

Freedonia Industry Study #1247

*World Fasteners*

Study Publication Date: April 2000

Price: \$4,700

Pages: 332

*World Fasteners*, a new study from The Freedonia Group, is designed to provide you with an in-depth analysis of the major trends in the world market for fasteners and the outlook for product segments and major markets -- critical information to help you with strategic planning.

This brochure gives you an indication of the scope, depth and value of Freedonia's new study, *World Fasteners*. Ordering information is included on the back page of the brochure.

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# *Study Highlights*

This world study analyzes supply and demand for industrial fastener products. Specific products include standard and aerospace-grade externally threaded fasteners (bolts, screws, etc.), internally threaded fasteners (nuts, etc.), nonthreaded fasteners (rivets, pins, washers, etc.) and specialized (or application-specific) fasteners, including miscellaneous formed fasteners. Excluded from the scope of the study are nails, brads, tacks and related products, as well as adhesives and other joining/bonding products, although the latter are discussed for their potential impact on fastener demand.

## *World Demand Highlights*

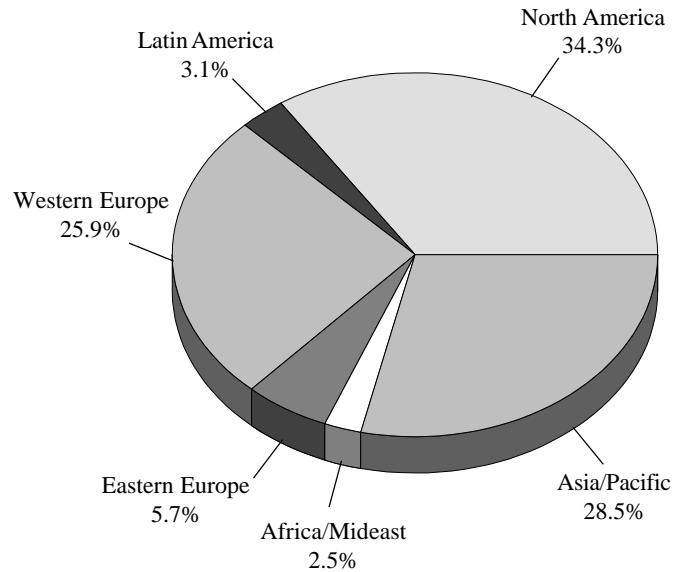
- The world market for industrial fasteners is projected to increase 6.1 percent per year through 2004 to over \$43 billion.
- Prospects are generally favorable for continental Western Europe over the next several years, fueled by a sanguine fixed investment climate accompanying ongoing economic expansion, and benefitting from reduced cross-border transaction costs associated with a single currency.
- Fasteners used in electronic products, along with plastic fasteners and higher-end, high-performance specialty designs, will exhibit the fastest growth going forward, with maintenance/repair/operations and construction-related demand generally outperforming the original equipment market in most areas.

## *Industry Structure*

- The largest developed world producers of industrial fasteners are the United States, Japan, Germany, Italy, France and the United Kingdom, each with annual shipments approximating or in excess of \$1 billion as of the latter 1990's.
- Leading global fastener producers include Textron and Illinois Tool Works of the US, GFI Industries of France, KAMAX of Germany, Haden MacLellan Holdings (via Infast) of the UK, and Piolax of Japan.

