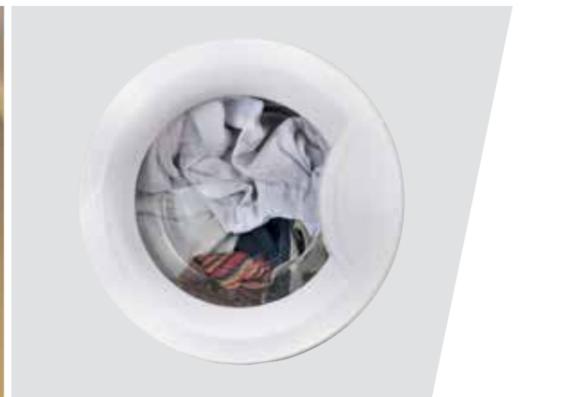


# HAFLOWTIC

Setting liquids in motion





moving ideas

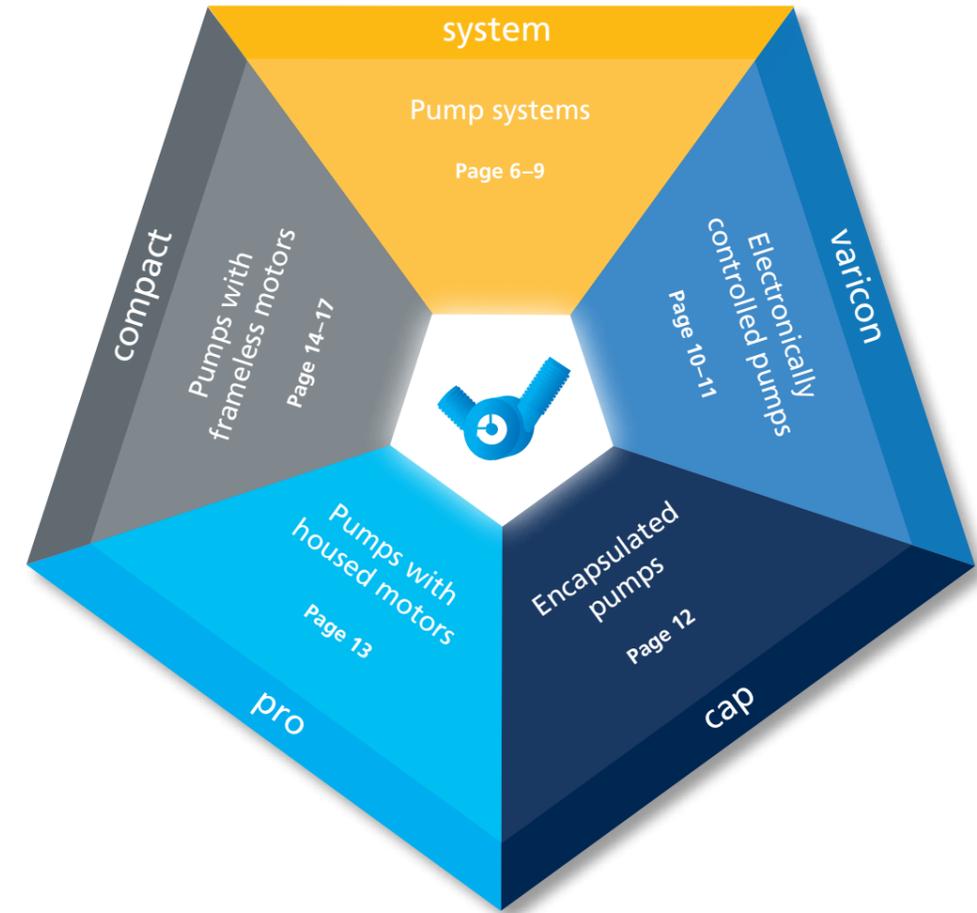
Life is movement – something we have been infusing in the products of our customers for more than 75 years. Based on our slogan “moving ideas”, we at HANNING ELEKTRO-WERKE develop drive concepts and manufacture customized solutions that will put you ahead of the competition. As one of the leading manufacturers 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, Romania 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.

