

Assembly and Operating Manual

PZH-SF 125

3-finger centric gripper



Imprint

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Document number: 389483

Version: 04.00 | 15/05/2020 | en

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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

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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.

Illustrations in this manual are provided for basic understanding and may differ from the actual product design.

In addition to these instructions, the documents listed under [Applicable documents](#) [► 6] are applicable.

1.1.1 Presentation of Warning Labels

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



⚠ DANGER

Danger 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 Definition of Terms

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

1.1.3 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *
- Assembly and operating manuals of the accessories *

The documents marked with an asterisk (*) can be downloaded on our homepage schunk.com

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the maximum service life. [Technical data](#) [▶ 15]
- Observe the ambient conditions and operating conditions, [Ambient conditions and operating conditions](#) [▶ 9]
- Observe the specified maintenance and lubrication intervals, [Maintenance](#) [▶ 31]

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

1.3 Scope of delivery

The scope of delivery includes

- 3-finger centric gripper PZH-SF 125 in the version ordered
- Assembly and Operating Manual
- Accessory pack

1.3.1 Accessory pack

ID.-No. of the accessory pack

Accessory pack for	ID number
PZH-SF 125	5522229

Content of the accessories pack: [Assembly drawing](#) [▶ 32].

1.4 Accessories

A wide range of accessories are available for this product
For information regarding which accessory articles can be used with the corresponding product variants, see catalog data sheet.

1.4.1 Seal kit

Contents of the sealing kit, [Assembly drawing \[▶ 32\]](#).

ID.-No. of the seal kit

Seal kit for	ID number
PZH-SF 125	5522266

1.4.2 Sensors

Overview of the compatible sensors

Designation	Type
Inductive proximity switches	IN
Magnetic switch	MMS
Programmable magnetic switch	MMS-P

- Exact type designation of the compatible sensors see catalog.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.
- To use the proximity switch IN, the gripper must be retrofitted with a special mounting kit. This mounting kit is available from SCHUNK. For types that can be ordered, see catalog.

2 Basic safety notes

2.1 Intended use

The product is designed exclusively for gripping and temporarily holding workpieces or objects.

- The product may only be used within the scope of its technical data, [Technical data](#) [▶ 15].
- When implementing and operating components in safety-related parts of the control systems, the basic safety principles in accordance with DIN EN ISO 13849-2 apply. The proven safety principles in accordance with DIN EN ISO 13849-2 also apply to categories 1, 2, 3 and 4.
- The product is intended for installation in a machine/system. The applicable guidelines must be observed and complied with.
- The product is intended for industrial and industry-oriented use.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 Not intended use

It is not intended use if the product is used, for example, as a pressing tool, stamping tool, lifting gear, guide for tools, cutting tool, clamping device or a drilling tool.

- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.3 Constructional changes

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.

2.4 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

- Use only original spare parts or spares authorized by SCHUNK.

2.5 Gripper fingers

Requirements for the gripper fingers

Stored energy within the product creates the risk of serious injuries and significant property damage.

- Arrange the gripper fingers in a way that the product reaches either the position "open" or "closed" in a de-energized state.
- Only exchange the gripper fingers when no residual energy remains in the product.
- Make sure that the product and the top jaws are a sufficient size for the application.

2.6 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, [Technical data](#) [▶ 15].

2.7 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.

2.8 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.

2.9 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.10 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.11 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.12 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.

2.13 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

2.13.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

2.13.2 Protection during commissioning and operation

Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

2.13.3 Protection against dangerous movements

Unexpected movements

Residual energy in the system may cause serious injuries while working with the product.

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- Never rely solely on the response of the monitoring function to avert danger. Until the installed monitors become effective, it must be assumed that the drive movement is faulty, with its action being dependent on the control unit and the current operating condition of the drive. Perform maintenance work, modifications, and attachments outside the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted. Limit/prevent accidental access for people in this area due through technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.13.4 Protection against electric shock

Possible electrostatic energy

Components or assembly groups may become electrostatically charged. When the electrostatic charge is touched, the discharge may trigger a shock reaction leading to injuries.

- The operator must ensure that all components and assembly groups are included in the local potential equalisation in accordance with the applicable regulations.
- While paying attention to the actual conditions of the working environment, the potential equalisation must be implemented by a specialist electrician according to the applicable regulations.
- The effectiveness of the potential equalisation must be verified by executing regular safety measurements.

2.14 Notes on particular risks



⚠ DANGER

Risk of fatal injury from suspended loads!

Falling loads can cause serious injuries and even death.

- Stand clear of suspended loads and do not step within their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.
- Wear suitable protective equipment.



⚠ WARNING

Risk of injury from objects falling and being ejected!

Falling and ejected objects during operation can lead to serious injury or death.

- Take appropriate protective measures to secure the danger zone.



⚠ 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.



⚠ WARNING

Risk of injury from crushing and impacts!

Serious injury could occur during the base jaw procedure and when breaking or loosening the gripper fingers.

- Wear suitable protective equipment.
- Do not reach into the open mechanism or the movement area of the product.



⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.



⚠ WARNING

Risk of injury due to spring forces!

Parts are under spring tension on products which clamp using spring force or which have gripping force maintenance. While disassembling components can move unexpectedly and cause serious injuries.

- Disassemble the product cautiously.
- Make sure that no residual energy remains in the system.



⚠ WARNING

Risk of injury from objects falling during energy supply failure

Products with a mechanical gripping force maintenance can, during energy supply failure, still move independently in the direction specified by the mechanical gripping force maintenance.

- Secure the end positions of the product with SCHUNK SDV-P pressure maintenance valves.

