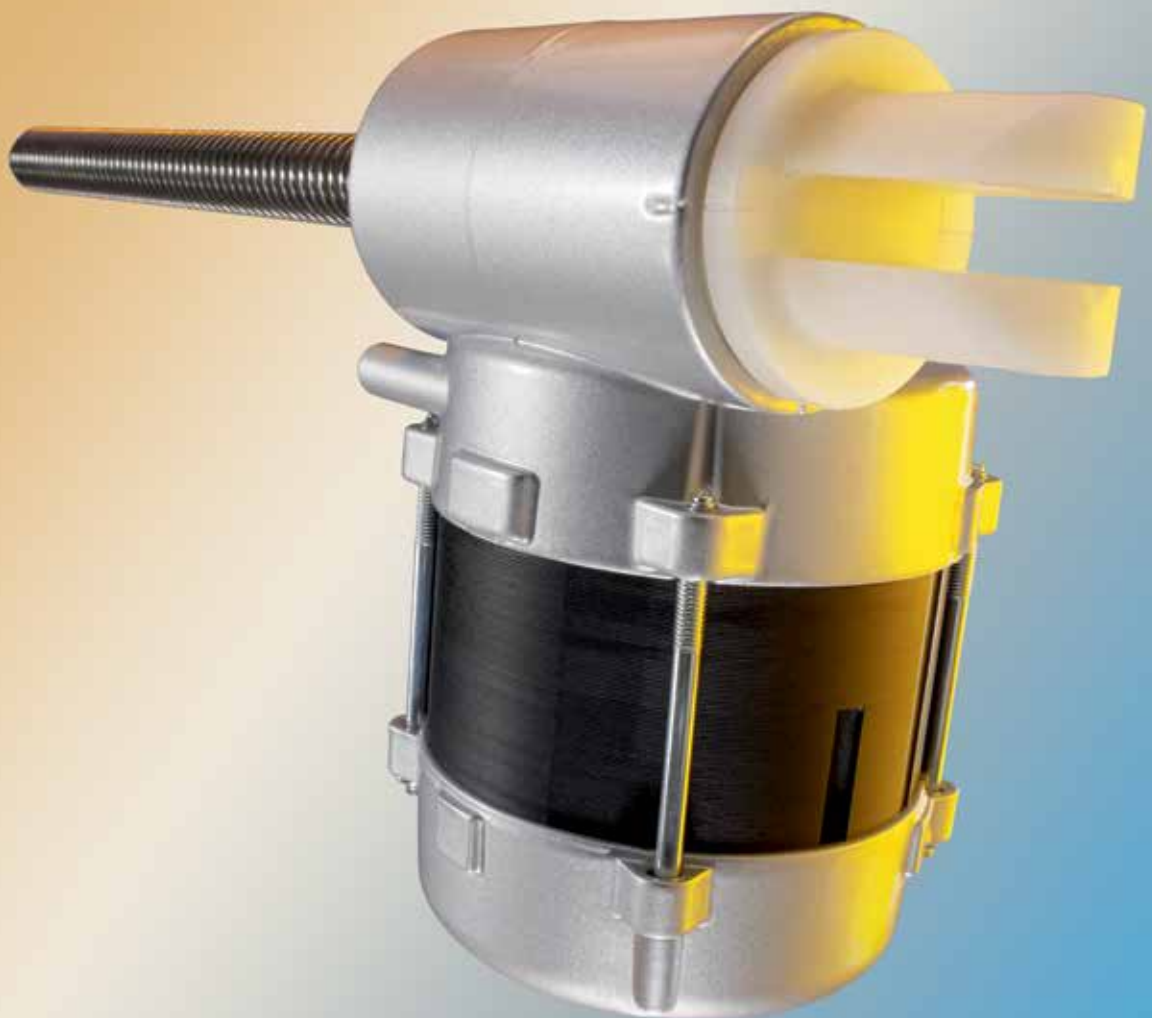
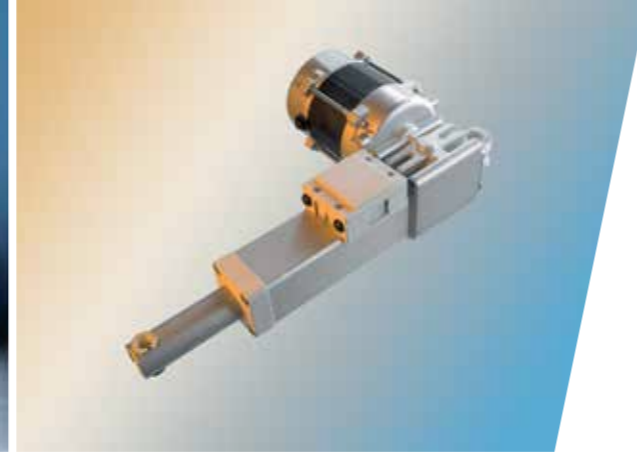