Our **haflowtic** pumps get liquids moving – reliably, capably and individually tailored to your requirements. Be it chemically contaminated process waters or polluted wastewaters: Thanks to special design features, the circulation and drain pumps from HANNING ELEKTRO-WERKE are a perfect match for many challenges. **haflowtic** pumps are precise, durable and designed to match the requirements of your specific applications – with just the right materials for hydraulic systems and motors as well as the appropriate sealing system. Many certificates have been awarded confirming the quality of our **haflowtic** products.

## Solutions made to measure: haflowtic

**haflowtic** 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

All of our **haflowtic** pumps have obtained the following certificates:  
- RoHS / REACH  
- CE

Additional certification can be obtained upon request:

- CSA
- VDE
- CCC
- NSF
- UL

All **haflowtic** products for household applications are free of any pollutants in accordance with the Joint Industry Guide (JIG).

## Increasing energy efficiency – reducing costs

Energy efficiency is a pressing need of our age – which **haflowtic** can easily fulfill: **haflowtic** pumps operate with high efficiency. This way, you decrease costs and increase your productivity. Moreover, our pumps 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 % our synchronous drives exceed the efficiency requirements set forth in the new energy efficiency guidelines.

The synchronous drive saves space and is ahead of its times in terms of efficiency. Equipped with HANNING pumps, your products will earn top energy ratings for household appliances. Even variations exceeding 750W for commercial applications exceed the IE3 efficiency rating and satisfy the "Super Premium Efficiency" IE4 rating.

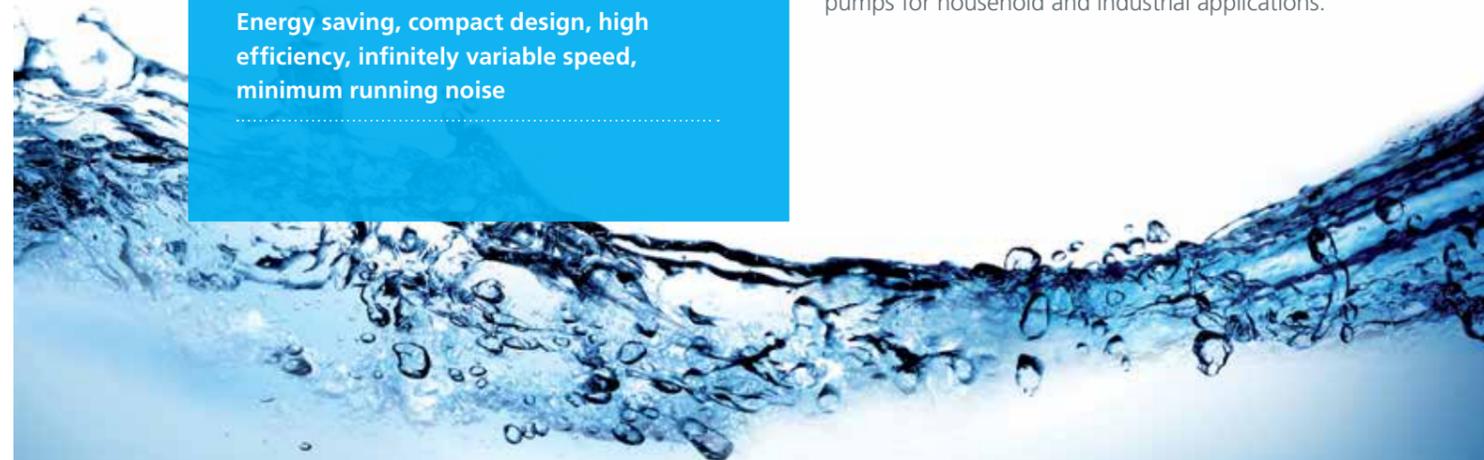
To put in context: Since June 2011, three-phase AC motors must fulfill the IE2 efficiency rating. Measures addressing the IE3 rating will start to take effect in 2015 or 2017. The synchronous drive is equipped with a powerful drive processor, an innovative circuitry concept and an optimized rotor that ensures a precise concentric run-out for the entire range of speeds and thus attains a cogging torque of almost zero. For you as a customer, that means the lowest possible noise level for your application.

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.

The range of applications includes drain and circulation pumps for household and industrial applications.

