1. Global Overview
   * 1.1 Introduction
     + 1.1.1. Global Market Size & Growth

(Example: Market Worth: USD 75 bn,

CAGR: 4.6%)

* + - 1.1.2. History and Milestones

(Example:

|  |  |  |
| --- | --- | --- |
| Year | Milestone | Owner/Innovation |
| 1851 | First Centrifugal Pump | John Appold |
| 1870 | Development of Modern Gate Valve | R.S. Gates |
| 1901 | Rotary Pump Innovation | Byron Jackson |
| 1920 | Introduction of Diaphragm Pumps | Milton Roy |
| 1940 | Advanced Oil Filters for Engines | Fram Corporation |
| 1960 | Automated Valve Actuators | Rotork |
| 1980 | Energy-Efficient Pumps | Grundfos |
| 1995 | Development of Smart Valves | Emerson |
| 2005 | IoT-Enabled Pumps for Monitoring | Xylem |
| 2015 | AI-Based Predictive Maintenance Systems | Siemens |
| 2022 | Advanced Nanofiltration for Water | Toray Industries |

)

* + - 1.1.3. Sector Segments

(Example:

|  |  |  |
| --- | --- | --- |
| Application | Share (%) | Details |
| Oil & Gas | 30% | Requires high-performance valves and filters for extreme conditions |
| Water Treatment | 20% | Focus on energy-efficient pumps to meet environmental standards |
| Power Generation | 15% | Utilizes high-pressure pumps for steam and cooling systems |
| Petrochemicals | 15% | Needs corrosion-resistant equipment for handling hazardous materials |
| Food & Beverage | 5% | Hygienic and precise fluid handling solutions |
| Pharmaceuticals | 5% | Specialized filters and valves for maintaining product purity |
| Other | 10% | Includes niche industrial applications |

)

* + - 1.1.3. Equipment Market Share

(Example:

|  |  |  |
| --- | --- | --- |
| Segment Type | Share (%) | Details |
| Pumps | 40% | Includes centrifugal, rotary, and diaphragm pumps; largest share of the market |
| Valves | 25% | Covers control, gate, ball, and butterfly valves for precise fluid regulation |
| Filters | 15% | Key for ensuring fluid purity in applications like pharmaceuticals and water treatment |
| Others | 20% | Encompasses actuators, seals, and auxiliary components |

* + - 1.1.4. Emerging trends and industry insights

(Example:

|  |  |
| --- | --- |
| Category | Key Points |
| Sustainability Trends | \* Increased demand for energy-efficient pumps and valves to reduce energy consumption. |
| \* Growing emphasis on water reuse and recycling driving advanced filtration technologies. |
| \* Adoption of eco-friendly materials in manufacturing pumps, valves, and filters. |
| Technological Advances | \* Integration of IoT and AI for real-time monitoring and predictive maintenance. |
| \* Development of smart valves for automated and precise control in industrial processes. |
| \* Advancements in nanofiltration and membrane technologies for water treatment applications. |
| Consumer Behaviour | \* Preference for compact and modular systems for flexibility in industrial setups. |
| \* Demand for customized solutions tailored to specific industries like petrochemicals or food. |

)

* + 1.2. Global Trade
    - 1.2.1. Leading Countries

(Example:

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Imports (USD) | Exports (USD) | Production (Tonnes pa) |
| China | $15 billion | $12 billion | 2.5 million |
| Germany | $10 billion | $14 billion | 1.8 million |
| USA | $8 billion | $11 billion | 2.0 million |
| Japan | $6 billion | $9 billion | 1.5 million |

* + - 1.2.2. Major country insights

(Example:

**China:**

* + - * Leading global producer and exporter of fluid processing equipment, driven by large-scale industrialization and infrastructure projects.
      * Focuses on cost-competitive manufacturing, enabling it to dominate markets in Asia, Africa, and Latin America.
      * Invests heavily in IoT and AI integration for smart pumps and valves to meet growing global demand for automation.

**Germany:**

* + - * High export value is attributed to advanced engineering and the production of high-quality pumps, valves, and filters.
      * Dominates the European market while maintaining strong trade ties with North America and Asia.
      * Strong R&D focus, especially in energy-efficient and sustainable fluid processing technologies.

**USA:**

* + - * Major producer and exporter of customized and high-performance fluid handling solutions, catering to the oil & gas and water treatment sectors.
      * Relies on regional trade agreements like USMCA for fluid processing equipment imports and exports within North America.
      * Home to leading companies like Flowserve and Emerson, emphasizing innovation in IoT-enabled equipment.

