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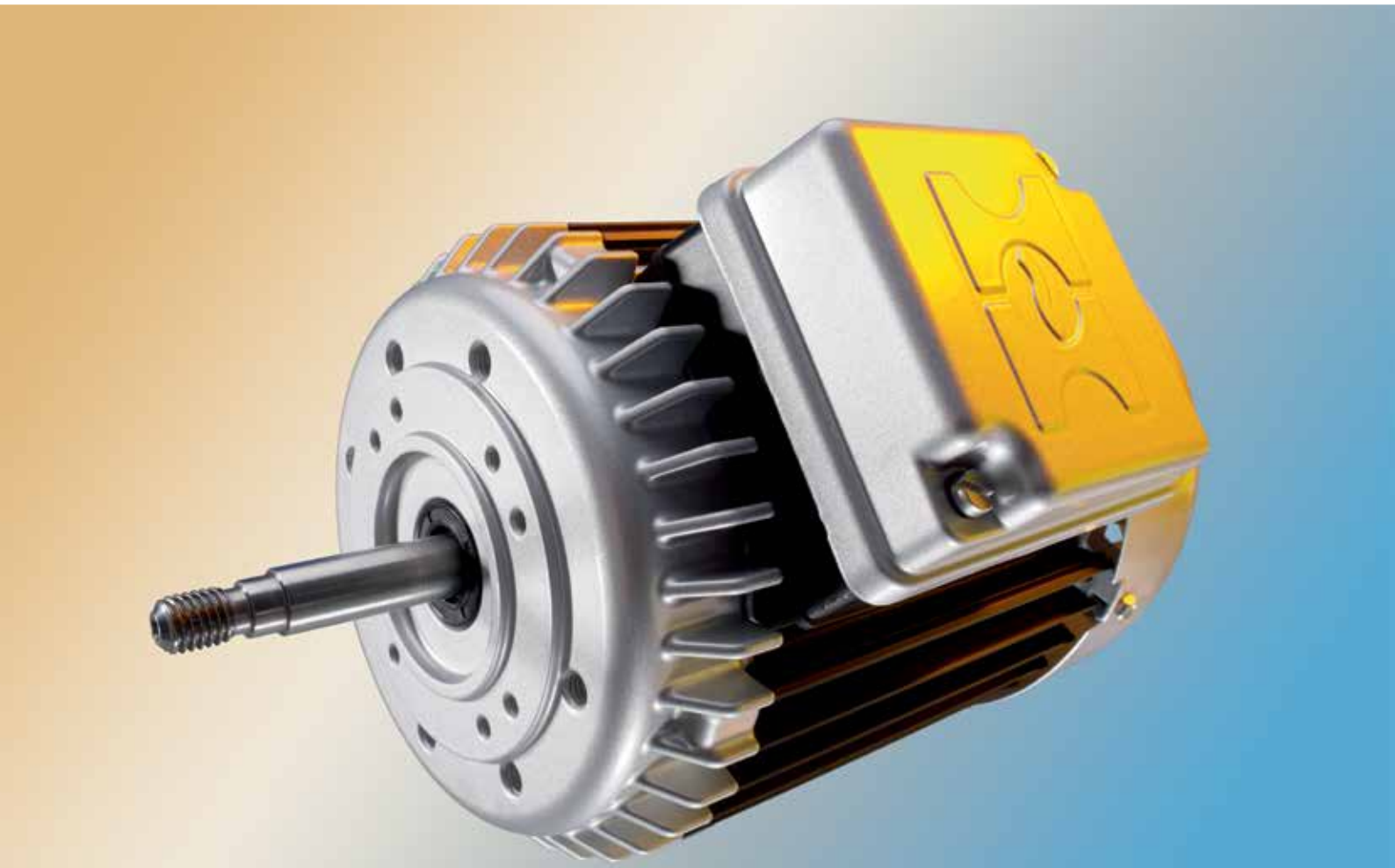
HANNING