# HAMATIC

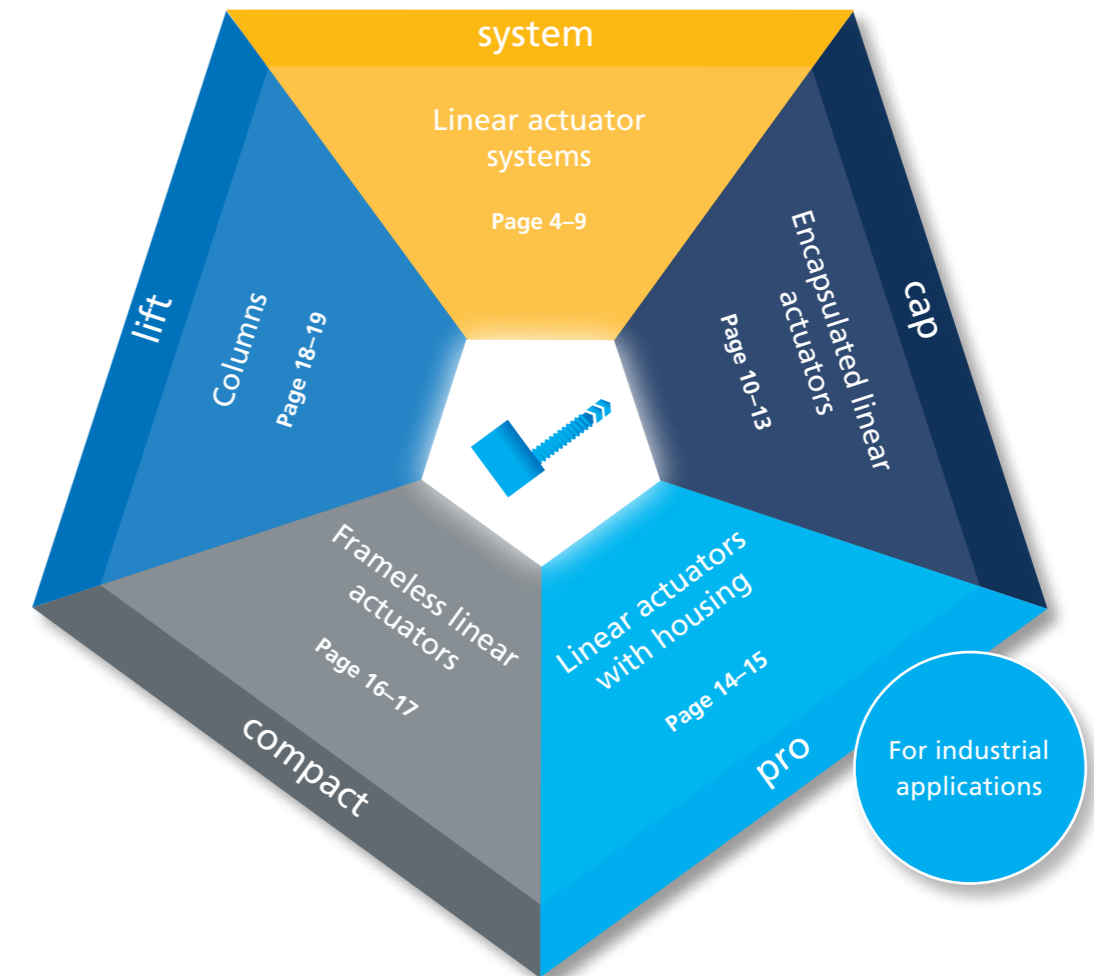
Precise in all directions





## Solutions made to measure: hamatic

hamatic 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.



For industrial applications

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.

To ensure that you are able to go in the right direction on the market, you need reliable products – just like our hamatic linear actuators. With linearity, precision and power, they bring technical components to the desired position. That’s why they are in high demand in the industrial applications and in the medical equipment field, for instance, hamatic actuators constantly and reliably move dental chairs, therapy tables, medical examining tables and many other medical devices, where both precise and smooth motion are vital.



hamatic control complements the general product classification system of HANNING ELEKTRO-WERKE by adding powerful accessories. Further details can be found on pages 20 and 21.



## hamatic system – customized for you

You have very specific requirements, as are typical in the medical equipment field: All parts of your application have to move precisely in all necessary directions and work together optimally. In addition, the drive should operate smoothly and quietly. Our **hamatic system** has successfully addressed these requirements.

**hamatic systems** stands for linear actuator systems offering maximum individualization. It is your solution for your specific application, precisely designed to your practical needs. You provide us with your requirements and in turn we assemble several **hamatic** linear actuators to a complete package. Your advantage: You get a system of motor units that are optimally matched to one another and which exactly fulfill your drive and product requirements – with technical precision and high efficiency.

