COPY OF THE ORIGINAL

INSTRUCTION MANUAL

STEADY REST

Type KLU
Type KLU-A
(Premium Line)

worldwide • weltweit • worldwide

Date: 2018-01
Version: 9
Language: English

SMW® AUTOBLOK

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INSTRUCTION MANUAL
Steady rest
Type KLU
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(Premium Line)

Thank you for purchasing an Original-SMW-AUTOBLOK steady rest type KLU.

This **instruction manual** contains the installation, the use and the maintenance instructions of the work holding **„KLU“**.

SMW-AUTOBLOK reserves the right to make **changes without notice**.

This **instruction manual is a part of the work holding** and must be passed to the new owner in case of sale.

This **instruction manual may not be** -in whole or in part- **copied** without our written agreement.

Please read the instruction manual carefully before installation and use and always follow the regulations.

Please note especially the sections which are marked with the following signs:

- **Danger of injury or danger to life if instructions are not followed.**
- **Danger of damage to the work holding, the machine or the components.**

Declaration of incorporation

for an incomplete machine
Machinery Directive 2006/42/EC, Annex II, B

The manufacturer:	SMW-AUTOBLOK Spannsysteme GmbH Wiesentalstrasse 28 88074 Meckenbeuren Deutschland / Germany

herby declares, that the following product:

Product description:	Steady Rest
Application range:	Installation in machine tool
Type:	KLU / KLU-A

is intended to be installed into a completed machine. It must not be put into service until the final machine into which the partly completed machinery it is to be incorporated has been declared in conformity with the provisions of the EU machine directive (2006/42/EC) Annex II, B.

Applied harmonized norms:

- DIN ISO 12100 (2011)
- DIN ISO 13857 (2008)

The following basic requirements of Annex I, 2006/42/EC are complied with:

- No. 1, 1.1, 1.1.1, 1.1.2, 1.1.3
- No. 1.3.2, 1.3.3, 1.3.4, 1.3.7, 1.3.8
- No. 1.5, 1.6.1
- No. 1.7.1, 1.7.3, 1.7.4

The special technical documents have been created in accordance with Annex VII, Part B. These documents will be made available electronically on a reasoned request by the national authorities.

Responsible for documentation:	Schilling Rainer Chief designer
Place:	Meckenbeuren (Germany)
Date:	29.12.2009

Eckhard Maurer
President

General safety instructions

Danger!

Danger to the environment!

General precept sign!

Follow the instructions!

General warning sign!

Warning of risk of crushing!

Warning of hand injuries!

Warning of suspended load!

1. Correct use

SMW-AUTOBLOK steady rests are designed to support thin long shafts on lathes or grinding machines.
Any other use is dangerous and is prohibited by the manufacturer, no other use of this product is intended nor should any other use be attempted. SMW-AUTOBLOK refuses any responsibility caused by misuse of the steady rest.

2. Demands on operators

SMW-AUTOBLOK steady rests must be installed, operated and maintained only by qualified and regularly trained personnel.

3. Visual inspection

Please check the product for visible damage prior to use!

4. Transport

Please use suitable lifting gear for product heavier than 16 kg!

5. Safety precautions to the machine

- During machining the steady rest and the clamped work piece must be protected by suitable protective gear of the machine.
- A signal must stop the machine spindle in case of failure in the clamping pressure and workpiece must remain clamped safely until machine spindle stops.
- During machining the steady rest and the clamped component must be protected by safety guards.
- Maintenance and actuation of the steady rest must only be carried out when machine spindle is stopped.

6. Maximum spindle speed

Never exceed the max. RPM depending on roller and component dia.

7. Required clamping force

Always insure that sufficient clamping force is applied depending on component weight, spindle speed and cutting forces.

8. Residual risks

The type of component (shape, weight, imbalance, material etc.) has a big influence on the system "machine tool - power chuck - steady rest - component".
For that reason there is always a residual risk.
These residual risks must be calculated by the user and have to be eliminated by suitable actions.

9. Maintenance

Give regular maintenance to the steady rest by trained personal only and always use original SMW-AUTOBLOK spare parts and original SMW-AUTOBLOK rollers.
Improper use or maintenance of this product will make the warranty void. Neither SMW-AUTOBLOK nor its affiliates are liable for injuries or damage resulting from improper use or maintenance of this product.

10. Environment protection

Danger for environment when handling incorrect!
Incorrect handling of environment hazardous materials, especially the disposal, may result in environmental damage.

- Always follow below instructions.
- In case environmentally hazardous material polluted the environment always take suitable actions immediately. If in doubt, inform the local authority about the pollution.

The following hazardous materials are used: Lubricants such as oil and grease can contain poisonous agents. They must not pollute the environment. The disposal must be carried out by a suitable waste management company.
For a proper function of the work holding, use original SMW-AUTOBLOK lubricant only.

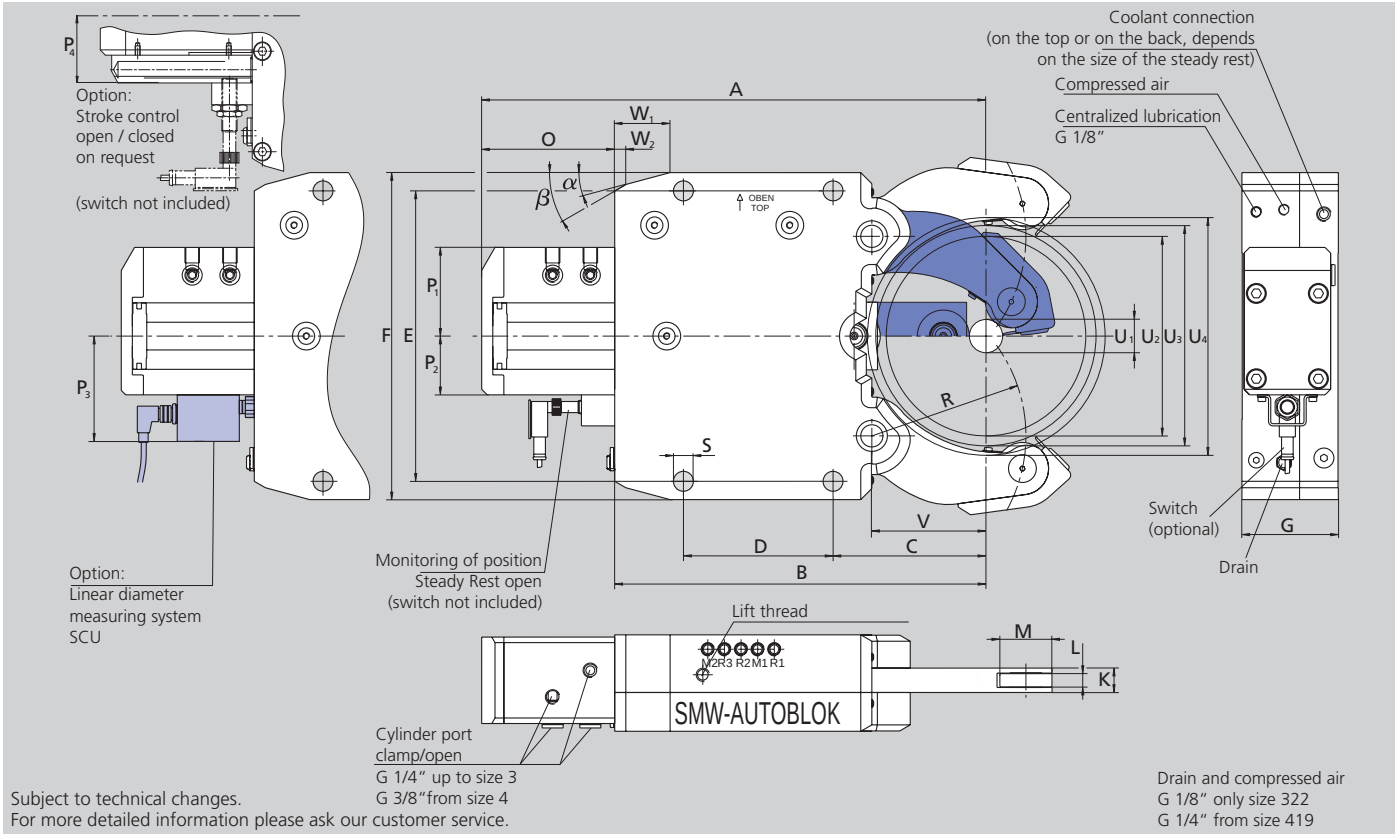
In case of doubts or questions please ask SMW-AUTOBLOK or one of our authorized offices.

KLU/ KLU-A

Self-centering Steady Rests
Premium Line

Narrow arms for crankshafts

- Sealed body
- Chip guard with coolant nozzles
- Stroke control unit or proximity switches



Subject to technical changes.
For more detailed information please ask our customer service.

Drain and compressed air
G 1/8" only size 322
G 1/4" from size 419

SMW-AUTOBLOK Type Size		KLU 215	KLU 218	KLU 222	KLU 318	KLU 322	KLU 419	KLU 422	KLU 429	KLU-A 530	KLU-A 540
Centering range with coolant chip guard	**U_1**	**20 (12*)**	**20 (12*)**	**20 (12*)**	**30**	**30**	**30**	**30**	**30**	**70**	**70**
	U_2	**101(92**)**	**101(92**)**	**101(92**)**	**180**	**180**	**245**	**245**	**245**	**293**	**293**
Max. axial clearing diameter	**U_3**	**106**	**106**	**106**	**189**	**189**	**253**	**253**	**253**	**330**	**330**
Max. interference diameter	**U_4**	**116**	**116**	**116**	**215**	**215**	**282**	**282**	**282**	**370**	**370**
	A	275	275	275	455	455	602	602	602	703	703
	B	195	195	195	335	335	448	448	448	530	530
	C	70	70	70	138	138	146	146	146	198	198
	D	85	85	85	135	135	240	240	240	270	270
	E	170	170	170	262	262	365	365	365	400	400
	F	195	195	195	295	295	405	405	405	440	440
	G	59	62	66	83	87	89	92	99	105	115
	K	15	18	22	18	22	19	22	29	30	40
Width of rollers	L	8	10	13	10	13	10	13	16	16	20
Diameter of rollers	M	35	35	35	47	47	52	52	52	62	62
	O	80	80	80	120	120	154	154	154	173	173
	P_1	58	58	58	80	80	80	80	80	88	88
	P_2	40	40	40	53	53	53	53	53	59	59
	P_3	-	-	-	95	95	95	95	95	101	101
	P_4	61	61	61	74	74	74	74	74	80	80
	R	74	74	74	139	139	172	172	172	229	229
	S	14	14	14	18	18	23	23	23	23	23
	V	51	51	51	103	103	128	128	128	180	180
	W_1	30	30	30	50	50	58	58	58	62	62
	W_2	11.2	11.2	11.2	10	10	18.3	18.3	18.3	19	19
	α	15°	15°	15°	15°	15°	15°	15°	15°	18°	18°
	β	30°	30°	30°	30°	30°	40°	40°	40°	40°	40°
Piston area	cm²	12.5	12.5	12.5	28.3	28.3	28.3	28.3	28.3	50.2	50.2
Operation pressure min./max.	bar	8/50	8/65	8/80	8/60	8/75	8/70	8/80	8/80	8/70	8/80
Max. clamping force/roller	daN	210	270	335	565	700	660	750	750	1170	1340
Centering accuracy within the whole range	mm	0.03	0.03	0.03	0.05	0.05	0.06	0.06	0.06	0.07	0.07
Repeatability accuracy	mm	0.007	0.007	0.007	0.007	0.007	0.01	0.01	0.01	0.01	0.01
Max. roller surface speed	m/min	750	750	750	715	715	700	700	700	700	700
Weight approx.	kg	14	15	16	33	36	70	74	85	100	125

* The Steady Rest can be modified to this clamping range if the coolant chip guard is not used
** Can be loaded axially. Radial loading with chip guard Ø 92, without chip guard Ø 101