### Synchronous drives at a glance

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



## haflowtic system – added value with system

With **haflowtic system** we developed a highly modern system for you: The goal being an individual benefit with added value. By providing solutions, we have managed to realize customized additional functions, for instance, for the device controller or as ready-to-install components with integrated mounting plate. As a result, **haflowtic system** products fit seamlessly into your value chain, reduce your production expenditure and offer additional profit potential.

### At a glance

#### haflowtic system:

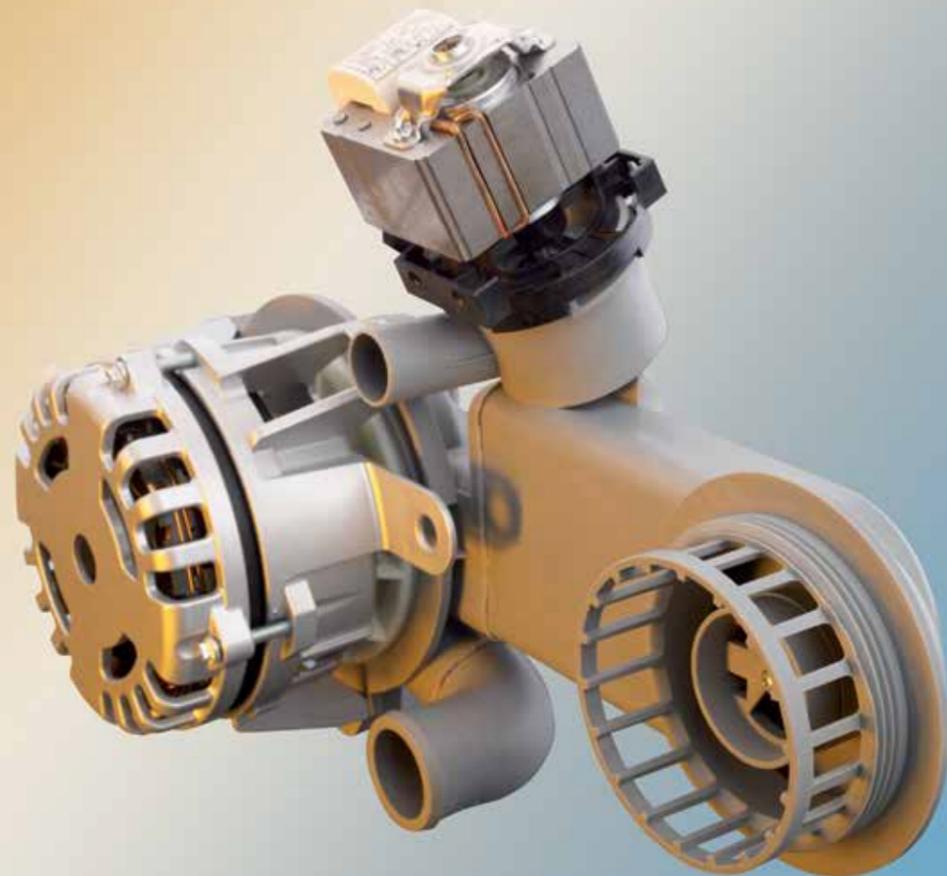
Pump systems with increase in added value

#### Application fields:

Household and industrial applications

#### Advantage/benefit:

Complete, ready-to-install solutions from a single source



Our custom-tailored **haflowtic system** solutions are based on our many years of experience and expertise. As experts in the field of electric drives we offer forward-looking technologies – as in terms of energy efficiency involving circulation and drain pumps –, comprehensive industry know-how and extensive knowledge of logistics practices. As a reliable partner for your production process, we accept responsibility for the entire system.

#### Your essential advantage

At HANNING, development, design, toolmaking and production are all done from a single source. By doing so, we guarantee you maximum quality and components that are optimally matched to one another. With **haflowtic system**, you get a complete solution that is fully configured and ready for installation. And that saves you time and money.

