Ring indexing table
RST-P 060 / 087

Translation of original operating manual

Imprint

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

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Dear customer,

congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

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1 About this manual

This instruction is an integral part of the product and contains important information for a safe and proper assembly, commissioning, operation, maintenance and help for easier trouble shooting.

Before using the product, read and note the instructions, especially the chapter "Basic safety notes".

1.1 Warnings

The following key words and symbols are used to highlight dangers.

1.1.1 Key words

DANGER	Dangers for persons. Non-compliance will inevitably cause irreversible injury or death.
WARNING	Dangers for persons. Non-compliance may cause irreversible injury or death.
CAUTION	Dangers for persons. Non-observance may cause minor injuries.
NOTICE	Information about avoiding material damage

1.1.2 Symbols

Warning about a danger point

Warning about hand injuries

General mandatory sign to prevent material damage

1.2 Applicable documents

- General terms of business
- Catalog data sheet of the purchased product
- Assembly and Operating Manuals of the accessories

The documents listed here, can be downloaded on our homepage www.schunk.com

2 Basic safety notes

2.1 Intended use

The module was designed to swivel permissible attachments or workpieces.

The module is intended for installation in a machine/system. The requirements of the applicable guidelines must be observed and complied with.

The module may be used only in the context of its defined application parameters (☞ 6, Page 11).

The module is intended for industrial use.

To use this unit as intended, it is also essential to observe the technical data and installation and operation notes in this manual and to comply with the maintenance intervals.

2.2 Not intended use

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

2.3 Environmental and operating conditions

- The module may be used only within its defined application parameters.
- Ensure that the environment is clean. Observe the lubrication intervals (☞ 10.2, Page 32).
- Ensure that the environment is free of splashing water and vapors, and also of abrasive dust and process dust. This does not apply to modules designed especially for unclean environments.
- Do not subject the module to excessive vibrations and/or mechanical shocks.
- Strong magnetic fields can impair the function of the module. If the product is to be used in strong magnetic fields, contact your SCHUNK partner.

2.4 Product safety

Dangers arise from the module, if:

- the module is not used in accordance with its intended purpose.
- the module is not installed or maintained properly.
- the safety and installation notes are not observed.

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

Wear protective equipment.

NOTE
More information are contained in the relevant chapters.

2.4.1 Protective equipment

Provide protective equipment per EC Machinery Directive.

2.4.2 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission of SCHUNK.

2.5 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the module may be performed only by trained specialist personnel. Every person called upon by the operator to work on the module must have read and understood the complete assembly and operating manual, especially the chapter "Basic safety notes" (☞ 2, Page 7). This applies particularly to personnel only used occasionally, such as maintenance personnel.

2.6 Using personal protective equipment

When using this product, observe the relevant industrial safety regulations and use the personal protective equipment (PPE) required!

- Use protective gloves, safety shoes and safety goggles.
- Observe safe distances.
- Minimal safety requirements for the use of equipment.

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 module.
- Perform maintenance, modifications, and additions outside of the danger zone.
- For all work, secure the unit against accidental operation.
- Take a precautionary approach by maintenance and disassembly.
- Only specially trained staff should disassemble the module.

	**⚠ WARNING** **Risk of injury from objects falling and being ejected** • The danger zone must be surrounded by a safety fence during operation.

	**⚠ WARNING** **Risk of injury due to rotating components!** *Avoidance:* The danger zone must be surrounded by a safety fence during operation.

3 Warranty

The warranty is valid for 24 months from the delivery date to the production facility under the following conditions:

- Observe the mandatory maintenance and lubrication intervals
- Observe the environmental and operating conditions

Parts touching the work piece and wear parts are not part of the warranty.

4 Scope of delivery

The scope of delivery includes:

- Ring indexing table RST-P in the ordered model.
- Accessory pack

5 Accessories

A wide range of accessories are available for this module.

For information about which accessories can be used with the appropriate product version ☞ catalog.

5.1 Sensors

Overview of the compatible sensors

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

* not at RST-P 087

- Exact type designation of the compatible sensors see ☞ catalog.
- If you require further information on sensor operation, contact your SCHUNK contact person or download information from our homepage.
- For mounting the sensors, mounting kits are partly necessary.

6 Technical data

Size	060				087			
Type	L,R,B				L,R,B			
Pitches	4	6	8	12	4	6	8	12
Mechanical operating data								
Weight [kg]	0.9				2.5			
Ambient temperature [°C] Min. Max.	 5 60				 5 60			
Max. torque [Nm] (data for operation with rated operating pressure and horizontal installation)	1.2				3			
Repeatability [mm]	0.085				0.06			
Axial run-out of cycle ring to housing [mm]	≤ 0.02				≤ 0.02			
Run-out accuracy of cycle ring to housing [mm] (cycle ring outer diameter)	≤ 0.02				≤ 0.02			
Parallelism of cycle ring to housing [mm]	≤ 0.04				≤ 0.04			
Max. mass moment of inertia [kgm²] (data for operation with rated operating pressure and horizontal installation)	0.03				0.05	0.06	0.07	0.08
Pulsing/Angle of rotation [°]	90	60	45	30	90	60	45	30
IP rating	40				40			
Noise emission [dB(A)]	≤ 70				≤ 70			
Installation position central load distribution (to the rotational axis of the cycle ring)	user-defined				user-defined			
Installation position any load distribution	Vertical rotational axis				Vertical rotational axis			
Max. permissible loads on the cycle ring								
Axial force	1950				3400			
Radial force	1000				1700			
Overturning moment	18				40			
Tangential moment	15				40			
Permissible pulsing / swiveling times ☞ catalog data								
Operating data for compressed air connection								
Pressure medium	Compressed air, standard for quality of the compressed air according to ISO 8573-1: 7 4 4							

Size	060				087			
Type	L,R,B				L,R,B			
Pitches	4	6	8	12	4	6	8	12
Nominal working pressure [bar]	6				6			
Min. pressure [bar]	5				5			
Max. pressure [bar]	8				8			
Fluid consumption per cycle [cm^3]	10.47	7.41	5.74	4.08	27.26	18.74	14.48	10.21

* L - pulsing anti-clockwise,
* R - pulsing clockwise,
* B - pulsing in both directions

Further technical data can be found in the catalog data sheet.
The most recent version applies.

NOTICE

Damage to the ring indexing table due to incorrect use of un-oiled compressed air.
Due to washing out of the factory lubrication

- The unit may not under any circumstances have been operated with oiled air before operation with unoiled air.

7 Assembly and settings

7.1 Mechanical connection

Check the evenness of the bolting surface

The values relate to the entire bolting surface.

