COPY OF THE ORIGINAL

INSTRUCTION MANUAL

QUICK JAW CHANGE POWER CHUCK

Type KNCS-NB
Type KNCS-NBX

worldwide • weltweit • worldwide

Date: 2018-01
Version: 8
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SMW® AUTOBLOK

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INSTRUCTION MANUAL
Quick Change Jaw Power Chuck Type KNCS-NB Type KNCS-NBX

Thank you for purchasing an Original-SMW-AUTOBLOK chuck type KNCS-NB / KNCS-NBX.

This **instruction manual** contains the installation, the use and the maintenance instructions of the work holding **„KNCS-NB / KNCS-NBX“**.

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:	Power chuck
Application range:	Installation in machine tool
Type:	KNCS-NB / KNCS-NBX

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 EN 1550 (2008)
- 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 chucks work safely and troublefree if they are used according to their specification i.e. to clamp components on turning machines.

Any other use can cause hazards.

2. Demands on operators

SMW-AUTOBLOK chucks 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

- Machine spindle may only start if the clamping pressure in the cylinder is fully reached and the component is clamped within the permissible working range.
- Chuck can only be opened when machine spindle is stopped.
- 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.
- Repowering after power failure must not change the original clamping mode.
- During machining the power chuck and the clamped component must be protected by safety guards.
- Open machine door only when machine spindle is completely stopped.
- Maintenance and actuation of the power chuck must only be carried out when machine spindle is stopped.

6. Technical details

The max. data, max. actuating force F, max. spindle speed n are engraved on the chuck body. They must not be exceeded. Also the summary of the total static gripping force ΣFsp at max. actuating force is engraved on the chuck body.

7. Maximum speed

The max. spindle speed is only valid at max. actuating force using the standard hard stepped top jaws type GST, which are not exceeding the outer diameter of the chuck. If, for special applications, special top jaws are used clamping force and the max. speed must be calculated according to VDI 3106 but not exceeding the max. permitted speed.

Heavy special top jaws have an especially big influence on the max. speed. During the machining operation the centrifugal force increases or decreases the gripping force.

OD clamping = decreasing

ID clamping = increasing

All theoretically calculated values must be double checked with a suitable dynamic gripmeter. We recommend to use a calibrated dynamic grip force tester.

8. Jaws

Always use original SMW-AUTOBLOK base jaws and monoblock jaws. Jaws of other manufacturers can cause damage to the chuck or accidents. Top jaws must be mounted with head socket screws of the class 12.9 only. Tighten with the specified torque. Always ensure sufficient length of thread engagement (min. 1,25 x thread dia.)!

The mounting bolts must be checked for damage and wear in regular intervals, and have to be replaced if necessary. They have to be replaced not later than after maximum 100000 clamping cycles!

If the jaw height of special jaws exceeds the height of the standard jaws, the max. actuating force of the chuck must be reduced in order to avoid an excessive lever action and thus damage to the power chuck. At reduced actuating force, the max. speed must also be reduced accordingly!

9. Actuating cylinder

The actuation of the power chuck must only be carried out by suitable cylinders in accordance with safety precautions. When installing the power chuck on the machine with an existing cylinder be sure that the actuating force of the cylinder does not exceed the max. permitted actuating force of the chuck.

If necessary reduce the actuating force of the cylinder. Connecting and adapter parts must be specified for permanent load. Adjust and check the proximity switches for the stroke control before starting the production.

10. Remaining risks

The type of components (shape, weight, unbalance, material etc.) has a big influence on the system "machine tool - chuck - 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.

11. Maintenance

The power chuck must be maintained at regular intervals. Check the conditions by measuring the gripping force with static gripmeter. Replace damaged parts with original SMW-AUTOBLOK spare parts only. Maintenance must only be carried out at safe spindle stop of the machine.

12. 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.

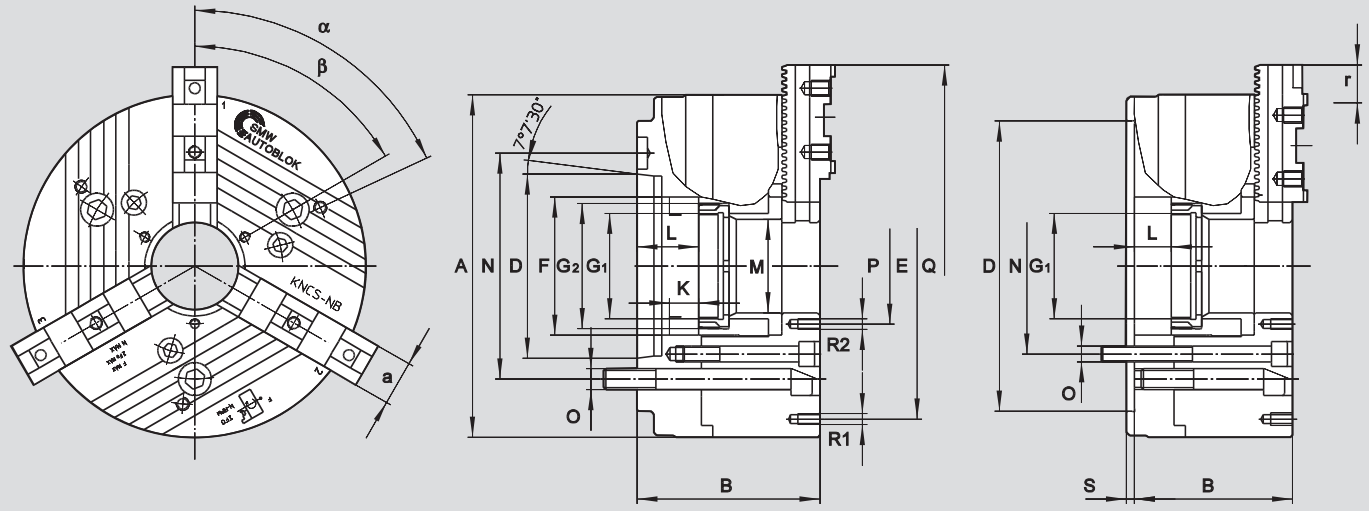
For a proper function of the work holding, use original SMW-AUTOBLOK lubricant only.

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

KNCS®-NB

QUICK JAW CHANGE
Wide master jaws

Main dimensions and technical data

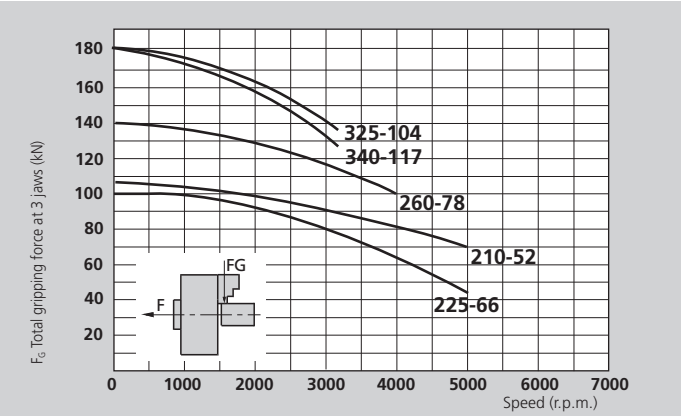


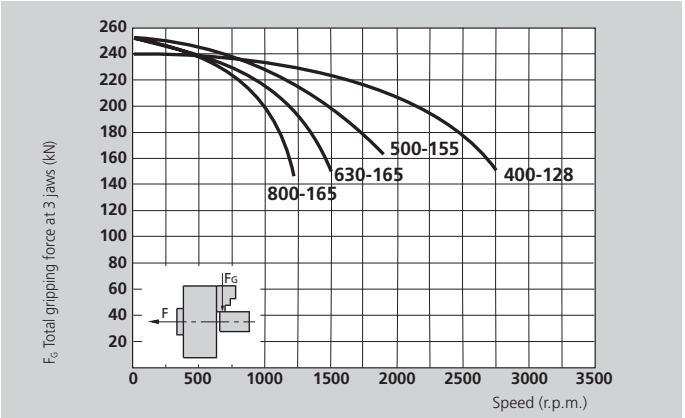
Subject to technical changes.
Dimensions and position of base jaws are depending on top jaw type.
For more detailed information please ask our customer service

SMW-AUTOBLOK Type		KNCS-NB 210-52			KNCS-NB 225-66			KNCS-NB 260-78				KNCS-NB 275-86			KNCS-NB 325-104			
Mounting	**Size**	**Z170**	**A6**	**A8**	**Z170**	**A6**	**A8**	**Z170**	**Z220**	**A6**	**A8**	**Z220**	**A6***	**A8**	**Z220**	**Z300**	**A8**	**A11**
	A	215			225			260				275			324			
	B	105	122	124	105	122	124	120	120	137	139	120	144	139	130	130	149	151
	D H6	170	106.39	139.73	170	106.39	139.73	170	220	106.39	139.73	220	106.39	139.73	220	300	139.73	196.88
	E	168			180			210				210			268			
	F	85			95			111				122			144			
Threaded ring/depth	**G1**	M60 x 1.5/16			M75 x 1.5/16			M90 x 2/20				M95 x 2/20			M115 x 2/22			
Piston thread/depth	**G2**	M75 x 2/19			M85 x 2/19			M102 x 2/23				M110 x 2/23			M132 x 2/25			
Piston stroke	**K**	22			22			25				25			25			
Max.	**L**	25	42	44	25	42	44	28	28	45	47	28	52	47	28	28	47	49
	M	52			66			78				86			104			
Fixing bolt circle	**N**	133.4	133.4	171.4	133.4	133.4	171.4	133.4	171.4	133.4	171.4	171.4	133.4	171.4	171.4	235	171.4	235
Fixing bolt	**O**	M12	M12	M16	M12	M12	M16	M12	M16	M12	M16	M16	M12	M16	M16	M20	M16	M20
	P	72			82			95				105			130			
	Q	261			271			318				322			376			
Thread/thread depth	**R1**	M10/12			M10/12			M10/12				M10/18			M10/12			
Thread/thread depth	**R2**	M6/10			M6/10			M8/14				M8/14			M10/12			
	S	6			6			6				6			6			
	a	28			28			35				35			50			
Base jaw tooth pitch	**-**	4.7			4.7			5.5				5.5			5.5			
Base jaw offset	**r**	28.3			33			33				38.5			49.5			
Base jaw offset	teeth	6			7			6				7			9			
α	deg.	60			60			60				60			60			
β	deg.	60			60			60				60			60			
Stroke per jaw at piston stroke **K** max.	mm	6.0		22	6.0		22	7.0			25	7.0		25	7.0			25
Max. actuating force 3-jaw chuck	kN	53			53			70				70			95			
Max. total gripping force 3-jaw chuck	kN	100			100			135				135			180			
Max. speed 3-jaw chuck	r.p.m.	5000			5000			4000				4000			3300			
Weight without jaws	kg	24	26	26	26	29	29	40	40	43	43	48	53	50.7	65	65	68	68
Moment of inertia	kg·m²	0.11			0.21			0.38				0.41			0.85			
Rec. closed center cylinder	Type	**SIN-S 125/150**			**SIN-S 125/150**			**SIN-S 150/175**				**SIN-S 150/175**			**SIN-S 150/175/200**			
Rec. open center cylinder	Type	**VNK-T2 130-52**			**VNK-T2 150-67**			**VNK-T2 170-77**				**VNK-T2 225-95**			**VNK-T2 250-110**			

* Indirect mounting by reducing flange

For highest speeds: flat gripping force curve





The data in the diagrams refer to 3-jaw-chucks, newly maintained according to their service manuals using SMW-AUTOBLOK K05 grease. The static and dynamic gripping forces have been measured using standard soft top jaws, placed in a position not exceeding the outer diameter of the chuck.