#### Great diversity

With **haflowtic system** you have access to a wide variety of technological capabilities. We offer pump systems with

- Integrated heating system
- Continuously variable speed control
- Soft start
- Automatic shutdown for reducing noise
- Automatic start/stop function
- Sensorless water detection
- Blockage protection
- Diverse integrated sensors

The systems are designed for all power grids worldwide. You get a system either in synchronous design with or without electronic motor control or in classic asynchronous design. Exactly as is required by your task. Even if it involves washing, rinsing and drying, be it industrial or medical products such as sterilization and disinfecting systems: With **haflowtic systems** you always get a custom-tailored product made to measure, even with international approval if so desired.

### Success stories with haflowtic system

The convenient **haflowtic** pump systems are energy-efficient, optimally customized and ready for installation for every application. In addition to that, they are especially low-maintenance and durable. And it is no surprise that they celebrate success after success. Here are three select success stories we would like to tell you:

#### Success story 1:

Efficient and economical  
The requirements are increasing: End customers want high-performance, quiet and environmentally friendly appliances at attractive purchase prices more than ever before.

#### CPO 45 with integrated heating

The synchronous circulation pump CPO 45 as **haflowtic system** more than surpasses the current market requirements. One reason for this is in particular the integrated heating in addition to its high efficiency level at a very low purchase price. The compact system comprising pump and heating saves quite a bit of space and thus reduces the design-related dead space to a minimum.

Especially environmentally friendly: This system heats up the water required for rinsing at the same time as the circulation cycle. That saves energy and reduces the amount of water needed. Thus, the pump utilizes the same principle of operation as our tried-and-tested synchronous drain pumps. The bypass angle has been extended to 360° and the motor always starts up in a predefined direction of rotation.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 140 l/min or 0.37 bar**  
Motor input: **80 W**  
Ambient temperature: **60 °C\***  
Fluid temperature: **70 °C\***  
Integrated heating: **up to 2,000 W** (diverse manufacturers)

#### Success story 2:

Extra quiet and variable  
When it comes to the big leagues, the circulation pump systems used in household dishwashers have to be especially quiet. HANNING ELEKTRO-WERKE's answer was the CPE 16 with integrated heating.

#### CPE 16 with integrated heating

This **haflowtic system** goes one step further than the CPO 45 with integrated heating when it comes to output. In addition to the advantages described, the motor is also extraordinarily quiet and equipped with variable speeds. As a result, the entire range of settings from gentle cycle to the intensive scrubbing program can be realized efficiently.

This is possible due to installation of the latest generation of electronically controlled BLDC circulating pump. The centerpiece is a three-phase synchronous motor that is actuated by means of permanent magnets and which does not require any sensors. The rotor works as glandless wet rotor directly in the fluid. That eliminates the need to have sensitive mechanical seals. The electronic controller is integrated in the mainboard separately from the motor.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 140 l/min or 0.37 bar (at 3000 min<sup>-1</sup>)**  
Motor input: **80 W**  
Ambient temperature: **60 °C\***  
Fluid temperature: **70 °C\***  
Integrated heating: **up to 2,000 W** (diverse manufacturers)

#### Success story 3:

2 in 1 for compact commercial dishwashers  
Space is money and anyone who wants to save both looks for capable combination units. The result: innovative pump systems that are suited to the demanding requirements posed by the food service sector.

#### Rinsing system (asynchronous)

Dishwashers used in restaurants, etc. are real work horses. And the technologies used must also be as rugged and reliable. To satisfy the requests made for ensuring better usage of space, we have combined two pumps of technologically proven design into a single system for circulating and draining.

The result is a **haflowtic system** consisting of two motors, which are an integral part of the pump: a motor for circulating and one for draining. That saves space and reduces the possible sources of errors while decreasing construction costs and operating costs.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 390 l/min or 1.1 bar**  
Motor input: **700 W**  
Ambient temperature: **60 °C\***  
Fluid temperature: **70 °C\***

\*higher temperatures possible on request

## haflowtic varicon – efficient and powerful

The **haflowtic varicon** product line describes pumps with attached or built-in electronics. They are used where pressure or flow is regulated with the aid of motor speed. That ensures maximum efficiency over a broad adjustment range. Today **haflowtic varicon** pumps are implemented mainly in household dishwashers and industrial applications. The product package always includes a frequency inverter and/or an electronic motor control module. Depending on the application, additional electronic functions are possible. As a result, **haflowtic varicon** is the ideal solution for demanding tasks.