Requirements for levelness of the bolting surface (Dimensions in mm)

Diameter	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

Mounting the module

The module can be attached in 3 different ways:

- Onto the base with screws from below
- Onto the base with screws from above
- To the rear mounting surface

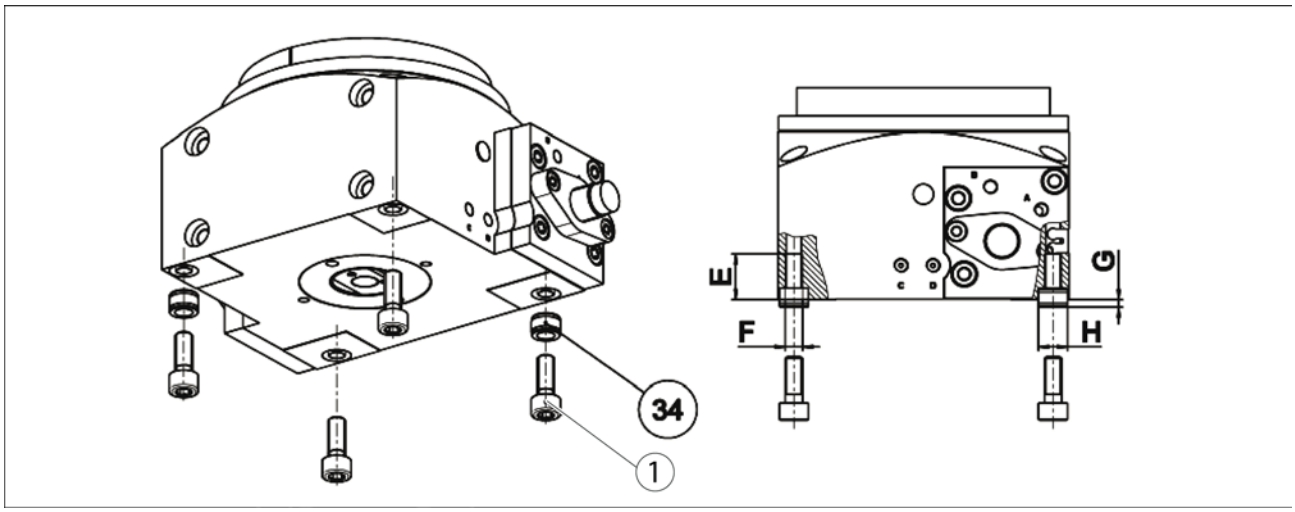

Fig. 1 Mounting to the base - screwing on from below

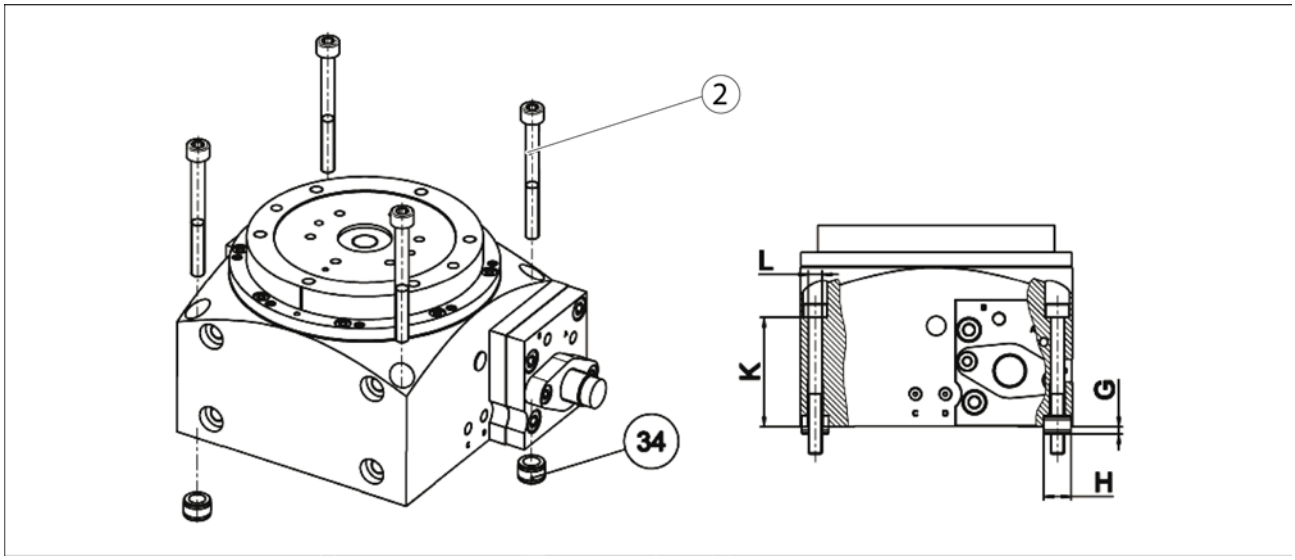

Fig. 2 Mounting to the base - screwing on from above

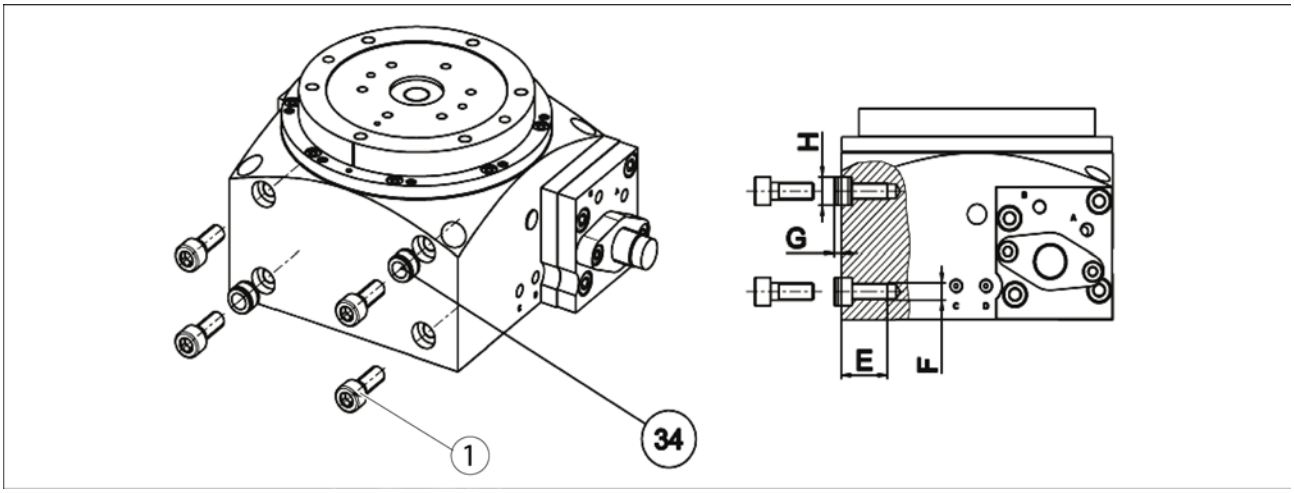

Fig. 3 Mounting from the rear

Connection geometry for RST-P

Item	060	087
E [mm]	11.5	16
F	M5	M6
G [mm]	1.0	2.7
H [mm]	Ø7H7	Ø10H7
K [mm]	32.0	40.0
L [mm]	Ø4.2	Ø5.1

NOTICE

Assembly measures

- When mounting loads, do not allow impermissible forces and moments to be exerted.
- Select the suitable screw tightening torque when assembling the module or loads at the module in accordance with the generally accepted guidelines for screw connections.

Mounting material for RST-P

Item	Designation	060	087
1 *	Screw, ISO 4762	M5 / 4x	M5 / 4x
2 **	Screw, ISO 4762	M5 / 4x	M5 / 4x
34	Centering sleeve	ZH 700 (2x)	ZHU 10 (2x)

* must be supplied by the customer, depending on type of attachment.

** included in the module's scope of delivery

7.2 Air connection

	**⚠ WARNING** **Warning: Risk of injury when the machine/system moves unexpectedly!** Remove the energy supplies before starting with assembly and adjustments. Make sure that no residual energy remains in the system.

