



Assembly and Operating Manual

SVH

Servo-electric 5-Finger Gripping Hand

Translation of Original Operating
Manual

Hand in hand for tomorrow

Imprint

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

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Please read the operating manual in full and keep it close to the product.

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1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

In addition to these instructions, the documents listed under ▶ 1.1.5 [6] are applicable.

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.



⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.



⚠ WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.



⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

CAUTION

Material damage!

Information about avoiding material damage.

1.1.2 Symbol definition

The following symbols are used in this manual:

- Prerequisite for an action

1. Action 1

2. Action 2

⇒ Intermediate results

⇒ Final results

▶ 1.1.2 [📄 6]: chapter number and [page number] in hyperlinks

1.1.3 Definition of Terms

The term "product" replaces the product name on the title page in this manual.

1.1.4 Variants

This operating manual applies to the following variations:

- SVH right
- SVH left

1.1.5 Applicable documents

- General terms of business see [schunk.com/downloads](https://www.schunk.com/downloads)
- SVH_Prococol_Specification see http://wiki.ros.org/schunk_svh_driver?action=AttachFile&do=get&target=svh_protocol_specification.pdf
- For information on ROS (Robot Operating System) drivers, see
 - ROS 1: https://github.com/fzi-forschungszentrum-informatik/schunk_svh_ros_driver
 - ROS 2: https://github.com/fzi-forschungszentrum-informatik/schunk_svh_ros_driver/tree/ros2-foxy
- For information on commissioning the product with Raspberry Pi, see https://github.com/fzi-forschungszentrum-informatik/schunk_svh_ros_driver/blob/main/doc/raspberry_pi.md : github.com

1.2 Warranty

If the product is used as intended, the warranty is valid for 12 months from the ex-works delivery date under the following conditions:

- Observe the specified maintenance intervals, ▶ 8 [📄 27]
- Observe the ambient conditions and operating conditions, ▶ 2.3 [📄 9]

Parts touching the workpiece and wear parts are not included in the warranty.

After the warranty period has expired, SCHUNK can no longer guarantee safety features without first performing a maintenance service.

1.3 Scope of delivery

The scope of delivery includes

- Servo-electric 5-Finger Gripping Hand SVH in the version ordered
- Translation of operating manual
- Zarges boxes (packaging material)

The appropriate software can be downloaded from [schunk.com/downloads-software/](https://www.schunk.com/downloads-software/).

1.4 Accessories

The following accessories are available for this product:

- Flat change head FWK 115

2 Basic safety notes

2.1 Intended use

The product features a multi-functional design intended for gripping objects ranging from 1–850 g.

It is important to ensure that no fragile, sharp or sharp-edged objects, or objects with an edge length of over 50 cm are handled.

- Gripping objects of a higher weight is only permitted after consultation with the manufacturer.
- The product is intended for installation in a machine. The requirements of the applicable guidelines and standards must be observed and complied with. If applicable, it may be required to provide proof of safety for the machine to be used. The safety features of this product were established/certified only for use as described in this operating manual.

The safety-related information contained in the "Electrical equipment of machines" standard (DIN EN 60204) must be observed. Commissioning is only permitted in compliance with EMC directives (2014/30/EU) and the Electromagnetic Compatibility Regulations 2016.

- The product may only be used within the scope of its technical data, ▶ 3 [15].
- The product is intended for industrial and industry-oriented use.
- For appropriate use of this unit, it is essential to observe the technical data and assembly and operation notes in this manual and to comply with the maintenance intervals.

2.2 Consequences of inappropriate use

The safety of the product cannot be guaranteed in the event of inappropriate use (i.e. actions carried out in a manner that is not compliant with this operating manual). It is possible for the safety of this product to be permanently impaired/damaged as the result of one single inappropriate use.

Examples of inappropriate use include the product being used as a press tool, being overloaded, or being used in an environment that is not low-dust/dry.

2.3 Ambient conditions and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [15].
- Make sure that the product is a sufficient size for the application.
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

2.4 Product safety

The product can pose hazards, for example, if:

- the product is not used as intended.
- the product is not installed or maintained properly.
- the maintenance or assembly instructions are not observed.