moving ideas

HAMOTIC

Ensuring your systems run smoothly





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moving ideas

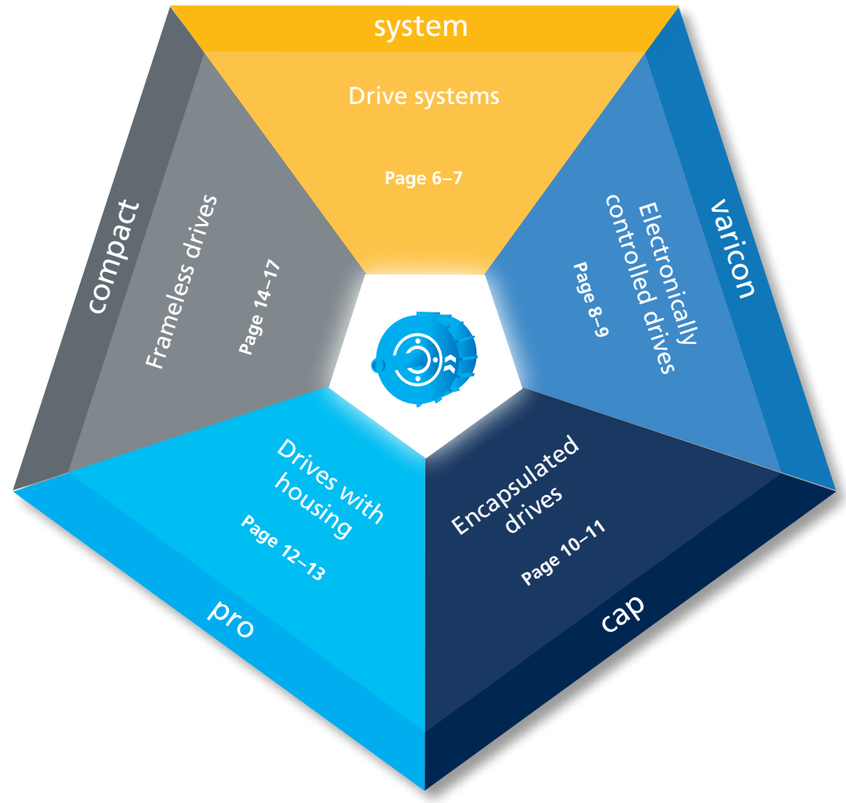
Life is movement – something we have been infusing in the products of our customers for more than 70 years. Based on our slogan “moving ideas”, we at HANNING ELEKTRO-WERKE develop drive concepts and manufacture customized solutions that will put you ahead of the competition. As one of the leading manufacturers of electric and electronic drive systems and components in the world, that is our promise to you.

Global presence is a decisive factor for success: We have an international production network with production facilities in Germany, Lithuania, Romania, China and India. In addition to that, HANNING has qualified sales partners worldwide. That ensures we are readily available all over, offering first-class service around the globe and bringing our international market and industry expertise for you into play.

To ensure that your systems run smoothly, you need single- or three-phase AC motors that are made to measure like our **hamotic** drives. As your active development partner, we fine tune our products together with you to match your requirements, for instance, in terms of torque, efficiency, form and geometry. Tailored to your needs, we design and manufacture the right drive and integrate it in your application. We are able to meet your requirements without any reservations thanks to our extensive in-house production and experience. We focus on precision, energy-efficiency and sustainability to help you extend your competitive advantage.

Solutions made to measure: hamotic

hamotic is more than just a product. This name stands for an entire set of diverse product variations with a precise structure and clearly arranged product lines to help you figure out which product suits your needs.



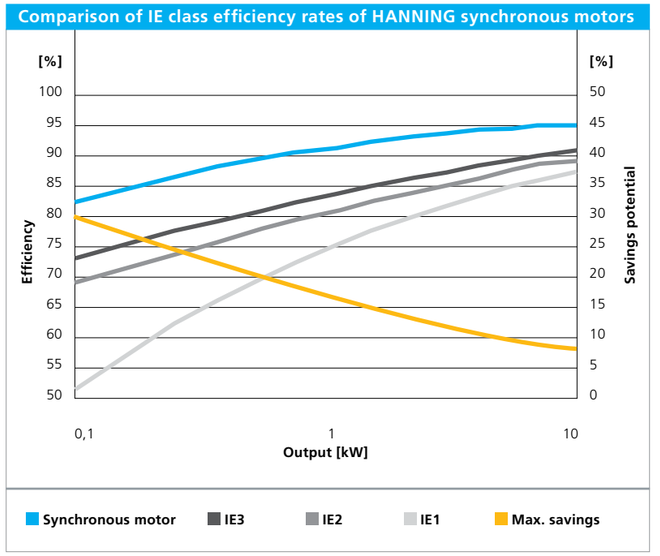
Good to know

At your request, we will obtain the following approvals on your behalf:
- CSA
- VDE
- CCC
- UL

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Increasing energy efficiency – reducing costs

Energy efficiency is a pressing need of our age – which **hamotic** can easily fulfill: **hamotic** drives operate with high efficiency. This way, you decrease costs and increase your productivity. Moreover, our drives help protect the environment – a benefit for your image that should not be underestimated.



