Drive technology

halstrup walcher

Fluitronic

A family-owned and highly innovative supplier of customized drive technology solutions

We offer both standardized products and customized drive technology solutions in serial quality. With our own development department (electronics and construction) and a remarkable depth of production expertise, we master numerous product variants.

A strong quality assurance programme and lean processes have made us a highly professional partner with impressive performance in quality, deadlines and costs.

Our quality management system is certified according to ISO 9001:2015. Our responsible approach to the environment in all processes and business decisions is also certified: Environmental management system according to ISO 14001:2015.

We have long-standing, close relationships with our customers. This also applies to our approximately 200 employees and our suppliers.

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ISO 9001
Zertifiziertes Qualitätsmanagementsystem
www.tuev-sued.de/ms-zert

ISO 14001
Zertifiziertes Umweltmanagementsystem
www.tuev-sued.de/ms-zert

OUR EXPERTISE

Our promise

Together with our customers in machine and plant engineering, we want to drive industrial automation forward. We are experts in automatic format adjustment through positioning systems. This reduces setup times and enables predictive maintenance thanks to intelligent technology.

We ensure the right drive and jointly develop optimized solutions for your desired applications.

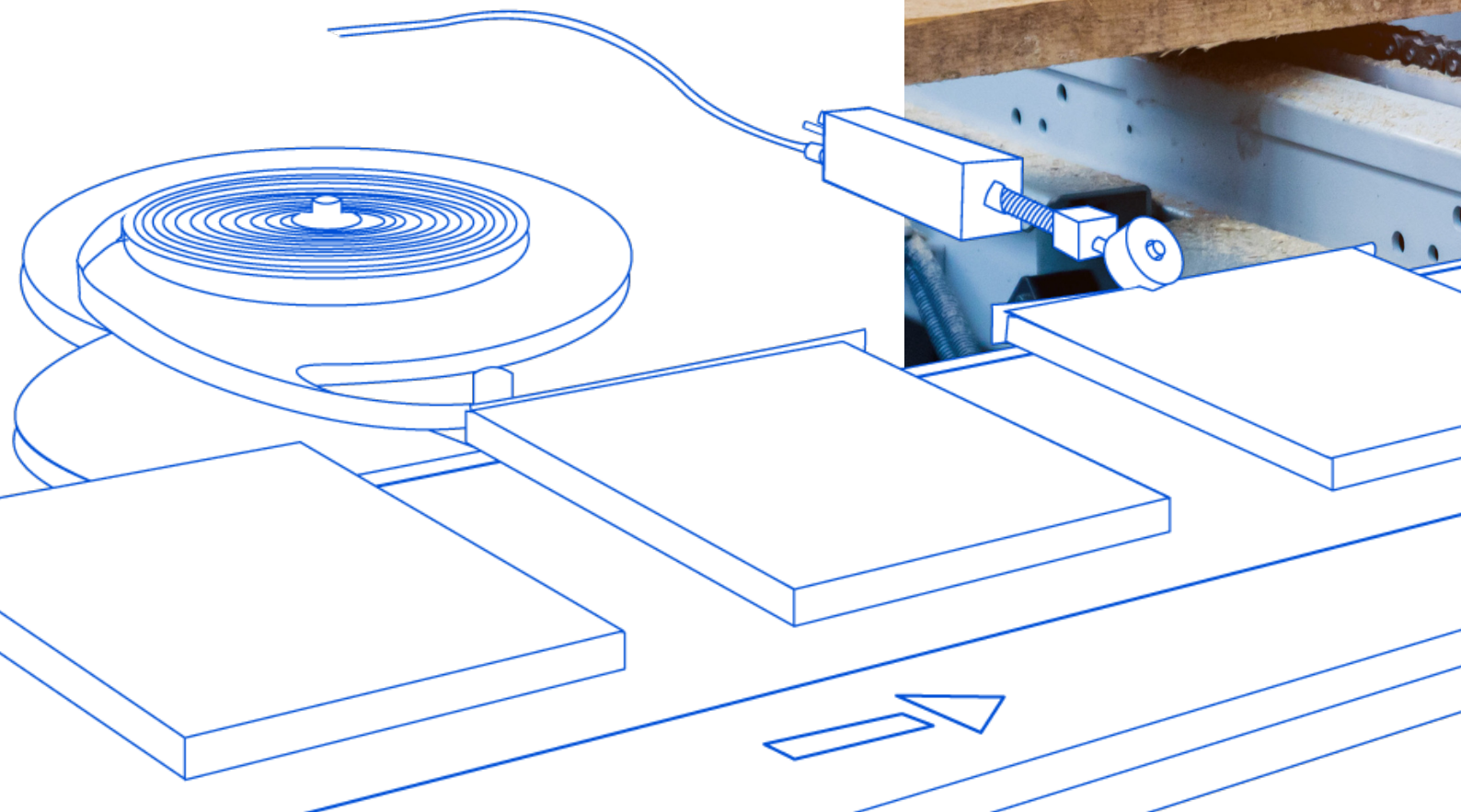
Our sales engineers offer you a high level of competence in technical knowledge and look at your challenges and individual needs for format adjustment on site. From the idea to the finished product, everything comes from a single source due to our high vertical range of manufacture. With our strong quality and lean orientation, we also manufacture small quantities in series quality and are constantly evolving.

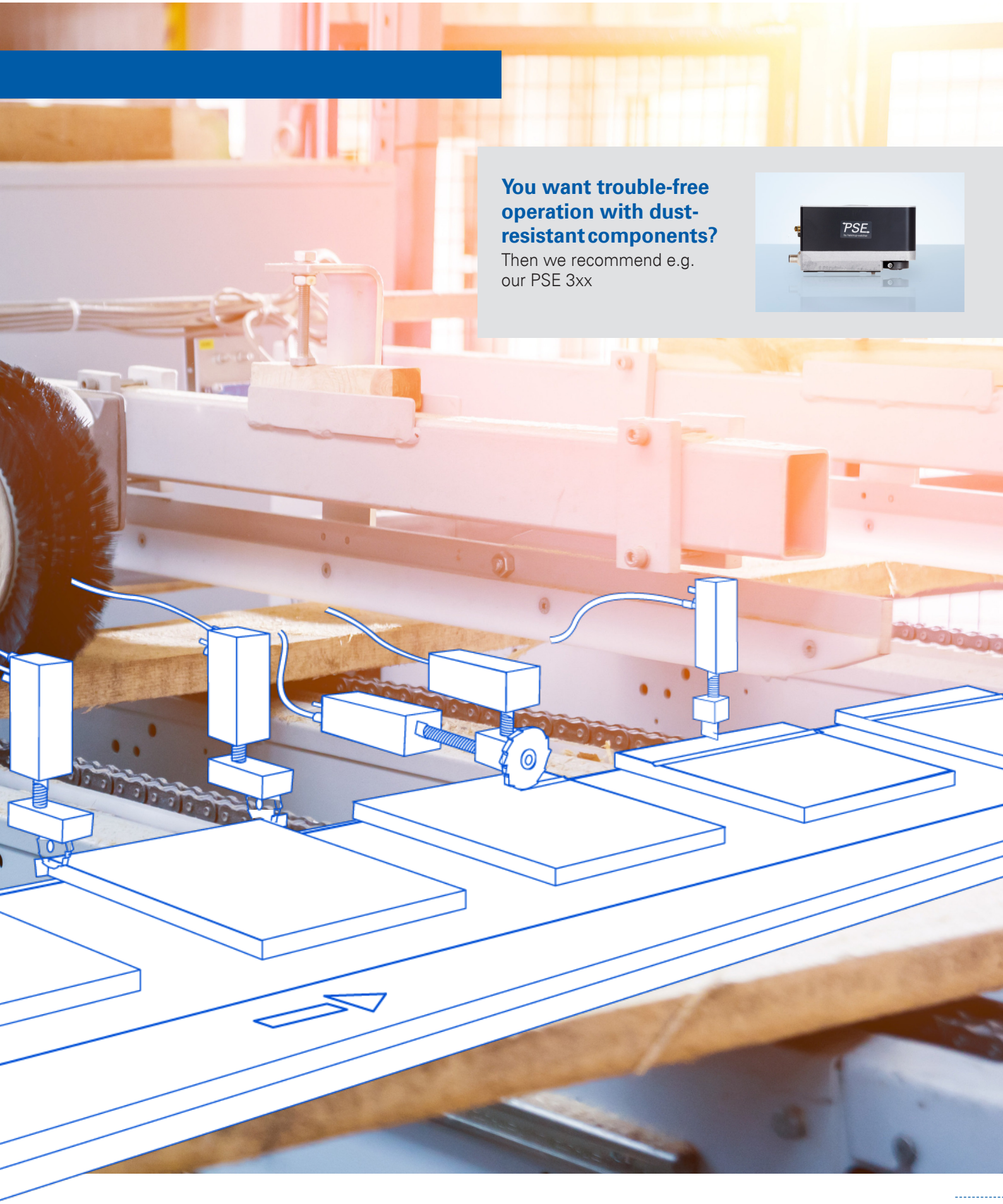
The exchange with our customers is very important to us, because together we can develop the best solutions.

We look forward to supporting you as a professional partner!

Application area: woodworking machines

In order for the individual parts of a prefabricated house, for example, to fit together, it is often only millimeters that make the decisive difference. So it's an advantage if precision is already a top priority during production. Error-free results can be ensured by automated processes, and at the same time the accident and failure safety of your machines is supported.
With our positioning systems, we enable high-precision adjustment of the machine axes with maximum repeatability. With automatic format adjustment, you significantly reduce changeover times, enabling faster and more frequent adaptation of the machine to changing requirements. You can benefit from powerful and durable mechanics, with digital data enrichment that we optimize for you and your machine. By galvanic isolation of the supply voltages for motor and control unit in the standard of our 3 series, and the optional STO function, we offer you and your customers a safer operation of your machine. Numerous options for cabling and bus topologies allow diverse and complex applications on the machine.



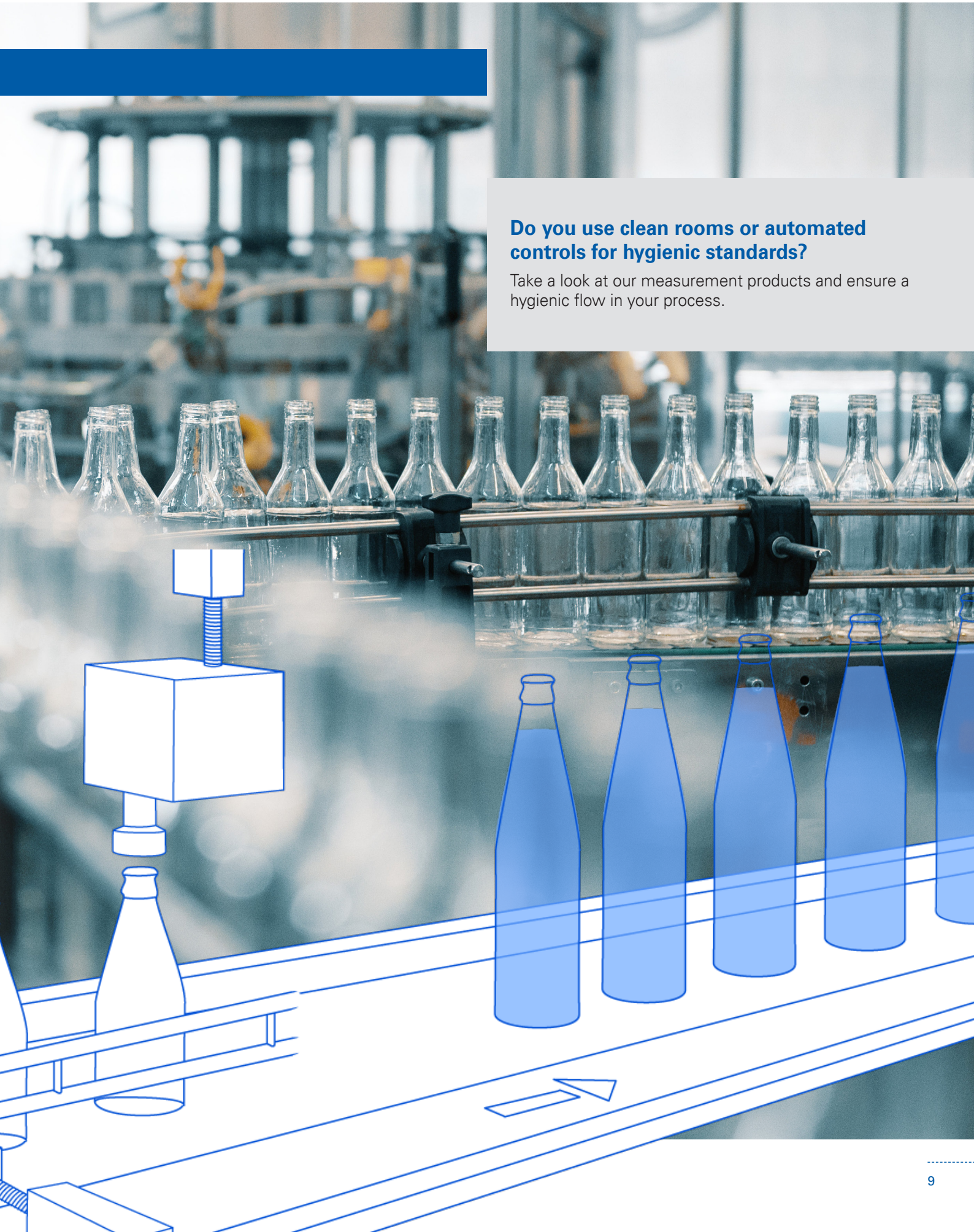


You want trouble-free operation with dust-resistant components?
Then we recommend e.g. our PSE 3xx

Application area: bottling plants

Machines and lines need minimum setup times with maximum flexibility. For bottling lines, efficient changeover of bottle formats is crucial to success: after the small round bottle, changeover to the tall square bottle must be quick. When retooling a machine, many units are positioned on adjustment axes throughout the process: Guide rails in infeeds and outfeeds, labelers and inspection cameras. Our positioning systems adjust these axes to the new position according to the requirements in the control system - quickly, precisely, and without errors.
Automated format adjustments are advantageous not only for reasons of speed and accuracy, but also for hygiene reasons, as the control can be automated within the hygiene environment. By meeting the IP68 protection class for the PSW series, we also offer positioning solutions that can easily withstand regular cleaning processes.

Are you looking for a waterproof and high performance product?
Then we recommend e. g. our PSW 3xx



Do you use clean rooms or automated controls for hygienic standards?

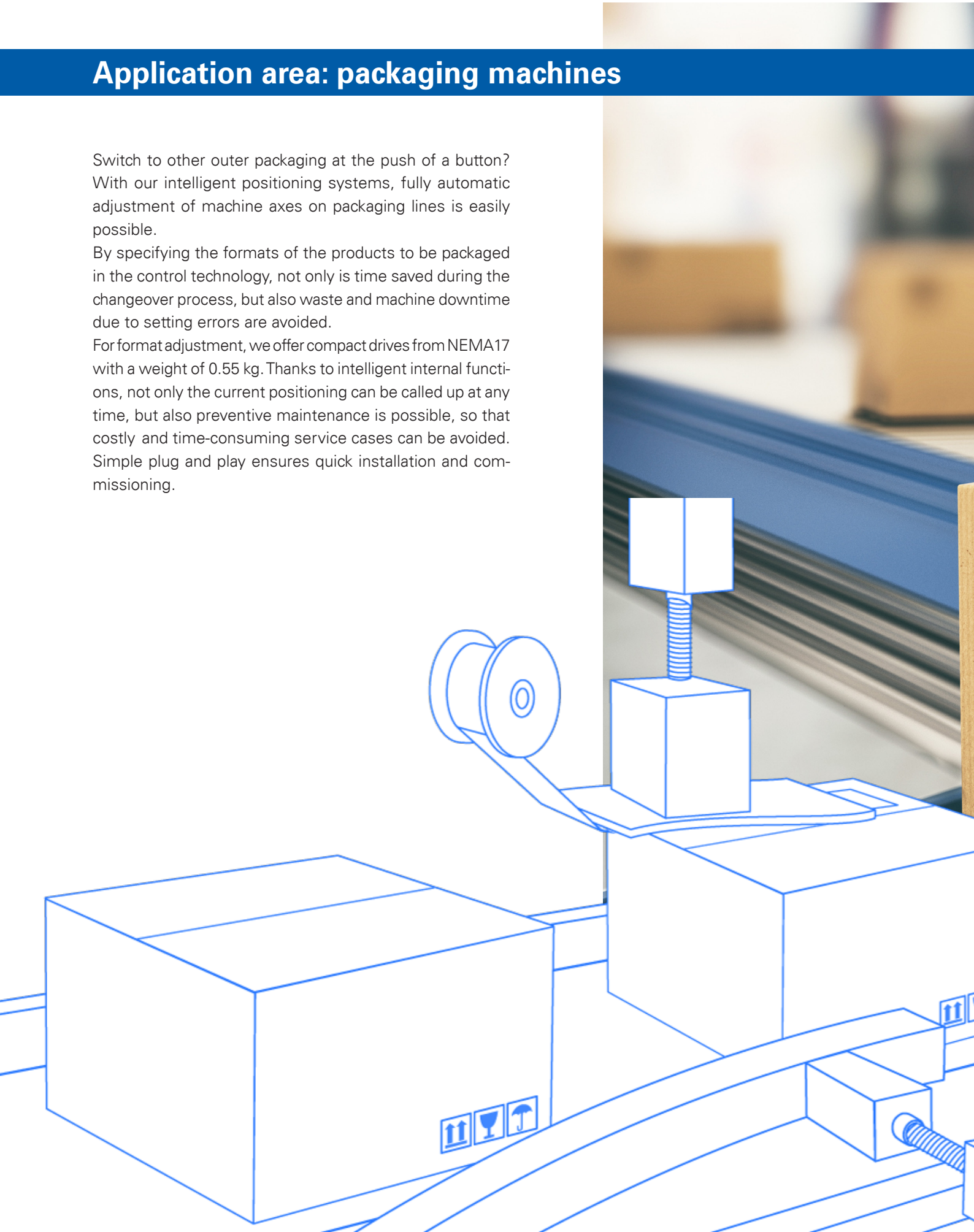
Take a look at our measurement products and ensure a hygienic flow in your process.

