PNEUMATIC SWIVEL HEAD
TYPE SRH

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. You can reach us directly at the mentioned addresses in the last chapter of these instructions.

Kindest Regards,

Your SCHUNK GmbH & Co. KG
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Contents

1 Safety

1.1 Symbol key

You will find this symbol wherever **hazards for persons** or **damage to the product** are possible.

This symbol indicates **important information** on the product or its handling.

1.2 Appropriate use

The unit is intended for installation / mounting for machinery and equipment. The requirements of the applicable directives must be observed and complied with.

The unit may only ever be employed within the restrictions of its technical specifications. Using the system with disregard to even a minor specification will be deemed inappropriate use. The manufacturer assumes no liability for any injury or damage resulting from inappropriate use.

1.3 Environmental and operating conditions

- Use the unit only within the application parameters defined in the Technical Catalog. The most recent version applies (according to the General Terms and Conditions). Please make sure that your application has been checked based on the current SCHUNK calculation program. If this is not the case, we can provide no warranty.
- Standard for quality of the compressed air according to ISO 8573-1: **6 4 4**
- Clean ambient conditions at room temperature are required. If these conditions are not ensured, the maintenance interval will be shorter, depending on the actual utilization.
- The environment must be free of splashing water and vapors, and also of abrasive dust and process dust. This does not apply to units designed especially for dirty environments.

1.4 Safety notes

There are potential risks associated with the unit, for example if:

- the unit is improperly used, installed or serviced.
- the unit is used other than for the intended purpose.
- the EC Machine Directive, the accident prevention regulations, the VDE guidelines or the safety and installation instructions are not observed.

All personnel who are responsible for installation, commissioning and servicing must have read and understood the entire operating manual, in particular the chapter on »Safety«. It is recommended to have this confirmed in writing.

Installation and dismantling, mounting of the proximity switches, connections and commissioning may be carried out only by authorized personnel.

Work procedures that impair the correct functioning and operational safety of the product are prohibited.

Do not move any parts by hand when the unit is connected to the power supply.

Do not reach into the open mechanical parts and the area of motion of the rotary unit.

The power supply cables must be removed for assembly, modification, maintenance and adjustment of the unit.

Carry out all maintenance, modifications or attachments outside of the danger zone.

During installation, connection, adjusting, commissioning and testing, measures must be taken to prevent the risk of inadvertent activation of the unit by the fitter or other persons.

Protective covers must be provided for the use of all handling modules in accordance with EC Machine Directive, Section 1.4.

There is a danger due to falling or ejected objects. Preventive measures must be taken to prevent the falling or ejection of potentially dangerous objects (machined workpieces, tools, chips, debris, waste, etc.).

Additional bore holes, threads or attachments not offered by SCHUNK as accessories may be mounted only after obtaining the approval of SCHUNK.

Rotary units with internal springs can have parts that are under spring tension. Therefore, special care is necessary when dismantling such a unit.

In the event of emergency shut-down the rotary unit can still move due to a drop in pressure. If such movement is not desired, the position of the unit in the event of emergency shut-down can be secured in any end position with the use of SCHUNK SDV-P valves.

In addition, the applicable safety regulations and accident prevention regulations must be observed.

2 Warranty

The warranty period is 24 months from the date of delivery when utilized as intended in compliance with the specified maintenance and lubrication intervals and the defined environmental and operating conditions (see chapter 1.3).
Parts that come into contact with the workpiece and wearing parts are not covered by the warranty. Wearing parts are designated accordingly in the replacement parts lists (see chapter 9).
See also our General Terms and Conditions in this regard. .

The unit is considered defective when the basic rotary function is inoperable.

3 Scope of delivery

The scope of delivery comprises:

- Pneumatic swivel head SRH, depending on the version ordered

4 Technical data

Please refer to our current catalog for the technical data.

Please check whether the suitability of your individual application has been verified using the rotary actuator calculation program (SSE). If this is not the case, we reserve the right to refuse warranty claims. (The calculation program is available free of charge at: www.schunk.com >Service >Downloads).

The airborne sound emitted from the unit is <= 70dB(A)

5 Assembly and installation

5.1 Assembly

For connection dimensions, please refer to the corresponding drawings in the latest catalog or our CAD data service on the Internet (link at www.schunk.com).

DANGER!
The air supply must be switched off during assembly. Please also observe the safety notes in chapter 1.3.

5.2 Air connection/media connection

Pressure medium: compressed air.
Standard for quality of the compressed air according to ISO 8573-1: **6 4 4**

- Open only the required connections and close off those that are not required with dummy stoppers.
- O-rings (item 84) have been included in the enclosed pack for hose-free direct connection, see catalog for item numbers.

The threads marked A and B are available for the air connection for the basic unit.

5.3 Adjusting the end positions

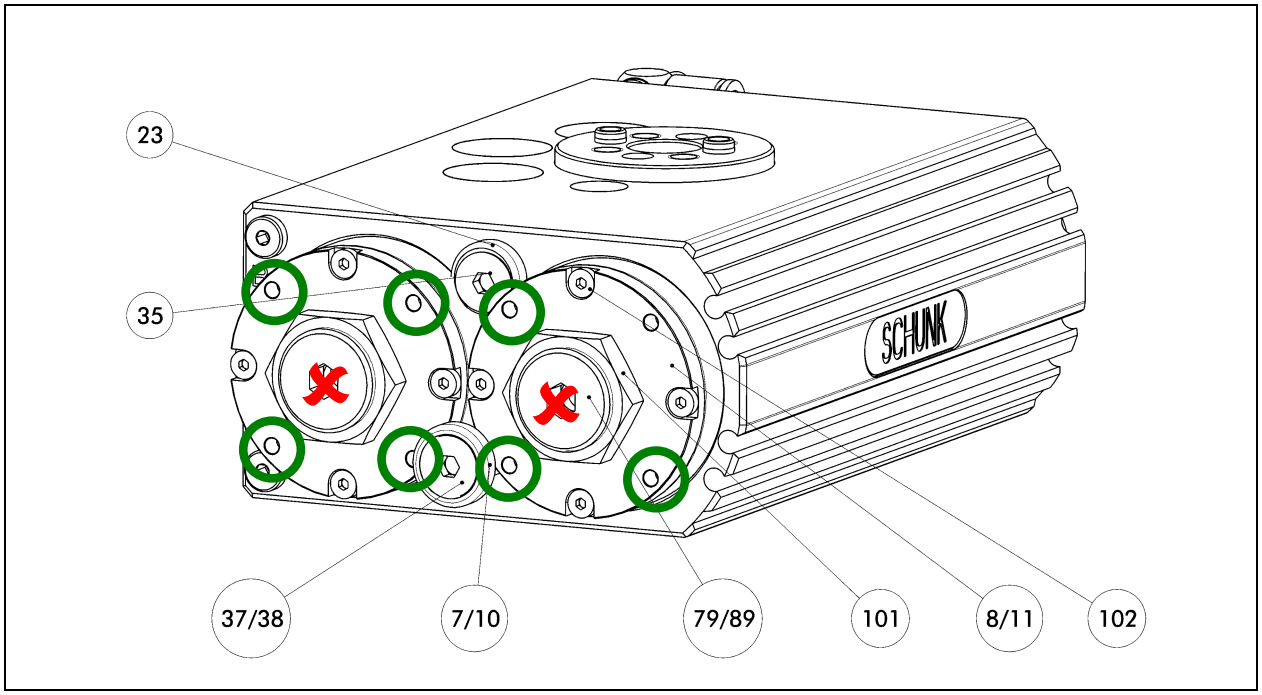


Figure - Adjusting the end positions

1. Loosen the screw (item 35) by approx. 1 turn using a hexagon socket screw (SRU 20 – 40: 4, SRU 50 – 60: 5).
2. Apply pressure to air connection B. The unit swivels to stop A (basic position 0°).
3. Set the required end position by turning stop A (near the two main air connections). **Do not adjust the end stops by turning in the axial, front hexagon socket.** This could result in the individual components becoming detached from one another. Use a face pin, wrench which you position on the axial bores in the stop cover.
4. Purge air connection B and apply pressure to air connection A. The unit swivels to stop B (basic position 180°).
5. Set the required end position by turning stop B (near the domed side of the SRU). (see above point 3.)
6. Tighten the screw (item 35) (SRU 20 – 40:10 Nm, SRU 50 – 60: 24 Nm).
7. Check that the end positions have been set correctly by swiveling the unit several times.

