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Electric Motors

US Industry Study with Forecasts for **2018 & 2023**

Study #3238 | December 2014 | \$5200 | 265 pages

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Electric motor suppliers will benefit from solid increases in motor vehicle, HVAC equipment, and machinery output, as well as from rising demand for more efficient, more expensive motors.

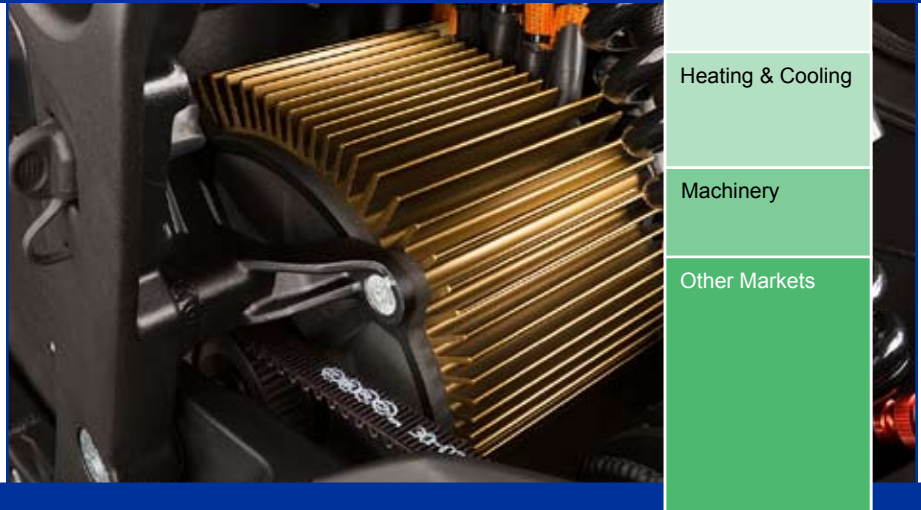
US demand to grow 5.4% annually through 2018

The US market for electric motors is forecast to expand 5.4 percent per year through 2018 to \$16.2 billion, accelerating from the 2008-2013 period. Electric motors are key components in many durable goods and, as a result, suppliers will benefit from solid increases in motor vehicle, HVAC equipment, and machinery output. Rising demand for more efficient, more expensive motor products will also boost market value. However, pricing pressure from original equipment manufacturers (OEMs), as well as competition from lower cost imports, will limit value gains.

Motor vehicles, HVAC & machinery markets to see fastest growth

Motor vehicles are expected to post the most rapid market gains and remain the largest domestic outlet for electric motors through 2018. In addition to an increase in total motor vehicle output, as well as a significant rise in hybrid and electric vehicle (HEV) production, gains will be spurred by the growing number of electric motor-dependent systems in the average vehicle. The HVAC and machinery markets will also provide significant sales opportunities for electric motor suppliers as output from these industries climbs. HVAC electric motor demand will be spurred by greater construction spending, which will lead to the installation of entirely new systems, while

US Electric Motor Demand, 2018 (\$16.2 billion)



machinery motor sales will be supported in part by replacement demand driven by government efficiency regulations.

AC electric motors to outpace DC types

Electric motors can be divided into two product types: alternating current (AC) and direct current (DC). Demand for AC motors will grow faster than that for DC motors and remain the larger product category. Motor vehicles are expected to make up approximately one-third of AC motor dollar gains, the result of a rise in HEV production. HEVs use integral horsepower (IHP) AC synchronous motors for motive power and, as a result, these motors will register by far the

fastest gains of any major type. Increased production of HVAC equipment and machinery, which are heavy users of AC motors, will provide additional support moving forward.

DC motors are used extensively in transportation applications, and suppliers will benefit from increases in motor vehicle output and aerospace and other nonautomotive transportation equipment production. Universal motors, which can run on AC or DC power and are grouped with DC motors for the purpose of this study, are widely used in HVAC equipment and machinery, and higher output of these products will boost overall electric motor use.