	***NOTICE*** Observe the requirements for the air supply. (☞ 6, Page 11) "Technical Data"

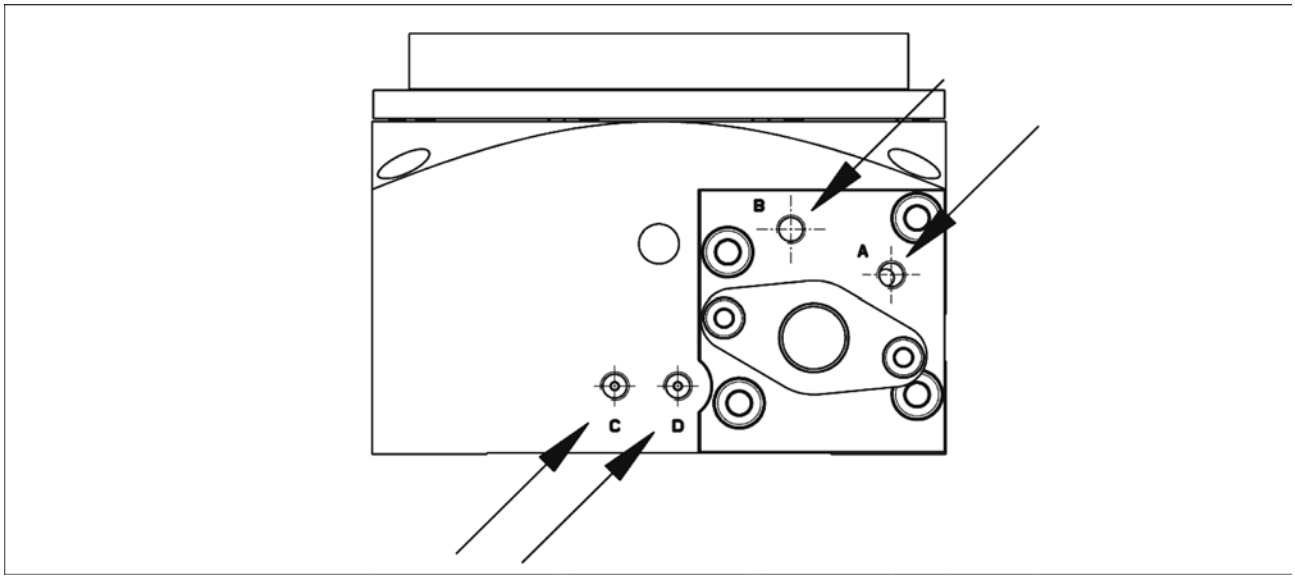

Fig. 4 Air connections

pneumatic actuation / thread diameter for air connections

Connection	Description	060	087
A	Actuation of drive piston • turn clockwise (CW) • provide exhaust air throttle (customer)	M5	M5
B	Actuation of drive piston • turn anti-clockwise (ACW) • provide exhaust air throttle (customer)	M5	M5
C	Actuation of the locking mechanism → position **unlock**	M3	M5
D	Actuation of the locking mechanism → position **lock**	M3	M5

7.3 Sensors

The module is ready to use numerous sensors.

- If you require further information on sensor operation, contact your SCHUNK contact person or download information from our homepage.
- Technical data for the sensors can be found in the data sheets (included in the scope of delivery).

7.3.1 Attachment of IN sensor

NOTICE

The sensor may be destroyed if turned in too far.

- Observe mounting sequence

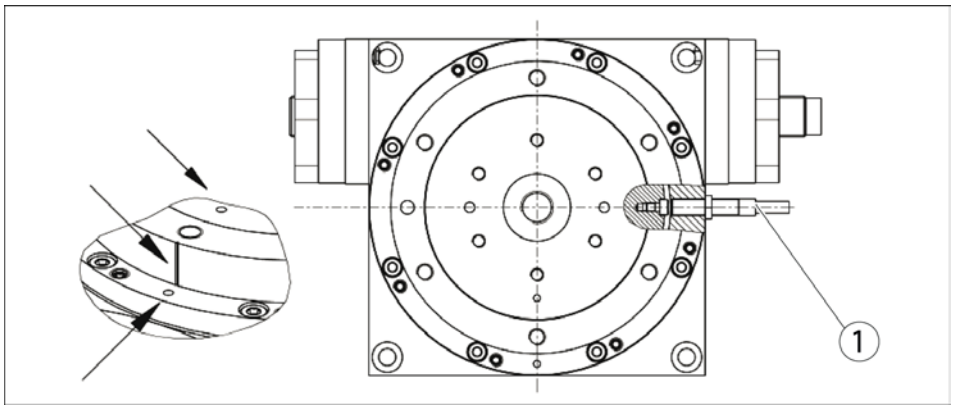

Fig. 5 Attachment of IN sensor

1 Set cycle ring to zero point position. Marking groove on the cycle ring is in agreement with the marking holes in the switching plate and bearing ring (☞ arrows).

2 Remove the cap from the connection thread.

3 Screw sensor (1) into the thread until the signal is present at the output.

4 Lock sensor into place with a counter-nut.

7.3.2 MMS sensor attachment

	***NOTICE*** **Risk of damage to the sensor during assembly!** • Observe a maximum tightening torque of 10 Ncm for the set-screws.

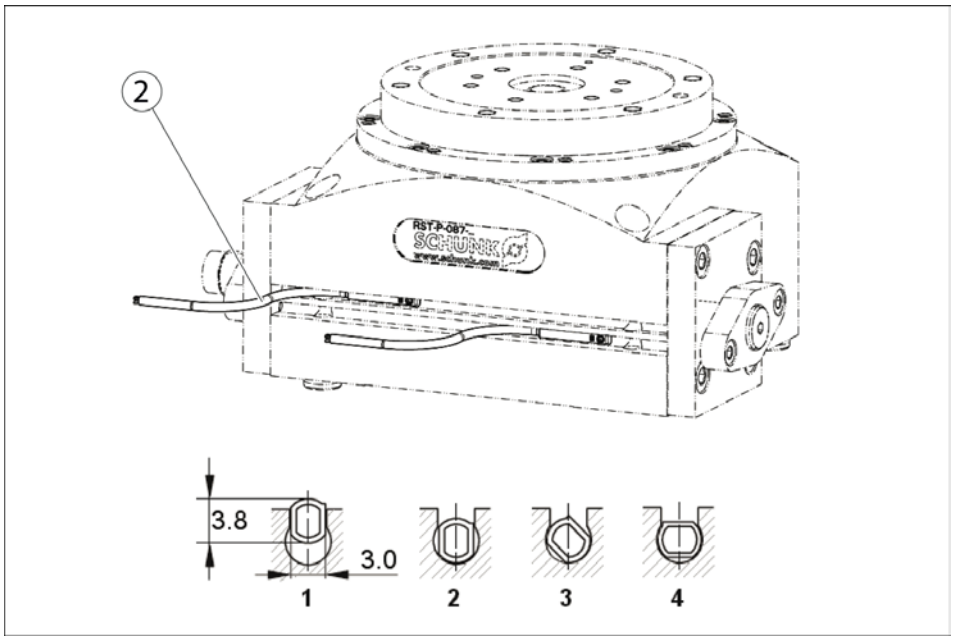

Fig. 6 MMS sensor attachment

For monitoring of the two end positions of the piston, one sensor each is installed.

1 Turn sensor (2) into the groove (1 - 4).

2 Pressurize piston at connection A or B to ensure that it is in end position (☞ 7.2, Page 15).

3 Adjust the sensor (2) to piston position and lock into place using an Allen key.

4 If need be, repeat the procedure with the second sensor and the opposing piston position.

7.4 Setting the swiveling time

See the catalog data for data on the swiveling time.