Warning!
The limit sleeves (item 7, 10 or 25, depending on the SRU version) limit the adjustment range of the stops. For safety reasons, the unit must only be operated when the limit sleeves are installed.

5.4 Fine adjustment of shock absorber travel

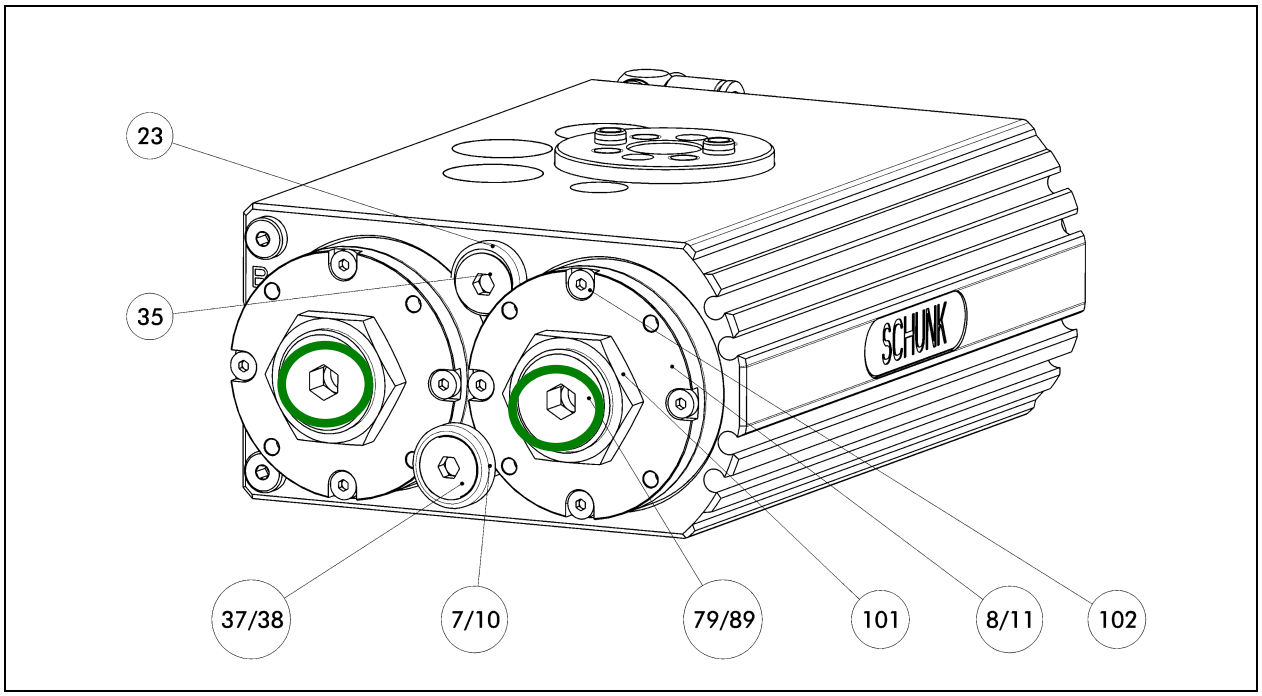


Figure Fine adjustment of shock absorber travel

1. To adjust the cushioning in the end position, loosen the nut (item 101) at stop A/ B using an open-end wrench while bracing the striker pin (item 79/ 89) with a hexagon socket wrench.
2. Unscrewing the striker pin shortens the shock absorber travel by 1.5 mm per revolution.
3. Swivel the loaded unit to check the cushioning effect.
   The end positions must be arrived at gently.
4. Retighten the nuts (items 101a / b).

Notice!
The maximum adjustment range of the shock absorbers is 1.5 mm for SRH20+25, 0.5 mm for SRH 35 and 3 mm for SRH40-60.
Beyond this range, leakage commences in order to protect the unit.

5.5 Assembling and setting the proximity switches

5.5.1 MMS 22 magnetic switches (see data sheet)

Four grooves have been incorporated in the housing for installing the magnetic switches. Proceed as follows to set a switching position:

1. Insert the magnetic switch into the groove.
2. Move it along the groove until the switch actuates.
3. Fix the magnetic switch in place in accordance with the supplied data sheet.
4. Check that the setting is correct by swiveling the unit several times.

5.5.2 Inductive proximity switches with M8 external thread

(e.g. SCHUNK IN 80)

1. Fasten the retaining plate (item 99) onto the SRU housing with the aid of the screws (item 235).
2. Screw the bracket (item 236) onto the retaining plate (item 99) using the screws (item 232).
3. Insert the proximity switch (not included in the mounting kit) into the brackets (item 236) as far as the stop. Clamp in this position using the screw (item 231).
4. Fit the screw (item 234) to the distributor plate (item 73) and secure with the lock nut (item 233).
5. Adjust one bracket (item 236) so that the sensor responds. In order to do this, the screws (item 231) must be loosened slightly. Retighten the screws (item 231) when adjustment is complete.
6. Swivel the unit 180°
7. Adjust the second bracket (item 236) so that the sensor responds. In order to do this, the screws (item 231) must be loosened slightly. Retighten the screws (item 231) when adjustment is complete.
8. Check that the setting is correct by swiveling the unit several times.

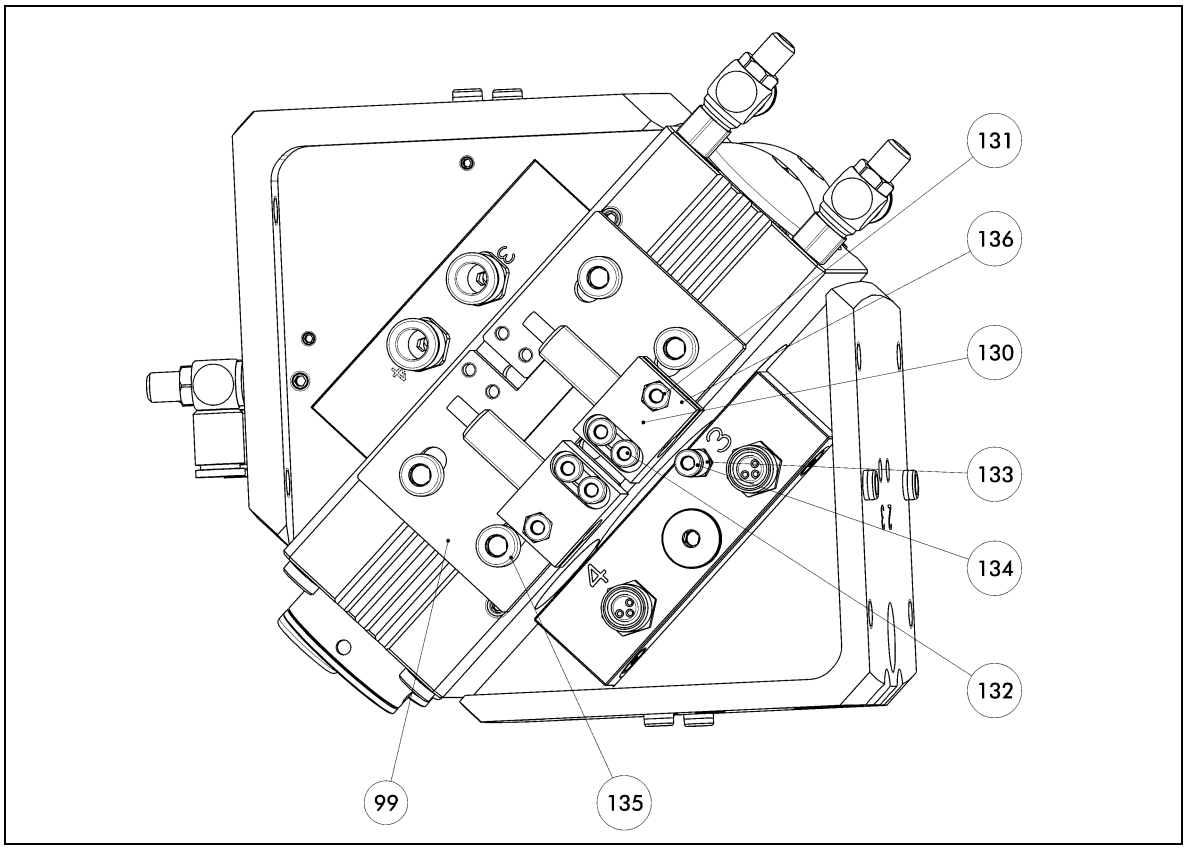


Figure - Fitting inductive proximity switches

5.6 Cable assignment

Cable outlet of the rotating distributor plate

Unit	Cable connection, rotating adapter plate	
SRU 20	4 x M5	Connector for proximity switch connection
SRU 20	4 x M8	Connector for proximity switch connection
SRU 25	4 x M5	Connector for proximity switch connection
SRU 25	4 x M8	Connector for proximity switch connection
SRU 35	4 x M5	Connector for proximity switch connection
SRU 35	4 x M8	Connector for proximity switch connection
SRU 40	8 x M5	Connector for proximity switch connection
SRU 40	8 x M8	Connector for proximity switch connection
SRU 40	8 x M12	Connector for proximity switch connection
SRU 50	8 x M5	Connector for proximity switch connection
SRU 50	8 x M8	Connector for proximity switch connection
SRU 50	8 x M12	Connector for proximity switch connection
SRU 60	8 x M5	Connector for proximity switch connection
SRU 60	8 x M8	Connector for proximity switch connection
SRU 60	8 x M12	Connector for proximity switch connection