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PRODUCTS

Polyphase: Sales of polyphase AC FHP motors are expected to climb annually through 2018 at roughly the same pace as seen on the declines of the 2008-2012. The segment will post average annual gains of 1.5% and will be 77 million units. Gains in shipments of machinery and components from these industries utilize a variety of motors and AC servomotors, two of the primary products in the segment. Nevertheless, competition from more efficient products such as brushless motors and servomotors will restrict demand growth forward.

The polyphase AC FHP motor product segment consists primarily of synchronous stepper motors. These motors offer performance advantages such as rugged design, long life, and the ability to perform well in harsh industrial environments. Additionally, synchronous stepper motors offer very precise motion without the use of feedback systems. However, feedback devices may be incorporated into stepper motors if position comparison is desired. In very high precision applications, these motors can be used with either analog or digital signals. Unlike servomotors, which operate at constant speeds, stepper motors position loads by operating in discrete increments, or steps. The stepping action is accomplished by switching the power to the motor windings so that the motor phases are energized in a specific sequence. A single step may correspond to an angular movement of the rotor between 0 and 180 degrees.

Furthermore, these motors feature a simple, open loop control system that makes motion control systems easy to design. The use of magnetic materials permits a substantial increase in torque while reducing the size of some types of steppers. Often, a synchronous stepper motor with integrated controls can replace a conventional mechanical motor.

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SAMPLE
TEXT

TABLE IV-10

MACHINERY ELECTRIC MOTOR DEMAND BY TYPE & POWER RATING (million dollars)

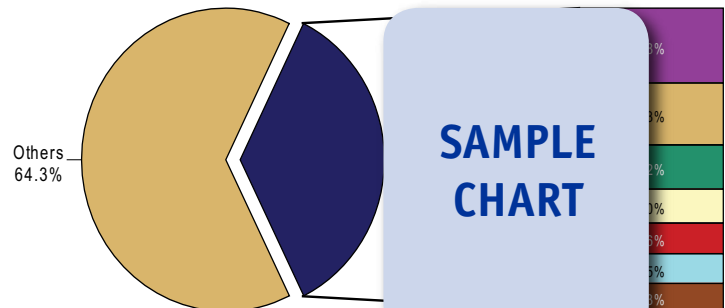
Item	2003	2008	2013	2018	2023
Machinery Shipments (bil \$)	190	190	190	190	190
\$ motors/000\$ machinery	10	10	10	10	10
Machinery Motor Demand					
By Type:					
AC					
DC					
By Power Rating:					
Fractional Horsepower					
Integral Horsepower					
% machinery					
Electric Motor Demand	85	85	85	85	85

Source: The Freedonia Group, Inc.

SAMPLE
TABLE

CHART V-1

US ELECTRIC MOTOR MARKET SHARE (\$12.5 billion, 2013)



SAMPLE
CHART

Sample Profile, Table & Coverage

COMPANY PROFILES

Bodine Electric Company

201 Northfield Road
 Northfield, IL 60093
 773-478-3515
<http://www.bodine.com>

Annual Sales: \$1.2 billion

Employment: 1,200

Key Products:

Bodine Electric Company is a leading manufacturer of stock and custom fractional horsepower AC and DC motors and motion controls for industrial and commercial applications. The Company maintains a plant in Peosta, Iowa.

The Company's fractional hp AC motors include three-phase inverter duty, induction, and torque motors; and three-phase inverter duty, parallel shaft, and right angle gearmotors. Three-phase inverter duty motors and gearmotors, which are sold under the PACESETTER brand name, feature Bodine Electric's QUINTSULATION five-stage insulation system. Induction motors range in power from 1/40 to 1/2 hp and consist of single- and three-phase designs. Bodine Electric's torque motors include 30R series types, which are intended for holding, winding, and tensioning applications. Among the company's parallel shaft gearmotors are 34R-Z series units, which feature permanently lubricated gearing and aluminum center rings. In January 2014, the Company introduced FX series parallel shaft AC gearmotors, which can be used in such fixed speed applications as medical equipment and packaging machinery. Right angle gearmotors include 30R-3RD series products, which incorporate aluminum end shields for high thermal efficiency and light weight.

