DOWNLOAD PDF PROFILE OF THE METAL FABRICATION INDUSTRY

Chapter 1 : Metal Fabrication Trends: What's Ahead for the Industry?

Excerpt from Fabricated Metal Product Manufacturing Industry Profile Companies in this industry transform purchased metals into intermediate or end-use products by forging, stamping, bending, forming, welding, machining, and assembly.

Businesses as large as iron and steel plants and those as small as the dry cleaner on the corner have worked with EPA to find ways to operate cleaner, cheaper and smarter. As a result, we no longer have rivers catching fire. Our skies are clearer. American environmental technology and expertise are in demand around the world. The Clinton Administration recognizes that to continue this progress, we must move beyond the pollutant-by-pollutant approaches of the past to comprehensive, facility-wide approaches for the future. Industry by industry and community by community, we must build a new generation of environmental protection. The Environmental Protection Agency has undertaken its Sector Notebook Project to compile, for major industries, information about environmental problems and solutions, case studies and tips about complying with regulations. We called on industry leaders, state regulators, and EPA staff with many years of experience in these industries and with their unique environmental issues. Together with an extensive series covering other industries, the notebook you hold in your hand is the result. These notebooks will help business managers to understand better their regulatory requirements, and learn more about how others in their industry have achieved regulatory compliance and the innovative methods some have found to prevent pollution in the first instance. These notebooks will give useful information to state regulatory agencies moving toward industry-based programs. Across EPA we will use this manual to better integrate our programs and improve our compliance assistance efforts. I encourage you to use this notebook to evaluate and improve the way that we together achieve our important environmental protection goals. Environmental Protection Agency M St. Environmental Protection Agency EPA to provide information of general interest regarding environmental issues associated with specific industrial sectors. This publication may be purchased from the Superintendent of Documents, U. A listing of available Sector Notebooks and document numbers is included at the end of this document. AH telephone orders should be directed to: Superintendent of Documents U. Government Printing Office P. For further information, and for answers to questions pertaining to these documents, please refer to the contact names and numbers provided within this volume. Downloading procedures are described in Appendix A of this document. Questions relating to the Sector Notebook Project can be directed to: Summary of the Sector Notebook Project 1 B. Additional Information 2 II. Introduction, Background, and Scope of the Notebook 3 B. Characterization of the Metal Casting Industry 3 1. Product Characterization 4 2. Industry Size and Geographic Distribution 7 3. Industrial Processes in the Metal Casting Industry 13 1. Pattern Making 14 2. Mold and Core Preparation and Pouring 15 3. Furnace Charge Preparation and Metal Melting 29 4. Shakeout, Cooling and Sand Handling 33 5. Quenching, Finishing, Cleaning and Coating. Die Casting 35 B. Raw Materials Inputs and Pollution Outputs 39 1. Die Casters 43 C. Management of Chemicals in Wastestream 47 IV. Summary of Selected Chemicals Released 66 C. Other Data Sources 72 D. Metal Melting Furnaces 84 C. Furnace Dust Management 87 D. Slag and Dross Management 89 E. Die Casting Lubrication 92 G. Miscellaneous Residual Wastes 92 VI. General Description of Major Statutes 95 B. Review of Major Legal Actions 1. Review of Major Cases 2. Sector-related Environmental Programs and Activities 1. Federal Activities 2. State Activities B. Industry Research Programs 2. Trade Associations IX. Uses of Cast Metal Products 4 Figure 2: Types of Metals Cast 5 Figure 3: Investment Flask and Shell Casting 26 Figure 7: Sectional Views of Melting Furnaces 32 Figure 9: Comparison of Several Casting Methods 15 Table 4: Summary of the Sector Notebook Project Integrated environmental policies based upon comprehensive analysis of air, water and land pollution are a logical supplement to traditional single-media approaches to environmental protection. The central concepts driving the new policy direction are that pollutant releases to each environmental medium air, water and land affect each other, and that environmental strategies must actively identify and address these inter-relationships by designing policies for the "whole" facility. One way to achieve a whole facility focus is to design environmental policies for similar industrial facilities. By doing so, environmental concerns that are common to the manufacturing of similar products can be addressed in a