Application area: packaging machines

Switch to other outer packaging at the push of a button? With our intelligent positioning systems, fully automatic adjustment of machine axes on packaging lines is easily possible.

By specifying the formats of the products to be packaged in the control technology, not only is time saved during the changeover process, but also waste and machine downtime due to setting errors are avoided.

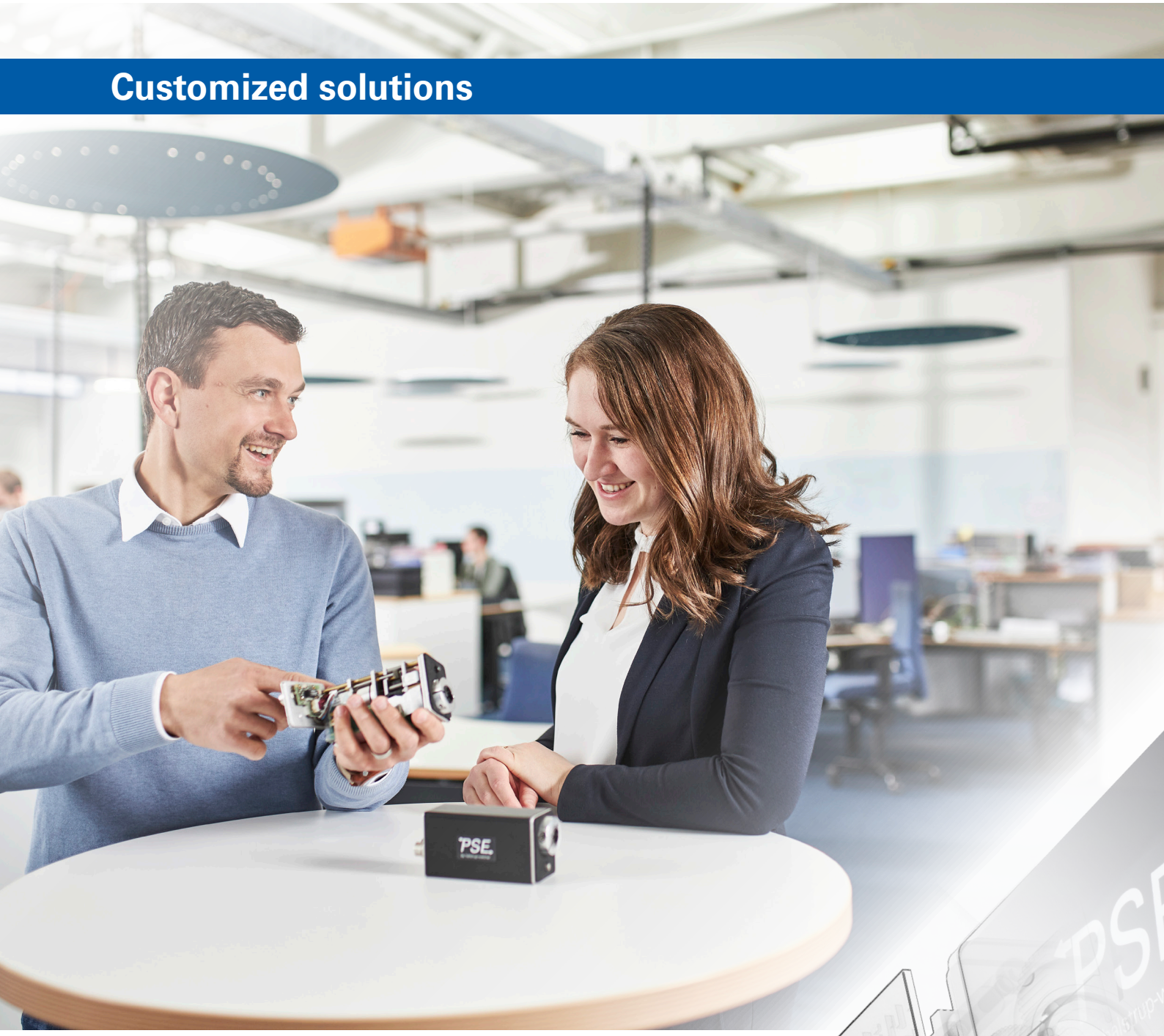
For format adjustment, we offer compact drives from NEMA17 with a weight of 0.55 kg. Thanks to intelligent internal functions, not only the current positioning can be called up at any time, but also preventive maintenance is possible, so that costly and time-consuming service cases can be avoided. Simple plug and play ensures quick installation and commissioning.



Are you looking for a compact and easy-to-install product?

Then we recommend e.g. our PSD 4xx

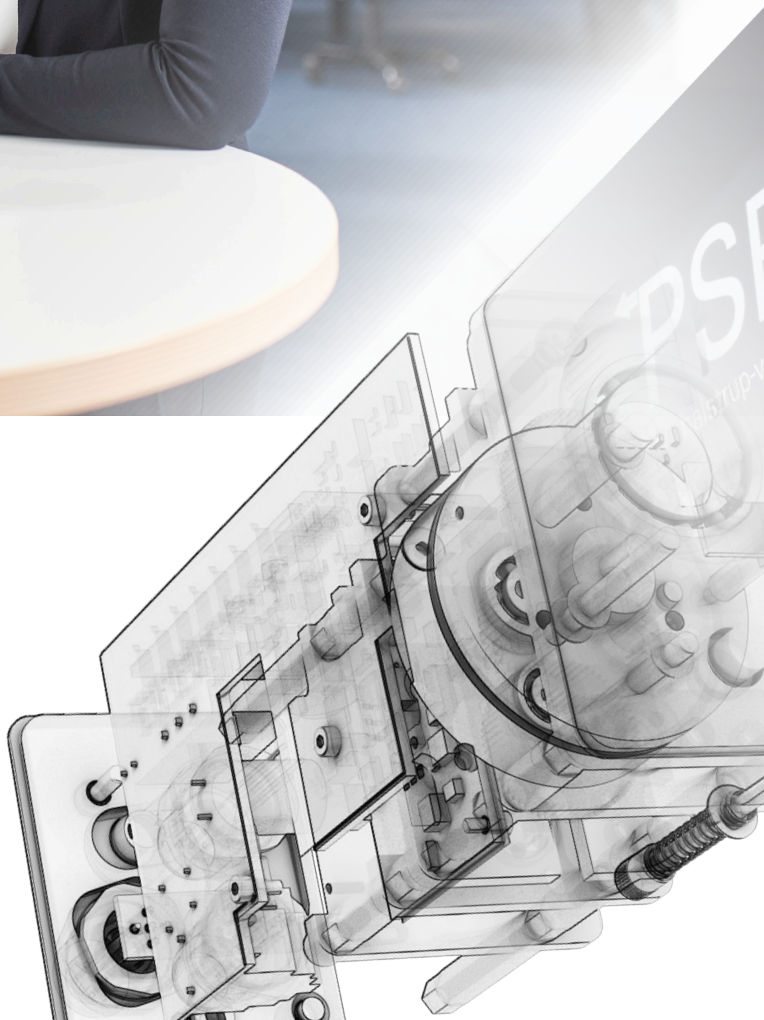
Customized solutions



Customized design

You get on request individual devices, for example

- in company color
- with individual nameplate



You have the application, we have the solution.

Let us find out together which positioning solution is right for your application. Our experts will advise you competently and develop suitable products for your format adjustment needs. Through close exchange with long-standing customers, we continuously develop our product families and create efficient solutions even for special requirements. If you request a product that we do not yet manufacture in series, we will check how quickly and to what extent we can offer you the desired solution. For this purpose, we create a specification sheet with the requirements, which goes through a structured product development process in close exchange between sales, development and production departments. Examples of projects already successfully completed can be found under: **www.halstrup-walcher.de/en/industries-applications/**

Why start a joint project with halstrup-walcher?

Your advantages when developing individual solutions with us:

1. Due to our high vertical range of manufacture and lean orientation, it is possible for us to develop and manufacture other positioning solutions in addition to our standard products in a timely manner and, above all, with the highest quality and at the same time with the greatest efficiency.

2. You benefit from short decision-making paths within our company. All relevant departments such as development, design, prefabrication and production are under one roof and in continuous exchange due to the optimized development process. This allows projects to be implemented in a time-saving manner.

3. As an established and sustainably operating company in drive technology and with more than 75 years of experience, we are a professional partner you can count on for the long term.

Digital experience

We develop the software for our products ourselves. In this way, we ensure that specific format adjustment requirements are implemented with pinpoint accuracy, taking user-friendliness into account at all times. Our mechanical and electronic components are perfectly matched to each other, and in the case of further developments or product adaptations, we automatically take into account all effects on the hardware and software components. Our intelligent control technology offers numerous advantages, from intelligent blockage detection to predictive maintenance through diagnostic messages.

Faster and more efficient product development

For both, new projects and existing systems, we offer to digitally test our products in your existing machines if required. The **digital twin** allows you to use a functional sample for simulations before production and delivery and to detect discrepancies at an early stage. This shortens the product development process. Furthermore, you gain a detailed insight into the functionality of the entire machine and can run through various scenarios that would be cumbersome and costly to test in the real world. With this comprehensive data exchange, size ratios, performance parameters or possible malfunctions and their effects can already be tested during development. The digital twin can also continue to collect data during operation and thus additionally support condition monitoring.

Transparent product information

For our positioning systems we provide STEP-files, function blocks as well as description files (e.g. IODD) online and available at any time. These data can be accessed on the respective product page or via the product-specific downloads:
www.halstrup-walcher.de/en/downloads/

Reduce machine downtime

Use the condition monitoring of our drives to avoid malfunctions: Predictive maintenance makes it possible to keep our drives and the connected components in good condition and thus ensure that your machines operate as trouble-free as possible. Our positioning systems generate numerous diagnostic messages that allow us to react at an early stage. This means that the problem can be identified and solved before a malfunction occurs in machine operation. A selection of the diagnostic messages of the drives can be found on our website at: **www.halstrup-walcher.de/en/products/drive-technology/predictive-maintenance.php**

If, for example, the temperature is undercut or exceeded, the motor is switched off as a safety measure.

Intelligent travel behavior during format adjustment

To be able to change over efficiently, the positioning systems must also react smartly in case of deviations. Our products have all the components to represent a standalone **cyber-physical system**:

- Actuators for drive: gearbox, motor, motor controller
- Absolute encoder: sensor for position determination
- Embedded system: decentralized intelligence on board

Our positioning systems move independently to target positions and react to deviations. They distinguish between contamination or blockage of an axis and act accordingly: accelerate if the spindle is contaminated, brake if blocked by obstacles. The system positions optimally and independently and places only a minimal load on the machine control system. This is because it only gives the travel command.

Why our products fit your needs

Your customers want increasing machine flexibility?
We provide economical solutions with automated format adjustment.

In mechanical and plant engineering, technical complexity is a given and is further intensified by the diversity of variants on the market. Flexible application areas can only be implemented economically with a high degree of automation. With our quality and lean focus, we stand for variant production in series quality. As a professional partner for automatic format adjustment, we are your contact when short setup times are critical to success: From simple assembly and commissioning to faultless operation and low maintenance costs, we stand for lean solutions all around.

Simple commissioning through function blocks

We offer free function blocks for all common bus systems, which simplify the commissioning of our positioning devices. The relevant function blocks for your desired product can be found on the product page under „Downloads".

Efficiency in ongoing operation

Our drives PSE/PSS/PSW/PSD always know their position exactly:

- **No time needed** for an elaborate reference run
- **No position errors** even after voltage interruptions
- **No battery** - no maintenance required

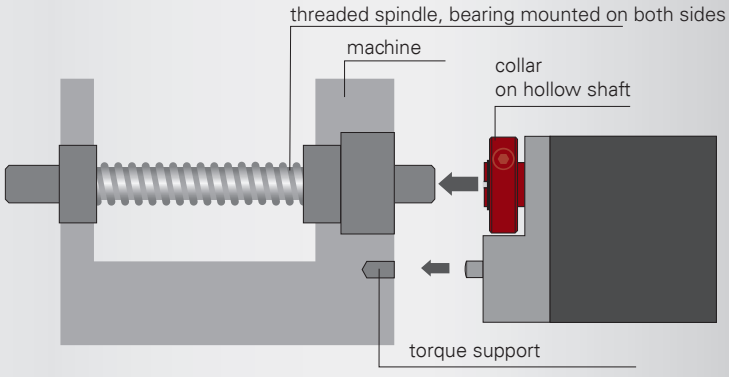
Fast reaction in case of malfunctions

Status LEDs constantly indicate the current status of the positioning system. Errors are signaled without having to look into the control system, so that a quick response can be made.

Simple, space-saving assembly and quick setup

During initial or replacement setup, simply install the device and all parameters of the predecessor device are already set in the positioning system via the control. Thanks to the absolute encoder, no reference run is required. When adapting the output shaft of the positioning system, the hollow shaft with clamping ring has proven its worth. The torque support is also implemented very simply via a pin. This eliminates the need for a coupling with intermediate flange. This saves additional costs, a longer assembly time and, above all, space.

Mounting with hollow shaft

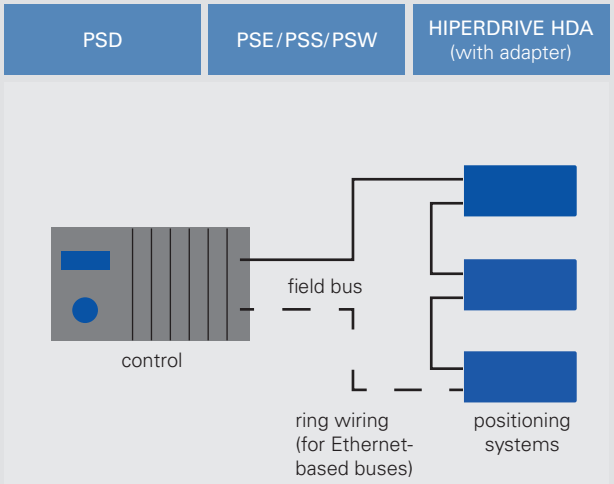


Flexibility through direct and indirect cabling

We offer you the possibility to cable our products directly or indirectly via a hub/gateway. This allows you to optimally match your positioning systems to your machine concept. This applies not only to the choice of bus, but also to the bus topology.

If you require **direct cabling**, the bus communication takes place directly from the controller to the positioning system, **without an additional bus distributor**. The signal is looped through to the next device by a second bus connection. This allows you to connect the drives as a **series** (for CANopen, PROFIBUS DP, DeviceNet and Modbus) or as a **ring** (all Ethernet-based buses). If a component should fail, signals continue to be supplied to the controller in the case of ring connection.

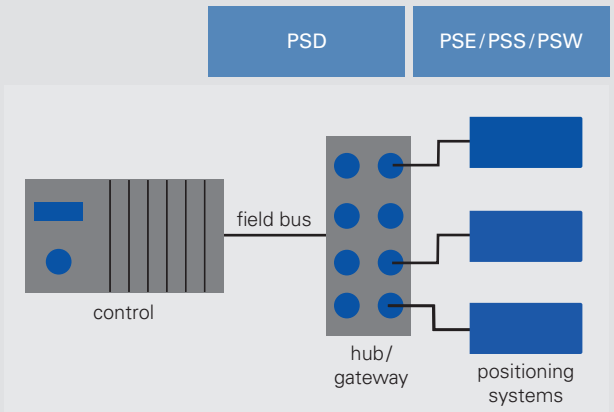
The systems are supplied with power via another cable. Motor and control are supplied separately in the device. The **galvanic isolation** allows constant access to bus signals - even if the motor supply is interrupted, e.g. via emergency stop.

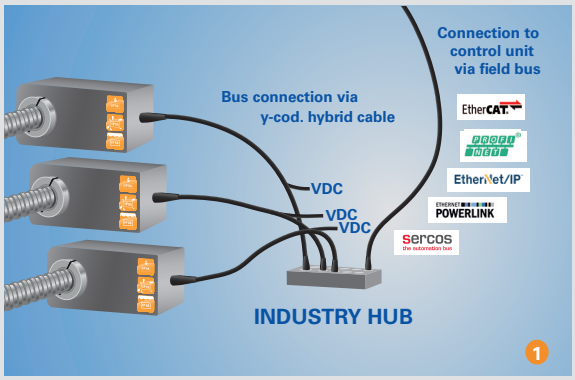


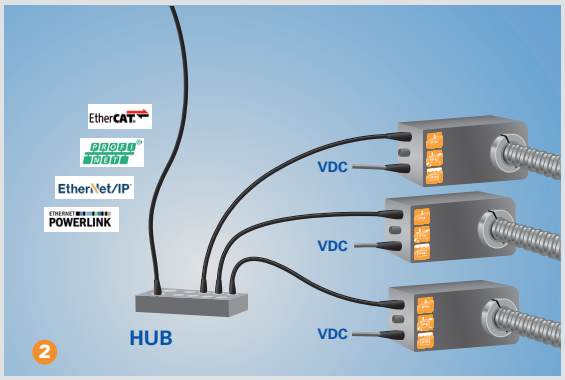
With **indirect cabling**, the positioning systems are connected to the controller via a hub/gateway. Positioning systems are connected to the controller via a standard hub. The devices can be supplied in two ways:

1. **PSE / PSS / PSW: 1 standard Y-coded cable** for bus communication and supply is connected to the device (**Ethernet-based buses**, other buses on request). The cable must be spliced.
2. **PSD / PSE / PSS / PSW:** For bus communication, a D-coded cable is connected to a hub (**Ethernet-based buses**). The positioning systems are supplied with an A-coded cable.