### At a glance

**haflowtic varicon:**  
Pumps with integrated and attached electronic module

**Application fields:**  
Commercial rinsing applications, swimming pools, industrial applications and more

**Advantage/benefit:**  
Individually upgradeable functionality

### Customer-specific and tailored implementation: The key strength of haflowtic.

Depending on requirements, we offer with **haflowtic varicon** solutions, where the drive, electronics and other components are designed individually to suit intended applications. Besides continuously variable speed control, other options are possible like soft start, automatic start/stop function, sensorless water detection and much more.

Your advantage: **haflowtic varicon** is impressive due to its compact and application-specific design. The pumps transform the electric energy with particularly high efficiency into hydraulic energy. This applies primarily to products of synchronous design and is ensure, among other things, by the continuously variable speed control of up to 6,000 rpm. You already benefit from greater efficiency right from the start, since assembly is minimal. The pump is completely preconfigured and thus ready for immediate use.

If so desired, we can also integrate on your behalf options like status request for temperature, speed and rotary torque or even detect the level of contaminants in the fluid to be pumped. Consequently, you have complete control of performance and efficiency.



### Success story 4:

**Peak performance**  
Anyone who wants to be at the top, must be a trendsetter just like the **haflowtic varicon PSE 60**. There is almost no other product in this category that is as energy-efficient, compact and versatile.

### Success story 5:

**Innovation on demand**  
Circulation pumps and electronic modules from a single source and with a new and especially compact BLDC design. Something that **HANNING** also offers. The electronic module communicates with the pump via a data connection (bus), telling it what to do.

### PSE 60

The extensive range of the PSE 60 can be attributed to the variable speed and thus a level of output that can be accessed precisely when it is needed. That explains why we equipped this pump with an electronically commutated synchronous motor where the electronic controller is integrated right in the motor itself. And that with the minimum dimensions and space required in the end product.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 600 l/min or max. 1.5 bar**  
Motor input: **1,350 W**  
Ambient temperature: **40 °C**  
Fluid temperature: **70 °C**

### CPE 16 with attached electronic module

CPE 16 has already established itself, for instance, as **haflowtic sytem** with integrated heating. The benefits: The electronically commutated synchronous motor is compact thanks to its BLDC design (brushless DC) as well as cost-effective and energy-efficient. The necessary motor electronics are normally integrated in the mainboard of the end product. The CPE 16 **haflowtic varicon** version can make it, upon request, even more convenient. The electronic module of this version is located directly on the motor, and thus delivered as a ready-to-install product that fulfills all EMC requirements.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 140 l/min or 0.37 bar (at 3,000 min<sup>-1</sup>)**  
Motor input: **80 W**  
Ambient temperature: **60 °C**  
Fluid temperature: **70 °C**

## haflowtic cap – well protected

haflowtic cap pumps are self-contained flow systems for demanding specialized applications. The complete encapsulation system prevents any ingress whatsoever. Thus, the motor is protected from any ambient influence and in turn does not affect its environment either.



**Success story 6:**  
Sealed completely  
Cleanliness and hygiene are essential for the food processing industry. That is why the closer a pump gets to food, the better it has to be sealed. The pumps of the haflowtic cap line set the standards.

### Ice maker pump

Pumps of the haflowtic cap series are used, for instance, in ice makers. Almost no limits are put on their versatility, since the already presented designs embody the heart of these pumps. The difference: Every solution is encapsulated completely. That ensures that there is no contact between the motor and the food – for the good of both products! Naturally: Closed systems depend in particular on reliability and efficiency. That's why haflowtic cap pumps, even the smallest models, are equipped with high-quality ball bearings, for an extra long service life!

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 30 l/min or max 0.15 bar**  
Motor input: **30 W**  
Ambient temperature: **40 °C**  
Fluid temperature: **70 °C**



### At a glance

haflowtic cap:  
Encapsulated pumps

Application fields:  
Food processing industry

Advantage/benefit:  
Optimum all-round protection

## haflowtic pro – ready for harsh environments

haflowtic pro pumps are genuine all-rounders even under extreme conditions. Dust, dirt and water – all of that can do nothing to the pumps of our haflowtic pro line. Their IP protection rating is correspondingly high. Therefore, they are optimally suited for long-term reliable use in harsh and demanding conditions.