**Japan:**

* + - * Focuses on precision engineering and reliability, particularly in advanced filtration systems and compact pumps.
      * Significant exporter to Asia and Europe, with a strong emphasis on high-performance, energy-efficient solutions.
      * Strong domestic demand from industries like petrochemicals and automotive ensures steady production volumes.

)

* 1.2.3. Major global suppliers

(Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Manufacturer | Segment Type | Estimated Global Market Share (2023) | Production Capacity (Units per Year) | Strategic Advantage |
| Flowserve | Pumps | 12% | 1.5 million | Wide product range, strong presence in oil & gas, and advanced IoT-enabled pump solutions. |
| Emerson | Valves | 10% | 1.2 million | Expertise in smart valve technology, high customization capability, and strong global distribution. |
| Xylem | Pumps & Water Filters | 8% | 900,000 | Focus on water treatment, energy-efficient designs, and sustainability-driven innovations. |
| Sulzer | Industrial Pumps | 7% | 800,000 | Specialization in heavy-duty industrial applications and strong R&D for sustainable solutions. |
| Alfa Laval | Filtration Systems | 6% | 700,000 | Advanced filtration technology, strong presence in food & beverage and pharmaceutical sectors. |

)

* + - 1.2.4. Country analysis case study, 2 countries **[Decision Required]**. Country selection process based on whether said industry is a major export / production in the economy
      * 1.2.4.1. Country GDP and industry contribution

(Example:

* + Country: Germany
  + GDP (2023): $4,200 billion (2.5% Fluid Processing Equipment)))
    - * 1.2.4.2. Workforce in industry

(Employees in Fluid Processing Equipment: 450,000 (1.1% of labor force)))

* + - * 1.2.4.3. Market size of industry in country

(Example:

Production Capacity (2023): 2.1 million units (combined pumps, valves, filters)

Export Turnover: $22 billion

Major OEMs: -35

Component Manufacturers:800)

* + - * 1.2.4.4. Top Suppliers and Manufacturers in the country

(Example:

OEMS: Wilo, KSB, Sulzer, Bosch Rexroth, Netzsch

Components Manufacturer: Hoerbiger, Burkert, ARI-Armaturen, SAMSON, GEMÜ)

* + - * 1.2.4.5. Milestone Journey
        + Establishment years of suppliers

(Example:

|  |  |
| --- | --- |
| Year | Milestone |
| 1871 | KSB was established, pioneering the production of pumps and valves for industrial use. |
| 1945 | Bosch Rexroth expanded into fluid handling technologies post-WWII. |
| 1980 | Wilo introduced energy-efficient pump solutions for water management systems. |
| 2005 | Sulzer integrated IoT-based monitoring systems in industrial pump operations. |
| 2018 | Germany became the largest exporter of fluid processing equipment in Europe, accounting for 40% share. |
| 2023 | Germany leads in sustainable fluid processing solutions with advanced AI integration |

.)

1. KSA Landscape overview
   * 2.1. KSA Market overview
     + 2.1.1. Local Market Segmentation

(Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Equipment Type | Manufacturers | Manufacturers Count | Units Sold 2023 | Imports 2023 (mSAR) |
| Pumps | Flowserve, Sulzer, Kirloskar, Grundfos, SMI | 4 | 120,000 | 2,500 |
| Valves | Emerson, KSB, SAMSON, ARI-Armaturen, SMI | 4 | 80,000 | 1,800 |
| Filters | Alfa Laval, Toray, DuPont, Pall Corporation | 4 | 50,000 | 1,200 |

* + - 2.1.2. Market share

(Example:

|  |  |  |  |
| --- | --- | --- | --- |
| Major Player | Valve Share (%) | Pump Share (%) | Filter Share (%) |
| Flowserve | 10 | 20 | - |
| Sulzer | 8 | 15 | - |
| Grundfos | - | 10 | - |
| KSB | 6 | 8 | - |
| Emerson | 25 | - | - |
| SAMSON | 12 | - | - |
| ARI-Armaturen | 10 | - | - |
| Kitz | 8 | - | - |
| Alfa Laval | - | - | 18 |
| Toray | - | - | 15 |
| Xylem | - | - | 12 |
| Pall Corporation | - | - | 1 |

)

