

## PSD 4xx positioning system



The PSD 4xx positioning system is an integrated drive for the accurate adjustment of auxiliary and positioning axes. The drive makes it possible to perform reproducible and simultaneous adjustments at all the required positions.

The PSD 4xx positioning system converts a digital positioning signal into a rotational angle.

The integrated absolute measuring system eliminates the need for time-consuming reference runs. A bus system connection simplifies the wiring. A hollow shaft with adjustable collar makes assembly quite simple.

The positioning system is especially suitable for automatically setting tools, stops or spindles for wood-processing equipment, packing lines, printing equipment, filling units and other types of special machines. The devices require no maintenance.

### Models

The PSD 4xx positioning drive is available in a variety of models:

- Torque (options): 0.25 .. 8 Nm
- Bus interface (options):
  - o CA: CANopen
  - o IO: IO-Link
  - o PN: PROFINET
  - o EC: EtherCAT
  - o EI: EtherNet/IP
  - o Others on request
- Protection class:
  - o Standard: IP 50
  - o Optional: IP 65
- Solid circular shaft (flattened), 5 mm or 8 mm
- Optional: Hollow shaft, 8 mm or 14 mm (with gear reducer)
- Optional: Gearbox kit for increased torque requirements with 8 mm or 14 mm hollow shaft
- Selectable connector orientation (horizontal or vertical with regard to the output axis)

### Adjusting settings

The drive has bus-dependent setting options:

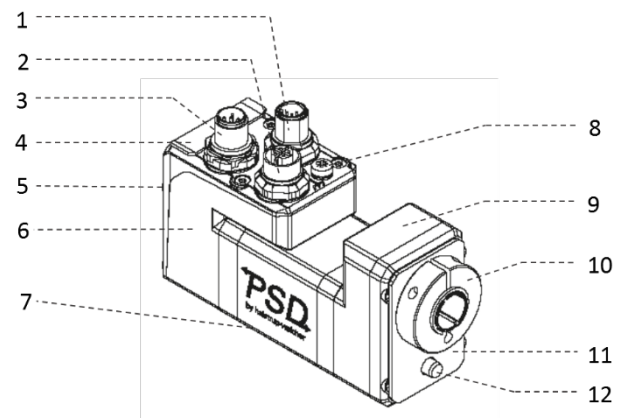
- Assignment of device address
- Setting the baud rate
- Switching the terminating resistor



For more information about these functions and their settings, please refer to the detailed instruction manual at:

[www.halstrup-walcher.de/technicaldocu](http://www.halstrup-walcher.de/technicaldocu)

Please search for "PSD", select your type, click on "Instruction manuals" and download the file.

### Operating elements for drives with hollow shaft



- 1 M12 male connector for power supply (A-coded)  
(for devices with IO-Link also for communication)
- 2 M12 connector for bus (not for IO-Link)  
CA: M12 female connector (B-coded)  
EC/PN/EI: M12 female connector (D-coded)
- 3 M12 connector for bus (not for IO-Link)  
CA: M12 male connector (B-coded)  
EC/PN/EI: M12 female connector (D-coded)
- 4 Sealing plug: device controls (not for IO-Link) and status elements
- 5 Connection diagram: on the adjoining side of the connectors (not for devices with IO-Link)
- 6 Housing section with power and control electronics
- 7 Type label
- 8 Grounding screw
- 9 **Gearbox with hollow shaft**  
  
Illustration exemplary, Models: see order code
- Attachment housing with hollow shaft**  
  
Illustration exemplary, Models: see order code
- 10 Hollow shaft, 8 mm or 14 mm, with adjustable collar and allen screw (M4 x 16 DIN 912) for spindle mounting
- 11 Damping plate: to offset lash in the spindle
- 12 Torque support: mechanical fixation to prevent the drive from twisting