For **IO-Link**, a **standard A-coded cable** is used for bus communication and supply.







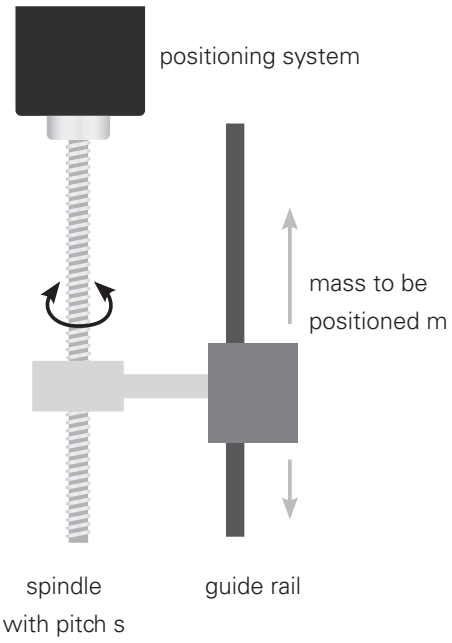
How do you find the right drive?

1 Calculate your required torque

You know the mass to be positioned and are looking for the corresponding torque for vertical adjustment? Then you can use the formula below to calculate your required torque.

$$\text{Torque } M = \frac{m \times s}{630} \times T$$

Units
M in Nm
m in kg
s in mm
T = 1.1 for ball screw spindle
= 3.3 for trapezoidal threaded spindle



Example calculation: Mass m: 50 kg, spindle pitch s: 4 mm, v : trapezoidal thread spindle: 3.3

$$\text{Torque } M = \frac{50 \times 4}{630} \times 3.3 = 1.04 \text{ Nm}$$

→ A positioning system with 2 Nm nominal torque should be selected (> 30 % reserve).

2 Determine the products that match the torque

You already know which degree of protection and which maximum torque you require and want to compare our products with each other? Then refer directly to our characteristic curve diagrams (see page 28 Positioning systems and page 58 Direct drives). The diagrams always show the nominal torque and speed combinations for the halstrup-walcher drives and serve as an initial overview. Thus, you can already search for the suitable positioning systems depending on the torque.

If you are looking for a specific nominal torque which is not shown in the diagrams, please contact us directly. We will be happy to check the feasibility and scaling of any desired power adjustments for you.

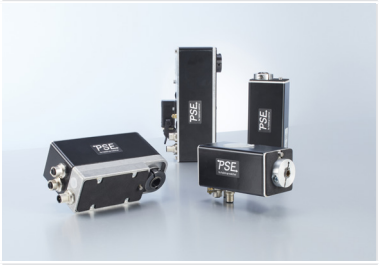
3 Would you like an on-site measurement and consultation?

No problem. Arrange an initial meeting with our experts and discuss your needs directly on the phone or video call. You will find your contact person under **www.halstrup-walcher.de/en/contact**. By entering your country or zip code, your contact person will be displayed directly.

Our experts will be happy to take the time to examine your application and specific requirements on site.

Feel free to contact our sales engineers personally and benefit from the expertise of our experts. You will find your responsible contact person under **www.halstrup-walcher.de/en/contact** or by scanning the QR code on the left.

Overview of drive technology solutions

	3 series		
	PSE	**PSS**	**PSW**
			
Typ	30x-8 30x/32x-14 31x-8 31x/33x-14 34x-14	30x-8 30x/32x-14 31x-8 31x/33x-14	30x-8 30x/32x-14 31x-8 31x/33x-14
Protection class	IP 54	IP 65	IP68
Bus communication	PROFINET, EtherNet/IP, EtherCAT, POWERLINK, IO-Link, PROFIBUS, CANopen, Sercos, DeviceNet, Modbus		
Engine	EC motor		
Nominal torque	1 .. 25 Nm	1 .. 18 Nm	
Nominal speed	10 .. 210 min^{-1}	17 .. 210 min^{-1}	14 .. 180 min^{-1}
Output shaft	8 mm hollow shaft (only for 30x,31x), 14 mm hollow shaft, 8/14 mm solid shaft (only for PSS/PSW)		
Measurement system	absolute, optical-magnetic (maintenance-free, without battery)		
Adjustment range	250 rotations		
Jog keys	optionally via jog key contacts		
Accuracy	± 0,9°		
Manual adjustment	standard, only possible with 14 mm hollow shaft		
Brake	optional (detent brake) for 14 mm output shaft		
Certification	CE/UKCA , optional: NRTL, optional: STO with/without test pulses		

More details can be found in the respective data sheets

4 series PSD	Customized products
	
40x/41x-8 40x/41x-14 42x/43x-8 42x/43x-14 48x/49x-8 48x/49x-14	Our modular product system does not provide you with the right variant? Please contact our experts, we also develop individual solutions in series quality.
IP50 or IP65	up to IP69k
PROFINET, EtherCAT, IO-Link, CANopen, EtherNet/IP (other buses on request)	PROFINET, EtherNet/IP, EtherCAT, POWERLINK, IO-Link, PROFIBUS, CANopen, Sercos, DeviceNet, Modbus, BACnet
Stepping motor	DC motor, EC motor, Stepping motor, AC motor
0.25 .. 8 Nm	up to 50 Nm
50 .. 200 min^{-1}	up to 5000 min^{-1}
5 mm solid shaft or 8/14 mm hollow shaft 8 mm solid shaft or 8/14 mm hollow shaft	any according to customer requirements
absolute, magnetic (maintenance-free, without battery)	incremental / partial absolute / absolute, optical / magnetic / resistive
4026 revolutions without gearbox, 977 ... 1938 revolutions depending on gear reduction, unlimited with software module modulo function and stepwise movement	any
-	possible
± 0.7 ° .. ± 1.8 °	according to customer requirements
-	possible
-	possible
CE/UKCA, optional: NRTL	Regional approvals: CE / UKCA, UL / NRTL, CCC and others Marine approvals Safety features: STO (Safe Torque Off) and others Industry requirements: Hygiene, food and others

Drive technology

POSITIONING SYSTEMS 3 SERIES

Positioning systems 3 series

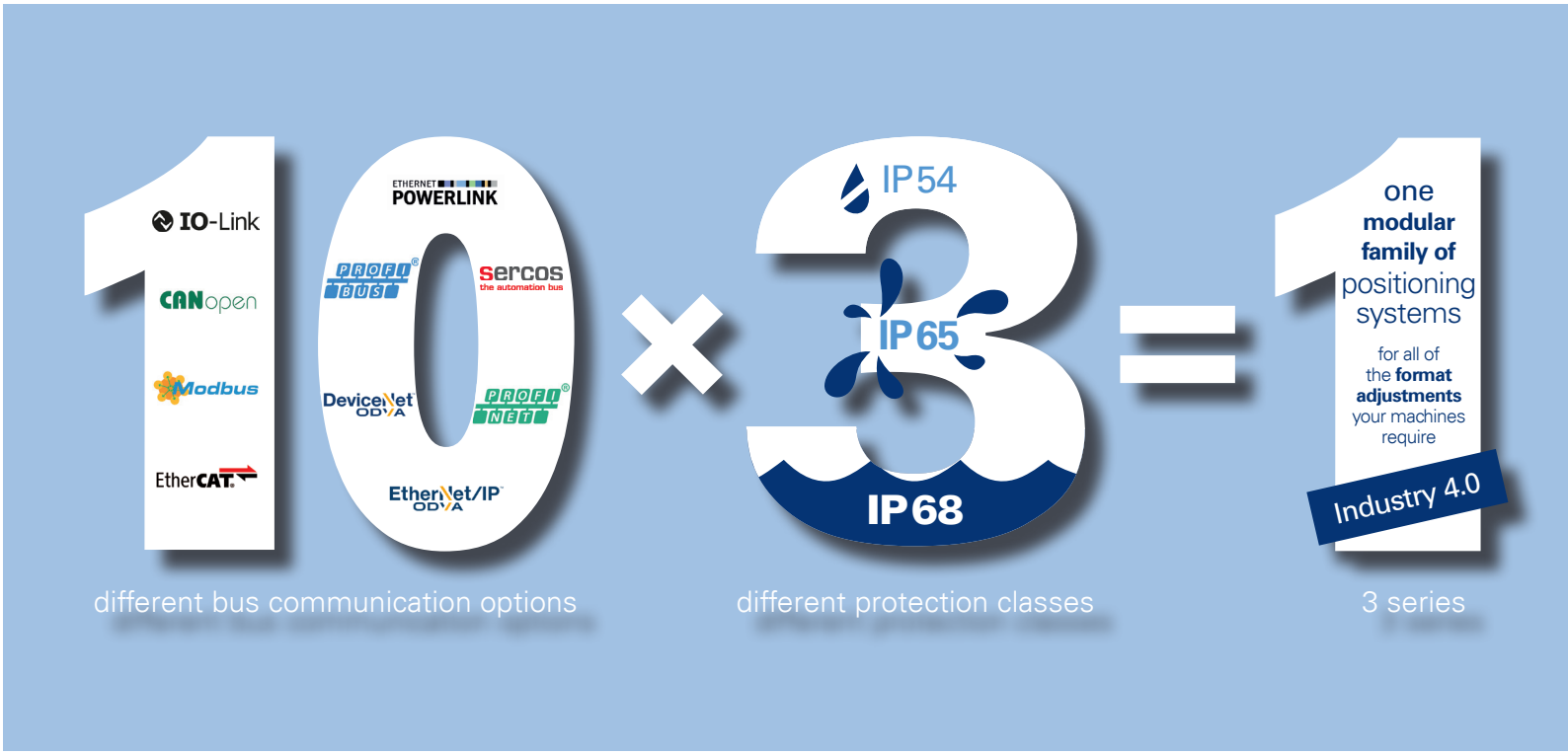
The powerful positioning solution with an extensive modular principle

Your machine needs minimum setup times with high repeatability and optimum availability. You want to be flexible in terms of bus communication and IP protection? Do you also have limited space?

halstrup-walcher has been supplying numerous well-known machine and plant manufacturers with positioning systems for over 25 years. The successful PSE (IP 54/65) products is supplemented by the PSS (IP 65) and PSW (IP 68) products in stainless steel housings. All three product groups are **interchangeable** in their connection dimensions and available with many bus interfaces. This offers full flexibility in your machine design.

The positioning systems 3 series combine **precise positioning with unique compactness**. All functions are integrated in a minimal space. The systems do **not require an additional bus distributor**, saving you space and costs. The products can be **individually configured according to a modular principle**, so that you can choose between different designs, bus systems, torques, certifications or other functionalities. In this way, you get the positioning solution that is right for your application.

Important for you as a partner: The electronics and mechanics are not only developed by us, but also manufactured or designed and assembled by us, from the gear wheel to the SMD circuit board. This allows us to respond flexibly to your requirements while keeping quality, deadlines and costs under control.



General advantages of the 3 series

Thanks to our comprehensive modular system, you can adapt both the bus communication and the IP protection class to your customer requirements. The relevant dimensions do not change in the process. You noticeably minimize the time and effort you need to spend on modifications and adaptations for the realization of customer-specific machines. We have designed a consistent product family for all 3 relevant IP protection types: IP 54 / IP65 (PSE), IP 65 (PSS) and IP 68 (PSW). You can dispense with a space-consuming enclosure for higher IP protection classes. This is an important advantage for every machine builder considering the tight installation spaces.

1 STO

Positioning systems of the 3 series are optionally equipped with an STO partial safety function. This emergency stop function is implemented in the hardware of the positioning systems. The following standards were taken into account for the STO partial safety function:

- performance level C: DIN EN ISO 13849
- SIL 1: EN IEC 61508

The function has been tested by TÜV Rheinland. You can download the certificate from our website at **www.halstrup-walcher.de/sto**

2 Positioning precision

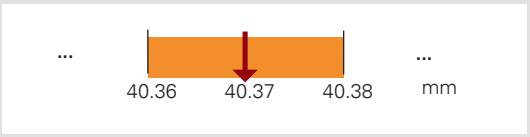
Since only the „last revolution" provides an error contribution, namely in the amount of max. 0.9 ° on 360 °, this results in an error contribution x of the positioning of:

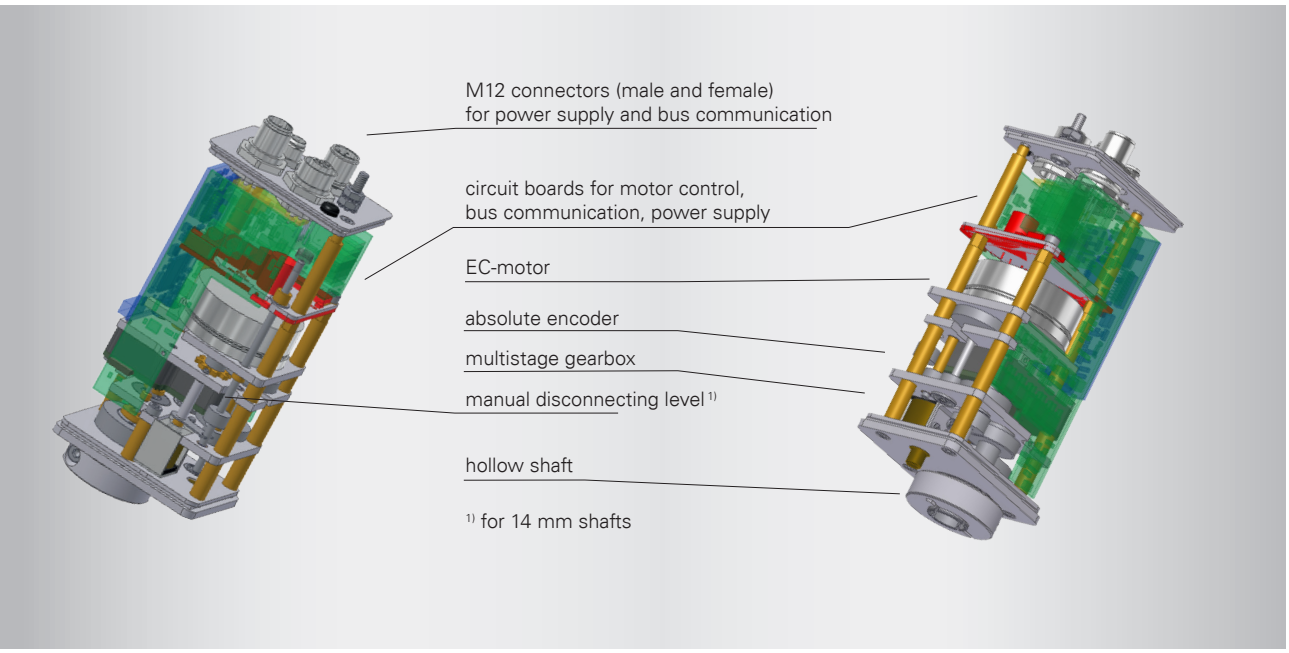
$$\frac{0.9°}{360°} = \frac{x}{5\ mm} \rightarrow x = max.\ 0.0125\ mm \quad (spindle\ pitch\ 5\ mm)$$

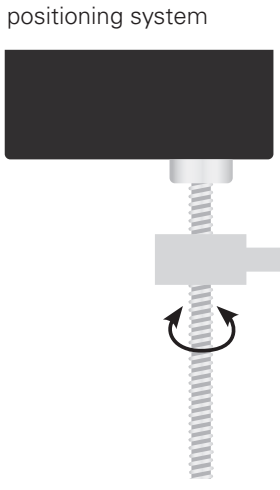
$$\frac{x}{4\ mm} \rightarrow x = max.\ 0.0100\ mm \quad (spindle\ pitch\ 4\ mm)$$

In practice, an additional error contribution results from the non-uniformity of the spindle. Since the encoder is located on the output shaft, additional errors due to gear backlash are avoided.

- Optimum precision for all positioning applications

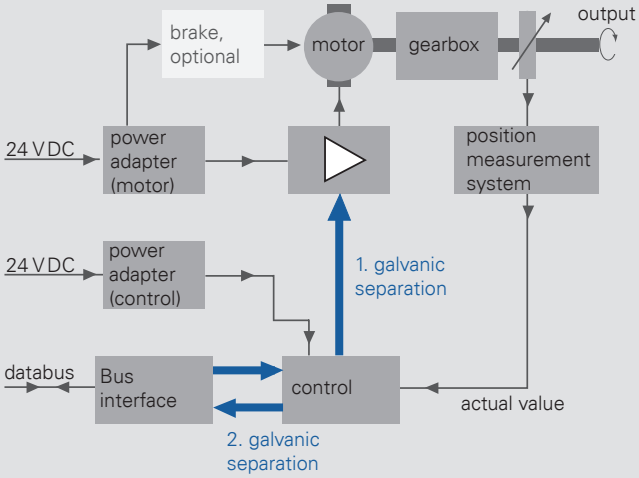






3 Safe even in the event of malfunctions

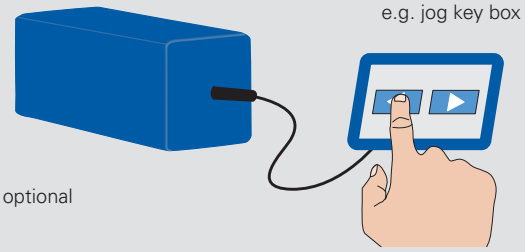
Motor and control are supplied separately and galvanically isolated [1]. This prevents interference coupling from the motor to the control. It also ensures that bus communication is still available in the event of an emergency stop; the status and the actual position can still be read out.