### At a glance

#### hamatic system:

Linear actuator systems of synchronous and asynchronous design and with 24 V DC brush motors

#### Application fields:

Medical technology and more

#### Advantage/benefit:

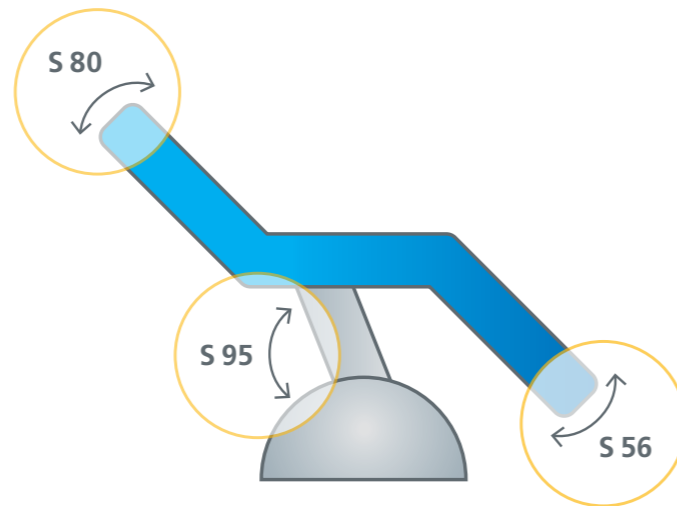
Optimally matched actuators from a single source

#### Technical specifications:

According to customer specification

#### Options:

According to customer specification



As supplier of individual solutions, HANNING ELEKTRO-WERKE possesses technological know-how, industry expertise and an extensive in-house production. This results in a combination of reliable linear actuators that are individually adapted to your requirements.

We will show you how this principle works in real applications, by looking at three example applications involving dental chairs, therapy tables and medical examining tables:

S 95



S 80



S 56



#### Success story I:

A drive system with an edge  
This hamatic system moves dental chairs to every position desired. Our solution is put together specifically for dentistry applications based on our many years of experience from fulfilling dental chair requirements. This simple, ready-to-install complete system offers a wide variety of advantages – and that in two variations.

#### Linear actuator system for dental chairs Variation 01 of asynchronous design

In the first variation, this **hamatic system** consists of three linear actuators with single-phase asynchronous motors, which are optimally matched to one another mechanically and electrically: a **hamatic compact** S 95 as base motor for adjusting chair height, a S 80 for changing the angle of backrest and a S 56 for adjusting the foot support.

They are centrally controlled via the **hatronic control** CTRL. This features safety and release functions, positioning feedback from the drives and memory functions with up to eight storage locations. The system can be operated directly using the mains voltage without a transformer.



#### CTRL universal control

The frameless **hatronic control** CTRL can drive all HANNING linear actuators and columns.

#### Linear actuator system for dental chairs Variation 02 of synchronous design

Electronically commutated **hamatic compact** synchronous drives of HANNING are the ultimate for medical applications: compact in design, highly efficient and engineered for 36 V DC. At the same time, they are very rugged and reliable like the classic asynchronous unit, but with up to 60% more power while maintaining the same size.

And to ensure that our new premium drives precisely meet your requirements, we adapt them specifically to your application in terms of drive and process technology. The advantages:

- Infinitely variable speed
- Communication via CAN bus
- Designed as internal rotor with high-quality permanent magnets
- Quiet and low vibration
- Also available in asynchronous design



#### DC-FI low voltage frequency inverter

The variable speed **hatronic compact** DC-FI can be used wherever there is a demand for powerful and intelligent drives with positioning functions.



You'll find more information about our control options in our **hatronic brochure**.

Variation 01

SL 95



SL 80

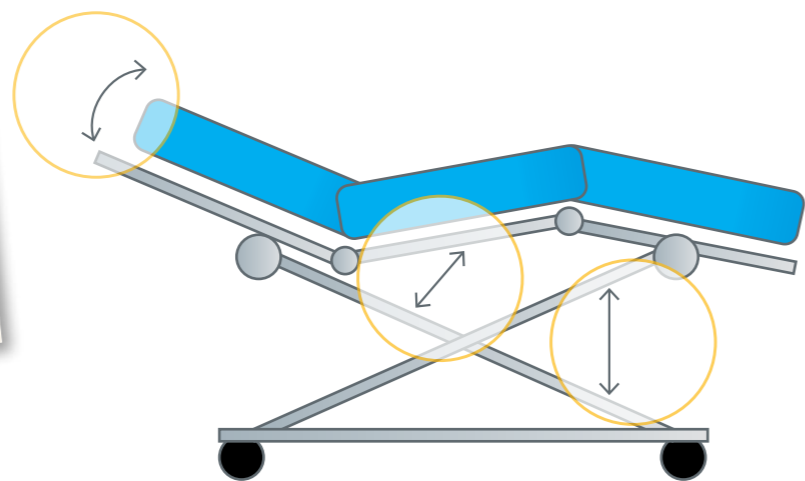


SL 56



**Success story 2:**

The exercise therapist  
This actuator combination of our hamatic system is tailored specifically to meet the requirements of therapy tables. HANNING's years of experience with this type of application serve as benchmark for two variations of a complete, ready-for-installation system.



**Linear actuator systems for therapy tables**

**Variation 01 of asynchronous design**

Up to four **hamatic** linear actuators are interconnected in the first variation to create a **hamatic system** with a manual and foot switch control as well as a safety stop box. The **hamatic cap** SL 95 linear actuator is responsible for height adjustment, while the SL 56 positions the backrest. The lock box prevents any unauthorized operation and thus helps you fulfill the current safety requirements.