**Operating elements for drives with solid circular shaft**

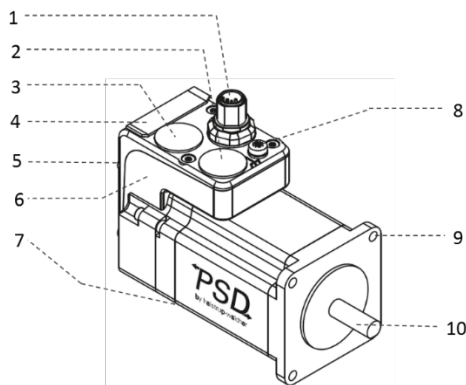


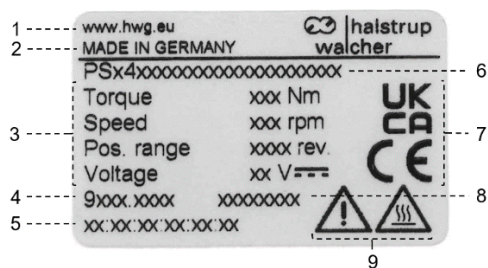
Illustration exemplary, here: PSD422-8V

- 1 M12 male connector (A-coded)  
(for device with IO-Link for bus and power supply)
- 2 M12 connector for bus (not for IO-Link)  
CA: M12 female connector (B-coded)  
EC/PN/EI: M12 female connector (D-coded)
- 3 M12 connector for bus (not for IO-Link)  
CA: M12 male connector (B-coded)  
EC/PN/EI: M12 female connector (D-coded)
- 4 Sealing plug: device controls (not for IO-Link) and status elements
- 5 Connection diagram: on the adjoining side of the connectors (not for IO-Link)
- 6 Housing section with power and control electronics
- 7 Type label
- 8 Ground screw
- 9 Flange holes
- 10 Solid circular shaft (flattened)

You can find the dimensions of your PSD4xx in the current data sheet on the website: [www.halstrup-walcher.de/technicaldocu](http://www.halstrup-walcher.de/technicaldocu)

Please search for "PSD", select your type, click on "Data sheets" and download the file.

**Type label**



- 1 Manufacturer and website
- 2 Country of manufacture
- 3 Technical data
- 4 Article number (specific)
- 5 MAC-address (only for devices with IE buses)
- 6 Order key
- 7 CE + UKCA conformity symbols
- 8 Serial number

9 Warning symbols:

- observe installation and operating instructions
- let the direct drive cool down sufficiently before touching

**Safety precautions**

This assembly instruction is part of the product. Please read this manual carefully, follow our instructions, and pay special attention to the safety information provided. The manual should be available at all times. Please contact the manufacturer if you do not understand any part of the instructions.

The drive has been designed and tested to ensure its safety. However, it may still be dangerous if used inappropriately and with faulty operation. Always observe the operating requirements – particularly the permissible supply voltage – indicated on the type label and the data sheet.

The person responsible for the electrical connections must be notified immediately if the drive is damaged. In the event of a fault, please refer to the detailed instruction manual at: [www.halstrup-walcher.de/technicaldocu](http://www.halstrup-walcher.de/technicaldocu).

- WARNING**  
Risk of injury if used inappropriately. The device must be installed by trained technical personnel.
- WARNING**  
Risk of burns due to hot drive. The drive can become very hot during operation. Allow the drive to cool before touching it.
- WARNING**  
Risk of crushing due to rotary movement. Do not reach into the working area of the drive when it is still turning. The user/operator must ensure appropriate protective measures are taken.
- WARNING**  
Incorrect installation can lead to the destruction of the drive.
- WARNING**  
Check that the supply lines are not pinched or crushed. They must not touch the housing of the drive or should be designed for the corresponding heat. Lay the supply lines according to the general and specific local installation regulations. If the supply lines have not been delivered together with the device, please select suitable cables for the application. Do not operate the positioning unit if the supply lines are noticeably damaged.
- WARNING**  
Risk of injury. High contact voltages can occur in the case of malfunctions. This can be prevented by grounding.
- WARNING**  
The drive must only be installed and wired when it is disconnected from the power supply.