**Success story 7:**  
Reliable work horse  
Be it for commercial cleaning, in the medical sector or industry: UP 60 is the first choice wherever tried-and-tested technology and maximum power density are important. A compact pump with asynchronous motor that is resistant to dirt and dust.

Pumps of the haflowtic pro series are distinguished by their very rugged design. All haflowtic pro products possess the same protection characteristics as our hamotic pro drives. For instance, they have a closed housing consisting of extruded aluminum profiles – with additional ventilation. A high degree of protection is guaranteed together with the closed end plates, which effectively prevent the ingress of moisture and dust. Their special hydraulics are resistant to all chemicals in commercially available detergents and washing agents.

As a result, haflowtic pro is at home wherever the going gets tough. For instance, in commercial dishwashing and rinsing applications, in medical sector or in industrial applications.

### At a glance

haflowtic pro:  
Pumps with housed motors

Application fields:  
Commercial cleaning, medical technology, industry

Advantage/benefit:  
Especially suited for harsh and demanding conditions

### UP 60

The UP 60 circulation pump with a rated input of up to 300 W is available for industrial applications and household appliances. It is suited for continuous operation at an ambient temperature of up to 60° and protected with the aid of an overheat cutoff device. High-quality sealing systems are implemented to prevent leakages.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **160 l/min or 0.75 bar**  
Motor input: **300 W**  
Ambient temperature: **60 °C**  
Fluid temperature: **95 °C**

## haflowtic compact – plenty power in compact package

Compact and versatile – that describes our pumps with the brand name **haflowtic compact**. These products combine the advantages of our smallest model with a high degree of individuality: Every **haflowtic compact** pump is custom-tailored to your specifications.

### At a glance

**haflowtic compact:**  
Pumps with frameless motors

**Application fields:**  
White goods, commercial cleaning,  
industrial applications, medical technology

**Advantage/benefit:**  
Customized performance at attractive prices



Design with a high degree of individuality: Every **haflowtic compact** pump is custom-tailored to your specifications.

The pump solutions exhibit optimum chemical and temperature resistance and are thus impervious to any foreign matter. Even in case of high air concentrations in the medium to be pumped, these pumps perform as intended without complaint. We provide this high level of quality at an especially attractive price/performance ratio, in part they are also available with aluminum winding. And thanks to their high energy efficiency, the **haflowtic compact** also offers even greater savings.



**Success story 8:**  
Proven track record  
Anyone looking for a well-rounded model among circulation pumps finds what they are looking for in the UP 30 compact. This haflowtic product is equipped with a plastic endshield, bayonet catch and a high-quality sealing system.

### UP 30

The UP 30 circulation pump with a rated input of up to 150 W is available as open version for industrial applications and household appliances. It is chemically resistant to commercially available washing agents and has a protection rating of IP 00.

The UP 30 packs considerable power in a small package – you will hardly find another pump in this class that is more compact.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 100 l/min or 0,38 bar**  
Motor input: **150 W**  
Ambient temperature: **60 °C**  
Fluid temperature: **70 °C**



**Success story 9:**  
It runs and runs and runs  
The reliable compact among circulation pumps: versatile and still highly innovative even though it has been on the market for decades. After all, we continue to push the development of the PS 26 compact as a model for success with future.

### PS 26

An absolute classic that has proven itself over the decades: With a rated input of 700 W, the high-caliber circulation pump PS 26 handles up to 350 liters per minute. It has an IP 00 protection rating and a UL-certified insulation system. As an option, it can be delivered for all standard power grids and with 50 or 60 Hz.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 350 l/min or 0,9 bar**  
Motor input: **700 W**  
Ambient temperature: **60 °C**  
Fluid temperature: **70 °C**

**i AVAILABLE IN PART WITH STAINLESS STEEL HYDRAULICS**



**Success story 10:**  
 Reliable flow rate, low consumption  
 With this combination, the synchronous condensate pump KPS 25 fulfills the most stringent demands in terms of technology and sustainability with minimum running noise.