[1] not for devices with STO function

4 Easy to set up with Jog key operation [2]

Simplification of setup.
When setting up the machine, the desired zero position must be measured and then programmed in the control. Often, the optimum position is approached in several steps. This process can be simplified thanks to jog keys: With the help of two direction commands, the appropriate zero position can be approached quickly on site or at the control panel, without the need for bus communication. The PSx 3 series has optional jog key contacts that can be switched via the machine panel, for example.



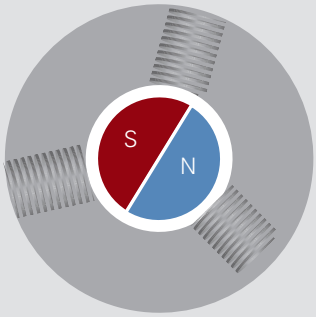
[2] optional

5 Matching brake

When objects are positioned vertically (upwards / downwards), it must be noted that gravity acts in the rest position. The requirements here are different: Mostly, the position must be held at least approximately for safety reasons.
Depending on the application, the position should always - i.e. even in the de-energized state - be maintained exactly. This is possible in our positioning systems with a suitable brake.

6 Durable EC motor

Durable down to the last detail: For robust and long-term operation, we always use high-quality brushless EC motors that drive the positioning system precisely and without wear.

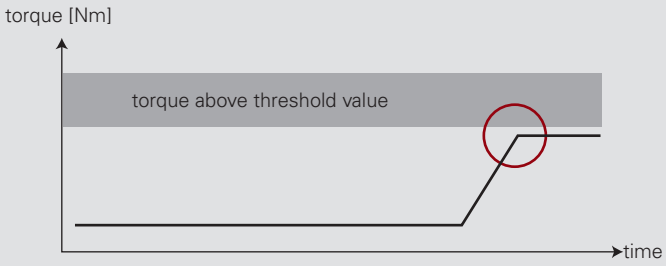


Software features of the 3 series

The 3 series offers a range of software functions that keep machine operation trouble-free and efficient. Our many years of experience in specific format adjustment issues during machine changeovers have been incorporated into the software development and ensure maximum functionality and user-friendliness.

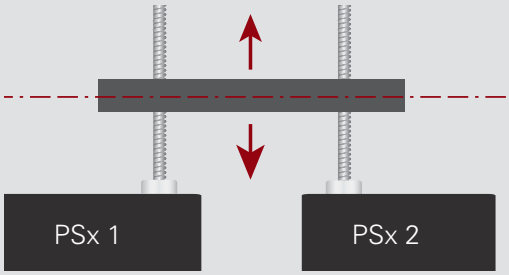
Targeted shutdown in case of overload

The PSE/PSS/PSW 3xx is able to adjust the actual torque so that the limit value (which can be parameterized according to customer specifications) is not exceeded: While a brief peak torque is deliberately permitted and thus an unnecessary interruption of travel is avoided, a targeted standstill takes place if the load is too high in order to prevent machine damage.



No jamming due to optimum synchronous operation

If two positioning systems have to be used to move a wide or heavy object, their synchronization of movement must ensure that tilting is impossible. The positioning systems of the 3 series have been fulfilling this requirement for years in numerous applications. It is achieved by a very fast tracking error control. More about this on the following page.

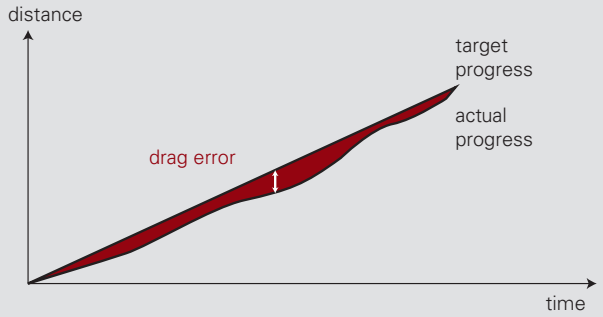


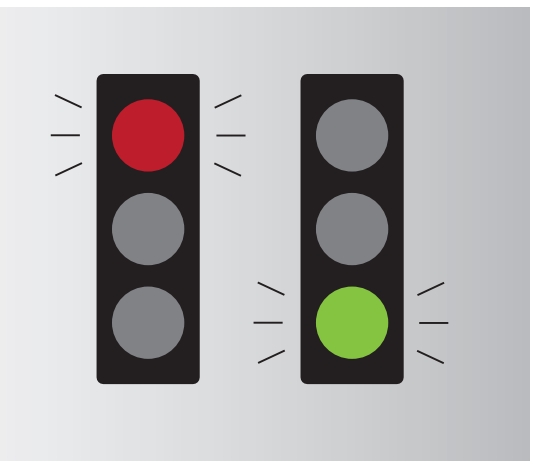
Intelligent driving behavior by distinguishing between block driving and soiling

In practice, it can always happen that the rotary movement of the spindle is hindered. In the most extreme case, this is a „block travel", for example when the object to be positioned has reached its mechanical end position. However, contamination of the spindle can also lead to difficultiy in moving. In practice, it is highly relevant to distinguish between these two types of obstacles: In the case of block travel, the spindle should be stopped immediately; in the case of contamination, the spindle should be accelerated in order to overcome the obstacle well. The positioning systems of the 3 series distinguish these cases within milliseconds and react in the required manner in each case.

Correct positioning without tracking error

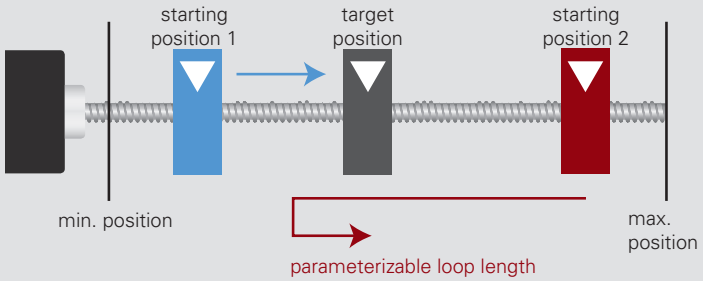
Optimal readjustment of the actual position with a view to the required target position is a central quality feature of the positioning systems of the 3 series. In order to keep the so-called „tracking error“ to a minimum, acceleration is targeted if overtravel is detected. This is also how the good synchronism of two systems is achieved. At the same time, monitoring of the tracking error is used for early warning. Contamination can make it impossible to reach the target position in a desired time. This situation is also immediately passed on to the control system as a „condition monitoring“ message.





Highest positioning accuracy due to spindle compensation travel

Each spindle has a more or less large spindle play, which comes into play when the direction is reversed. For this reason, the positioning system can be parameterized so that the target position is always approached from the same side (in the figure: from the left). The spindle play thus no longer has any influence on the positioning accuracy. Of course, it is monitored that block travels cannot occur.



How to choose your suitable positioning system?

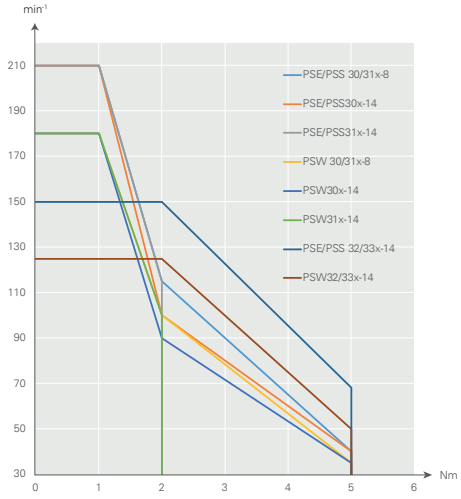
To order our standard products, you can use the graphics on the right for an initial performance assessment of the products and the corresponding order code of the 3 series. The ordering process is described below using an example.

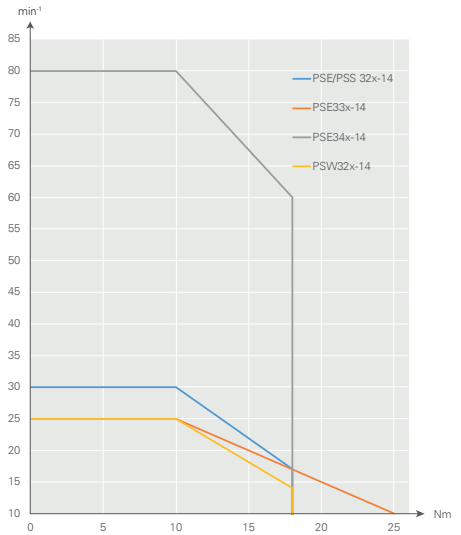
- **A** Choose the appropriate **design** based on your operating conditions
- **B** **Type:**
  - Vertical or horizontal form (value even or odd)
  - max. rated torque (x) - for orientation see characteristic diagrams
  - Output shaft (8 or 14) and solid or hollow shaft
- **C** select required protocol / interface (**bus communication**)
- **D** integrate the **connections** that are essential for you
- **E** if necessary, select a **brake** (without brake select 0)
- **F** select required **certificates**
- **G** select **IP protection class**

For example, a stainless steel housing (PSS), the 30x design, a maximum rated torque of 2 Nm and an 8 hollow shaft would be required (302-8). Besides IO-Link, the standard connections are required, no brake, the CE/UKCA certificate and IP65.

→ Order code **PSS 302-8-IO-0-0-0-65**

Torques and speeds





Order code PSE / PSS / PSW 3 series

A	B	C	D	E	F	G

	A Design	B Type	C Bus communication	D Connections	E Brake	F Certification	G IP protection class
Positioning System **Efficient**	PS**E**	30x-8 30x-8 V 30x-14 30x-14 V 31x-8 31x-8 V 31x-14 31x-14 V 32x-14 32x-14 V 33x-14 33x-14 V 34x-14 [5]	CA: CANopen DP: PROFIBUS DP DN: DeviceNet [1] MB: Modbus RTU [1] SE: Sercos EC: EtherCAT PN: PROFINET EI: EtherNet/IP PL: POWERLINK IO: IO-Link	0: Standard [2] T: Standard with jog keys [1] Y: Plug-in, Y-coded [1] Z: Plug-in, Y-coded, with jog keys [1]	0: without M: with [3]	0: CE / UKCA N: NRTL + CE/UKCA S: STO + CE/UKCA without test pulses [1] T: STO + CE/UKCA with test pulses [1] Y: STO + NRTL + CE /UKCA without test pulses [1] Z: STO + NRTL + CE /UKCA with test pulses [1]	54: IP 54 [1] 65: IP 65 [1] 68: IP 68 [4]
Positioning System **Stainless**	PS**S**						
Positioning System **Washable**	PS**W**						

Form/Type	Torque	Output shaft
30 horizontal 31 vertical 32 horizontal 33 vertical 34 horizontal	**x** = 1 Nm **x** = 2 Nm **x** = 5 Nm **x** = 10 Nm **x** = 18 Nm **x** = 25 Nm [5]	8 = 8 mm hollow shaft 14 = 14 mm hollow shaft 8 V = 8 mm solid shaft [1] 14 V = 14 mm solid shaft [1]

[1] Not available as standard for all versions / bus communication. Please contact our sales department.
[2] The standard is 3 plugs / sockets (except for IO-Link or Y-coded connector)
[3] only for variants with 14 mm output shafts
[4] only for PSW
[5] only for PSE

Please refer to the data sheets for the respective standard combinations.

To place your order, please call us at
+49 7661 3963-0 or email us at
info@halstrup-walcher.com.
For additional contacts, please visit
www.halstrup-walcher.de/en/contact

PSE 3xx


PSE
by halstrup-walcher
PSE
by halstrup-walcher
PSE
by halstrup-walcher

Positioning System Efficient:

The powerful and economical positioning solution

Powerful positioning systems with IP 54 as standard, which optimally complement your machine design for format adjustment. Here we offer numerous variants that are implemented in up to 10 bus systems. With solid or hollow shaft, the product also offers the possibility of horizontal and vertical alignment.

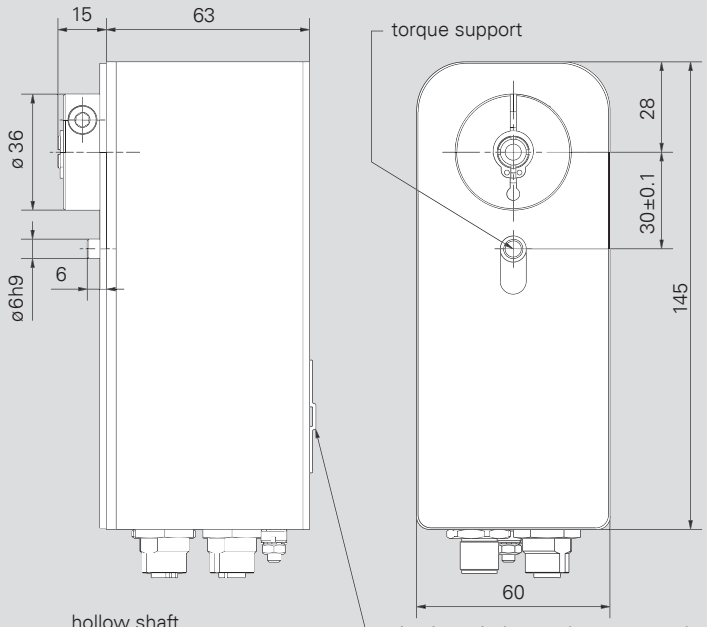
PSE 30x-8

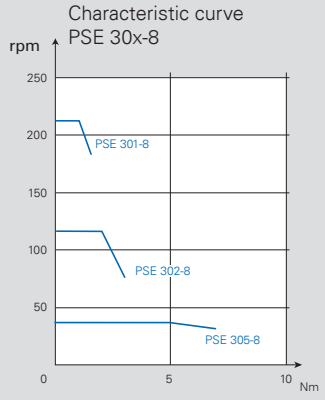
IP 54

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 301-8	1 Nm	0.5 Nm	210 rpm
PSE 302-8	2 Nm	1 Nm	115 rpm
PSE 305-8	5 Nm	2.5 Nm	40 rpm

Duty cycle	30% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP54 (IP65 on request)
Weight	900 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage



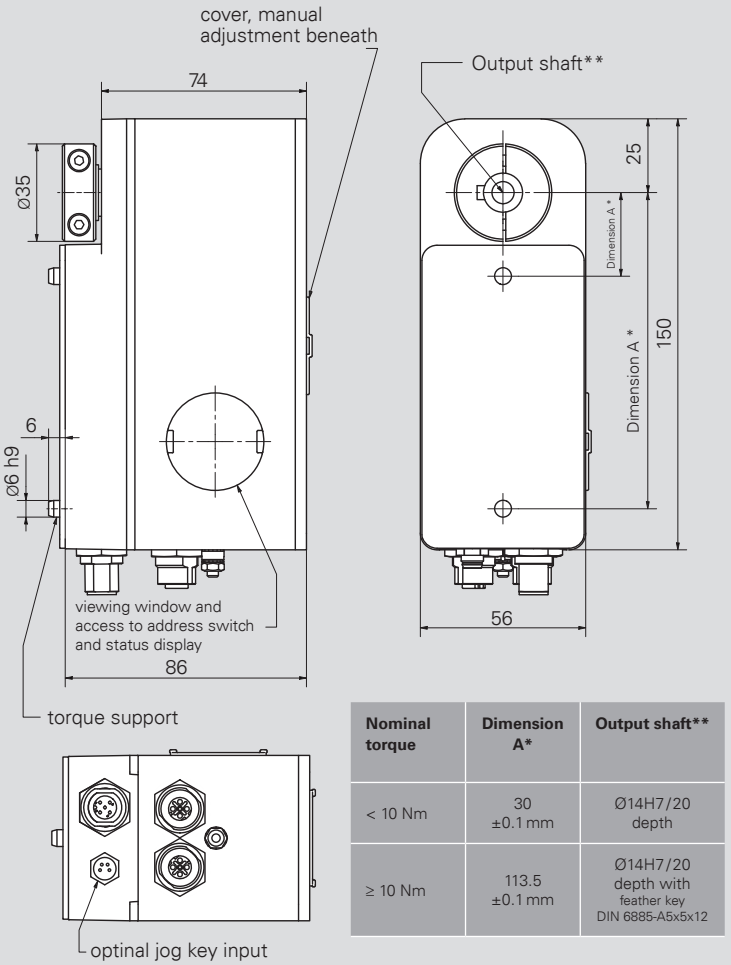


Dimensions in mm.
For details of the connections please see also the instruction manual.