⚠ **Safety advice/danger of damage:**
When using taller/heavier jaws and/or clamping on a bigger diameter reduce draw pull/rotating speed accordingly.

SMW-AUTOBLOK Type		KNCS-NB340-117			KNCS-NB 400-128				KNCS-NB 500-155				KNCS-NB 630-165			KNCS-NB 800-165		
Mounting	**Size**	**Z300**	**A8***	**A11**	**Z300**	**Z380**	**A11**	**A15**	**Z300**	**Z380**	**A11**	**A15**	**Z380**	**A11***	**A15**	**Z520**	**A15***	**A20**
	A	340			400				500				630			800		
	B	130	160	151	140	140	161	163	174	174	195	197	174	214	197	174	214	199
	DH6	300	139.73	196.88	300	380	196.88	285.77	300	380	196.88	285.77	380	196.88	285.77	520	285.77	412.8
	E	270			330				420				420/585			420/585/750		
	F	160			180				207				217			217		
Threaded ring/depth	**G1**	M125 x 2/22			M138 x 2/22				M165 x 2/25				M175 x 2/25			M175 x 2/25		
Piston thread/depth	**G2**	M146 x 2/25			M160 x 2/25				M185 x 2/28				M195 x 2/28			M195 x /2/28		
Piston stroke	**K**	25			32				42				42			42		
Max.	**L**	28	58	49	32	32	53	55	42	42	63	65	42	82	65	42	82	67
	M	117			128				155				165			165		
Fixing bolt circle	**N**	235	171.4	235	235	330.2	235	330.2	235	330.2	235	330.2	330.2	235*	330.2	463.6	330.2*	463.6
Fixing bolt	**O**	M20	M16	M20	M20	M24	M20	M24	M20	M24	M20	M24	M24	M20*	M24	M24	M24*	M24
	P	140			152				180				195			195		
	Q	380			455				554				650			817		
Thread/thread depth	**R1**	M10/16			M12/18				M16/25				M16/25			M16/25		
Thread/thread depth	**R2**	M10/16			M12/18				M12/18				M12/18			M12/18		
	S	6			8				8				8			8		
	a	50			50				62				75			75		
Base jaw tooth pitch	**-**	5.5			5.5				7				7			7		
Base jaw offset	**r**	49.5			60.5				77				91			91		
Base jaw offset	teeth	9			11				11				13			13		
α	deg.	60/35			60/35				20/9x40				20/9x40			20/9x40		
β	deg.	60/35			60/35				20/9x40				20/9x40			20/9x40		
Stroke per jaw at piston stroke **K** max.	mm	7.0		25	8.0			32	10.0			42	10.0		42	10.0		42
Max. actuating force 3-jaw chuck	kN	95			115				120				120			120		
Max. total gripping force 3-jaw chuck	kN	180			240				250				250			250		
Max. speed 3-jaw chuck	r.p.m.	3300			2750				1800				1500			1200		
Weight without jaws	kg	77	88.5	82.5	111	111	116	116	225	225	231	231	390	411	398	620	660	635
Moment of inertia	kg·m²	1.24			2.5				6.5				18			27		
Rec. closed center cylinder	Type	**SIN-S 150/175/200**			**SIN-S 175/200**				**SIN-S 175/200**				**SIN-S 175/200**			**SIN-S 175/200**		
Rec. open center cylinder	Type	**VNK-T2 320-127**			**VNK-T2 320-127**				**VSG 450-165**				**VSG 450-165**			**VSG 450-165**		

* Indirect mounting by reducing flange

JAWS-CATALOG

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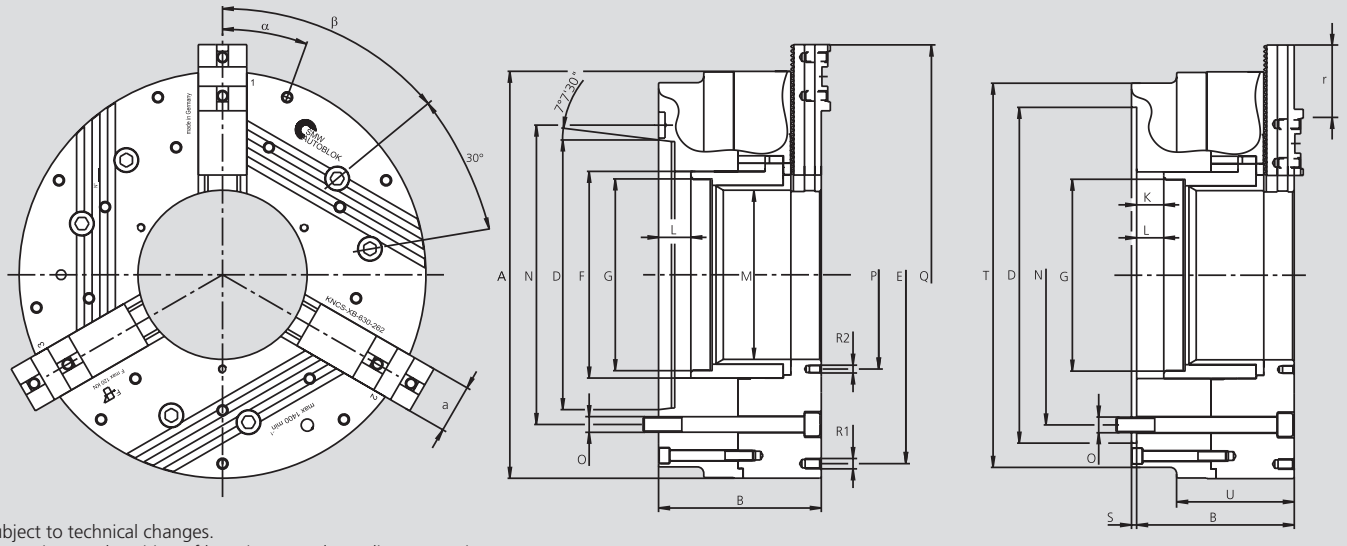
KNCS®-NBX

QUICK JAW CHANGE
Wide master jaws

- **Main dimensions and technical data**
- **EXTRA large through hole**



Subject to technical changes.
Dimensions and position of base jaws are depending on top jaw type.
For more detailed information please ask our customer service.

SMW-AUTOBLOK Type		KNCS-NBX 425-170			KNCS-NBX 530-210			KNCS-NBX 630-262			KNCS-NBX 800-262			KNCS-NBX 1000-262		
Mounting	**Size**	**Z380**	**A11**	**A15**	**Z380**	**A11**	**A15**	**Z520**	**A15**	**A20**	**Z520**	**A15**	**A20**	**Z520**	**A15***	**A20**
	A	425			530			630			800			1000		
	B	197	237	220	244	284	267	244	284*	269	244	284*	269	244	284*	269
	D H6	380	196.88	285.77	380	196.88	285.77	520	285.77	412.77	520	285.77	412.77	520	285.77	412.77
	E	330.2			420			420/585			420/585/750			420/585/750/915		
	F	222			262			320			320			320		
Piston thread/depth	**G**	M202 x 2/25			M240 x 2/28			M297 x 2/33			M297 x 2/33			M297 x 2/33		
Piston stroke	**K**	32			42			42			42			42		
Max.	**L**	32	72	55	42	82	55	42	82	67	42	82	67	42	82	67
	M	170			210			262			262			262		
Fixing bolt circle	**N**	330.2	235.0	330.2	330.2	235.0	30.2	463.6	330.2*	463.6	463.6	330.2*	463.6	463.6	330.2*	463.6
Fixing bolt	**O**	M24	M20	M24	M24	M20	M24	M24	M24*	M24	M24	M24*	M24	M24	M24*	M24
	P	195			235			292			292			292		
	Q	487			598			745			915			1107		
Thread/thread depth	**R_1**	M12/16			M16/25			M16/25			M16/25			M16/25		
Thread/thread depth	**R_2**	M12/16			M16/25			M12/18			M12/18			M12/18		
	S	8			8			8			8			8		
	T	412			490			595			600			600		
	U	137			167			182			182			182		
	a	50			62			75			75			75		
Base jaw tooth pitch	**-**	5.5			7			7			7			7		
Base jaw offset	**r**	49.5			70			119			133			133		
Base jaw offset	teeth	9			10			17			19			19		
α	deg.	15°/12x30°			20°/9x40°			20°/9x40°			20°/9x40°			20°/9x40°		
β	deg.	60			60			60			60			60		
Stroke per jaw at piston stroke **K** max.	mm	8		32	10		42	10		42	10		42	10		42
Max. actuating force 3-jaw chuck	kN	115			120			120			120			120		
Max. total gripping force 3-jaw chuck	kN	240			250			250			250			250		
Max. speed 3-jaw chuck	r.p.m.	2500			1500			1400			1000			850		
Weight without jaws	kg	164			320			395			635			985		
Moment of inertia	kg·m²	4.3			13			23			54			125		
Rec. closed center cylinder	Type	**SIN-S 175/200**			**SIN-S 175/200**			**SIN-S 175/200**			**SIN-S 175/200**			**SIN-S 175/200**		
Rec. open center cylinder	Type	**VSG 450-165**			**VSG 550-205**			**VSG 550-205**			**VSG 550-205**			**VSG 550-205**		

* Indirect mounting by reducing flange

JAWS-CATALOG
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Actuating cylinders with and without through-hole

VNK-T2

Hydraulic open center cylinder with built-in safety valves, piston stroke control and coolant collector (pmax. = 45 bar

SIN-S

Hydraulic closed center cylinder with built-in safety valves and piston stroke control.
Central through-hole for air or coolant (pmax. = 70 bar)

SIN-HL

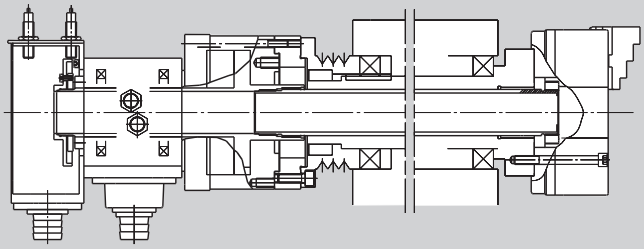
Hydraulic closed center cylinder for high-low clamping with built-in safety valves and piston stroke control.
Central through-hole for air, oil or coolant (pmax. = 70 bar

SMW-AUTOBLOK Type		VNK-T2 130/52	VNK-T2 170/77	VNK-T2 225/95	VNK-T2 320/127	VSG 450/165	SIN-S 125	SIN-S 150	SIN-S 175	SIN-S 200	SIN-HL 100	SIN-HL 125	SIN-HL 150	SIN-HL 175
Draw pull max.	kN	58	76	100	123	138	71	108	150	196	49	77	108	154
$n_{max.}$	r.p.m.	6300	5000	4000	3200	2000	6000	6000	5000	4000	7000	6000	6000	5000
Through-hole	mm	52.5	77	95.5	127.5	165	-	-	-	-	-	-	-	-

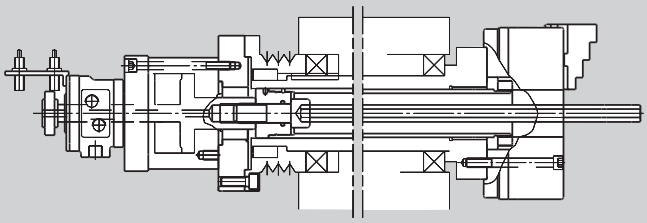
For more technical information see general catalog page 259

Examples for assembly

Open center with VNK-T2

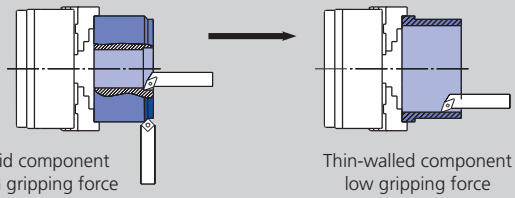


Partial open center with SIN-S/SIN-HL



High-low clamping for thin-walled components

Principle



Solid component high gripping force

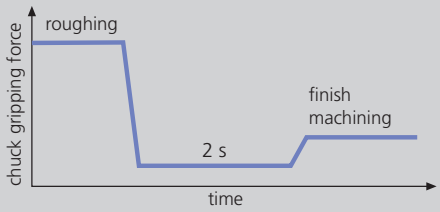
Thin-walled component low gripping force

For easily deformed components SMW-AUTOBLOK offers "high-low" clamping.