Bending radius:
Minimum bending radius for continuous movement: 10x cable diameter

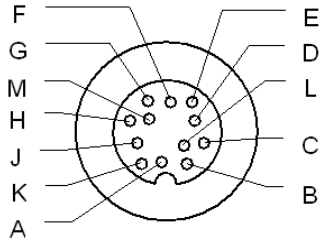


Figure - Pin assignment - M16 connector

5.7 EDF pin assignment for SRH

SRH 20-35	
M16 connector pin	Sensor operation Pin at sensor connections
A	Sensor 3 signal
B	GND (common)
C	Sensor 2 signal
D	Sensor 4 signal
E	Sensor 1 signal
F	-- not used --
G	-- not used --
H	+24 V (common)
J	-- not used --
K	-- not used --
L	-- not used --
M	-- not used --
Shield	SHD

SRH 40-60	
M16 connector pin	Sensor operation Pin at sensor connections
A	Sensor 3 signal
B	GND (common)
C	Sensor 2 signal
D	Sensor 4 signal
E	Sensor 1 signal
F	Sensor 5 signal
G	Sensor 6 signal
H	+24 V (common)
J	Sensor 7 signal
K	-- not used --
L	-- not used --
M	Sensor 8 signal
Shield	SHD

6 Function and handling

When pressure is applied to air connection A, the pinion rotates clockwise as far as stop B (basic position 180°). When pressure is applied to connection B it turns back to stop A (basic setting 0°).

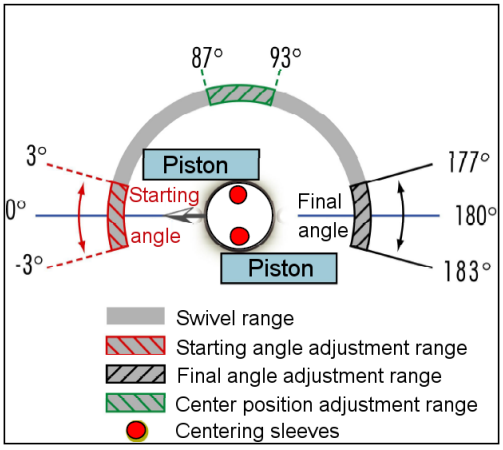


Figure - End position adjustability

7 Maintenance and care

7.1 Servicing Intervals

Type SRH	20	25	30	35	40	50	60
Checking swivel movements (approx. million cycles)	4	4	4	4	4	4	4
Checking tightness and mechanics (approx. million cycles)	2	2	2	2	2	2	2
Checking the function of the shock absorbers (approx. million cycles)	1	1	1	1	1	0.5	0.5

Environmental temperatures of more than 60 °C/ 140 °F can harden the used lubricants faster. Therefore, lubrication and maintenance works have to be carried out more often.

7.2 Notes

Please observe the following notes to ensure correct functioning of the rotary actuator:

1. Standard for quality of the compressed air according to ISO 8573-1: **6 4 4**
2. Wearing parts can be ordered from SCHUNK. The order number and the contents of the seal sets can be found in chapter 9.
3. During maintenance, grease the serration with SCHUNK LINO MAX (order no. 0184211), and grease all the other friction surfaces and seals with Renolit HLT 2 or a comparable lubricant.
4. Unless otherwise specified, secure all screws and nuts with Loctite no. 243.

7.1 Disassembling the rotary actuator

See illustrations in chapter 8

1. Remove all air and power lines
2. Undo the screw (item 35) and remove the screw (item 37) and the two stop covers. Remove the domed cover (item 5).
3. Mark the installation position of the pinion (item 2 or 19) and the piston (item 24).
4. Disassemble the safety ring on the pinion (item 49).
5. With the media feed-through option, remove the flange (item 20) or the protective lid (item 22)
6. Press the pinion out of the housing.

7.2 Replacing a shock absorber

The shock absorbers have a limited life span, depending on the stresses to which they are subject. Their function should therefore be checked regularly. A shock absorber is functioning correctly when the unit hits the end stops gently. The shock absorbers are specially tested and can only be obtained from SCHUNK. When replacing a shock absorber proceed as follows, depending on which option you have:

(See Figure 1, Figure 5 and Figure 6)

1. Undo the screws (item 102) and remove the stop cover (item 8/11).Remove the safety rings (item 50) from the piston.
2. Remove the safety rings (item 50) from the piston.
3. Pull out the absorbers (item 54) and remove all the fitting disks from the bore.
4. **Insert the new absorbers. Use as many fitting disks behind the absorber as are needed to achieve the stipulated shock absorber projection (see table and illustrations at the end of the chapter)!**
5. Place fitting disks behind the safety rings until they can be installed without clearance.
6. Re-attach the stop cover (item 8/11) and secure it once more with the screws (item 102).

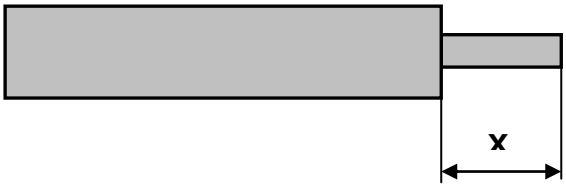
7.3 Shock absorber use and installation dimensions

SRH	Shock absorber	Specified shock absorber projection (h)	
20.1	WP-M 0.25-356	9.5	±0.1
20.2	WP-M 0.25-356	9.5	±0.1
25.1	WP-M 0.25-356	9.5	±0.1
25.2	WP-M 0.25-356	9.5	±0.1
35.1	MC 225 MH2	See measuring instructions below	±0.1
35.2	MC 225 MH2		±0.1
40.1	MC 600 MH2		±0.1
40.2	WP-M 1.0-166	17.5	±0.1
50.1	WP-M 1.0-166	17.5	±0.1
50.2	WP-M 1.0-166	17.5	±0.1
60.1	WP-M 1.0-166	17.5	±0.1
60.2	WP-M 1.0-456	17.5	±0.1

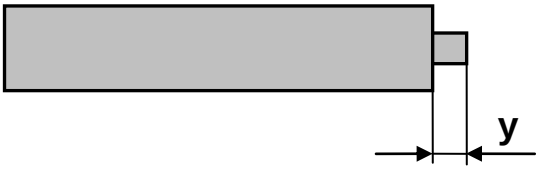
With WP-M shock absorbers, only item 4 of the following measuring instructions has to be followed. The values specified refer to the shock absorber travel (h).