KLU/ KLU-A

Self-centering Steady Rests
Premium Line

KLU Steady Rest with stroke control Steady Rest open via proximity switch (without proximity switch)***											
Steady Rest size		**215**	**218**	**222**	**318**	**322**	**419**	**422**	**429**	**530**	**540**
KLU-Z Central lubrication oil	Id. No.	128280	128282	128284	127528	127530	127534	127536	127538	127542	127544
KLU-OLD Central lubrication oil + air	Id. No.	128281	128283	128285	127529	127531	127535	127537	127539	127543	127545
KLU-F Central grease lubrication	Id. No.	on request	on request	on request	on request	on request	on request	on request	on request	on request	on request

KLU Steady Rest with stroke control via linear stroke control SCU, output 4-20 mA											
Steady Rest size		**215**	**218**	**222**	**318**	**322**	**419**	**422**	**429**	**530**	**540**
KLU-Z Central lubrication oil	Id. No.	-	-	-	125637	125655	125365	125398	125421	125988	126050
KLU-OLD Central lubrication oil + air	Id. No.	-	-	-	125638	125656	125366	125399	125422	125989	126051
KLU-F Central grease lubrication	Id. No.	-	-	-	on request	on request	226246	on request	on request	on request	on request

KLU Steady Rest with stroke control via linear stroke control SCU, output 0-10 V											
Steady Rest size		**215**	**218**	**222**	**318**	**322**	**419**	**422**	**429**	**530**	**540**
KLU-Z Central lubrication oil	Id. No.	-	-	-	125640	125657	125369	125400	125423	125992	126052
KLU-OLD Central lubrication oil + air	Id. No.	-	-	-	125641	125658	125370	125401	125424	125993	126053
KLU-F Central grease lubrication	Id. No.	-	-	-	on request	on request	on request	on request	on request	on request	on request

Type KLU

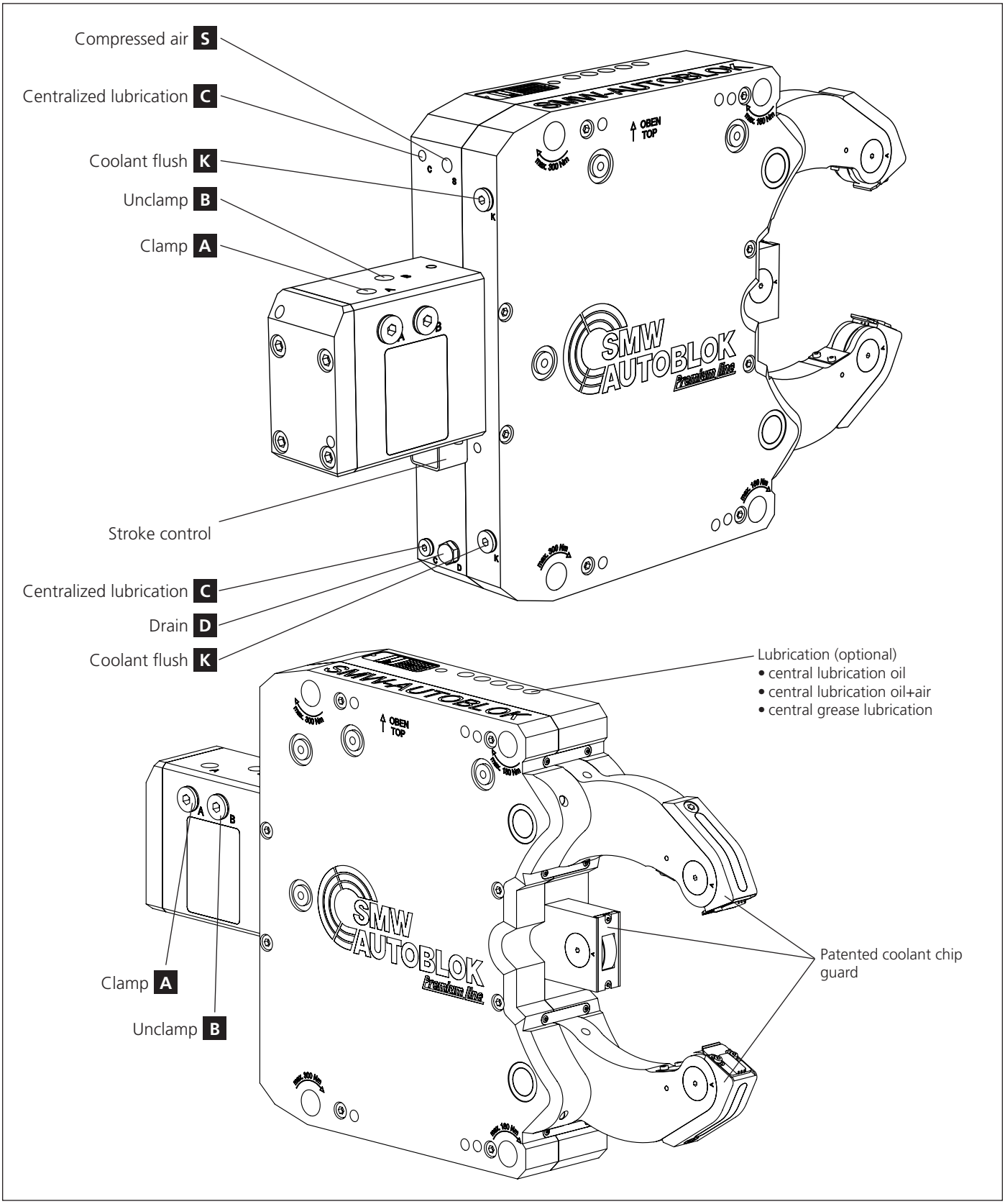
♦ denotes wearing parts, recommended stock items

Steady Rest size		**215**	**218**	**222**	**318**	**322**	**419**	**422**	**429**	**530**	**540**
Compact lubrication system for oil pressure lubrication Container 2.7 l, 220 V *,**		088707	088707	088707	088707	088707	088707	088707	088707	088707	088707
Compact lubrication system for oil + air lubrication Container 2.7 l, 220 V *,**		088708	088708	088708	088708	088708	088708	088708	088708	088708	088708
Inductive limit switch		087926	087926	087926	087926	087926	087926	087926	087926	087926	087926
Swarf guard coolant/air with wiper		128270	128273	128276	125633	125652	125360	125394	125417	127036	126046
Wiper for swarf guard coolant/air ♦		128272	128275	128278	126905	126906	126907	126906	126908	126909	126910
Swarf guard 3-pcs. ♦		125906	126055	126058	-	-	-	-	-	-	-
Roller stripper for middle piece ♦		197995	197996	197997	197998	197999	198000	198001	198002	198003	198004
Roller cylindrical design ♦		122794	020062	020759	017861	002411	017676	084766	019541	125964	019612
Adjustment device 1 set = 3 pcs.		-	-	-	200178	200178	200179	200179	200179	200179	200179

* When placing an order, please advise voltage
** On request 110 V available
*** Stroke control open / closed on request

SMW-AUTOBLOK steady rests are designed to be used on high performance CNC-lathes and CNC-multipurpose machines. Based on the cam lever design developed by SMW-AUTOBLOK, to open the steady rest arms without using springs.
It is used for precise centering and support of shafts independent of their diameter.

The compact and rigid design with a large clamping range as well as with case hardened and ground internal parts guarantees high precision, rigidity and long service life.
The actuation is done via a built-in cylinder with stroke control and hydraulic or pneumatic non return valve.



Mounting of the steady rest bracket

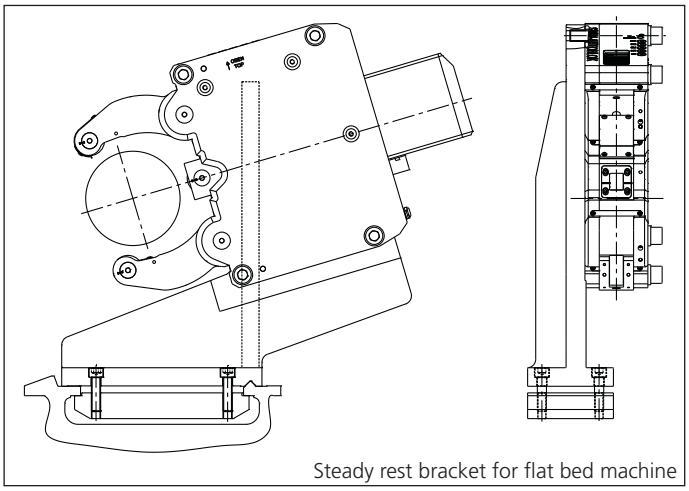
The precision of the steady rest is depending among other things, on a properly manufactured steady rest bracket. Suffi cient rigidity, a flat exactly right-angled contact surface to the machine center line are the most important conditions.

Danger of damage:
Check if the mounting face is exactly flat. The steady rest will be distorted otherwise.

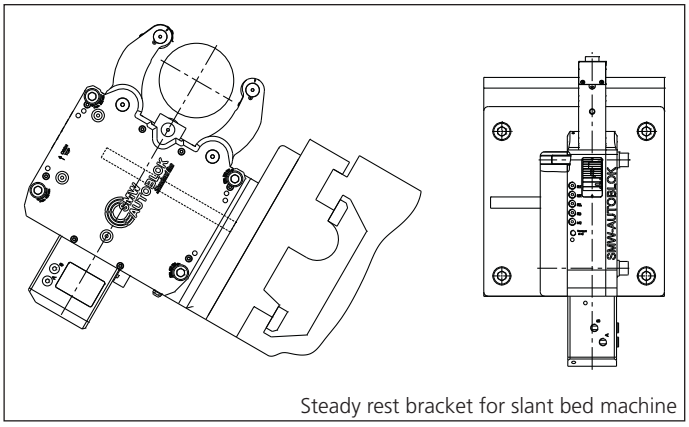
Check mounting surface in 2 directions with dial indicator if steady rest bracket is exactly in rightangled position to the center line. If necessary readjust or remachine the steady rest bracket.

SMW-AUTOBLOK supplies the correct bracket for all applications. Additionally for a fast and easy adjustment of the steady rest to the center line we propose to use the SMW-AUTOBLOK adjustment device which, on request, can be integrated in the steady rest bracket.

Channels and adjustable coolant-nozzles to flush away the chips can also be considered on request.



Steady rest bracket for flat bed machine



Steady rest bracket for slant bed machine

Mounting of the steady rest to the steady rest bracket

On the top of the steady rest there is a lift thread for an eye bolt.

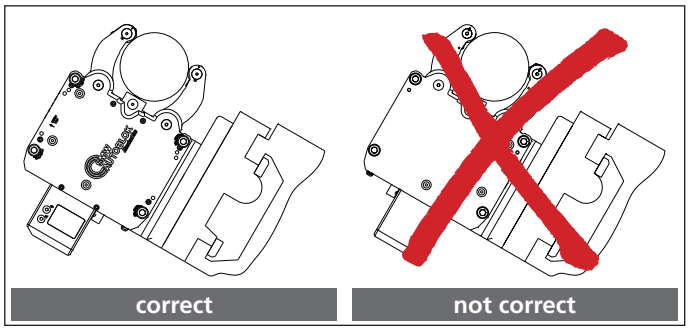
The steady rest has to be mounted to the steady rest bracket with the arrow showing upward.

Use 4 fixing bolts (class 12.9) with attached special washers.

KLU / KLU-A	2	3	4	5
Fixing bolts	M12	M16	M20	M24
Torque front (Nm) 2x	70	120	180	230
Torque rear (Nm) 2x	120	180	300	350

Recommended torque of mounting bolts is ingraved on steady rest housing and must not be exeeded!

Adjustment of steady rest on steady rest bracket refer to INSTALLATION on page 18.



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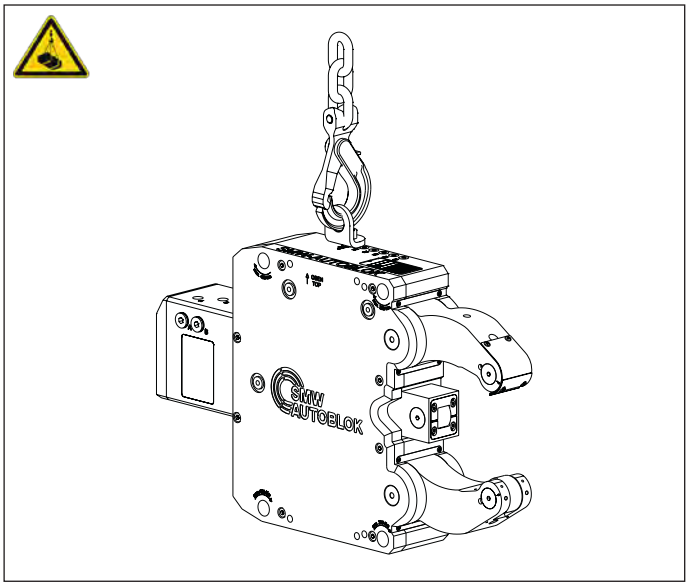


Connection of hydraulic system

SMW-AUTOBLOK steady rests are actuated hydraulically (or pneumatically as a special). The connection can be done to a already existing hydraulic power unit supplied with the machine according to the hydraulic plan. If there is no hydraulic power unit on the machine we propose to use the proven SMW-AUTOBLOK hydraulic power units.