The swiveling time is ideally set with exhaust air throttles.

These must be provided by the customer (☞ 7.2, Page 15).

7.5 Setting the end position dampers

In the version for left-hand and right-hand operation (L / R), a hydraulic shock absorber is installed in the lifting stroke and an elastomer damper for dampening the reverse stroke.

In the version for operation on both sides, 2 shock absorbers are installed.

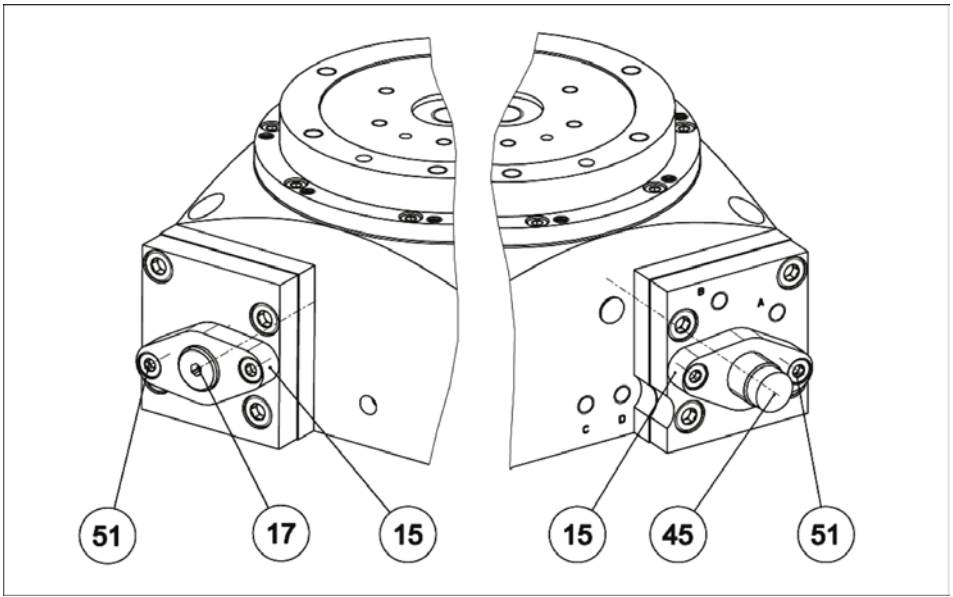

Fig. 7 End position dampers setting; e.g. RST-P...-R

	***NOTICE***
	Back stop (17) and dampers (45) do not serve as end stop for the drive, but only for dampening. The drive piston must stop at the respective end plate, otherwise the module cannot lock correctly and continue pulsing. • Always set back the back stop (17) and dampers (45) to the extent that the module performs the full angle stroke (90°, 60°, 45° or 30°) and can be pulsed on.

Setting of the shock absorbers

✓ The load occurring during operation is mounted onto the module.

✓ The permissible swiveling time (☞ catalog data) is set.

NOTE
If the counter-plate is loosened, compressed air can escape to a small extent.

1 Slightly undo the screws (51) to undo the counter-plate (15).

2 Turn the dampers to the desired position.

3 Tighten screws (51).

4 Test dampening during operation, correct swiveling time if necessary and readjust the setting of the dampers.

⇨ The damper is set correctly if the device reaches its end position swiftly without any mechanical impact.

Setting the back stop

✓ The dampening of the reverse stroke through the elastomer damper in the back stop (17) in versions L / R is set independently of the load and swiveling time.

NOTE
If the counter-plate is loosened, compressed air can escape to a small extent.

1 Slightly undo the screws (51) to undo the counter-plate (15).

2 Turn the back stop (17) to the desired position.

3 Tighten screws (51).

4 Check the dampening in operation and correct the setting if necessary.

⇨ The elastomer damper is set correctly if the piston reaches its end position during reverse stroke without mechanical impact.

8 Handling and operation

8.1 Start-up

8.1.1 Measures for start-up

1 Check the technical specifications (☞ 6, Page 11).

2 Do not use the module until trouble-free operation has been checked taking all permissible operating parameters into account.

3 The swiveling time is ideally regulated via throttle check valves (☞ 7.2, Page 15). The speed is always set so that it starts at a low speed and increases to a higher speed until the desired operating speed has been reached.

