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Screw Flight Forming Machine Global Market Insights 2026, Analysis and Forecast to 2031

https://marketpublishers.com/r/S1DCBF84FAD8EN.html
Date: January 2026
Pages: 85
Price: US$ 3,200.00 (Single User License)
ID: S1DCBF84FAD8EN

Abstracts

Screw Flight Forming Machine Market Summary

Market Overview and Industry Characteristics

The global screw flight forming machine market represents a specialized but critical niche within the broader metal forming and industrial machinery sector. Screw flights, also known as auger flights or helices, are the fundamental active components in screw conveyors, which serve as the backbone for bulk material handling across the planet. The machinery designed to manufacture these components has evolved from rudimentary mechanical pressing devices to highly sophisticated, computer-controlled systems capable of cold-forming steel plates into precise helical structures with varying pitches, thicknesses, and diameters.

This industry is characterized by its high engineering intensity and significant barriers to entry regarding technical know-how. Unlike general sheet metal bending, forming a continuous or sectional screw flight involves complex localized plastic deformation where the material must be stretched at the outer edge and compressed at the inner edge simultaneously, all while maintaining a constant thickness and perpendicularity to the axis. Leading industrial analysis from sources such as major engineering consultancies indicates that the market is shifting towards 'cold forming' technologies. Cold forming helps retain the mechanical properties of the steel, increasing hardness and wear resistance—a critical attribute for applications in mining and agriculture—whereas traditional hot forming can degrade the material structure.

The demand profile for these machines is derived demand; it fluctuates in correlation with global infrastructure spending, agricultural commodity prices, and mining activities.

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The market is capital-intensive, with a slow replacement cycle. A high-quality screw flight forming machine is a durable asset that can remain operational for decades, meaning new sales are often driven by capacity expansion or the need for advanced capabilities (such as forming Hardox or exotic abrasion-resistant alloys) rather than routine replacement. Furthermore, the industry is witnessing a bifurcation: one segment focuses on high-volume, standard agricultural augers using continuous rolling capability, while another segment focuses on high-precision, custom-engineered sectional flights for industrial centrifuges and water treatment, requiring advanced software integration.

Market Size and Growth Estimates

Based on an assessment of capital expenditure trends in heavy manufacturing and the installed base of material handling equipment, the global screw flight forming machine market is projected to experience steady, albeit niche, expansion. For the fiscal period ending in 2026, the market valuation is estimated to fall within the range of 72 million USD to 106 million USD. This valuation specifically covers the revenue generated from the sale of new forming machinery, excluding the aftermarket sales of spare parts or the generated revenue of the flights themselves.

The growth trajectory for this market is linked to the industrialization rates of emerging economies and the automation upgrades in developed markets. The Compound Annual Growth Rate (CAGR) for the period leading up to 2030 is estimated to be in the range of 3.8% to 5.4%. This moderate growth reflects the mature nature of the metal forming industry, balanced by pockets of high demand in the environmental protection sector (wastewater treatment) and the increasing complexity of materials required in modern mining, which necessitates more powerful and precise forming equipment.

Recent Industry Developments and Strategic Movements

The metal forming landscape is experiencing consolidation and a technological push towards higher precision and broader material capabilities. Recent strategic moves by players in the broader metal forming and aerospace sectors highlight the trends affecting the screw flight market, particularly regarding material expertise and acquisition of niche capabilities.

February 5, 2025: Standex International Corporation Acquires McStarlite Co.

In early 2025, Standex International Corporation made a significant strategic move by acquiring McStarlite Co., a California-based firm specializing in complex sheet metal

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aerospace components. The deal, valued at approximately 56.5 million USD, was financed through existing revolvers. While McStarlite operates primarily in the aerospace sector, this acquisition is highly relevant to the broader forming market. It underscores the premium placed on 'complex' metal forming capabilities—specifically the ability to manipulate sheet metal into non-standard, high-tolerance geometries, which is the core challenge in screw flight manufacturing. By integrating McStarlite into its Engineering Technologies Group, Standex is reinforcing the trend where high-end forming (whether for jet engine lips or industrial augers) is becoming a consolidated, engineering-led service. The solid financial performance of McStarlite, with revenues of 33 million USD and EBITDA margins above 20%, signals that specialized metal forming remains a highly profitable segment within the industrial manufacturing landscape.