The gripping force of the chuck can be reduced from a large amount of gripping force used in roughing, to a smaller amount of gripping force for a finishing cut without unclamping the component.

The SMW-AUTOBLOK closed center cylinder type SIN-HL and a modification of the machine hydraulic are necessary.

Function



In combination with a SMW-AUTOBLOK "high-low" hydraulic cylinder SIN-HL and suitable machine hydraulics, the KNCS-NB/ KNCS-NBX wedge bar system allows a monitored reduction of gripping force.

The component remains clamped in the chuck, however, the stress of the component can be released.
The "high-low" cycle is programmable and is finished completely within 2 - 4 sec.

Result

Without "high-low" clamping

With "high-low" clamping

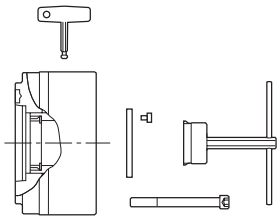
The result are round components with a minimum of deformation.

For additional information please ask our engineers.

KNCS®-NB

QUICK JAW CHANGE
Wide master jaws

Ordering review



Spindle mounting \ Size	KNCS-NB 210-52	KNCS-NB 225-66	KNCS-NB 260-78	KNCS-NB 275-86	KNCS-NB 325-104	KNCS-NB 340-117	KNCS-NB 400-128	KNCS-NB 500-155	KNCS-NB 630-165	KNCS-NB 800-165
Centering rim small			Z170 064645		Z220 064695		Z300 064303	Z300 064306		
Centering rim large	Z170 064334	Z170 069790	Z220 064646	Z220 069660	Z300 064715	Z300 069665	Z380 063950	Z380 064307	Z380 064548	Z520 064579
A 05										
A 06	064610	069791	064669	069661						
A 08	064611	069792	064670	069662	064716	069666				
A 11					064723	069667	064304	064308	064577	
A 15							064305	064309	064549	064615
A 20										064616

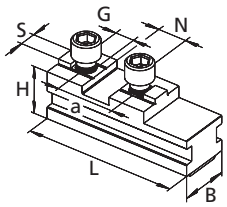
Supply range
Chuck + disengaging key + mounting bolts + mounting key + 1 set of coverplates
without base jaws, without top jaws

Base jaw type

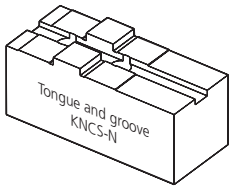
GBK-B

TONGUE & GROOVE KNCS-N standard

Existing top jaw



KNCS-NB	210-52/225-66	260-78/275-86	325-104/340-117	400-128	500-155	630-165	800-165
Id. No.	138494	039624	039626	039629	035565	035902	064604
B	28	35	50	50	62	75	75
H	32	40	45.8	45.8	57	57	57
L	85	104	115	125	160	200	287
N	20	20	20	26	30	30	30 (2x)
S	10	12	12	12	18	18	18
G (metric)	M8	M12	M12	M12	M16	M16	M16
a	40	40	40	54	60	60	2 x 60

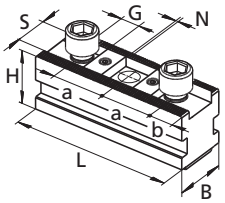


Base jaw type

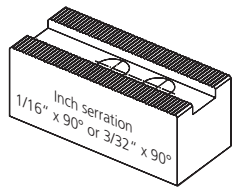
GBK-BD

INCH SERRATED (for SMW-AUTOBLOK standard jaws)

Existing top jaw



KNCS-NB	210-52/225-66	260-78/275-86	325-104/340-117	400-128	500-155	630-165	800-165
Id. No.	036292	035704	036167	036293	036294	036295	036296
B	28	35	50	50	62	75	75
H	32	40	45.8	45.8	61	61	61
L	85	104	115	125	160	200	287
N	1/16" x 90°	1/16" x 90°	1/16" x 90°	3/32" x 90°	3/32" x 90°	3/32" x 90°	3/32" x 90°
S (ridge)	17	21	21	25.5	25.5	25.5	25.5
G	M12	M16	M16	M20	M20	M20	M20
a	2 x 23	30/28*	30/28*	2 x 38	38/49/38	38/38/52/38	3x38/60.7/2x38
b	11	14	14	17	17	18	17.5



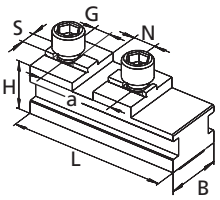
* 30/30 on request

Base jaw type

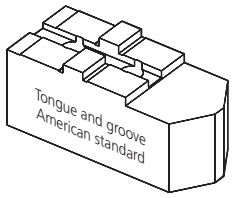
GBK-BA

TONGUE & GROOVE American standard

Existing top jaw



KNCS-NB	210-52/225-66	260-78/275-86	325-104/340-117	400-128	500-155	630-165	800-165
Id. No.	-	-	039628	039631	060561	060562	064590
B	-	-	50	50	62	75	75
H	-	-	45.8	45.8	57	57	57
L	-	-	120	146	168	203	287
N	-	-	19.02	19.02	19.02	19.02	19.02 (2x)
S	-	-	12.7	12.7	12.7	12.7	12.7
G (inch)	-	-	5/8-11	3/4-10	3/4-10	3/4-10	3/4-10
a	-	-	63.5	76.2	76.2	76.2	2 x 76.2

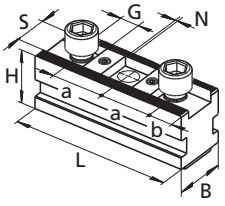


Base jaw type

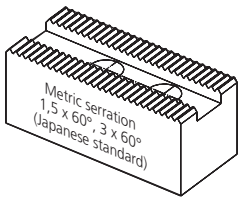
GBK-BM

METRIC SERRATION

Existing top jaw



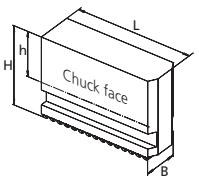
KNCS-NB	210-52/225-66	260-78/275-86	325-104/340-117	400-128	500-155	630-165	800-165
Id. No.	035566	035567	035568	035569	035570	035917	036708
B	28	35	50	50	62	75	75
H	32	40	45.8	45.8	61	61	61
L	85	104	115	125	160	200	287
N	1.5 x 60°	1.5 x 60°	1.5 x 60°	1.5 x 60°	3 x 60°	3 x 60°	3 x 60°
S	14	16	21	22	25	25	25
G (metric)	M12	M12	M16	M20	M20	M20	M20
a	2 x 25	2 x 30	2 x 30	2 x 43	50/ 60	60/60/70.5/60	4 x 60
b	11	11	14	17	17	17	17.5



Jaw type

UVB-B

Soft wide monoblock jaws



KNCS-NB	210/225	260/275	325/340	400	500	630/800
Jaw type	UVB-B 210	UVB-B 250	UVB-B 315	UVB-B 400	UVB-B 500	UVB-B 630
Id. No.	534337	238910	238911	238740	238912	5301060
B	28	35	50	50	62	75
H	80	110	115	125	160	160
h	55	81	60	60	105	105
L	85	109.5	120.5	148	175	230
kg/set	4.2	9.4	18.5	20.7	38.8	61.5

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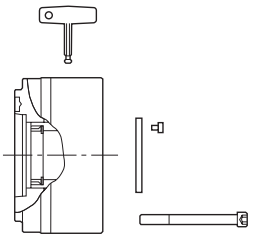
KNCS®-NBX

QUICK JAW CHANGE
Wide master jaws

■ Ordering review



Spindle mounting \ Size	KNCS-NBX 425-170	KNCS-NBX 530-210	KNCS-NBX 630-262	KNCS-NBX 800-262	KNCS-NBX 1000-262
Centering rim	Z380	Z380	Z520	Z520	Z520
large	160080	160090	069760	069770	069780
A 11	160081	160091			
A 15	160082	160092	069768	069778	069788
A 20			069769	069779	069789

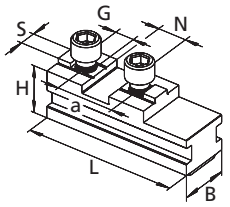
Supply range

Chuck + disengaging key + mounting bolts + mounting key + set of coverplates, without base jaws, without top jaws

Base jaw type

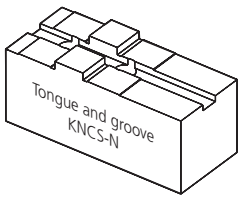
GBK-B

TONGUE & GROOVE KNCS-N standard



KNCS-NBX	425-170	530-210	630-262	800-262	1000-262
Id. No.	039629	035565	035902	064604	069806
B	50	62	75	75	75
H	45.8	57	57	57	57
L	125	160	200	286	384
N	26	30	30	30 (2x)	30
S	12	18	18	18	18
G (metric)	M12	M16	M16	M16	M16
a	54	60	60	2 x 60	60

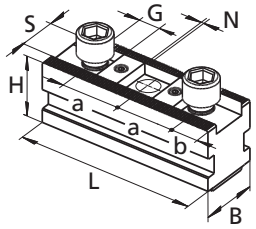
Existing top jaw



Base jaw type

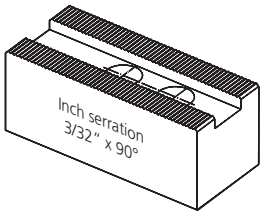
GBK-BD

INCH SERRATED (for SMW-AUTOBLOK standard jaws)



KNCS-NBX	425-170	530-210	630-262	800-262	1000-262
Id. No.	036293	036294	036295	036296	-
B	50	62	75	75	-
H	45.8	61	61	61	-
L	125	160	200	287	-
N	3/32" x 90°	3/32" x 90°	3/32" x 90°	3/32" x 90°	-
S (ridge)	25.5	25.5	25.5	25.5	-
G	M20	M20	M20	M20	-
a	2 x 38	38/49/38	38/38/52/38	3 x 38/60.7/2 x 38	-
b	17	17	18	17.5	-

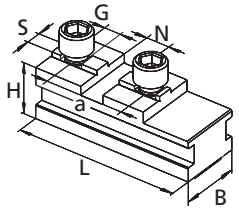
Existing top jaw



Base jaw type

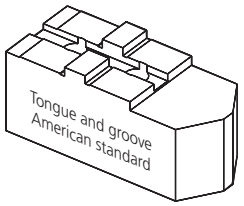
GBK-BA

TONGUE & GROOVE American standard



KNCS-NBX	425-170	530-210	630-262	800-262	1000-262
Id. No.	039631	060561	060562	064590	069807
B	50	62	75	75	75
H	45.8	57	57	57	57
L	146	168	203	286	384
N	19.02	19.02	19.02	19.02/ (2x)	19.02/ (3x)
S	12.7	12.7	12.7	12.7	12.7
G (inch)	3/4-10	3/4-10	3/4-10	3/4-10	3/4-10/ (4x)
a	76.2	76.2	76.2	2 x 76.2	76.2/ (3x)

