There's a lot new at Bodine Electric. Whether it's totally new product lines, like e-TORQ, or extensions to existing product lines, like Pacesetter and INTEGRAmotor, or improvements on existing product lines, like unvented gearhousings and dual voltage ratings, Bodine Electric is always in motion.

NEW FROM BODINE!

New from Bodine

INTEGRAmotor

See page 7

Our new ***INTEGRAmotor***™ Brushless DC products combine three Bodine strengths—motor design, gear manufacturing, and electronic control application—into one dynamite package that reduces wiring, panel space, assembly time, and cost.

21 NEW BRUSHLESS MOTORS!

E-Torq

See page 11

Whether you call it detent torque, reluctance torque, or cogging, Bodine Electric's new e-TORQ brushless servomotors eliminate it. e-TORQ motors produce peak torques up to ten times rated torque, eliminating the need for gearboxes in many applications. And unlike some direct drive solutions that are limited by top speeds of several hundred RPM, e-TORQ offers a speed range from 1 to 6000+ RPM.

Unvented Gearhousings

Unvented gearhousings have always been a custom option on Bodine Electric's gearmotors, but now it is standard on all stock models.

Pacesetter Systems

See page 24

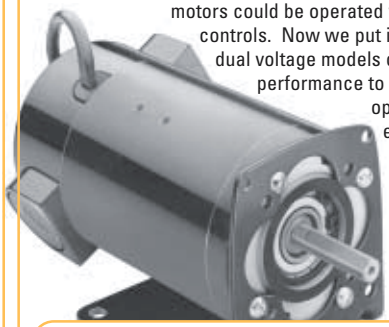
Bodine Electric's new line of 3-Phase, inverter duty, induction motors and gearmotors is the widest stock selection in the industry. The Bodine "Total System Approach" offers you superior motor and gearmotor products that are matched to reliable, high-performance inverter drives, providing an alternative to DC systems for adjustable speed applications.

28 NEW GEARMOTORS AND CONTROLS!

90/130 Volt DC Motors

See page 68, 75, 79, 83 and 84

Bodine Electric has always told you our DC motors could be operated with 90-volt controls. Now we put it in writing! New dual voltage models clearly state the performance to expect when operating with either 90-volt (unfiltered/SCR) controls or 130-volt (filtered/PWM) controls, taking the guesswork out of your applications.



81 DC MOTORS NEW TO THIS CATALOG!

BODINE ELECTRIC COMPANY

General Information

How to Order

All stock items are available from Authorized Bodine Distributors. To order any stocked product just specify the model number. "N" model numbers require lead time and minimum quantities.

Applications

Consistent performance, long life, and reliability are fundamental to Bodine designs. Since 1905 Bodine motors, gearmotors, and controls have been used in assembly equipment, conveyers, packaging equipment, copiers, lab instruments, photographic processors, medical and other scientific apparatus... wherever component size, weight, reliability and integrity are prime considerations.

If you need selection assistance, please contact your Representative or Distributor. To ensure proper selection and best service, please request Form 1476 or supply the following information:

- Your application and ambient conditions
- Voltage and frequency
- Direction of rotation, reversing
- Maximum speed and speed range
- Starting torque and running load
- Duration of continuous run and rest periods
- Size, weight, and noise limitations
- Motor mounting position
- Life requirement
- Estimated annual requirements

For existing Bodine applications, please provide the Type and Serial No.–both on the nameplate.

Safety and Installation Precautions

Bodine products are designed and manufactured to comply with applicable safety standards. Since even well-built apparatus can be installed or operated in a hazardous manner, it is important that safety considerations be observed by the user. With respect to the load and environment, the user must properly select, install, and use the apparatus.

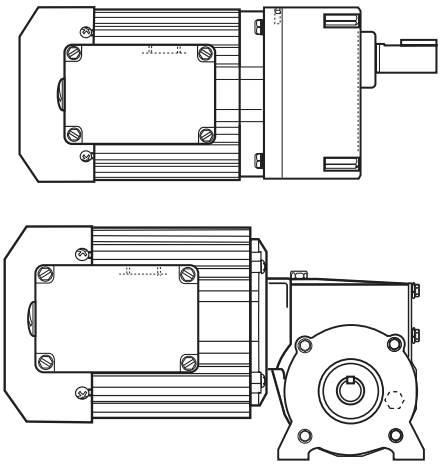
It is the responsibility of the equipment manufacturer or the individual installing the apparatus to take diligent care in installing it. Local electrical and safety codes should be followed when installing the apparatus to reduce hazards to persons and property.