comprehensive manner. Recognition of the need to develop the industrial "sector-based" approach within the EPA Office of Compliance led to the creation of this document. The Sector Notebook Project was originally initiated by the Office of Compliance within the Office of Enforcement and Compliance Assurance OECA to provide its staff and managers with summary information for eighteen specific industrial sectors. As other EPA offices, states, the regulated community, environmental groups, and the public became interested in this project, the scope of the original project was expanded to its current form. The ability to design comprehensive, common sense environmental protection measures for specific industries is dependent on knowledge of several inter- related topics. For the purposes of this project, the key elements chosen for inclusion are: For any given industry, each topic listed above could alone be the subject of a lengthy volume. However, in order to produce a manageable document, this project focuses on providing summary information for each topic. This format provides the reader with a synopsis of each issue, and references where more in-depth information is available. Text within each profile was researched from a variety of sources, and was usually condensed from more detailed sources pertaining to specific topics. This approach allows for a wide coverage of activities that can be further explored based upon the citations Sector Notebook Project September Metal Casting Industry Sector Notebook Project and references listed at the end of this profile. As a check on the information included, each notebook went through an external review process. The Office of Compliance appreciates the efforts of all those that participated in this process and enabled us to develop more complete, accurate and up-to-date summaries. Many of those who reviewed this notebook are listed as contacts in Section IX and may be sources of additional information. The individuals and groups on this list do not necessarily concur with all statements within this notebook. If you have any comments on the existing notebook, or if you would like to provide additional information, please send a hard copy and computer disk to the EPA Office of Compliance, Sector Notebook Project, M St. Follow instructions in Appendix A for accessing this system. Adapting Notebooks to Particular Needs The scope of the industry sector described in this notebook approximates the national occurrence of facility types within the sector. In many instances, industries within specific geographic regions or states may have unique characteristics that are not fully captured in these profiles. The Office of Compliance encourages state and local environmental agencies and other groups to supplement or re-package the information included in this notebook to include more specific industrial and regulatory information that may be available. Additionally, interested states may want to supplement the "Summary of Applicable Federal Statutes and Regulations" section with state and local requirements. Compliance or technical assistance providers may also want to develop the "Pollution Prevention" section in more detail. Please contact the appropriate specialist listed on the opening page of this notebook if your office is interested in assisting us in the further development of the information or policies addressed within this volume. If you are interested in assisting in the development of new notebooks for sectors not already covered, please contact the Office of Compliance at Facilities described within this document are described in terms of their Standard Industrial Classification SIC codes. Facilities are typically categorized as casting either ferrous or nonferrous products. The die casting industry is contained within the SIC category since die casting establishments primarily cast nonferrous metals. Although both foundries and die casters are included in this notebook, there are significant differences in the industrial processes, products, facility size and environmental impacts between die casters and foundries. Die casting operations, therefore, are often considered separately throughout this notebook. In addition to metal casting, some foundries and die casters carry out further operations on their cast parts that are not the primary focus of this notebook. Examples include heat treating e. Typical wastes generated during such operations include spent cyanide baths, salt baths, quenchents, abrasive media, solvents and plating wastes. Characterization of the Metal Casting Industry Foundries and die casters that produce ferrous and nonferrous castings generally operate on a job or order basis, manufacturing castings for sale to others companies. Some foundries, termed captive foundries, produce castings as a subdivision of a corporation that uses the castings to produce larger products such as machinery, motor vehicles, appliances or plumbing fixtures. Sector Notebook Project September Metal Casting Industry Introduction In addition, many facilities do further work on castings such as machining, assembling, and coating. Product Characterization About 13 million tons of castings are produced

every year in the U. Most of these castings are produced from recycled metals.