Avoid any manner of working that may interfere with the function and operational safety of the product.

Wear protective equipment.

NOTE

You can find more detailed information in the corresponding chapters.

NOTE

The availability of the safety functions is ensured only after a full system start.

2.4.1 Protective equipment

Provide protective equipment per EC Machinery Directive.

2.4.2 Structural changes, attachments and modifications

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- Structural changes should only be made with the written approval of SCHUNK.

2.5 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician

Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.

Qualified personnel

Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.

Instructed person

Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.

Service personnel of the manufacturer

Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.6 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.7 Notes on particular risks

Generally valid:

- Remove the energy supplies before installation, modification, maintenance, or adjustment work.
- Make sure that no residual energy remains in the system.
- Do not move parts by hand when the energy supply is connected.
- Do not reach into the open mechanism or the movement area of the unit.
- Perform maintenance, modifications, and additions outside the danger zone.
- Secure the product during all operations against uncontrolled activation.
- Take a precautionary approach by maintenance and disassembly.
- Only specially trained staff should disassemble the product.
- Ensure that the operating personnel are fit for use.



⚠ WARNING

Risk of injury from unexpected movements of the machine/ system!



⚠ WARNING

Risk of injury due to hot surfaces.

In high ambient temperatures, it is possible for the product to be exposed to excessive heat, causing the surfaces to become hot.

- Wear protective gloves.
- Allow the product to cool to at least 40°C before touching it.



⚠ WARNING

Risk of injury due to sudden movements in case of EMC malfunctions!

If the EMC directive is not observed when connecting the product, malfunctions in the control units and drives can cause unexpected machine movements.

- Observe the EMC directive when connecting the product.



⚠ WARNING

In case of overload, risk of injury due to sudden movements!

If the product is overloaded, the integrated brake will no longer function properly. This may result in sudden machine movements.

- Operate the product within the specifications defined at all times.



⚠ WARNING

In case of product malfunction, risk of injury due to sudden movements!

Electrical devices are not generally protected against failure.

- Therefore, the user is responsible for ensuring that the machine is brought into a safe state in case of product malfunction.



⚠ WARNING

Risk of injury due to sudden movements in case of electrical malfunctions!

Electrical malfunctions can lead to sudden movements in the machine.

- During transport and handling, do not bend any of the components or change the insulation clearance.
- To avoid damage due to electrostatic charges, do not touch the electrical components.
- Properly execute all grounding, fastening and cabling work in accordance with applicable regulations.

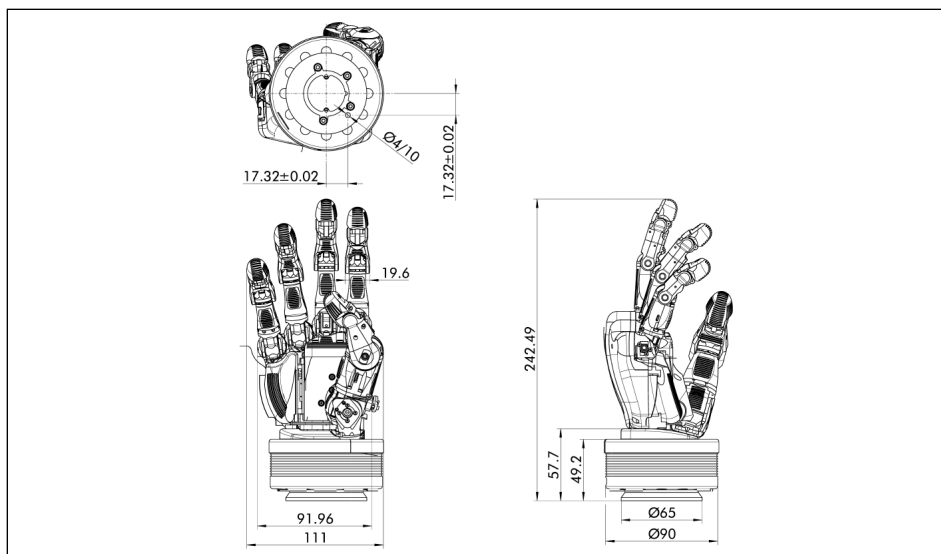
2.8 Notes for integrators

- The integrator must verify that the safety-related parts of the control units meet PL "d" with category 3 structure, as long as a different classification has not emerged from the risk analysis performed by the integrator.
- If the product is used on a robot with removable devices and collaborative operation (e.g. wireless emergency stop), the requirements for this must be verified by the integrator.