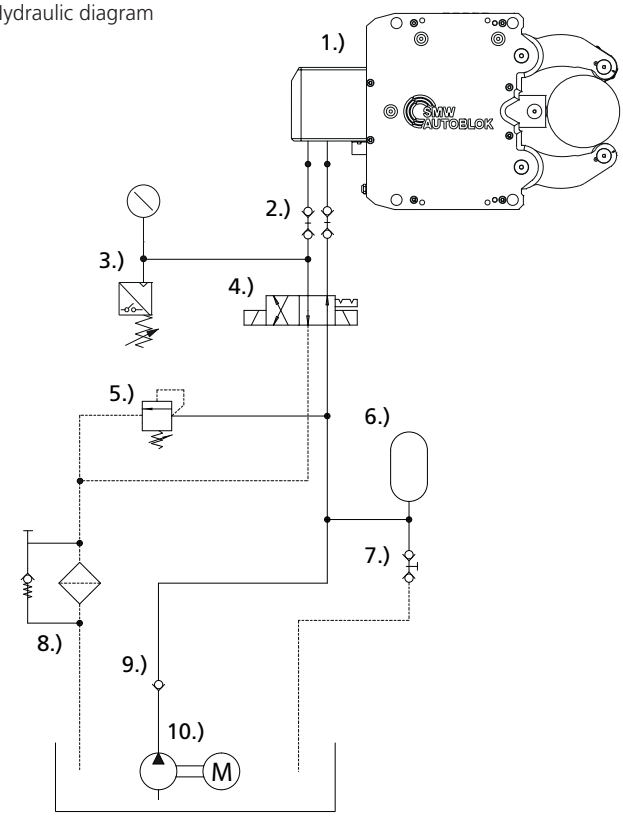
For tandem applications with alternating actuation we can supply the corresponding wiring diagram.

The actuation of the 4/2 solenoid-valve through the machine CNC must be according to all safety instructions. For the connection we recommend the use of hydraulic pipes or alternatively metal-coated high pressure hoses and, when changing the steady rest frequently, self-closing quick release couplings.

All hydraulic lines must be 8 mm I.D. and suitable for 100 bar pressure.
All connecting ports are on the rear side of the steady rest. Connect the lines according to the label on the cylinder.

Connections					
KLU / KLU-A		2	3	4	5
A	Clamp	G1/4"	G1/4"	G3/8“	G3/8“
B	Unclamp	G1/4"	G1/4"	G3/8“	G3/8“
C	Central lubrication	G1/8"	G1/8"	G1/8“	G1/8“
D	Drain	G1/8“	G1/8“	G1/4“	G1/4“
K	Coolant air	G1/8“	G1/4“	G1/4“	G1/4“
S	Compressed air	G1/8“	G1/8“	G1/4“	G1/4“

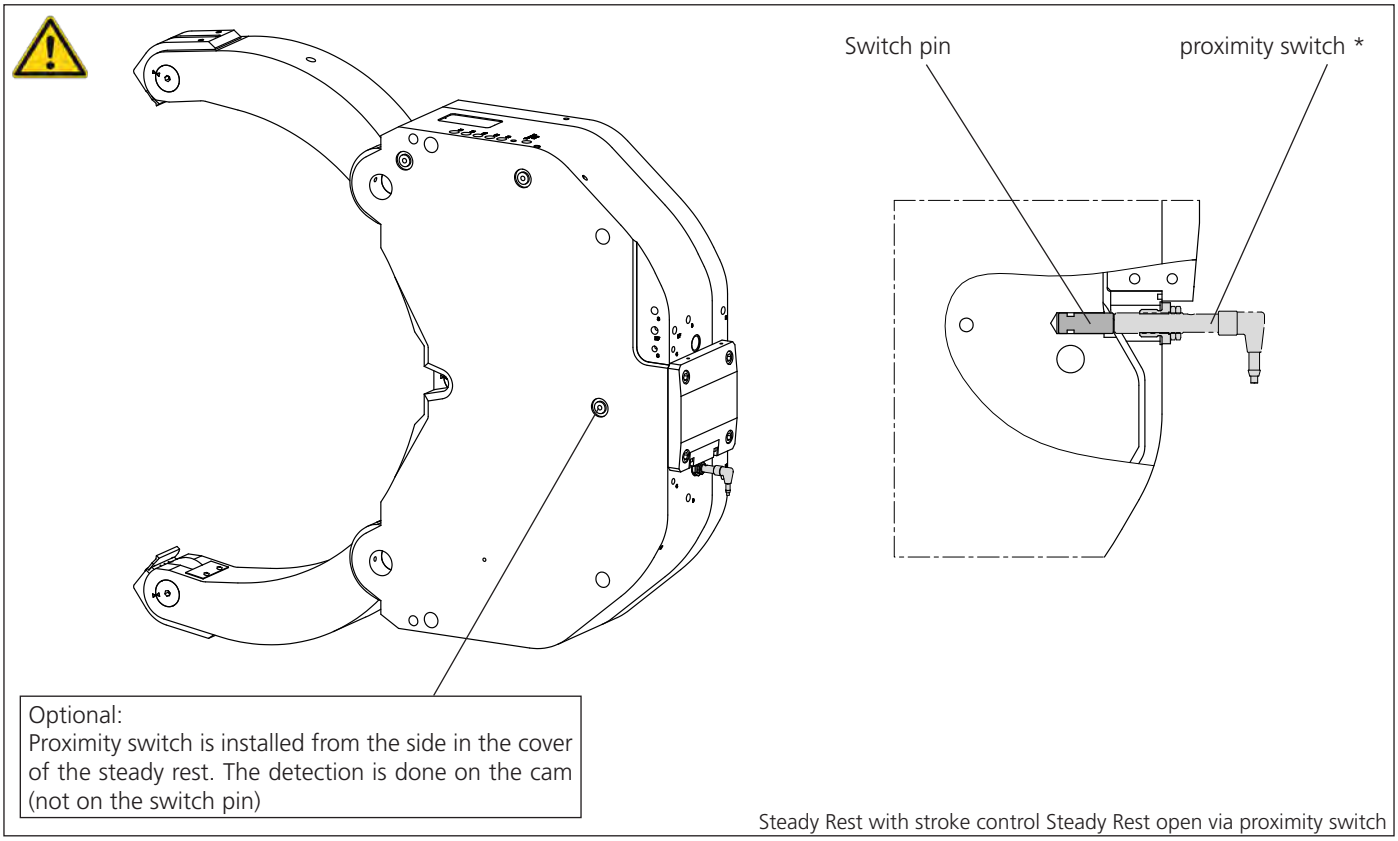
Hydraulic diagram



1.) Steady rest
2.) Quick release coupling
3.) Pressure switch
4.) Solenoid 4/2
5.) Pressure reducer
6.) Accumulator
7.) Stop valve
8.) Return-oil filter
9.) Safety valve
10.) Hydraulic power unit

* Filter mesh 10µm

Steady Rest with stroke control Steady Rest open via proximity switch



Steady Rest with stroke control Steady Rest open via proximity switch

*** When using proximity switches (not included with the steady rest) please observe instruction of the maker.**

When using the original SMW-AUTOBLOK linear stroke control unit SCU (not included with the steady rest) please observe the separate instruction manual.

Notes

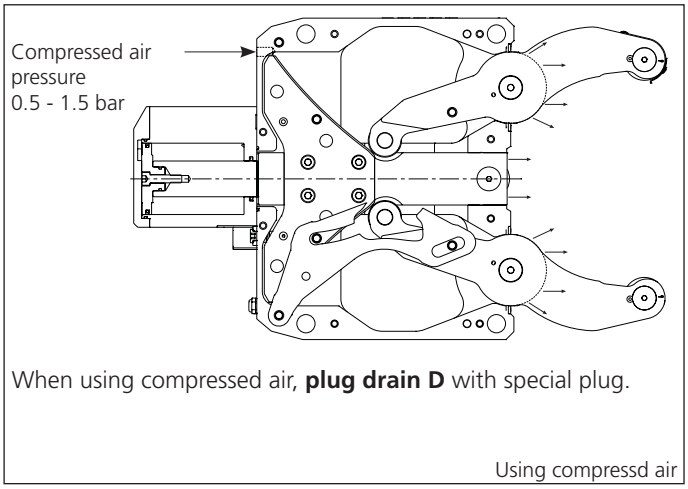
Connection of compressed air

SMW-AUTOBLOK steady rests are equipped with a connection for compressed air as a standard.
The compressed air generates an excess pressure in the steady rest body which escapes at the fine gap between arm, housing and sealing strip.

This prevents the entering of coolant and swarf.

A pneumatic solenoid and a service unit are not included in the standard supply range.

When **using compressed air, plug drain** with special plug.
(The special plug has a 1 mm bore and a silencer in order to bleed the condensation water).



When using compressed air, **plug drain D** with special plug.

Using compressd air

Use with compressed air

If compressed air is used, **drain D** must be **plugged** with attached special plug in order to arrive to excess pressure.

Open **drain** every 3 month and check the **special plug D** if compressed air can pass through the 1 mm bore and the silencer. Change the special plug if necessary.

Compressed air pressure 0.5 - 1.5 bar

Compressed air quality class 4 to ISO 8573-1(2010):

Solid particles / dust			
Class	max. particle count per m³ of a particle size with d in µm *		
	0.1 ≤ d ≤ 0.5	0.5 ≤ d ≤ 1.0	1.0 ≤ d ≤ 5.0
4	not defined	not defined	≤ 10.000

Water	
Class	Pressure dew point, in °C
4	≤ +3°C

Oil	
Class	Total oil concentration (fluid, aerosol + gaseous) [mg/m³] *
4	≤ 5.0

* At reference conditions 20°C, 1 bar(a), 0% humidity

Use without compressed air

Drain D must remain open, to allow entered coolant, to escape.

Central oil lubrication (Z)

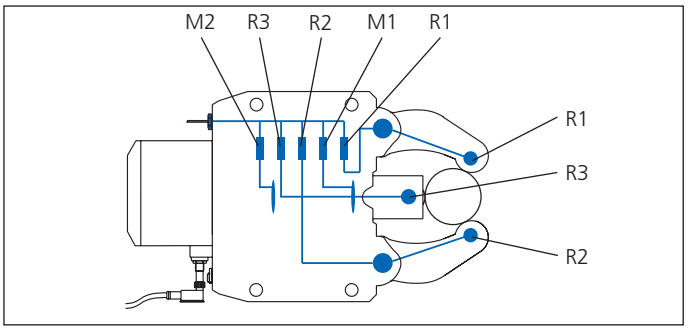
The steady rest is provided with a lubrication connection at the rear side to supply the lubrication points and rollers with lubrication oil via integral dosing elements.

Min./max. operating pressure of the lubrication pump 10 to 45 bar. If the centralized lubrication system of the machine meets this requirement the steady rest can be connected to it as well.

However, a compromise over the lubricant and lubrication intervals must be made which can affect the working life of the steady.

We therefore recommend the use of a separate compact lubrication system to enable the lubricant and the lubricating intervals to be adjusted to suit the steady rest.

Oil: **viscosity of 46-68 mm²/s**



Connection of the central oil lubrication

The supply of lubrication oil to the steady rest is done via the SMW-AUTOBLOK compact lubrication system with 220 V or 110 V, Id. No. 088707. The connection of the power supply is done according to the schematic that can be found underneath the cover of the built-in control unit.

The line power, shown on the label, must correspond with the line power used.