## Storage and transportation of devices

The PSD 4xx positioning drive should always be stored and transported to the place of installation in its original packaging.

## Maintenance, cleaning and repair of devices

The drive requires no maintenance. The drive may only be cleaned from the outside with a damp cloth.

Repairs should only be carried out by the manufacturer.

## Installing the device

Depending on the model, the device can be installed on the machine using a hollow or solid circular shaft.



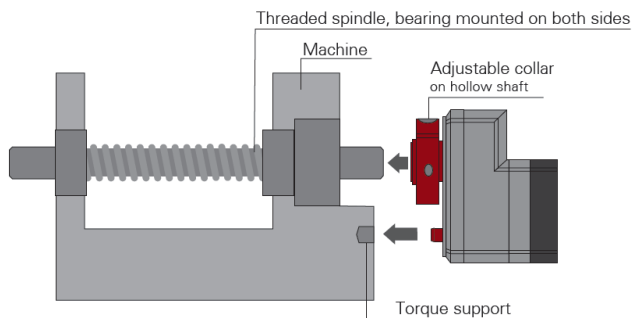
**ATTENTION:** Never apply force to the housing of the drive, e. g. for supporting weight.

### Installing a drive with hollow shaft

How to mount the drive on a shaft.

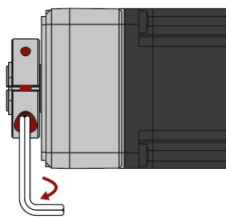
Tools required: 3 mm allen key.

**Example:**



#### Instructions:

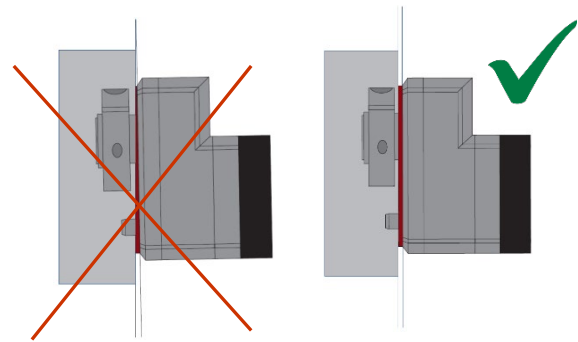
1. Slide the drive onto the shaft to be driven.
2. Guide the torque support into the hole provided by the planner.
3. Slide the drive towards the machine base until the damping plate is pressed together to approx. the half thickness.
4. Now tighten the adjustable collar screw with 4 Nm.



The drive is now installed.



**Note:** Ensure that the drive and machine base are as parallel to each other as possible.



INCORRECT ☹️

CORRECT 😊



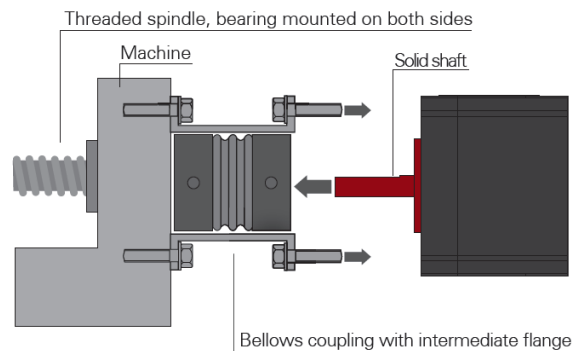
**ATTENTION:** Under no circumstances must the drive be bolted on "hard" without an air gap between it and the machine. The damping plate is used for tolerance compensation.

### Installing a drive with solid circular shaft

The drive is installed on the axle to be driven using a coupling and an intermediate flange.

Install the drive according to the coupling manufacturer's specifications.

**Example:**



The dimensions of your device can be found in the current data sheet on the website: [www.halstrup-walcher.de/technicaldocu](http://www.halstrup-walcher.de/technicaldocu)

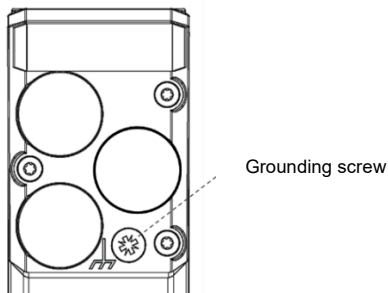
Please search for "PSD", select your type, click on "Data sheets" and download the file.