7.4 Measuring instructions

1. Measure the projection (**x**) of the shock absorber tappet.

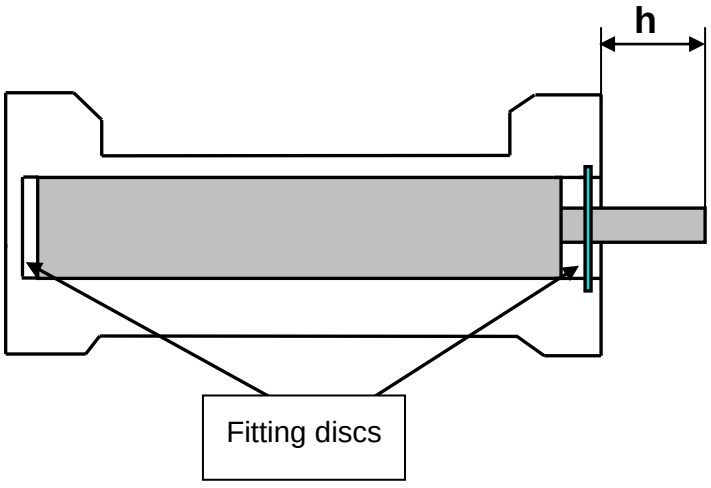


2. Measure the projection (**y**) of the shock absorber tappet pressed onto the block.



3. Calculate the shock absorber travel. **h = x - y - 0.2 mm**

4. Set the shock absorber projection (**h**).



8 Assembly drawings