Bodine totally enclosed (IP- 44) products are not explosion proof nor dust-ignition proof. Bodine does not offer products for locations which are exposed to flammable/explosive gas, vapor or dust. An approved explosion proof or dust-ignition proof product is recommended for hazardous locations.

For more safety information request Motor/Gearmotor Safety, Installation, Use and Maintenance Information PN 074 00045.

Gearmotor Mounting Positions

The preferred mounting position for each gearmotor in this catalog is horizontal, as illustrated in their respective dimension diagrams. Gearmotor mountings other than shown are not recommended on some *gearmotors* due to (a) the possibility of gearhead lubricant leakage into the motor portion, (b) insufficient lubrication. By making the proper adjustments (normally done at the factory), mountings other than the preferred positions of gearmotors are possible.



Construction Recognition

Most Bodine products are "third party approved". The specific approvals for each product are shown on the appropriate pages.

Motors and gearmotors conform to U.L. standard 1004 and CSA standard C22.2 No. 100. They are contained in U.L. file number E47177 and CSA file number LR2797.

Electronic controls conform to U.L. standard 508 and CSA standard C22.2 No. 14. They are contained in U.L. file number E44529 and CSA file number LR26397.

Equipment for sale in Europe must meet the requirements of council Directive 72/23/EEC. The purpose of the EEC directive is to state minimum technical requirements common to all the member states within the European Union. These minimum technical requirements enhance safety levels both directly and indirectly. Compliance with these specifications is indicated with a CE on the equipment.

Products in this catalog that show the CE mark on its dimensional page comply with the Machinery or Low Voltage Directives. The CE mark will be included on the motor rating nameplates. Depending on the application, the use of optional terminal boxes and terminal strips may be required. Drives, modules, or systems (including motors) supplied as part of a customer's machine are considered as components, and are not required to show the CE mark. It is the responsibility of the integrator or machine builder to gain acceptance of the entire machine.

Motors with U.S. and Canadian approval may carry the UL and CSA marks, or the c UL us mark alternatively.

Additional Product Information

For additional product information please visit our Web site.

Download The Bodine Handbook at Bodine-Electric.com for the complete manual of fractional horsepower motors and gearmotors. Includes 25 pages of helpful articles, charts and a glossary of terms.

MADE IN U.S.A.

BODINE® ELECTRIC COMPANY

A word from our President

I want to personally thank you for considering using Bodine products in your application. Should you decide to form a new relationship with us, or continue an existing one, we can be counted on to do two things well:

1. ***Problem-solving***–We have the top design engineering team in the industry! They can solve your most demanding application challenges as well as design cost effective, high value, products.

2. ***Quality/Craftsmanship***–We also have a manufacturing organization that does "all the right things" consistently. Once you've designed us in, you won't have quality hassles going forward.

I like to say that we make "hot rods." The process of making a street vehicle into a race car is very similar to developing top performing motors and gear motors. You have to do a lot of little things well. By paying attention to each small detail we create a superior product at a competitive price, ready to receive the Bodine label.

Extensive Product Line

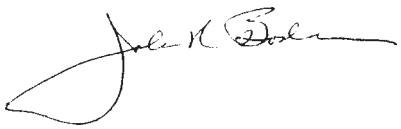
As you browse through this catalog or visit our website, Bodine-Electric.com, you'll see that our product line is the most extensive in the fractional horsepower motor market. We have Brushless, A.C. and D.C. products ranging from 1/1600 HP up to about 1 HP, as well as matching electronic controls. This variety allows you to select exactly what you need with a minimum of compromises. We can also produce variations on any of our standard models or add functionality and features where needed. We have the capability to give you EXACTLY what you want at a very competitive price.

This large selection of standard products also makes it possible to turn samples around rapidly. We want to help you solve problems. Involve us early in the design process, and don't hesitate to challenge us. That's what Bodine Electric is all about!

Family Owned for Nearly 100 Years

Bodine Electric will celebrate its 100th anniversary in 2005. We plan to continue as a family-owned and operated organization. We enjoy our work, and because our name is on the product, we are passionate about the quality and value we offer to customers.

Over the last five years, we have improved the organization: we now achieve nearly perfect on-time delivery, and we have substantially reduced our lead times. New opportunities are addressed quickly and professionally. We are not perfect, but we have a strong culture of continuous improvement. At Bodine Electric our goal is to not only build the best products, but also provide the best service.



What our customers are saying...

...Bodine has achieved the status of Certified Supplier. This allows materials supplied by Bodine to bypass normal incoming inspection and be transferred directly from "dock to stock" (Only 12 of Siemens' more than 200 suppliers have achieved this status).