8.1.2 Starting up the module

1 Connect all power lines (compressed air) (☞ 7.2, Page 15).

2 Setting the swiveling time (☞ 7.4, Page 18).

3 Setting the end position dampers (☞ 7.5, Page 18).

4 Test run as per actuation (☞ 8.2, Page 21).

5 Correct settings, if necessary.

8.2 Actuation / operation

8.2.1 Actuation of clockwise pulsing

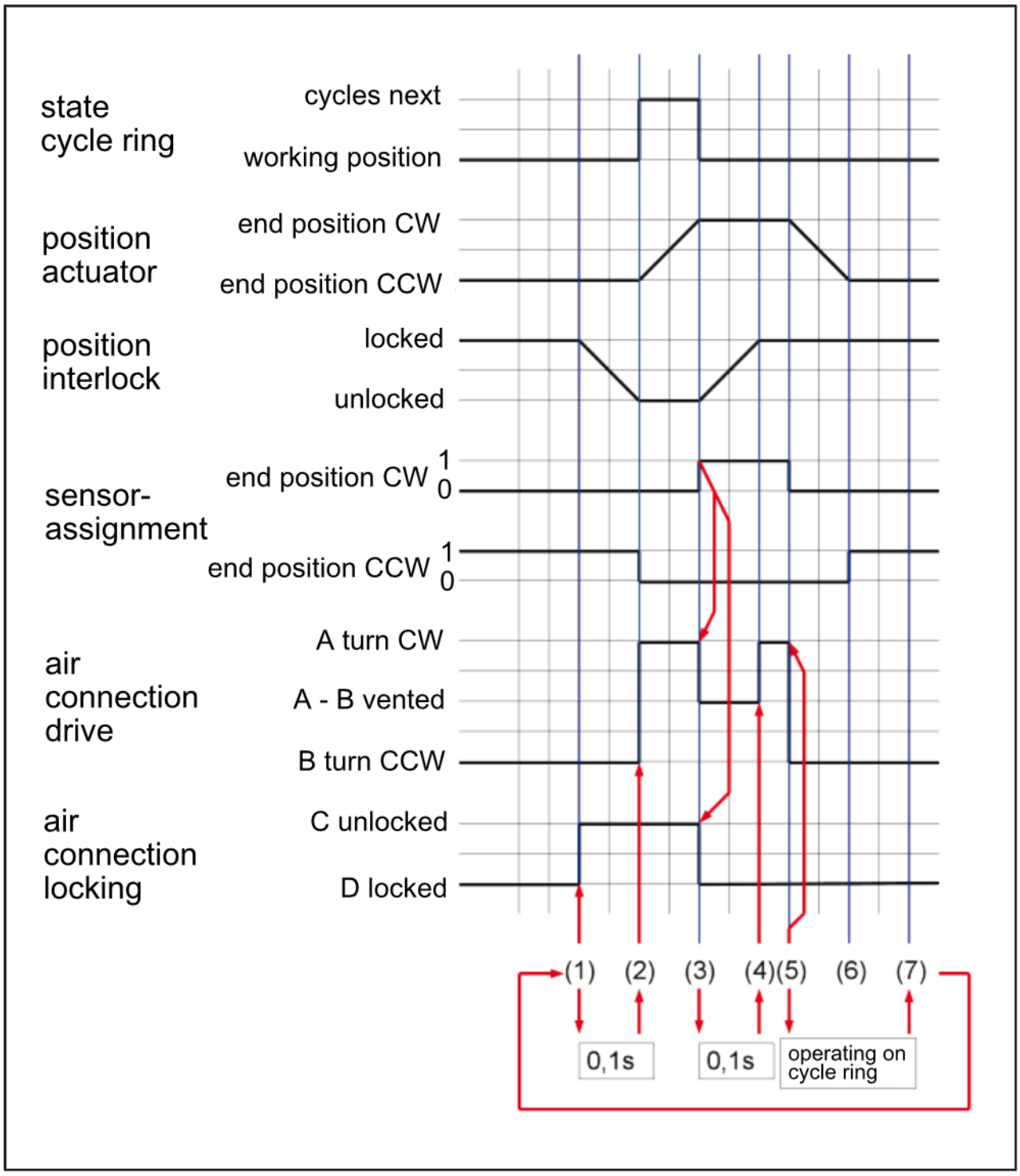

Fig. 8

CW: Clockwise

ACW: Anti-clockwise

NOTICE

It must be possible to completely air-bleed the drive!
For operation, full air-bleeding of the drive is provided for steps (3)→(4).

- Use (1x 5/3 directional control valve or 2x 3/2 control valves) for connections A and B.

Description of clockwise pulsing

RST-P in home position for operation of clockwise pulsing

- Cycle ring in operating position and locked
- Pressurized connection: D
- Drive piston in end position ACW
- Pressurized connection: B
- Sensor assignment: End position ACW

1 **RST-P in home position:** Actuation of connection D → C (locked → unlocked) lock bolts release cycle ring. Up to step 2: Waiting time at least 0.1 s

2 **Locking mechanism fully released:** Actuation of connection B → A (turning ACW → turning CW). Cycle ring is turned by predefined pitch.

3 **Sensor reaches end position CW:** Actuation of connection C → D (locked → unlocked). Simultaneous air-bleeding of connections A, B. Lock bolts lock the cycle ring. Up to step 4: Waiting time at least 0.1 s

4 **New position of the cycle ring is locked:** Pressurize connection A.

5 **Cycle ring is locked, connection A is pressurized:** Actuation of connection A → B (turning CW → turning ACW). Drive piston is decoupled and is moved back. As of sensor leaving end position CW (falling edge), operations can be performed on the rotary table before new pulsing starts.

6 **Sensor reaches end position ACW:** Drive piston is in end position ACW, home position is reached.

7 Introduction of new pulsing

8.2.2 Actuation of anti-clockwise pulsing

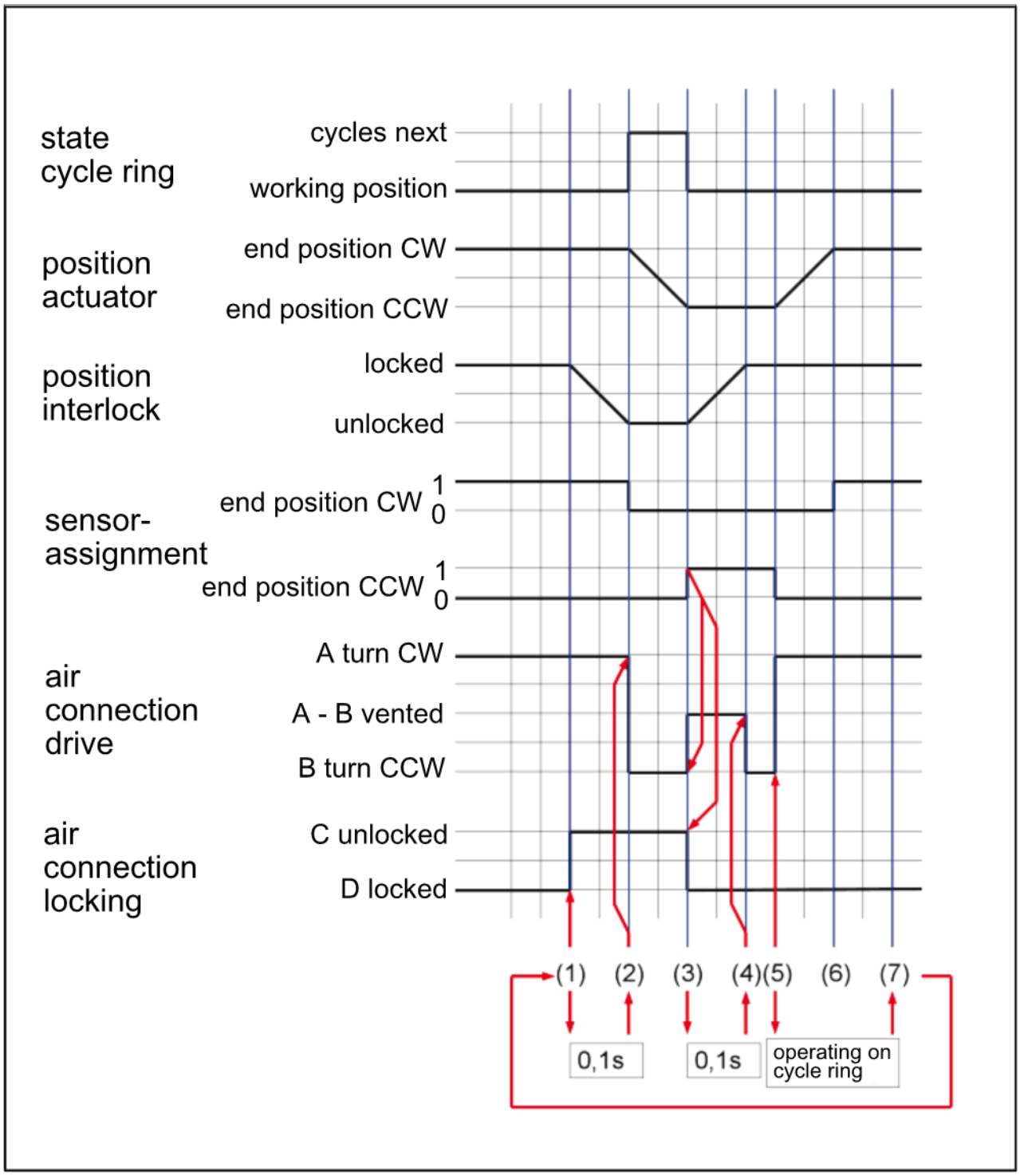

Fig. 9

CW: Clockwise

ACW: Anti-clockwise

NOTICE

It must be possible to completely air-bleed the drive!
For operation, full air-bleeding of the drive is provided for steps (3)→(4).

- Use (1x 5/3 directional control valve or 2x 3/2 control valves) for connections A and B.

Description of anti-clockwise pulsing

RST-P in home position for operation of anti-clockwise pulsing

- Cycle ring in operating position and locked
- Pressurized connection: D
- Drive piston in end position CLOSED
- Pressurized connection: A
- Sensor assignment: End position CLOSED

1 **RST-P in home position:** Actuation of connection D → C (locked → unlocked) lock bolts release cycle ring. Up to step 2 at least 0.1 s waiting time

2 **Locking mechanism fully released:** Actuation of connection B → A (turning CW → turning ACW). Cycle ring is turned by predefined pitch.

3 **Sensor reaches end position ACW:** Actuation of connection C → D (locked → unlocked). Simultaneous air-bleeding of connections A, B. Lock bolts lock the cycle ring. Up to step 4 at least 0.1 s waiting time

4 **New position of the cycle ring is locked:** Pressurize connection B.