- The integrator must verify that the static and dynamic forces that are produced jointly by the load and the end effectors are within the robot's load bearing capacity and dynamic performance levels.
- The settings for commissioning the robot must be specified/ factored in by the integrator.
- The trade association requirements for hazard and injury prevention in workplaces using collaborative robots must be factored in and verified by the integrator.
- The trade association requirements for the medical fitness and professional qualifications of operating personnel for collaborative robots must be considered and verified by the integrator.
- The HRC robot is to be checked for correct installation after any dangerous collisions. Dangerous collisions means those that are not covered under normal conditions of use (e.g. if the user actively collides with or presses against the product contrary to the instructions for use)
- The integrator must equip the HRC robot system with a category 0 emergency stop pursuant to IEC 60204 -1, which also disables the product.

3 Technical data

3.1 Outer dimensions



Dimensions

The right and left hands are laterally inverted. The dimensions are identical.

3.2 Basic data

Designation	SVH	
	Right	Left
Overall length [mm]	242.5	
Hand width [mm]	92	
Max. finger width [mm]	19.6	
Weight [kg]	1.3	
IP rating	20	
Min. ambient temperature [°C]	10	
Max. ambient temperature [°C]	40	
Noise emission [dB(A)]	<60	
Number of joints	20	

3.3 Electrical operating data

Designation	SVH
Power supply	24 V DC $\pm 5\%$
Max. current input	3.5 A
Sensor system	–
Interfaces	<ul style="list-style-type: none">• FWA115 flat change system• RS 485

3.4 Name plate

The name plate is placed in the interior on the heat sink.

4 Design and description

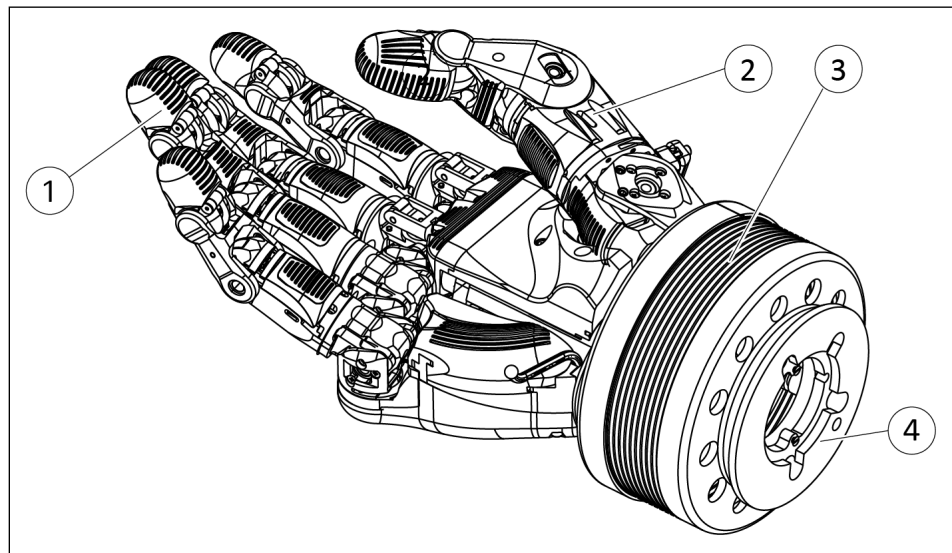
The 5-finger gripping hand SVH is a servo-electric gripping module with integrated control and regulation electronics that is largely a recreation of the human hand.

The product is designed to be attached to a standard LWA 4P or LWA 4D lightweight arm.

The defined mechanical and electrical interface also makes it possible to attach it to other commercially available industrial and lightweight robots.

The product must always be operated within its technical specifications, ▶ 3 [15].