The following functions are built into the control unit:

- Monitoring of built-up pressure in the supply-line with pressure switch.
- Monitoring of oil level in the oil reservoir.
- Eletronic timer to adjust the time interval between the lubriction oil shots.

The time interval is factory set to 1 min. and can be changed according to the application.

Connect the compact lubrication unit with a hose 4 mm/max. pressure 60 bar with the steady rest (port C).

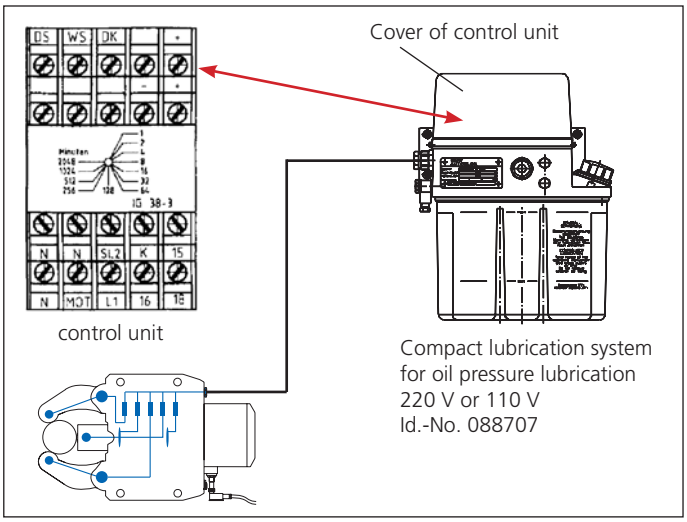
The connection and installation of the oil lubrication unit is done according to the **separate instruction manual** for oil lubrication units.

Connection of the central oil lubrication

Fill the oil reservoir with clean **oil viscosity of 46-68 mm²/s**. Actuate the lubrication intervals manually until oil comes out on the rollers as well as on the center arm.

Adjusting/ correcting the intervals
When adjusting / corrrecting the intervals, first switch off the power. Remove the cover and adjust the timer on the control unit. Then reinstall the cover and switch on the power again.

Select time intervals according to application
5 min. = 12 lubricaton impulses/ hour
20 min. = 3 lubricaton impulses/ hour.
(The time interval is factory set to 1 min.)



The steady rest can also be connected to the centralized lubrication system of the machine as long as this is according to the same specification as the SMW-AUTOBLOK lubrication unit. It must be a pressure centralized lubrication unit.
(Min. pressure 10 bar, max. 45 bar, lubrication via dosing elements).

Disadvantage:
The cycles of the oil shots must be adapted to the requirement of the steady rest rollers.
Some of the Japanese manufactured machines are equipped with a so-called throttle centralized lubrication (no pressure, no dosing elements).
They are not suitable to be used for lubricating a steady rest **therefore we recommend to use the SMW-AUTOBLOK lubrication unit.**

You can also use semi-fluid grease with a **NLGI-class 00** and a **oil viscosity of 100-150 mm²/s**.

A residual pressure of 3 bar in the lubrication line of the central lubrication unit must not be exeeded inbetween the lubrication intervals, when the pump is switched off.

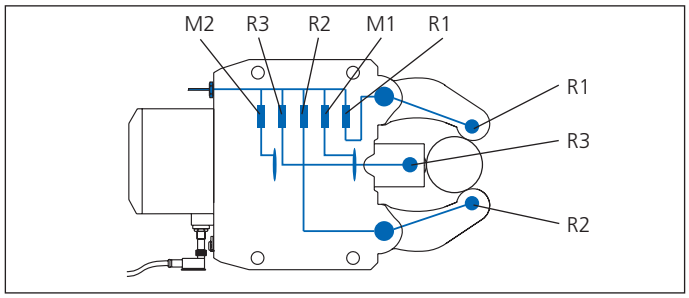
Oil+air centralized lubrication (OLD)

For extreme environments as high accumulation of dirt, swarf, scale or coolant.

Our oil+air lubrication unit supplies a permanent air flow to the steady rest. Oil is injected into the air flow in regular intervals and is transported via the air flow to the steady rest. The oil is distributed to the different lubrication points via built-in throttles.

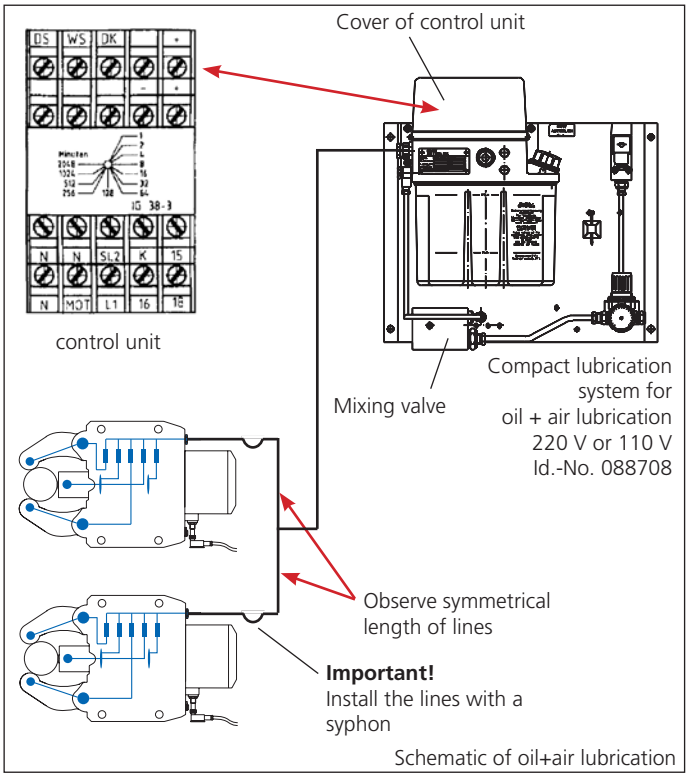
The air flow causes a precharging of the rollers and thus avoids contamination.

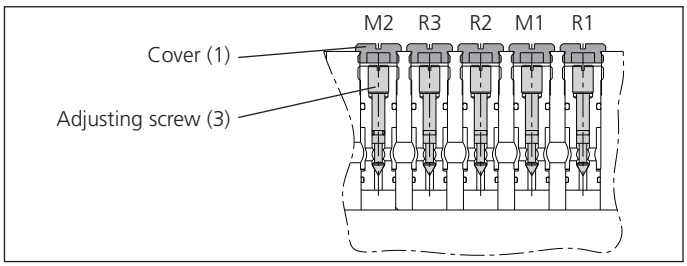
Line air pressure: 5 - 8 bar.
Lubrication oil: viscosity of 46-68 mm²/s

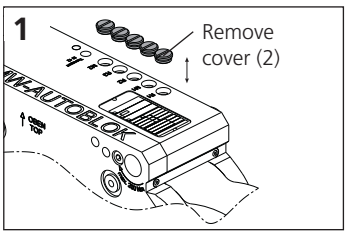


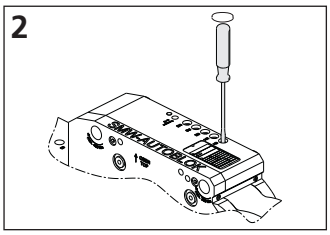
Connect and adjust oil+air lubrication unit

The connection and installation of the oil+air lubrication unit is done according to the **separate instruction manual** for oil+air lubrication units.









Adjustment (distribution) of the air flow to the lubrication points R1-R3 and M1-M2:

1. Remove the rollers.
2. Switch on the line pressure (line pressure 5 - 8 bar). Adjust the air pressure at the oil+air lubrication unit to 0.5 - 3 bar.
3. Remove cover (2).
4. Screw in the adjusting screws (3) to a dead stop.
5. Open the adjusting screws step by step (approx. 1- 2 revolutions so that there is the same air flow on all lubrication points.
6. Put the rollers back.

Fill the oil reservoir with clean **oil viscosity of 46-68 mm²/s**.
Line air pressure: 6 - 8 bar
Adjust operating air pressure to approx. 3 - 4 bar
Actuate the lubrication intervals manually until oil comes out on the rollers as on the center arm.

Tip: This process can be speeded up as follows:
Disconnect the lines to the steady rest right on the oil+air lubrication unit and fill oil into the lines directly with an oiler.

Adjusting/ correcting the intervals
When adjusting/ correcting the intervals, first switch off the power. Remove the cover and adjust the timer on the control unit. Then reinstall the cover and switch on the power again.

Select time intervals according to application:
1 min. = 60 lubrication intervals/ hour
4 min. = 15 lubrication intervals/ hour
(The time interval is factory set to 1 min.)
Oil volume per interval 0.03 cm³

Oil type:	**viscosity of 46-68 mm²/s**
Line air pressure:	6 - 8 bar
Operating air pressure:	3 - 4 bar

Central grease lubrication (F)

The lubrication points and rollers would be provided with grease by the mounted dosing elements. The min./max. operating pressure of the lubrication pump must be 30 / 45 bar.

We recommend using a seperate lubrication unit in order to adjust the lubrication interval optimally to the operation conditions.

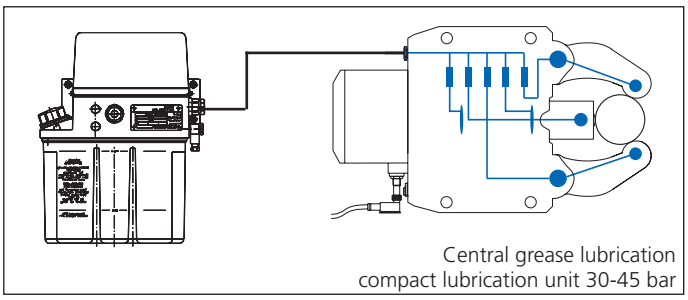
The connection and installation of the lubrication unit is done according to the **separate instruction manual** for lubrication units!

Otherwise the steady rest would be over-lubricated. Therefore the rollers of the steady rest could be damaged!

Use only lubrication grease with an **NLGI-class 0 or 1**.

Do not exceed a residual operating pressure of 8 bar in the piping wiring of the central grease lubrication connections of the steady rest when you release the steady rest (break down between lubrication cycles).

After the installation of the central grease lubrication, the lubrication intervals must be following acted, until the grease leaks at the point of the rollers and the middle piece.



Central grease lubrication
compact lubrication unit 30-45 bar

Connection of coolant/ air feed

KLU 215 / 218 / 222 / 318 / 322 / 419 / 422 / 429 / 530 / 540
Steady rests are equipped with built-in channels to feed coolant/ air from a central connecting port to the **K** steady rest arms in order to keep the clamping area of the outer rollers free from chips and swarf.

Port **K** = coolant/ air to the outer arm rollers.

When steady rest is in position "clamped" coolant/ air feed must be switched on in order to flush away chips and swarf from the roller clamping areas.

Control of the function

After connecting all lines please check the function by actuating the steady rest at stopped machine spindle.

- Please insure that all air is bled from the system, that no leakage is visible and that the pressure remains constant!
- Please check all functions step by step.
- Be sure that oil escapes from the rollers when an oil shot is given at centralized lubrication and oil-mist lubrication!
- When **using compressed air, plug drain D** with special plug.
- When no compressed air is used **drain D must be open** (special plug not mounted).

General instructions

Never clamp the steady rest when the component is rotating at high speed: The sudden acceleration of the rollers can cause damage and marking of the outer surface.

Never move the clamped steady rest axially when the component is not rotating. The outer surface of the rollers can be damaged.

For safety reasons I.D. or end machining of components must only be carried out with steady rest including a safety valve, to keep the component clamped in case of sudden loss of pressure.

1. Step: Adjusting the steady rest/ adjusting of the center line

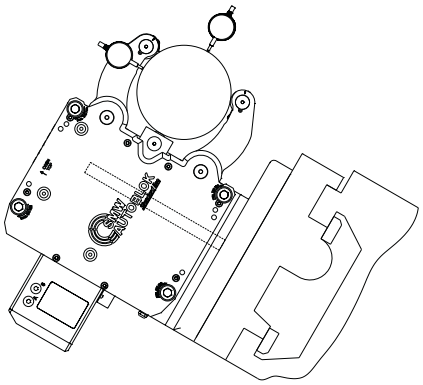
1. Clamp a test-bar/ master workpiece in the chuck and support with the tailstock-center.