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Chapter 2 : Profile of the Metal Casting Industry: Sector Notebook

Created by the EPA, this industry-specific handbook includes a comprehensive environmental profile, industrial process information, pollution prevention techniques, pollutant release data, and regulatory requirements unique to the metal fabrication industry.

Request Report Methodology Metal Fabrication Market - Snapshot Metal fabrication is the process of forming metallic structures and assemblies from raw metal work pieces. This process is referred to as a value added service as it completely deforms the raw material and develops a completely new structure through the use of several procedures such as metal welding, machining, metal forming, metal cutting, and others. Metal fabrication workshops work on multiple value added services under a single roof, encompassing welding, cutting, machining, shearing, and others. Metal fabricators offer additional value to clients by providing complete services under one facility. Metal fabrication workshops are primarily contracted by original equipment manufacturers OEMs , iron and steel manufacturers, building contractors, and value added resellers. This makes data easily accessible and accelerates the decision-making process. Increase in usage of computer aided manufacturing technologies is helping the metal fabrication industry improve operational efficiency and enhance production. These advancements in the technologies are anticipated to drive the metal fabrication market globally. Automation in Metal Fabrication Industry and Diversified End-use Industries Expected to Drive the Metal Fabrication Market Advancement in robotics and automation tools boosts their application in the metal fabrication market. Currently, automation is used in the metal fabrication market to increase efficiency and lower labor costs. Increasing demand for automated manufacturing systems in the metal fabrication industry helps in making the manufacturing facilities safe as all the critical jobs such as welding and cutting are done by robots. Apart from this, automation tools such as laser saws make it easier for fabricators to manufacture precisely cut metal parts. As end-use industries are diversified, effects of the cyclical nature of the metal fabrication industry are mitigated. These factors are anticipated to drive the metal fabrication market. Lack of Skilled Labor and Developments in Additive Manufacturing Technologies to Hinder the Expansion of the Metal Fabrication Market Finding skilled labor is becoming increasingly difficult as the industry is becoming technologically advanced. According to an OECD report, skill shortage is a rising problem across the globe. Countries such as Japan, India, Brazil, and the U. This is anticipated to hinder the expansion of the metal fabrication market in the near future. Rapid developments in additive manufacturing 3D printing technologies are reducing the time taken to print an object. Additive manufacturing is a highly flexible manufacturing process with high scope of customization, which makes it easy for fabricators to design and manufacture complex parts easily. This type of manufacturing is not utilized on a large scale. However, additive manufacturing is anticipated to be commercialized in the near future, which is anticipated to change the dynamics of the metal fabrication market. Thus, lack of skilled labor and developments in the field of additive manufacturing are anticipated to restrain the expansion of the metal fabrication market in the near future. This is in line with the demand for end-use products. Product manufacturing companies have been adopting new operational methods to minimize cost by shortening the production time and lowering inventory costs. Companies operating in the metal fabrication market are adopting new trends and business strategies to cater to the changing requirements of customers. Metal fabricator companies possess the opportunity to carry out operational management efficiently by using material requirements planning MRP , Kanban JIT , and optimized production technology OPT to cater to the changing demands of customers and remain competitive in the market. The metal fabrication market has been experiencing flat growth rate in Europe. On the other hand, the metal fabrication market is expected to expand at a rapid pace in emerging countries such as India, China, and Brazil in the near future. China and India are key countries of the metal industry. These countries provide lucrative opportunities for companies operating in the metal fabrication market. The acquisition helped the company achieve operational efficiency. Expending current facilities is likely to be the long term strategy of metal fabrication manufacturers. For example, In June , high-precision Mitsubisihi laser cutting carbon dioxide equipment was ordered by Komaspec to cut metals having thickness of up to 16 mm. The