5 **Cycle ring is locked, connection B is pressurized:** Actuation of connection B → A (turning ACW → turning CW). Drive piston is decoupled and is moved back. As of sensor leaving end position CW (falling edge), operations can be performed on the rotary table before new pulsing starts.

6 **Sensor reaches end position CW:** Drive piston is in end position CW, home position is reached.

7 Introduction of new pulsing

8.3 Conversion/Change of operating modes left-pulsing L (ACW) ←→ right-pulsing (CW) ←→ operation on both sides B

⚠ WARNING

Warning: Risk of injury when the machine/system moves unexpectedly!
Remove the energy supplies before starting with assembly and adjustments.
Make sure that no residual energy remains in the system.

8.3.1 Conversion left-pulsing operation (ACW) ←→ right pulsing (CW)

Position of the position numbers (☞ 11, Page 34)

RST-P-060 pitch 4

1. Unscrew the 4 screws (51).
2. Screw out back stop with dampening bolts (17), (41) and shock absorbers (45) and screw in the respective opposite position.
3. Setting the damper and the back stop (☞ 7.5, Page 18).
4. Tighten the 4 screws (51).

RST-P-060 pitch 6, 8, 12

1. Unscrew the 4 screws (51).
2. Screw out the back stop with dampening bolts (17), (41) and shock absorber (45).
3. Disassemble cover plates (13) and (14).
4. Take out parts for stroke reduction (08), (31) and push in on opposite side of piston bore hole.
5. Assemble cover plates (13) and (14).

NOTE
The stroke reductions must always be mounted on the same side as the damper.

6. Screw in dampers and back stop opposite to the original side.
7. Setting the damper and the back stop (☞ 7.5, Page 18).
8. Tighten the 4 screws (51).

RST-P-087 all pitches

1. Unscrew the 4 screws (51).
2. Screw out back stop with dampening bolts (17), (41) and shock absorbers (45) and screw in the respective opposite position.
3. Setting the damper and the back stop (☞ 7.5, Page 18).
4. Tighten the 4 screws (51).

8.3.2 Conversion of left- or right-pulsing operation to operation on both sides

Position of the position numbers (☞ 11, Page 34)

RST-P-060 / 087 all pitches

1. Undo two screws (51) on side of back stop.
2. Screw out the back stop with dampening bolts (17), (41).
3. Replace the back stop and dampening bolts (17), (41) with further shock absorber (45).
4. Adjust the shock absorber (45) (☞ 7.5, Page 18).
5. Tighten the two screws (51).

8.4 Conversion of pitch

The customer can modify the pitches 4 / 6 / 12.

Conversion to or from pitch 8 can only be done by SCHUNK. In this case, please consult your SCHUNK contact person.

⚠ WARNING

Warning: Risk of injury when the machine/system moves unexpectedly!
Remove the energy supplies before starting with assembly and adjustments.
Make sure that no residual energy remains in the system.

NOTICE

Stroke reduction for the respective pitch have different lengths.

- Ensure that the correct stroke reduction version is installed.

Pitch conversion kit

Size	060 - Des./ID	087 - Des./ID
Conversion kit for pitch 6	5519575	5519578
Conversion kit for pitch 12	5519577	5519580

Control data for stroke reductions

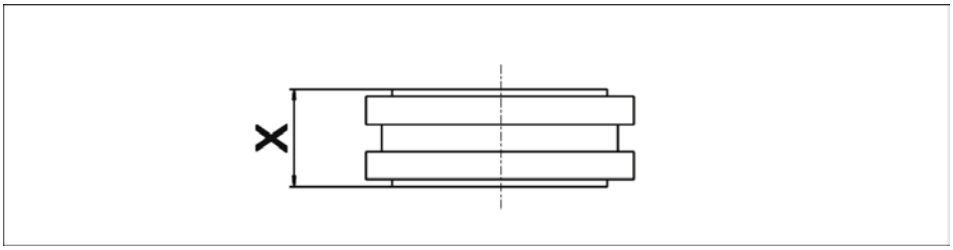

Fig. 10 Control dimension for stroke reduction (8)

Module size	Dimension	Pitch 6 / 12	Pitch 8
060	X [mm]	6.54	9.81
087	X [mm]	9.41	14.12

Tool

The tool is required for converting the pulsing on unit RST-P087.

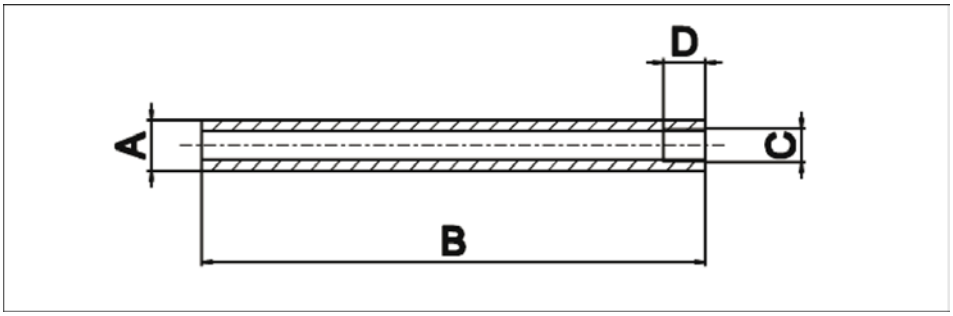

Fig. 11 Tool

Dimension	
A [mm]	Ø12
B [mm]	120
C [mm]	Do not counterbore M8 thread
D [mm]	10

RST-P-060 pitch 4 / 6 / 12

Position of the position numbers (☞ 11, Page 34)

1 Disassemble cover plate (-(13) on version "R" and "B"; - (14) on version "L")

2 If present, take out parts of the stroke reduction and insert parts from the conversion kit(☞ 8.2.1, Page 21).

3 Assemble cover plate (13/14).

4 Adjust the shock absorber (45) (☞ 7.5, Page 18).

5 Tighten the 4 screws (51).

RST-P-087 pitch 4 / 6 / 12

Position of the position numbers (☞ 11, Page 34)

1 Disassemble cover plate (-(13) on version "R" and "B"; - (14) on version "L"). This data applies to factory-assembled units. If the customer converted the operating mode (L / R / B), the stroke reductions may be under the other cover plate.

2 If present, take out parts of the stroke reduction and insert parts from the conversion(☞ 8.2.1, Page 21) kit. Use tool, as required (☞ previous diagram).

3 Assemble cover plate (13/14).

4 Adjust the shock absorber (45) (☞ 7.5, Page 18).

5 Tighten the 4 screws (51).

9 Troubleshooting

9.1 Module not pulsing?

Possible cause	Corrective action
Pressure drops below minimum.	Check the air supply. (☞ 7.2, Page 15)
Compressed air lines switched	Check compressed air lines.
Component is broken, e.g. through overloading	Replace component or send the module with a repair order to SCHUNK. Ensure that the module was only used within its defined application parameters.
Module does not lock correctly	(☞ 9.2, Page 29)

9.2 Module does not lock correctly?

Possible cause	Corrective action
When converting pulsing type or pitch: Use of incorrect stroke reductions	• Check stroke reductions for correctness (pulsing type) and installation position(☞ 8.3, Page 25) • Check stroke reduction dimensions (☞ 8.4, Page 26)
Damper turned in too far (piston does not reach end position)	Readjust damper (☞ 7.5, Page 18)
Back stop not set correctly (piston does not reach end position)	Readjust back stop (☞ 7.5, Page 18)
Pressure drops below minimum.	Check the air supply. (☞ 7.2, Page 15)
Mounting surface is not even enough	Check the levelness of the bolting surface. (☞ 7.1, Page 13)
Component is broken, e.g. through overloading	Send the module to SCHUNK with a repair order or disassemble module.