2. Set 2 dial indicators 90° offset and check concentricity. Set the dialindicators to 0 and leave them in position.

3. Open the mounting screws of the steady rest on the steady rest bracket, so that the steady rest can slide on the bracket surface, without loosing contact. Clamp the steady rest on the test-bar/ master workpiece.
   Tighten the mounting bolts lightly. Retract the tailstock-center. Now correct the off set shown by the dialindicators by fine adjusting the steady rest.

4. Tighten the mounting bolts and repeat the same procedure until the requested accuracy is achieved. Please observe the max. Torque for the screws shown on page 9.

When **changing** the clamping diameter, the position of the steady rest or the clamping pressure it can be necessary to **re-adjust the center-line of the steady rest**.



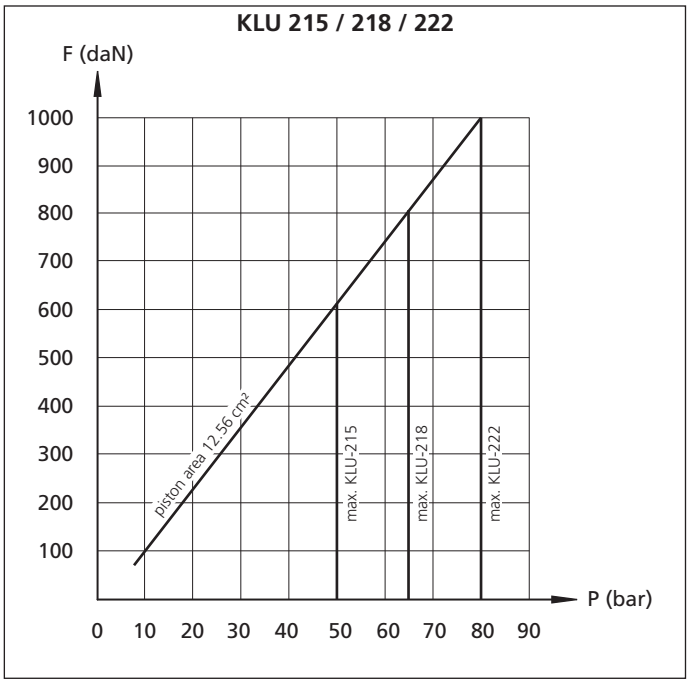
Fine adjustment device — Adjustment of the steady rest

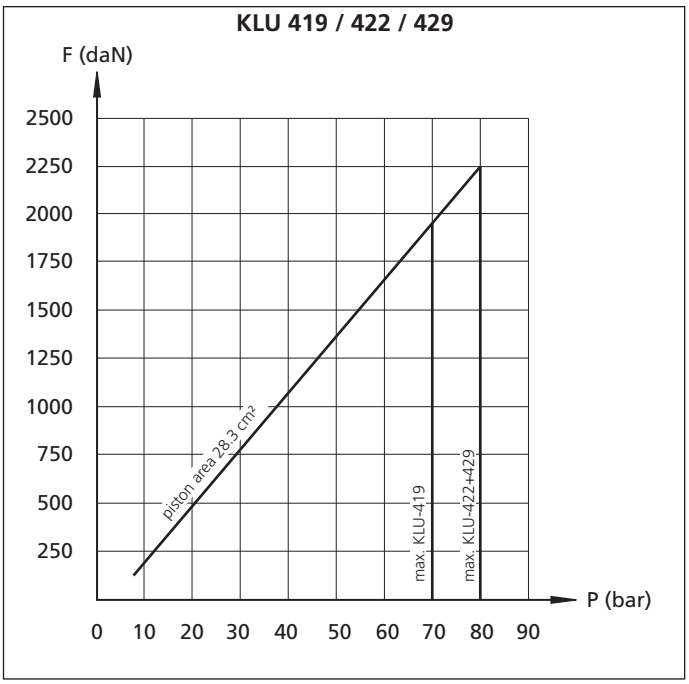
For easy and precise fine adjustment we recommend to use brackets with our fine adjustment device.

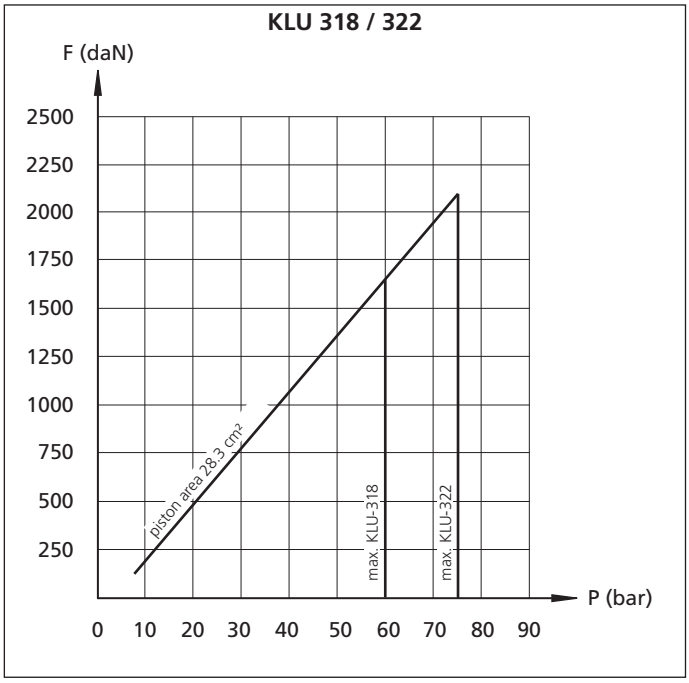
Notes

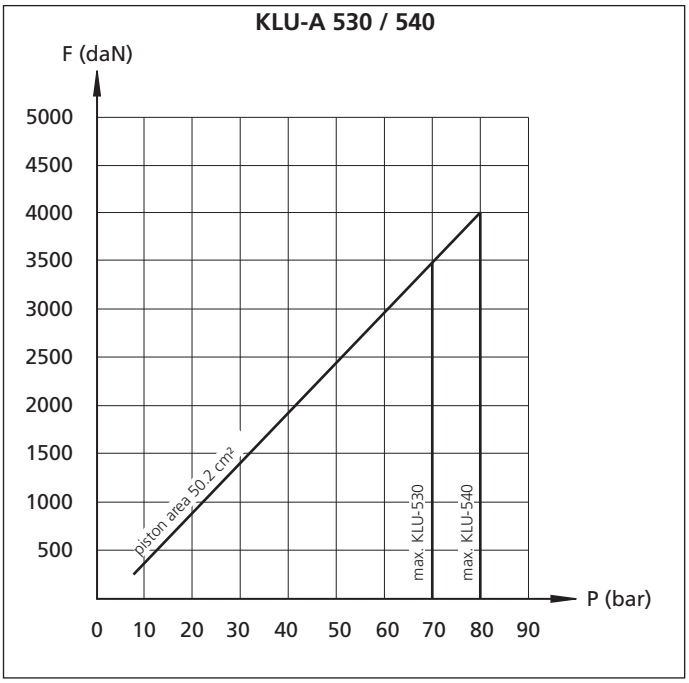
Adjustment of clamping pressure

According to the weight of the component, spindle speed, length of component and cutting forces the clamping pressure at the pressure regulating valve of the machine must be adjusted.









Spindle speed

The max. speed allowed for the steady rest is a function of the surface speed of the steady rest rollers.
Surface speed at the clamping diameter = surface speed of the roller.

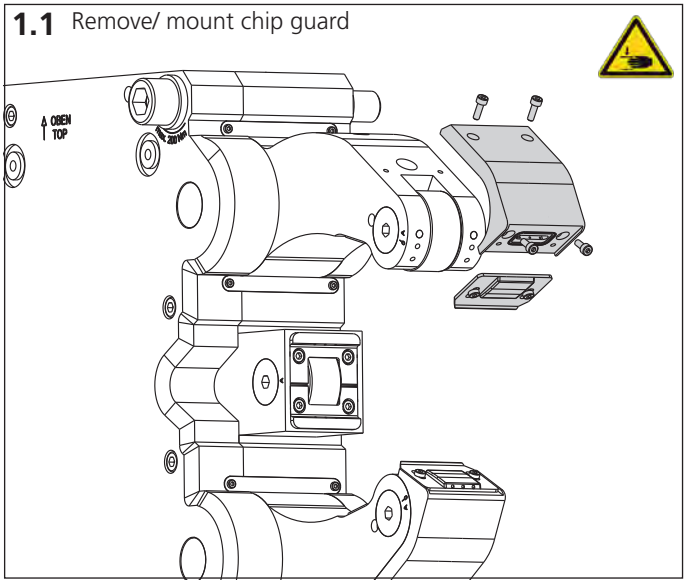
KLU / KLU-A	2	3	4	530	540
Roller Ø	35	47	52	62	80
Vmax m/min. (oil, oil+air)	750	715	700	830	1090
Vmax m/min. (grease)	525	500	490	580	620

Min./max. operation pressure see page 6.
Max. clamping force/roller see page 6.

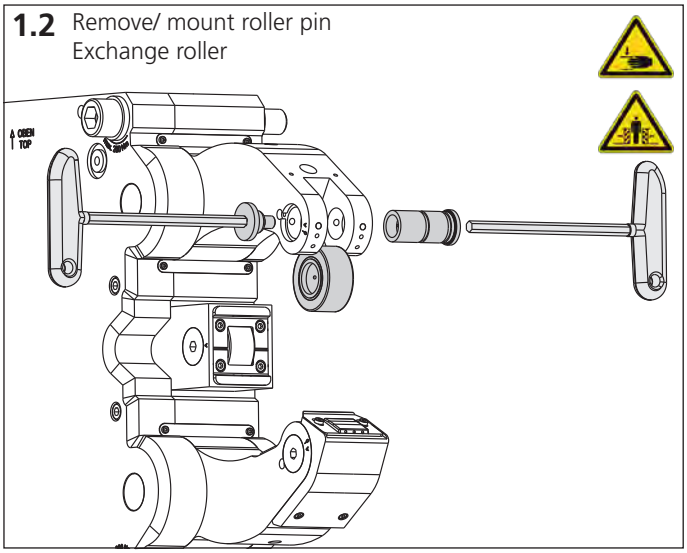
Exceeding the max. surface speed can cause accidents and damage of the steady rest and the component.