newly added capability is anticipated to help the company meet the increase demand for metal fabrication products. North America and Europe hold a prominent share in the global metal fabrication market. Asia Pacific was recorded to be a rapidly expanding region of the metal fabrication market in owing to strong research and development activities in Japan, China, South Korea, and India. Construction and automotive industries are a focus segment in Asia, owing to high presence of construction and automotive companies in China and India. Metal Fabrication Market â€" Overview This report analyzes and forecasts the market for metal fabrication at the global and regional level. The study includes drivers and restraints of the global metal fabrication market. It also covers impact of these drivers and restraints on the demand for metal fabrication during the forecast period. The report also highlights opportunities in the metal fabrication market at the global level. The report comprises a detailed value chain analysis, which provides a comprehensive view of the global metal fabrication market. The study encompasses market attractiveness analysis, wherein applications are benchmarked based on their market size, growth rate, and general attractiveness. The study provides a decisive view of the global metal fabrication market by segmenting it in terms of services and end use industry. The segments have been analyzed based on present and future trends. The report also covers the demand for individual services and end-use industry segments in all the regions. Market players have been profiled in terms of attributes such as company overview, financial overview, business strategies, and recent developments. The report provides the estimated market size of metal fabrication for and forecast for the next nine years. The global market size of metal fabrication has been provided in terms of revenue. Market numbers have been estimated based on services and end-use industries of metal fabrication. Market size and forecast for each major service and end-use industry have been provided in terms of the global and regional market. In order to compile the research report, we conducted in-depth interviews and discussions with a number of key industry participants and opinion leaders. Primary research represents the bulk of research efforts, supplemented by extensive secondary research. We reviewed key players operating in various end-use industries, annual reports, press releases, and relevant documents for competitive analysis and market understanding. Secondary research also includes a search of recent trade, technical writing, and internet sources and statistical data from government websites, trade associations, and agencies.

Chapter 3 : Metal fabrication industry

Metal fabrication is the process of building machines and structures from raw metal materials. The process includes cutting, burning, welding, machining, forming, and assembly to create the final product.

Businesses as large as iron and steel plants and businesses as small as the dry cleaner on the corner have worked with EPA to find ways to operate cleaner, cheaper, and smarter. As a result, we no longer have rivers catching on fire. Our skies are clearer. American environmental technology and expertise are in demand throughout the world. The Clinton Administration recognizes that to continue this progress, we must move beyond the pollutant-by-pollutant approaches of the past to comprehensive, facility-wide approaches for the future. Industry by industry and community by community, we must build a new generation of environmental protection. Within the past two years, the Environmental Protection Agency undertook its Sector Notebook Project to compile, for a number of key industries, information about environmental problems and solutions, case studies and tips about complying with regulations. We called on industry leaders, state regulators, and EPA staff with many years of experience in these industries and with their unique environmental issues. Together with notebooks for 17 other industries, the notebook you hold in your hand is the result. These notebooks will help business managers to better understand their regulatory requirements, learn more about how others in their industry have undertaken regulatory compliance and the innovative methods some have found to prevent pollution in the first instance. These notebooks will give useful information to state regulatory agencies moving toward industry-based programs. Across EPA we will use this manual to better integrate our programs and improve our compliance assistance efforts. I encourage you to use this notebook to evaluate and improve the way that together we achieve our important environmental protection goals. Environmental Protection Agency M St. Environmental Protection Agency EPA to provide information of general interest regarding environmental issues associated with specific industrial sectors. This publication may be purchased from the Superintendent of Documents, U. A listing of available Sector Notebooks and document numbers is included at the end of this document. All telephone orders should be directed to: Superintendent of Documents U. Government Printing Office P. Box Pittsburgh, PA Complimentary volumes are available to certain groups or subscribers, such as public and academic libraries, Federal, State, local, and foreign governments, and the media. For further information, and for answers to questions pertaining to these documents, please refer to the contact names and numbers provided within this volume. Downloading procedures are described in Appendix A of this document. Cover photograph by Steve Delaney, U. Atlantic Finishing, Capitol Heights, Maryland. Particular questions regarding the Sector Notebook Project in general can be directed to: Additional Information 2 n. Introduction, Background, and Scope of the Notebook 4 n. Characterization of the Fabricated Metal Products Industry 4 n. Industry Size and Geographic Distribution 4 n. Product Characterization 9 H. Economic Trends 9 m. Fabricated Metal Products 13 IE. Surface Preparation 15 IE. Metal Fabrication 24 in. Surface Preparation 25 m. Other Data Sources 53 IV. Pollution Prevention Case Studies 62 V. Pollution Prevention Options 65 V. Metal Shaping Operations 65 V. Surface Preparation Operations 67 V. Plating Operations 71 V. Other Finishing Operations 75 V. Industry Specific Regulations 92 VI. Summary of Trade Associations IX. Summary of the Sector Notebook Project Environmental policies based upon comprehensive analysis of air, water, and land pollution are an inevitable and logical supplement to traditional single-media approaches to environmental protection. The central concepts driving the new policy direction are that pollutant releases to each environmental medium air, water, and land affect each other, and that environmental strategies must actively identify and address these inter-relationships by designing policies for the "whole" facility. One way to achieve a whole facility focus is to design environmental policies for similar industrial facilities. By doing so, environmental concerns that are common to the manufacturing of similar products can be addressed in a comprehensive manner. Recognition of the need to develop the industrial "sector-based" approach within the EPA Office of Compliance led to the creation of this document. As other EPA offices, States, the regulated community, environmental groups, and the public became interested in this project, the scope of the original project was expanded. The ability to