8.1 SRU assembly drawings

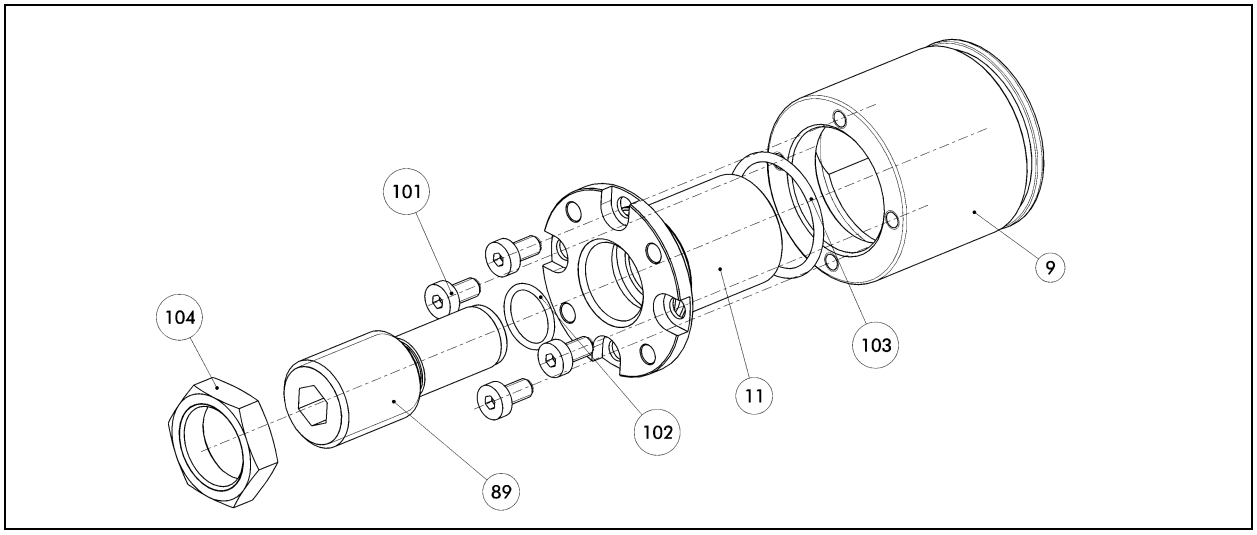


Figure 6 - Stop side, end position adjustability

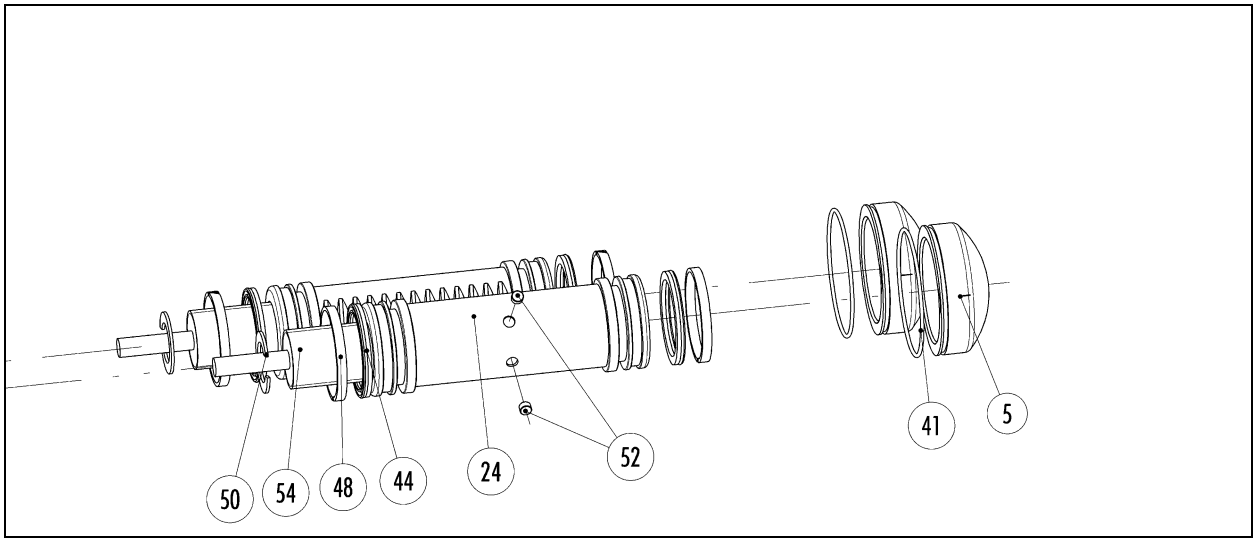


Figure 7 - Piston and cover

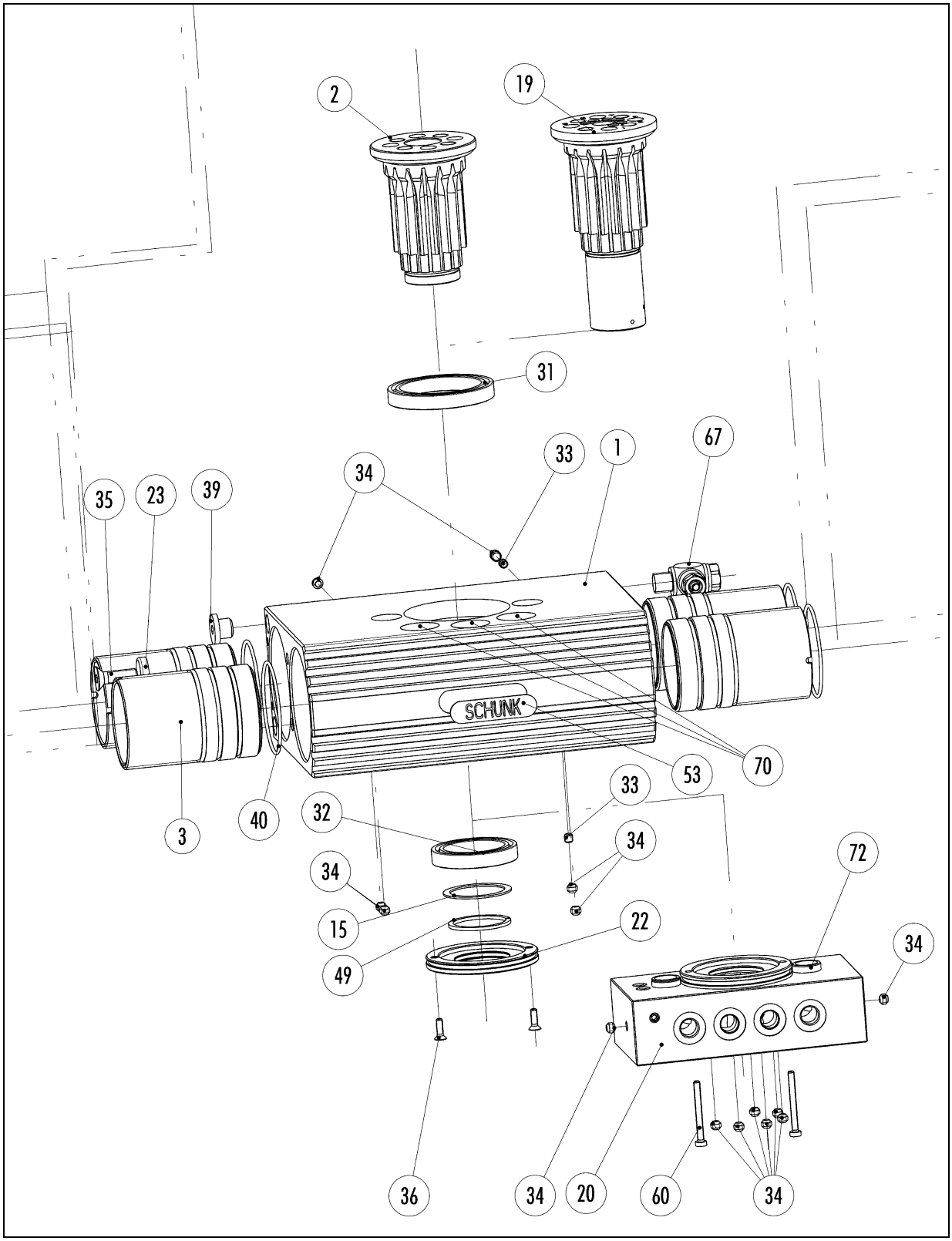
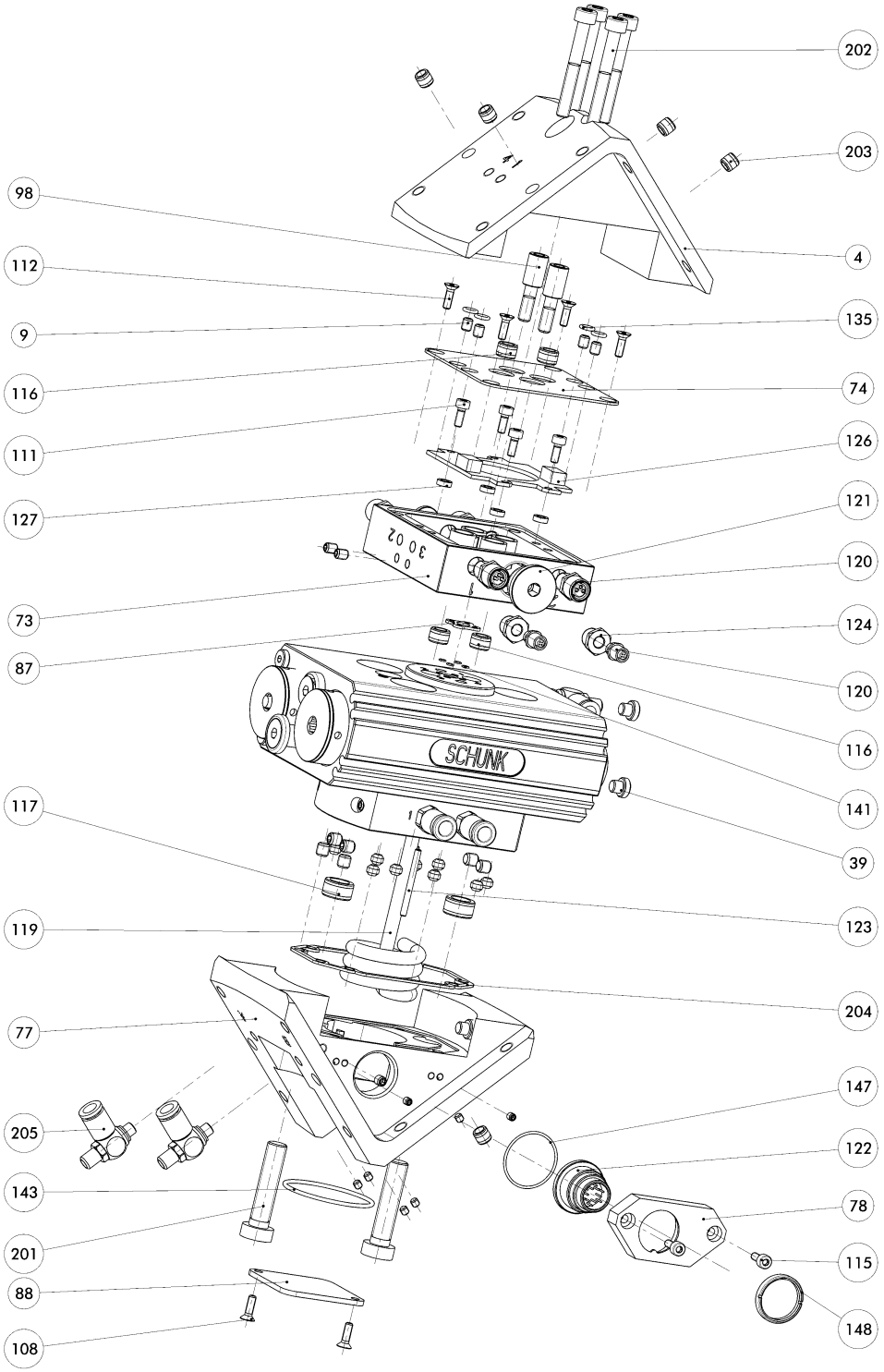


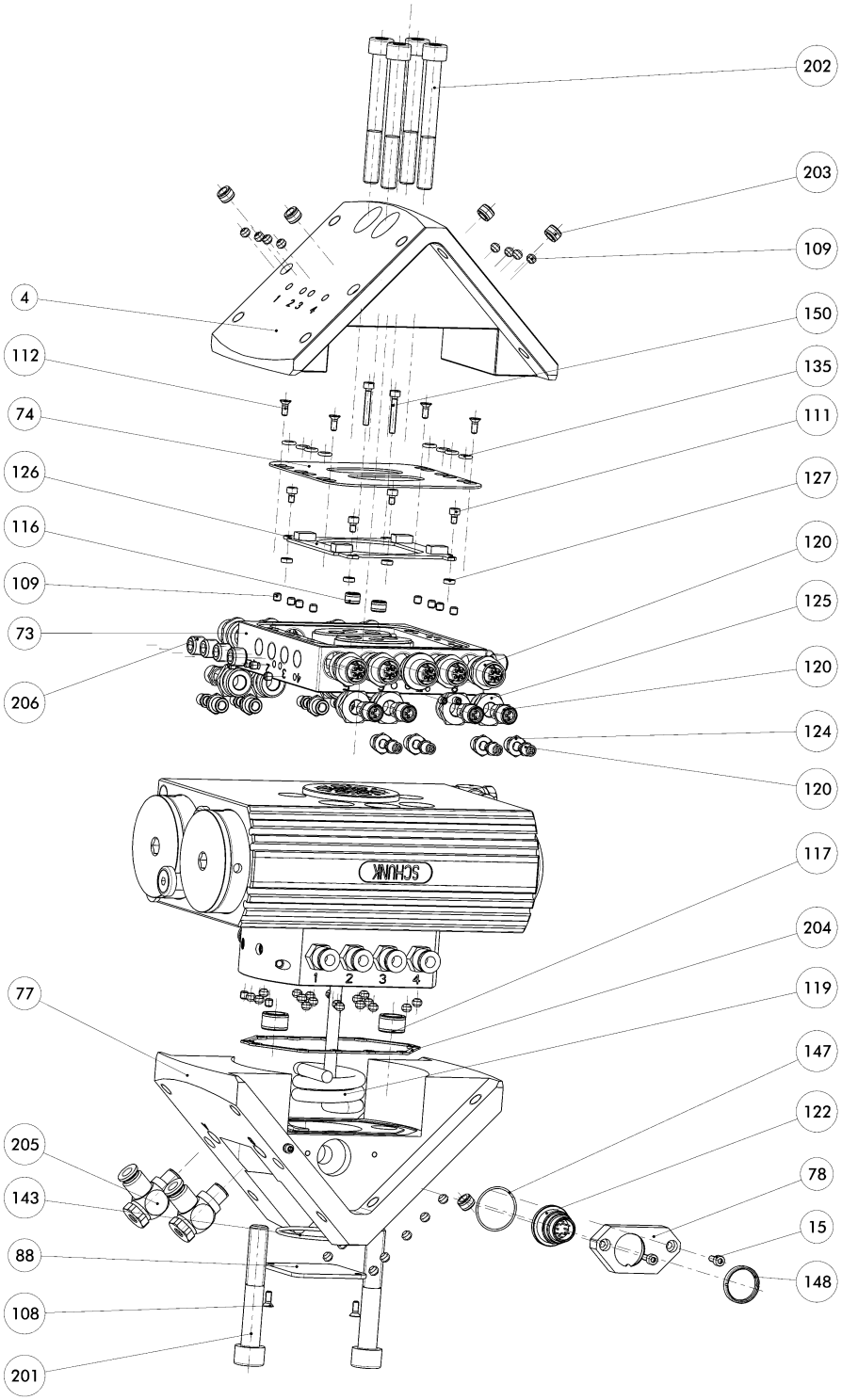
Figure 8 - Basic components and media feed-through