Electric drive systems form the link between the power supply and the mechanical operations that require energy. Drive systems, especially electric motors, account for far more than 60 % of the industry's entire electricity consumption. Here it is possible to increase energy efficiency by 20 to 30 %.

That is why priority must be given to using energy-saving drives to ensure the market success of your systems or equipment. HANNING ELEKTRO-WERKE offers a wide variety of solutions, matured through intensive research and development. In this regard, our product portfolio ranges from motors with improved efficiency on average and cost-effective purchase price through to extremely energy-efficient drives.

Which variation is worth considering on your part depends on your application and the total costs of ownership over its life cycle. To this end, we offer you the entire spectrum of customized drive solutions – from compact and economical through to high-efficiency drives for especially efficient long-term use. This will help you successfully distinguish yourself on the market with HANNING quality products.



Optimized for efficiency

Synchronous drives from HANNING ELEKTRO-WERKE offer maximum energy efficiency. Thus, they already surpass the current international standards for motor efficiency ratings. Less power consumption, lower costs, high output: that is our formula for success.

With an overall efficiency of almost 80%, the synchronous drives with integrated power control electronics and controller exceed the efficiency requirements set forth in the new energy efficiency guidelines.

Synchronous drives at a glance

Energy saving, compact design, high efficiency, infinitely variable speed, minimum running noise



The synchronous drive saves space and is ahead of its times in terms of efficiency. All variations surpass the IE3 efficiency rating and satisfy the „Super Premium Efficiency" IE4 rating. To put in context: Since June 2011, three-phase AC motors must fulfill the IE2 efficiency rating. Measures addressing the IE3 rating will start to take effect in 2015 or 2017. The synchronous drive is equipped with a powerful drive processor, an innovative circuitry concept and an optimized rotor that ensures a precise concentric run-out for the entire range of speeds. Therefore, units achieve high efficiency even while operating under partial load.

In addition, the synchronous motors offer considerable cost advantages when considering life cycle costs. After all, the costs of electricity consumed by electric motors account for almost 80 to 90% of their life cycle costs. Synchronous drives offer considerable advantages in this regard and are able to pay for themselves just after a few months of operation.

Applications range from drives for fluid pumps, vacuum pumps, fans and motors for material handling and food processing through to drives for wood and plastic processing industries.

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hamotic system – customized for you

The name stands for a high degree of customization: Every **hamotic system** product is developed especially for you with sophisticated technology, finely tuned to your specific needs and delivered ready for installation. Your benefit: You get an assembled, compact drive system that is precisely matched to your intended application in terms of geometry, performance and operation.
That guarantees optimum product features for demanding tasks. The **hamotic system** is based on our technological know-how as a system supplier. With our comprehensive industry expertise and our extensive in-house production, we offer high-quality individual single-source solutions that are optimally matched to one another.

At a glance

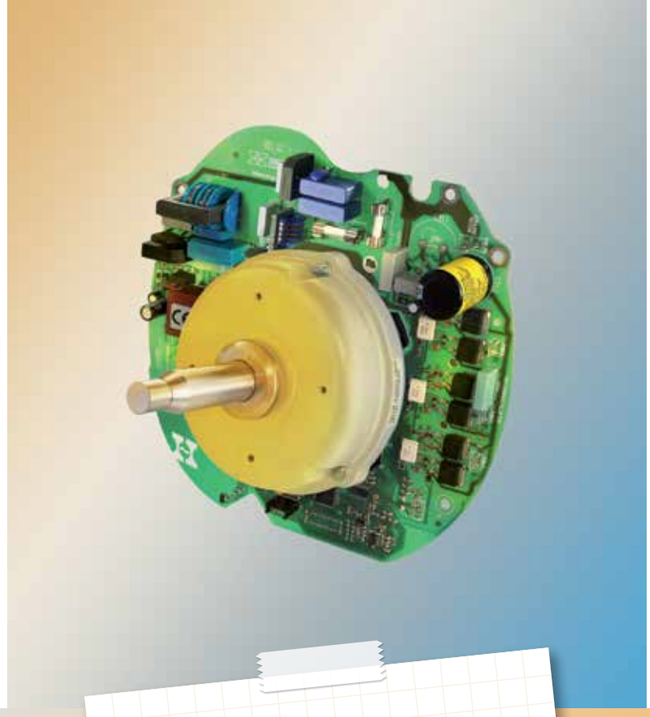
hamotic system:
Drive systems in synchronous and asynchronous technology

Application fields:
Laboratory equipment, industrial rapid-action doors and more

Advantage/benefit:
Complete, ready-to-install solutions from a single source

Technical specifications:
According to customer specification

Options:
According to customer specification





Success story 1:
Compact – more compact – hamotic system
Here drives and cooling compressors are controlled simultaneously. The outer contour adapts to the given housing, all functions are integrated in the inverter – that means optimal economy of space.