9.3 Signal for piston position or zero point cycle ring monitoring missing?

Possible cause	Corrective action
IN sensor (zero point monitoring) adjusted incorrectly	Readjust the sensor (☞ 7.3.1, Page 16)
MMS sensor (piston position monitoring) adjusted incorrectly	Readjust the sensor (☞ 7.3.2, Page 17)
Proximity switch defective or set incorrect.	Replace sensor (☞ 7.3, Page 16)
Cable breakage	Replace connection cable for sensor

9.4 Module hitting in end positions?

Possible cause	Corrective action
Check stroke reduction dimensions	• Readjust damper setting (☞ 7.5, Page 18) • Readjust back stop (☞ 7.5, Page 18)
Shock absorber defective	Replace shock absorber (☞ 7.5, Page 18)
The exhaust air throttle is defective	Replacing the exhaust air throttle
Swiveling speed to high	Check swiveling time and adjust with exhaust air throttles as necessary (☞ 7.2, Page 15).

9.5 Useful load swings to end position?

Possible cause	Corrective action
Swiveling speed to high	Check swiveling time and adjust with exhaust air throttles as necessary (☞ 7.2, Page 15)
Shock absorber not well adjusted	Readjust damper setting (☞ 7.5, Page 18)
Unfavorable installation	Check design
RST-P type too small	User larger RST-P type

9.6 Cycle times are not reached?

Possible cause	Corrective action
ACTUAL operating pressure does not equal the TARGET rated operating pressure	Check operating pressure (☞ 6, Page 11)
Compressed air lines are not installed optimally.	Check compressed air lines. Inner diameter of the compressed air lines are sufficiently large relative to the compressed air consumption Compressed air lines between module and control valve shoud be kept as short as possible. Flow rate of valve is sufficiently large relative to the compressed air consumption.
Dampening not ideally set	Readjust damper setting (☞ 7.5, Page 18)

10 Maintenance and Care

10.1 Notes

Original spare parts

When replacing damaged parts (wearing parts/spare parts) only use SCHUNK original spares.

10.2 Shock absorber

NOTICE

Serious mechanical damage due to failure of the shock absorbers
The shock absorbers have a limited service life span. A shock absorber failure can lead to serious mechanical damage; for this reason, they must be checked regularly for proper function.
The shock absorber is working correctly if the device reaches its end position swiftly without any mechanical impact.
Overloading of the unit or exceeding the permitted swivel speed can lead to drastic reduction of the service life (☞ 6, Page 11).

- Regularly check the shock absorber.

Recommended replacement intervals for shock absorbers

Size	060	087
Interval [Mio. cycles]	4	4

Further information on replacing the shock absorber (☞ 7.5, Page 18)

10.3 Lubricants (basic lubrication)

We recommend the lubricants listed.

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

Lubrication point	Lubricant
All seals	Isoflex-Topas NCA 52
Bores on the piston	

10.4 Piston and seals

The pistons have life-time lubrication.

1 Check function and tightness at regular intervals.

If there are leaks, the seals of the cover plates must be replaced. in this case, please consult your SCHUNK contact person.

10.5 Disassembly of the module

NOTICE

The module must only be disassembled by the customer to the extent shown in the following chapter.

- Further disassembly may only be done by SCHUNK as otherwise the mechanism or internal electronics may be damaged.

