promoting sustainability.



# Metals

## Titanium Fabrication

### SUPPLY

#### SCALABILITY AND LOCALIZATION

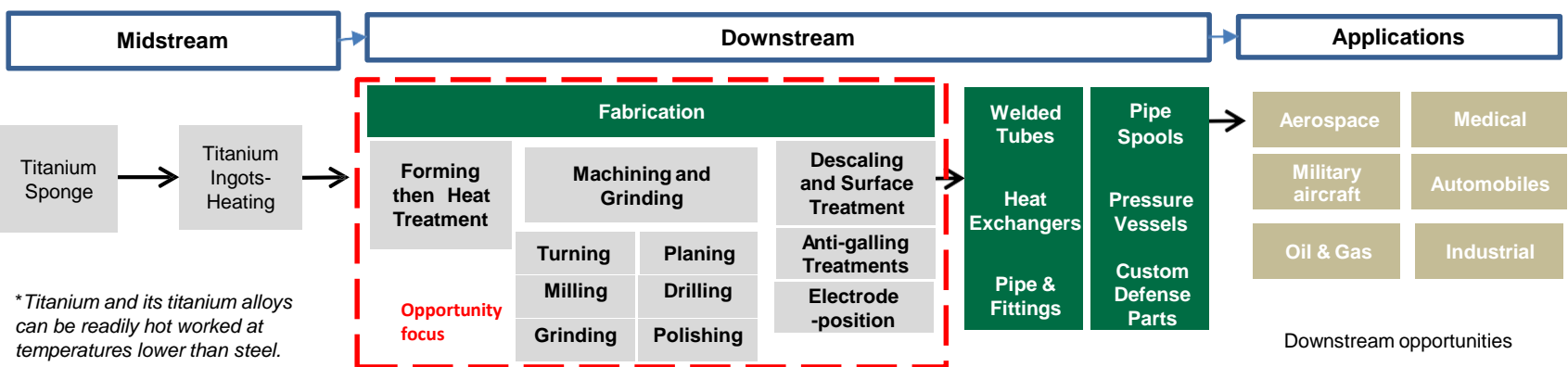
Grade: Low Medium High

- Titanium is used to manufacture heat exchangers, vessels, columns, pressure vessels, CPI valves, and PFHE units. The KSA is shifting from oil to secondary and tertiary chemicals, which require corrosion-resistant titanium materials. New construction, upgrading, and debottlenecking existing facilities offer opportunities.
- Titanium can also be used in pipeline production, it boosts corrosion resistance in underwater operations, and has huge tensile loading and the capacity to withstand high temperatures.
- The metal can also be used in the power industry plant condenser pipes and seawater desalination.

#### IMPORT DEPENDENCY

- The product is not currently manufactured in KSA, but global surge in fabrication demand across sectors is expected
- Titanium sponge is available locally in Yanbu Industrial City through a JV with Toho, Japan

#### VALUE CHAIN ANALYSIS



#### KEY STAKEHOLDERS



### ENABLING FACTORS

#### ENABLERS

- Advanced Metal Industries Cluster and Toho Titanium Metal, a Saudi-Japanese joint venture already have commercial production of titanium sponge in Yanbu with cost-competitive supplies to the global market.
- 2-year grace period for the repayment of loans.
- Customs duties are exempted on imported machinery, equipment, raw materials and spare parts if they are utilised for industrial purpose

#### COST OF DOING BUSINESS IN KSA

Factor	Ranking Amongst Regional Peers
Electricity tariffs for industrial players	\$48 /MWh
Productivity adjusted wages	\$3.3 /hour
Logistics Performance Index (1 – 5)	3.2
Customs Clearance Index (1 – 5)	2.7
Ease of getting credit (0 – 100)	50

Bottom 25% | Top 75% | Top 50% | Top 25%

# DEFINITIONS

#	SCORECARD SECTION	DEFINITIONS
1	<b>Market size</b>	Size of market in value/volume in KSA and/or Region (MENA/GCC) covering future projections based on available estimates from published /government sources
2	<b>Demand drivers</b>	A select number of factors that will influence future demand for the related product/service
3	<b>Investment highlights</b>	An overview of key financial metrics summarizing the investment opportunity along with the expected return based on the suggested investment size
4	<b>Value proposition</b>	Summary of key differentiators that position KSA as a strategic choice over other regional/global peers
5	<b>Market readiness</b>	An overview of KSA market structure, market maturity and level of participation by local and global players
6	<b>Competitor analysis</b>	List of the local & international players manufacturing the underlying product in Saudi Arabia and their market share
7	<b>Global trends</b>	Latest business developments within the sector/product category
8	<b>Scalability and localization</b>	Ease of scaling the business across the value chain or into new adjacent products or geographies that would maximize the opportunity's investment returns and the ability and potential to locally manufacture the product and its components
9	<b>Import dependency</b>	An overview of the countries from which Saudi Arabia is importing the product and their value/volume and share in total imports
10	<b>Value chain analysis</b>	The process or activities that would potentially need to be carried out to deliver the underlying product or service
11	<b>Key stakeholders</b>	Government institutions, organizations, and/or authorities that participate or influence the market for the underlying product/service
12	<b>Enablers</b>	Factors that enable investment in the underlying opportunity
13	<b>Cost of doing business in KSA</b>	Key factors that position KSA as a competitive destination for investment in the region. Productivity adjusted wages do not include cost of \$1.23/hour towards annual recurring charges including work permit, resident identity (iqama) and health insurance

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