3 Technical data

Designation	PZH-SF 125
Weight [kg]	3.3
Max. permissible finger length [mm]	80
Closing-/ Opening time [s]	0.5 / 0.5
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4
Min. pressure [bar]	2
Max. pressure [bar]	8
Nominal working pressure [bar]	6
Air consumption per double stroke [cm ³]	390
Performance: Cycles, maximum number	2.5 Mio.

More technical data is included in the catalog data sheet. Whichever is the latest version.

Ambient conditions and operating conditions

Designation	PZH-SF 125
Ambient temperature [°C] min.	-10
max.	+90
Protection class IP *	64
Noise emission [dB(A)]	≤ 70

- * For use in dirty ambient conditions (e.g. sprayed water, vapors, abrasion or processing dust) SCHUNK offers corresponding product options as standard. SCHUNK also offers customized solutions for special applications in dirty ambient conditions.

4 Assembly

4.1 Mechanical connection

Evenness of the mounting surface

The values apply to the whole mounting surface to which the product is mounted.

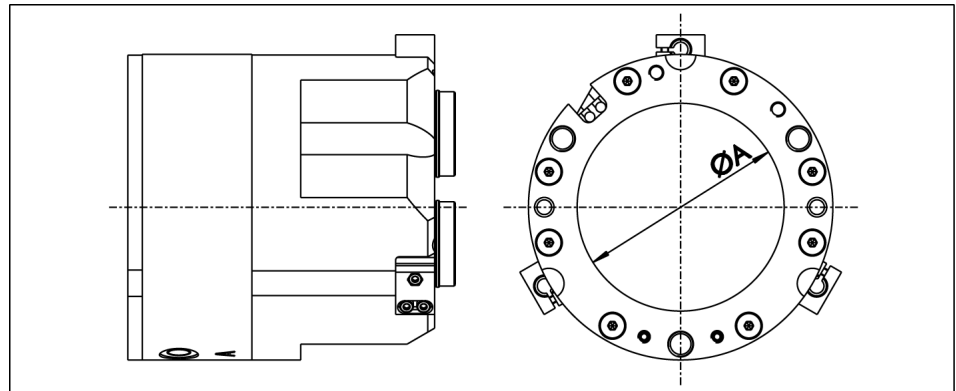
Requirements for evenness of the mounting surface (Dimensions in mm)

Edge length	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

Requirements for customer adapter plates

If the adapter plate has bores or recesses and therefore the product is not fully flush, the minimum support surface must be adhered to. The recess/bore in the adapter plate may not exceed the dimension "A"; for dimensions, see the following table.

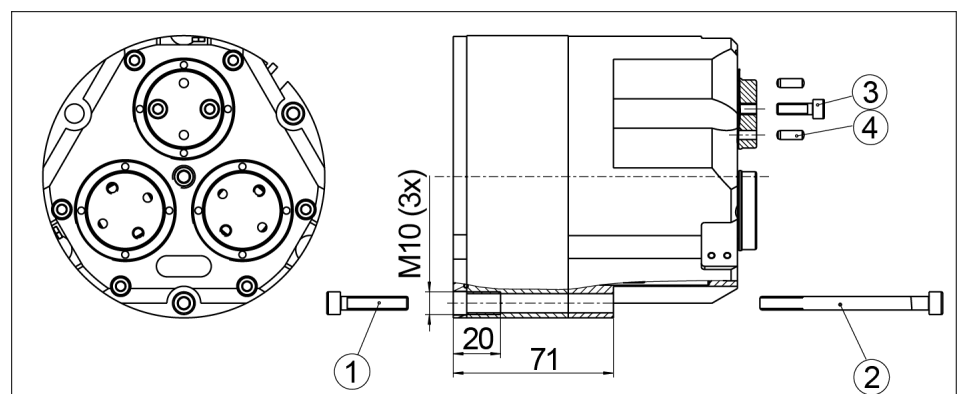
Designation	Value
A: Max. recess [mm]	Ø85



Gripper cover with recess A

Connections at the product

The product can be assembled from two sides.



Assembly options

Maximal screw-in depth of the fastening screws provided by the customer.

Item	Mounting	Mounting material
1	Module from back	M10 Max. depth of engagement [mm]: 20
2	Module from front	M8
3	Finger mounting	M5 Max. depth of engagement [mm]: 6
4	Fixing bores for cylindrical pins	Ø4 H7

NOTE

- When mounting from the back, fasten the module by means of the provided fixing bore.
 - Fasten the module using the provided mounting holes.
 - Fasten the top jaws using the provided mounting holes.
-

4.2 Pneumatic connection

CAUTION

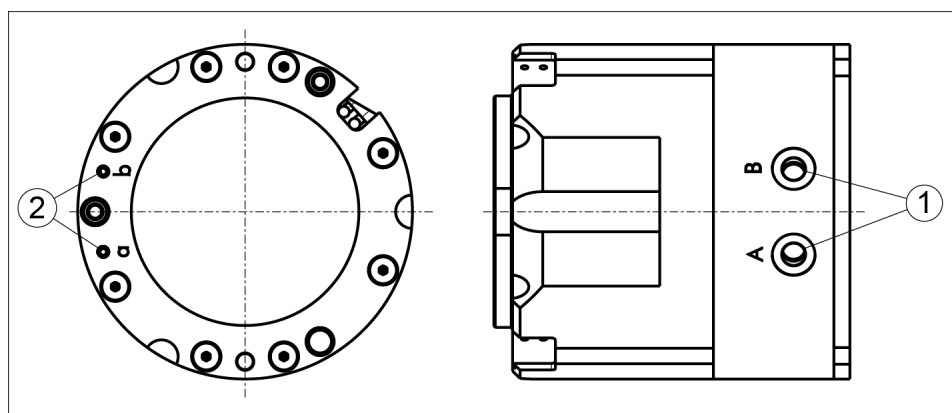
Damage to the gripper is possible!