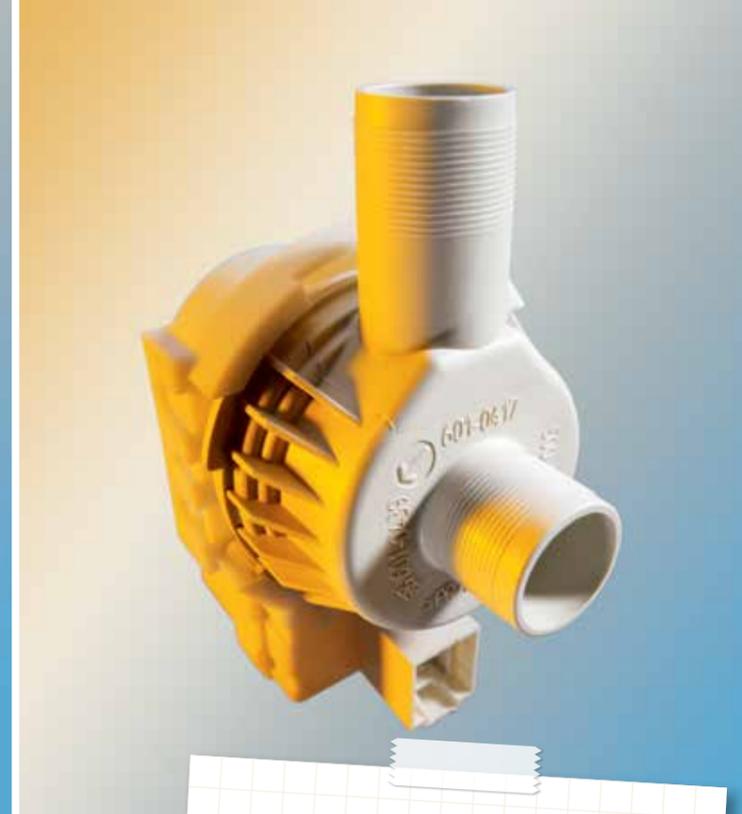


#### KPS 25

The strengths of the KPS 25 synchronous condensate pump include maximum reliability and low running noise. Its greatest advantage is its particularly efficient approach to utilizing energy, which is ensured by its highly-efficient motors. Not even air bubbles in the complexly designed hoses have any impact on the flow rate of the centrifugal pump. Due to the integrated risers, they are well suited for use in condensation dryers.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 10 l/min or 0.17 bar**  
 Motor input: **15 W**  
 Ambient temperature: **40 °C**  
 Fluid temperature: **70 °C**



**Success story 11:**  
 Quiet, efficient, cost-effective  
 Sparkling clean and low usage?  
 No problem for this incredibly efficient unit. The DPO 20 makes do with the minimum while purring along quietly.

#### DPO 20 dishwasher pump

Does a machine need to have a high usage to accomplish a lot? That is history now. The DPO 20 fulfills all requirements placed on state-of-the-art drain pumps and meets the challenges that modern household appliances need to satisfy. The pump is more compact than its predecessors and even quieter. The use of copper and steel has been reduced to what is essential, which makes the model especially cost-effective.

In addition to its efficiency, the DPO 20 offers the time-proven reliability for which **haflowtic** pumps have become renowned over the past 15 years: Wastewater does not stand a chance wherever the DPO 20 is used.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 44 l/min or 0.19 bar**  
 Motor input: **35 W**  
 Ambient temperature: **60 °C**  
 Fluid temperature: **70 °C**



**Success story 12:**  
 Open and accessible  
 Specially developed for Europe's washing machine market: The DPO 40 with filter housing. This ensures that buttons, coins and other small objects do not enter the drain.

#### DPO 40 with filter or pump housing

The synchronous motor of the DPO 40 which is both powerful and efficient is especially rugged and capable of easily pumping any small particles in the dirty water to the drain. If that is not desired, the pump can be fitted with a special filter housing with a service hatch. The foreign particles are collected here and can then be easily removed later on.

The DPO 40 is thus open and accessible from a technical point of view. Appliance manufacturers have a choice of twelve different connection options to satisfy almost every installation situation.