* + - 2.1.4. Current and projected demand

(Example:

**Passenger Cars Sold and Forecast (thousands of units)**

* **2023:** 250 (Actual)
* **2024:** 260 (Actual)
* **2035:** 330 (Forecast)

**Forecast Increase:** +24% +27% from 2024 to 2035)

* + 2.2. Segments Overview
    - 2.2.1. Import dependency of various segments

(Example:

**Fluid Processing Equipment Import 2023 (mSAR)**

|  |  |  |
| --- | --- | --- |
| Segment | Import Value (mSAR) | % of Total Import |
| **Pumps** | 6,576 | 40% |
| **Valves** | 4,110 | 25% |
| **Filters** | 2,466 | 15% |
| **Others** | 3,288 | 20% |

* + - 2.2.2. Market size – Different segments and market size

(Example:

Pumps: 27,000 units (40%)

Valves: 18,000 units (30%)

Filters: 10,000 units (15%)

Others: 12,000 units (15%))

* + - 2.2.3. Market trends

(Example:

**Fluid processing equipment Import Trend (units):**

* **2019:** 256,000
* **2020:** 246,600
* **2021:** 250,000
* **2022:** 276,400
* **2023:** 328,800

**Insights:**

**•** Growth in Trade Deficit:

The Balance of Trade (BOT) for fluid processing equipment in KSA has shown fluctuating trends but experienced a significant 21% increase from 2022 (SAR 12.6 billion) to 2023 (SAR 15.3 billion).

Valves Dominate Deficit:

Valves consistently hold the largest share of the BOT deficit, growing from SAR 6.4 billion in 2018 to SAR 7.1 billion in 2023, accounting for 46% of the total BOT in 2023.

Pumps See Rising Demand:

The trade deficit for pumps increased from SAR 3.1 billion in 2018 to SAR 4.2 billion in 2023 (27% of total BOT), driven by industrial demand for specialized pumps like centrifugal and positive displacement types.

Filters' Sharp Rise:

Filters represented 21% of the 2023 BOT, with the deficit increasing from SAR 2.2 billion in 2018 to SAR 3.2 billion in 2023, driven by demand for industrial filters and reverse osmosis systems.

Key Drivers of BOT Increase:

Rapid Infrastructure Growth: Expansion in KSA and the GCC regions has driven high demand for fluid processing equipment.

Technology Gaps: Reliance on imports persists due to insufficient local manufacturing capabilities for advanced valves, pumps, and filters.

Focus on Maintenance: Local production primarily supports maintenance and servicing, with limited capacity for full-scale manufacturing.

)

* + 2.3. Trade Analysis
    - 2.3.1. Top Exporting countries per segment

(Example:

**Fluid Processing Equipment Categories Top Exporting Countries to KSA**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Pumps | China | China | China | China | Germany | Germany |
| Valves | Germany | Germany | Germany | Germany | United States | United States |
| Filters | United States | United States | China | China | China | China |
| Components | China | China | China | Germany | Germany | China |

* + - 2.3.2. Top Exporting countries rank

(Example:

**Fluid Processing Equipment Top Exporting Countries to KSA**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rank | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| 1 | China | China | China | China | Germany | Germany |
| 2 | Germany | Germany | Germany | Germany | United States | United States |
| 3 | United States | United States | United States | United States | China | China |
| 4 | Japan | Japan | Japan | Japan | Japan | Japan |
| 5 | South Korea | South Korea | South Korea | South Korea | South Korea | South Korea |

)

* + - 2.3.3. Trends and insights

(Example: Over 85% of KSA's fluid processing equipment imports originate from 6 countries:

* + - * China
      * Germany
      * United States
      * Japan
      * South Korea
      * India

)

* + 2.4. Local Capabilities
    - 2.4.1. Current Local Capabilities

(Example:

**Dresser Al-Rushaid Valve and Instrument Co. Ltd.**

* Capabilities: Manufactures advanced valves for oil & gas and petrochemical sectors.
* Strategic Partnerships: Collaborates with global players like Baker Hughes and Flowserve.
* Focus: Integration of smart valve technologies with digital control systems for remote monitoring and operational efficiency

**Saudi Mechanical Industries (SMI)**

* Capabilities: Manufactures components for pumps and valves, including castings and shafts.
* Focus: High-quality products for industrial applications, supporting oil & gas and water treatment

)

* + - 2.4.2. Upcoming supplier categories

(Example:

Local suppliers for fluid processing equipment components are expected to enhance operations in the near future, contributing to a stronger supply chain within the Kingdom and supporting the growth of domestic industries such as water treatment, petrochemicals, and oil & gas. This also reflects a growing maturity and self-sufficiency within the industry.