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

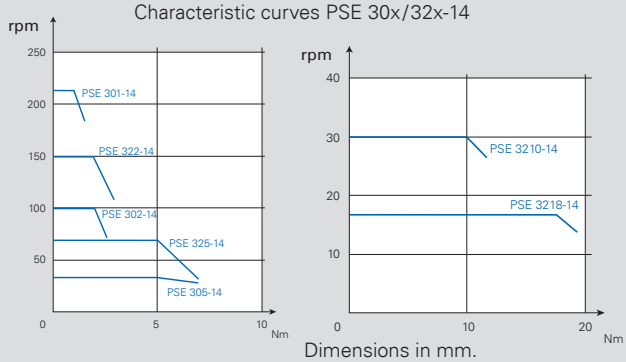
PSE 30x/32x-14

IP 54



Nominal torque	Dimension A*	Output shaft**
< 10 Nm	30 ±0.1 mm	Ø14H7/20 depth
≥ 10 Nm	113.5 ±0.1 mm	Ø14H7/20 depth with feather key DIN 6885-A5x5x12

Characteristic curves PSE 30x/32x-14



Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 301-14	1 Nm	0.5 Nm	210 rpm
PSE 302-14	2 Nm	1 Nm	100 rpm
PSE 305-14	5 Nm	2.5 Nm	40 rpm
PSE 322-14	2 Nm	1 Nm	150 rpm
PSE 325-14	5 Nm	2.5 Nm	68 rpm
PSE 3210-14	10 Nm	5 Nm	30 rpm
PSE 3218-14	18 Nm	9 Nm	17 rpm

Duty cycle	30% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSE 30x: 2.4 A PSE 32x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	14 mm hollow shaft PSE 30x and PSE 32x: with clamp ring PSE 32x ≥10 Nm: with clamp ring and feather key
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP 54 (IP 65 on request)
Weight	1 200 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

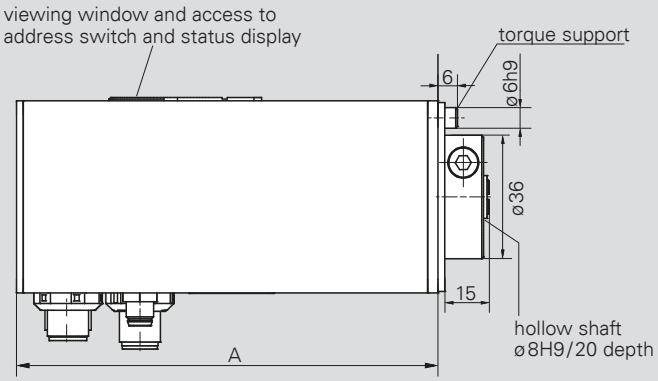
PSE 31x-8

IP 54

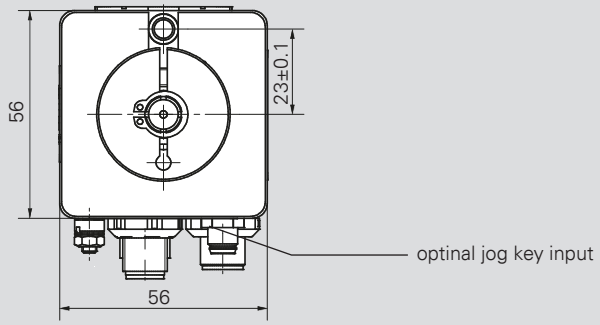
Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 311-8	1 Nm	0.5 Nm	210 rpm
PSE 312-8	2 Nm	1 Nm	115 rpm
PSE 315-8	5 Nm	2.5 Nm	40 rpm

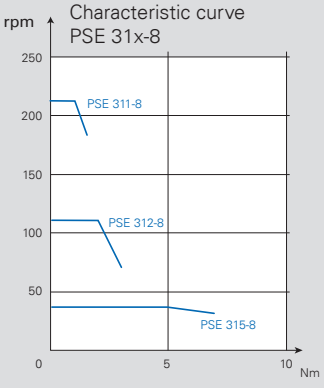
Duty cycle	30% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP54 (IP65 on request)
Weight	850 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage



	A
PSE 311/312	115
PSE 311/312 with IO-Link	100
PSE 315	123
PSE 315 with IO-Link	108





Dimensions in mm.
For details of the connections please see also the instruction manual.

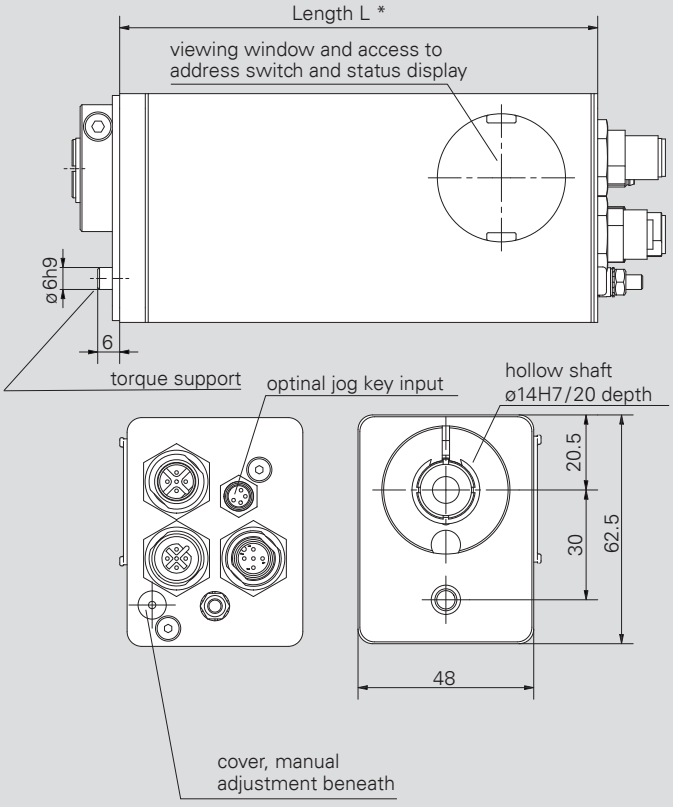
Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

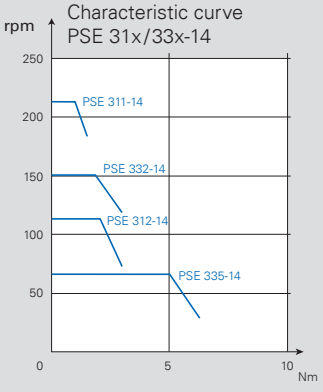
PSE 31x/33x-14

halstrup walcher

IP 54

IP 65





Protection class	Length L *
54	125
65	131

Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 311-14	1 Nm	0.5 Nm	210 rpm
PSE 312-14	2 Nm	1 Nm	115 rpm
PSE 332-14	2 Nm	1 Nm	150 rpm
PSE 335-14	5 Nm	2.5 Nm	68 rpm

Duty cycle	30% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSE 31x: 2.4 A, PSE 33x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	14 mm hollow shaft with clamp ring
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP 54 or IP65
Weight	850 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

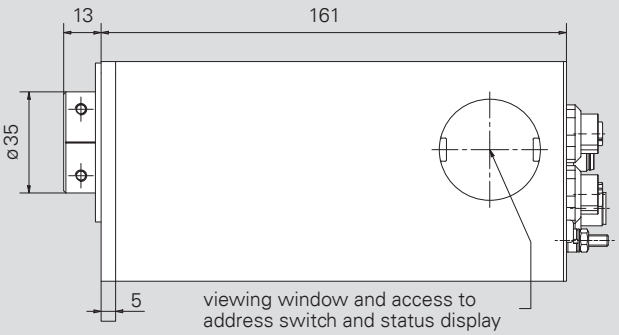
PSE 3310 / 3325-14

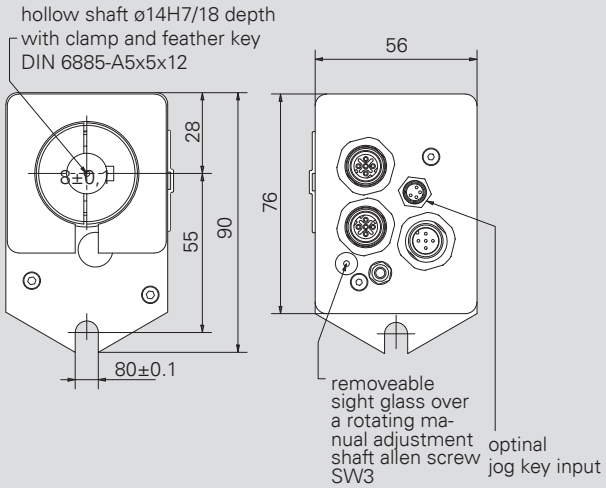
IP 54

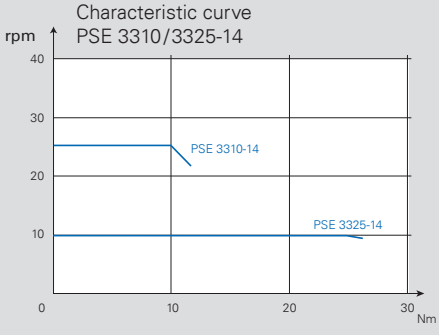
Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 3310-14	10 Nm	5 Nm	25 rpm
PSE 3325-14	25 Nm	12.5 Nm	10 rpm

Duty cycle	25% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	14 mm hollow shaft with clamp ring and feather key
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP 54 (IP 65 on request)
Weight	1350 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

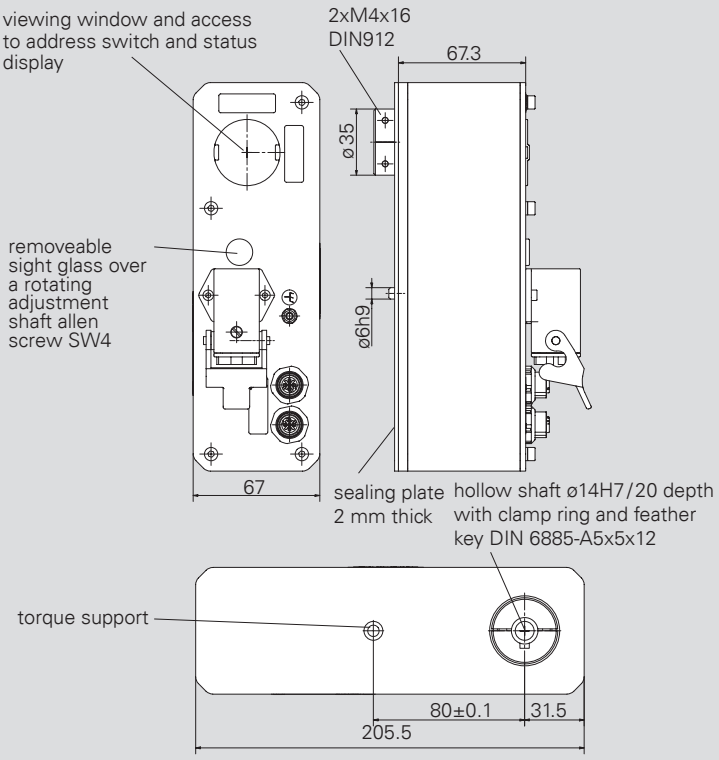


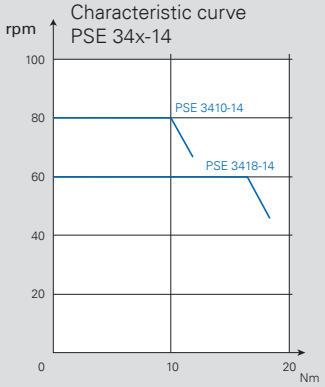




Dimensions in mm.
For details of the connections please see also the instruction manual.

PSE 34x-14





Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSE 3410-14	10 Nm	5 Nm	80 rpm
PSE 3418-14	18 Nm	9 Nm	60 rpm

Duty cycle	20% (basis time 300s)
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	7.8 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	14 mm hollow shaft with clamp ring and feather key
Magnetic brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP65
Weight	1 900 g
Certificates	CE/UKCA, optional: NRTL

PSS 3xx

Positioning System Stainless:

The high-quality positioning solution PSS made of stainless steel with IP65

With the PSS, we offer a stainless steel version that meets the requirements of IP protection class 65. Select the right drive for you from various designs and bus systems as well as software functions.

PSS 30x-8

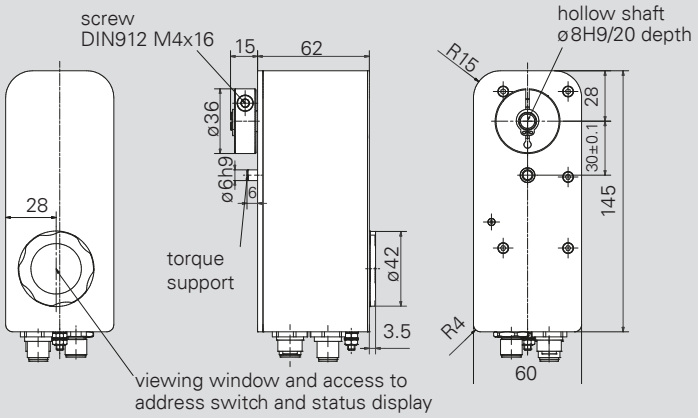
IP 65

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSS 301-8	1 Nm	0.5 Nm	210 rpm
PSS 302-8	2 Nm	1 Nm	115 rpm
PSS 305-8	5 Nm	2.5 Nm	40 rpm

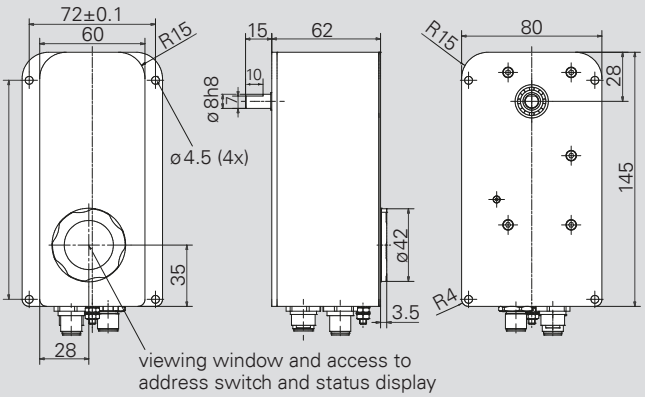
Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm solid shaft or 8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP65 when installed and wired
Material	stainless steel housing
Weight	1550 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

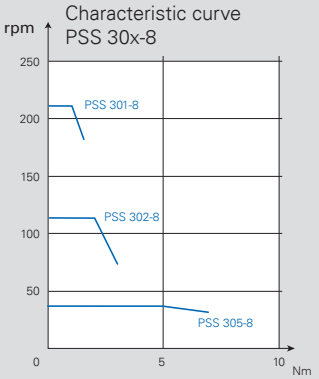
[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

PSS 30x-8 (with hollow shaft)



PSS 30x-8 V (with solid shaft)





Dimensions in mm.
For details of the connections please see also the instruction manual.

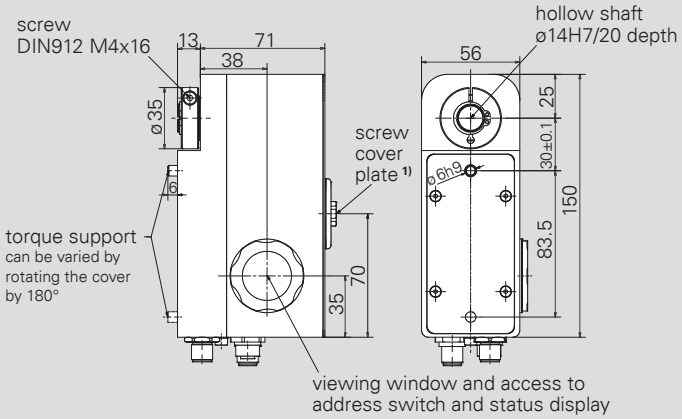
Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

PSS 30x/32x-14

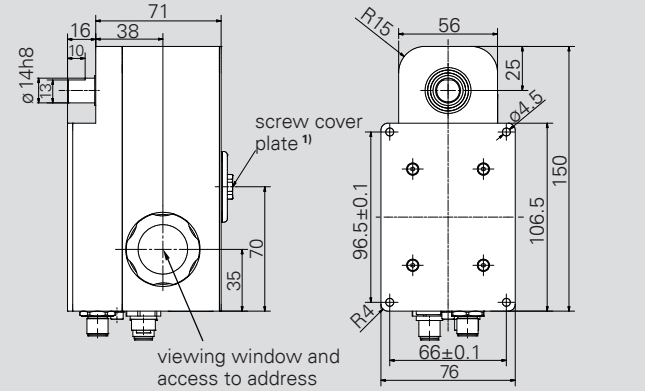
halstrup walcher

IP 65

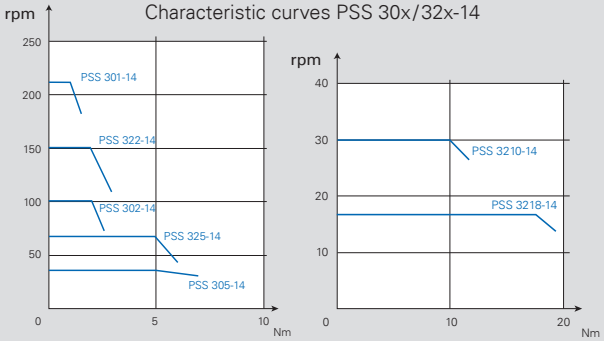
PSS 30x / 32x-14 (with hollow shaft)



PSS 30x / 32x-14 V (with solid shaft)



1) over a rotating manual adjustment shaft SW6/8 depth hex



Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSS 301-14	1 Nm	0.5 Nm	210 rpm
PSS 302-14	2 Nm	1 Nm	100 rpm
PSS 305-14	5 Nm	2.5 Nm	40 rpm
PSS 322-14	2 Nm	1 Nm	150 rpm
PSS 325-14	5 Nm	2.5 Nm	68 rpm
PSS 3210-14	10 Nm	5 Nm	30 rpm
PSS 3218-14	18 Nm	9 Nm	17 rpm

Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSS 30x: 2.4 A, PSS 32x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm / 55..1 000 Hz 10 g / 10..2 000 Hz 5 g
Output shaft	14 mm solid shaft (not for PSS 32x ≥ 10 Nm) or 14 mm hollow shaft with clamp ring (for PSW32x ≥ 10 Nm with clamp ring and feather key)
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP65 when installed and wired
Material	stainless steel housing
Weight	2000 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses 2)

2) STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

PSS 31x-8

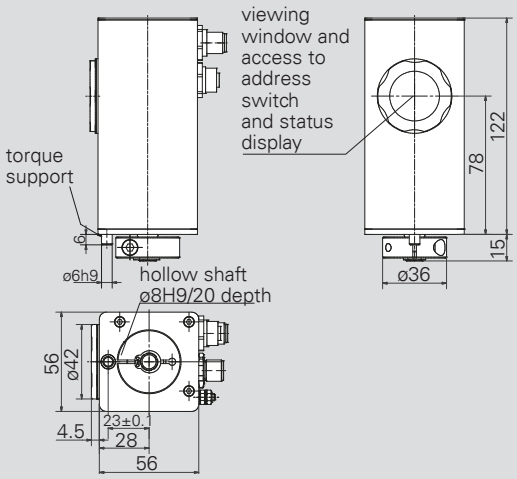
IP 65

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSS 311-8	1 Nm	0.5 Nm	210 rpm
PSS 312-8	2 Nm	1 Nm	115 rpm
PSS 315-8	5 Nm	2.5 Nm	40 rpm

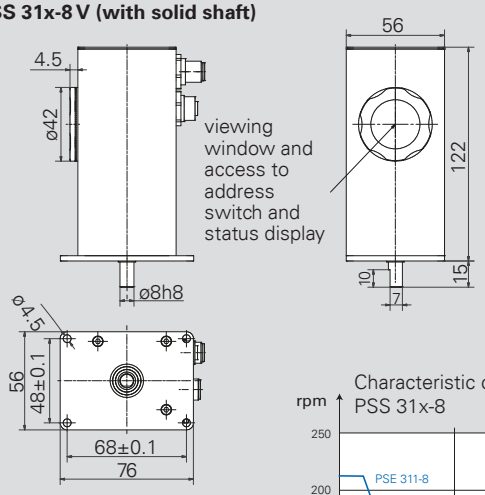
Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm solid shaft or 8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP65 when installed and wired
Material	stainless steel housing
Weight	950 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

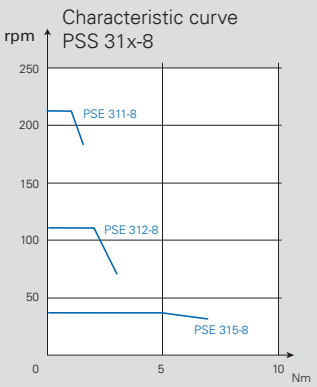
[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

PSS 31x-8 (with hollow shaft)



PSS 31x-8 V (with solid shaft)





Dimensions in mm.
For details of the connections please see also the instruction manual.