Besides the compact design, this drive system also offers another advantage: A separate control box is not necessary, the individual components are simply connected to one another. The system is operated directly using mains voltage, since durable, brushless asynchronous motors can be directly connected to 230 V. No additional transformer is required.

**Linear actuator system for therapy tables**

**Variation 02 with DC motors**

Up to three **hamatic** linear actuators of cap HL 11 and HL 12 type are interconnected with the HC 1 control box to create a **hamatic system**. Depending on the application's requirements, hand and foot switches or other switch elements can be connected to the HC 1 control box. For instance, both the **hamatic cap** HL 11 or HL 12 can be used to adjust the level or height or for other functions within the therapy table. The 24 V DC brush linear actuators are ideally suited for therapy tables in price-sensitive markets.

Variation 02

HL 11



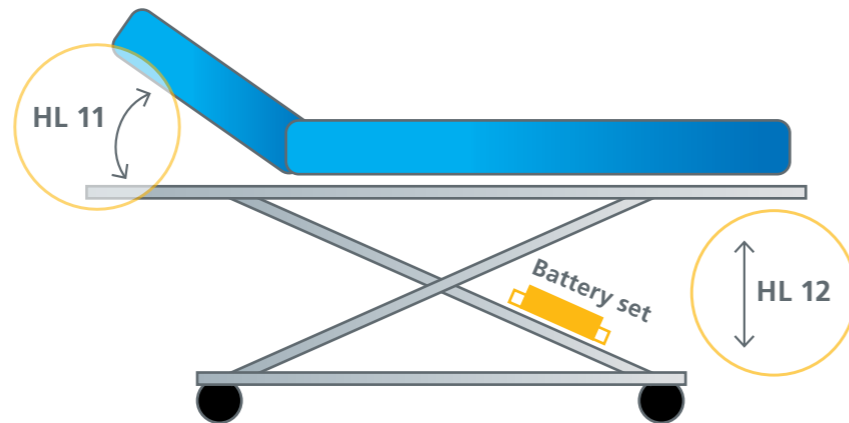
HL 12



HC 1 control box







HL 11



HL 12



battery pack



*Success story 3:  
The mains-independent solution*  
To make sure that medical tables can be adjusted when needed, even in ambulances and rescue vehicles, there is the hamatic battery pack. This ensures that all adjustment functions can be realized independent of mains, even outdoors.



**Battery-powered linear actuator systems for mobile medical examining tables**

The **hamatic** battery set offers everything that you need for the mobile operation of medical examining tables. The innovative system consists of a mobile power supply, the drive unit and corresponding control elements. It was developed especially for the use of the **hamatic cap** HL 11 and HL 12 linear actuators.

The mobile power supply comprises a charging cradle with integrated electronic charging modul, and a removable battery pack. This ensures a flexible power supply when mains are not available. The display of the charging cradle informs about the status of the battery capacity. In combination with the **hamatic** battery set and **hamatic cap** HL 11 and HL 12 linear motors, they offer all the advantages:

- Mobility thanks to battery operation
- Suited for medical therapy tables and industrial applications
- Capable and reliable level adjustment
- Emergency button
- Display with all relevant information about the battery
- Strongly increased battery capacity compared to the previous variant

**TECHNICAL SPECIFICATIONS – POWER SUPPLY –**

Rated voltage of battery pack: **24 V DC**  
 Mains input: **85–240 V AC / 50 / 60 Hz**  
 Capacity : **5 Ah**  
 Indicators: **Charge level indicator, overload, error status**



## hamatic cap – reliably encapsulated

Special areas of application call for special protection. That is what the **hamatic cap** is there for, the linear actuator with protective housing and thus with added safety. After all, **hamatic cap** is reliably sealed and does not come in contact with its surroundings. Therefore, the **hamatic cap** is optimally suited for medical equipment and many other fields. That applies in particular to the SL series with its long-lasting and powerful asynchronous motors.

### At a glance

**hamatic cap:**  
Encapsulated linear actuators of asynchronous design

**Application fields:**  
Treatment chairs, therapy tables, assembly tables and more

**Advantage/benefit:**  
Suited for use in environments with high safety requirements due to brushless motors and integrated limit switch

**Technical specifications:**  
Max. forces 12,000 N, stroke of up to 500 mm, protection class 1 or 2, protection rating IP55

**Options:**  
Control via patented air actuation system or low voltage circuit systems and more

SL 95



#### Success story 4:

**The fast heavy lifter**  
This hamatic cap actuator attains constant travel speeds of up to 50 mm/s and compressive and tractive forces of up to 12,000 N. It is ideally suited for adjusting the height of treatment chairs or therapy tables.

#### SL 95

The SL 95 is controlled individually either by HANNING's patented pneumatic control or an electric control system. This drive is also available with a „freewheel clutch“ upon request. That allows the frictional connection to be interrupted in one direction so as to prevent a risk of crushing in certain applications. A customized SL 95 solution can be developed for your applications as well.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **12,000 N** (industrial applications)  
or **10,000 N** (medical technology)  
Stroke: **Up to 500 mm**, above on request  
Mains voltage: **1~ 100 / 115 / 230 V AC ± 10 %**,  
**3~ 400 V, 36 V DC via hatronic compact DC-FI frequency inverter**

SL 80



#### Success story 5:

**The compact highly-versatile solution**  
This hamatic cap actuator delivers a force of up to 8,000 N, which opens up a wide range of applications. The newly developed housing with integrated end shield makes it especially compact. Consequently, this motor easily fits into small installation spaces.