Change the rollers at the arms

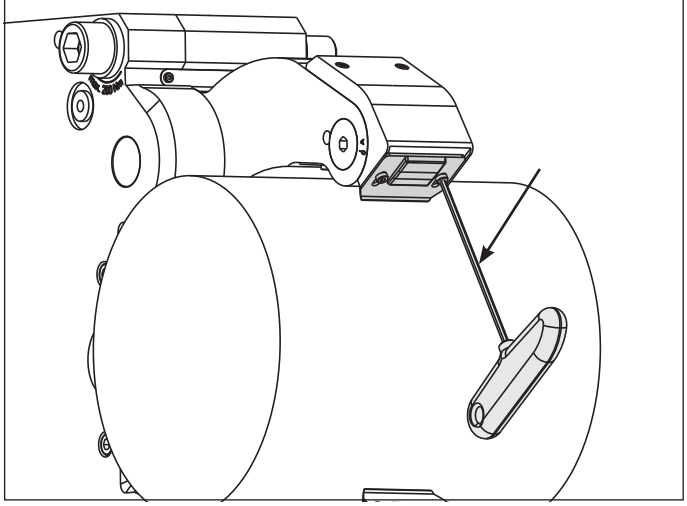
1.1 Remove/ mount chip guard



1.2 Remove/ mount roller pin
Exchange roller

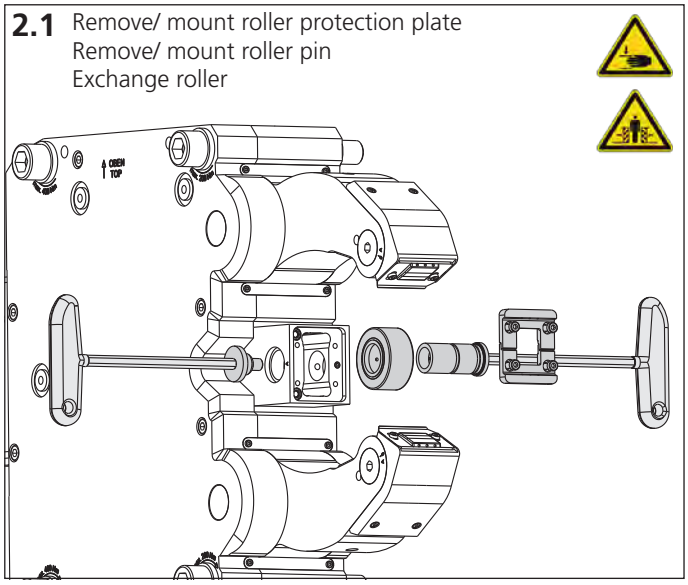


1.3 Adjust wiper without 0.1 mm clearance to the workpiece

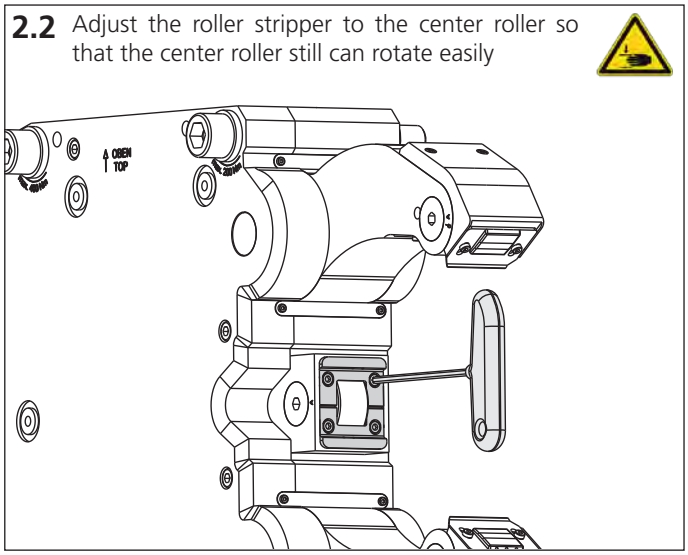


Change the roller at the center arm

2.1 Remove/ mount roller protection plate
Remove/ mount roller pin
Exchange roller



2.2 Adjust the roller stripper to the center roller so that the center roller still can rotate easily



Use **original SMW-AUTOBLOK** rollers accuracy class P05 only!
The warranty is void when using rollers from other manufacturers.

Danger of damage!
To remove the roller pin use the plastic pin.
Do not tilt the roller pin when reassembling.

Check daily:
Lubricant must flow out on the lubrication points i.e. at the 3 rollers and at the center arm.

Rollers and roller protection plates are wear parts.To aviod subsequent damage exchanged rollers and roller protection plates in time!

Centralized lubrication (Z)

Adjusting / correcting the intervals
When adjusting / correcting the intervals, first switch off the power. Remove the cover and adjust the timer on the control unit. Then reinstall the cover and switch on the power again.

Select time intervals according to application
5 min. = 12 lubricaton impulses/ hour
20 min. = 3 lubricaton impulses/ hour.
(The time interval is factory set to 1 min.)

KLU-Z / KLU-A-Z	2	3	4	5
Lubricant volume per interval (cm³)	0.12	0.15	0.5	0.5

Check daily:
Lubricant must escape lightly on the lubrication points, that means on the 3 rollers and on the center arm.
Use oil with a viscosity of 46-68 mm²/s (viscosity class ISO)!

You can also use semi-fluid grease with a **NLGI class 00** and a **oil viscosity of 100-150 mm²/s**.

Central grease lubrication (F)

The adjustment of the lubrication intervals is to be set according to the use of the steady rest.
Note: Minimum is one lubrication point per shift!

KLU-F / KLU-A-F	2	3	4	5
Lubricant volume per interval (cm³)	0.4	0.5	1.5	1.5

Check daily:
Lubricant must escape lightly on the lubrication points, that means on the 3 rollers and on the center arm.

Use only lubrication grease with an **NLGI-class 0 or 1**.

Oil+air centralized lubrication (OLD)

Adjust the air pressure to 0.5 - 3 bar at the lubrication unit. Adjustment of the throttles in the steady rest body for the air flow to the lubrication points see installation page 15.

Adjusting / correcting the intervals
When adjusting / correcting the intervals, first switch off the power. Remove the cover and adjust the timer on the control unit. Then reinstall the cover and switch on the power again.

Select time intervals according to application
1 min. = 60 lubricaton impulses/ hour
4 min. = 15 lubricaton impulses/ hour.
(The time interval is factory set to 1 min.)

Check daily:
Lubricant must escape lightly on the lubrication points, that means on the 3 rollers and on the center arm.
Use oil with a viscosity of 46-68 mm²/s (viscosity class ISO)!

Maintenance

Frequent maintenance, lubrication and cleaning of the steady rest and replacement of damaged parts guarantees long service life of your original SMW-AUTOBLOK steady rest.

Check daily:
Lubricant must escape lightly on the lubrication points, that means on the 3 rollers and on the center arm.

Monthly:
Open drain **D** (position can be found on the label on the steady rest) and check if air can pass through.
(Only necessary if compressed air is used / special plug is mounted).

Annually:
According to working conditions we recommend disassembly and cleaning of the steady rest at least annually.

Disassemble and reassemble according to assembly drawing page 24-26.

Replacing all seals (seal kit as spare part kit available) after each disassembling is recommended.

Be sure to clean all lubrication and air channels and ensure they are not blocked.

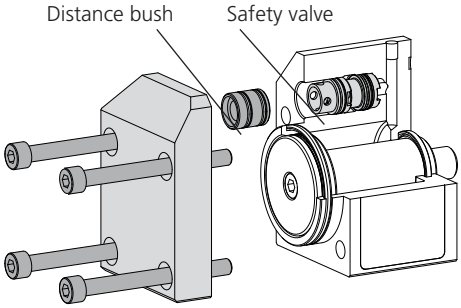
Check all internal parts and replace if necessary with **original SMW-AUTOBLOK spare parts**.

Annually: Check the safety valve

The built-in safety valve must hold the workpiece clamped in case of a sudden loss of pressure due to power failure or breakage of hoses until the machine is stopped.
To check the function, pressure in line **A** "clamping" must be reduced. It must not be possible to open the arms mechanically.

In case of problems replace the safety valve and repeat the test.

Cylinder with safety valve



Exchange of safety valve

Remove plug and remove safety valve.

When assembling do not damage / loose components, seals, o-rings. Use ballbaring grease with assembling.

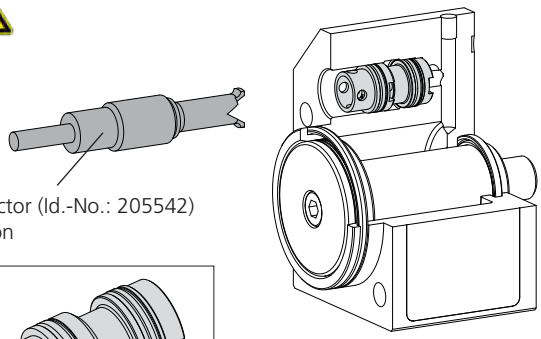
Release rotation of the valve:

KLU 215 / 218 / 222	4.5 : 1
KLU 318 / 322	4.4 : 1
KLU 419 / 422 / 429	4.4 : 1
KLU-A 530 / 540	4.4 : 1

Assembling / disassembling:

1. Remove the cylinder cover.
2. Install the spacer sleeve including the 2 seals.
3. Remove the 3 pc. safety valve with the extractor (Id.No. 205542).
4. Clean the bore.
5. Install the safety valve and the spacer sleeve including the seals.
6. Mount the cylinder cover (torque for the mounting bolts see attached table).

Removing the safety valve



Steady rest type / size	Torque Nm
KLU 215 / 218 / 222	50
KLU 318 / 322 / 419 / 422 / 429	80
KLU-A 530 / 540	100

Removing the actuating cylinder

1. Remove the 4 screws (1) of the cylinder housing (2).
2. Remove screw (3) of piston (4).
3. Now cylinder housing (8) can be removed together with piston (4).

Exchange of seals

When changing seals replacing of all seals and o-rings (seal kit cylinder) is recommended.

Seal kit cylinder consisting of:

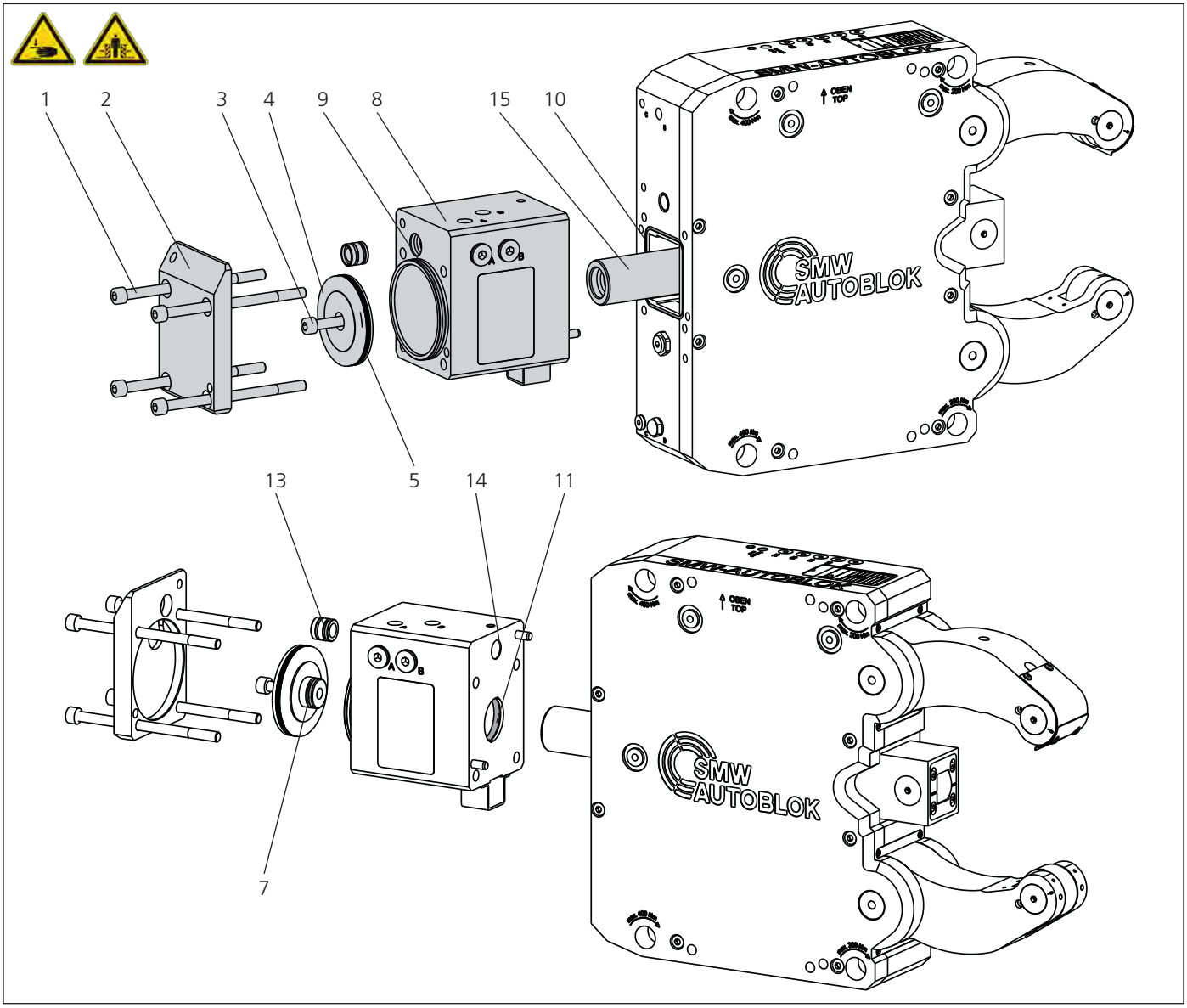
Piece 5:	Piston seal (2-pcs.)
Piece 7:	O-ring
Piece 9:	O-ring
Piece 10:	O-ring
Piece 11:	Piston rod seal (2-pcs.)
Piece 13:	O-ring
Piece 14:	O-ring

Do not damage the seal when mounting.

Mounting the actuating cylinder

1. Grease piston rod and insert cylinder housing (8) on piston rod (15) carefully.
2. Insert piston (4) in cylinder housing (8)/ piston rod (15) on tighten screw (3).
3. Mount cylinder cover (2) with 4 screws (1) on cylinder housing (8).