—Steve Komarnicki, Operations Quality Assurance Manager, and Richard Brzezinski, Procurement Manager of Siemens Medical Solutions, Inc.

In the beginning...

Nearly a century ago, Carl and Paul Bodine , two Swedish immigrant brothers, recognized a need in the special machinery industry. In the early 1900's there were very few electric motor manufactures. Those that did exist produced only integral horsepower motors, motors that were more than 1 horsepower and much too large for most peoples requirements.

Bodine Electric Company was founded in 1905 by the brothers Carl and Paul Bodine.

When the Bodine brothers founded the company in 1905, people who needed small motors for industrial equipment had to pull them out of fans. While those motors were fine for what they were designed to run, they could not meet the demands of industrial machinery. They were not designed to take the strain. The demand for small motors in almost every industry began to grow. Carl and Paul Bodine chose Chicago for their company headquarters and began developing fractional horsepower electric motors that were long lasting, quiet, clean and good looking.

A WWII vintage RAF Douglas A-20 Bomber used at least 11 Bodine motors.

From dentist's drills to early phonograph machines, Bodine's shiny black motors quickly found a home in some of America's most useful pieces of equipment.

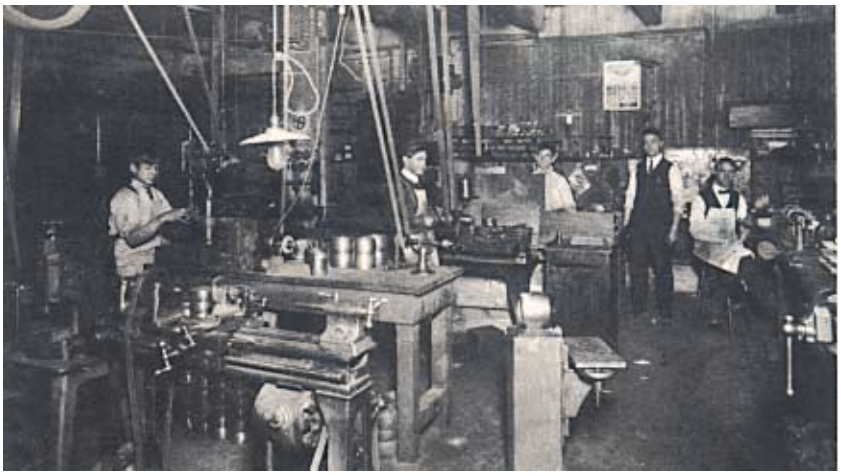
Today, Bodine motors are known as the longest lasting, most dependable motors on the market.

98 years of Innovative Design

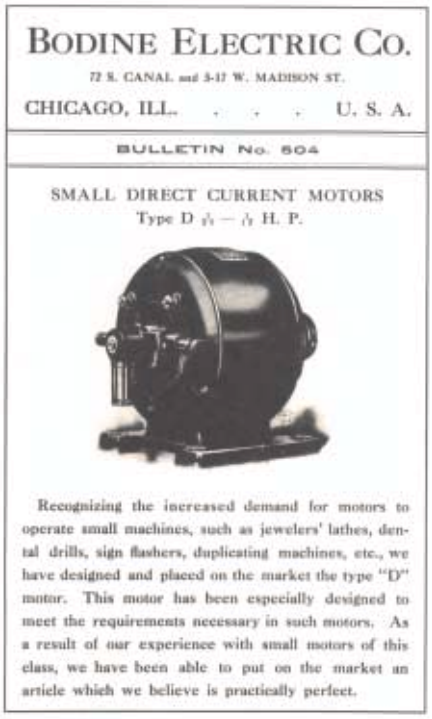
In the 1920's, the Bodine brothers came up with the idea of building small gears in the same case as the motor providing a reliable means of reducing speeds. The resulting product was the first fractional horsepower gearmotor, an innovation that revolutionized electric motors.

In 1949, following the demanding use of Bodine motors in military gun sights and tail flaps during World War II, the company introduced it's first line of low inertia motors for civilian applications of "servo" control, a technology that had come into use during the war.

Today, Bodine's engineering and application expertise comes from an attitude that makes engineering a top priority. To meet the demanding needs of OEM's, Bodine has assembled an experienced and knowledgeable team of dedicated engineers and technical support personnel, to make products to exact specifications. Bodine's engineers become a part of a customers design team.



Bodine Electric Company, circa 1908. Paul Bodine is seated at the extreme right; Carl is standing next to him.



BODINE ELECTRIC CO.

72 S. CANAL and 5-17 W. MADISON ST.

CHICAGO, ILL. . . . U. S. A.