Two designs are available, corresponding to the right and left human hands. The dimensions and operating data are identical for both designs.



Overall view of the 5-finger gripping hand SVH

1	fingers	3	Wrist
2	Thumbs	4	Flat change system

The product is suitable for mobile applications due to its design and low power consumption, including with an accumulator power supply.

Possible movements include:

- Bending and extending the fingers
- Spreading out the hand
- Pivoting and bending the thumb

A slip-resistant, elastic gripping surface on the fingers and thumbs allow objects to be gripped securely.

A total of nine drive motors control the movements of the fingers and thumb.

The control and power electronics are integrated into the wrist. Attaching it to a lightweight arm or to another application is possible via the SCHUNK flat change system.

Power supply and control cables are connected with spring contacts via the flat change system's adapter boards.

The product can operate on an assembly board or on another piece of equipment (connection via the FWK115-ISO flat change system), ▶ 5 [📄 19]. The flat change system is available as an accessory from SCHUNK.

5 Assembly and installation



⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.

CAUTION

Risk of damage when using screws that are too long!

- Observe the maximum depth of engagement permitted for the mounting screws.

CAUTION

Risk of damage when using unsuitable connecting elements!

- SCHUNK recommends using SCHUNK connecting elements.

CAUTION

Risk of operational malfunction due to torn or pinched lines!

If electrical lines are too short or installed incorrectly, they may become pinched or torn by the movement of the module.

- Factor in operating movements when connecting the module.

CAUTION

Risk of operational malfunction due to short circuit or incorrect connections!

- Before connecting, ensure that the electrical lines are deenergized.
- Be sure to distribute the clamps correctly.

CAUTION

Permanent damage to the electronics possible!

- If the power supply is separated, carry out potential equalization between the two supply voltages (join the grounds).
- Only the positive pole may be switched off; the GND motor cable must always remain connected.

NOTE

A power supply unit must be used that is capable of supplying sufficient power for the product. Make sure the dimensions of the cable cross-section are sufficient when installing the cables.

5.1 Mounting to a robot or moving unit



⚠ CAUTION

Risk of injury due to the workpiece falling!

In the event of a power failure or incorrect gripping process, the gripped workpiece may fall.

- Ensure that the gripping process is performed correctly with a suitable gripping force.
- Keep distance.
- Wear safety boots.



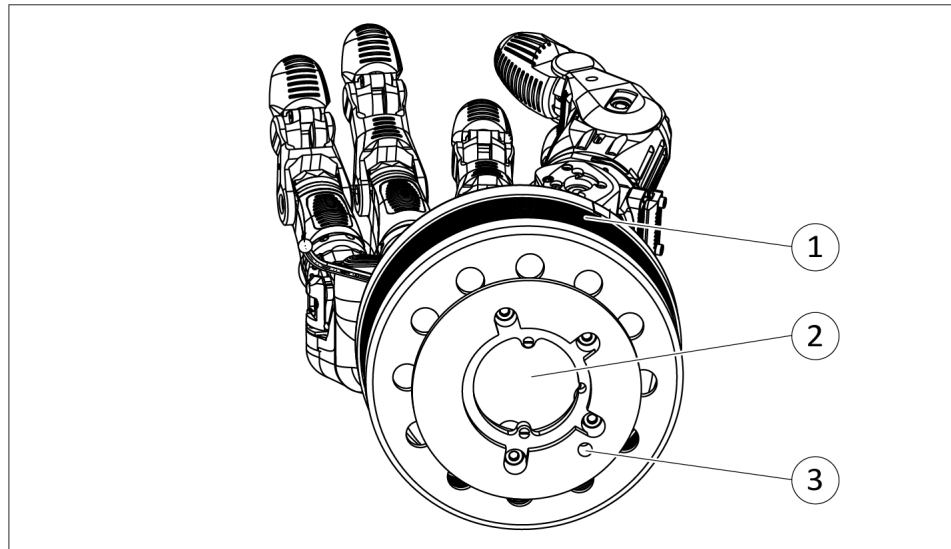
⚠ CAUTION

Risk of injury if the product is torn from the robot arm or moving unit!