### Grounding the drive

**!** **Note:** The positioning system should be connected to the machine base using the shortest possible cable. The minimum wire cross-section of the grounding cable is 1.5 mm<sup>2</sup>.

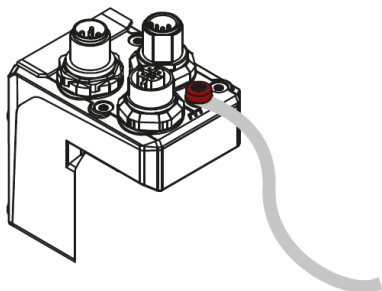
To ground the drive:

Next to the connectors, there is a screw for mounting the grounding cable.



#### Instructions:

1. Open the screw next to the connection plug(s).
2. Attach the specified cable.
3. Fasten the grounding cable to the drive with the screw.



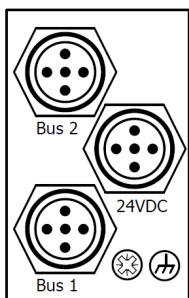
4. Fasten the other end of the grounding cable to the position provided on the machine base.

### Electrical connections for the drive

To connect the drive electrically:

**!** **Note:** Please refer to the connection diagram on the housing cover.

#### Example:



**!** **Note:** To ensure the correct tightening torque, the M12 plugs and sockets must be tightened via their knurls in accordance with the plug manufacturer's specifications. The recommended torque is 0.4 to 0.6 Nm.

Information on the connection and pin assignment for your drive can be found at: [www.halstrup-walcher.de/technicaldocu](http://www.halstrup-walcher.de/technicaldocu)

Please search for "PSD", select your type, click on "Instruction manuals" and download the files appropriate to your bus communication interface, file name: Connector and pin assignments.

### Run drive in reverse

Depending on the model, the drive may be run in reverse up to a certain speed.



**ATTENTION:** Running a PSD 4xx in reverse for more than 1-2 seconds at more than the permissible speed will damage the internal protection diode and the PSD 4xx will be defective.

Please refer to the following table to find the maximum permissible speed [rpm]:

PSD 401/411 - 5V/ 8H/14H	PSD 403/413- - 8H/14H	PSD 422/432 - 8V/ 8H/14H	PSD 424/434 - 14H	PSD 426/436 - 14H
200	48	200	95	60

PSD 428/438 - 14H	PSD 480/490 - 5V/ 8H/14H	PSD 481/491 - 8H/14H
45	200	48

### Dismantling the drive

How to dismantle the drive with hollow shaft and adjustable collar.



**Note:** When dismantling models with a solid circular shaft, please follow the coupling manufacturer's instructions.

#### Instructions:

1. Disconnect all electrical connections.
2. Undo the adjustable collar screw(s).
3. Remove the drive from the shaft.



**Note:** Ensure the drive is pulled off the shaft in the axial direction. Excessive bending can damage the output shaft.

**Declaration of Incorporation EU**



Die Lösung liegt im Detail

**Declaration of Incorporation  
halstrup-walcher GmbH  
Stegener Str. 10, 79199 Kirchzarten, Deutschland**

Description and identification of the partly completed machinery:

**Positioning systems PSD 4 series**

The following essential requirements of EC Machinery Directive 2006/42/EC have been applied and fulfilled:

- 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.5.13, 1.7.1

The relevant technical documentation has been compiled in accordance with Annex VII, Part B of EC Machinery Directive 2006/42/EC. We undertake, in response to a reasoned request, to supply it *in electronic form* to the market surveillance authorities within a reasonable period.

The party authorised to compile the technical documentation is:

Mr Christian Sura  
halstrup-walcher GmbH  
Stegener Str. 10  
79199 Kirchzarten  
Deutschland

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive.