If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- A jaw movement always has to be without jerks and bounce.
- You must therefore implement sufficient reduction and/or damping.
- Observe the diagrams and information in the catalog data sheet.

NOTE

- Observe the requirements for the compressed air supply, [Technical data](#) [▶ 15].
- In case of compressed air loss (cutting off the energy line), the components lose their dynamic effects and do not remain in a secure position. However, the use of a SDV-P pressure maintenance valve is recommended in this case in order to maintain the dynamic effect for some time. Product variants are also offered with mechanical gripping force via springs, which also ensure a minimum clamping force in the event of a pressure drop.



Air connections

Thread diameter of the air connections

Item	Connection	Dimension
1	Main connections (Hose connection) (A = open, B = close)	2x G1/8
2	Hose-free direct connection at the base (a = open, b = close)	2x M5

- Open only the air connections that are needed.
- Close unused main air connections using the screw plugs from the enclosed pack.
- For a hose-free direction connection, use the O-rings from the enclosed pack.

4.3 Mounting the sensor

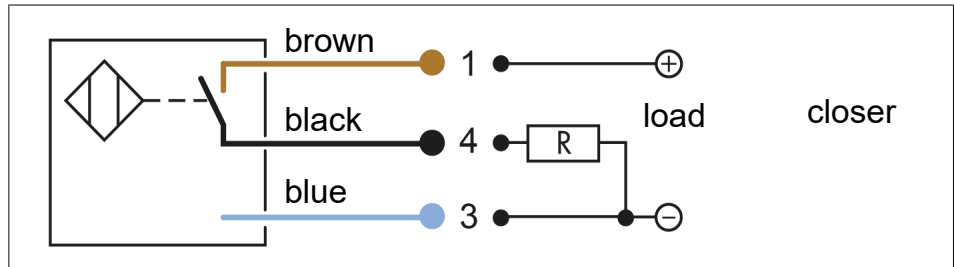
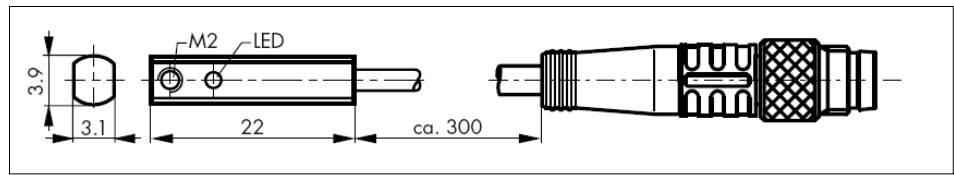
NOTE

Observe the assembly and operating manual of the sensor for mounting and connecting.

The product is equipped for the use of sensors.

- For the exact type designations of suitable sensors, please see the catalog data sheet.
- For technical data for the suitable sensors, see Assembly and Operating Manual and catalog data sheet.
 - The Assembly and Operating Manual and catalog data sheet are included in the scope of delivery for the sensors and are available at schunk.com.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.

4.3.1 Mounting the magnetic switch MMS 22



CAUTION

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

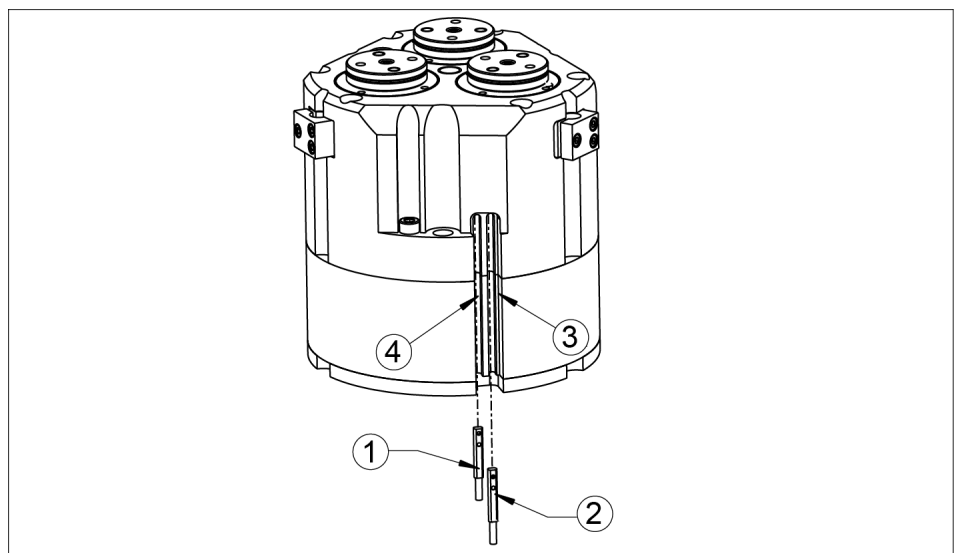
NOTE

Ferromagnetic material changes the switching positions of the sensor. For example: Adapter plate made of ordinary steel.

At ferromagnetic adapter plates:

- First mount the product on the adapter plate.
- Then set the position of the magnetic switch.