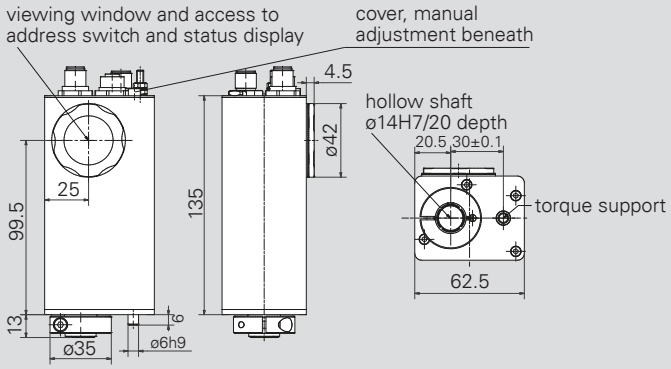
Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

PSS 31x/33x-14

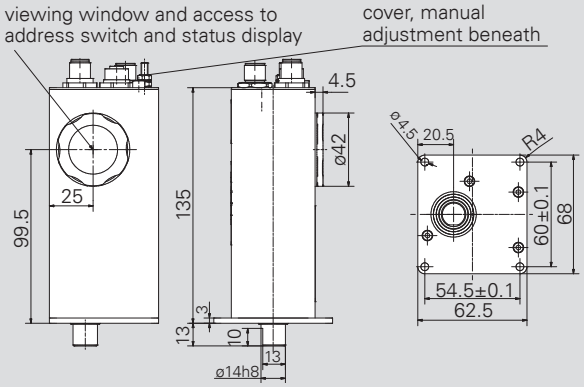
halstrup walcher

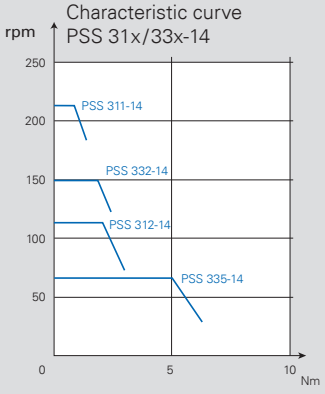
IP 65

PSS 31x / 33x-14 (with hollow shaft)



PSS 31x / 33x-14 V (with solid shaft)





Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSS 311-14	1 Nm	0.5 Nm	210 rpm
PSS 312-14	2 Nm	1 Nm	115 rpm
PSS 332-14	2 Nm	1 Nm	150 rpm
PSS 335-14	5 Nm	2.5 Nm	68 rpm

Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSS 31x: 2.4 A, PSS 33x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm / 55..1 000 Hz 10 g / 10..2 000 Hz 5 g
Output shaft	14 mm solid shaft or 14 mm hollow shaft with clamp ring
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP65 when installed and wired
Material	stainless steel housing
Weight	1050 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

PSW 3xx

Positioning System Washable:

The robust positioning solution PSW with IP standard 68

When cleaning equipment, machine components must also be robust enough to prevent damage from corrosion. With the PSW, we offer a positioning system with a waterproof stainless steel housing, which can withstand even the highest demands on cleaning processes. With the modular product system of the 3 series, you will also receive the right variant for your area of application.

PSW 30x-8

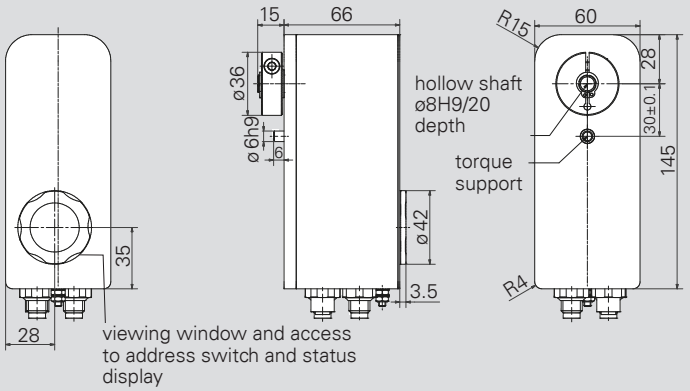
IP 68

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSW 301-8	1 Nm	0.5 Nm	180 rpm
PSW 302-8	2 Nm	1 Nm	100 rpm
PSW 305-8	5 Nm	2.5 Nm	35 rpm

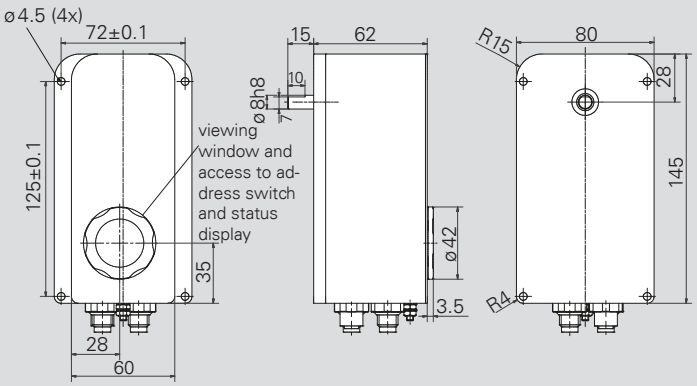
Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm solid shaft or 8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP68 at standstill, IP66 during rotation
Material	stainless steel
Weight	1550 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

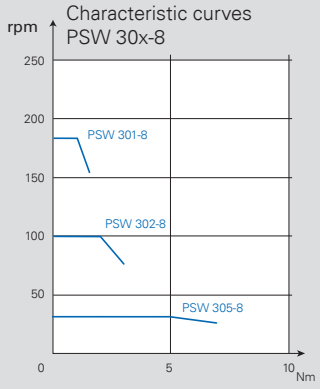
[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

PSW 30x-8 (with hollow shaft)



PSW 30x-8 V (with solid shaft)





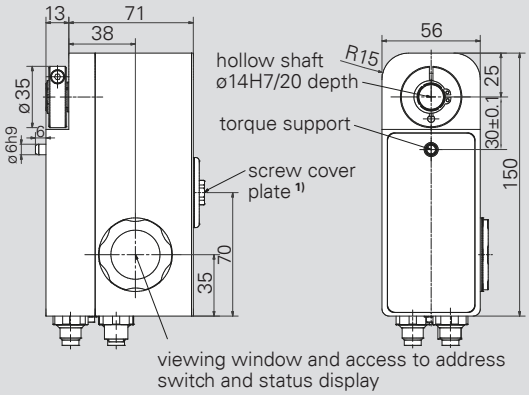
Dimensions in mm.
For details of the connections please see also the instruction manual.

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

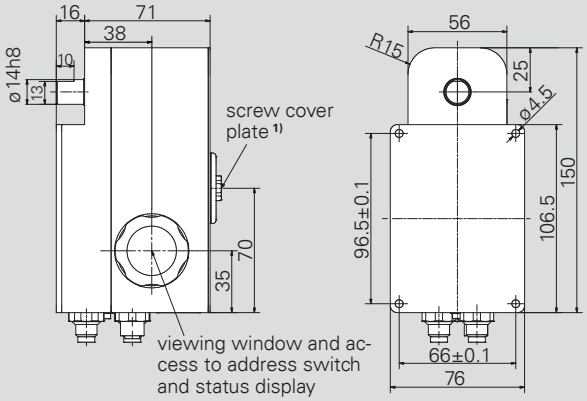
PSW 30x/32x-14

IP 68

PSW 30x / 32x-14 (with hollow shaft)

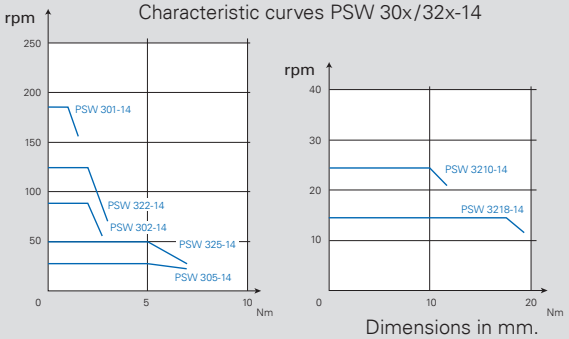


PSW 30x / 32x-14 V (with solid shaft)



1) over a rotating manual adjustment shaft SW6/8 depth hex

Characteristic curves PSW 30x/32x-14



Dimensions in mm.
For details of the connections please see also the instruction manual.

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSW 301-14	1 Nm	0.5 Nm	180 rpm
PSW 302-14	2 Nm	1 Nm	90 rpm
PSW 305-14	5 Nm	2.5 Nm	35 rpm
PSW 322-14	2 Nm	1 Nm	125 rpm
PSW 325-14	5 Nm	2.5 Nm	50 rpm
PSW 3210-14	10 Nm	5 Nm	25 rpm
PSW 3218-14	18 Nm	9 Nm	14 rpm

Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSW 30x: 2.4 A, PSW 32x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm / 55..1 000 Hz 10 g / 10..2 000 Hz 5 g
Output shaft	14 mm solid shaft (not for PSW32x ≥ 10 Nm) or 14 mm hollow shaft with clamp ring (for PSW32x ≥ 10 Nm with clamp ring and feather key)
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP68 at standstill, IP66 during rotation
Material	stainless steel
Weight	2000 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses 2)

2) STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

PSW 31x-8

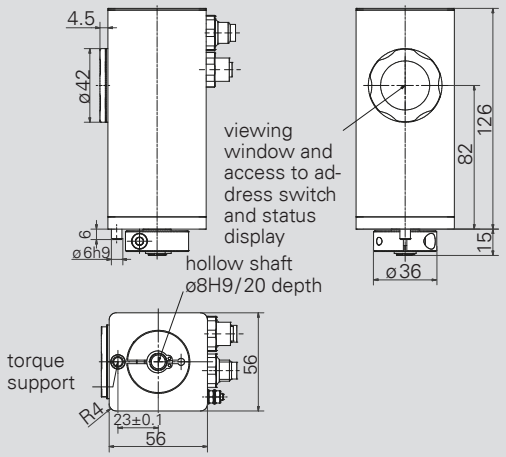
IP 68

Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSW 311-8	1 Nm	0.5 Nm	180 rpm
PSW 312-8	2 Nm	1 Nm	100 rpm
PSW 315-8	5 Nm	2.5 Nm	35 rpm

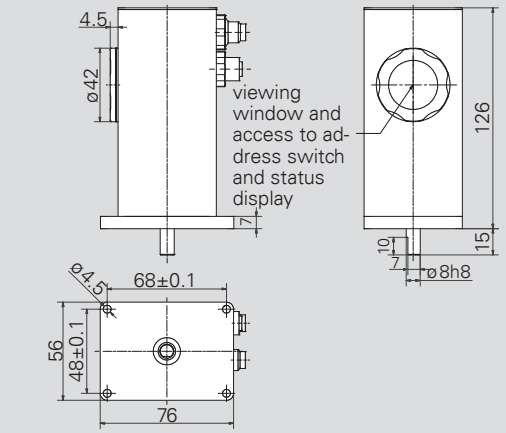
Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	2.2 A, PSW 33x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm/ 55..1 000 Hz 10 g/ 10..2 000 Hz 5 g
Output shaft	8 mm solid shaft or 8 mm hollow shaft with clamp ring
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP68 at standstill, IP66 during rotation
Material	stainless steel
Weight	950 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

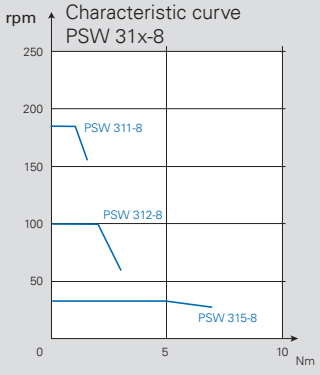
[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

PSW 31x-8 (with hollow shaft)



PSW 31x-8 V (with solid shaft)





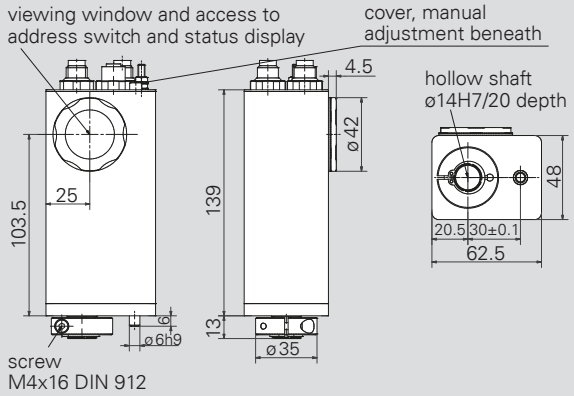
Dimensions in mm.
For details of the connections please see also the instruction manual.

Available: PROFINET | EtherNet/IP | EtherCAT | POWERLINK | IO-Link | PROFIBUS | CANopen | Sercos | DeviceNet | Modbus

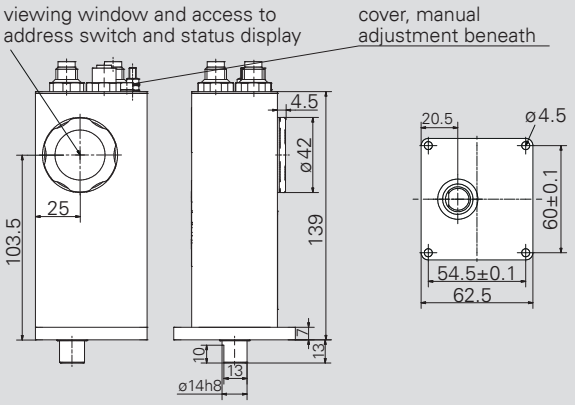
PSW 31x/33x-14

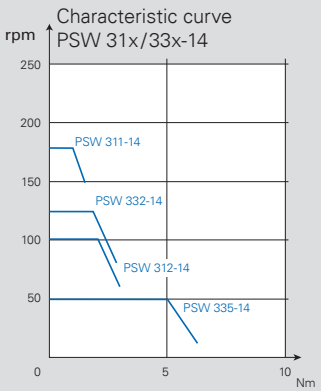
IP 68

PSW 31x / 33x-14 (with hollow shaft)



PSW 31x / 33x-14 V (with solid shaft)





Dimensions in mm.
For details of the connections please see also the instruction manual.

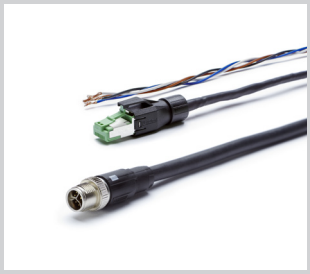
Product	Nominal torque (x)	Self-holding torque (energized)	Nominal rated speed
PSW 311-14	1 Nm	0.5 Nm	180 rpm
PSW 312-14	2 Nm	1 Nm	100 rpm
PSW 332-14	2 Nm	1 Nm	125 rpm
PSW 335-14	5 Nm	2.5 Nm	50 rpm

Duty cycle	20% (basis time 600s) at nominal torque
Mode of operation	S3
Supply voltage	24 VDC ±10% galvanically separated between control and motor and bus
Nominal current	PSW 31x: 2.4 A, PSW 33x: 3.1 A
Power consumption (control unit)	0.1 A
Positioning accuracy absolute measurement of position taken directly at the output shaft	0.9°
Positioning range	250 rotations not subject to mechanical limits
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..55 Hz 1.5 mm / 55..1 000 Hz 10 g / 10..2 000 Hz 5 g
Output shaft	14 mm solid shaft or 14 mm hollow shaft with clamp ring
Brake	optional (holding torque=nominal torque)
Max. axial force	20 N
Max. radial force	40 N
Ambient temperature	0..45 °C
Storage temperature	-10..70 °C
Protection class	IP68 at standstill, IP66 during rotation
Material	stainless steel
Weight	1050 g
Certificates	CE/UKCA, optional: NRTL, optional: STO with/without test pulses [1]

[1] STO: only for EtherCAT, EtherNet/IP, POWERLINK, PROFINET, without galvanic separation of the supply voltage

Accessories for our positioning systems

The connectors shown here can be used for all 3 device types (PSE / PSS / PSW). For PSE (IP 54/IP 65) and PSS (IP 65), this ensures the IP protection classes. If required, we are happy to help you find a suitable connector for a PSW (IP 68) - please contact us.