Laboratory applications

hamotic system drives are extremely flexible in terms of design. HANNING, for instance, has developed on its own an extremely slim, round drive with a single-board inverter. This customized solution does not only control the drive but also the cooling compressor. The outer contour of the inverter is adapted to the inner contour of the existing housing and machine operations are integrated in the inverter. Thus, the drive solution makes optimal use of limited space.

Products like laboratory centrifuges, industrial rapid-action doors or pumps call for special components to ensure optimum performance. With **hamotic system** you get a finely tuned system encompassing inverter and motor. That ensures you receive exactly what you need – nothing more and nothing less. With state-of-the-art technology and exceptional efficiency.

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hamotic varicon – electronics included

The **hamotic varicon** brand name relates to customized drive units with mounted or integrated frequency inverters. The drives can be used wherever energy efficiency and variable speeds are in demand, for instance, in machine tools, pumps, textile machines, metering and mixing systems or even as fan drives for a wide variety of devices.

At a glance

hamotic varicon:
Synchronous and asynchronous drives with integrated or attached electronics

Application fields:
Pumps, machine tools, textile machines and more

Advantage/benefit:
Individually upgradeable functionality

Technical specifications:
Size 71–90, Output 0.25–3 kW, speed 1,000–20,000 min $^{-1}$,
Protection rating IP54/IP55

Options:
Fieldbus ports, controller, special shaft, special end shields and more



The key strength of **hamotic varicon** motors is the individual layout of drives and electronics geared to your application.

Thanks to their optimal housing, **hamotic varicon** drives are rugged and feature IP54 and IP55 protection ratings. Their optimized ventilation system also ensures that they deliver high outputs even at low speeds. Additional features include the end shields and customized controllers that are adapted to the individual requirements.

hamotic varicon is impressive due to its compact and application-specific design. The installation space is minimal for the power rating, design and size are flexible. These drives transform the energy with particularly high efficiency and are primarily products of synchronous design. **hamotic varicon** offers advantages over the entire range of rotary speeds: The drives deliver high torques even in very low speed ranges; their high-quality bearings, windings and optimized ventilation system enable the drives to achieve very high speeds as well.

With their axially integrated power electronics – for instance with universal interface or fieldbus ports – **hamotic varicon** units save space. In addition to that, the drives are easy to install and configure.



Success story 2:
Efficiency that is effective
In this case, economy is the key factor. This compact drive scores with a high level of efficiency and low life cycle costs. A solution that pays off in many applications.

Compact synchronous drive

If motor and inverter are to be integrated in a structural unit, and the result is to be as compact as possible, then the **hamotic varicon** in synchronous technology is the solution. This drive offers a high power density from 0.37 to 2.2 kW and exceeds the efficiency requirements as per IE3. The **hamotic varicon** compact synchronous drive is distinguished by numerous technical refinements: ranging from innovative tooth winding technology, high-quality rare earth magnets and optimum temperature management through to optimized motor design.

This extremely versatile product is fit for the future: The drive will also satisfy the efficiency requirements that apply to motors with single-phase supply. Moreover, it is easy to use and available with highly variable mechanical components and customer-specific end shields and shafts.

TECHNICAL SPECIFICATIONS AT A GLANCE

Size: **80**
Output: **1.1 kW**
Speed: **3,000 min^{-1}**
Protection rating: **IP54**



Success story 3:
Movement is our goal
High torques even at low speeds, easy to use with plug-and-play: All of those features make it the drive of choice for many applications.

Compact asynchronous drive

By using an external fan, the compact asynchronous drive attains high torques even at low speeds. Both the motor and the electronic components are moreover optimized to suit your requirements. If required the interface is specifically configured to your needs.

Thanks to plug-and-play, the motor and the inverter are easy to combine. And you get the desired HMI interface at the same time. The drive can be used in many applications: from grinding machines and metering pumps through to machine tools.

TECHNICAL SPECIFICATIONS AT A GLANCE

Size: **80**
Output: **1.5 kW**
Speed: **1,500 min^{-1}**
Protection rating: **IP55**

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hamotic cap – tightly sealed

hamotic cap – is the drive solution with completely encapsulated motor windings, which are especially suited for demanding environments.