Positioning the magnetic switch



Gripper open:

- Move gripper to “Open” position.
- Slide the magnetic switch 1 (1) into the groove (4) until it comes into contact with the housing.
- Slowly pull the magnetic switch 1 (1) back until it switches.
- By tightening the set screw on the magnetic switch, fix the magnetic switch 1 (1) in this position in the groove (4).
- Close the gripper and open again to test the function.

Gripper closed:

- Move gripper to “Closed” position.
- Slide the magnetic switch 2 (2) into the groove (3) toward the center of the gripper until it switches.
- By tightening the set screw, fix the magnetic switch 2 (2) in this position in the groove (3).
- Open the gripper and close again to test the function.

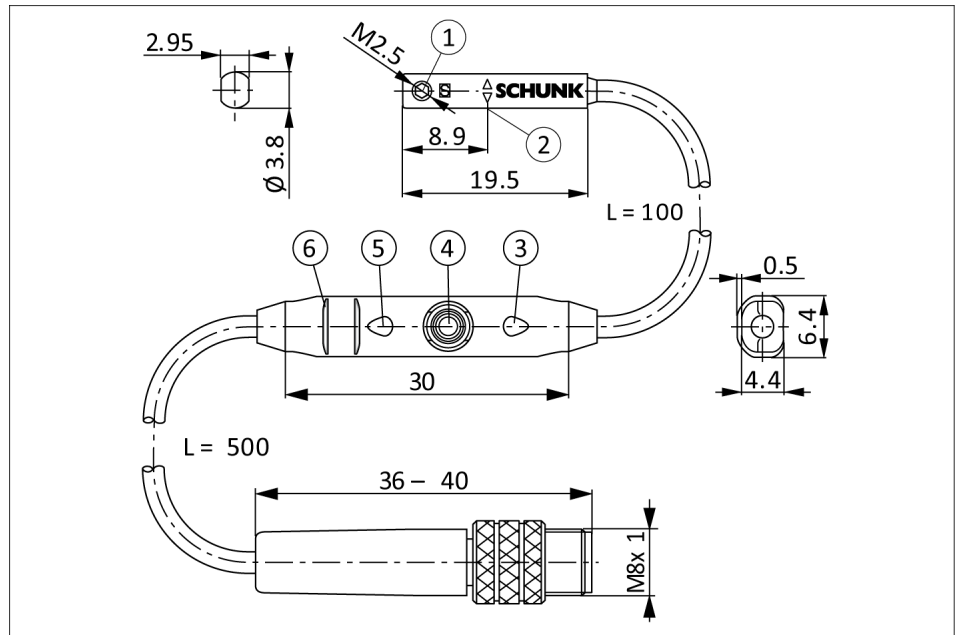
Part gripped (O.D. gripping):

- Clamp the part to be gripped.
- Slide the magnetic switch 2 (2) into the groove (3) toward the center of the gripper until it switches.
- By tightening the set screw, fix the magnetic switch 2 (2) in this position in the groove (3).
- Open the gripper and close again to test the function.

Part gripped (I.D. gripping):

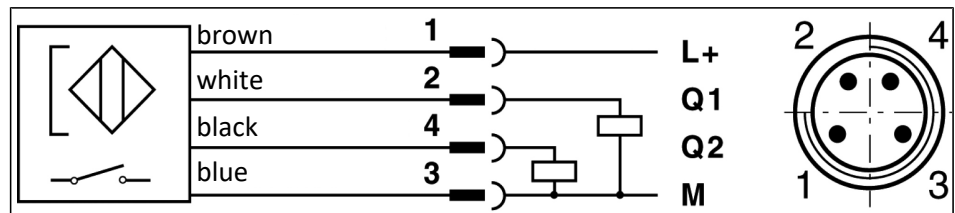
- Clamp the part to be gripped.
- Slide the magnetic switch 1 (1) into the groove (4) until it comes into contact with the housing.
- Slowly pull the magnetic switch 1 (1) back until it switches.
- By tightening the set screw, fix the magnetic switch 1 (1) in this position in the groove (4).
- Close the gripper and open again to test the function.

4.3.2 Programmable magnetic switch (MMS-P)



Magnetic switch MMS-P 22

1	Mounting screw	4	Teach-button
2	Center sensor elements	5	LED display
3	LED display	6	Ribs for cable tires



Connection diagram PNP-4 conductor (MMS-P 22)

Types available for order (see catalog):

- MMS-P 22-S-M8-PNP
- MMSK-P 22-S-PNP
- V2-M8-4-2XM8-3

The MMSK-P 22-S-PNP features a cable with open strands so that it can be connected via terminal contacts.

The V2-M8-4-2XM8-3 distributor is used to convert the 4-pin connector plug of the MMS-P 22-S-M8-PNP sensor to two standard M8 plugs with 3 pins each.

Mounting of the sensor

CAUTION

Sensor can be damaged during assembly.

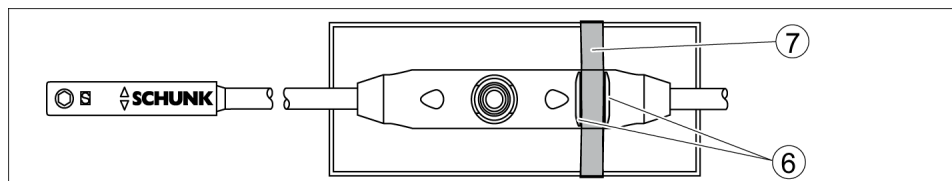
- Do not exceed the maximum tightening torque of 10 Ncm for the set screws!