**Supplier Categories**

* **Pump Components**
* **Valve Body Casings**
* **Filter Membranes and Media**
* **Polymer Seals and Gaskets**

)

1. Associated Industry and Value Chain Analysis
   * 3.1. Associated Industry Analysis
     + 3.1.1. Associated Industry list

(Example:

|  |  |
| --- | --- |
| Associated Industry Number | Associated Industry |
| Associated Industry 1 | Power Generation Equipment |
| Associated Industry 2 | Mechanical Parts |
| Associated Industry 3 | Control Instruments & Parts |
| Associated Industry 4 | Tubes & Pipes |
| Associated Industry 5 | Plastic & Non-metallics |
| Associated Industry 6 | Fiberglass |

)

* + - 3.1.2. Industry Role

(Example:

|  |  |  |
| --- | --- | --- |
| Associated Industry | Value Chain Role | Contribution to Final Product |
| Power Generation Equipment | Midstream industry supplying critical components for energy production and transmission systems. | Provide reliable energy generation, support grid efficiency, and ensure continuous power supply. |
| Mechanical Parts | Midstream industry producing essential components like seals, casings, and transmission parts for systems. | Ensure durability, reduce wear and tear, and optimize mechanical system performance. |
| Control Instruments & Parts | Midstream industry enabling precise monitoring and regulation of fluid processing systems. | Provide real-time control, enhance process safety, and improve operational efficiency. |
| Tubes & Pipes | Upstream and midstream industry transporting fluids across industrial systems and infrastructure. | Enable efficient fluid transportation, ensure structural integrity, and withstand high pressures. |
| Plastic & Non-metallics | Midstream industry creating lightweight, corrosion-resistant materials for fluid handling components. | Reduce equipment weight, lower production costs, and enhance chemical resistance. |
| Fiberglass | Midstream industry producing strong, lightweight material for structural and filtration applications. | Provide durability, improve thermal insulation, and ensure resistance to harsh environmental conditions. |

)

* + - 3.1.3. Supplier Tiers

(Example:

|  |  |  |  |
| --- | --- | --- | --- |
| Associated Industry | Tier 1 suppliers | Tier 2 suppliers | Tier 3 suppliers |
| Power Generation Equipment | * Tata Steel * BAOSTEEL * Ma’aden | * ABB * Siemens * Riyadh Foundry | * Tata Steel * BAOSTEEL * Ma’aden |
| Mechanical & Static Sealing | * Western Rubbers * EagleBurgmann | * EagleBurgmann * John Crane | * BAOSTEEL * SABIC |
| Control Instruments & Parts | * KSB * Cameron * Flowserve | * SMI (Saudi Mechanical Industries), * Eastern Casting Foundry | * Tata Steel * BAOSTEEL * Alcoa |
| Transmission & Flow Parts | * Flowserve * SKF * Regal Rexnord * Parker | * SMI * SKF * Regal Rexnord | * BAOSTEEL * SABIC * Ma’aden |
| Enclosures & Casings | * Cameron * Parker * Eaton | * Riyadh Foundry * Regal Rexnord | * Tata Steel * BAOSTEEL * SABIC |
| Tubes & Pipes | * Parker * Eaton * JFC | * AMIANTIT * Tenaris (Saudi Steel Pipes) | * BAOSTEEL * SABIC * Ma’aden |
| Fiberglass | * Toray * Eaton | * Toray * Saint-Gobain | * US Silica * BASF * SABIC |

)

* 3.1.4. Cost Contribution

(Example:

|  |  |  |
| --- | --- | --- |
| Associated Industry | % Cost Contribution | Insights |
| Power Generation Equipment | 25%–35% | * - Material Costs: High-grade steel and copper for rotors and stators drive costs. * - Efficiency Focus: Demand for efficient motors increases costs due to advanced design and materials. * - Durability: Heavy-duty applications require robust, high-performance components. |
| Mechanical & Static Sealing | 10%–15% | * - Precision Manufacturing: Gaskets, seals, and diaphragms require high accuracy and durable materials. * - Customization: Application-specific designs increase production costs. * - Longevity: High wear resistance adds to material and manufacturing expenses. |
| Control Instruments & Parts | 20%–30% | * - Smart Technology: Integration of IoT in control components like valve trims and seats adds to costs. * - Material Impact: Precision machining for critical parts like plugs increases expenses. * - Compliance: Regulatory standards for safety and performance drive up design costs. |
| Transmission & Flow Parts | 15%–25% | * - Complexity: High-performance parts like couplings, impellers, and actuators increase machining costs. * - Material Usage: Lightweight, corrosion-resistant materials like aluminum alloys drive up costs. * - Maintenance: Enhanced durability standards for industrial applications elevate costs. |
| Enclosures & Casings | 8%–12% | * - Material Costs: Use of high-grade steel and aluminum for durability and lightweight designs. * - Manufacturing: Advanced machining for precise housing and valve bodies adds to cost. * - Protective Design: Enclosures must withstand harsh environments, increasing material expenses. |
| Tubes & Pipes | 10%–20% | * - Material Composition: Composites and corrosion-resistant alloys drive costs for high-pressure applications. * - Installation Challenges: Complex installations in industrial settings increase overall expenses. * - Safety Standards: Strict adherence to durability and safety standards elevates production costs. |
| Filter Media | 5%–10% | * - Advanced Materials: Use of polypropylene, PTFE, and micro-glass for filtration membranes drives costs. * - Custom Applications: Specific designs for industries like water treatment and petrochemicals increase expenses. * - Innovation: Reverse osmosis and nanofiltration systems elevate costs due to advanced technologies. |

* + 3.2. Value Chain Analysis
    - 3.2.1. 4-step value chain analysis

(Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Associated Industry | Insight Topic | Raw Material Insight | Material Processing Insight | Component Production Insight | Assembly Insight |
| Power Generation Equipment | Material Efficiency | * High-grade steel and copper are essential materials for rotors, stators, and motor components due to their conductivity and durability. * Advanced composite materials are increasingly used to reduce the weight of rotors and enhance energy efficiency in power generation. * Rare earth metals like neodymium are vital for high-performance magnets in motors, contributing significantly to material costs | * Precision casting techniques ensure rotor and stator components meet the exacting standards of industrial-scale power generation. * Advanced heat treatment methods improve mechanical properties such as strength and fatigue resistance, essential for high-load applications. * Surface coatings, including anti-corrosion layers, are applied to enhance lifespan and maintain operational efficiency in harsh environments. | * CNC machining is used to produce components with high tolerances, ensuring reliability in high-speed and high-temperature operations. * Laser cutting enables precise shaping of intricate motor designs, minimizing material waste and ensuring tight fits. * Dynamic balancing of rotors and shafts is critical to maintaining efficiency and reducing vibration in large-scale generators. | * Integration of motors with advanced control systems optimizes energy output while meeting stringent environmental standards. * Alignment of components such as shafts and bearings ensures smooth operation and prevents mechanical failures. * Rigorous testing protocols validate efficiency, durability, and performance under simulated operational conditions |
| Mechanical & Static Sealing | Durability and Precision | * Elastomers derived from petrochemicals are used for their flexibility and chemical resistance in sealing applications. * High-performance plastics, such as PTFE, provide durability and resistance to extreme temperatures and pressures. * Metal alloys, including stainless steel and nickel-based alloys, are used in high-pressure and high-temperature environments. | * Injection molding techniques produce seals and gaskets with precision, reducing the likelihood of leakage and ensuring durability. * Surface finishing processes, such as polishing and coating, reduce friction and enhance the lifespan of seals in dynamic systems. * Vulcanization improves the strength and elasticity of elastomer seals, ensuring reliability in demanding applications. | * Precision cutting methods ensure tight tolerances in seals, preventing fluid loss in high-pressure systems. * Custom sealing solutions are developed for industry-specific needs, such as oil and gas or pharmaceutical applications. * Seals are integrated into larger components, such as valve housings or pump casings, during production to enhance assembly efficiency. | * Seals are installed in pipelines, pumps, and valves with meticulous attention to alignment and fit to avoid operational failures. * Leak testing ensures the integrity of seals under simulated conditions of pressure and temperature. * Calibration and adjustment of sealing systems are performed to meet exacting operational standards. |
| Control Instruments & Parts | Precision Monitoring | * Stainless steel provides durability and corrosion resistance for valve trims, plugs, and other critical components. * Lightweight plastics, such as polycarbonate, are used in components like flow meters and pressure gauges. * High-performance alloys, including titanium, are utilized in aggressive chemical environments to ensure reliability | * Advanced machining techniques produce precision components for fluid flow regulation and monitoring. * Coating technologies, such as PVD (Physical Vapor Deposition), improve wear resistance and extend the lifespan of moving parts. * Calibration processes ensure instruments meet accuracy standards for industrial and environmental regulations. | * Components such as sensors and actuators are integrated into monitoring devices to enable real-time data collection. * Custom designs are developed for specific industrial applications, such as oil refineries or water treatment plants. * Automated production lines ensure consistent quality and reduce manufacturing costs for high-volume components. | * Final assembly combines mechanical and electrical components to produce fully functional control systems. * Quality assurance includes testing for accuracy, response time, and environmental resilience. * Installation in industrial setups involves calibration and integration with other systems, such as pumps and valves. |
| Transmission & Flow Parts | Corrosion Resistance | * High-strength steels are used for components like shafts and impellers to handle high torque and pressure. * Aluminum alloys provide lightweight alternatives for specific applications, reducing energy consumption. * Composite materials, such as carbon fiber-reinforced polymers, are used in highly corrosive or aggressive fluid environments. | * Forging creates robust components like gears and impellers capable of withstanding significant stress. * Surface treatments, such as anodizing or galvanizing, enhance corrosion resistance and reduce maintenance requirements. * Precision machining ensures that parts like actuators and bearings operate smoothly with minimal friction. | * Impellers are dynamically balanced to optimize efficiency and reduce wear. * Actuators are designed with advanced materials to improve responsiveness and durability. * High-pressure testing ensures components can withstand operational stresses in industrial applications. | * Flow components are integrated into larger systems, such as pipelines and pump assemblies, with tight tolerances. * Testing for flow rate, pressure, and operational stability ensures performance under real-world conditions. * Modular assembly techniques allow for customization and easy maintenance in complex systems |