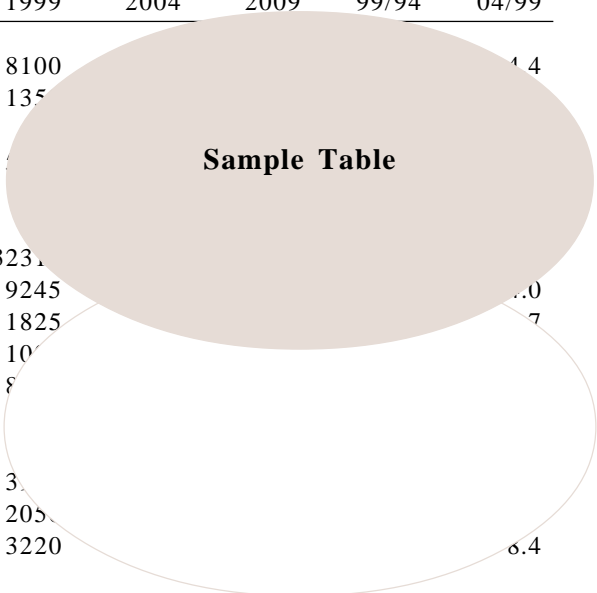
# Study Highlights

## World Industrial Fasteners Demand, 1999 (million US dollars)



### World Industrial Fasteners Demand (million US dollars)

Item	1994	1999	2004	2009	% Annual Growth	
					99/94	04/99
Gross Fixed Investment (bil 1997 US\$)	6536	8100				4.4
\$ fixed invest/capita	1167	135				
Population (million persons)	5603					
\$ fasteners/capita	4.3					
<b>Fasteners Demand by Region</b>	<b>23824</b>	<b>3231</b>				
United States	7034	9245				7.0
Canada & Mexico	1228	1825				7
Latin America	662	10				
Western Europe	5964	8				
Eastern Europe	1850					
Africa/Mideast	592					
Japan	3251	3				
China	1025	205				
Other Asia/Pacific	2218	3220				6.4



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Tables and Charts are featured for each region and country. Historical data and forecasts are presented for 1994, 1999, 2004 and 2009.

*For each region/country, the following series are covered:*

Gross Domestic Product (bil 1997\$)  
% fixed investment

Gross Fixed Investment (bil 1997\$)  
\$ fixed investment/capita

Population (million persons)  
\$ fasteners/capita

Fasteners Demand by Application  
Automotive  
Nonautomotive OEM  
MRO & Construction

net exports

Fasteners Shipments by Type  
Standard:  
Externally Threaded  
Internally Threaded  
Nonthreaded  
Application-Specific  
Aerospace-Grade

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# Market Environment

The Market Environment Section discusses key indicators that drive demand for fasteners, including motor vehicle production trends and Freedonia's other uniquely developed macroeconomic indicators.

This information provides you with an understanding and an analysis of the climate in which the global fastener industry operates and helps you build your market strategy to sustain long-term growth.

## MARKET ENVIRONMENT

### Fastening & Competitive Technologies

The basic function of industrial fasteners is to join together two or more components in mechanical or electromechanical assemblies, systems and subsystems. Although a myriad of different products and applications exist, the basic technologies and processes are well established. Nevertheless, innovation continues to occur, primarily to improve product performance (e.g., advanced generations of self-sealing fasteners featuring superior resistance to vibration), or more specifically, to raising performance/price tradeoffs (for example, offering more durable fasteners at the same or lower costs). Potential levers of technological innovation in the fastener industry include advanced or nontraditional materials of fabrication, computer-aided design and manufacturing (CAD/CAM), and new methods of fastener testing. Among the more visible results of such efforts have been significant upgrades in the capabilities of specialty (as opposed to commodity-type) fasteners, particularly (although by no means exclusively), on the part of developed world producers; and the commercial-scale emergence of highly functional plastic fasteners onto the world market. On the downside, fastener producers have been adversely impacted by developments in alternative joining and bonding techniques (adhesives, welding, etc.) that have enhanced their competitiveness with fasteners in a host of applications.

### Fastener Innovations

Beyond the basic fastener design families (i.e., internally threaded, externally threaded and nonthreaded), a number of what may be termed "generic" fastener innovations have been introduced over the years that cut across the various family

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# Market Overview

The Market Overview Section highlights the key issues that have affected the global fastener market over the past ten years and summarizes contributing growth factors.

This information helps you:

- **Focus your sales and marketing efforts on high growth areas.**
- **Propose new areas for development**

## MARKET OVERVIEW

### Electrical & Electronic Equipment

World demand for industrial fasteners for the electrical/electronic equipment sector is projected to rise 6.9 percent annually over the next five years, the fastest of any of the major end-user markets. Consumer-oriented products like household appliances, lighting and power tools, and industrial equipment have traditionally been important end-use markets for fastener products, the sector's profile has risen even further over the past decade or so in light of the proliferation of electronic products throughout society. Among the more intensive fastener users are instruments, computers and office machinery, communications equipment and electronic components. Although fasteners used within the electrical/electronic equipment sector tend to be small, basic, relatively inexpensive items, they are used in substantial enough quantities as to comprise a vast market when aggregated together. Moreover, the sector -- led by computers and other electronic products -- has been among the fastest growing fastener markets in the entire global economy in recent years.