BULLETIN No. 504

SMALL DIRECT CURRENT MOTORS

Type D 1/5 — 1/4 H. P.

Recognizing the increased demand for motors to operate small machines, such as jewelers' lathes, dental drills, sign flashers, duplicating machines, etc., we have designed and placed on the market the type "D" motor. This motor has been especially designed to meet the requirements necessary in such motors. As a result of our experience with small motors of this class, we have been able to put on the market an article which we believe is practically perfect.

A bulletin from about 1907 announcing a very early version of the "D" type motor.

The BODINE Reputation

Bodine Electric continues to drive the cutting edge in its development of new products. The longevity of the company, still family owned, benefits the customer through a continuity of business processes that provide a comfortable and reliable business partner. Through Bodine's worldwide distribution network, customers are guaranteed delivery of the motion control product they need, when they need it.

Customer Service

Customer Service is Job Number One! Our customer support team coordinates the relationship between the customer and the factory. They assure that the customer's requirements are correctly translated into manufacturing specifications. They facilitate order entry, assist with changes and expedites, and are available to answer customer questions.

Product assembly cell

Quality Team

Our quality team aims to reduce the number of products with which our customers are not completely happy by 50% each year. This is quite a challenge because the number is already very small. Statistical process control, manufacturing, process reengineering and training are used to help us continuously improve. We are the quality leader but we continually change our designs to make them even better. Modern CNC equipment also is a big asset in continuously improving quality and we have invested heavily in the most advanced computer controlled technology available.

Motor Model Shop

We know that sample "turn around" time is very important. We dedicate highly experienced staff to make this happen. Once we are certain that we understand a customer's needs, we dedicate ourselves to getting samples that will work the first time into the customer's hands.

In-House Engineering

Engineering is a key part of Bodine's integrated operation strategy. We design your application. We build all the parts. We assemble and test and take full responsibility. Our competitors who are mixing and matching motors, controls and parts from all over the world can't do what we do. We can often turn around designed to order products in a matter of weeks.

We mean what we say

We can be counted on to tell the truth. We won't overrate our products to match competitors' ratings. We won't tell you we can do something we can't or that we will deliver something in a timeframe we can't meet. That is part of our corporate culture and has been for nearly 100 years.

Final motor packaging

Quality in Motion ™

This is Bodine's trademark but also a way of life. We take great pride in being the best. Our Bodine team members also list

Bodine Electric Co. headquarters, Chicago

State-of-the-art Peosta, Iowa manufacturing facility, warehouse and distribution center

this as a reason why they work for the Company. We never compromise on quality, period!!

Quality Parts

Bodine's products work better than the competition because we pay great attention to detail. We manufacture nearly all of the parts that comprise our motors and gearmotors to very exacting standards. The sum of all this attention to detail is a motor that exhibits superior operating characteristics that add value for our customers; long life, quietness, lubricant containment and small package size.

AC motor testing

Bodine Facilities

Our corporate headquarters is located in Chicago where a large pool of technical resources are available to us. All gearing and rotational parts are also completed in this modern factory using state of the art manufacturing techniques. Lean, cellular manufacturing techniques are used in both our Chicago and Peosta, Iowa facility. Most products and parts are scheduled with a Kanban replacement system which we will also make available to our customers upon request.

State of the Art Manufacturing

Both facilities feature modern CNC machines and considerable robotic loading and unloading capability. Bodine's manufacturing associates are highly educated, well compensated and extremely productive. They are expected to use their brainpower for continuous improvement and they have been very successful at this endeavor.

4-axis CNC milling machine

Kaizen

Bodine's runs Kaizen events almost continuously to clean out waste and improve productivity. Every associate has participated in at least one event and most in many. These events consist of some training in the "tools" of Kaizen and then three to five days of attacking some process to find a better way. A summary of the event is usually presented on the final day. Results usually include reduced inventory, reduced floor space, lead time or other manufacturing process improvements. A good Kaizen event usually suggests other events which can be tackled at a later date. Thus the process is continuously improving the organization

Design Engineering

From 2D and 3D modeling, and finite element analysis, our design engineers have the tools necessary to be fast and productive. Productivity in engineering is very important because Bodine's engineers are focused on customer's ever-changing requirements and expectations. This is where nearly 100 years of corporate knowledge resides. When you buy a Bodine product you get the benefit of what we have learned.

R&D

Bodine doesn't do basic research but we constantly test new products or approaches to make our products perform even better. We have recently taken on the task of commercializing the e-TORQ technology which will change the motor business in significant ways.

7" e-TORQ motor with flange mount and custom connectors

MADE IN U.S.A.

BODINE® ELECTRIC COMPANY