A handwritten signature in blue ink, appearing to read 'C. Sura', written over a horizontal line.

Christian Sura, Managing Director

Kirchzarten, 23 September 2019

**Declaration of Conformity CE**



**EU-Konformitätserklärung  
EU Declaration of Conformity**

**Company** halstrup-walcher GmbH, Stegener Str. 10, 79199 Kirchzarten  
erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt  
declares as manufacturer under sole responsibility, that the product

**Product** Direktantriebe Familie PSD4xx  
Direct Drives Family PSD4xx

**Regulations** den folgenden Europäischen Richtlinien entspricht:  
conforms to following European Directives:

EMC 2014/30/EU  
RoHS 2011/65/EU

**Standards** angewandte harmonisierte Normen:  
applied harmonized standards:

EN IEC 61800-3:2018  
EN IEC 63000:2018

**Certification** EU Konformitätserklärung ausgestellt von  
EC Type Examination Certificate issued by

Geschäftsführer

Managing Director

Kirchzarten, 23. Jun. 2021

halstrup-walcher GmbH  
Stegerer Straße 10  
79199 Kirchzarten

Telefon: +49 (0) 7661 3963-0  
Fax: +49 (0) 7661 3963-99  
E-Mail: info@halstrup-walcher.de

Geschäftsführer: Jürgen Walcher, Christian Sura  
Handelsregister B Amtsgericht Freiburg HRB 2209  
Umsatzsteuer-ID-Nr. DE 811169901

**Declaration of Incorporation UK**

— Original —



**Declaration of Incorporation**  
**halstrup-walcher GmbH**  
**Stegener Str. 10, 79199 Kirchzarten, Germany**

Description and identification of the incomplete machine:

**Positioning System Direct Drive Models PSD4xx / PSC4xx**

The following basic requirements of *The Supply of Machinery (Safety) Regulations 2008, 2008 No. 1597*, have been applied and are fulfilled:

- 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.5.13, 1.7.1

The relevant technical documentation has been generated according Part 7, Annex VII, Section B. of regulation 2008 No. 1597. We commit ourselves to transmit this documentation electronically to the responsible authorities on founded demand in reasonable time.

For the compilation of the technical documentation is authorized:

Mr Gary Kitchin  
Managing Director  
HMK Automation & Drives  
Kappa House  
Hatter Street  
Congleton  
Cheshire. CW12 1QJ  
United Kingdom

The incomplete machine must not be set in operation unless assessment that the complete machine where this incomplete machine is incorporated, complies to the (safety) regulations 2008 No. 1597, where applicable.

Christian Sura, managing director, halstrup-walcher GmbH

Kirchzarten, 24. Nov. 2021

**Declaration of Conformity UKCA**



**UK Declaration of Conformity**

**Company** halstrup-walcher GmbH, Stegener Str. 10, 79199 Kirchzarten, Germany  
declares as manufacturer under sole responsibility, that the product

**Product** Positioning System Direct Drive Models PSD4xx / PSC4xx

**Regulations** is in conformity with relevant statutory requirements:

EMC Electromagnetic Compatibility Regulations 2016 No. 1091  
RoHS RoHS Regulations 2012 No. 3032

**Standards** applied standards:

EN 55011:2016+A1:2017; EN 61000-6-2:2005; EN 61800-3:2004/ A1:2012  
EN IEC 63000:2018

**Declaration** signed for and on behalf of

Geschäftsführer

Managing Director

Kirchzarten, 24. Nov. 2021

halstrup-walcher GmbH  
Stegener Straße 10  
79199 Kirchzarten

Telefon: +49 (0) 7661 3963-0  
Fax: +49 (0) 7661 3963-99  
E-Mail: info@halstrup-walcher.de

Geschäftsführer: Jürgen Walcher, Christian Sura  
Handelsregister Amtsgericht Freiburg HRB 2209  
Umsatzsteuer-ID-Nr. DE 811169901