)

* + - 3.2.2. Value chain supplier landscape

(Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Industry | Global vs Local Suppliers | Raw Material Suppliers | Material Processing Suppliers | Component Production Suppliers | Assembly Suppliers |
| Pumps | Global Suppliers | * Tata Steel * BAOSTEEL * Rio Tinto | * ArcelorMittal * Tenaris * Norsk Hydro | * Sulzer * WEIR * Flowserve | * Sulzer * WEIR * Flowserve |
| Pumps | Local Suppliers | * Ma’aden * SABIC * Saudi Aramco | * Riyadh Foundry * SMI * Sabic | * SMI * NA * NA | * SAP Pumps * SMI * NA |
| Valves | Global Suppliers | * BAOSTEEL * BHP * Rio Tinto | * ArcelorMittal * LANXESS * Norsk Hydro | * KSB * CAMERON * FLOWSERVE | * KSB * CAMERON * FLOWSERVE |
| Valves | Local Suppliers | * SABIC * Ma’aden * NA | * Sipchem * NA * NA | * SMI * Dresser Al-Rushaid * AVK Saudi | * SMI * NA * NA |
| Filters | Global Suppliers | * BAOSTEEL * NA * NA | * ArcelorMittal * NA * NA | * Parker * EATON * MANN + HUMMEL | * Parker * EATON * MANN + HUMMEL |
| Filters | Local Suppliers | * SABIC * Petro Rabigh * NA | * FGOC Fibers * Saud Pultrusion Industries | * JFC Arabia * Alkawther * SALFI | * JFC Arabia * Alkawther * SALFI |

)

* + - 3.2.3. Supplier Case Study

(Example:

|  |  |
| --- | --- |
| Supplier Name | Flowserve Corporation |
| Headquarter Location | * Irving, Texas, USA |
| Founding Year | * 1912 |
| 2023 Revenue (USD) | * 4.2 bn |
| Top global operating location | * Canada * USA * Saudi Arabia * South Africa * India * China * Spain * Germany |
| Number of Employees | * 17,000 |
| Product Portfolio | * **Pumps**: Overhung Pumps, Vertical Pumps, Positive Displacement Pumps * **Valves:** Ball valves, Gate valves, Check valves, Plug valves, Butterfly valves, Globe valves * **Seals**: Bearing Isolators, Lubricants, Mechanical Seals |
| Service Offering | * Design, manufacturing, and servicing of flow control systems * Customized solutions for oil & gas, power generation, and water industries |
| Global Value Chain Contribution | * **Comprehensive Product Offering:** Flowserve provides a wide range of **pumps**, **valves**, **seals**, and **actuators**, ensuring that customers have access to complete fluid handling solutions * **Global manufacturing** footprint and **service** centres, Flowserve enhances the efficiency and reliability of fluid processing equipment, ensuring that **products are readily available** and **supported** across key markets **worldwide** |