November 7, 2025: W.H. Tildesley Acquires Forging Assets from Cerro EMS

Later in the year, the UK-based forging specialist W.H. Tildesley announced the acquisition of several screw presses and assets following the closure of Cerro EMS in Birmingham. This development highlights the importance of asset optimization in the metal working sector. The acquisition of forging screw presses allows Tildesley to bridge the gap between rapid drop forging and high-precision pressure forming. This is directly analogous to trends in the flight forming market, where manufacturers are seeking equipment that offers both speed and the high-precision control necessary to reduce material waste. The press release noted that screw presses offer 'controlled, continuous pressure,' a physical principle that is also central to modern flight forming machines which must apply continuous pressure to form helices without tearing the metal. This consolidation of assets reflects a mature market where expanding capability often comes through acquiring distressed or divesting assets to offer a 'comprehensive range' of solutions to customers.

Application Analysis and Market Segmentation

The utility of screw flight forming machines is defined by the end-use of the augers they produce. Each application demands specific tolerances, material properties, and flight geometries.

Agriculture

The agricultural sector is the volume leader for screw flights. Machines in this segment are primarily used to manufacture grain augers, combine harvester screws, and feed

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mixers. The trend in agriculture is towards high-speed, continuous flighting production. However, as farm machinery becomes larger and processes more abrasive crops (like soybeans or rice), there is a shift towards using thicker, wear-resistant steels. Forming machines servicing this sector must prioritize speed and the ability to handle long manufacturing runs with consistent pitch accuracy to prevent grain damage during transport.

Construction

In construction, screw flights are essential for foundation drilling (piling augers) and concrete mixing. The trend here is towards 'sectional' flights with extreme thickness. Forming machines must be capable of exerting tremendous hydraulic pressure to cold-form steel plates that can exceed 25mm in thickness. The market is seeing increased demand for machines that can form flights with variable pitch, which helps in compacting soil or concrete more effectively during the drilling or mixing process.

Mining

The mining industry represents the most demanding environment. Screw conveyors in mining transport crushed ore, coal, and slurry. The flights are subjected to extreme abrasion and impact. Consequently, the trend is the use of exotic materials like Hardox, Creusabro, or high-manganese steel. Screw flight forming machines for this sector must have robust, rigid frames and advanced control software to manage the high 'spring-back' associated with these hard materials. The focus is not on speed, but on the integrity of the flight to prevent premature failure in the field.

Water Treatment

Wastewater treatment plants utilize shaftless screw conveyors and screw presses for sludge dewatering and transport. The primary material used here is stainless steel (304 or 316 grades) to prevent corrosion. The market trend is towards high precision. The forming machines must produce flights that fit perfectly into troughs with minimal clearance to ensure efficient sludge movement. This requires sophisticated 'True Helix' technology where the machine calculates the exact blank shape required to form a perfect helix without manual trimming.

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Bulk Material Handling

This catch-all category includes food processing, pharmaceutical conveying, and plastics manufacturing. The trend here is hygiene and surface finish. Machines must be able to form flights without leaving tool marks or surface contamination, which is critical for food safety. There is growing demand for 'ribbon' flights and non-standard geometries used in specialized mixing applications.

Regional Market Distribution and Geographic Trends

The global demand for screw flight forming technology is unevenly distributed, mirroring the industrial and agricultural output of nations.

Asia-Pacific

The Asia-Pacific region holds the largest estimated share of the market, both in terms of machine production and consumption. China and India are the primary drivers. China’s massive infrastructure projects and dominance in global steel production create a fertile environment for heavy machinery. The trend in China is a move up the value chain; domestic manufacturers like Huarui Zhonggong are transitioning from making basic machines to producing CNC-controlled units that compete with European brands. In India, the mechanization of agriculture is driving demand for grain handling equipment, fueling sales of mid-range forming machines. The projected CAGR for this region is expected to be in the range of 5.5% to 7.0%, the highest globally.