<table>
<tr><th>Buscommunication</th><th>Power supply
(+ databus connector)
(for option 0) [1]</th><th>Power supply
+ databus
+ jog key connector</th><th>Cable</th></tr>
<tr><td>CANopen
PROFIBUS DP
Modbus RTU</td><td> 
Connector set: Order no. 9601.0060</td><td> 
Connector set: Order no. 9601.0062</td><td rowspan="4">On request
 
  </td></tr>
<tr><td>DeviceNet</td><td> 
Connector set: Order no. 9601.0088</td><td> 
Connector set: Order no. 9601.0090</td></tr>
<tr><td>Sercos
EtherCAT
PROFINET
EtherNet / IP
POWERLINK</td><td> 
Connector set: Order no. 9601.0112</td><td> 
Connector set: Order no. 9601.0317</td></tr>
<tr><td>IO-Link</td><td> 
Connector: Order no. 9601.0107</td><td>-</td></tr>
</table>

[1] see in order code under D

Screw cap to cover the second bus connection (for PSS/PSW)

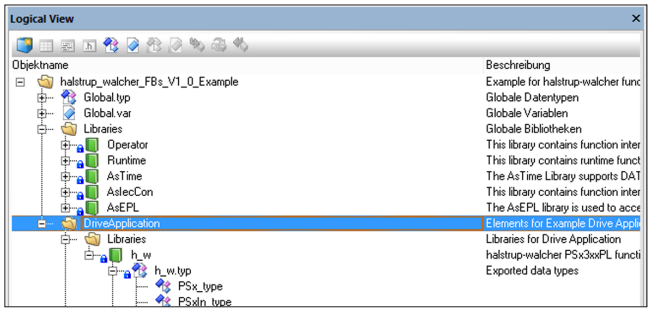
Order no. 9601.0176

Jog key box
(for Option T in section D of the Order code)

Order no. 9601.0241

Software

Use our function blocks, description files or commissioning tools for the various industrial protocols. You can download the files under **www.halstrup-walcher.de/en/software**. To do this, enter your specific product in the drop-down menu that appears and select the Software tab in the tab view. After that, the software components are available to you.



You want to see our products in person?

We are represented at numerous trade fairs and will be happy to advise you. Visit us on site and let us find the ideal solution together. You can find our current exhibition dates and product news at:

www.halstrup-walcher.de/en/news/

Drive technology

DIRECT DRIVES 4 SERIES

Direct drives 4 series

The compact and handy solution in IP50 and IP65 standard.

Discover our direct drives in different dimensions and benefit from easy assembly and simple installation.

The PSD series stands out in particular for its compact format and offers a powerful direct drive despite its small size - ideal for machines looking for a space-saving solution for format adjustment without sacrificing functionality.

General advantages of the 4 series

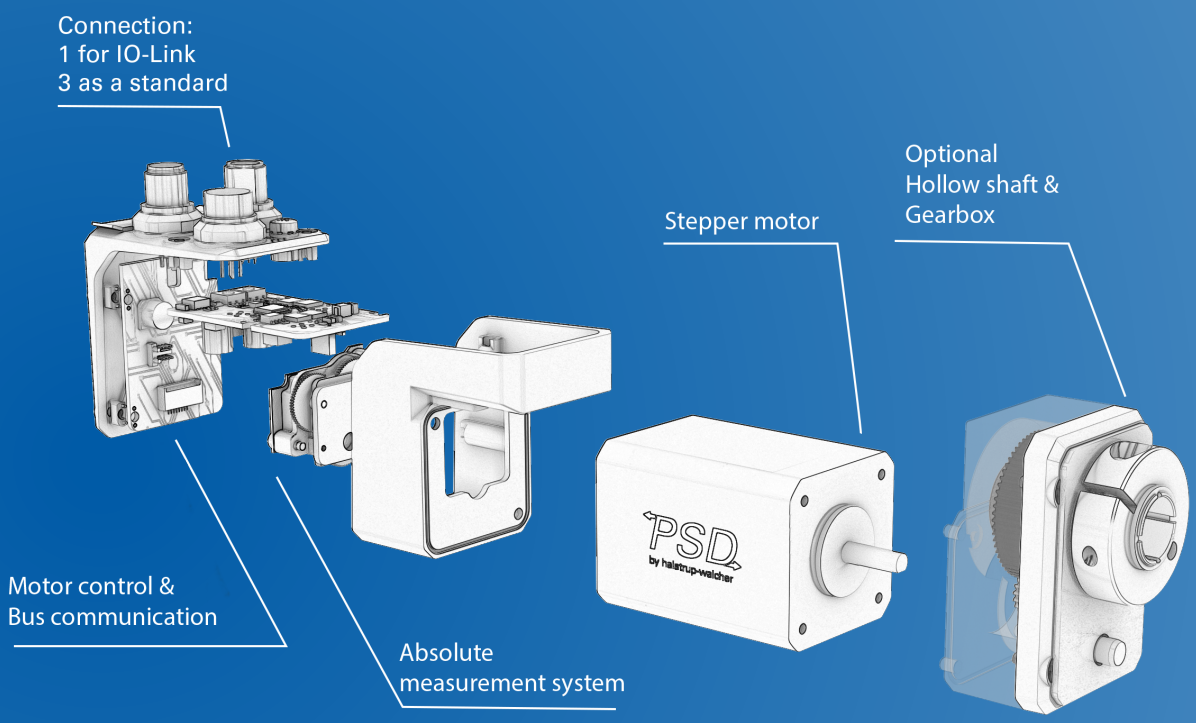
The direct drives PSD are mechatronic systems with integrated control, bus interface and absolute measuring system without battery. They are ideally suited for the adjustment of machine axes during format adjustments.
The stepper motor with integrated control and bus communication enables higher speeds at low torques. This closes the gap to servo drives with controllers. The direct drives PSD are convincing due to their significantly more compact designs and less wiring, as no external controller is required - an economical solution for format adjusters.

1 Compact construction

The direct drives from halstrup-walcher have a particularly compact design
→ Ideal for your lean machine design

2 Highest flexibility in the configuration

Due to the variable orientation of the connector plugs and the optional rotatable attachment housing, the direct drives can be attached to the machine in any position
→ No angle plugs are required



3 Simple assembly

The PSD have a standard NEMA flange on direct drives. The optional hollow shaft with torque support allows direct mounting to the spindle without a coupling.

4 Larger traverse range

With a setting range of 977 ... 4026 revolutions, the PSD offers a large movement range. The absolute measuring system without battery ensures precise position feedback at all times.

5 100% repeat accuracy

Thanks to the monitoring with absolute encoder and the loop travel / spindle compensation travel, exact positioning is given despite spindle play. This ensures maximum repeatability.

6 Powerful startup

Due to an adjustable starting torque/current, powerful starting is possible without start-up is possible without any problems, even after standstill or in the event of contamination.

7 Dynamic adjustment

A high speed makes format adjustments more dynamic and thus shortens machine setup times.

8 Safe also in case of malfunctions

Motor and control are galvanically isolated, which allows the motor torque to be switched off without feedback.

- avoids interference coupling from the motor to the control system
- bus communication is also available for status feedback during emergency stops

Functions and software of the 4 series

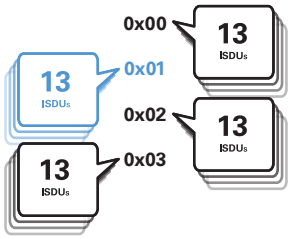
Our claim is an optimal interaction of mechanics and software in our products. Due to limiting communication speeds with IO-Link, we offer software features that ensure a more performant parameterization of your drives.

IO-Link

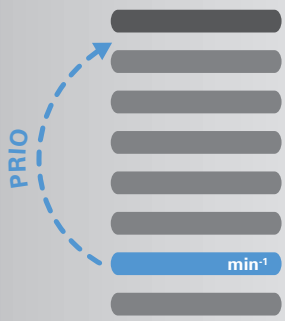
Eliminate transmission time with record switching

Save long transmission times of acyclic commands (ISDUs) during changes. With the „Set changeover“ software module, you can use two bits in the process data to activate one of four different parameter sets immediately after transmission. Switch the travel behavior of the drive (e.g. setpoint speed, acceleration, travel current).

- fast modification of driving behavior with predefined parameter sets
- 4 parameter sets with 13 ISDU parameter values each
- switching at any time
- save parameter sets in the device



Process-oriented control of the speed in the process data



If your application requires a frequent change of the setpoint speed, this can also be included in the process data. The undefined duration of an acyclic ISDU transmission is saved and the speed change is prioritized over acyclic commands:

- acyclic accesses via ISDUs to the setpoint speed become superfluous
- the change is processed in the drive immediately after transmission

With the „Setpoint speed in process data“ function, any setpoint speed can be transferred, while with the „Set changeover“ software module, one of four predefined speeds is selected.

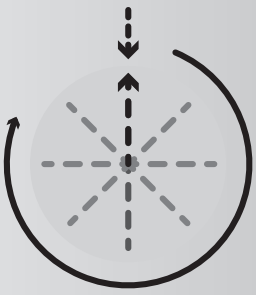
Unique device identification with the „E-Ident“ function

The E-Ident function uniquely identifies equipment, making it easy to check warranty claims and ensure machine functionality. The E-Ident function is included as standard in all PSD devices with IO-Link.

Modulo function enables infinite movement without limit

The modulo function offers you significant advantages if you always want to operate drives in the same direction of rotation, e.g. for rotary tables, tool changers or conveyor belts.

- Unlimited travel: no limitation by absolute measuring system
- Modulo width definable via lower and upper modulo position: lower and upper modulo position correspond to the same position of the driving unit - independent of the number of revolutions
- Defined positions within the modulo page can be controlled individually
- Various operating modes for predefined clockwise or counterclockwise direction of rotation of the drive or for approaching the positions on the shortest path



Select your suitable direct drive form the 4 series

Performance curves of the Direct drives PSD

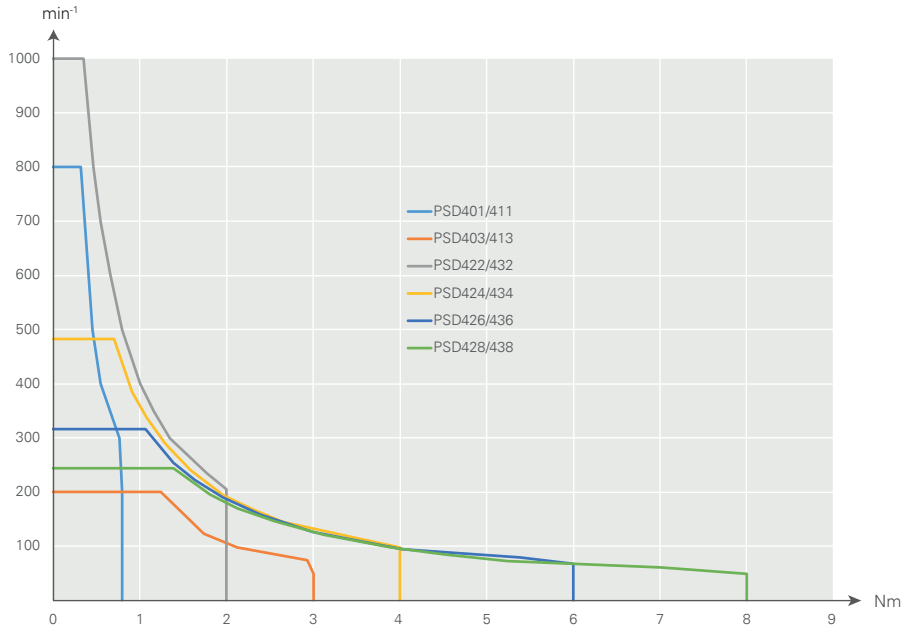
Finding the right positioning system

The direct drives PSD from halstrup-walcher offer a power range that is ideal for frequent format changeovers or setup in the gap.

Example

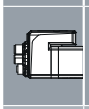
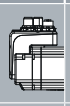
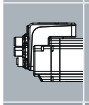
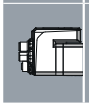
You need a drive with approx. 200 revolutions / minute with a torque of 2 Nm. Then you can use a direct drive PSD 422/432 without gearbox or attachment housing.

You need a higher torque at a lower speed? You can achieve this with an additional gearbox from our modular system.



Order code PSD 4 series

Order code	A	B	C	D	E	F	G	H
PSD								

	A Type	B Torque/ Output shaft	C Rotation shaft/ Housing	D Bus communication [1]	E Electical connections	F Protection class	G Software modules	H Certificates
	40: horizontal	1-5V 1-8H 1-14H **with gearbox:** 3-8H 3-14H	S: direct or 0° 1: 90° 2: 180° 3: 270°	CA: CANopen IO: IO-Link PN: PROFINET EC: EtherCAT EI: EtherNet/ IP	0: standard [2]	50: IP 50 65: IP 65 [3]	1: standard M: with modulo function [4] S: with changeover of parameter set [4] P: with target speed in process data [4] Z: with modulo function and changeover of parameter set and target speed in process data [4]	0: CE / UKCA N: NRTL
	41: vertical							
	42: horizontal	2-8V 2-8H 2-14H **with gearbox:** 4-14H 6-14H 8-14H						
	43: vertical							
	48: horizontal	0-5V 0-8H 0-14H **with gearbox:** 1-8H 1-14H						
	49: vertical							

	B Key	Torque	Output shaft	C Rotation shaft/Housing			
	B1-B2	B1	B2	S	1	2	3
direct	1-5V	1: 0.8 Nm	5V: 5 mm solid shaft		-	-	-
direct	1-8H 1-14H	1: 0.8 Nm	8H: 8 mm hollow shaft 14H: 14 mm hollow shaft				
with gearbox	3-8H 3-14H	3: 3 Nm	8H: 8 mm hollow shaft 14H: 14 mm hollow shaft				
direct	2-8V	2: 2 Nm	8V: 8 mm solid shaft		-	-	-
direct	2-8H 2-14H	2: 2 Nm	8H: 8 mm hollow shaft 14H: 14 mm hollow shaft				
with gearbox	4-14H 6-14H 8-14H	4: 4 Nm 6: 6 Nm 8: 8 Nm	14H: 14 mm hollow shaft				
direct	0-5V	0: 0.25 Nm	5V: 5 mm solid shaft		-	-	-
direct	0-8H 0-14H	0: 0.25 Nm	8H: 8 mm hollow shaft 14H: 14 mm hollow shaft				
with gearbox	1-8H 1-14H	1: 1 Nm	8H: 8 mm hollow shaft 14H: 14 mm hollow shaft				

[1] others on request

[2] standard equipment: 3 plugs / sockets with IO-Link: 1 plug

[3] IP 65 installed (motor shaft IP 50)

[4] only for IO-Link devices

To place your order, please call us at
+49 7661 3963-0 or email us at
info@halstrup-walcher.com.
For additional contacts, please visit
www.halstrup-walcher.de/en/contact

PSD 40x/41x

IP 50

IP 65

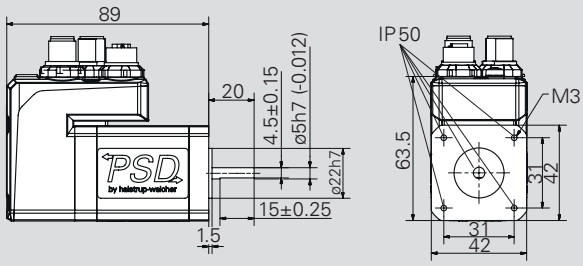
PSD 40x/41x	Nominal torque / Nominal rated speed [1]	Self-holding torque (energized)	Max. speed	Positioning range [2]
1-5V	0.8 Nm / 200 rpm	0.4 Nm	800 rpm	4026 rot.
1-8H	0.8 Nm / 200 rpm	0.4 Nm	500 rpm	4026 rot.
1-14H	0.8 Nm / 200 rpm	0.4 Nm	500 rpm	4026 rot.
3-8H	3 Nm / 50 rpm	1.5 Nm	250 rpm	986 rot.
3-14H	3 Nm / 50 rpm	1.5 Nm	250 rpm	986 rot.