If the mounting process has not been performed properly, the product may come loose from the robot arm.

- Mount the flat change system properly.
- Tighten the lateral cylindrical screw to the clamping ring with a spanner wrench.

Connections on the product

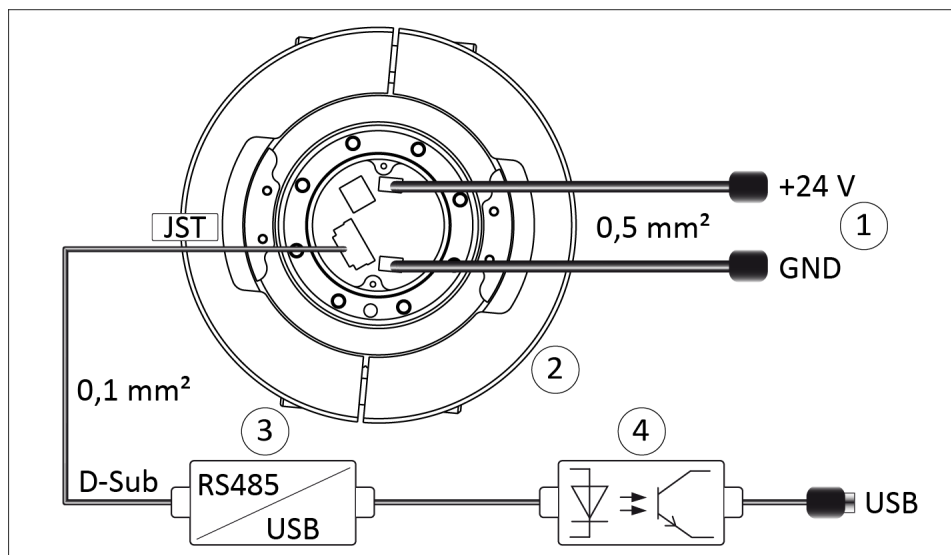


Connection to the 5-finger gripping hand SVH

1	Flange with seal for mechanical mounting	3	Bore hole for centering pin
2	Adapter board		

Flat change system

Using the flat change system, the product can be mounted on an external robot arm.



Connection to the flat change system

1	Supply voltage 24 VDC on soldering surfaces	3	RS485/USB interface converter ("Brainbox")
2	Flat change system	4	USB isolator
JST	JST plug connector		

The FWK115-ISO flat change system is comprised of the following components:

- Clamping ring
- Flange
- Adapter board

- Centering pin
- Seal
- Screws

NOTE

M3 mounting screw and O-ring are attached to the flat change system.

Assembly

Recommended tool: hexagon socket wrench, size 5

Mount the FWK115-ISO flat change system on the external robot arm and gripping hand as follows:

- Ensure that the interface is de-energized.
1. Align the flange of the flat change system over the centering pin and place it on the centering pin.
 2. Fasten the flange with 6 M3 screws.
 3. Place the wrist of the gripping hand in the flat changing system so that the centering pin aligns with the bore hole.
 4. Tighten the clamping screws on the clamping ring.
 5. Secure the clamping ring with the lateral cylindrical screw.

**⚠ WARNING****Risk of injury due to incorrect electrical connection!**

If the electrical connection is not performed properly, a malfunction or short circuit may occur.

- The operator is responsible for executing the electrical connection correctly.
 - Provide galvanic isolation of the USB signal (USB isolator).
 - Ventilate the room adequately in case of a short circuit.
-

Electrical connection

Electrical connection is made at the adapter board of the FWK115-ISO flat change system.

1. Solder on the marked area of the soldering surfaces on the input side of the 24 V DC and GND power supply lines.
2. Plug the JST connector of the signal lines in the JST adapter board socket.
3. Connect the JST connector to the D-Sub connection of the RS485/USB interface converter ("Brainbox").

Tab.: Pin allocation for D-Sub to JST plug connection

D-Sub pin	Wire color	Recommended cable cross-section [mm ²]	JST pin
1	White	0.1	4
2	Green	0.1	3
6	Brown	0.1	2
7	Yellow	0.1	1

Tab.: Soldering surfaces

Designation	Assignment	Recommended cable cross-section [mm ²]	Recommended wire color
+UM	+24 VDC supply	0.5	Red
-UM	GND supply	0.5	Black

NOTE

The clamps and the two-pronged sockets on the adapter board are not used.