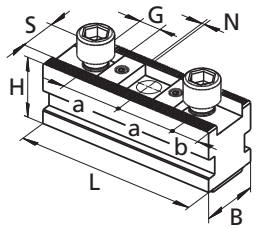
Existing top jaw



Base jaw type

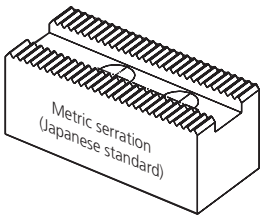
GBK-BM

METRIC SERRATION



KNCS-NBX	425-170	530-210	630-262	800-262	1000-262
Id. No.	035569	035570	035917	036708	-
B	50	62	75	75	-
H	45.8	61	61	61	-
L	125	160	200	287	-
N	1.5 x 60°	3 x 60°	3 x 60°	3 x 60°	-
S	22	25	25	25	-
G (metric)	M20	M20	M20	M20	-
a	2 x 43	50/60	60/60/70.5/60	4 x 60	-
b	17	17	17	17.5	-

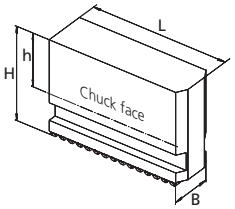
Existing top jaw



Jaw type

UVB-B

Soft wide monoblock jaws



KNCS-NBX	425	530	630/800/1000
Jaw type	UVB-B 400	UVB-B 500	UVB-B 630
Id. No.	238740	238912	5301060
B	50	62	75
H	125	160	160
h	60	105	105
L	148	175	230
kg/set	20.7	38.8	61.5

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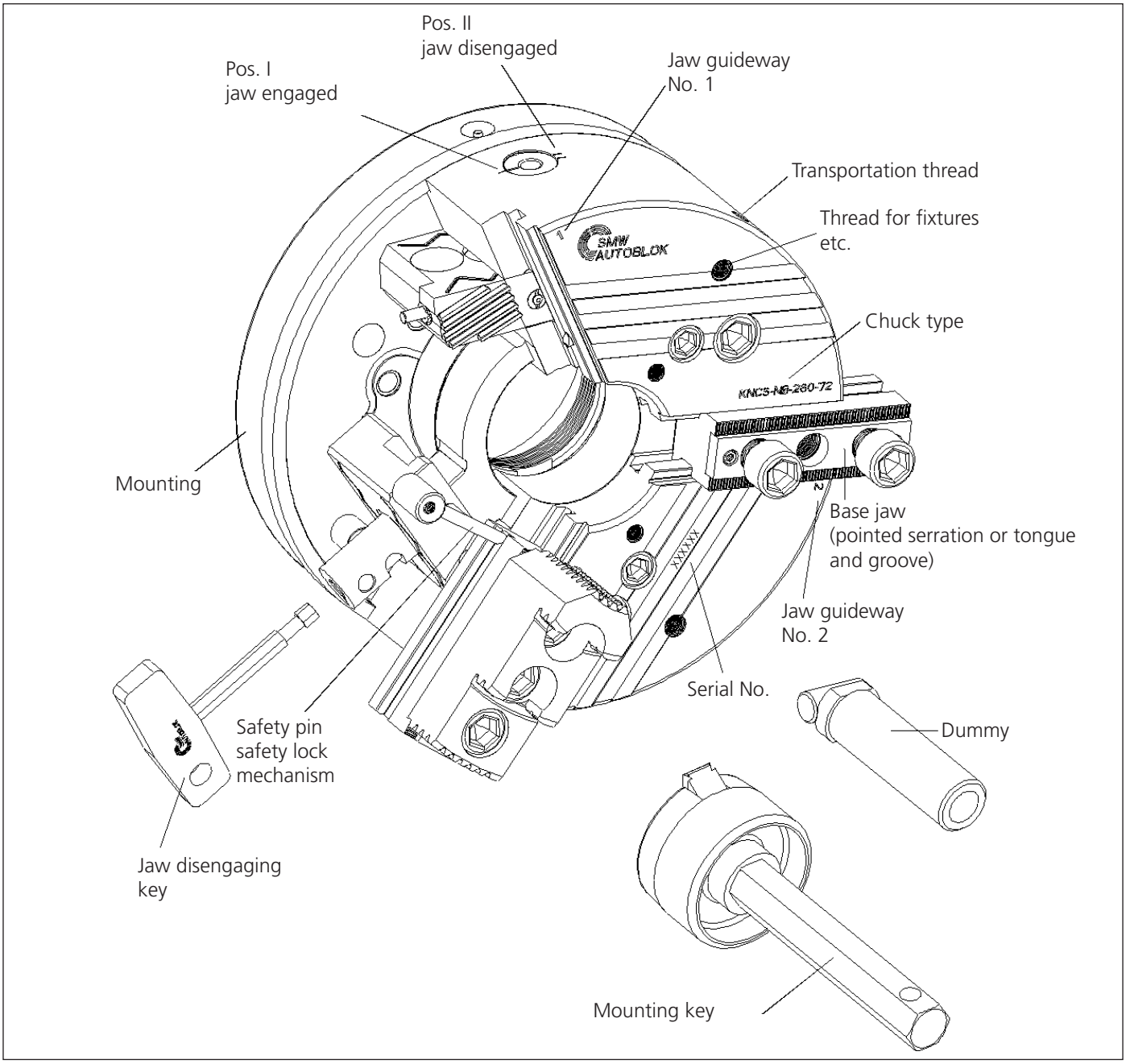
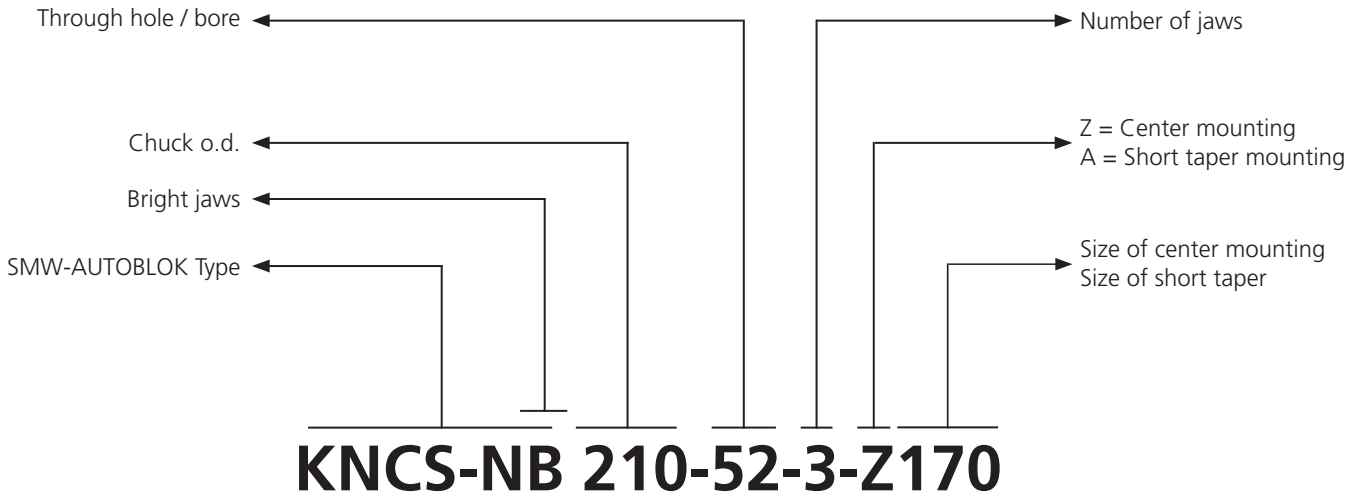
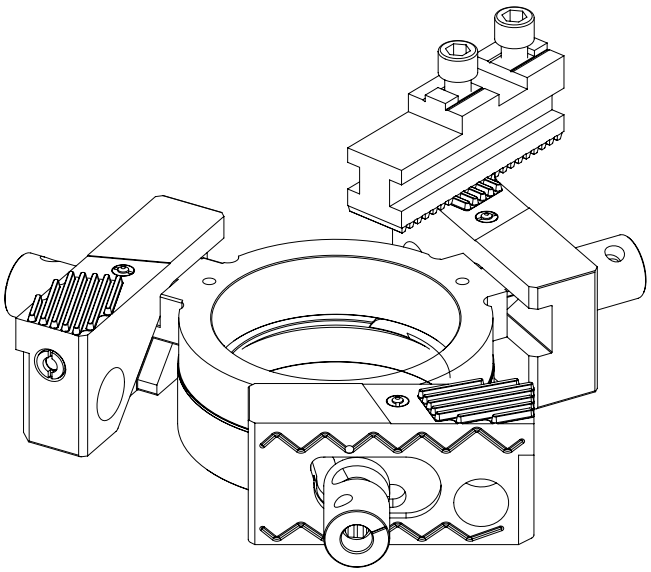


The **codes** on the **description of the type** have the following meaning:



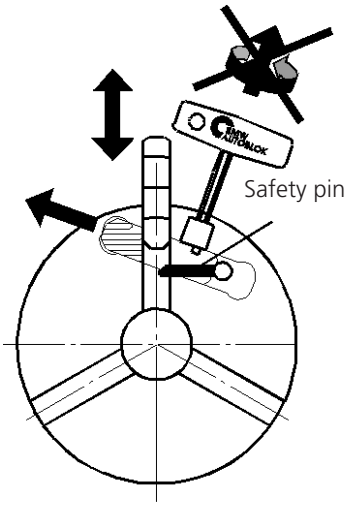
Description of function

- Power transmission by means of the unique and a thousand times proven **wedge bar design**.
- The axial draw / push force of the actuating cylinder is transmitted to the radial jaw grip force by means of **tangential** movement of the **wedge bars**.
- **Suitable** for **very high speed** without centrifugal force compensation due to superb design.
- **Case hardened chuck body**. All function surfaces are hard machined. This guarantees highest **rigidity, precision, repeatability** and **service life**.
- **Patented quick jaw change system**. For changing the jaws the wedge bars are moved tangentially via a key and cambolts.
- **Single disengagement / engagement** of jaws.
- **Patented safety interlock** of the jaws ensures that all serration of the wedge bar/master jaw are fully engaged and the gripping force is transmitted safely.
  If jaws are **not** inserted correctly the jaws **cannot be engaged** and the key **cannot be removed** (see below).

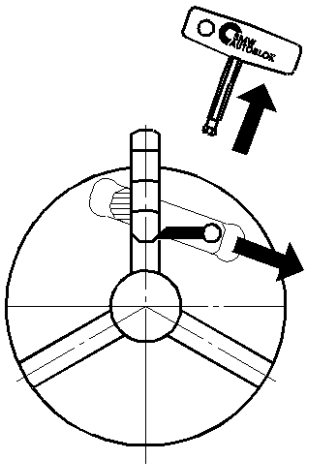


KNCS-NB / KNCS-NBX wedge bar design

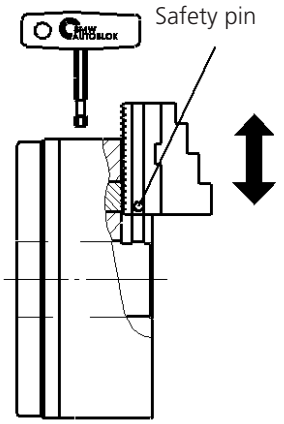
KNCS-NB / KNCS-NBX jaw safety interlock

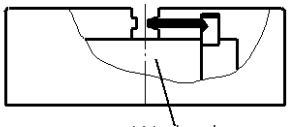


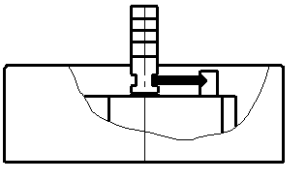
Jaw is inserted incorrectly.
No jaw is in the guideway
Safety pin locks the wedge bar **key cannot** be rotated back / removed.

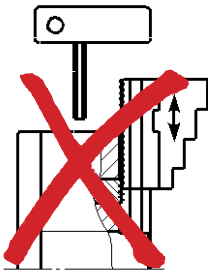


Jaw is inserted correctly.
The jaw is positioned in the guideway min. as far to the center that the safety pin is actuated. This insures that the complete serration of the wedge bar / jaw is engaged and the **key can** be removed.