When assembling do not damage/ loose components, seals, o-rings.
Use ballbaring grease with assembling.

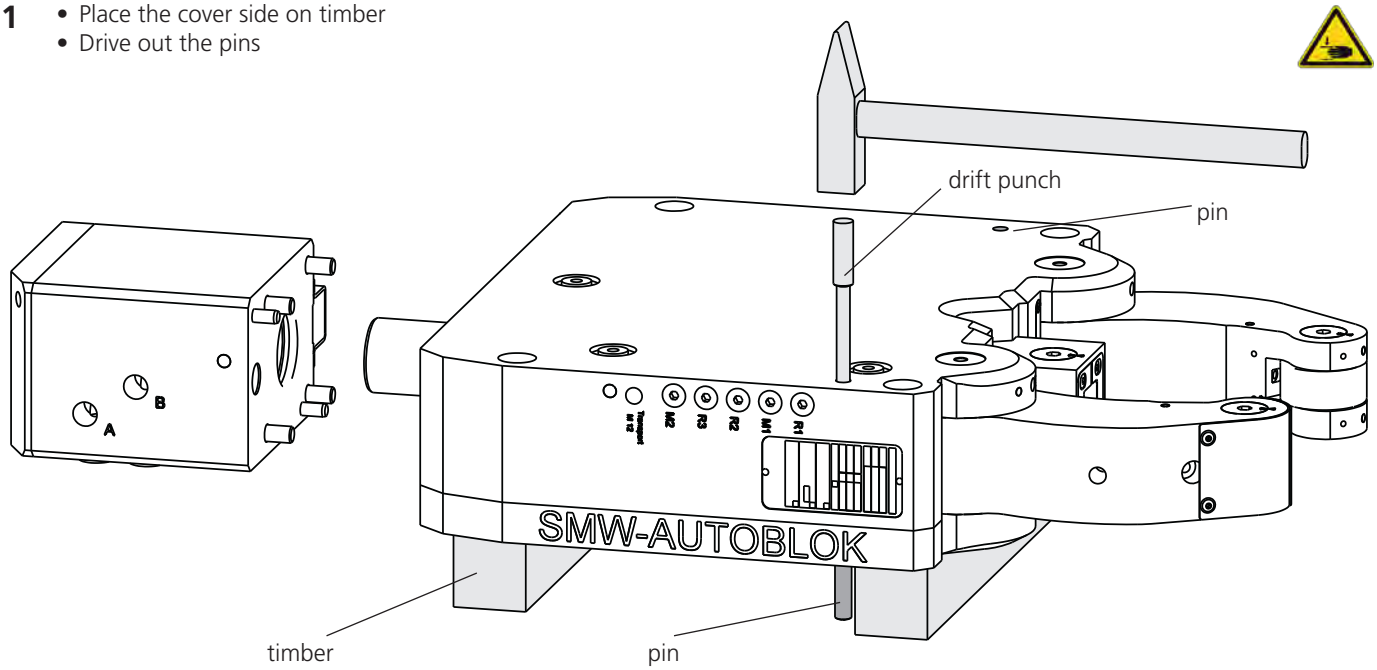


Disassembling of steady rest

Remove actuating cylinder and seal. (see page 24)

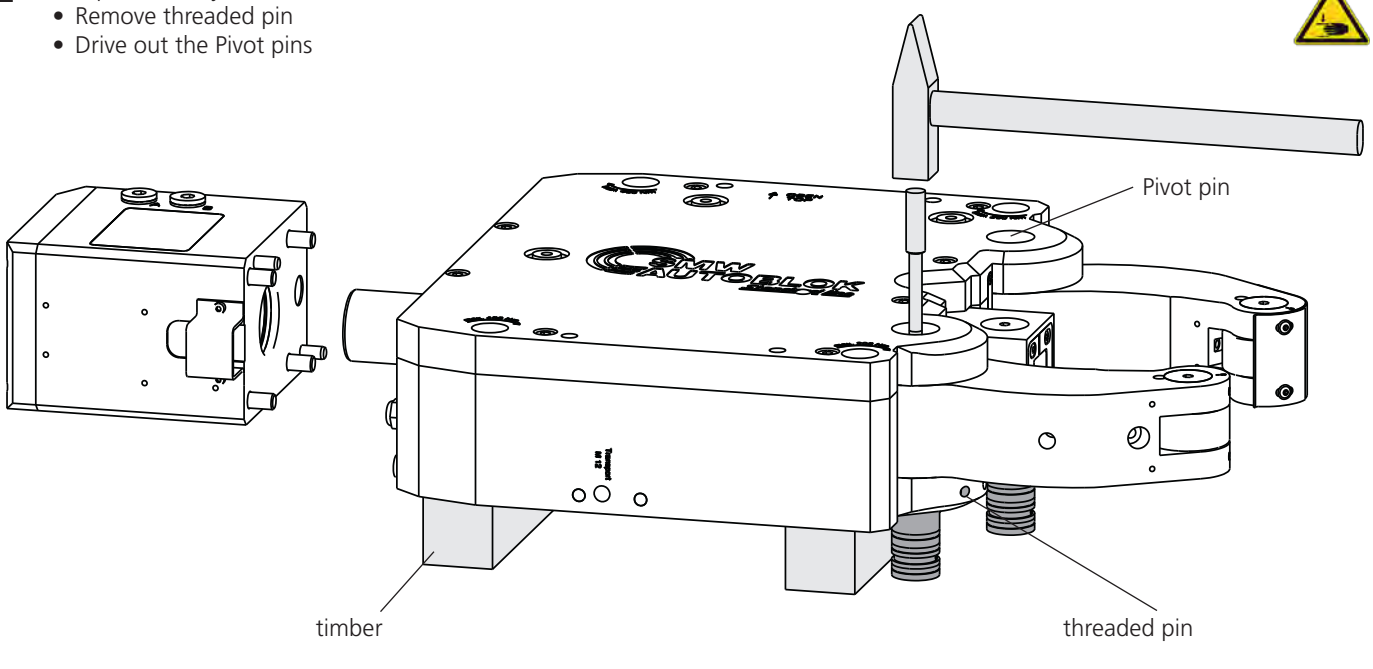
1

- Place the cover side on timber
- Drive out the pins



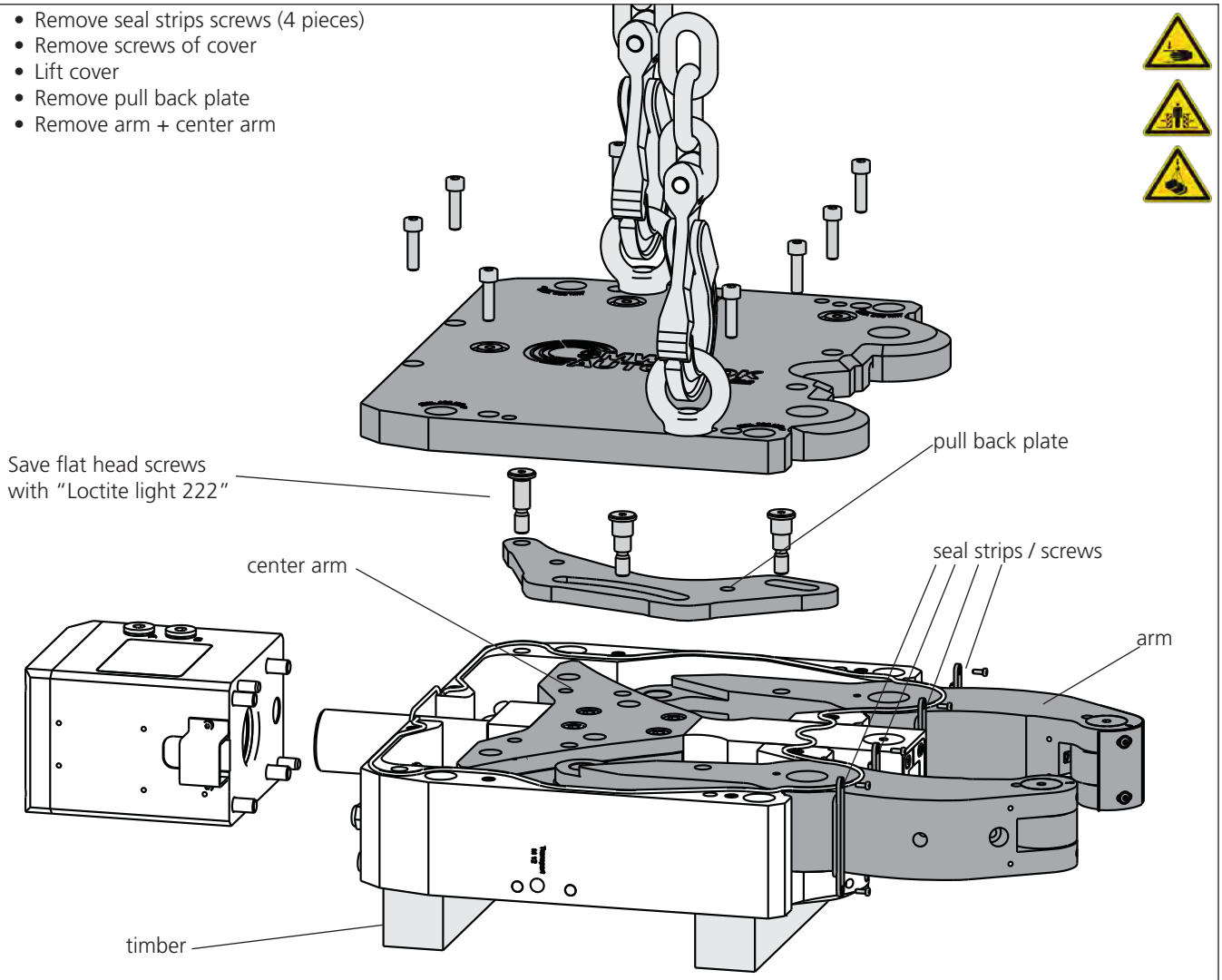
2

- Flip the steady rest over
- Remove threaded pin
- Drive out the Pivot pins



3

- Remove seal strips screws (4 pieces)
- Remove screws of cover
- Lift cover
- Remove pull back plate
- Remove arm + center arm



Clean all parts with approved cleaning liquid. Dispose of cleaning according to regulations.
Replace damaged parts by original SMW-AUTOBLOK spare parts.

Replacing all seals after each disassembling is recommended.