8.2 SRH assembly drawings

8.2.1 Exploded view for SRH 20-35



8.2.2 Exploded view for SRH 40-60



9 Bills of materials

9.1 Bills of materials for SRH20

9.1.1 SRU bill of materials for SRH20

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513720	1	Housing		
3	5513722	4	Guide sleeve		
5	5513305	2	Cover		
6	5513231	2	Adjusting sleeve 90°		
7	5513229	1	Limit sleeve 3°		
8	5513230	2	Stop cover 3°		
19	5515758	1	MDF pinion		
20	5516177	1	MDF flange		
23	5513266	1	Clamping disk		
24	5513245	2	Piston		
31	9632012	1	61805-2RS4 deep groove ball bearing		
32	9938986	1	61803-2RS1 deep groove ball bearing		
33	9942019	2	Set screw DIN913 M4x4 PA		
34	9942020	12	Set screw DIN913 M5x4 PA		
35	9664003	1	Countersunk screw DIN 7991 M6x16		
37	9664023	1	Countersunk screw DIN 7991 M6x25		
39	9659005	4	Locking screw DIN908 M5x5		
40	9939228	4	O-ring DIN3771 Ø23x1.0		
41	9939230	4	O-ring DIN3771 Ø27x1.5		
43	9611474	2	O-ring DIN3771 Ø 26x1.5		
44	9610009	4	Quad ring Ø 15.60x1.78	Yes	
46	9936334	5	O-ring DIN3771 Ø14x1.5	Yes	
48	9939296	4	Guide ring Ø20x Ø16x4	Yes	
49	9942280	1	Safety ring DIN 471 A17x1		
50	9621025	2	Safety ring DIN 472 I14x1		
52	9936070	4	Circular magnet		
54	9948127	2	Shock absorber WP-M 0.35-356	Yes	
60	9660424	2	Screws DIN912/A2 M3x25		
64	9941670		Fitting disk DIN988 7x13x0.15		
65	9941669		Fitting disk DIN988 7x13x0.1		
66	9650414		Fitting disk DIN988 15x21x0.1		
70	9939015	2	Reducing nipple M5-M5		
72	9939380	2	Centering sleeve Ø12x6.65		
73	9659003	2	Sealing ring M5		
76	9611063	2	O-ring DIN3771 Ø6x1		

9.1.2 EDF bill of materials for SRH20

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516187	1	EDF 20/25 distributor plate		
74	5516186	1	EDF 20/25 cover plate		
78	5515707	1	EDF 20/25 plate		
87	9942466	1	EDF 20/25 flat seal		
98	5516697	2	EDF 20/25 threaded bolt		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		
116	9939378	2	Centering sleeve Ø8 x 5.35		
119	9941379	1	Spiral round cable for EDF 20-35		
120	9941714	4	Flange socket, 3-pin M5		Only for M5
120	9341033	4	Flange socket, 3-pin M8		Only for M8
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	9941755	2	Clamping pin Ø2.5 x 28		
124	9941786	4	Reducer M8x0.5–M5x0.5		Only for M5
126	9941766	1	EDF connection circuit board 25		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	4	M5 screw plug		Only for M5
130	9937198	4	M8 screw plug		Only for M8
140	9611044	4	O-ring Ø10x1		
141	9611518	4	O-ring Ø2.5x0.5		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		

9.1.3 Bill of materials for SRH20

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516189	1	Swivel head		
77	5516188	1	Screw-on bracket		
78	5517021	1	SRH cover plate		
88	5515921	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
109	99420109	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
115	9662006	2	Screw DIN 912 M3 x 8		
116	9939378	2	Centering sleeves Ø8 x 5.35		
117	9939380	2	Centering sleeves Ø12 x 6.65		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9611053	1	O-ring Ø35 x 1.5		
188	5521164	1	Cover		
201	9948455	2	Screw DIN912 M10x40		
202	9660014	4	Screw DIN912 M5x30		
203	9939384	6	Centering sleeve Ø6 x 5.35		Enclosed pack
204	9948017	1	SRH flat seal		
205	9936160	2	One-way flow control valve		

9.2 Bills of materials for SRH25

9.2.1 SRU bill of materials for SRH25

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513247	1	Housing		
3	5513249	4	Guide sleeve		
5	5513250	2	Cover		
6	5513254	2	Adjusting sleeve 90°		
7	5513252	1	Limit sleeve 3°		
8	5513253	2	Stop cover 3°		
19	5515760	1	MDF pinion		
20	5516177	1	MDF flange		
23	5513266	1	Clamping disk		
24	5513267	2	Piston		
31	9632012	1	61805-2RS4 deep groove ball bearing		
32	9938986	1	61803-2RS1 deep groove ball bearing		
33	9942019	2	Set screw DIN913 M4x4 PA		
34	9942020	12	Set screw DIN913 M5x4 PA		
35	9664003	1	Countersunk screw DIN 7991 M6x16		
37	9664023	1	Countersunk screw DIN 7991 M6x25		
39	9659005	4	Locking screw DIN908 M5x5		
40	9611143	4	O-ring DIN3771 Ø25x1.5		
41	9611053	4	O-ring DIN3771 Ø35x1.5		
43	9936055	2	O-ring DIN3771 Ø32x1.5		
44	9937411	4	Cylinder seal Ø25xØ19x3.25	Yes	
46	9936334	5	O-ring DIN3771 Ø14x1.5	Yes	
48	9939297	4	Guide ring Ø25xØ21x4	Yes	
49	9942280	1	Safety ring DIN 471 A17x1		
50	9621025	2	Safety ring DIN 472 I14x1		
52	9937285	2	Circular magnet Ø5x3		
54	9948128	2	Shock absorber WP-M 0.35-456	Yes	
60	9660424	2	Screws DIN912/A2 M3x25		
64	9941670		Fitting disk DIN988 7x13x0.15		
65	9941669		Fitting disk DIN988 7x13x0.1		
66	9650414		Fitting disk DIN988 15x21x0.1		
70	9939015	3	SRU cover disk		
72	9939380	2	Centering sleeve Ø12x6.65		
76	9611063	2	O-ring DIN3771 Ø6x1		

9.2.2 EDF bill of materials for SRH25

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516187	1	EDF 20/25 distributor plate		
74	5516186	1	EDF 20/25 cover plate		
87	9942466	1	EDF 20/25 flat seal		
98	5516697	2	EDF 20/25 threaded bolt		
109	9942019	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		

Item	ID	Quantity	Designation	Wearing part?	Note
116	9939378	2	Centering sleeves Ø8 x 5.35		
119	9941379	1	Spiral round cable for EDF 20-35		
120	9941714	4	Flange socket, 3-pin M5		Only for M5
120	9341033	4	Flange socket, 3-pin M8		Only for M8
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	9941755	2	Clamping pin Ø2.5 x 28		
124	9941786	4	Reducer M8x0.5–M5x0.5		Only for M5
126	9941766	1	EDF connection circuit board 25		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	4	M5 screw plug		Only for M5
130	9937198	4	M8 screw plug		Only for M8
140	9611044	4	O-ring Ø10x1		
141	9611518	4	O-ring Ø2.5x0.5		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		

9.2.3 Bill of materials for SRH25

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516189	1	Swivel head		
77	5516188	1	Screw-on bracket		
78	5517021	1	SRH cover plate		
88	5515921	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
115	9662006	2	Screw DIN 912 M3 x 8		
116	9939378	2	Centering sleeves Ø8 x 5.35		
117	9939380	2	Centering sleeves Ø12 x 6.65		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9611053	1	O-ring Ø35 x 1.5		
188	5521164	1	Cover		
201	9948455	2	Screw DIN7984 M8x50		
202	9660014	4	Screw DIN912 M5x30		
203	9939384	6	Centering sleeve Ø6 x 5.35		Enclosed pack
204	9948017	1	SRH flat seal		
205	9936160	2	One-way flow control valve		