#### SL 80

The **hamatic cap** SL 80 is a rugged linear actuator, which can accelerate to constant load speeds of up to 15 mm/s. In the medical equipment field, it is ideally suited for adjusting the height of therapy tables or treatment chairs. At your request, we equip our powerful AC motors with all specific parameters to suit your exact requirements.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **8,000 N**  
Stroke: **Up to 300 mm**, above on request  
Mains voltage: **1~ 100 / 115 / 230 V AC ± 10 %**,  
**36 V DC via hatronic compact DC-FI frequency inverter**

SL 56



#### Success story 6:

**Small, yet with huge power**  
The smallest model in its series is also very rugged. It is suited for all applications that demand forces of up to 6,000 N and travel speeds of up to 15 mm/s.

#### SL 56

Our extensive range of engineering services allows us to develop the **hamatic cap** SL 56 specifically to satisfy your requirements. Together we define the exact requirements the drive needs to fulfill, be it output, travel speed or the ability to provide position feedback. You get, for instance, a powerful AC motor which is equipped with two limit switches and tailored precisely to your needs like flexural positioning or adjustment of backrest in medical applications.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **6,000 N**  
Stroke: **Up to 300 mm**, above on request  
Mains voltage: **1~ 100 / 115 / 230 V AC ± 10 %**,  
**36 V DC via hatronic compact DC-FI frequency inverter**



## hamatic cap – cost-effectively encapsulated

HANNING premium drives of synchronous or asynchronous design are the top choice for anyone who attaches importance to outstanding performance and low lifecycle costs as a result of reliability and durability. Our 24 V DC brush motors are an attractive alternative for price-sensitive markets, however. All the better that they are also available in HANNING quality.

### At a glance

**hamatic cap:**  
Linear actuators with DC brush motors

**Application fields**  
Medical examining tables, therapy tables, dental chairs and more

**Advantage/benefit:**  
HANNING quality for price-sensitive markets

**Technical specifications:**  
Max. forces up to 8,000 N, stroke up to 300 mm, protection rating IPX4, integrated end position limiting, safety spindle nut

**Options:**  
A variety of strokes of 100, 200 and 300 mm as well as Hall ICs for external positioning are also available



The requirements placed on linear actuators in medical applications are nowadays more individual and versatile than ever before. Anyone aspiring to achieve these requirements needs an experienced technology partner.

Preferably one like HANNING ELEKTRO-WERKE. After all, we have all drive classes in our program and now even offer 24 V DC brush linear actuators as a cost-effective alternative.

HL 12



### Success story 7:

The powerful solution  
The independent design lends the drive a high recognition factor. With its lifting power of 8,000 N, it is also ideal for many medical and industrial applications. Power is supplied via the HC 1 control box.

### HL 12

With its performance the HL 12 is ideal for all medical applications that depend on reliable power. It is usually implemented therapy tables or dental chairs. The linear actuator is powered by a 24 V DC brush motor and is available in the standard stroke lengths 100, 200 or 300 mm. The HL 12 is controlled by the HC 1 control box. The motor comes standard with a safety spindle nut.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **8,000 N**  
Stroke: **100, 200 or 300 mm**  
Power supply: **via HC 1 control box**

HL 11



### Success story 8:

The compact module  
The hamatic cap HL II linear actuator is optimal for simple applications - frugal in terms of space required and still powerful enough with its 6,000 N of force for most challenges in the medical segment.

### HL 11

As the little brother of the HL 12, this 24 V DC linear actuators is particularly compact in terms of design. This makes it the ideal linear actuator for the backrests of dental chairs or height adjustment of therapy tables in the medical field. The HL 11 also comes standard with a safety spindle nut.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **6,000 N**  
Stroke: **100, 200 or 300 mm**  
Power supply: **via HC 1 control box**



### HC 1 control box

The HC 1 control box controls up to three motors (HL 11 or HL 12) and up to 2 switching systems can be connected.



## hamatic pro – for industrial applications

Do you require linear actuators for high-performance industrial applications? Then the models of the hamatic pro series are just right for you. After all, HANNING developed these in particular for industrial use.

On top of that: We design them as customer-specific solutions for you to ensure that our drive solutions precisely fulfill your requirements. The result is a drive solution that allows you to obtain the most out of your application.

### At a glance

**hamatic pro:**  
Linear actuators with housing

#### Application fields:

Textile and paper-making industry, conveying and lifting equipment, woodworking machinery, wind power systems

#### Advantage/benefit:

Drives adapted to the application

#### Technical specifications:

Max. forces 25,000 N, stroke available on request, protection rating IP 40–54

#### Options:

Control via hatronic frequency inverter, Hall-IC for position detection, magnetic brake for SHI 120



SHI 120



#### Success story 9:

##### The variable industrial star

The SHI 120 is both powerful and variable. Thanks to its modular design comprising drive motor, gearbox and spindle stroke unit, it can be adapted to almost every application. And that makes it a star for all types of industrial drive challenges.