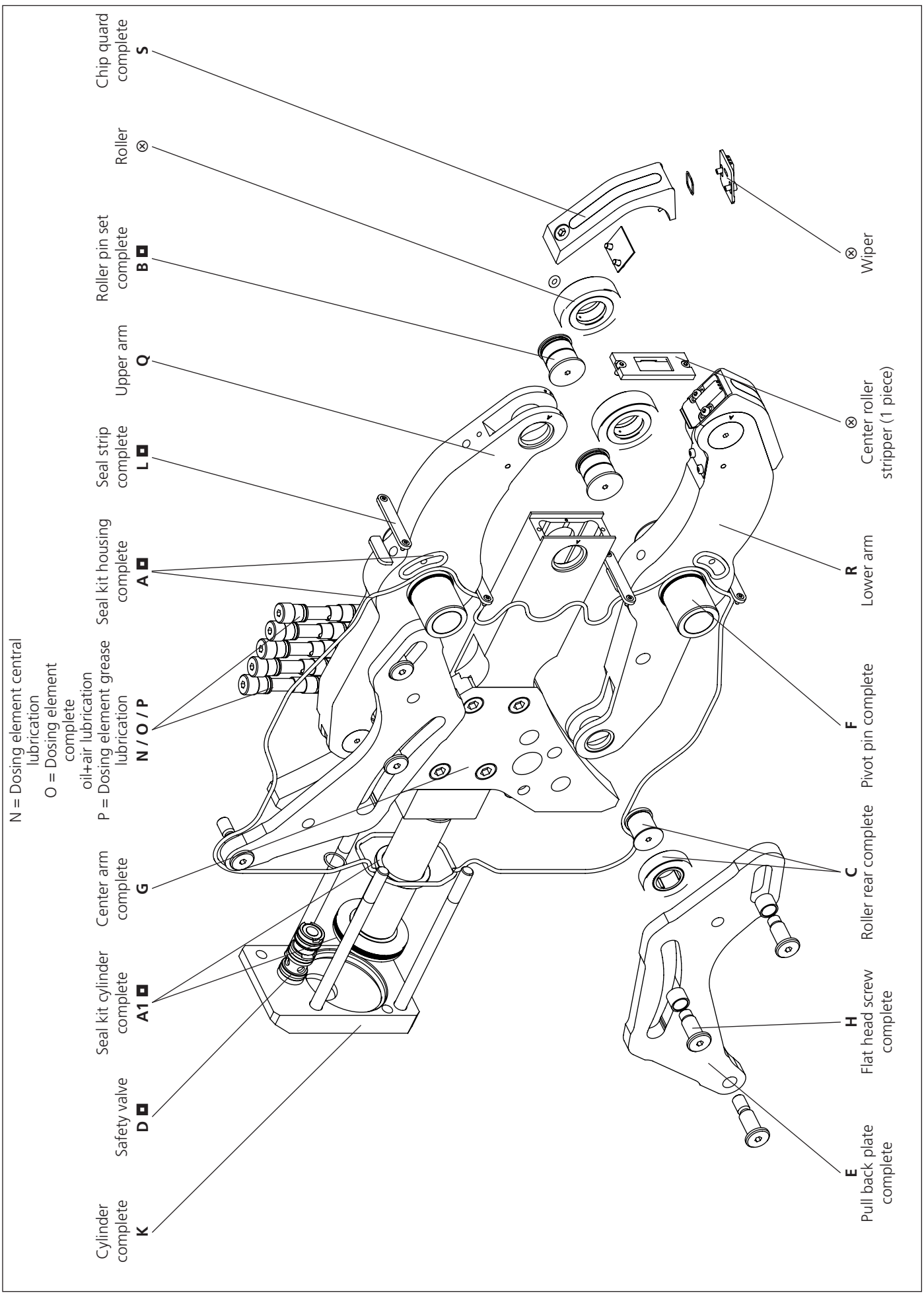
Reassembling in reversed sequence.
Slightly save pull back plate screws with Loctite light 222".

Seal kit: Spare Part Package A/A1 on page 28/29.

When assembling do not damage/ loose components, seals, o-rings.
Use ballbaring grease with assembling.

Trouble shooting

Problem	Caused by	Action
Component conical	Steady rest is not adjusted to center line	Adjust steady rest to center line
Component is pulled out of the chuck	Steady rest is not on center line or not in proper angle position to the center line	Adjust steady rest/steady rest bracket
Component is not round	Hydraulic system is not bled	Bleed hydraulic system
	Piston seal is damaged	Replace piston seal
	Clamping dia. is not round	Re-machine clamping dia.
Rollers overheat using centralized lubrication version	Centralized lubrication system is damaged	Check lubrication unit, exchange dosing elements, clean lubrication channels
	Oil+air lubrication is damaged	Check, clean and adjust throttle elements
	Lubricant is missing	Refill lubrication oil
Outer arm or center arm is damaged	Crash with turret	Send steady rest to **SMW-AUTOBLOK**
Roller wear at the outer dia. flat spots	Steady rest has been moved axially with no spindle rotation	Change process
	Steady reset has been damaged at high spindle speed	Reduce spindle speed until rollers are accelerated
Clamping force is not reached	Piston seal damaged	Replace piston seal
	Problems at hydraulic power unit or solenoids	Check pressure and filters at hydraulicpower unit
Hydraulic oil escapes from steady rest or cylinder flange	O-Ring at cylinder housing is damaged	Replace O-ring Check if parts are damaged
	Piston rod seal is damaged	Replace piston rod seal Check if parts are damaged
Steady rest does not open	No pressure in supply line	Check hydraulic power unit
	Safety valve in the cylinder does not open	Replace safety valve


N = Dosing element central lubrication
O = Dosing element complete oil+air lubrication
P = Dosing element grease lubrication
N / O / P
Seal kit housing complete
A ◘
Seal strip complete
L ◘
Upper arm
Q
Roller pin set complete
B ◘
Roller
⊗
Chip quard complete
S
Center arm complete
G
Seal kit cylinder complete
A1 ◘
Safety valve
D ◘
Cylinder complete
K
Pivot pin complete
F
Lower arm
R
⊗ Center roller stripper (1 piece)
⊗ Wiper
Roller rear complete
C
Flat head screw complete
H
Pull back plate complete
E

Spare parts list

◘ SPARE PART PACKAGE	A
Seal kit housing complete consisting of:	Qty.
O-ringstrip cover	1
O-ringstrip housing	4
O-ring cover	2
O-ring center arm	2
O-ring arm	2
O-ring roller pin	1
O-ring Pivot pin	12

◘ SPARE PART PACKAGE	A1
Seal kit cylinder complete consisting of:	Qty.
Piston rod seal (2 pieces)	1
Piston seal (2 pieces)	1
O-ring distance bush	1
O-ring piston	1
O-ring flangeside	2

◘ SPARE PART PACKAGE	B
Roller pin set complete consisting of:	Qty.
Roller pin	3
Roller pin cover	3

SPARE PART PACKAGE	C
Roller rear complete consisting of:	Qty.
Pins (2 pieces)	2
Roller	2
Bearing	2

◘ SPARE PART PACKAGE	D
Safety valve consisting of:	Qty.
Valve	1

SPARE PART PACKAGE	E
Pull back plate complete consisting of:	Qty.
Pull back plate	2
Flat head screw	6
Bushing	4

SPARE PART PACKAGE	F
Pivot pin complete consisting of:	Qty.
Pivot pin	2
Threaded pin	2
O-ring	4

SPARE PART PACKAGE	G
Center arm complete consisting of:	Qty.
Middel piece	1
Cam	1
Screw	4
Piston rod	1

SPARE PART PACKAGE	H
Flat head screw complete consisting of:	Qty.
Flat head screw	6
Bushing	4

SPARE PART PACKAGE	K
Cylinder complete consisting of:	Qty.
Cylinder housing	1
Cylinder flange	1
Piston rod	1
Piston	1
Seal kit cylinder complete (A1)	1
Screw	5
Locking screw	2
Safety valve	1

◘ SPARE PART PACKAGE	L
Seal strip complete consisting of:	Qty.
Seal strip	4
Screw	8

SPARE PART PACKAGE	N
Dosing element / convertion kit to central lubrication consisting of:	Qty.
Dosing element	4/5
Spacer + distance piece	4/5

SPARE PART PACKAGE	O
Throttle set / convertion kit to oil+air lubrication consisting of:	Qty.
Throttle	4/5
Locking screw	4/5

SPARE PART PACKAGE	P
Dosing element / convertion kit to grease lubrication consisting of:	Qty.
Dosing element	4/5
Spacer	4/5

SPARE PART PACKAGE	Q
Upper arm consisting of:	Qty.
Upper arm	1

SPARE PART PACKAGE	R
Lower arm consisting of:	Qty.
Lower arm	1

SPARE PART PACKAGE	S
Chip quard complete consisting of:	Qty.
Chip quard	1
Seal strip	1
Wiper	1
O-ring arm	1
O-ring wiper	1
Fixing bolts	5

Spare parts are supplied in these packages only.
To order the required spare part kit please contact SMW-Autoblok.

◘ **denote use up items**

⊗ **denote wear parts**
(recommended stock item)
Wear parts: rollers, chipguards, middleroller coverplate

Wear parts see ordering review on page 7.

12 months warranty

Product: Steady rest

SMW-AUTOBLOK provides a warranty on the purchased product for 12 months from the date of purchase as stipulated in our General Terms of Sale in the following cases:

- The defect was not known to the customer at the time of purchase.
- The defect is not due to wear as a result of use.
- The customer has not been negligent by improperly operating or incorrectly maintaining of our product. Refer to the enclosed instruction manual for operation and maintenance information.
- It is not a wear part such as seals, rollers or valves.
- Especially work piece touching parts such as jaws, locators, inserts, rollers and face drivers are excluded from warranty.
- Only original SMW-Autoblok parts have been used such as spare parts, seals, rollers, valves, jaws, locators, inserts and face drivers.
- There is evidence that the maintenance intervals in the operating instructions have been followed. The customer must provide maintenance documentation for this purpose. The maintenance performed must be documented in the maintenance section of the operating instructions and signed by a properly authorized person.

Please note that, if the above requirements are not met, the warranty is only invalid if the defect already existed at the time of transfer of risk, which is usually upon delivery of the product, unless the customer was aware of the defect at the time of transfer of risk.

24-months warranty
-optional-

Product: Steady rest

Against additional fee, SMW-AUTOBLOK offers a warranty on the purchased product for 24 months from date of purchase as a modification to the 12-month limitation period stipulated in our General Terms of Sale if the following conditions are met:

- An extension of the warranty from 12 to 24 months has been agreed upon in writing with SMW-AUTOBLOK.
- There is no defect due to wear as a result of use.
- The defect was not known to the customer at the time of purchase.
- The customer has not been negligent by improperly operating or incorrectly maintaining of our product. Refer to the enclosed instruction manual for operation and maintenance information.
- It is not a wear part such as seals, rollers or valves.
- Especially work piece touching parts such as jaws, locators, inserts, rollers and face drivers are excluded from warranty.
- Only original SMW-Autoblok parts have been used such as spare parts, seals, rollers, valves, jaws, locators, inserts and face drivers.
- There is evidence that the maintenance intervals in the operating instructions have been followed. The customer must provide maintenance documentation for this purpose. The maintenance performed must be documented in the maintenance section of the operating instructions and signed by a properly authorized person.
- Paid inspection by or at SMW-AUTOBLOK is mandatory.
  Minimum interval with maintenance documentation by SMW-AUTOBLOK.

Single shift operation	once in 24 months
2- and 3-shift operation	once in 12 months

  The customer is responsible for having inspections performed on time.
- The delivery location and machine location are within Germany.

Documentation of maintenance

Product: _____

Serialno.: _____

Regular and documented maintenance conserves the value of your work holding, and ensures warranty!

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Documentation of maintenance

Product: _____

Serialno.: _____

Regular and documented maintenance conserves the value of your work holding, and ensures warranty!

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Documentation of maintenance

Product: _____

Serialno.: _____

Regular and documented maintenance conserves the value of your work holding, and ensures warranty!

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	**YES** ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Documentation of maintenance

Product: _____

Serialno.: _____

Regular and documented maintenance conserves the value of your work holding, and ensures warranty!

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
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Signature	
Remarks	

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

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Operating hours	
Name	
Date	
Signature	
Remarks	

Maintained according to instruction manual	YES ☐
Operating hours	
Name	
Date	
Signature	
Remarks	

Empfangsbestätigung für die Betriebsanleitung
Confirmation of receipt of the instruction manual

Hiermit bestätigt die vom Betreiber/ Anwender beauftragte Person

This certifies the operator assigned by the operating company

Herr / Frau

Mr. / Mrs.

den Erhalt der Betriebsanleitung sowie deren Inhalte, insbesondere das Kapitel Sicherheit gelesen und verstanden zu haben.

hereby confirms to have received the instruction manual and to have read and understood the content, especially the chapters concerning safety.

Bediener	Datum	Operator	Date
Betreiber / Sachbeauftragter	Datum	Operating Company / Authorised person	Date

Id.Nr. / Id. No. :

Artikelbez. / Item :

Gewicht / Weight :

Seriennr. / Serialno. :

Bitte ausgefüllt zurückschicken an:

SMW-AUTOBLOK
Spannsysteme GmbH
Wiesentalstraße 28
D-88074 Meckenbeuren
Fax: +49 (0) 7542 - 3886
Mail: vertrieb@smw-autoblok.de

Please send the filled in form back to:

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Mail: sales@smw-autoblok.de

Id. No.	:	
Item	:	
Weight	:	
Serialno.	:	

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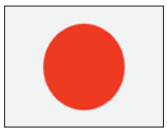

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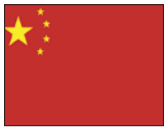

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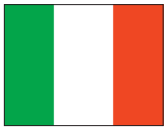

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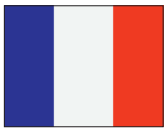

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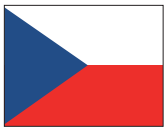

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