9.3 Bills of materials for SRH35

9.3.1 SRU bill of materials for SRH35

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513268	1	Housing		
3	5513270	4	Guide sleeve		
5	5513272	2	Cover		
6	5513276	2	Adjusting sleeve 90°		
7	5513274	1	Limit sleeve 3°		
8	5513275	2	Stop cover 3°		
19	5515762	1	MDF pinion		
20	5516178	1	MDF flange		
23	5513266	1	Clamping disk		
24	5513290	2	Piston		
31	9632002	1	61806-2RS deep groove ball bearing		
32	9632001	1	61804-2RS deep groove ball bearing		
33	9942019	2	Set screw DIN913 M4x4 PA		
34	9942020	12	Set screw DIN913 M5x4 PA		
35	9664003	1	Countersunk screw DIN 7991 M6x16		
37	9664023	1	Countersunk screw DIN 7991 M6x25		
39	9659005	4	Locking screw DIN908 M5x5		
40	9939231	4	O-ring DIN3771 Ø38x1.5		
41	9611052	4	O-ring DIN3771 Ø45x1.5		
43	9907131	2	O-ring DIN3771 Ø42x1.5		
44	9938989	4	Cylinder seal Ø35xØ27x3.25	Yes	
46	9900286	5	O-ring DIN3771 Ø17x1.5	Yes	
48	9939298	4	Guide ring Ø35xØ31x4	Yes	
49	9907493	1	Safety ring DIN 471 A20x1.2		
50	9621013	2	Safety ring DIN 472 I20x1		
52	9937285	2	Circular magnet Ø5x3		
54	9701013	2	Shock absorber MC 225 MH2	Yes	
60	9907495	2	Screws DIN912/A2 M3x30		
64	9650001		Fitting disk DIN988 13x19x0.1		
65	9650413		Fitting disk DIN988 13x19x0.15		
66	9650026		Fitting disk DIN988 20x28x0.1		
70	9939015	3	SRU cover disk		
72	9939380	2	Centering sleeve Ø12x6.65		
76	9611063	2	O-ring DIN3771 Ø6x1		

9.3.2 EDF bill of materials for SRH35

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516194	1	Distributor plate EDF 35		
74	5516192	1	EDF 35 cover plate		
87	9942466	1	EDF 35 flat seal		
98	5516960	2	EDF 35 reducing sleeve		
109	9942019	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		
119	9941379	1	Spiral round cable for EDF 20-35		
120	9941714	4	Flange socket, 3-pin M5		Only for M5
120	9341033	4	Flange socket, 3-pin M8		Only for M8
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	9941755	2	Clamping pin Ø2.5 x 28		
124	9941786	4	Reducer M8x0.5–M5x0.5		Only for M5
126	9941766	1	EDF connection circuit board 25		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	4	M5 screw plug		Only for M5
130	9937198	4	M8 screw plug		Only for M8
140	9611044	4	O-ring Ø10x1		
141	9611518	4	O-ring Ø2.5x0.5		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		

9.3.3 Bill of materials for SRH35

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516197	1	Swivel head		
77	5516196	1	Screw-on bracket		
78	5517021	1	SRH cover plate		
88	5515921	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
116	9939378	2	Centering sleeves Ø8 x 5.35		
117	9939380	2	Centering sleeves Ø12 x 6.65		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9611053	1	O-ring Ø35 x 1.5		
188	5521164	1	Cover		
201	9660031	2	Screw DIN7984 M8 x 50		
202	9941205	4	Screw DIN912 M5 x 60		
203	9939384	6	Centering sleeve Ø6 x 5.35		Enclosed pack
204	9948017	1	SRH flat seal		
205	9936160	2	One-way flow control valve		

9.4 Bills of materials for SRH40

9.4.1 SRU bill of materials for SRH40

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513291	1	Housing		
3	5513293	4	Guide sleeve		
5	5513295	2	Cover		
6	5513299	2	Adjusting sleeve 90°		
7	5513297	1	Limit sleeve 3°		
8	5513298	2	Stop cover 3°		
19	5515769	1	MDF pinion		
20	5516179	1	MDF flange		
23	5513266	1	Clamping disk		
24	5513314	2	Piston		
31	9632002	1	61806-2RS deep groove ball bearing		
32	9632010	1	61808-2RS deep groove ball bearing		
33	9942019	2	Set screw DIN913 M4x4 PA		
34	9942020	12	Set screw DIN913 M5x4 PA		
35	9664003	1	Countersunk screw DIN 7991 M6x16		
37	9939511	1	Countersunk screw DIN 7991 M6x30		
39	9659001	4	Locking screw DIN908 G1/8		
40	9611101	4	O-ring DIN3771 Ø43x1.5		
41	9611118	4	O-ring DIN3771 Ø50x1.5		
43	9939154	2	O-ring DIN3771 Ø48x1.5		
44	9907470	4	Cylinder seal Ø40xØ32x3.25	Yes	
46	9611066	5	O-ring DIN3771 Ø23x1.5	Yes	
48	9939003	4	Guide ring Ø40xØ36.92x4	Yes	
49	9620002	1	Safety ring DIN 471 A27x1.2		
50	9621005	2	Safety ring DIN 472 I25x1.2		
52	9937285	2	Circular magnet Ø5x3		
54	9941268	2	Shock absorber WP-M 1.0-166	Yes	
60	9935420	2	Screws DIN912/A2 M3x40		
64	9941673		Fitting disk DIN988 17x24x0.15		
65	9935996		Fitting disk DIN988 17x24x0.1		
66	9650011		Fitting disk DIN988 20x28x0.1		
70	9939015	3	SRU cover disk		
72	9939381	2	Centering sleeve Ø14x8.6		
76	9611063	2	O-ring DIN3771 Ø6x1		

9.4.2 EDF bill of materials for SRH40

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516204	1	EDF 40 distributor plate		
74	5516198	1	EDF 40 cover plate		
87	9942467	1	EDF 40 flat seal		
98	5516965	2	EDF 40 reducing sleeve		
109	9942019	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		
116	9939378	2	Centering sleeves Ø8 x 5.35		
119	9941380	1	Spiral round cable for EDF 40-60		
120	9941714	8	Flange socket, 3-pin M5		Only for M5
120	9341033	8	Flange socket, 3-pin M8		Only for M8
120	9941202	8	Flange socket, 3-pin M12		Only for M12
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	9941756	2	Clamping pin Ø3.0 x 32		
124	9941786	8	Reducer M8x0.5–M5x0.5		Only for M5
125	9941787	8	Reducer PG9- M8x0.5		Only for M8+M5
126	9941767	1	EDF connection circuit board 40		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	8	M5 screw plug		Only for M5
130	9937198	8	M8 screw plug		Only for M8
140	9611076	4	O-ring Ø12 x 1		
141	9611300	4	O-ring Ø3.5 x 1		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		

9.4.3 Bill of materials for SRH40

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516202	1	Swivel head		
77	5516200	1	Screw-on bracket		
88	5516917	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
116	9939378	2	Centering sleeves Ø8 x 5.35		
117	9939381	2	Centering sleeves Ø14x 86		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9942127	1	O-ring Ø41 x 1.5		
188	5521165	1	Cover		
201	9660140	2	Screw DIN912 M10 x 65		
202	9907254	4	Screw DIN912 M8 x 50		
203	9939378	6	Centering sleeve Ø8x6.65		Enclosed pack
204	9948015	1	SRH flat seal		
205	9936164	2	One-way flow control valve		

9.5 Bills of materials for SRH50

9.5.1 SRU bill of materials for SRH50

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513723	1	Housing		
3	5513725	4	Guide sleeve		
5	5513726	2	Cover		
6	5513730	2	Adjusting sleeve 90°		
7	5513728	1	Limit sleeve 3°		
8	5513729	2	Stop cover 3°		
19	5516175	1	MDF pinion		
20	5516180	1	MDF flange		
23	5513743	1	Clamping disk		
24	5513744	2	Piston		
31	9938987	1	61912-2RS deep groove ball bearing		
32	9938988	1	16009-2RS deep groove ball bearing		
33	9942020	?	Set screw DIN913 M5x4 PA		
34	9942021		Set screw DIN913 M6x6 PA		
35	9682117	1	Countersunk screw DIN 7991 M8x25		
37	9939010	1	Countersunk screw DIN 7991 M8x30		
39	9659001	4	Locking screw DIN908 G1/8		
40	9937019	4	O-ring DIN3771 Ø54 x 1		
41	9935467	4	O-ring DIN3771 Ø61 x 1.5		
43	9638388	2	O-ring DIN3771 Ø56 x 1.5		
44	9935507	4	Cylinder seal Ø50xØ42x3.25	Yes	
46	9611143	9	O-ring DIN3771 Ø25 x 1.5	Yes	
48	9939295	4	Guide ring Ø50xØ46.9x4	Yes	
49	9936698	1	Safety ring DIN 471 A45 x 1.2		
50	9621005	2	Safety ring DIN 472 I25 x 1.2		
52	9938426	2	Circular magnet Ø9 x 5		
54	9941268	2	Shock absorber WP-M 1.0-166	Yes	
60	9660415	2	Screws DIN912/A2 M4 x 20		
64	9941673		Fitting disk DIN988 17x24x0.15		
65	9935996		Fitting disk DIN988 17x24x0.1		
66	9936000		Fitting disk DIN988 45x55x0.1		
70	9939015	3	SRU cover disk		
72	9939382	2	Centering sleeve Ø16 x 8.6		
76	9938859	2	O-ring DIN3771 Ø7 x 1		