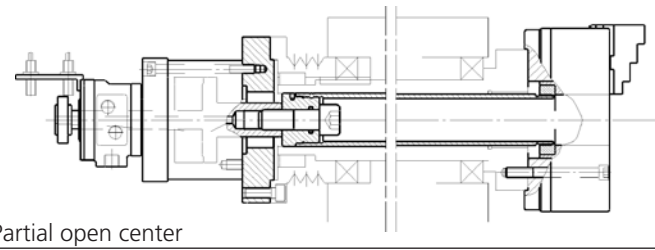




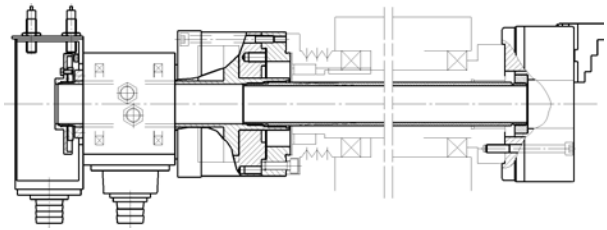


up to now

Examples for installation



Partial open center



Open center

Installation

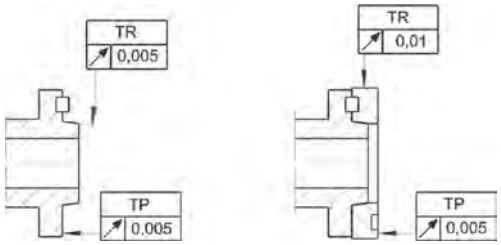
Before installing:

Check: The max. draw pull of the actuating cylinder must not exceed the max. actuating force of the chuck! If necesary limit the pressure and secure the limitation!

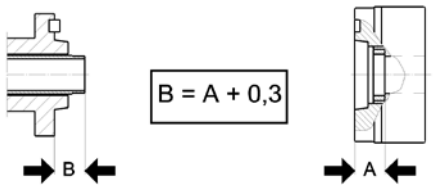
Check: All connecting and adaptor parts must be calculated for continous operation!

Chuck with rotating ring nut:
Important: All rotating ring nut parts are highlyloaded safety parts made of special steel!
When using special threaded rings use only original SWM-AUTOBLOK blanks. Lock retaining ring against loosening with screw in the proper way (see page 21, pic. 5).
Always use SWM-AUTOBLOK special key (included in delivery).

1 Check spindle nose!



2 Check draw bar length with cylinder in frontend position. If necessary correct draw tube / adaptor!



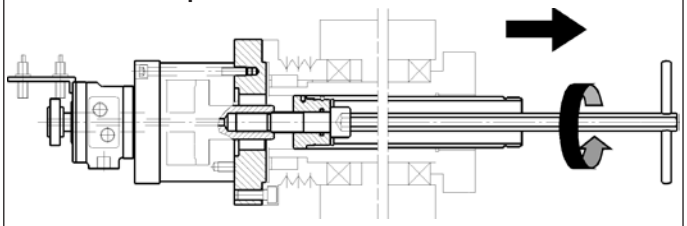
3 Move chuck piston into frontend position (chuck position: **OPEN**). Release jaws by means of key and remove one after another.

If there is no jaw in the guideway the key can only be removed if the safety pin is actuated by means of the dummy pin!

Also see page 17 Operating.

4A Removing draw tube

1 **Chuck without rotating ring nut**
Partial open center



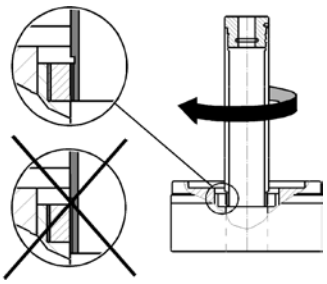
Cylinder in position **"chuck OPEN"**
Unscrew draw bolt and remove the draw tube from the spindle.

Installation of draw tube

2 **Chuck without rotating ring nut**
Partial open center

Correct:
Draw tube flush with adaptor

Wrong:
Draw tube not flush with adaptor. Length of thread engagement too deep

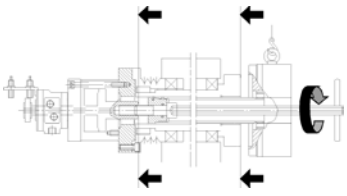


Thread of draw tube / adaptor must be treated with copper paste to avoid rust / seizing. Screw in draw tube into chuck.

Installation of chuck

3 **Chuck without rotating ring nut**
Partial open center

Insert draw tube with chuck into the machine spindle. Use mounting belt or eye screw. KNCS-NB chucks carry a transportation thread from size 260 on.

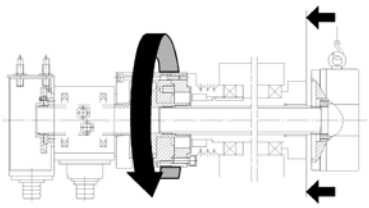


Tighten draw bolt and push chuck onto the centering rim / short taper.

4B Installation of chuck

Chuck without rotating ring nut
Open center

Cylinder in position **"chuck OPEN"**. Thread of draw tube/ adaptor must be treated with copper paste to avoid rust/seizing. Position chuck concentric in front of the machine spindle by means of suitable lifting equipment. Use mounting belt or eye screw. KNCS-NB chucks carry a transportation thread from size 260 on.



Rotate spindle by hand at adaptor or drive belt and screw in the draw tube into the chuck to its end position. Push the chuck onto the centering rim / short taper.

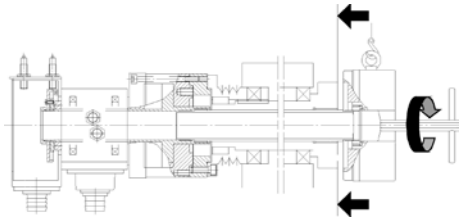
Observe correct length of thread engagement!
Draw tube face flush with adaptor!

- **Danger of damage to the chuck!**
- **Do not tilt thread!**
- **Do not apply force!**
- **Never rotate spindle!**

4C Installation of chuck

Chuck with rotating ring nut
Partial open center / Open center

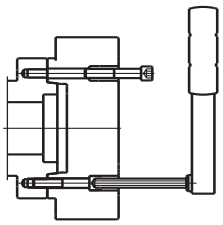
Cylinder in position **"chuck OPEN"**. Thread of draw tube/ adaptor must be treated with copper paste to avoid rust/seizing. Position chuck concentric in front of the machine spindle by means of suitable lifting equipment. Use mounting belt or eye screw. KNCS-NB chucks carry a transportation thread from size 260 on.
Insert the chuck key (standard equipment at option rotating nut) through the chuck bore until the cams engage into the slots of the rotating ring nut and screw the ring nut onto the draw tube to its axial stop. Push the chuck onto the centering rim / short taper.



- **Danger of damage to the chuck!**
- **Do not tilt thread!**
- **Do not apply force!**
- **Never rotate spindle!**

5 Mounting of chuck

Insert mounting bolts ISO 4762 10.9 and thighten by hand. Adjust to lowest operating pressure and actuate cylinder: Position **"chuck CLOSED"**.
Tigthen the mounting bolts with a torque wrench gradually one after another. Do not exceed torque!

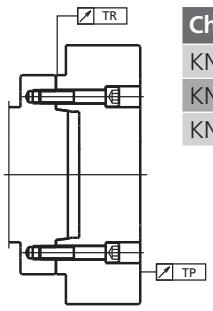


Bolt 10.9 ISO 4762	M10	M12	M16	M20	M24
Md (Nm)	48	70	170	300	500

6 Control

Check easy movement of the chuck. Chuck must open / close easily at lowest clamping pressure.
Adjust the proximity switches on the actuating cylinder for stroke control according to service manual of the cylinder.
Check jaw stroke. Jaw stroke see technical details page 6.
Re-tighten the bolts with a torque wrench in position chuck closed.

7



Chuck type	TR	TP
KNCS-NB 210	0.02	0.02
KNCS-NB 260 - 400	0.03	0.03
KNCS-NB 500 - 630	0.05	0.05

Check radial and face runout

8 Lubrication

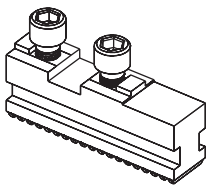
Lubricate chuck at position **"chuck OPEN"**. Always use SMW-AUTOBLOK grease K05.
Lubrication see page 16.
Ordering no. 016440 K05 cartridge 500 g.
Ordering no. 011881 K05 can 1000 g.

Insert jaw 1, 2, 3 one after another into the guideways 1, 2, 3. For jaw change please refer to page 17 / 18.
Check gripping force with gripmeter (GFT-X) at different actuating pressures.

- **Danger of damage!**
- **Never actuate the chuck when key is inserted!**

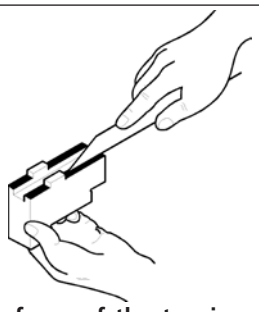
Mounting of top jaws on master jaws GBK

1



Use original SMW-AUTOBLOK master jaws GBK only!
They are marked on their face with the logo.

2



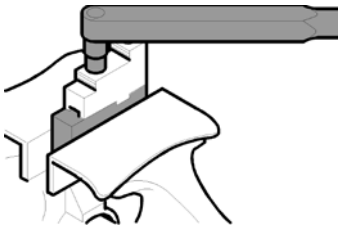
Mounting surfaces of the top jaws must be straight and on the same level. Otherwise the master jaw gets distorted and locks in the guideway.

3

Use mounting bolts 12.9 ISO 4762 only. Always check correct length of thread engagement! Use torque wrench and tighten gradually one after another.
Do not exceed torque (Md) otherwise master jaw gets distorted.

Use new screws every time you change the jaw.
The mounting bolts must be checked for damage and wear in regular intervals, and have to be replaced if necessary. They have to be replaced not later than after maximum 100000 clamping cycles!

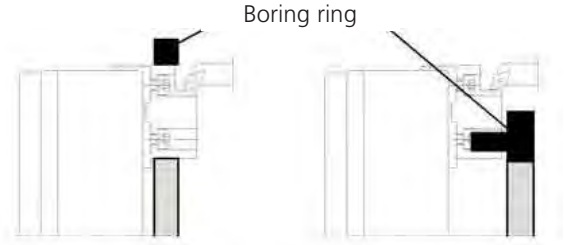
Type KNCS-NB/-NBX	210	260	315	400	500	630	800	1000
GBK-B	M8	M12	M12	M12	M16	M16	M16	M16
GBK-BD	M12	M16	M16	M20	M20	M20	M20	-
GBK-BM	M12	M12	M16	M20	M20	M20	M20	-
GBK-BA	-	-	5/8-11	3/4-10	3/4-10	3/4-10	3/4-10	3/4-10
Md (Nm)	35	65	65	65	170	170	170	-



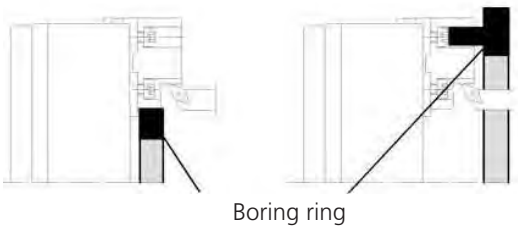
Jaws of other manufacturers:

- **Safety risks due to wrong material or heat treatment**
- **Danger of damage of your KNCS-NB / KNCS-NBX chuck due to wrong dimensions / tolerances**
- **No warranty from SMW-AUTOBLOK**

Boring of soft jaws



o.d. clamping



i.d. clamping

Highest repeatability can be achieved if you follow the following points:

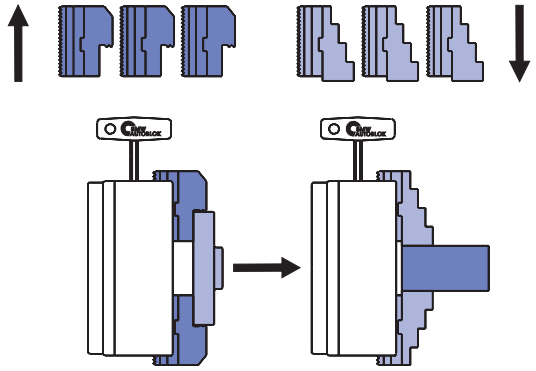
Always machine top jaws under gripping force.
Use rigid boring ring.