NOTE

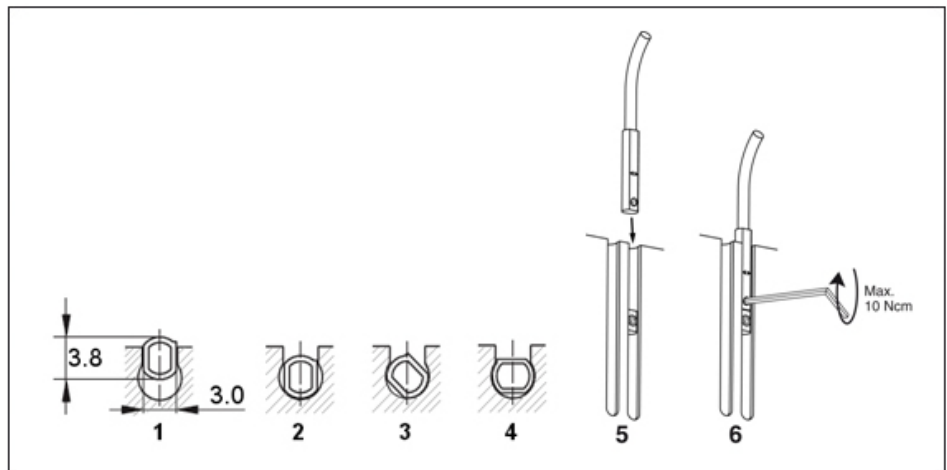
Ferromagnetic material changes the switching positions of the sensor (e.g. Adapter plate made of ordinary steel).

For ferromagnetic adapter plates:

- The module must be first mounted on the adapter plate.
- Then, the position of the magnetic switches has to be set.



- To relieve the cable, the electronics have to be fixed in place using cable ties (7). There are ribs (6) in place on the electronics for mounting purposes.



- Turn in the sensor (1 - 4).
OR
Push the sensor axially into the slot until it contacts the stop (5).
- Fix the sensor with an Allen wrench (6).
- Keep the Teach-Button (4) pressed for 2 seconds.
 - ✓ After 2 seconds LED 1 (3) is flashing
- Move the gripper into position 1 (e.g. "open").
- Press the Teach-Button (4) briefly.
 - ✓ LED 1 (3) lights up and LED 2 (5) is flashing.
- Move the gripper into position 2.
 - ✓ LED 1 (3) should turn out as soon as the switching point 1 is left.
- Press the Teach-Button (4) briefly.
 - ✓ LED 2 (5) lights up.
- ✓ The switching points are set.

Adjusting the hysteresis

The hysteresis to both switching points will be adjusted automatically corresponding to the characteristics of the magnetic field.

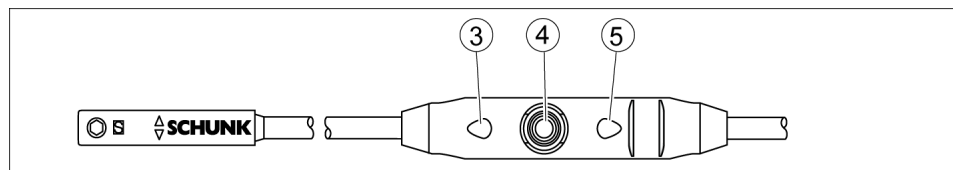
The user can set the switching and triggering points of each position a little bit closer than for the automatic mode. The triggering point is closer to the switching point. At the same time the susceptibility to trouble and damage increases. In the mode of the lowest hysteresis, an error signal (such as jitter or untimely switch off) can be avoided, if the sensor is protected against all types of disturbances (i.e. by shielding). Frequent types of disturbances are change in temperature and electro-magnetic influences. Within the closest fine-teach mode, SCHUNK cannot guarantee EMC-compatibility any more.

The hysteresis adjustment is used for the manual adjustment of the switching points (if necessary).

In case that the hysteresis automatically determined by the sensor should be too high or too low after "the adjustment of the switching points", you may correct the value as follows.

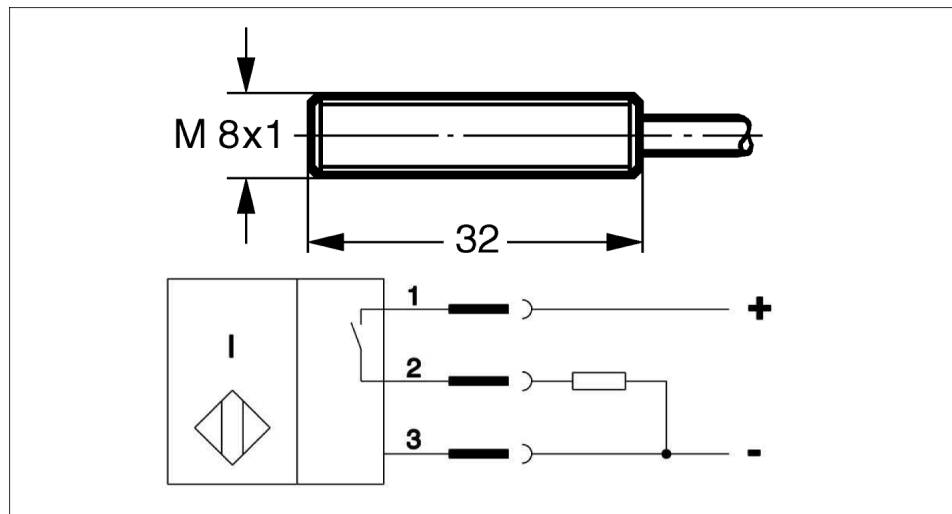
The sensor avoids a too small hysteresis during hysteresis adjustment.

The smallest detectable stroke difference is 10% of the rotation angle per finger.