5.2 System requirements for commissioning

- Electrical connection to the RS485/USB interface converter ("Brainbox") and USB isolator
- USB cable between the USB isolator and PC
- PC (laptop, etc.)
- Control software

NOTE

To control the product, drivers are available online for **ROS1** and **ROS2** as well as a **Quick Start Guide for Raspberry PI**.

Commissioning is dependent on the control software installed. The operator is responsible for adhering to the technical specifications of the product, see ▶ 3 [15].

6 Operation

During operation, the following considerations generally apply:

- If the product is mounted on an external device (e.g. external robot arm), the operator is responsible for ensuring the operational safety of this equipment.
- The fingers (excluding the thumb) can be carefully moved manually in the event of a failure of the power supply. This will not damage the drive. The thumb drives are self-locking in a de-energized state and cannot be manually moved.
- It is possible for the fingers to collide if controlled accordingly. Collisions will not cause damage, but the movement will be interrupted.

The following information applies to the development of your own programs to control the product.

Note: English is the standard language in the field of software development. For this reason, English-language terms have been used in the following:

6.1 Homing

Homing is required after each startup of the SVH due to the relative angle measurement of the joints.

For homing, SCHUNK recommends using a software end stop just before the mechanical end stop.

The table below contains the following values:

- direction of homing
- recommended software end stop
- total steps of each movement
- recommended power limit
- recommended movement speed

JOINT	HOMING DIRECTION	DISTANCE FROM HARD STOP [°]	RANGE OF MOVEMENT [°]	HOMING CURRENT [mA]	HOMING SPEED
THUMB FLEXION	Stretch	5,000	170,000	50	100 rpm
THUMB OPPOSITION	Stretch	5,000	56,000	100	100 rpm
SPREAD	Close	2,000	25,000	500	100 rpm
INDEX FINGER PROXI	Stretch	2,000	40,000	200	500 rpm
INDEX FINGER DISTAL	Stretch	2,000	45,000	100	500 rpm

JOINT	HOMING DIRECTION	DISTANCE FROM HARD STOP [°]	RANGE OF MOVEMENT [°]	HOMING CURRENT [mA]	HOMING SPEED
MIDDLE FINGER PROXI	Stretch	2,000	40,000	200	500 rpm
MIDDLE FINGER DISTAL	Stretch	2,000	45,000	100	500 rpm
RING FINGER	Stretch	2,000	45,000	100	500 rpm
LITTLE FINGER	Stretch	2,000	45,000	100	500 rpm

The following table contains the drive motor data. The maximum values specified must not be exceeded when developing customizations.

JOINT	NOM. CURRENT [mA]	MAX. PEAK CURRENT [mA]	TEMP. CURRENT [mA]	MAX RPM	MOTOR VOLTAGE [V]
THUMB FLEXION	191	605	500	10000	24
THUMB OPPOSITION	191	605	500	10000	24
SPREAD	169	688	350	13600	24
INDEX FINGER PROXI	169	688	350	13600	24
INDEX FINGER DISTAL	176	360	350	11250	12
MIDDLE FINGER PROXI	196	688	350	13600	24
MIDDLE FINGER DISTAL	176	360	350	12500	12
RING FINGER	176	360	350	12500	12
LITTLE FINGER	176	360	350	12500	12

6.2 Operation

The product has no operable elements.

Control and operation of the product depend on the software used.