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If you are interested in assisting in the development of new notebooks for sectors not covered in the original eighteen, please contact the Office of Compliance at The types of facilities described within the document are also described in terms of their Standard Industrial Classification SIC codes. Additionally, this section contains a list of the largest companies in terms of sales. Introduction, Background, and Scope of the Notebook The fabricated metal products industry comprises facilities that generally perform two functions: The Standard Industrial Classification SIC code 34 is composed of establishments that fabricate ferrous and nonferrous metal products and those that perform electroplating, plating, polishing, anodizing, coloring, and coating operations on metals. Since the main processes associated with this industry can be divided into three types of operations i. Characterization of the Fabricated Metal Products Industry To provide a general understanding of this industry, information pertaining to the industry size and distribution, product characterization, and economic health and outlook is presented below. This information should provide a basic understanding of the facilities developing the products, the products themselves, and the economic condition of the industry. Industry Size and Geographic Distribution Variation in facility counts occur across data sources due to many factors, including reporting and definitional differences. This document does not attempt to reconcile these differences, but rather reports the data as they are maintained by each source. Exhibit 1 lists the largest companies in selected metal fabricating industries. Companies are ranked by sales figures. Exhibits 2 and 3 show the distribution of employees and the total shipments for the metal finishing industry. A typical "job shop" i. Department of Commerce, Census of Manufacturers. Exhibits 4 and 5 list the largest companies in selected metal finishing industries. Greaves, froaucts finishing, uecemoer Between and , the total number of independent metal finishers employing less than 20 employees declined slightly, while those employing more than 20 employees increased by a corresponding amount. Exhibit 6 shows the number and percent of metal finishers of various sizes. Department of Commerce, Bureau of the Census Although the metal finishing industry is geographically diverse, the industry is concentrated in what are usually considered the most heavily industrialized regions in the United States See Exhibit 7. This geographic concentration occurs in part because

it is cost- effective for small metal finishing facilities to be located near their customer base. California has more establishments that produce metal-related products than any other State. In addition, California leads in the number of establishments of other related industries: California also has the majority of plating and polishing SIC and metal coating and allied services SIC establishments at Michigan, Illinois, and Ohio have large numbers of various metal- related industries. Michigan has the largest number of companies in the screw machine products SIC and automotive stampings SIC industries, at 14 and Illinois is home to Establishments engaged primarily in metal finishing tend to be small, independently owned job shops, also are referred to as independent metal finishers. Establishments that conduct metal finishing operations as part of a larger manufacturing operation are referred to as "captive" metal finishers. Captive metal finishing facilities are approximately three times more numerous than independent metal finishers. Numerous similarities exist between the independent and captive facilities; for the purposes of this profile, they are considered part of one industry.