)

* + - 3.2.4. Value chain localization opportunities

(Example:

Opportunity 1: Increase the capacity of pump assemblers through leveraging current local and global suppliers to scale assembly operations to support KSA’s ability to cater for its rapidly growing domestic market, and export to the developing regional markets (GCC, MENA)

Opportunity 2: Develop a policy framework that enables fluid processing OEMs to access incentives packages (financial, workforce and R&D) that encourages investment into integrated manufacturing of multiple parts for pumps, valves, or filters - increasing the local manufacturing capability and cost competitiveness of KSA-produced equipment parts

Opportunity 3: Develop local expertise in producing advanced materials for filter media, such as advanced polymers, composites, high-performance fibers. Localizing these input materials would strengthen the filter assembly value chain in KSA as filter media have a key role in filters

)

* + 3.3. Raw Material Analysis
    - 3.3.1. 4-step value chain analysis

(Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Associated Industry | Insight Topic | Raw Material Extraction insight | Material Processing Insight | Manufacturing Insight | Industry specific grades |
| Steel | Raw material overview | * Iron ore mined globally, coal for carbonization, and limestone for fluxing in steel production. | * DRI and EAF processes for steelmaking, followed by rolling and heat treatment to ensure durability and strength. | * Casting for valves and pumps, machining for high precision parts, and specialized coatings for corrosion resistance. | * ASTM A216, A352 for carbon steel; 304, 316 for stainless steel; Duplex Steel (ASTM A890, A995) for high-pressure applications. |
| Steel | Industry Trends | * Growing focus on decarbonized steel production using hydrogen-based direct reduction processes. | * Adoption of advanced rolling technologies to reduce material waste and energy consumption. | * Increasing integration of smart monitoring systems in manufacturing lines for process optimization. | * Continued innovation in duplex steels for high-temperature and corrosive environments, driven by water treatment and petrochemical sectors. |
| Steel | |  | | --- | |  |  |  | | --- | | KSA Manufacturing Capabilities | | * Existing capacity for carbon and stainless steel production, with foundries like Hadeed and SiCast expanding capabilities in cast iron and duplex grades. | * Local rolling mills focused on producing plates, rods, and tubes tailored for the oil & gas and water industries. | * Manufacturers like SMI and Al-Ittefaq are producing components for pumps, valves, and pipelines with advanced coatings. | * Specialized grades like ASTM A106 for pipelines and ASTM A48 for cast iron components used in fluid processing. |
| Steel | |  | | --- | |  |  |  | | --- | | KSA Barriers to Expansion | | * Limited local reserves of iron ore requiring reliance on imports. | * High energy requirements for steel processing make local production less competitive without renewable energy investments. | * Limited availability of skilled labor for advanced manufacturing processes like duplex steel casting and machining. | * Dependency on imports for niche grades like ASTM A890 (Duplex Steel) restricts local innovation in high-pressure applications. |
| Steel | KSA Strategic Advantage | * Proximity to regional demand centers (GCC, Africa, Europe) allows cost-effective export of processed steel products. | * Investments in hydrogen-based steelmaking align with global trends toward decarbonization and energy efficiency. | * Strong government support under Vision 2030 to establish KSA as a hub for high-value steel production for industrial use. | |  | | --- | | * government support under Vision 2030 to establish KSA as a hub for high-value steel production for industrial use. |  |  | | --- | | * Strategic focus on producing grades for water treatment and petrochemical applications, including duplex and corrosion-resistant steels. | |
| Plastics | Raw material overview | * Derived from petrochemicals like ethylene and propylene. Major players like SABIC produce polyolefins, nylons, and engineering plastics. | * Polymer extrusion and injection molding for tubes, seals, and gaskets. | * Laminated multi-layer membranes for filtration, advanced molding for custom valve seats and housings. | * PA6 for structural applications; LDPE and HDPE for piping and enclosures; specialty polymers like PTFE for high-performance seals. |
| Plastics | Industry Trends | * Increased focus on recyclable polymers and sustainable production methods to reduce environmental impact. | * Advanced additive manufacturing (3D printing) for producing complex geometries with minimal waste. | * Development of modular components like gaskets, seals, and filter membranes for easier assembly and replacement. | * Expansion into specialty plastics like PEEK and PEI for demanding industrial applications, including chemical processing. |
| Plastics | KSA Manufacturing Capabilities | * Local production by SABIC, Tasnee, and Sadara of basic polymers like PP, PE, and PVC for use in fluid processing components. | * Polymer extrusion and film production facilities capable of producing filter membranes and pipes. | * Limited capabilities for high-end engineering plastics and specialty membranes needed for advanced filtration and sealing. | * Development of grades like PA12 for flexible pipelines and PVDF for chemical-resistant coatings in high-demand environments. |
| Plastics | KSA Barriers to Expansion | * Dependence on imported specialty polymers for high-performance applications in filtration and sealing. | * Limited R&D facilities to develop customized polymers for fluid processing equipment applications. | * Lack of local expertise and facilities for producing high-quality membranes and advanced gaskets used in fluid handling. | * Restricted access to grades like PTFE for sealing applications, which are critical in high-temperature and high-pressure systems. |
| Plastics | KSA Strategic Advantage | * SABIC and Tasnee's strong global presence in petrochemicals provides a foundation for expanding polymer production in high-demand sectors. | * Growing focus on circular economy practices and recyclability supports local manufacturing for global markets. | * Vision 2030 projects like NEOM and The Line are driving local demand for advanced polymer components in infrastructure. | * Growing adoption of polymer-based alternatives for components traditionally made from metal, reducing costs and increasing flexibility. |