At a glance

hamotic cap:
Housed and frameless drives with completely potted motor windings in synchronous and asynchronous technology

Application fields:
Fluid pumps, car washes, machine tools and more

Advantage/benefit:
High IP protection rating and high vibration resistance

Technical specifications:
Size 56–132, Output 0.25–7.5 kW,
Speed 1,000–25,000 min $^{-1}$,
Protection rating IP54/IP55

Options:
Base and flange mounted versions, special armature and end shields, external fan, brake, position transducer, protective cover and more





Success story 4:
Rugged and waterproof
This model does not fear water when installed as motor in swimming pool and car wash applications. With its waterproof rating, the hamotic cap model has really earned its gold medal in its swimming events.



The encapsulated **hamotic cap** model is available for housed and frameless motors and offers very high protection against moisture and vibrations. Condensation, which is a hazard for every machine, has no impact on this drive unit. In addition, the solution can be adapted individually to prevailing environment and operating conditions.

Therefore, **hamotic cap** motors are optimally equipped for a wide variety of applications: For instance, they actuate pumps for swimming pools or brushes in car washes.

Another possible application includes drives for tensioning systems in machine tools. Here the specially encapsulated windings are able to withstand the vibrations of the machine over the long term, ensuring reliable operation.

Encapsulated housed drive

The special motor from the **hamotic cap** series offers excellent winding protection thanks to the fact that it is fully encapsulated in polyurethane or epoxy resin potting compounds. Our sophisticated production process is based on extensive know-how and expertise gained by serving the industry over the decades.

hamotic cap is a rugged and waterproof drive designed for harsh environmental conditions. It has proven to be very reliable especially in swimming pool filter pumps and car washes.

TECHNICAL SPECIFICATIONS AT A GLANCE

Size: **71**
Output: **0.37 kW**
Speed: **1,500 min^{-1}**
Protection rating: **IP55**

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hamotic pro – for demanding industrial applications

hamotic pro drives are the industry's first choice. With its protective enclosure it is ideally suited for use in demanding environments. The line ranges from vacuum and fluid pumps, compressors and gearboxes through to milling and textile machines.

At a glance

hamotic pro:
Drives with housing in synchronous and asynchronous technology

Application fields:
Textile machines, conveyor belts, vacuum and fluid pumps, logistics and more

Advantage/benefit:
Rugged design with protective enclosure

Technical specifications:
Size 56 – 132, Output 0.09 – 7.5 kW,
Speed 1,000 – 25,000 min $^{-1}$,
Protection rating IP54/IP55

Options:
Base and flange mounted versions, special armature and end shields, external fan, brake, position transducer, protective cover and more





Success story 5:
To suit all requirements
How flexible does an industrial motor have to be? Ideally, they should be very flexible, just like our hamotic drive for geared applications. It is available in custom-tailored versions and offers a wide variety of different connection options with individual special shafts and end shields.



Success story 6:
One for many
How many motors are needed for all the single-phase voltages in the world? Just one! This industrial motor can be operated all over the world between 90 and 260 V with 50 or 60 Hz. That's what we call application-specific!

hamotic pro motors are incredibly versatile. On the one hand, the design and the geometry can be optimally adapted to the operating conditions. On the other hand, the customer specific housings also protect the drive units. The use of extruded sections during production has proven to be very advantageous here: With manageable tool costs, the length and geometry of the housing can be varied in a flexible manner. Die-cast aluminium housings are a great alternative for especially high demands.

In any case, the **hamotic pro** offers optimum quality at economically attractive conditions.

Industrial motor for geared applications

Various customer additions can be implemented with the **hamotic pro** drive. We develop the optimum geometry of the individual components in close cooperation with our customers. This helps keep the logistics and tool expenses within limits.

hamotic pro reduces the number of variations to an efficient level. Thanks to our extensive in-house production, HANNING is a one-stop shop for customers.

TECHNICAL SPECIFICATIONS AT A GLANCE

Size: **80**
Output: **1.1 kW**
Speed: **2,900 min^{-1}**
Protection rating: **IP55**

Industrial motor for vacuum pumps

Product development was based on testing a vacuum pump in the motor laboratory, where the pump was brought to a defined temperature in a freezer. The result is the **hamotic pro** industrial motor for vacuum pumps with optimized motor design. The optimum operation of this special drive can be attributed to our extensive know-how involving single-phase motors, which are more difficult to dimension with their small starting torques than three-phase motors.

The **hamotic pro** industrial motors for vacuum pumps can also be used to reliably actuate vacuum rotary vane pumps even at low temperatures. Meticulous adherence to tolerances and precise production ensure that final pressure and volumes are obtained.