For repeating jobs store top jaws with master jaws as one unit.

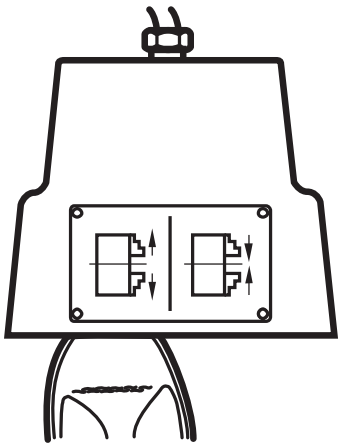
Boring ring must be gripped as close to the gripping area as possible.

Never grip boring ring with master jaw.

Changing or re-positioning of the jaws

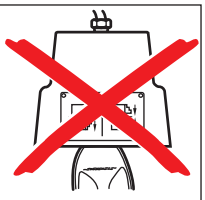


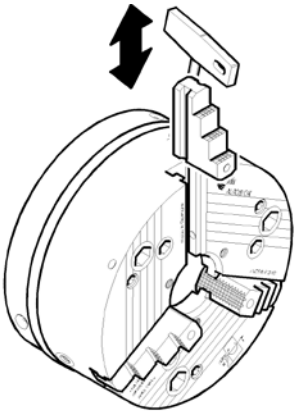
1 **Foot pedal chuck: OPEN**



Changing / repositioning of the jaws is possible only in chuck position **"OPEN"**.

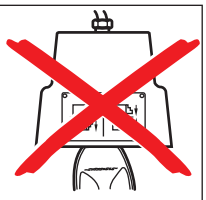
3 Do not actuate foot pedal!
Danger of damage to the chuck!

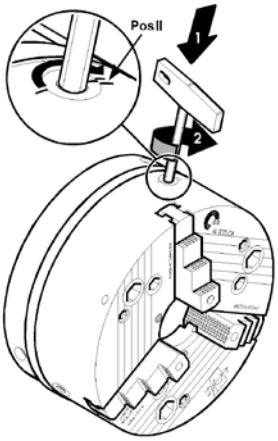




Remove / reposition jaw 1.

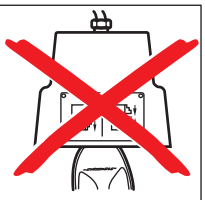
2 Do not actuate foot pedal!
Danger of damage to the chuck!

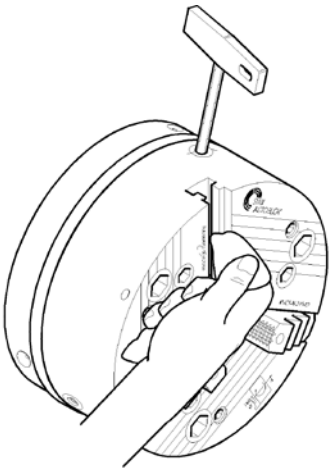




Insert key and rotate against spring tension to pos. II and hold in position.

4 Do not actuate foot pedal!
Danger of damage to the chuck!





Clean guideway and lubricate. Lubricate new jaw set in the guideway and in the serration.

Jaw safety interlock:
- **Key can only be removed in pos. I.**
- **Key can only be rotated back from pos. II into pos. I if a jaw is inserted correctly into the chuck and the safety pin is actuated via the jaw.**

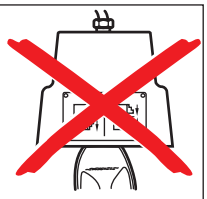
For installation and maintenance the key can be removed in pos. I if the safety pin is actuated via the dummy pin.

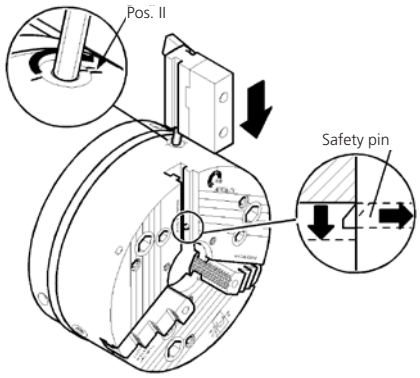
- **Danger of damage to the chuck!**
- **Never actuate foot pedal (chuck) when key is engaged for jaw change.**

- **Never apply force!**
- **Danger of damage to the chuck and actuating cylinder!**

5

Do not actuate foot pedal!
Danger of damage to the chuck!





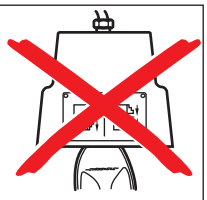
Rotate key against spring tension to pos. II and hold in position. Insert new jaw at least as far as necessary for the jaw to actuate the safety pin.

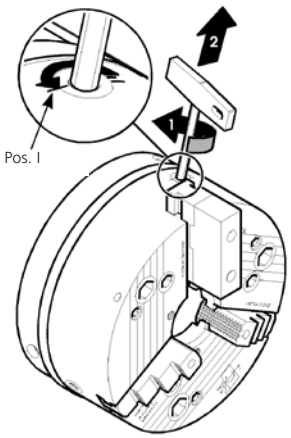
7

For changing / re-positioning jaw No. 2 and jaw No. 3 repeat steps 2-6

6

Do not actuate foot pedal!
Danger of damage to the chuck!





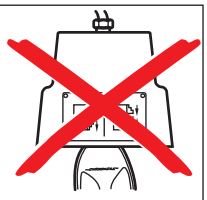
Safety interlock: Key can only be removed in pos. I!

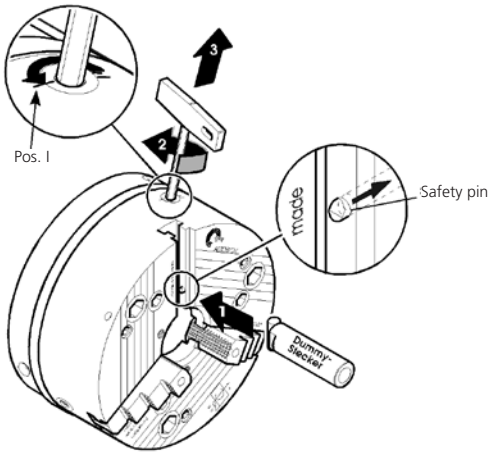
Rotate key back to pos. I and remove. Jaw change of jaw 1 is finished.

8

Maintenance / disassembling / installation

Do not actuate foot pedal!
Danger of damage to the chuck!





If no jaw is inserted, as example for maintenance or disassembling the chuck from the machine spindle, the key can be rotated back to pos. I and removed if the safety pin is actuated via the dummy pin.

Maintenance / Lubrication

Regular maintenance is the basis for correct function, high service life, precision and clamping force of the clamping chuck.

Check gripping force regularly with gripmeter (GFT-X)!

Never use coolants which dissolve the grease!

Maintenance intervals at normal conditions / using coolant		
Measurement	Lubricate with K05 grease	Disassemble + clean
after operating hours	20	1000

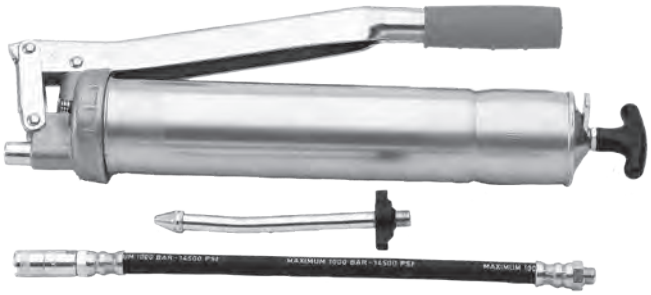
Maintenance intervals at rough conditions / using coolant		
Measurement	Lubricate with K05 grease	Disassemble + clean
after operating hours	8	600

Cartridge 500 g
Id.No. 016440

Can 1000 g
Id.No. 011881

Use original SMW-AUTOBLOK K05 grease!
The use of unsuitable lubricants can cause considerable losses in clamping force or damage to the clamping chuck.

Lubrication set
Id.No. 083726



Grease gun for 14 Oz. cartridges to DIN 1284.
(also refillable from grease can 1000 g.)

IMPORTANT:
Important advise for operator and service staff!
Certain coolants (mainly synthetic coolants) can affect or destroy the grease type K05 and/or the sealings of the chuck.
This can cause damage of the chuck and loss of clamping force!
This causes danger for the operator! The operation of the chuck under these conditions is not permitted.

It is under the responsibility of the operator and/or service staff to check this and if necessary to use a different type of coolant or grease.

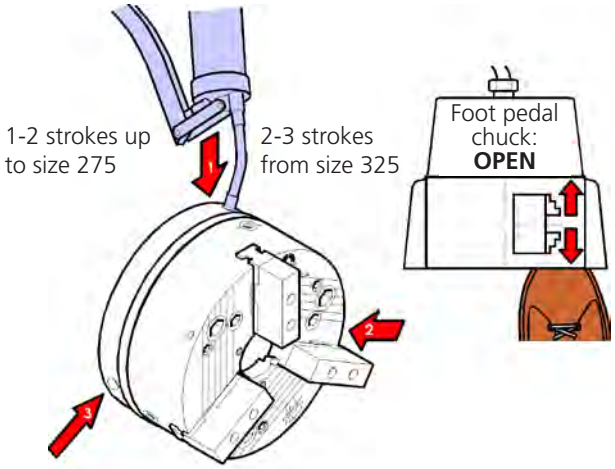
ATTENTION:
Environment protection
Danger for environment when handling incorrect!
Incorrect handling of environment hazardous materials, especially the disposal, may result in environmental damage.

- 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.

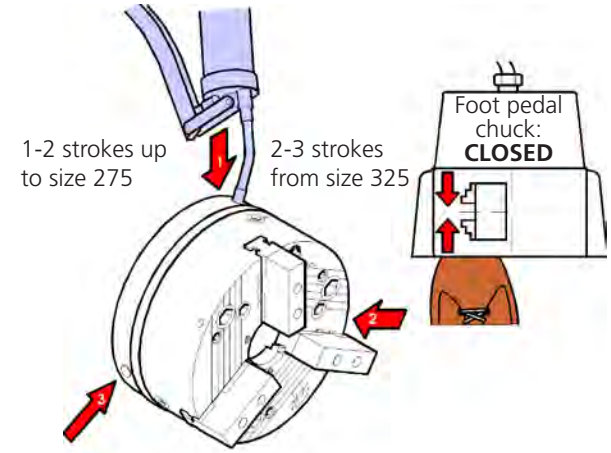
Lubrication of the chuck

1 First lubricate in chuck positon **"OPEN"**...



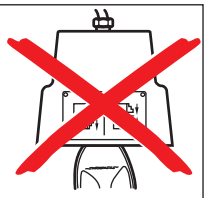
Lubrication via 3 ball type grease nipples DIN 71412.

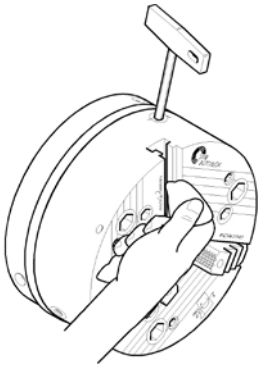
2 ... then lubricate in chuck position **"CLOSED"**



For optimal distribution of the grease do multiple jaw strokes opening and closing.