#### SHI 120

The powerful SHI 120 is optimally suited for harsh industrial environments. With a force of up to 25,000 N it easily adds the desired movement to your applications and features strokes of 250 and 500 mm as standard. And at HANNING more is always possible, since SHI 120 is engineered with utmost precision for your requirements.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **25,000 N**  
Stroke: **250, 500 mm**  
Mains voltage: **3~ 380–480 V ± 10 % AC**

SHI 95



#### Success story 10:

##### The big minis

Lots of power in a small package – that perfectly describes HANNING's SI/SHI 95 drives. Its very compact design is due to a special feature, where the gearbox is directly integrated in the motor endshield.

#### SHI 95

The SI/SHI 95 is an extremely compact linear actuator for industrial applications. It consists of an asynchronous motor with self-ventilation and a worm gear with lifetime lubrication and trapezoidal thread spindle integrated in the end shield. The drive is matched to your individual requirements.

#### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **12,000 N**  
Stroke: **on request**  
Mains voltage: **1~ 100 / 115 / 230 V ± 10% AC, 3~ 380–480 V**



## hamatic compact – the flexible powerpack

The name says it all: **hamatic compact** linear actuators have a space-saving design – and are especially easy to handle. Its range of applications includes dental chairs, equipment carriers, examination chairs and many more. The **hamatic compact** linear actuator fits in all applications, where maximum power is required in spite of tight installation spaces. In addition to that, they are exceptionally easy to use: They come with a brushless drive system and operate directly with AC voltage and thus do not need a transformer. Travel speeds remain constant even with load changes. The power and speed profiles can also be modified to match your specific requirements.

### At a glance

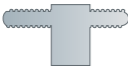
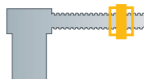

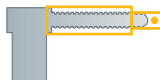
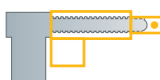
**hamatic compact:**  
Frameless linear actuators with synchronous and asynchronous technology

**Application fields:**  
Medical technology: Dental chairs, equipment carriers, procedure or exam chairs, medical examining tables and more

**Advantage/benefit:**  
Powerful and durable

**Specifications:**  
Max. forces up to 10,000 N (medical equipment), stroke up to 300 mm, speed up to 63 mm/s

**Options:**  
Different types of motors for customer-specific solutions (see box)

Options	Design	Characteristics	Motor types
Continuous spindle		When installation space is at a premium, these <b>hamatic compact</b> actuators make do with the minimum. Their extreme compactness comes from the fact that the spindle nut and mounting point are integrated in the drive motor. Based on the short installed length, this actuator easily covers significant travel distances. In addition to that, it can be flexibly adapted to the wide range of requirements posed by your application.	S 56, S 80 and S 95
Spindle nut		Minimum installed length with large travel distances – this is where our <b>hamatic compact</b> actuators excel. And they can easily be integrated in the smallest space available. The drives are delivered ready for installation as a unit with perfectly matched components. The spindle and spindle nut can be designed to your specific requirements.	S 56, S 80 and S 95
Travel tube		This <b>hamatic compact</b> actuator is easy to integrate provided that space is sufficient. At your request, we will design the travel tube precisely to your needs. Installation length is also variable.	S 56, S 80 and S 95
Support and travel tube		The rotating spindle is encapsulated in this version, which protects it from external factors. The support pipe increases stability against buckling, allowing the drive to handle heavier loads.	SH 56, SH 80 and SH 95
Support and travel tube with limit switch box		Integrated limit switches restrict the maximum range of movement possible. That simplifies installation, since the design eliminates the need for additional limit switches. Plug & Play is the name of the game. Moreover, the spindle is encapsulated to protect against environmental factors and its load handling capacity is improved due to the high stability against buckling.	SH 56, SH 80 and SH 95

S 95



S 80



S 56



### Success story II:

#### The linear variables

Linearity and precision are two characteristics that are as important as maximum variability when it comes to medical equipment. Our **hamatic compact** linear actuators offer these characteristics to ensure that patients are moved smoothly and quietly to the right position. They are meticulously matched to one another and adapted to the respective task. That makes them genuine all-rounders that are exceptionally efficient when it comes to adjusting the height or angle of medical examination chairs of all types.

### Linear actuators S 95/SH 95, S 80/SH 80

Our powerful **hamatic compact** linear actuators are suited as base motors for dental chairs or for adjusting the height of dental X-ray machines. Depending on the desired output, dimensions or travel speeds, we configure the drives to match your individual requirements precisely.

If necessary, these motors are also available as low-voltage three-phase motors with **hatronic compact** DC-FI low voltage frequency inverters.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **8,000 to 10,000 N** (medical equipment)  
Stroke: **Up to 300 mm**, above on request  
Mains voltage: **1~ 100 / 115 / 230 V AC ± 10 %**,  
**36 V DC via hatronic compact DC-FI**  
frequency inverter

### Linear actuators S 56/SH 56

The small **hamatic compact** drives are suited for adjusting the backrest as well as the foot support and seat of dental chairs. Thanks to its small winding cross-section of 56 mm, they even fit in tight installation spaces. The drives are individually adapted to your application.