TECHNICAL SPECIFICATIONS AT A GLANCE

Size: **80**
Output: **0.3 kW**
Speed: **1,500 min^{-1}**
Protection rating: **IP54**

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hamotic compact – the essence

Diversity is the key with **hamotic compact** drives. Customer requirements are as diverse as the product portfolios are. Which is why the name **hamotic compact** combines frameless synchronous and asynchronous drives of various designs.

At a glance

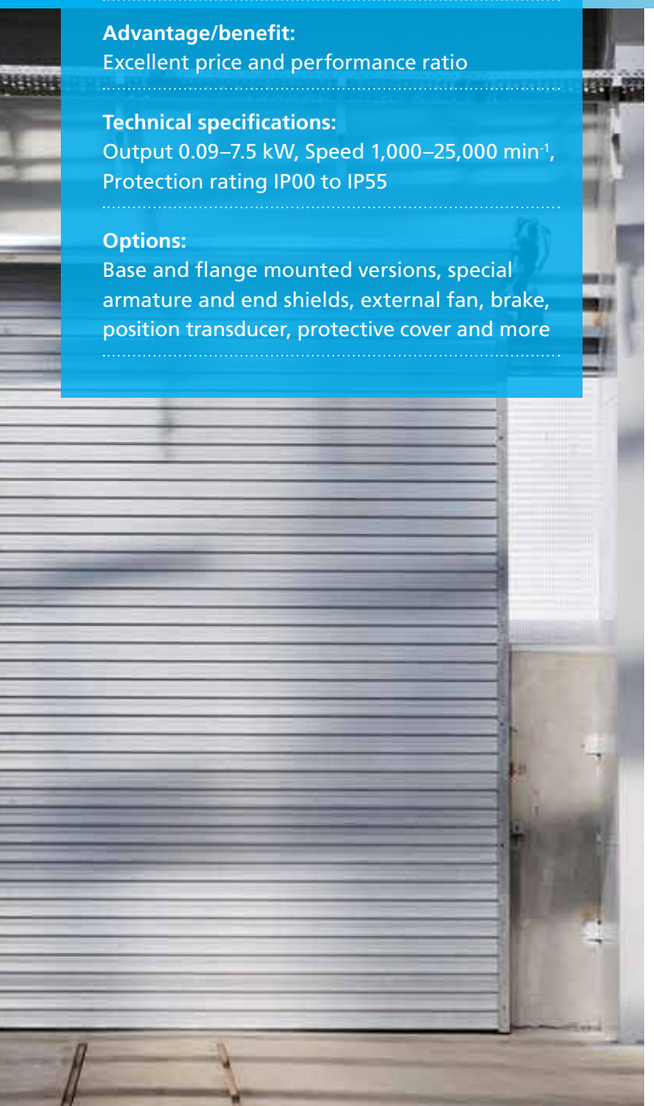
hamotic compact:
Frameless drives of synchronous and asynchronous design

Application fields:
Industrial rapid-action doors, food processing, laboratory and lifting equipment, commercial washing machines and more

Advantage/benefit:
Excellent price and performance ratio

Technical specifications:
Output 0.09–7.5 kW, Speed 1,000–25,000 min^{-1}, Protection rating IP00 to IP55

Options:
Base and flange mounted versions, special armature and end shields, external fan, brake, position transducer, protective cover and more





Success story 7:
Capable for doors
The compact, frameless motor delivers high torques even during short-term operation. Ideal for industrial rapid-action doors!



Success story 8:
Silent-running fast mover
This laboratory centrifuge drive, which is manufactured specially to suit your requirements, is characterized by maximum running smoothness even at high speeds.

Made to measure 100 % – That is the main strength of the **hamotic compact**. Be it special end shields, individual designs and dimensions as well as application-specific optimizations in terms of noise and temperature – **hamotic compact** makes many things possible.

That includes configuring efficiency and load conditions precisely to the relevant applications. With **hamotic compact** you get a customized solution from a single source – tailored specifically to your application, compact in design and more cost-effective than a standard motor.

Door and gate drive

Wind loads, rainfall, extreme temperatures – not a problem for the **hamotic compact** door and gate drives. Its high starting torques ensure that operation is flawless even under difficult conditions. Its costs are as straightforward as its dimensions.

Thanks to its highly efficient design, it offers just what you need – nothing more and nothing less.

TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **0.37 kW**
Speed: **1,400 min^{-1}**
Protection rating: **IP00**

Centrifuge drive

It spins and spins at speeds of up to 25,000 RPM while running silently!