Chapter 4 : 4 Must-know Trends in the Metal Fabrication Industry | Infiniti Research

INTRODUCTION TO THE FABRICATED METAL PRODUCTS INDUSTRY 4 n.A. Introduction, Background, and Scope of the Notebook 4 n.B. Characterization of the Fabricated Metal Products Industry 4 n.B.l. Industry Size and Geographic Distribution 4 n.B

Metal Fabricating One of the few, shared traits among the Metal Fabricating companies under our review is that they are intermediate producers of hundreds of thousands of materials and components used by a variety of manufacturers, many of which are highly cyclical. End customers reside in the auto, residential and commercial construction, mining, energy, aerospace, general industrial and other sectors. Overall industrial production provides a better reading of the operating health of the "metal benders". The Institute for Supply Management is a good source of relevant statistics. In its monthly reports on business, the Institute issues an index figure, based on surveys with manufacturers, indicating whether the industrial sector is expanding, as indicated by a rating of 50 and above, or contracting, with a rating below The ISM reports lend clarity to prevailing trends. Business prospects may be determined by reviewing statistics surrounding auto production, home construction and renovation, commercial airline travel, global energy consumption, mining activity, infrastructure development, defense, and among other areas, raw material procurement. While some metal fabricators are limited as to what they can produce and what industries they may serve, others are capable of shifting production among various product lines. The latter can focus on sectors where the demand trends are most favorable. Such companies are usually able to generate sustainable revenue and net-profit growth across all phases of the economic cycle. Another consideration is the need for vigilance against cost competition, both at home and overseas. This is commonly addressed through ongoing cost-reduction and restructuring initiatives. Too, work-process measures, such as Six Sigma and Lean Manufacturing, are implemented across all areas, from order placement to shipment. Overseas Expansion The U. Important end users in the automotive and housing industries have very modest opportunity for expansion. Developing countries, however, hold much promise. These nations have sizable populations, and as they industrialize, wealth per capita rises, auguring well for demand. Generally speaking, companies have strived to diversify operations, being careful not to stray too far from their traditional business. By and large, this has meant expanding operations to other parts of the world. A broad, international reach helps to reduce exposure to any single economic region. As is the case with many other industries, China and India have had a big impact on the Metal Fabricating group. As that economy expands, a greater proportion of the population is transitioning from subsistence living to a middle-class, consumer lifestyle. An ever-larger quantity of high-value goods e. Aside from tapping increased demand in developing nations, the metal benders are taking advantage of economical, local manufacturing. Costs are lower mainly due to modest wages and attractive tax rates. The amount of business being done outside the U. One potential drawback to this strategy, however, is increased currency risk. When the American dollar is weak, relative to other currencies, bringing overseas profits back home yields a nice premium. Conversely, a strong dollar can weigh on the bottom line. Capital Requirements Most metal fabricators are capital intensive, and maximizing operating leverage is crucial for them. During periods of economic expansion, or high demand, these companies can easily cover fixed costs. In a contraction, however, cost absorption falls, and management has to cut variable costs, where possible, to support margins. Capital outlays are financed with a combination of cash, debt and equity, according to the cost of each. Consolidation Trend The industry has a history of mergers and acquisitions. Notwithstanding past consolidation, this sector, having thousands of small private companies, is still rather fragmented.

Chapter 5 : Fabricated Metal Product Manufacturing Industry Profile from First Research

Metal Fabrication Market - Snapshot. Metal fabrication is the process of forming metallic structures and assemblies from raw metal work pieces. This process is referred to as a value added service as it completely deforms the raw material and develops a completely new structure through the use of several procedures such as metal welding, machining, metal forming, metal cutting, and others.