7 Troubleshooting

7.1 Communication via USB interrupted

Possible cause	Corrective action
Signal path interrupted	Check plug connector, cables and electrical components

7.2 Communication via Ethernet interrupted

Possible cause	Corrective action
Signal path interrupted	Check plug connector, cables and electrical components
Error while configuring network address	Network address of the computer connected: 192.168.1.2 --- 192.168.1.255 Subnet mask: 255.255.255.0 URL in browser: 192.168.1.1

7.3 Fingers are colliding

Possible cause	Corrective action
The power supply for the drive or the electronic control unit has malfunctioned	Check the power supply
Communication has been connected incorrectly	Check the signal cable connection
Supply cable is defective	Check supply cables for damage; replace if necessary

7.4 SVH is not reacting, not moving or stops suddenly

Possible cause	Corrective action
The power supply for the drive or the electronic control unit has malfunctioned	Check the power supply
Communication has been connected incorrectly	Check the signal cable connection
Supply cable is defective	Check supply cables for damage; replace if necessary

7.5 Unusual noise during operation

Possible cause	Corrective action
Mechanical damage	Send the product to SCHUNK for repair

8 Maintenance

1. Screw the product onto a mounting board.
2. Start the diagnostic software and compare nominal and actual currents.
3. For fingers showing a difference in nominal currents: clean the bearings in the joints and relubricate.

Clean

1. Gently clean with clean-room swabs and non-flammable cleaning agents.
2. Apply a thin layer of oil with new clean-room swabs. Use oil labeled "Shell AF2".
3. If necessary, clean fingertips with isopropyl.

The general rule is:

- Only use solvent-free, water-based cleaning agents.
- Do not use steam, coolant or high-pressure cleaners.
- Do not allow cleaning agents to penetrate into electrical or mechanical equipment.

Repair

CAUTION

The product may only be disassembled by SCHUNK, otherwise the mechanics or the internal electronics could become damaged!

The components of the product are adapted to each other. Repairs are only possible at the manufacturer.

- For repair or replacement, send the product to SCHUNK with a repair order.

9 Translation of the original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/
Distributor SCHUNK SE & Co. KG
Toolholding and workholding | Gripping Technology | Automation
technology
Bahnhofstr. 106 – 134
D-74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation: Servo-electric 5-Finger Gripping Hand / SVH / electric
ID number 1545589, 1545592

meets the following basic occupational health and safety of the Machinery Directive 2006/42/EC:
No. 1.1.1, No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.5.1, No. 1.5.2; No. 1.5.4, No. 1.5.6,
No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 13849-1:2015	Safety of Machinery – Safety-relevant parts of control systems – Part 1: General design approaches
EN ISO 13849-2:2012	Safety of Machinery – Safety-relevant parts of control systems – Part 2: Validation

The special technical documentation according to Annex VII, Part B, belonging to the partly completed machine, has been created.

Person authorized to compile the technical documentation:
Stefanie Walter, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, May 2023

Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

10 UKCA declaration of incorporation

in accordance with the Supply of Machinery (Safety) Regulations 2008.

Manufacturer/
Distributor SCHUNK Intec Limited
 Clamping and gripping technology
 3 Drakes Mews, Crownhill
 MK8 0ER Milton Keynes

We hereby declare that on the date of the declaration the following partly completed machine complied with all basic safety and health regulations found in the "Supply of Machinery (Safety) Regulations 2008".

The declaration shall be rendered invalid if modifications are made to the product.

Product designation: Servo-electric 5-Finger Gripping Hand / SVH / electric
ID number 1545589, 1545592

The partly completed machine may not be put into operation until it has been confirmed that the machine into which the partly completed machine is to be installed complies with the provisions of the "Supply of Machinery (Safety) Regulations 2008".

Applied harmonized standards, especially:

EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 13849-1:2015	Safety of Machinery – Safety-relevant parts of control systems – Part 1: General design approaches
EN ISO 13849-2:2012	Safety of Machinery – Safety-relevant parts of control systems – Part 2: Validation

The special technical documentation according to Annex VII, Part B, belonging to the partly completed machine, has been created.

Person authorized to compile the technical documentation:
Marcel Machado, address: refer to manufacturer's address



Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

Lauffen/Neckar, May 2023

11 Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)

RoHS Directive

SCHUNK products are classified as "large-scale stationary installations" or as "large-scale stationary industrial tools" within the meaning of Directive 2011/65/EU and its extension 2015/863/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)", or fulfill their intended function only as part of one. Therefore products from SCHUNK do not fall within the scope of the directive at this time.