As in the case of motor vehicles, a broad array of fastener applications exist in the electrical/electronic equipment sector, with generic types including insulation and grounding, attachment of structural elements and housings, and electronic component packaging and assembly. Representative products include press and clinch bolts and nuts, panel fasteners, threaded inserts, small-diameter screws and washers, clips for fastening wires, locknuts and a broad array of specialty and

**World Fasteners Shipments by Type**  
(million U.S. dollars)

Item	1989	1994	1999	2004	2009
World Fasteners Shipments by Type	20435	23500	27000	30000	35000
Standard:	18942	21500	24500	27000	32000
Externally Threaded	10120	11500	13000	14500	17000
Internally Threaded	3751	4000	4500	5000	5500
Nonthreaded	3466	3500	3500	3500	3500
Application-Specific	1605	1500	1500	1500	1500
Aerospace-Grade	1493	1500	1500	1500	1500

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# Supply & Demand by Country & Region

The Markets Section analyzes supply and demand trends and considers the threats and opportunities in each country and region.

## LATIN AMERICA

### Brazil

Brazil is the largest market for industrial fasteners in 1999, representing 30% of Latin American demand. This dominant market has a diverse, extensive industrial sector and a manufacturing complex (with output of 100 billion units, down from recent peak levels), sizeable infrastructure and even a formidable commuter rail system. The largest stock of buildings and other infrastructure is maintained by the largest stock of buildings and other infrastructure and diversity of the Brazilian market.

### SAMPLE PAGES

### Russia

Russia has been aggressively attempting to develop an advanced, market-led economy since the collapse of the Soviet Union in late 1991. The process was

undermined from the beginning by the industrial sector's collapse, which was caused by extreme price liberalization. In light of such a situation, the transition to capitalism is far from complete. A return to capitalism is far from complete. In 1997, brightened by a return to capitalism, interest rates, the ruble, and inflation were beginning to stabilize. However, the over budget in 1998 and the withdrawal of foreign investment in late 1999 led to a withdrawal of foreign investment in 1998 and the withdrawal of foreign investment in 1998. The beginning of 2000 was settled from the beginning of 2000 to the structural adjustment and the potential

### Taiwan - Fasteners Supply & Demand (million U.S. dollars)

Item	1989	1994	1999	2004	2009
Gross Domestic Product (bil 1997\$)	188	255	322	422	522
% fixed invest	22.9				
Gross Fixed Investment (bil 1997\$)	43				
\$ fixed invest/capita	2129				
Population (million persons)	20.2	21.4	22.1	22.8	23.5
\$ fasteners/capita	5.8	10.4	14.6	18.9	28.9
Fasteners Demand by Application	117				
Automotive	27				
Nonautomotive OEM	66				
MRO & Construction	24				
net exports	577	98			550
Fasteners Shipments by Type	694				
Standard:	694				
Externally Threaded	472				
Internally Threaded	164				
Nonthreaded	32				
Application-Specific	26				
Aerospace-Grade	neg				25

### SAMPLE TABLE

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# Industry Structure

Gain a better global understanding of your competition and analyze your company's position in the industry with information about:

- industry structure and market share
- manufacturing
- mergers and acquisitions
- marketing and distribution
- financial requirements

## INDUSTRY STRUCTURE

### Marketing & Distribution

The majority of industrial fastener products are sold to original equipment manufacturers (OEMs) in such industries as motor vehicles, industrial machinery and equipment, electrical and electronic equipment, fabricated metal products and aerospace. While large OEMs and fastener producers tend to utilize both their own sales and distributors, smaller fastener producers -- including those operating at narrow profit margins and lacking the resources to maintain an internal sales staff are often left with outside distributors as the only viable option. The scale and scope of the global fastener distribution industry rivals that of fastener manufacture, with several thousand entities involved. These range from extremely small establishments handling a few accounts and serving a limited geographic area, to large concerns offering a broad array of products to a diverse customer base, such as Premier Farnell. It is noteworthy that the fastener distribution industry has been consolidating in a manner similar to that of production in recent years, with manufacturers such as McKechnie, Penn Engineering and Textron helping to effect the process via acquisition of distributors. The latter is suggestive of a trend toward downstream integration in the fastener business, and in any event is indicative of the importance with which fastener producers view getting their products into customers' hands.