North America

North America represents a mature, high-value market. The region is characterized by large-scale industrial agriculture (the Corn Belt) and a robust oil and gas sector (drilling). The trend in the United States and Canada is largely focused on replacement and upgrade. Companies are investing in automated forming systems to combat labor shortages. There is a strong preference for machines that integrate with proprietary design software. The market is also heavily influenced by the presence of major auger OEMs who require just-in-time production capabilities.

Europe

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Europe is the technological hub of the market. Countries like the UK, Italy, and Sweden are home to key innovators (Lenham, Swe Bend, MG). The European market focuses on high-precision and specialized applications, such as environmental technology and bio-energy. The trend in Europe is towards 'Smart Industry 4.0' integration, where forming machines provide real-time data on material usage and production efficiency. The demand is stable, with a focus on machines that can process high-strength European steels.

Latin America

Latin America, particularly Brazil and Argentina, is a significant market driven by agribusiness. The demand is counter-cyclical to the Northern Hemisphere due to harvest seasons. The trend here is the adoption of robust, easy-to-maintain machines that can operate in remote agricultural regions. There is a growing import market for Chinese machinery due to cost sensitivity, although high-end European machines are preferred by large mining conglomerates in Chile and Peru.

Middle East and Africa

This region is an emerging market driven by mining (Africa) and infrastructure development (Middle East). The trend is the importation of complete forming solutions for project-based work, such as port expansion or new mining installations. The market size is smaller but is expected to see steady growth as industrial capacity is localized.

Downstream Processing and Application Integration

The screw flight forming machine is part of a larger fabrication ecosystem. The value of the machine is realized through its integration with upstream material preparation and downstream assembly processes.

Material Preparation and Cutting

Before a flight can be formed, the raw steel plate must be cut into an annulus (a donut shape). The integration of forming machines with plasma or laser cutting tables is a

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critical trend. Advanced software now nests the flight blanks on the steel plate to maximize yield and minimize scrap. The forming machine's software often communicates directly with the cutter to ensure the blank dimensions perfectly match the forming parameters, compensating for the specific elongation characteristics of the steel batch.

Welding and Assembly

Once formed, the flights must be welded onto a central shaft. Modern forming machines are increasingly being grouped with automated welding cells. The consistency of the formed flight is paramount here; if the pitch is inconsistent, robotic welding becomes impossible. Therefore, the 'downstream' requirement for automation is driving the 'upstream' demand for higher precision forming machines.

Surface Treatment and Hardening

After forming and assembly, screw conveyors often undergo surface hardening or coating. The cold forming process induces work hardening, which is beneficial. However, for extreme applications, flights may be hard-faced. Forming machines must avoid introducing micro-cracks during the forming process, as these would be exacerbated during subsequent heat treatment or coating application.

Value Chain Analysis

The value chain for screw flight forming machines involves specialized metallurgy, precision engineering, and niche distribution channels.

Raw Material Suppliers: The chain begins with steel mills providing high-grade plate and coil. The consistency of the steel's tensile strength and yield point is critical. Variations in the raw material can cause 'spring-back' issues, making the forming machine's control system vital.

Component Manufacturers: Critical components include high-torque hydraulic motors, planetary gearboxes, and hardened tooling (dies). These are often sourced from specialized Tier 1 suppliers in Germany and Japan.

Machine Manufacturers (OEMs): Companies like Advanced Spiral Technology or Helix

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Flight design and assemble the machines. The core value add here is the proprietary software algorithms that calculate the pressure and feed rates required to form a perfect helix.

Distributors and Agents: Due to the niche nature of the equipment, sales are often handled through direct manufacturer representatives or specialized heavy machinery agents who understand the specific needs of auger fabrication.

End-Users (Fabricators): The customers are usually metal fabrication job shops or original equipment manufacturers (OEMs) of screw conveyors. They utilize the machine to produce components for the final industrial systems.

Key Market Players and Competitive Landscape

The competitive landscape is defined by a few specialized Western technology leaders and a growing number of cost-competitive Asian manufacturers.

Lenham Machinery

Based in the UK, Lenham is a historic name in the industry. They are renowned for their 'matchless' flight forming machines. Their equipment is known for extreme durability and the ability to produce a wide range of sizes. Lenham positions itself as a premium provider for heavy-duty industrial applications.