9.5.2 EDF bill of materials for SRH50

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516208	1	EDF 50/60 distributor plate		
74	5516206	1	EDF 50/60 cover plate		
87	5516238	1	EDF 50/60 flat seal		
98	5516694	2	EDF 50/60 reducing sleeve		
109	9942019	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		
116	9939379	2	Centering sleeves Ø10 x 6.65		
119	9941380	1	Spiral round cable for EDF 40-60		
120	9941714	8	Flange socket, 3-pin M5		Only for M5
120	9341033	8	Flange socket, 3-pin M8		Only for M8
120	9941202	8	Flange socket, 3-pin M12		Only for M12
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	5516212	1	Driver		
124	9941786	8	Reducer M8x0.5–M5x0.5		Only for M5
125	9941787	8	Reducer PG9- M8x0.5		Only for M8+M5
126	9941767	1	EDF connection circuit board 40		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	8	M5 screw plug		Only for M5
130	9937198	8	M8 screw plug		Only for M8
130	9905303	8	Screw plug M12		Only for M12
140	9611076	4	O-ring Ø14 x 1		
141	9941243	4	O-ring Ø3.5 x 0.5		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		
149	9662006	4	Screw DIN 912 M3 x 8		

9.5.3 Bill of materials for SRH50

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516211	1	Swivel head		
77	5516209	1	Screw-on bracket		
88	5516917	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
116	9939379	2	Centering sleeves Ø10 x 6.65		
117	9939382	2	Centering sleeves Ø16 x 8.6		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9942127	1	O-ring Ø41 x 1.5		
188	5521165	1	Cover		
201	9682122	2	Screw DIN912 M12 x 40		
202	9660112	4	Screw DIN912 M10 x 60		
203	9939379	6	Centering sleeve Ø10 x 6.65		Enclosed pack
204	9948014	1	SRH flat seal		
205	9936164	2	One-way flow control valve		

9.6 Bills of materials for SRH60

9.6.1 SRU bill of materials for SRH60

Item	ID	Quantity	Designation	Wearing part?	Note
1	5513750	1	Housing		
3	5513752	4	Guide sleeve		
5	5513753	2	Cover		
6	5513757	2	Adjusting sleeve 90°		
7	5513728	1	Limit sleeve 3°		
8	5513756	2	Stop cover 3°		
19	5516176	1	MDF pinion		
20	5516180	1	MDF flange		
23	5513743	1	Clamping disk		
24	5513771	2	Piston		
31	9938987	1	61912-2RS deep groove ball bearing		
32	9938988	1	16009-2RS deep groove ball bearing		
33	9942020	?	Set screw DIN913 M5x4 PA		
34	9942021		Set screw DIN913 M6x6 PA		
35	9682117	1	Countersunk screw DIN 7991 M8x25		
37	9939010	1	Countersunk screw DIN 7991 M8x30		
39	9659001	4	Locking screw DIN908 G1/8		
40	9939232	4	O-ring DIN3771 Ø65 x 1.5		
41	9611117	4	O-ring DIN3771 Ø74 x 1.5		
43	9935792	2	O-ring DIN3771 Ø71.5 x 1.5		
44	9938990	4	Cylinder seal Ø60xØ52x3.25	Yes	
46	9611143	9	O-ring DIN3771 Ø25 x 1.5	Yes	
48	9939004	4	Guide ring Ø60xØ56.92x4	Yes	
49	9936698	1	Safety ring DIN 471 A45 x 1.2		
50	9621005	2	Safety ring DIN 472 I25 x 1.2		
52	9938426	2	Circular magnet Ø9 x 5		
54	9941268	2	Shock absorber WP-M 1.0-166	Yes	
60	9660415	2	Screws DIN912/A2 M4 x 20		
64	9941673		Fitting disk DIN988 17x24x0.15		
65	9935996		Fitting disk DIN988 17x24x0.1		
66	9936000		Fitting disk DIN988 45x55x0.1		
70	9939015	3	SRU cover disk		
72	9939382	2	Centering sleeve Ø16 x 8.6		
76	9938859	2	O-ring DIN3771 Ø7 x 1		

9.6.2 EDF bill of materials for SRH60

Item	ID	Quantity	Designation	Wearing part?	Note
73	5516208	1	EDF 50/60 distributor plate		
74	5516206	1	EDF 50/60 cover plate		
87	5516238	1	EDF 50/60 flat seal		
98	5516694	2	EDF 50/60 reducing sleeve		
109	9942019	8	Set screw M4 x 4 PA-coated		
110	9942020	7	Set screw M5 x 4 PA-coated		
111	9662006	4	Screw DIN 912 M3 x 8		
112	9938292	4	Countersunk screw M3 x 6		
116	9939379	2	Centering sleeves Ø10 x 6.65		
119	9941380	1	Spiral round cable for EDF 40-60		
120	9941714	8	Flange socket, 3-pin M5		Only for M5
120	9341033	8	Flange socket, 3-pin M8		Only for M8
120	9941202	8	Flange socket, 3-pin M12		Only for M12
121	5517076	1	PG9 locking screw		
122	9941715	1	M16 connector		
123	5516212	1	Driver		
124	9941786	8	Reducer M8x0.5–M5x0.5		Only for M5
125	9941787	8	Reducer PG9- M8x0.5		Only for M8+M5
126	9941767	1	EDF connection circuit board 40		
127	9942114	4	M3 spacer sleeves, self-retaining		
129	5517075	1	Locking screw M8x0.5		
130	9942494	8	M5 screw plug		Only for M5
130	9937198	8	M8 screw plug		Only for M8
130	9905303	8	M12 screw plug		Only for M12
140	9611076	4	O-ring Ø14 x 1		
141	9941243	4	O-ring Ø3.5 x 0.5		
147	9907474	1	O-ring Ø22x1		
148	9941190	1	Nut M18x0.75		
149	9662006	4	Screw DIN 912 M3 x 8		

9.6.3 Bill of materials for SRH60

Item	ID	Quantity	Designation	Wearing part?	Note
4	5516211	1	Swivel head		
77	5516209	1	Screw-on bracket		
88	5516917	1	plug angle		
108	9664501	2	Countersunk screw M3 x 8		
116	9939379	2	Centering sleeves Ø10 x 6.65		
117	9939382	2	Centering sleeves Ø16 x 8.6		
135	9611112	4	O-ring Ø4x1.5		Enclosed pack
138	9941732	1	M16 cable plug		Enclosed pack
143	9942127	1	O-ring Ø41 x 1.5		
188	5521165	1	Cover		
201	9682122	2	Screw DIN912 M12 x 40		
202	9660112	4	Screw DIN912 M10 x 60		
203	9939379	6	Centering sleeve Ø10 x 6.65		Enclosed pack
204	9948014	1	SRH flat seal		
205	9936164	2	One-way flow control valve		

10 Translation of original EC declaration of incorporation

In terms of the EC Machinery Directive 2006/42/EC, annex II part B

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

We hereby declare that the following product:

Product designation:	Pneumatic Swivel Head, Universal Swivel Head
Type designation:	SRH 20…SRH 60
ID number:	0359045…0359235

meets the applicable basic requirements of the Directive Machinery (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 12100-1	Safety of machines - Basic concepts, general principles for design -- Part 1: Basic terminology, methodology
EN ISO 12100-2	Safety of machines - Basic concepts, general principles for design -- Part 2: Technical principles

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. Michael Eckert, Tel.: +49(0)7133/103-2204

Location, date/signature: Lauffen, January 2011 ppa.

Title of the signatory Director for Development