The principal marketing-related competitive variables in the fastener industry are price, product quality and performance (including strength, durability and reliability), level of engineering and design sophistication, delivery time, customer service and company reputation. The relative importance of each factor varies according to the type of fastener involved and its application, and also to some extent by country or region. In the case of commodity-type items -- as well as most fasteners sold in developing countries -- price and delivery time are the

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# Company Profiles

The Profiles Section analyzes 42 companies active in the world fastener industry. These profiles represent a sampling or cross-section of the types of companies involved in the industry.

Divisions, subsidiaries, joint ventures, etc., are discussed under appropriate parent companies.

Sources for profiles included:

- **Information provided by key staff members in the respective companies**
- **Annual reports**
- **10-K reports**
- **Security analysts reports**
- **Corporate product literature**

## COMPANY PROFILES

### **GFI Industries SA**

1193 Rue de Bercy  
75012 Paris  
France  
33-3 84 57 00 77

Hi-Shear Corporation  
2600 Skypark Drive  
Torrance, CA 90509  
310-326-8110

GFI Industries operates in two industry sectors: Industrial Fasteners and Fastening Systems, and Performance Packaging. The Company had 1999 revenues of \$514 million. Of GFI's total 1998 revenues of \$298 million, 22 percent, or approximately \$65 million, were in France; 22 percent, or approximately \$65 million, were in the rest of Europe; 18 percent, or approximately \$54 million, were in the NAFTA region; and two percent, or approximately \$10 million, were in all other areas. The Company employed 4,510 in 1998.

The Company participates in the global fastener industry through its Industrial Fasteners and Fastening Systems sector, which accounted for \$453 million of GFI's total 1998 revenues. The Industrial Fasteners and Fastening Systems sector produces fasteners through four divisions: Automotive, Aerospace, Construction and Industrial, and Rail.

The Automotive division, which operates through Former (Delle, France), manufactures a variety of fastener products for use in automotive applications. Former's fastener products include specialty nuts such as wheel nuts, electrical