Helix Flight

Helix Flight operates with a focus on manufacturing technology that allows for the production of sectional screw flights with high accuracy. They emphasize the capability of their machines to handle difficult materials and provide comprehensive support to fabricators.

Advanced Spiral Technology (AST)

An Australian innovator that has significantly disrupted the market with its 'TruHelix' technology. AST differentiates itself through software. Their system moves beyond trial-and-error forming by using physics-based algorithms to predict material behavior. This

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allows their machines to form perfect flights from the first blank, significantly reducing setup time and scrap. They license their technology and sell hardware, operating a hybrid business model.

Helical Former

This player focuses on specialized equipment designed for specific forming needs. They often cater to niche segments of the market where standard off-the-shelf machines may not provide the necessary geometry or pitch capability.

Huarui Zhonggong

A representative of the growing Chinese manufacturing base. Huarui offers cost-effective solutions that have improved significantly in quality. They are aggressive in export markets, appealing to price-sensitive fabricators in developing economies who need basic to mid-range capability.

Swe Bend

A Swedish company with deep roots in bending technology. While they are famous for plate rolls and angle rolls, their expertise in bending geometry translates to high-end helix forming. Their machines are characterized by robust Scandinavian engineering and advanced CNC controls (Seven CNC).

MG

An Italian manufacturer, MG is a global leader in plate rolling machines. Their entry into flight forming leverages their massive global distribution network and expertise in hydraulics. MG machines are known for their power and reliability, suitable for heavy structural work.

BOBO Machine

Another key player from China, BOBO Machine supplies a wide variety of metal

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processing machinery, including flight formers. They focus on providing complete production lines, including spiraling machines for continuous flights, catering to the agricultural sector's high-volume needs.

Spirotech

Based in the UK, Spirotech is primarily a screw conveyor manufacturer that also develops its own forming technology. Their deep understanding of the end-product (the conveyor) allows them to design machines that address real-world fabrication headaches. They are known for holistic systems that integrate design and production.

Opportunities in the Screw Flight Forming Machine Market

The market presents significant opportunities in the realm of digitization and material science. The 'Digital Twin' concept represents a major frontier; by simulating the forming process in software before bending metal, operators can eliminate trial waste. This is particularly valuable when working with expensive alloys. There is also a growing opportunity in the retrofitting market—upgrading older hydraulic frames with modern CNC controls and IoT sensors to extend their life and improve accuracy. Furthermore, the expansion of the recycling and waste-to-energy sectors creates a sustained demand for large, shaftless screw conveyors, opening a specific sub-segment for machines capable of forming heavy-duty shaftless spirals.

Challenges Facing the Market

The industry faces headwinds related to specialized labor and raw material dependencies. The 'Knowledge Gap' is acute; operating a flight forming machine is as much an art as a science, and as older master operators retire, fabrication shops struggle to find replacements, driving the need for smarter, easier-to-use machines.

Impact of Trump Tariffs and Trade Policies

The imposition of tariffs by the Trump administration introduces a complex set of challenges for the screw flight forming machine market.

Firstly, Section 232 tariffs on steel imports directly impact the cost structure of the end-users (fabricators). Higher domestic steel prices in the US squeeze the margins of

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auger manufacturers, potentially delaying their capital expenditure on new forming machinery.

Secondly, the trade war with China affects the supply chain of machine components. Many Western machine builders source castings, basic hydraulic cylinders, or electrical components from Asia. Tariffs on these intermediate goods increase the Bill of Materials (BOM) for machine builders, forcing price increases that may dampen demand.

Thirdly, retaliatory tariffs from trading partners can harm US-based machine exporters. If US-manufactured forming machines face high duties entering markets like the EU or China, they lose competitiveness against European or local alternatives.

Finally, the general climate of protectionism encourages the regionalization of supply chains. This might benefit local US machine builders in the short term by making imports more expensive, but in the long term, it isolates them from global innovation and cost-efficiencies, potentially stagnating technological development compared to open markets. The uncertainty surrounding trade policy makes it difficult for manufacturers to plan long-term investments in new production facilities or R&D.

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