Cutting and burning[edit] The raw material has to be cut to size. This is done with a variety of tools. The most common way to cut material is by shearing. Special band saws designed for cutting metal have hardened blades and a feed mechanism for even cutting. Abrasive cut-off saws, also known as chop saws, are similar to miter saws but have a steel-cutting abrasive disk. Cutting torches can cut very large sections of steel with little effort. Burn tables are CNC cutting torches, usually natural gas powered. Plasma and laser cutting tables, and water jet cutters , are also common. Plate steel is loaded on a table and the parts are cut out as programmed. The support table is made of a grid of bars that can be replaced. Some expensive burn tables also include CNC punch capability, with a carousel of different punches and taps. Fabrication of structural steel by plasma and laser cutting introduces robots to move the cutting head in three dimensions around the material to be cut. Forming[edit] Forming is an operation that converts a flat sheet metal work piece into a 3-D part. The process of forming can be controlled with the use of tools such as punches or dies. Machinery can also be used to regulate force magnitude and direction. An example of machine-based forming can also combine forming and welding to produce lengths of fabricated sheeting, most commonly seen in the form of linear grating used principally for water drainage. Machining Machining is the process of removing unwanted material from the block of metal to get the desired shape. Machining is a trade in and of itself, although fab shops generally entail a limited machining capability including metal lathes , mills , and drills , along with other portable metal working tools. Most components such as gears, bolts, screws, and nuts are manufactured by a machining process. Welding Welding is the main focus of steel fabrication. The formed and machined parts will be assembled and tack welded into place then re-checked for accuracy. A fixture may be used to locate parts for welding if multiple weldments have been ordered. Special precautions may be needed to prevent warping of the weldment due to heat. These may include re-designing the weldment to use less weld, welding in a staggered fashion, using a stout fixture, covering the weldment in sand during cooling, and straightening operations after welding. Straightening of warped steel weldments is done with an oxy-acetylene torch and is somewhat of an art. Heat is selectively applied to the steel in a slow, linear sweep. The steel will have a net contraction, upon cooling, in the direction of the sweep. A highly skilled welder can remove significant warpage using this technique. Steel weldments are occasionally annealed in a low-temperature oven to relieve residual stresses. Such weldments, particularly those employed for engine blocks, may be line-bored after heat treatment. Final assembly[edit] After the weldment has cooled it is generally sand blasted , primed and painted. Any additional manufacturing specified by the customer is then completed. The finished product is then inspected and shipped.

Chapter 6 : Profile of the Fabricated Metal Products Industry

Advancements in technology and supply chain practices have brought drastic changes to the metal fabrication industry. Click To Tweet. Traditionally, the metal fabrication industry was quite simple, including processes such as cutting, welding, machining, and assembly for creating the final product.