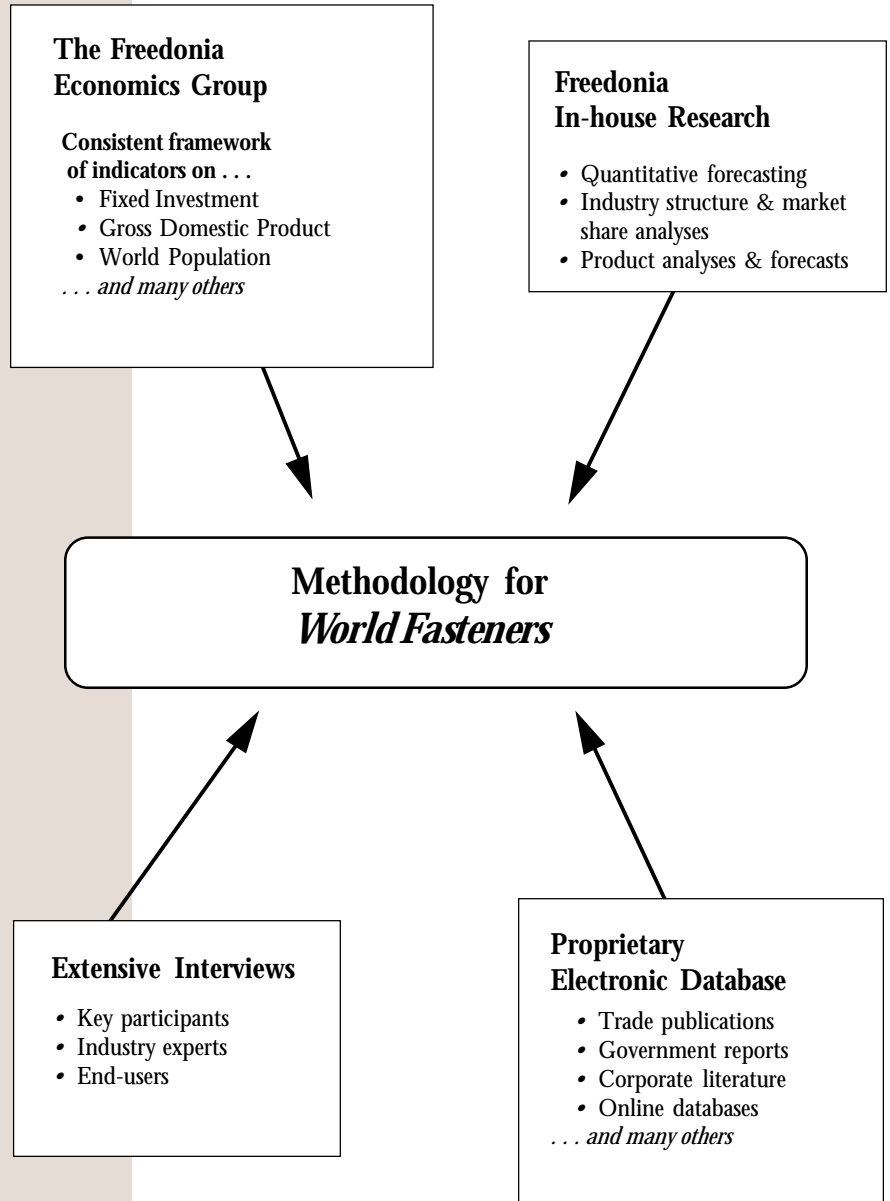
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# Companies Profiled