[1] at nominal supply voltage
[2] not subject to mechanical limits

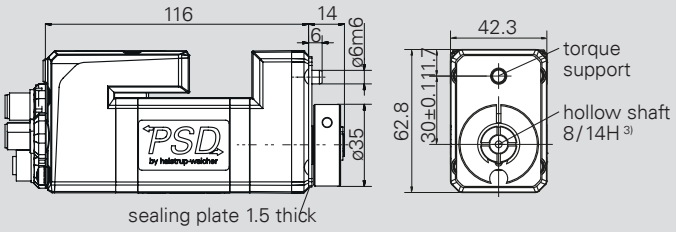
Supply voltage	24 V DC ± 10 % galvanically separated between motor and control
Nominal current	2.0 A
Power consumption (control unit)	0.1 A
Positioning accuracy	± 0.7° for 3 Nm ± 1.8° for 0.8 Nm
Absolute measurement system	magnetic, without reference run, without buffer battery
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms ± 3 shocks pos./neg. per axis
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..2000 Hz 50 m/s² (approx. 5 g) 10 frequency cycles
Output shaft	5 mm solid shaft with flattening or 8/14 mm hollow shaft [3] with torque support
Max. axial force	15 N, 20 N with attached housing
Max. radial force	40 N
Ambient temperature	0..40 °C
Storage temperature	-10..70 °C
Protection class	IP 50 or IP 65 [4]
Weight	max. 1.1 kg (0.8 kg without gearbox)
Certificates	CE/UKCA, opt.: NRTL

[3] see table next to the characteristic curve
[4] IP65 installed (motor shaft IP50)

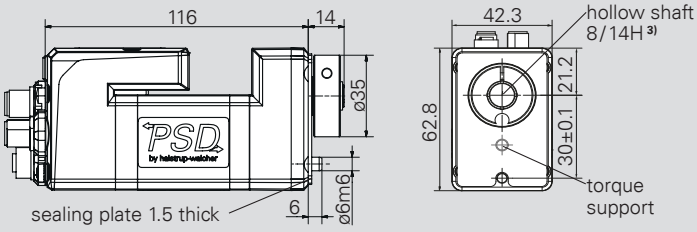
PSD 401-5V (solid shaft)

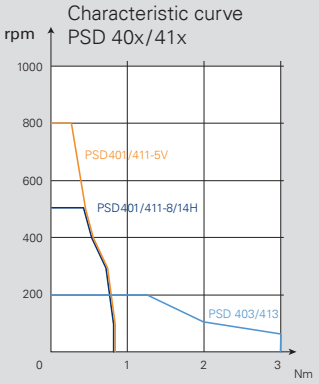


PSD 411-8/14H (hollow shaft, 0.8 Nm)



PSD 413-8/14H (hollow shaft, 3 Nm)





[3] Hollow shaft	ø8	ø14
Tolerance	H7	
Plug depth	20	
Cylinder screw	DIN 912 M4 x 16	

Dimensions in mm

Available: PROFINET | EtherNet/IP | EtherCAT | IO-Link | CANopen

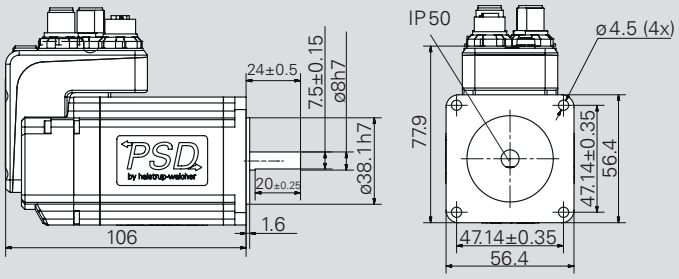
PSD 42x/43x

halstrup walcher

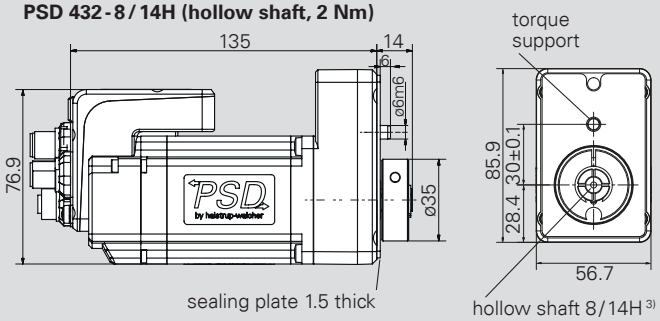
IP 50

IP 65

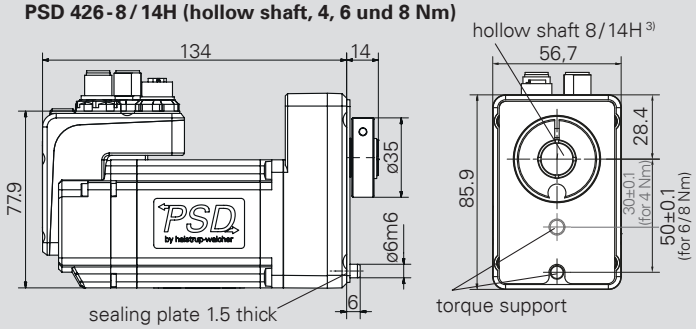
PSD 422-8V (solid shaft)



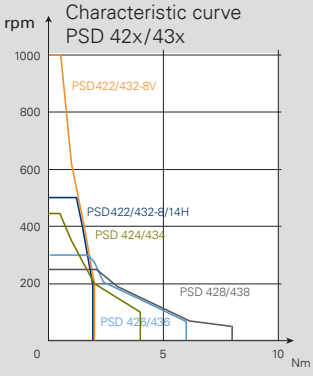
PSD 432-8/14H (hollow shaft, 2 Nm)



PSD 426-8/14H (hollow shaft, 4, 6 und 8 Nm)



Characteristic curve
PSD 42x/43x



3) Hollow shaft	ø8 5)	ø14
Tolerance	H7	
Plug depth	20	
Cylinder screw	DIN 912 M4 x 16	

5) only up to 5 Nm possible

Dimensions in mm

PSD 42x/43x	Nominal torque / Nominal rated speed 1)	Self-holding torque (energized)	Max. speed	Positioning range 2)
2-8V	2 Nm / 200 rpm	1 Nm	1000 rpm	4026 rot.
2-8H	2 Nm / 200 rpm	1 Nm	500 rpm	4026 rot.
2-14H	2 Nm / 200 rpm	1 Nm	500 rpm	4026 rot.
4-14H	4 Nm / 100 rpm	2 Nm	482 rpm	1938 rot.
6-14H	6 Nm / 63 rpm	3 Nm	317 rpm	1274 rot.
8-14H	8 Nm / 50 rpm	4 Nm	250 rpm	977 rot.

1) at nominal supply voltage
2) not subject to mechanical limits

Supply voltage	24 V DC ± 10 % galvanically separated between motor and control
Nominal current	4.0 A
Power consumption (control unit)	0.1 A
Positioning accuracy	± 0.7° for 6/8 Nm ± 0.8° for 4 Nm ± 1.8° for 2 Nm
Absolute measurement system	magnetic, without reference run, without buffer battery
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms ± 3 shocks pos./neg. per axis
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..2000 Hz 50 m/s² (approx. 5 g) 10 frequency cycles
Output shaft	8 mm solid shaft with flattening or 8/14 mm hollow shaft 3) with torque support
Max. axial force	30 N, 20 N with attached housing
Max. radial force	90 N, 40 N with attached housing
Ambient temperature	0..40 °C
Storage temperature	-10..70 °C
Protection class	IP 50 or IP 65 4)
Weight	max. 2 kg (1.5 kg without gearbox)
Certificates	CE/UKCA, opt.: NRTL

3) see table next to the characteristic curve
4) IP65 installed (motor shaft IP50)

Available: PROFINET | EtherNet/IP | EtherCAT | IO-Link | CANopen

PSD 48x/49x

IP 50

IP 65

48x 49x

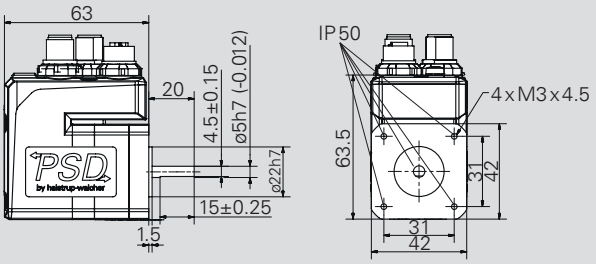
PSD 48x/49x	Nominal torque / Nominal rated speed [1]	Self-holding torque (energized)	Max. speed	Positioning range [2]
0-5V	0.25 Nm / 200 rpm	0.125 Nm	800 rpm	4026 rot.
0-8H	0.25 Nm / 200 rpm	0.125 Nm	500 rpm	4026 rot.
0-14H	0.25 Nm / 200 rpm	0.125 Nm	500 rpm	4026 rot.
1-8H	1 Nm / 50 rpm	0.5 Nm	250 rpm	986 rot.
1-14H	1 Nm / 50 rpm	0.5 Nm	250 rpm	986 rot.

[1] at nominal supply voltage
[2] not subject to mechanical limits

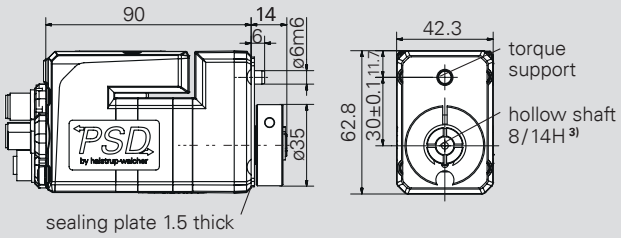
Supply voltage	24 V DC ± 10 % galvanically separated between motor and control
Nominal current	2.0 A
Power consumption (control unit)	0.1 A
Positioning accuracy	± 0.7 ° for 1 Nm ± 1.8 ° for 0.25 Nm
Absolute measurement system	magnetic, without reference run, without buffer battery
Shock resistance in accordance with IEC/DIN EN 60068-2-27	50 g 11 ms ± 3 shocks pos./neg. per axis
Vibration resistance in accordance with IEC/DIN EN 60068-2-6	10..2000 Hz 50 m/s² (approx. 5 g) 10 frequency cycles
Output shaft	5 mm solid shaft with flattening or 8/14 mm hollow shaft [3] with torque support
Max. axial force	15 N, 20 N with attached housing
Max. radial force	40 N
Ambient temperature	0..40 °C
Storage temperature	-10..70 °C
Protection class	IP 50 or IP 65 [4]
Weight	max. 0.85 kg (0.55 kg without gearbox)
Certificates	CE/UKCA, optional: NRTL

[3] see table next to the characteristic curve
[4] IP65 installed (motor shaft IP50)

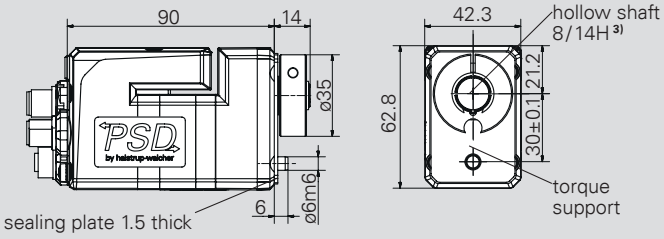
PSD 480-5V (solid shaft)

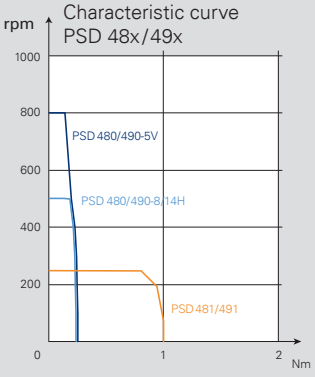


PSD 490-8H / -14H (hollow shaft, 0.25 Nm)



PSD 491-8H / -14H (hollow shaft, 1 Nm)





[3] Hollow shaft

	ø8	ø14
Tolerance	H7	
Plug depth	20	
Cylinder screw	DIN 912 M4 x 16	

Dimensions in mm

Available: PROFINET | EtherNet/IP | EtherCAT | IO-Link | CANopen

Accessories for our direct drives

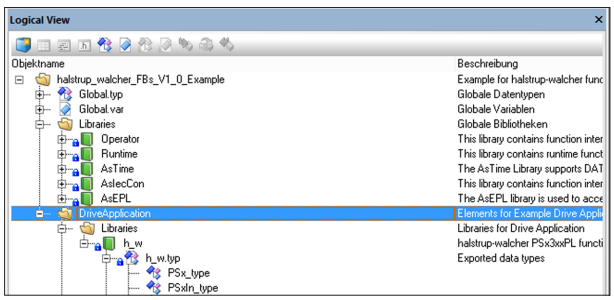
The connectors shown here can be used for all direct drives of the PSD 4 series.
We are happy to help you find the right accessories, please contact us directly.

<table>
<tr><th>Buscommunication</th><th>Power supply
(+ databus connector)
(for option 0) [1)]</th><th>Cable</th></tr>
<tr><td>CANopen</td><td> 
Connector set: Order no. 9601.0060</td><td rowspan="4">on request
 
  </td></tr>
<tr><td>EtherCAT</td><td rowspan="3"> 
Connector set: Order no. 9601.0112</td></tr>
<tr><td>PROFINET</td></tr>
<tr><td>EtherNet / IP</td></tr>
<tr><td>IO-Link</td><td> 
Connector: Order no. 9601.0107</td></tr>
</table>

[1)] see in order code under E

Software

Use our function blocks, description files or commissioning tools for the various industrial protocols. You can download the files under **www.halstrup-walcher.de/en/software**. To do this, enter your specific product in the drop-down menu that appears and select the Software tab in the tab view. After that, the software components are available to you.



ABOUT HALSTRUP-WALCHER

Other business areas

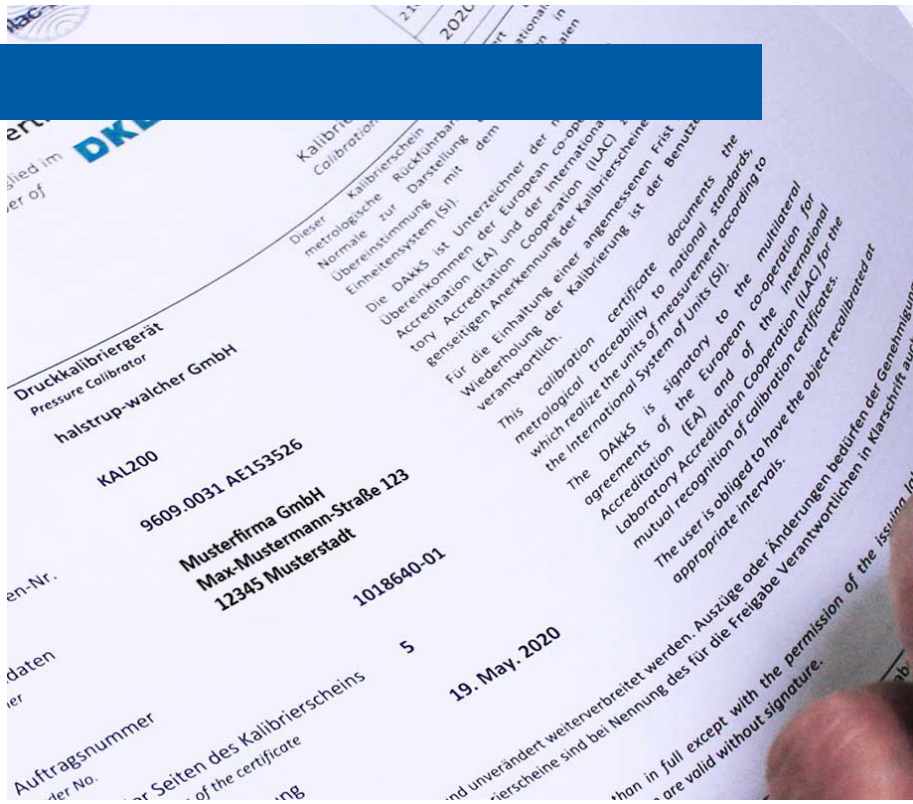
Measurement technology

You must regulate the pressure in the clean room to prevent contaminated air from entering. In the field of air conditioning technology, an air filter or fan has to be monitored. Or it is necessary to maintain an overpressure or underpressure in a machine. It is also necessary to test and calibrate measurement technology products on site. And all this with the highest precision and long-term stability, even in the low-pressure range. halstrup-walcher offers measuring devices for demanding tasks in the field of pressure measurement technology: pressure transmitters, calibration devices and digital pressure gauges suitable for stationary or mobile use.

Services

Development projects
You have an application in which you would like to use measurement technology or mechatronic drives, but cannot find a suitable product? halstrup-walcher develops the solution you need and also supplies small quantities in series quality.

Calibrations
Do you need a DKD R-6-1 or ISO guideline to ensure that your measuring instruments are reliable?
halstrup-walcher operates a DAkkS accredited calibration laboratory for the measurand pressure and issues calibration certificates for pressure measuring instruments.



What we care about

Focus on the customer and optimal internal processes

As a family-run business, we place a high value on trust and long-term cooperations with our partners. In doing so, it is important to us to develop optimal solutions together with the customer and to be lean internally. We have been living lean management since 2009 and are constantly developing to avoid any waste. In this way, we create optimal economic, technical solutions with maximum customer focus.

We stand for precision, innovation, team spirit and adherence to deadlines. The award of silver in the internationally recognized ecovadis sustainability rating shows that the environment and sustainability are just as important to us as the economic sccess.

75

With over 75 years of experience in drive and measurement technology, we offer a wealth of knowledge.

As a family business, we value proximity to our customers. With more than 200 employees, we therefore strive for optimal customer solutions and focus on reliable and long-lasting partnerships.

>200

10%

Innovative and customized products are very important to us. Therefore, about 10% of our workforce works in development and construction.

SILVER 2022 ecovadis Sustainability Rating

Quality management

To provide highest product and service quality, we use different methods to continuously improve our processes. Such as:

- Risk management
- Lean management and
- 8-D reports / NCR (non-compliance-reports)

Made in Germany

The entire development, production and assembly takes place in Germany. The company headquarters in Kirchzarten near Freiburg is positioned for the future and anchored in the region. Due to the domestic production, you as a customer benefit from fast communication, short decision-making processes and the highest quality standards.

used in more than 45 countries

halstrup-walcher GmbH
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Germany

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info@halstrup-walcher.de
www.halstrup-walcher.com

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