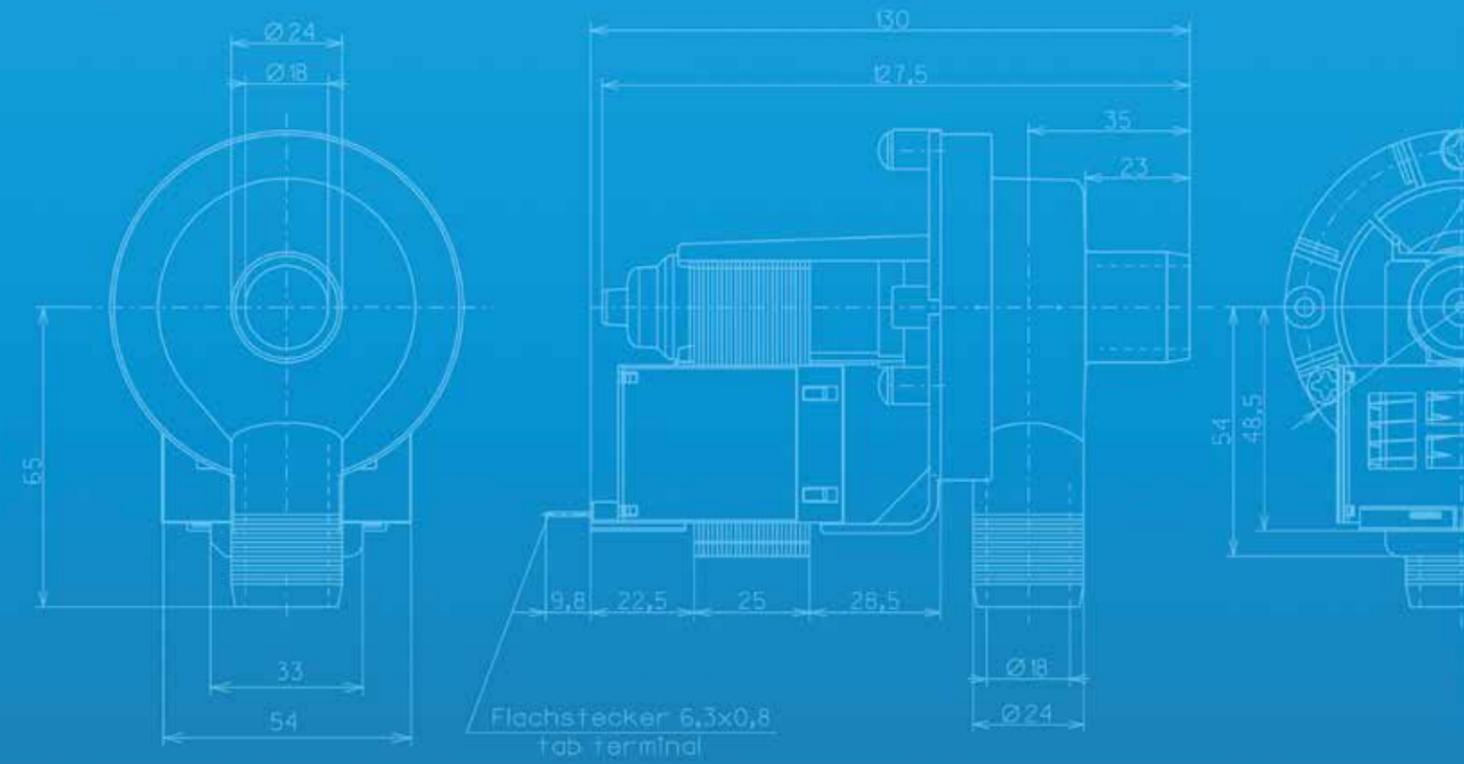
#### TECHNICAL SPECIFICATIONS AT A GLANCE

Output: **max. 70 l/min or 0.28 bar**  
 Motor input: **80 W**  
 Ambient temperature: **60 °C**  
 Fluid temperature: **70 °C**

## haflowtic pumps – tailored to perfection

If you are a manufacturer of equipment or systems, then we offer specific pumps 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 and state-of-the-art measuring and testing equipment.





# HANNING

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