Agrati (A.) SpA  
FEV  
FIVIT Colombotto SpA  
Urama  
Black & Decker Corporation  
Emhart Fastening Teknologies  
Refal Industria e Comercio  
Bulten AB  
Bispol SA  
BTT  
Chun Yu Group  
PT Moon Lion Industries  
Cold Heading Company  
Cordant Technologies Incorporated  
Continental/Midland  
Huck International Incorporated  
Jacobson Manufacturing Company Incorporated  
Eaton Corporation  
FabriSteel Products Incorporated  
Ferry Cap & Set Screw Company  
NELSON Stud Welding  
Specialty Bar Products  
Fairchild Corporation  
Edwards & Lock Management Corporation  
Kaynar Technologies Incorporated  
Marson Creative Fastener Incorporated  
SNEP SA  
Special-T Fasteners  
GFI Industries SA  
ARS Industrial  
Blanc Aero Industries  
Former  
GFD  
Hi-Shear Corporation  
Haden MacLellan Holdings plc  
Arnold Wragg Limited  
Cooper and Turner Limited  
Everbright Stainless Limited  
GKS Centrepiece Limited  
Industrial Fastener Supplies Limited  
Infast  
MBS Distribution Limited  
Philidas Limited  
Hilti Corporation  
Illinois Tool Works Incorporated  
California Industrial Products  
Duo-Fast Corporation  
Industrial Holdings Incorporated  
Ameritech Fastener Manufacturing Incorporated  
Landreth Engineering Company Incorporated  
LSS-Lone Star Houston Incorporated  
Orbitform  
Walker Bolt Manufacturing Company  
Ivaco Incorporated  
Ifastgroupe and Company LP  
Infasco  
Ingersoll Fasteners  
Vermont Fasteners Manufacturing  
Japan Power Fastening Company  
KAMAX Werke Rudolf Kellerman GmbH & Co KG  
Kerb-Konus-Vertriebs GmbH  
Koninklijke Nedschroef Holding NV  
MacLean-Fogg Company  
Industrial & Automotive Fasteners Incorporated  
Metform LLC  
Polymer Technologies  
Marmon Group Incorporated  
Atlas Bolt & Screw Company  
Deerwood Fasteners International Incorporated  
Pan American Screw  
Robertson Incorporated  
MascoTech Incorporated  
Commonwealth Industries  
Cuyahoga Bolt and Screw  
Eskay Screw Corporation  
K-Tech Manufacturing Incorporated  
Lake Erie Screw Corporation  
Monogram Aerospace Fasteners Incorporated  
TriMas Corporation  
McKechnie plc  
Arger Enterprises Incorporated  
Dzus Fastener Europe  
Linread Northbridge  
PSM International  
PTM International Incorporated  
Valley-Todeco Incorporated  
Western Sky Industries  
MNP Corporation  
Nitto Seiko Company Limited  
Okabe Company Limited  
Park-Ohio Holdings Corporation  
Columbia Nut and Bolt Corporation  
GIS Industries Incorporated  
Industrial Fasteners Corporation  
RB&W Manufacturing LLC  
St. Louis Screw and Bolt Company  
Penn Engineering & Manufacturing Corporation  
Arconix  
MicroAssembly Systems Incorporated  
RC Dudek & Company Incorporated  
Piolax Incorporated  
Premier Farnell plc  
Rockford Products Corporation  
San Shing Hardware Works Company Limited  
Textron Fastening Systems/Tri-Star Company Limited  
SPS Technologies Incorporated  
Avibank Manufacturing Incorporated  
Chevron Aerospace Group Limited  
Greer Stop Nut Incorporated  
KSS Socket Screw Incorporated  
Mecair Aerospace Industries Incorporated  
National Set Screw Corporation  
Non-Ferrous Bolt & Manufacturing Company  
NSS Technologies Incorporated  
Terry Machine Company  
Unbrako  
Sroubarna Zatec as  
Sundram Fasteners Limited  
Textron Incorporated  
Aylesbury Automation Limited  
Brazaco Mapri Industrias SA  
Flexalloy  
InteSys Technologies Incorporated  
Peiner Umformtechnik GmbH  
Ring Screw Works  
Sukosim Verbindungselemente Group  
Textron Fastening Systems/Tri-Star Company Limited  
Tong Hwei Enterprise Company Limited  
Topura Company Limited  
TransTechnology Corporation  
Aerospace Rivet Manufacturers Corporation  
Anderton International Incorporated  
Ellison Holdings plc  
Palnut Company  
Seeger-Orbis GmbH  
TCR Corporation  
Waldes/Industrial Retaining Ring  
Trifast plc  
Breeze Industrial Products  
Ivor Green (Exports) Limited  
Lancaster Fastener Company Limited  
Samson Industries Incorporated  
TRW Incorporated  
TT Group plc  
BAS Components Limited, see TT Group plc

# Forecasting Methodology

Freedonia does not just collect and reprint data; Freedonia develops data. Our analysts thoroughly investigate an industry by extensively interviewing key industry participants and analyzing information from sources such as associations, government and trade literature. Once this research is complete, Freedonia establishes one set of forecasts. All writing, editing and forecasting is done in-house to assure quality and consistency. In cases where data does not exist, Freedonia develops the data based on input/output ratios, bills of materials and flow charts. The following chart summarizes Freedonia's methodology.



# *About The Freedonia Group*

## *Advantages of Freedonia Reports*

**The Freedonia Group, Inc.** is a leading international industry study/database company.

Since 1985, Freedonia has published over 1,500 titles covering areas such as plastics, chemicals, coatings and adhesives, building materials, industrial components and equipment, health care, packaging, household goods, security, and many other industries.

Freedonia has produced a wide variety of titles, including:

- *Industrial Fasteners*
- *World Automotive Aftermarket*
- *World Prefabricated Housing*
- *Automotive Lubricants*

Because Freedonia is a reliable information source, our forecasts are cited in numerous publications such as *The Wall Street Journal*, *The Financial Times* and *USA Today*.

### **In-house operations**

Because all of our staff work at the same location, interaction between analysts and departments provides a strong system of checks and balances.

### **Consistency**

Our Economics Group develops indicators that are used by all analysts. Therefore, every Freedonia study is based on a consistent set of economic assumptions (GDP, fixed investment, population, etc.).