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* + - 3.3.2. Supplier Landscape

(Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Industry | Global vs Local Suppliers | Raw Material Extraction suppliers | Material Processing suppliers | Manufacturing suppliers | Industry specific grades suppliers |
| Steel | Global Suppliers | * VALE * SAMARCO * LKAB * TATA STEEL | * TATA STELL * Outokumpu * NA | * TATA STELL * Outokumpu * NA | * Outokumpu * TATA Steel * NA |
| Steel | Local Suppliers | * NA | * SABIC * AL-ITTEFAQ Steel * NA | * SABIC * AL-ITTEFAQ Steel * NA | * Riyadh Foundry * SMI * SICAST |
| Plastics | Global Suppliers | * NA | * NA | * NA | * NA |
| Plastics | Local Suppliers | * Saudi Aramco * NA * NA | * Saudi Aramco * SABIC * NA | * SABIC * NA * NA | * SABIC * TASNEE * Sadara |

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* + - 3.3.3. Supplier Case Study

(Example:

|  |  |
| --- | --- |
| Supplier Name | SICAST |
| Headquarter Location | * Dammam, Saudi Arabia |
| Founding Year | * NA |
| Revenue (USD) | * NA |
| Top global operating location | * Saudi Arabia |
| Number of Employees | * 200–300 |
| Product Portfolio | * Pump parts, turbines, valve body casings, valve parts, engineering castings |
| Service Offering | * Manufacturing critical pump and valve components using carbon and stainless steel; fabrication and casting services |
| Global Value Chain Contribution | * Supplier of pump and valve parts to serve local and GCC markets; enables manufacturing of specialized equipment like gate, globe, and plug valves with advanced materials such as duplex steel and nickel alloys |

* + - 3.3.4. Value chain localization opportunities

(Example:

Opportunity 1: Apply tariff exemptions or reduction on steel and alloys that aren't naturally available in KSA and MENA to improve local grade availability that directly supports the steel and alloy manufacturing (casting and forging) for fluid processing equipment

Opportunity 2: An extension of the Recycling Capability initiative involves incentivizing reduction of exported scrap (for example, through import tariff restructuring, etc) to improve local availability of scrap metal that secures input material for the local market

Opportunity 3: Develop local brass alloy production and recycling capabilities to cater for brass parts manufacturing as KSA currently has limited brass production to serve the fluid processing equipment (but has local availability of the main constituent metals of copper and zinc)

Opportunity 4: Expand aluminium portfolio to increase coverage of aluminium grades specific for pump parts fabrication (blade, casing, rotor core), to reduce import reliance, and support establishing motor capabilities and increasing pump assembly capabilities. Aluminium grades that can be localized for fluid processing equipment include 5083, 6061, etc

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