What is metal fabrication and where is the industry headed? November 3, By: A fluctuating market, cyclical industries, and the need for sophisticated equipment and quick turnaround times in both production and output have shops scrambling to maintain profitability. Metal fabrication is the process of building machines and structures from raw metal materials. The process includes cutting, burning, welding, machining, forming, and assembly to create the final product. Metal fabrication projects include everything from hand railings to heavy equipment and machinery. Specific subsectors include cutlery and hand tools; architectural and structural metals; hardware manufacturing; spring and wire manufacturing; screw, nut, and bolt manufacturing; and forging and stamping. The main benefit of metal fabrication shops is the centralization of these many processes that are often required to be performed in parallel via a collection of vendors. A one-stop metal fabrication shop helps contractors limit their need to work with multiple vendors to complete complicated projects. How Is Metal Fabrication Performed? Metal fabrication industry has broad applications across a great many industries and consumer products. Standard raw materials used include plate metal, fittings, castings, formed and expanded metal, sectional metal, flat metal, and welding wire. Shops employ many different experts, including welders, ironworkers, blacksmiths, boilermakers, and similar professionals that work with these raw materials and convert them into their final products. According to the Bureau of Labor Statistics, approximately 1. Among them are cutting, punching, and press machine setters and operators; first-line supervisors; managers; machinists; team assemblers; welders, cutters, solderers, and brazers. Sector Characteristics Because demand is driven by the economy, the profitability of the metal fabrication industry relies on economic growth to thrive. Since the economic rebound after the last recession, metal fabrication has become a strong and intense business that continues to recalibrate itself and flourish. Current adjustments include a shift from leaning on a few large projects to maintain a yearly profit to attempting to maintain steady sales volumes by diversifying and continuing to follow the successful template of previous years. When the local economy thrives, these boosts tend to cause consumers to loosen their purse strings and purchase bigger-ticket items such as cars, boats, and houses. And as the population continues to grow, new construction picks up, requiring additional agricultural and commercial machinery. The metal fabrication industry is highly cyclical and depends on industries such as auto, aerospace, construction, and energy. Earnings for each sector vary based on market and economic factors affecting those markets. Investors must look at their particular customer base and the economic influences affecting them in any given year. To gather the best predictions, metal fabricators can start by looking at significant statistics for that area of business, be it home construction, energy, defense, or any other area. By diversifying the customer base and collecting customers from a variety of sectors, the cyclical nature of the industry can better manage to keep net profits consistent. Metal fabricators that can quickly shift product lines can protect profits and focus on areas where demand is most prevalent. This type of diversification can create a sustainable revenue base, regardless of revolving economic conditions. A Look at the Future The industry is learning to balance capacity with variability and find new ways to build support for the inherent variability of customer demands that are driven by an ever-changing economy. As machinery becomes more sophisticated, the ability to maintain a constant level of capital and profit is improving. Although forecasting can be difficult in a business dependent on the economic fortune of its customers, the general consensus remains that those who can keep up with rapidly changing demands while still maintaining a high output capacity will elbow into a position of maximized profits. The Need for Capital To maintain profitability, metal fabrication shops require capital to quickly adjust output and meet the demands of a diverse customer base. Covering costs is easy in a booming economy, but when belts tighten, the industry must begin to cut corners and reduce variable costs, which in turn naturally limit the customer base the shop is able to cater to at any given time. The ability of these companies to make modern investments that

allow them to maintain a variable output is the key to sustaining customer diversification. By pairing efforts to diversify their customer base with economic vigilance and an eye on competitor costs, as well as ensuring the entire manufacturing process is streamlined from top to bottom, fabricators can protect their investments from the impacts of negative environmental influences. The metal fabrication industry stands as a solid investment built on highly fluid customer demand. This lucrative moving target can be difficult to pin down, as shops struggle to gear their efforts and capital toward those sectors that yield the highest profits at any given time. The volatility of the market has required the industry to streamline production practices and focus on the ability to reliably produce high-capacity output for a many varied customer requests. Those metal fabricating shops that can optimize their manufacturing process and operating machinery, paired with stakeholders who can pay close attention to competing costs and the economic trends affecting their customer base, will lead the industry. You May Also Like.

Chapter 7 : The Fabricator - Metal Fabricating News, Products, Articles, and More

Metal fabricators' sales and earnings performance and prospects vary from company to company, given economic influences, the wide range of markets served, and each industry member's specific area of concentration.

Chapter 8 : Metal Fabrication Market to reach US$ 22, Mn by - TMR

Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture, or treat metals and metal formed products fabricated elsewhere.

Chapter 9 : Fabricated Metal Products Manufacturers - Industry Analysis, Trends, Statistics, and

The industrial gases- metals & metal fabrication report shows the top market players from these company profiles, industrial gases- metals & metal fabrication product information, construction plants, and capacity, market share, industrial gases- metals & metal fabrication promote growth and marketing and advertising strategies utilized by them.