3 ⚠ Do not actuate foot pedal!
Danger of damage to the chuck!



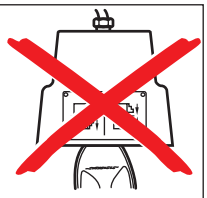


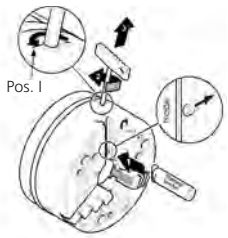
At jaw change always clean and grease the guideway and the serration.

Removal of the chuck from the machine spindle

1

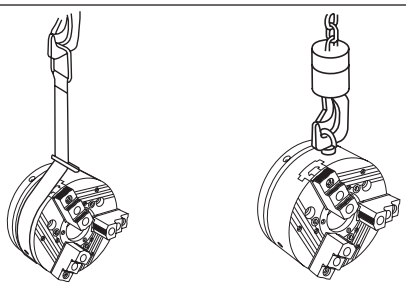
Do not actuate foot pedal! Danger of damage to the chuck!





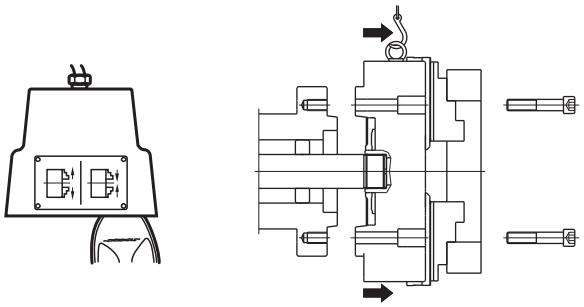
Remove jaw 1 to 3. Key can be removed by actuating the safety pin via dummy pin.

2



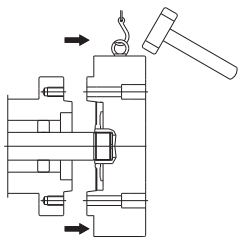
Use mounting belt to lift chuck. From size 260 mm on the chucks carry a transportation thread for an eye bolt.

3



Close the chuck and remove the mounting bolts.

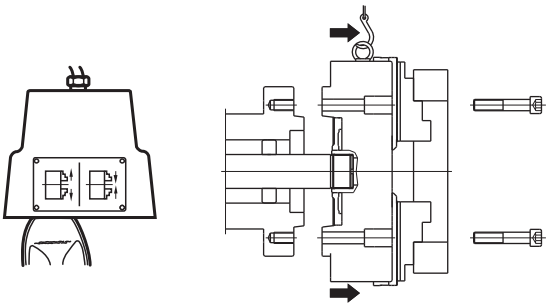
3A



Open the chuck and release from centering rim dia./short taper by means of light hit with a plastic hammer.

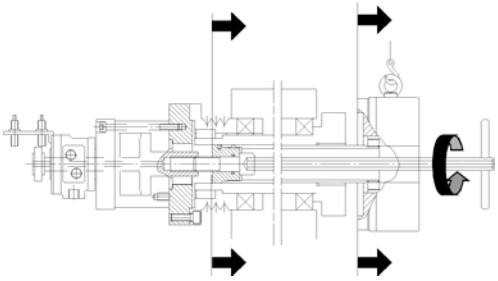
- **Never apply force!**
- **Danger of damage to the chuck and actuating cylinder!**

3B



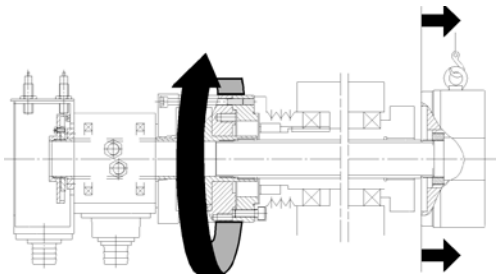
If the chuck does not release from the spindle:
Insert jaws again and do I.D. gripping on a solid ring or component. The chuck is pushed off the spindle by means of the actuation cylinder.

4 Partial open center



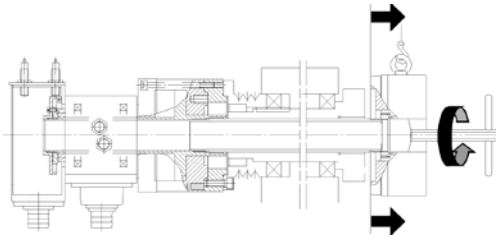
Unscrew draw bolt and remove chuck with draw tube from the machine spindle.

5A Open center



Chuck without rotating ring nut:
Rotate spindle by hand at the flange or drive belt and screw out the draw tube.

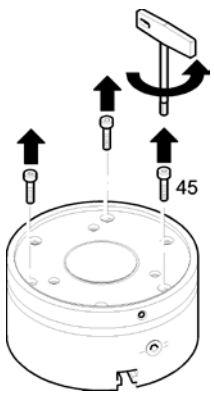
5B Open center



Chuck with rotating ring nut:
Insert key (standard equipment) through the chuck bore until the cams engage into the slots and unscrew the threaded ring.

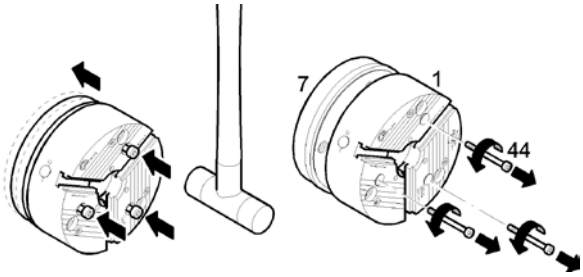
Disassembling (Part numbers refer to spare parts list on page 24)

1



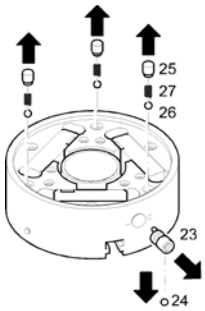
Remove screws (45).

2



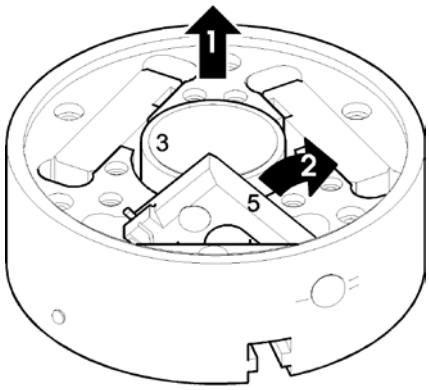
Open screws (44) some rotations. By hitting the screw heads one after another with a plastic hammer the backplate (7) is released from the chuck body (1).

3



Remove safety pins (25) by means of disassembling the thread and remove spring (27) and ball (26). Remove cam bolts (23) with ball (24).

4

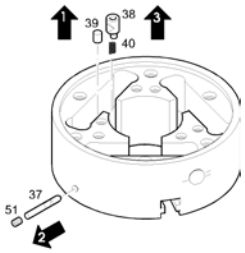


Lift chuck piston (3) and remove wedge bars (5).

5

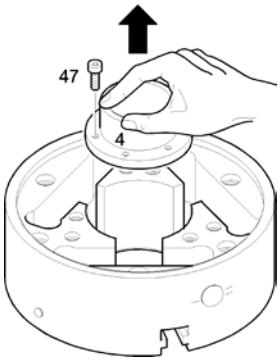
Chuck with rotating ring nut:
Retaining ring (18) is locked with a set screw (17) against loosening. Do not disassemble when disassembling/cleaning the chuck. When using special threaded rings (19) the retaining ring (18) has to be disassembled and afterwards secured against loosening in a proper way (new bore + thread for set screw. Special key for disassembling retaining ring as well as drilling fixture is available).
Attention: All parts are highly-loaded safety parts! Never use parts from other manufacturers! Replace damaged parts!

6



Disassemble cylindric pin (39) by means of disassembling thread.
Remove set screw (51) and safety pin (37). Disassemble locking pin (38) and spring (40) by means of disassembling thread.

7



Remove screws (47) and remove guide bushing.

8

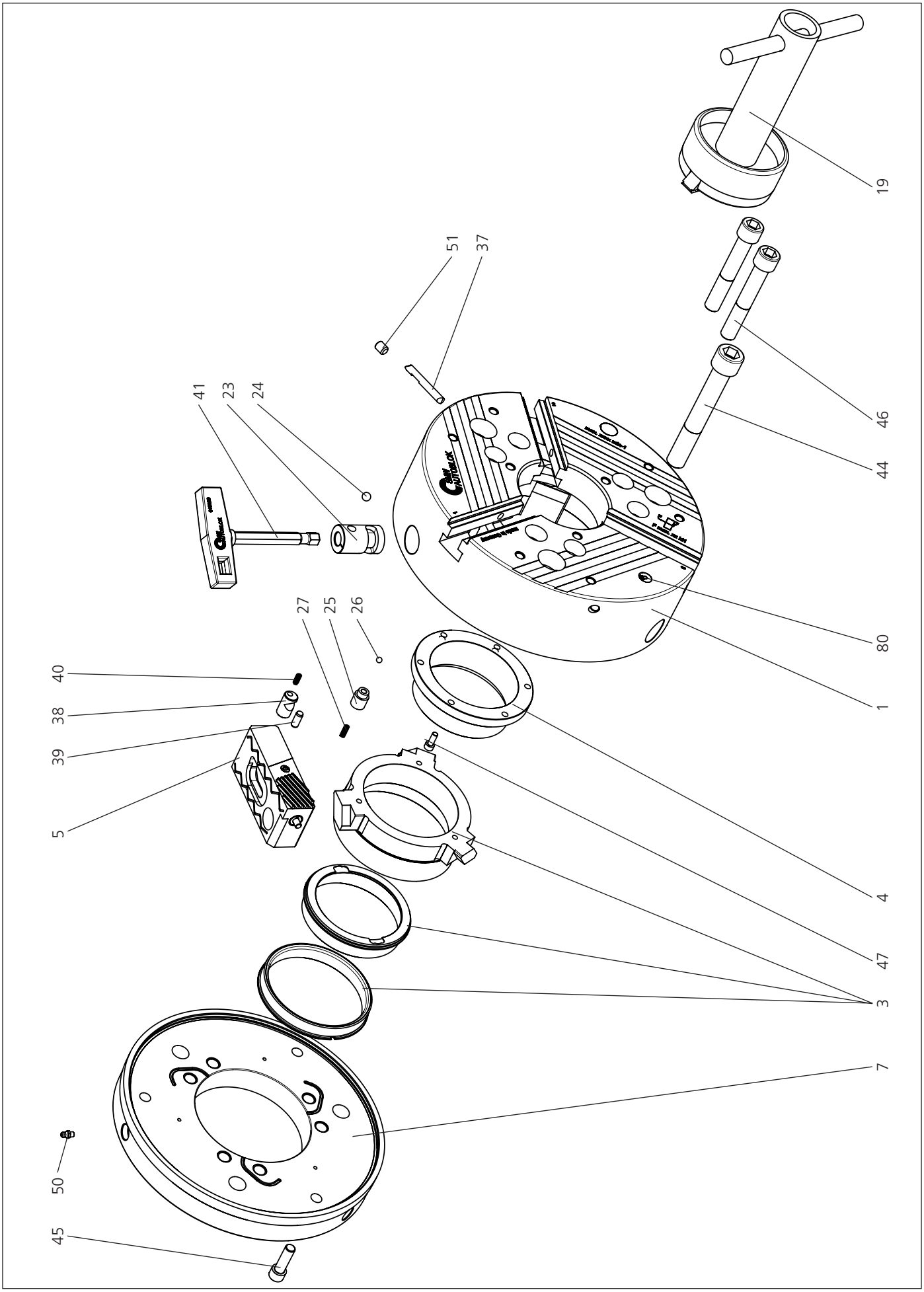
Clean all parts with approved solvents. Dispose of cleaning liquid according to regulations. Replace damaged parts by original SMW-AUTOBLOK spare parts.