11 Assembly drawings

11.1 RST-P060 assembly

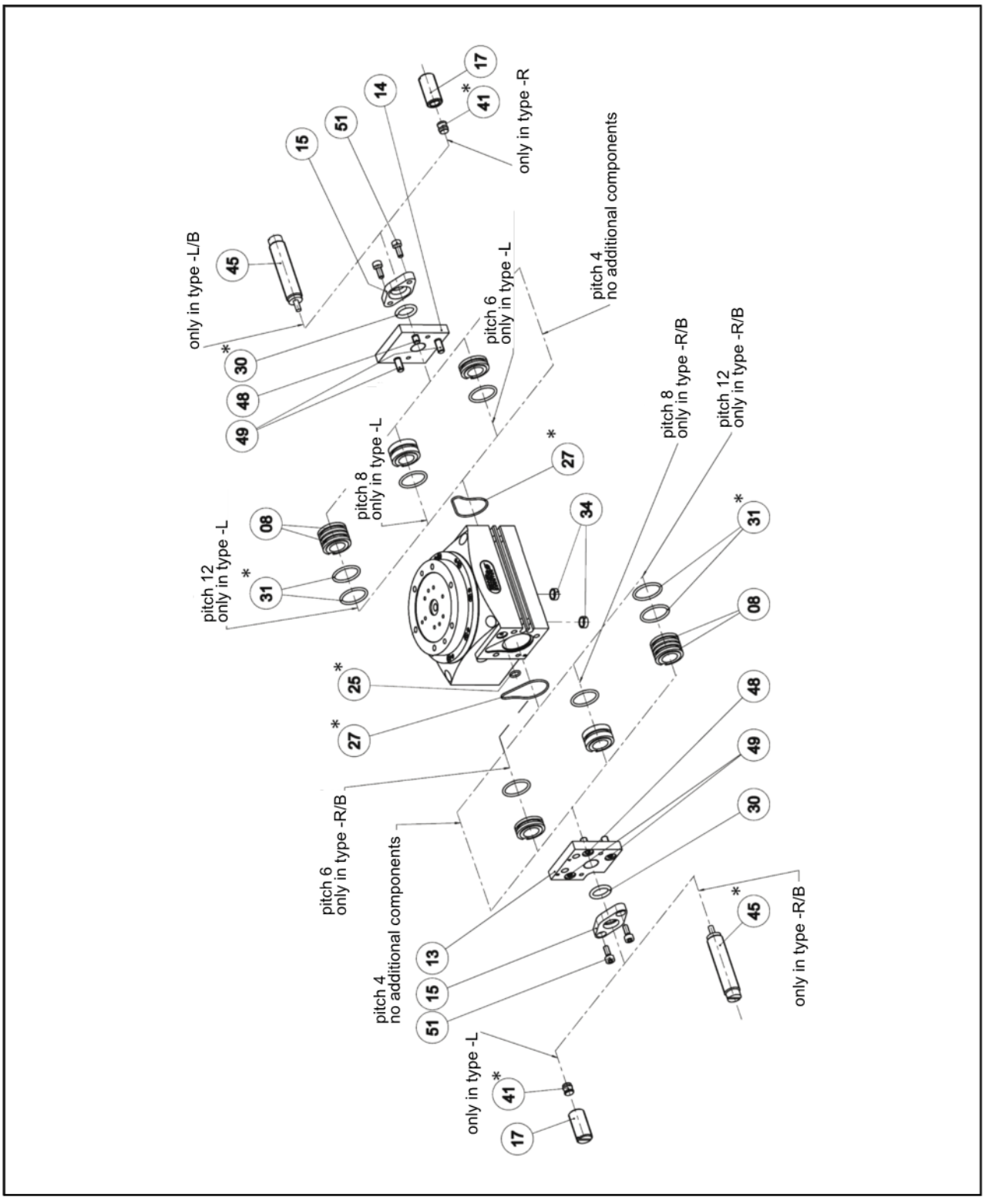

Fig. 12 RST-P060 assembly

* Wearing parts

11.2 RST-P087 assembly

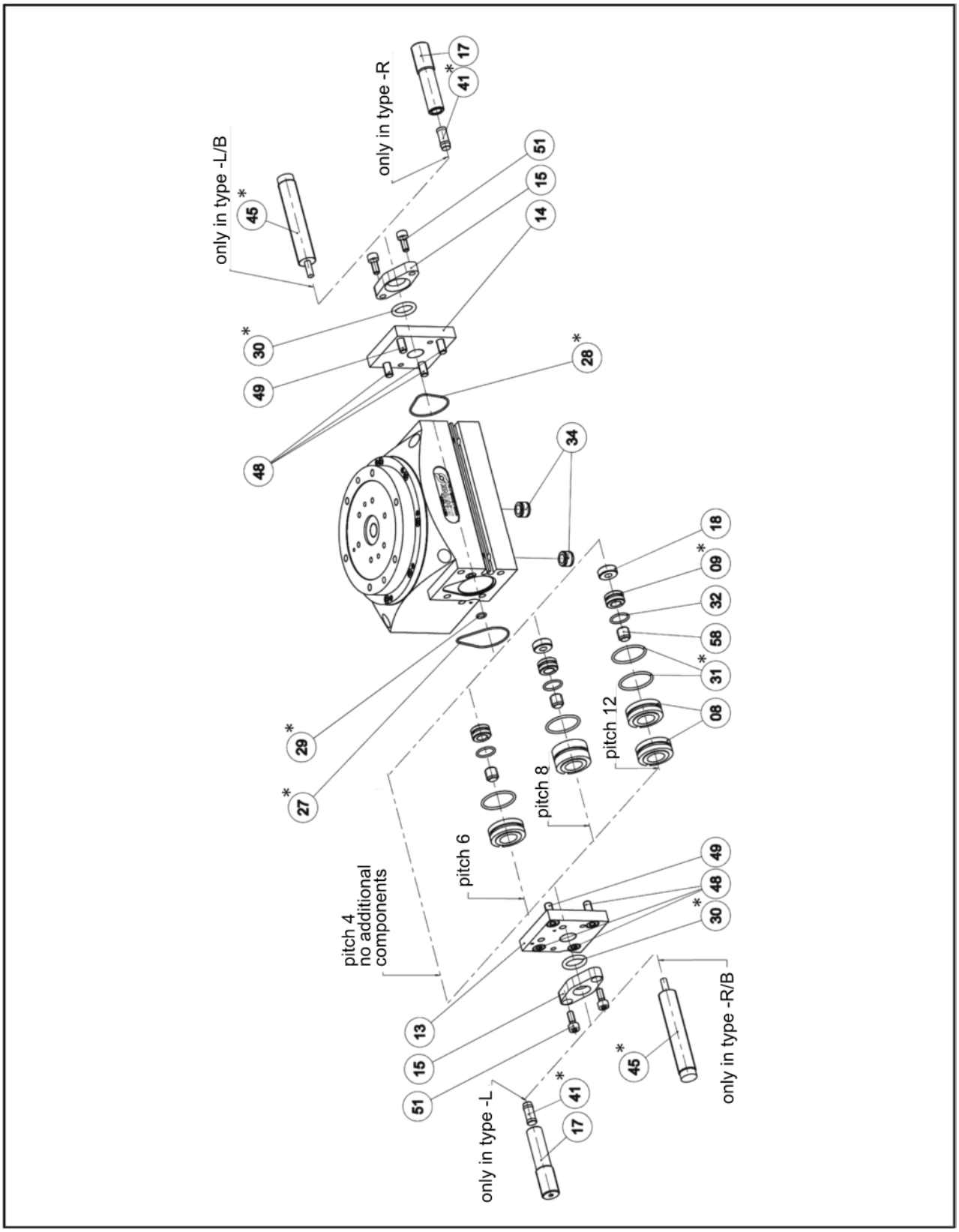

Fig. 13 RST-P087 assembly

* Wearing parts

12 Wearing parts

12.1 RST-P060 wearing parts

Wearing parts

Item	Designation	Pitch 4 Quantity	Pitch 6 Quantity	Pitch 8 Quantity	Pitch 12 Quantity
(25)*	O-ring	1	1	1	1
(27)*	O-ring	2	2	2	2
(30)*	O-ring	2	2	2	2
(31)*	O-ring	-	1	1	2
(41)	Dampening bolts	Var. L/R 1 Var. B 0			
(45)	Shock absorber ID number 9953562	Var. L/R 1 Var. B 2			

* contained in sealing kit.

The wearing parts listed below cannot be replaced by the customer.

Defects in the drive and in the locking mechanism must be rectified by SCHUNK.

In this case, please consult your SCHUNK contact person.

other wearing parts

Item	Quantity	Designation	
(4)	1	Switching plate	Locking mechanism
(10)	2	Lock bolts	
(11)	2	Guide bushing I	
(12)	2	Guide bushing II	
(6)	1	Gear	Drive
(7)	1	Piston	

12.2 RST-P087 wearing parts

Wearing parts

Item	Designation	Pitch 4 Quantity	Pitch 6 Quantity	Pitch 8 Quantity	Pitch 12 Quantity
(09)	Threaded element ID number 5519643	-	1	1	1
(27)*	O-ring	1	1	1	1
(28)*	O-ring	1	1	1	1
(29)*	O-ring	1	1	1	1
(30)*	O-ring	2	2	2	2
(31)*	O-ring	-	1	1	2
(41)	Dampening bolts	Var. L/R 1 Var. B 0			
(45)	Shock absorber ID number 9953562	Var. L/R 1 Var. B 2			

* contained in sealing kit.

The wearing parts listed below cannot be replaced by the customer.

Defects in the drive and in the locking mechanism must be rectified by SCHUNK.

In this case, please consult your SCHUNK contact person.

other wearing parts

Item	Quantity	Designation	
(4)*	1	Switching plate	Locking mechanism
(10)*	2	Lock bolts	
(11)*	2	Guide bushing I	
(12)*	2	Guide bushing II	
(6)*	1	Gear	Drive
(7)*	1	Piston	

Notes

13 Translation of original declaration of incorporation

In terms of the EC Machinery Directive 2006/42/EG, Annex II, Part B

Manufacturer/ Distributor	SCHUNK GmbH & Co. KG Spann- und Greiftechnik Bahnhofstr. 106 – 134 D-74348 Lauffen/Neckar

We hereby declare that the following product:

Product designation:	Ring indexing table / RST-P 060 / 087 / electro-pneumatic
ID number	0314510 … 0314533

meets the applicable basic requirements of the **Machinery Directive (2006/42/EC).**

The incomplete machine may not be put into operation until conformity of the machine into which the incomplete machine is to be installed with the provisions of the Machinery Directive (2006/42/EC) is confirmed.

Applied harmonized standards, especially:

EN ISO 12100:2011-03	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 62079:2001	Preparation of instructions - Structuring, content and presentation

The manufacturer agrees to forward on demand the special technical documents for the incomplete machine to state offices.

The special technical documents according to Annex VII, Part B, belonging to the incomplete machine have been created.

Person responsible for documentation: Mr. Robert Leuthner, Address:
see address of the manufacturer

Lauffen/Neckar, October 2013

Ralf Winkler; Business Unit Manager
R & D Mechanical Gripping Systems