- Press the Teach-button (4) for 5 seconds.
 - ✓ LED 1 (3) will flash up after 2 seconds.
 - ✓ LED 1 will stop after 5 seconds.
- Release the Teach-button.
- Move the gripper to the "switch-off point for switching point 1" position.
- Press the Teach-Button (4) briefly. LED 1 (3) will light up twice.
- Move the gripper to the "switch-off point for switching point 2" position.
- Press the Teach-Button (4) briefly.
 - ✓ LED 2 (5) will light up twice.
- ✓ The mounting of the sensor MMS-P is completed.

4.3.3 Inductive proximity switch IN 80



Connection example for IN 80

1	brown	2	black	3	blue
---	-------	---	-------	---	------

The inductive proximity switches used are equipped with reverse polarity protection and are short-circuit-proof.

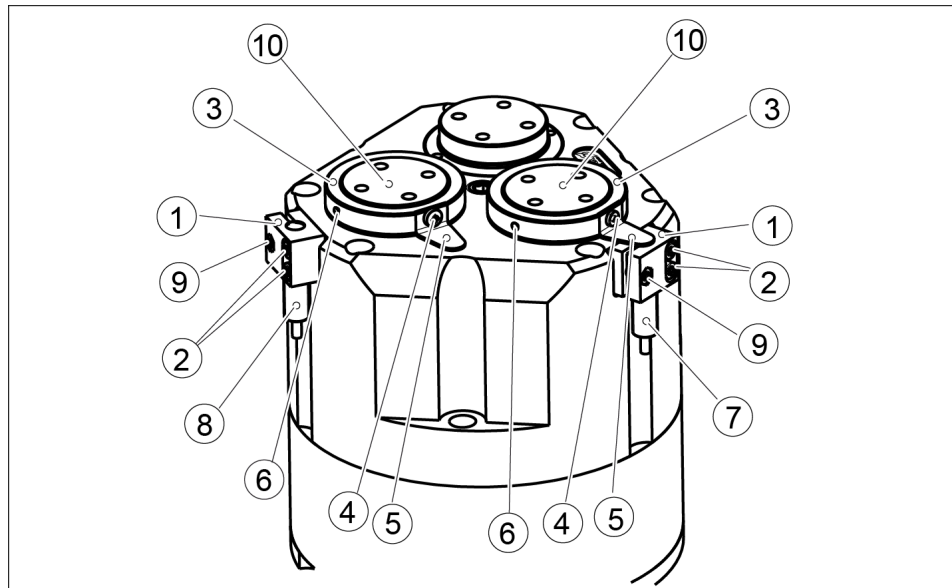
Make sure that you handle the proximity switches properly:

- Do not pull on the cable.
- Do not allow the sensor to dangle from the cable.
- Do not overtighten the mounting screw or mounting clip.
- Please adhere to a permitted bend radius of the cable. (→ catalog)
- Avoid contact of the proximity switches with hard objects and with chemicals, in particular nitric acid, chromic acid and sulphuric acid.

The inductive proximity switches are electronic components, which can react sensitively to high-frequency interference or electromagnetic fields.

- Check to make sure that the cable is fastened and installed correctly. Provide for sufficient clearance to sources of high-frequency interference and their supply cables.
- Parallel switching of several sensor outputs of the same type (npn, pnp) is permissible, but does not increase the permissible load current.
- Note that the leakage current of the individual sensors (ca. 2 mA) is cumulative.

To mount the proximity switches IN, the gripper must be retrofitted with a special mounting kit. This mounting kit is available from SCHUNK. For types that can be ordered, see catalog.



Assembly of the mounting kit

- Fasten both brackets (1) with 2x screws (2) on the housing.
- Screw in the set screws (6) halfway into the not yet assembled mount (3).
- Place both mounts (3) on the base jaws (10); set screws (6) **are not yet** to be tightened.
- Fasten both switching lugs (5) with screws (4) on the mounts (3).

Mounting of the proximity switch

The switching points of the “opened” and “closed” position must be set.

Gripper open:

- Push the proximity switch 1 (8) into the bracket (1) to the stop.
- Fasten the proximity switch by tightening the screw (9).
- Move gripper to “Open” position.
- Turn the corresponding mount (3) with the switching lug (5) until the proximity switch (8) switches.
- Fix the position of the switching lug by tightening the set screw (6).

Gripper closed:

- Push the proximity switch 2 (7) into the bracket (1) to the stop.
- Fasten the proximity switch by tightening the screw (9).
- Move gripper to “Closed” position.
- Turn the corresponding mount (3) with the switching lug (5) until the proximity switch (7) switches.
- Fix the position of the switching lug by tightening the set screw (6).

Part gripped (O.D. gripping):

- Push the proximity switch 2 (7) into the bracket (1) to the stop.
- Fasten the proximity switch by tightening the screw (9).
- Clamp the part to be gripped.
- Turn the corresponding mount (3) with the switching lug (5) until the proximity switch (7) switches.
- Fix the position of the switching lug by tightening the set screw (6).

Part gripped (I.D. gripping):

- Push the proximity switch 1 (8) into the bracket (1) to the stop.
- Fasten the proximity switch by tightening the screw (9).
- Clamp the part to be gripped.
- Turn the corresponding mount (3) with the switching lug (5) until the proximity switch (8) switches.
- Fix the position of the switching lug by tightening the set screw (6).

5 Troubleshooting

5.1 Product does not move

Possible cause	Corrective action
Pressure drops below minimum.	Check air supply. Pneumatic connection [▶ 18]
Compressed air lines switched.	Check compressed air lines. Pneumatic connection [▶ 18]
Proximity switch defective or set incorrect.	Readjust or change sensor.
Unused air connections open.	Close unused air connections.
Component part defective.	Replace component or send it to SCHUNK for repair.