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**SAMPLE
PROFILE**

TABLE III-20

FRACTIONAL HORSEPOWER MOTOR DEMAND BY TYPE

Item	2003	2008	2013	2018	2023
Electric Motor Demand (mil units)	14,000	14,000	14,000	14,000	14,000
% fractional					
Frac HP Motor Demand (mil units)					
AC					
Single Phase					
Polyphase					
DC					
Brushed					
Brushless					
\$/unit					
Fractional HP Motor Demand (mil \$)					
AC					
Single Phase					
Polyphase					
DC					
Brushed					
Brushless					
% fractional					
Electric Motor Demand (mil \$)					

**SAMPLE
TABLE**

STUDY COVERAGE

This Freedonia study, *Electric Motors*, offers historical demand data (2003, 2008, 2013) as well as forecasts (2018, 2023) by product and market. In addition, the study considers key market environment factors, details industry structure, evaluates company market share and profiles 35 competitors in the US electric motor industry.

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RELATED STUDIES

World Motorcycles

World demand for motorcycles will rise 5.9 percent yearly to 132.4 million units in 2018, valued at \$119.5 billion. The Asia/Pacific region will remain the dominant market, while the Africa/Mideast region grows the fastest. E-bikes and other electric motorcycles will capture market share from internal combustion engine (ICE) models in most countries. This study analyzes the 99.5 million unit world motorcycle industry, with forecasts for 2018 and 2023 by type, world region, and for 23 countries. The study also evaluates company market share and profiles industry players.
 #3198.....December 2014..... \$6500

World Hybrid & Electric Vehicles

World hybrid and electric vehicle (H/EV) sales will more than double through 2018, accounting for nearly one-quarter of all new motor vehicles sold. Gains will be led by micro and mild hybrids, which are conventional vehicles equipped with relatively low-cost systems (e.g., start-stop, regenerative braking) that reduce fuel use and vehicle emissions. This study analyzes the 10.1 million unit world H/EV industry, with forecasts for 2018 and 2023 by type, market, world region, and for 18 countries. The study also evaluates company market share and profiles industry players.
 #3155.....June 2014..... \$6100

World Fuel Cells

Global demand for commercial fuel cells will almost triple to \$4 billion in 2017 and then triple again by 2022 to \$12 billion. Motor vehicle, portable electronics, and industrial stationary/motive power applications will grow the fastest. Japan and the US will remain by far the largest markets, while China and South Korea will grow the fastest. This study analyzes the \$1.5 billion world fuel cell industry, with forecasts for 2017 and 2022 by product, chemistry, application, world region, and for 16 countries. The study also evaluates company market share and profiles industry players.
 #3140.....April 2014..... \$6300

Wind Turbine Systems

US demand for wind turbine systems is forecast to reach \$18.9 billion in 2018, a nearly ninefold increase over severely depressed 2013 levels. The market for wind turbines tends to be highly volatile due to its reliance on government incentives. Feed-in tariff payments and various grants from the Department of Energy will drive gains going forward. This study analyzes the \$2.1 billion US wind turbine system industry, with forecasts for 2018 and 2023 by type, component, application and US region. The study also evaluates company market share and profiles industry players.
 #3139.....March 2014..... \$5100

World Electric Motors

World demand for electric motors is projected to increase 6.5 percent per year to \$122.5 billion in 2017. The Asia/Pacific region will be the largest source of market growth through 2017. Demand for AC motors will outpace DC types. Motor vehicles and heating and cooling equipment will be the fastest growing markets. This study analyzes the \$89.4 billion world electric motor industry, with forecasts for 2017 and 2022 by product, market, world region, and for 30 countries. The study also evaluates company market share and profiles industry players.
 #3055.....October 2013..... \$6100

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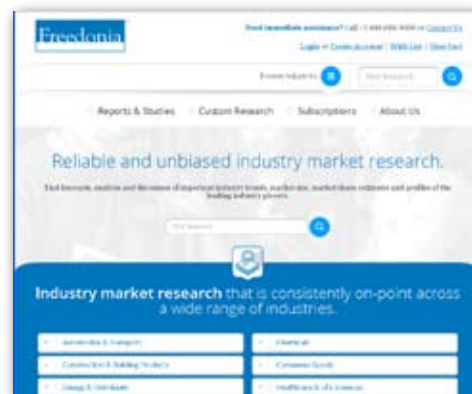
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