The **hamotic compact** centrifuge drive: An impressive result of HANNING's expertise in development and production.

TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **0.2 kW**
Speed: **25,000 min^{-1}**
Protection rating: **IP00**

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Success story 9:
The power house in oil bath
High output with minimum dimensions: The hamotic compact submerged motor ensures that lifting platforms and other hydraulic applications works smoothly.



Success story 10:
Powerful and slim
It performs well and is content with the space available: For instance, this drive is well suited for hydraulic pumps.



Success story 11:
For endless washing power
When it comes to commercial washing machines, total cost of ownership plays an ever-increasing role. Durability is in demand. Our brushless drive runs considerably longer than motors with a mechanical commutator.



Oil-immersed motor

Its output is two times that of standard motors with the same volume – that is the advantage of oil-cooled drives of the U07 and U09 series compared to air-cooled standard motors. Available with two or four poles or even greater numbers of poles, the motor rests in a hot oil bath of a maximum 70 °C.

Whether in lifting equipment for the automotive industry or transport systems: These power houses are fully configured to suit your demands.

TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **3 kW**
Speed: **1,400 min^{-1}**
Protection rating: **IP00**

Motor for hydraulic pumps

Optimized views, comprehensive know-how, extensive in-house production – this special drive satisfies demanding challenges as well.

With the frameless motor for hydraulic pumps, you have a complete solution with high power density in HANNING quality. This drive has proven itself especially under the harsh conditions prevailing at sea.

TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **0.2 kW**
Speed: **2,800 min^{-1}**
Protection rating: **IP40**

Wash drive A07

The **hamotic compact** wash drive A07, a typical HANNING solution, is very compact and thus saves a lot of space. A distinguishing feature of this motor is its special bracket that facilitates installation and belt tensioning. Another advantage: The motor has excellent running capabilities and yet is very quiet as well.

The **hamotic compact** wash drive A07 is distinguished mainly by its outstanding price/performance ratio. That's why it is frequently used to actuate the drums in commercial and semi-commercial washing machines. It is predestined for such applications thanks to its high rotary torque during washing and its power during spinning cycles.

TECHNICAL SPECIFICATIONS AT A GLANCE

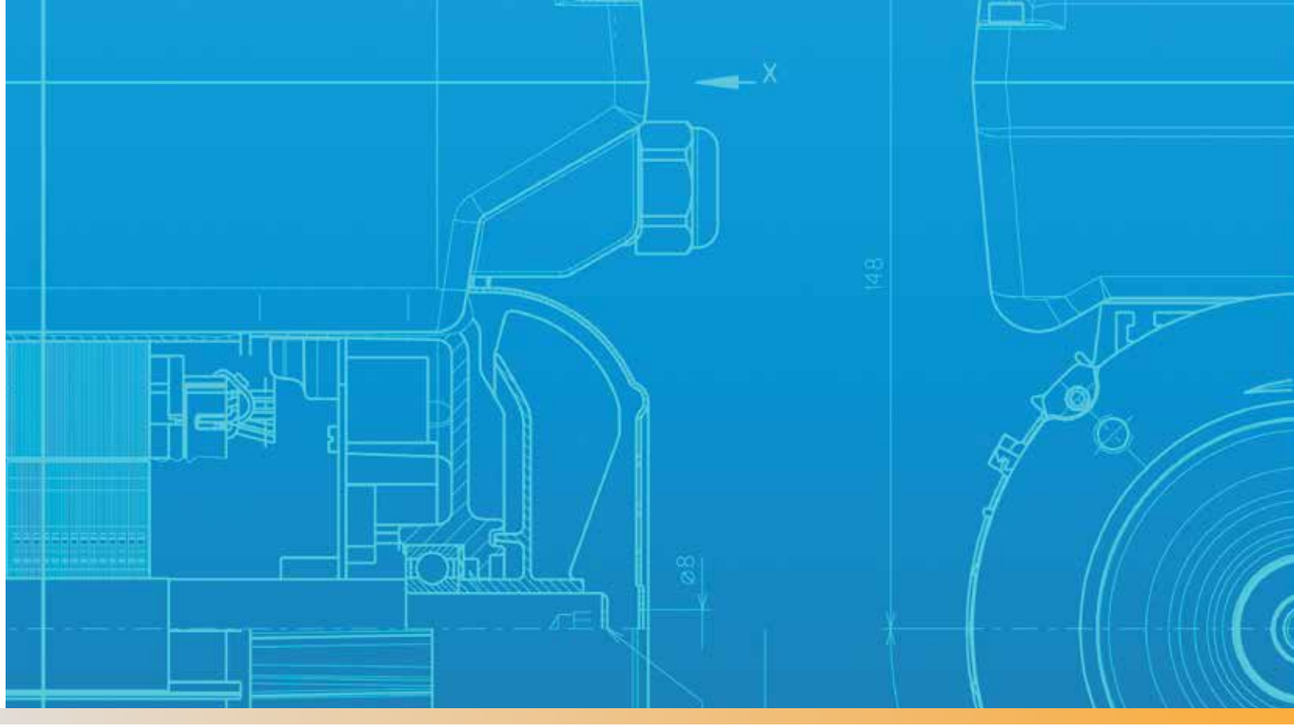
Output: **0.15 kW**
Speed: **500 – 16,000 min^{-1}**
Protection rating: **IP20**