REACH Regulation

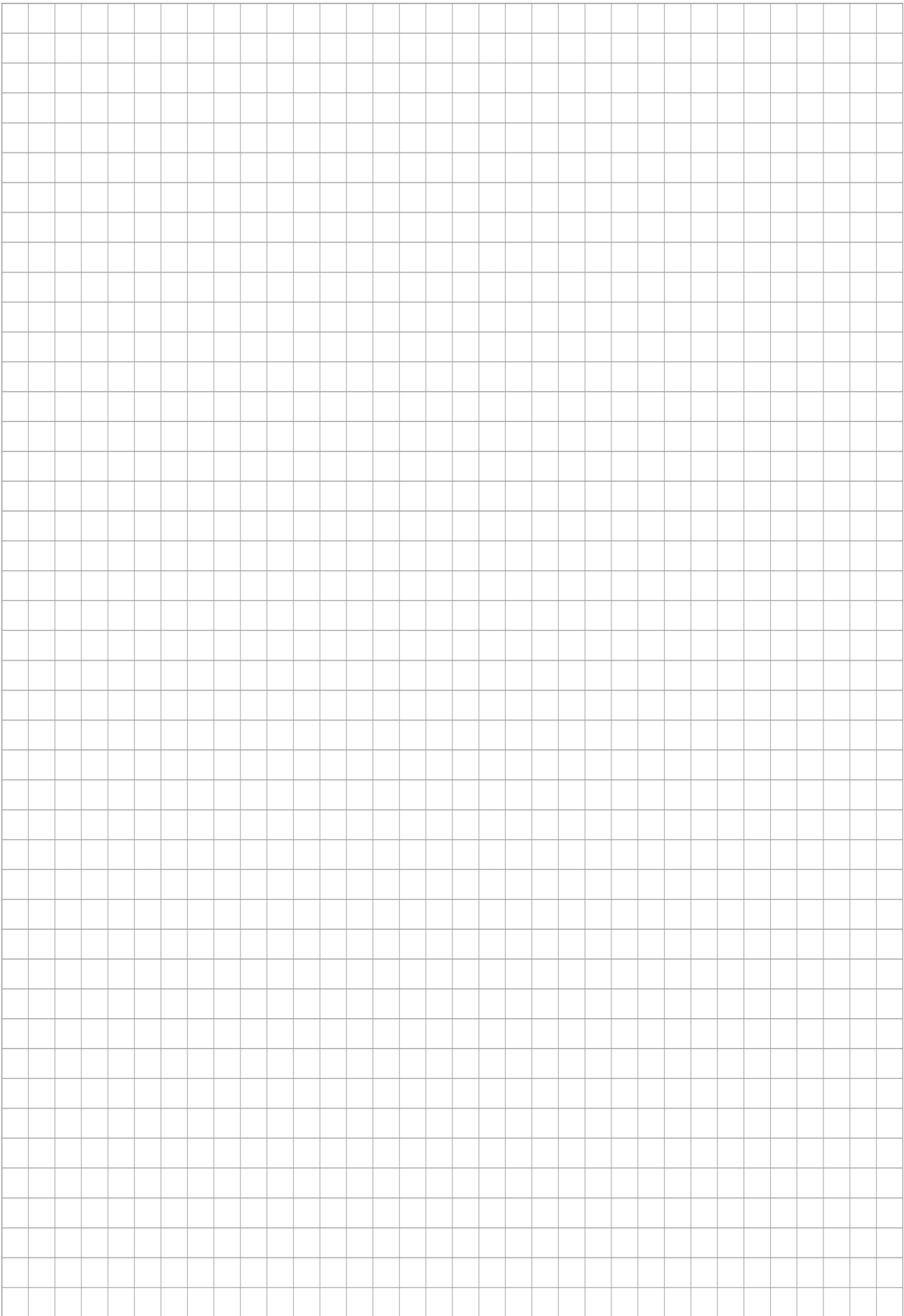
Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its extension 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and the environment wherever possible.

Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components concerned and the substances used in an overview that can be viewed at SCHUNK.

Signature: see original declaration

Lauffen/Neckar, May 2023

Dr.-Ing. Manuel Baumeister,
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