### **Reliable forecasts**

Because all of our forecasts consider the environment in which a product or industry is operating, as well as threats and opportunities to the market, Freedonia forecasts are reliable indicators of future performance.

### **One-on-one interviews**

All studies are produced by conducting interviews with key industry participants and end-users.

### **Proprietary electronic database**

Freedonia's analysts can tap into an extensive in-house electronic database containing corporate literature (including private company information), trade publications, government reports and many other sources of information.

# *About Our Customers*

Freedonia's clients include major US and international companies in the manufacturing, services, consulting and financial sectors.

Typical purchasers of Freedonia studies :

- **Key Executives**
- **Corporate Planners**
- **Market Researchers**
- **Financial Analysts**
- **Information Centers**
- **New Product Developers**
- **Merger & Acquisition Specialists**

Since 1985 we have provided research to customers ranging in size from global conglomerates to one person consulting firms. More than 90% of the industrial companies in the Fortune 500 use Freedonia research to help with their strategic planning.

Some of Freedonia's customers in the fastener industry include: Fairchild Corporation, Huck International and TRW Incorporated.

# Related Studies From Freedonia

For more information about these or other Freedonia titles, please contact us at:

The Freedonia Group, Inc.

Phone: (440) 684-9600

(800) 927-5900

Fax: (440) 646-0484

## **Industrial Fasteners - Private Companies Report**

Private companies are well represented in this \$8.7 billion US market. Five have total fastener sales of at least \$75 million, with the largest at \$110 million. Many other private firms also hold significant positions in niche markets, such as aerospace. This report profiles over 160 privately-held fastener producers (e.g., Air Industries, FabriSteel, Flexitallic Group, MacLean-Fogg, MNP, Rockford). The report also forecasts industry demand, presents market share data and lists companies by product and location.

#1171. . . . . 10/99. . . . . \$3,000

## **Industrial Fasteners**

Aerospace-grade markets will lead growth in original equipment manufacturers' (OEM) fastener demand, driven by both military and commercial aircraft production. Maintenance/repair/operations (MRO) markets will outperform most other OEM counterparts. Competitive joining techniques and aggressive fastener imports will limit further gains. This study analyzes the \$8.6 billion US industrial fastener industry to 2003 and 2008 by type and application. It also details market share and profiles key suppliers.

#1149. . . . . 6/99. . . . . \$3,500

## **World Bearings**

The world market for anti-friction bearings will grow over 6% annually. Fueling gains will be a brightening economic outlook in most developing regions and a firm expansion in continental Western Europe. Some slowing in OEM demand and lackluster motor vehicle production in developed countries will limit further gains. This study analyzes the \$30 billion world bearings industry to 2003 and 2008 by product and market, and in over 30 countries and 6 regions. It also evaluates market share and profiles key firms.

#1130. . . . . 7/99. . . . . \$4,200

## **Automotive Mechanical Products - Private Companies Report**

Of the hundreds of private companies in this industry, several hold significant positions in individual segments and ten have total automotive mechanical product sales of \$50 million or more. The rest are mostly small firms that specialize in making one or two types of automotive mechanical components, or serve nonautomotive markets as well. This report profiles over 100 privately-held US firms active in the automotive mechanical products industry. It also forecasts industry demand and evaluates market share.

#1129. . . . . 6/99. . . . . \$3,000

## **World Automotive Aftermarket**

Global demand for under-the-hood automotive aftermarket parts and components will grow nearly 7% annually. Fueling gains will be a rise in the average age of light vehicles in use, as vehicle owners retain existing machines and require more repair and maintenance. This study analyzes the world automotive aftermarket to 2002 and 2007 for six geographic regions and over 30 countries. The study also presents market share and profiles leading suppliers.

#1093. . . . . 2/99. . . . . \$4,200

## **World Prefabricated Housing**

The global market for factory-built housing will reach \$63 billion in 2002, driven by cost advantages over on-site construction. Bigger markets will allow producers to achieve greater scale efficiencies. The US and Japan will continue to dominate, although growth will be faster in other regions. This study analyzes the world market for manufactured housing to 2002 and 2007 by product, region and 19 countries. It also profiles key producers and presents market share.

#1088. . . . . 2/99. . . . . \$3,900

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