### TECHNICAL SPECIFICATIONS AT A GLANCE

Max. forces: **4,000 to 6,000 N** (medical equipment)  
Stroke: **Up to 300 mm**, above on request  
Mains voltage: **1~ 100 / 115 / 230 V AC ± 10 %**,  
**36 V DC via hatronic compact DC-FI**  
frequency inverter

### Good to know

If desired, the drives are also available with **hatronic compact** DC-FI frequency inverter as **hamatic varicon**.



## hamatic lift – your way to the top

The powerful **hamatic lift** column raises and lowers heavy, projecting superstructures steplessly. The column is optionally available as a two- or three-piece unit with different stroke lengths – entirely in line with your needs.

### At a glance

**hamatic lift:**  
Columns

**Application fields:**  
therapy tables, treatment chairs, medical examining tables and more

**Advantage/benefit:**  
Very high, eccentric loading capacity

**Technical specifications:**  
Stroke up to 500 mm, speed up to 32 mm/s,  
max. forces 5,000 N (medical equipment),  
7,000 N (industrial applications)

**Options:**  
End position limiting based on internal  
microswitch, attachments for securing  
additional drives and more

THS-3

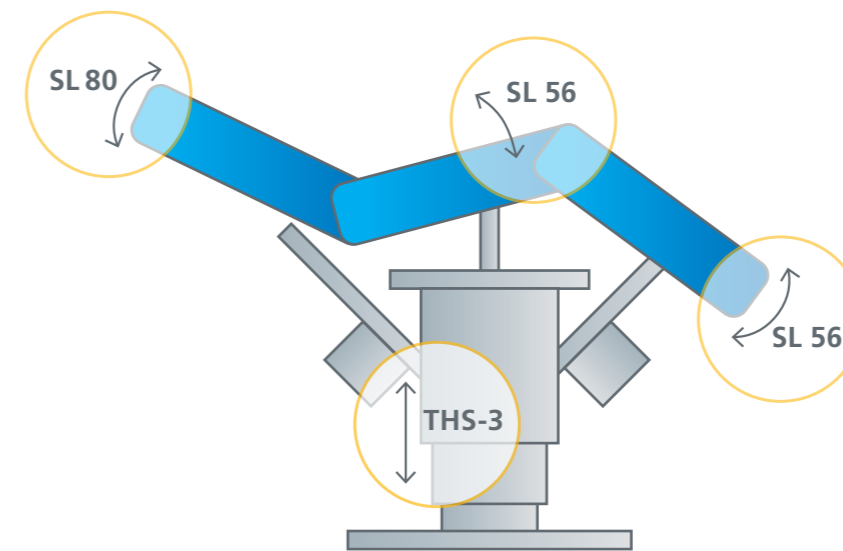


THS-2



### Success story 12:

Elevation at the touch of a button  
The telescopic drive of hamatic lift provides lifting capacities of up to 7,000 N and reaches a maximum speed of 32 mm/s – reliably and constant even under the rated loads. Thanks to its large cross-section and precise guidance, the column offers maximum stability against tipping.



As with all HANNING products, we willingly adapt our **hamatic lift** specifically to your application, both mechanically and electrically. Together with you, we will define the exact requirements and implement them accordingly – from output and travel speed through to position recognition.

The **hamatic lift** is ideal for medical equipment: The low-noise and maintenance-free drive units move treatment chairs and examining tables in a continuously variable manner. When it comes to demanding industrial lifting tasks, the columns show what they can do at work and assembly tables.

The scope of customization can even be broadened: The wide variety of configuration options available, from Hall IC for position recognition through to electrical interfaces, allowing you to make the **hamatic lift** your own product. Add-on elements are optionally available to achieve further adjustment options with the aid of external drives.

An additional advantage of this series is its low installation height in relation to the possible lift. This ensures that doctors, therapists or industry professionals work especially ergonomically.

### Further adjustment options

The **hamatic cap** linear actuators can be attached to the **hamatic lift** column. See page 10–13.



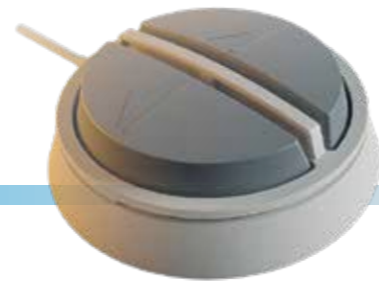
## hamatic control – ensuring optimum control

It is common knowledge that even the best drive is only as good as its operability. That is why HANNING offers with the **hamatic control** modules that are precisely configured for every drive. The range extends from the patented pneumatic and low-voltage hand and foot switches through to essential accessories like HANNING's safety lock box.



### Low-voltage control elements

Besides the established pneumatic control elements the low voltage control elements are a demanded alternative – proven, rugged and uncomplicated. **hamatic** drives can be equipped with electrical hand switches featuring 1 to 4 functions as well as foot switches and different switching elements.