5.2 Product is not executing the complete stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate.
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. Pneumatic connection [▶ 18]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. Mechanical connection [▶ 16]
Component part defective.	Replace component or send it to SCHUNK for repair.

5.3 Product opens or closes abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. Maintenance [▶ 31]
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.
One-way flow control valve is missing or adjustet incorrectly.	Install and adjust one-way flow control valve.
Loading too large.	Check permissible weight and length of the gripper fingers.

5.4 Gripping force is dropping

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.
Too much grease in the mechanical movement space.	Clean and lubricate product.
Pressure drops below minimum.	Check air supply. Pneumatic connection [► 18]
Component part defective.	Replace component or send it to SCHUNK for repair.

5.5 Product does not achieve the opening and closing times

Possible cause	Corrective action
Compressed air lines are not installed optimally.	If present: Open the flow control couplings on the product to the maximum that the movement of the jaws occurs without bouncing and hitting.
	Check compressed air lines.
	Inner diameters of compressed air lines are of sufficient size in relation to compressed air consumption.
	Keep compressed air lines between the product and directional control valve as short as possible.
	Flow rate of valve is sufficiently large relative to the compressed air consumption.
	IMPORTANT! The throttle check valve must not be removed, even if the product has not reached the opening and closing times.
	If, despite optimum air connections, the opening and closing times specified in the catalogue are not achieved, SCHUNK recommends the use of quick-air-vent-valves directly at the product.
Loading too large.	Check permissible weight and length of the gripper fingers.

5.6 Programmable magnetic switches not switching as desired

Possible cause	Corrective action
Incorrect sensor position.	Check adjustment dimensions.
Magnetic field too weak.	Check function of sensor in both grooves.

6 Maintenance

6.1 Notes

Original spare parts

Use only original spare parts of SCHUNK when replacing spare and wear parts.

Replacement of housing and rotary flange

The and the in the housing are matched to each other. To replace these parts, send the entire module to SCHUNK with a repair order or order the housing with base jaws as a set.

6.2 Maintenance interval

CAUTION

Material damage due to hardening lubricants!

Lubricants harden more quickly at temperatures above 60°C, leading to possible product damage.

- Reduce the lubricant intervals accordingly.

Interval (million cycles)	Maintenance work
1	Treat all grease areas with lubricant, Lubricants/Lubrication points [► 31] Oil or grease external steel parts