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hamotic motors – driving your success

If you are a manufacturer of equipment or systems, then we offer specific motors for them. Either customized specifically for your requirements or selected for you from our broad assortment. In this way, we strengthen your position on the market and improve the performance of your high-quality products.

Are you interested in drive solutions that optimally combine technology and efficiency? Then do not hesitate to contact us. We would be happy to advise and support you during development with our know-how, state-of-the-art measuring and testing equipment.





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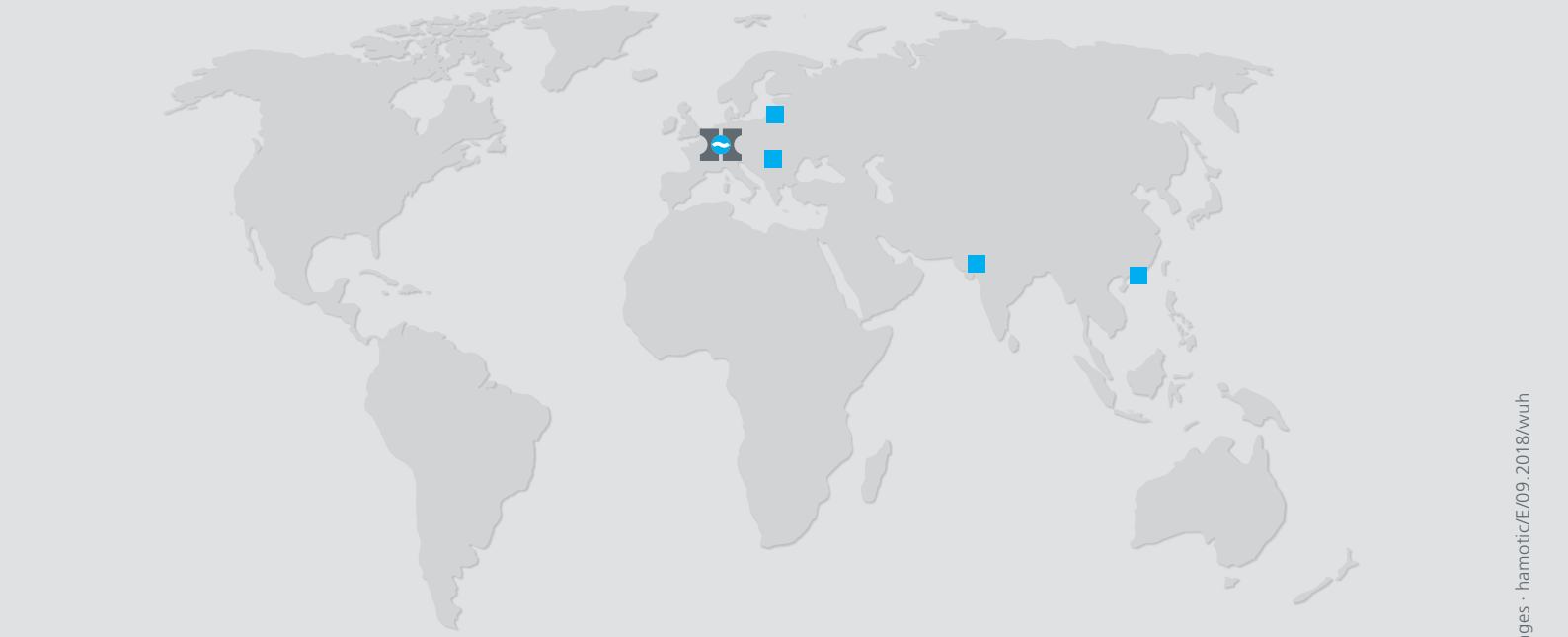
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