### Safety first

Introducing our new three-way foot switch with the safety of the therapy table operator in mind while lowering the platform. It detects a possible obstruction of the operator when the third stage of the foot switch is pressed. In this case the actuator will automatically reverse the movement to prevent a dangerous injury to the operator. Following the installation in the construction of the therapy table the third stage of the foot switch will be fully functional and ensure a safe operation. For more information we invite you to contact our sales team.



### Pneumatic control elements

HANNING's patented pneumatic control elements ensure that the linear actuators can be entirely controlled without any power. Regardless of whether hand switches featuring 1 to 3 functions, foot switches, air bellows or stop buttons that can be used as an external limit switch: With these control elements it is possible to rule out that the operator comes in contact with energized components thanks to the pneumatic transmission of signals.



### HC 1 control box for DC motors

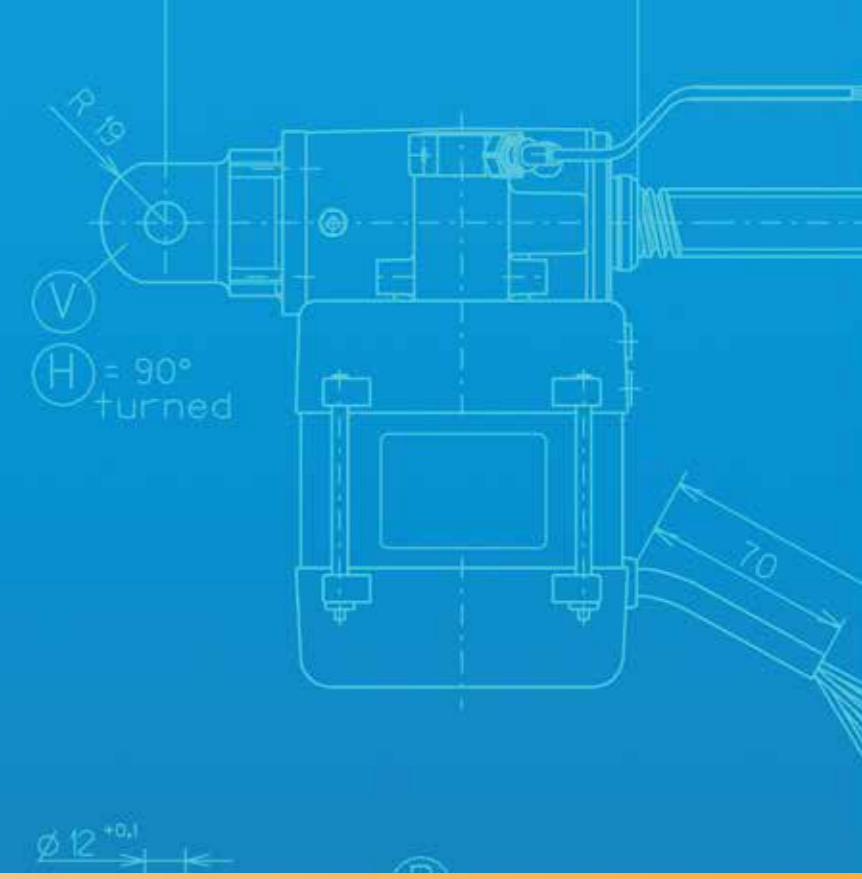
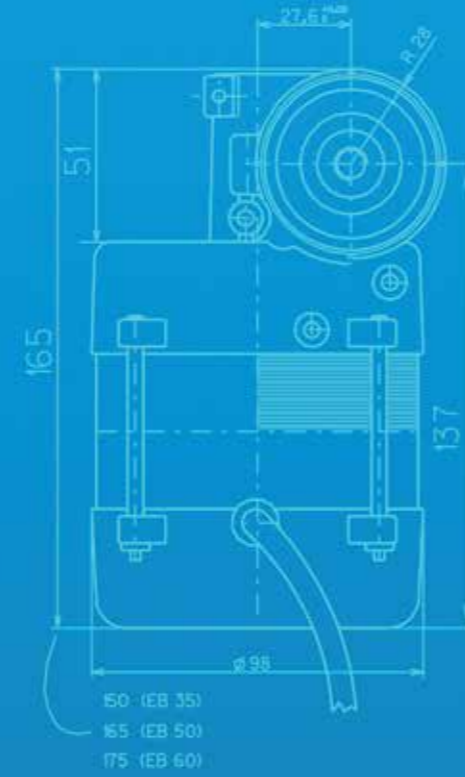
The HC1 control box is the control module of choice for the **hamatic cap** HL 11 and HL 12 DC brush drives. The module converts the mains voltage to 24 V DC, is also capable of controlling up to three drives at the same time and is open for connecting a variety of hand and foot switches.



## hamatic linear actuators – your way to success

If you are a manufacturer of medical equipment or other special purpose systems, then we have the right linear actuators for you. 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.





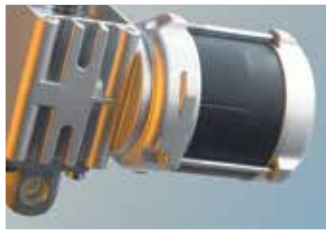


# HANNING

moving ■■■ ideas

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