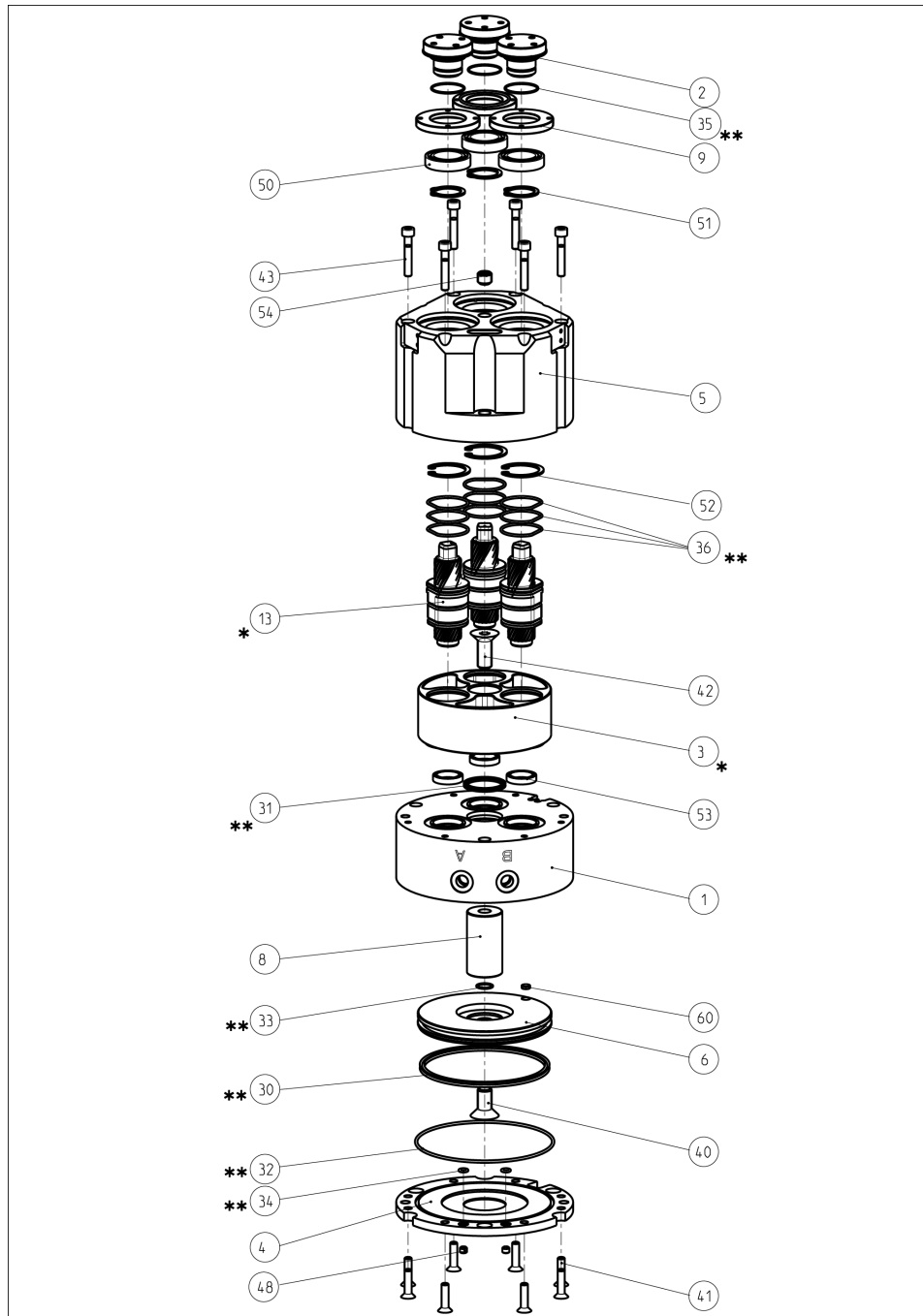
6.3 Lubricants/Lubrication points

SCHUNK recommends the lubricants listed.

During maintenance, treat all greased areas with lubricant. Thinly apply lubricant with a lint-free cloth.

Lubricant point	Lubricant
Metallic sliding surfaces	Toothgood 1
All seals	Sealgood 1
Bore hole at the piston	Sealgood 1

6.4 Assembly drawing



* Positions are adapted to each other and can not be replaced by the customer.

** Wearing part, replace during maintenance. Included in the seal kit. Seal kit can only be ordered completely.

8 Annex to Declaration of Incorporation

according 2006/42/EG, Annex II, No. 1 B

1. Description of the essential health and safety requirements pursuant to 2006/42/EC, Annex I that are applicable and that have been fulfilled with:

Product designation	3-finger centric gripper
Type designation	PZH-SF 125
ID number	0370410

To be provided by the System Integrator for the overall machine	↓
Fulfilled for the scope of the partly completed machine	↓
Not relevant	↓

1.1	Essential Requirements			
1.1.1	Definitions		X	
1.1.2	Principles of safety integration		X	
1.1.3	Materials and products		X	
1.1.4	Lighting		X	
1.1.5	Design of machinery to facilitate its handling		X	
1.1.6	Ergonomics		X	
1.1.7	Operating positions			X
1.1.8	Seating			X

1.2	Control Systems			
1.2.1	Safety and reliability of control systems		X	
1.2.2	Control devices		X	
1.2.3	Starting		X	
1.2.4	Stopping		X	
1.2.4.1	Normal stop		X	
1.2.4.2	Operational stop		X	
1.2.4.3	Emergency stop		X	
1.2.4.4	Assembly of machinery		X	
1.2.5	Selection of control or operating modes		X	
1.2.6	Failure of the power supply			X

1.3	Protection against mechanical hazards			
1.3.1	Risk of loss of stability			X
1.3.2	Risk of break-up during operation			X
1.3.3	Risks due to falling or ejected objects			X
1.3.4	Risks due to surfaces, edges or angles		X	

1.3	Protection against mechanical hazards			
1.3.5	Risks related to combined machinery			X
1.3.6	Risks related to variations in operating conditions			X
1.3.7	Risks related to moving parts		X	
1.3.8	Choice of protection against risks arising from moving parts			X
1.3.8.1	Moving transmission parts		X	
1.3.8.2	Moving parts involved in the process			X
1.3.9	Risks of uncontrolled movements			X
1.4	Required characteristics of guards and protective devices			
1.4.1	General requirements			X
1.4.2	Special requirements for guards			X
1.4.2.1	Fixed guards			X
1.4.2.2	Interlocking movable guards			X
1.4.2.3	Adjustable guards restricting access			X
1.4.3	Special requirements for protective devices			X
1.5	Risks due to other hazards			
1.5.1	Electricity supply		X	
1.5.2	Static electricity		X	
1.5.3	Energy supply other than electricity		X	
1.5.4	Errors of fitting		X	
1.5.5	Extreme temperatures			X
1.5.6	Fire			X
1.5.7	Explosion			X
1.5.8	Noise			X
1.5.9	Vibrations			X
1.5.10	Radiation	X		
1.5.11	External radiation	X		
1.5.12	Laser radiation	X		
1.5.13	Emissions of hazardous materials and substances			X
1.5.14	Risk of being trapped in a machine	X		
1.5.15	Risk of slipping, tripping or falling	X		
1.5.16	Lightning			X
1.6	Maintenance			
1.6.1	Machinery maintenance		X	
1.6.2	Access to operating positions and servicing points		X	
1.6.3	Isolation of energy sources		X	
1.6.4	Operator intervention		X	
1.6.5	Cleaning of internal parts		X	

1.7	Information			
1.7.1	Information and warnings on the machinery		X	
1.7.1.1	Information and information devices		X	
1.7.1.2	Warning devices		X	
1.7.2	Warning of residual risks		X	
1.7.3	Marking of machinery	X		
1.7.4	Instructions	X		
1.7.4.1	General principles for the drafting of instructions	X		
1.7.4.2	Contents of the instructions	X		
1.7.4.3	Sales literature	X		
	The classification from Annex 1 is to be supplemented from here forward.			
2	Supplementary essential health and safety requirements for certain categories of machinery			X
2.1	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products			X
2.2	Portable hand-held and/or guided machinery			X
2.2.1	Portable fixing and other impact machinery			X
2.3	Machinery for working wood and material with similar physical characteristics			X
3	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery		X	
4	Supplementary essential health and safety requirements to offset hazards due to lifting operations		X	
5	Supplementary essential health and safety requirements for machinery intended for underground work			X
6	Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of persons		X	