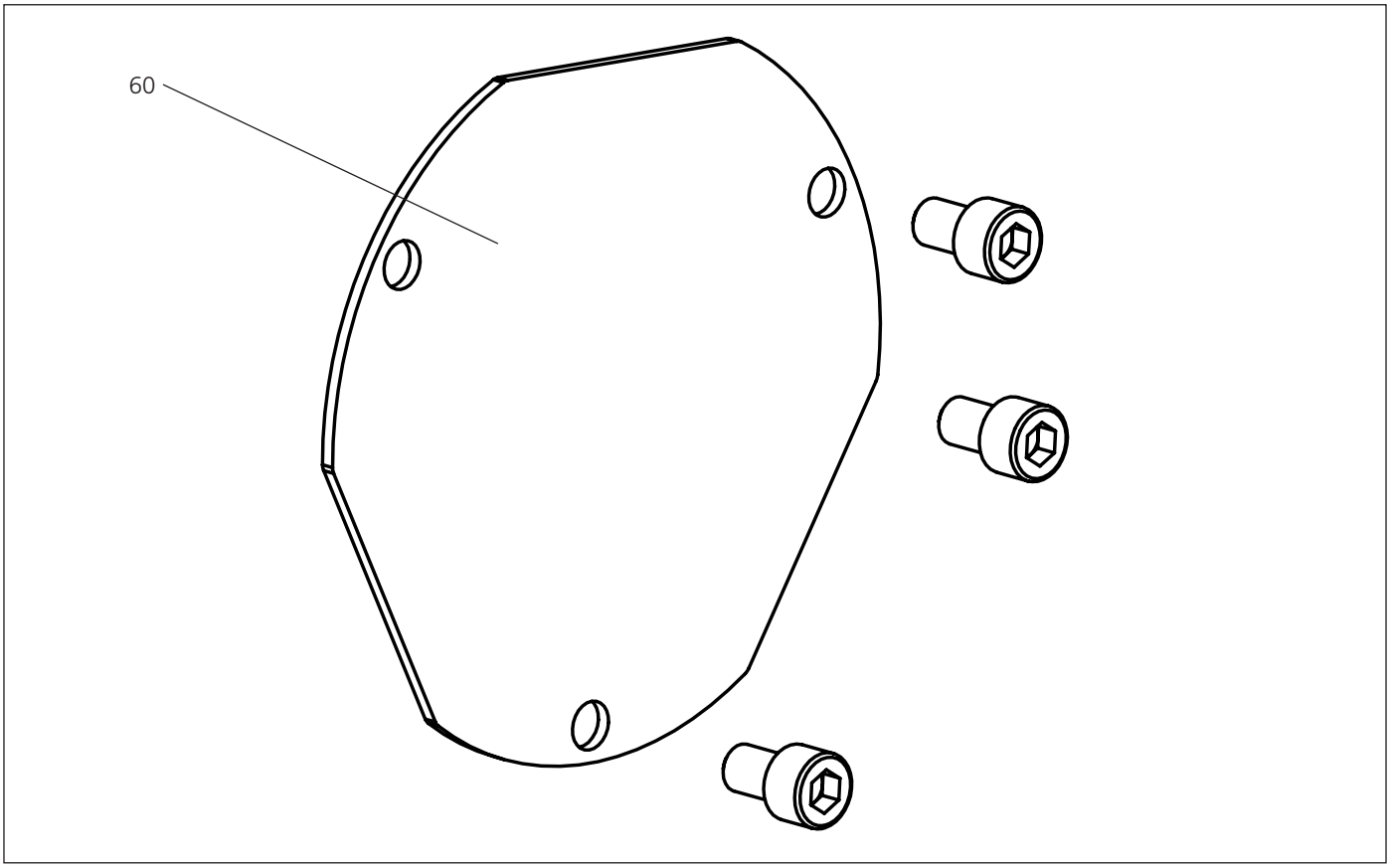
Assembling in reverse sequence. Lubricate parts with K05 grease.

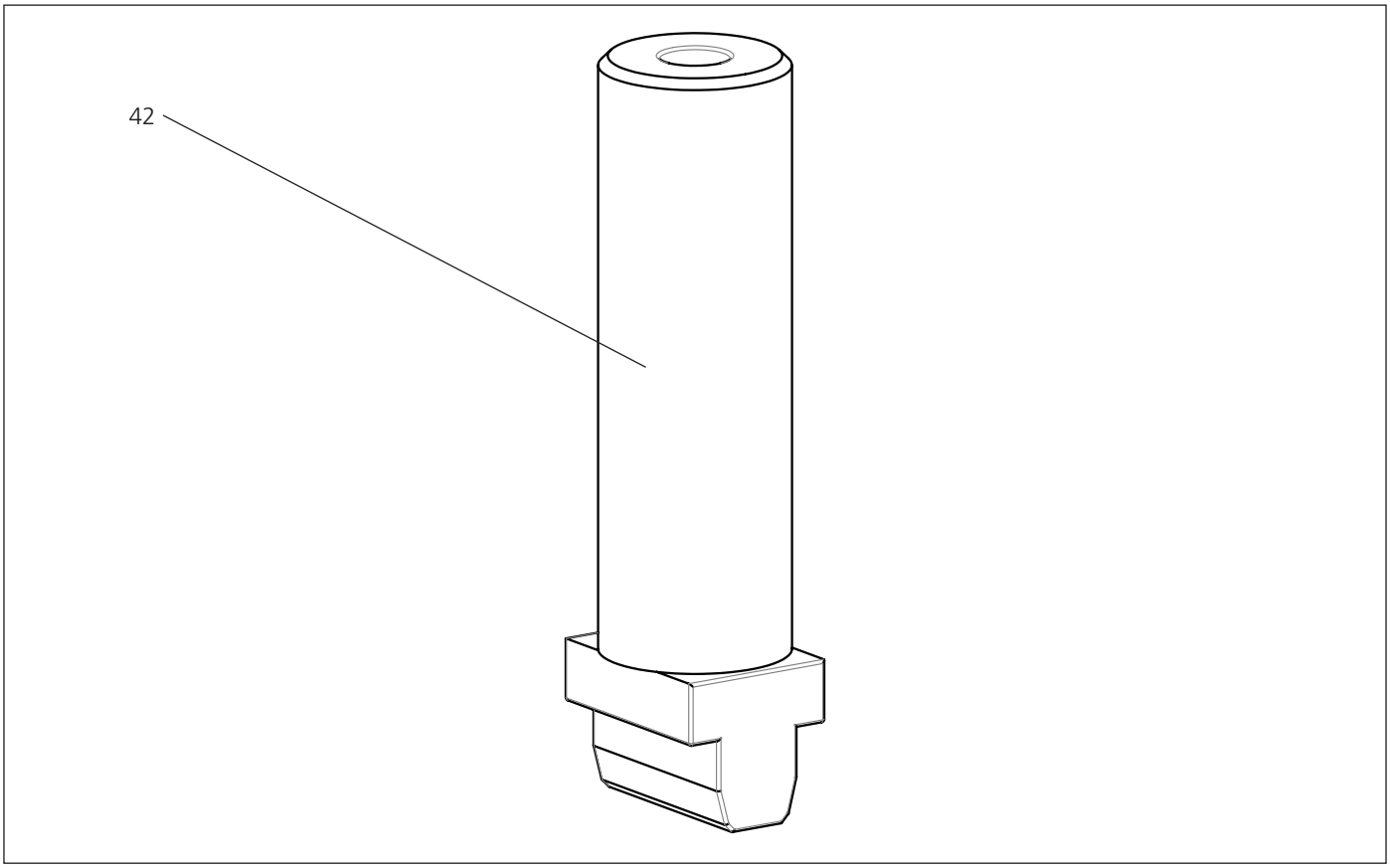
Ordering no. 016440	**K05 cartridge 500 g.**
Ordering no. 011881	**K05 can 1000 g.**

- **Note position of chuck body, wedge bars, piston!**
- **Danger of damage to the chuck!**

Notes


19
51
37
46
44
41
23
24
80
1
27
25
26
40
38
39
5
4
47
3
7
50
45


60


42

SMW-AUTOBLOK Type		KNCS-NB 210 / 225 / 260 / 275												
Size / Mounting		210-52 Z170	210-52 A06	210-52 A08	225-66 Z170	225-66 A06	225-66 A08	260-78 Z170	260-78 Z220	260-78 A06	260-78 A08	275-86 Z220	275-86 A06	275-78 A08
Pos.	Description	Qty.												
1	Chuck body	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Piston	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Guide bushing	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Wedge bar	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set
7	Backplate	1	1	1	1	-	1	1	1	1	1	1	1	1
10	Flange	-	1	-	-	1	-	-	-	1	1	-	1	1
19	Mounting key	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Cam bolt	3	3	3	3	3	3	3	3	3	3	3	3	3
24	Ball	3	3	3	3	3	3	3	3	3	3	3	3	3
25	Retaining bolt	3	3	3	3	3	3	3	3	3	3	3	3	3
26	Ball	3	3	3	3	3	3	3	3	3	3	3	3	3
27	Spring	3	3	3	3	3	3	3	3	3	3	3	3	3
37	Safety pin	3	3	3	3	3	3	3	3	3	3	3	3	3
38	Locking pin	3	3	3	3	3	3	3	3	3	3	3	3	3
39	Cylindrical pin	3	3	3	3	3	3	3	3	3	3	3	3	3
40	Spring	3	3	3	3	3	3	3	3	3	3	3	3	3
41	Key	1	1	1	1	1	1	1	1	1	1	1	1	1
42	Dummy pin	1	1	1	1	1	1	1	1	1	1	1	1	1
44	Screw	3	-	3	3	-	3	3	3	3	3	3	3	3
45	Screw	-	-	-	-	-	-	3	3	3	3	3	3	3
46	Screw	3	3	3	3	3	3	3	3	3	3	3	3	3
47	Screw	6	6	6	6	6	6	6	6	6	6	6	6	6
50	Grease nipple	3	3	3	3	3	3	3	3	3	3	3	3	3
51	Set screw	3	3	3	3	3	3	3	3	3	3	3	3	3
60	Chuck cover set	1	1	1	1	1	1	1	1	1	1	1	1	1
80	Sign chuck height	-	-	-	-	-	-	1	1	1	1	1	1	1

SMW-AUTOBLOK Type		KNCS-NB 325 / 340 / 400										
Size / Mounting		325-104 Z220	325-104 Z300	325-104 A08	325-104 A11	340-117 Z300	340-117 A11	340-117 A15	400-128 Z300	400-128 Z380	400-128 A11	400-128 A15
Pos.	Description	Qty.										
1	Chuck body	1	1	1	1	1	1	1	1	1	1	1
3	Piston	1	1	1	1	1	1	1	1	1	1	1
4	Guide bushing	1	1	1	1	1	1	1	1	1	1	1
5	Wedge bar	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set
7	Backplate	1	1	1	1	1	1	1	1	1	1	1
10	Flange	-	-	1	1	-	1	1	-	-	1	1
19	Mounting key	1	1	1	1	1	1	1	1	1	1	1
23	Cam bolt	3	3	3	3	3	3	3	3	3	3	3
24	Ball	3	3	3	3	3	3	3	3	3	3	3
25	Retaining bolt	3	3	3	3	3	3	3	3	3	3	3
26	Ball	3	3	3	3	3	3	3	3	3	3	3
27	Spring	3	3	3	3	3	3	3	3	3	3	3
37	Safety pin	3	3	3	3	3	3	3	3	3	3	3
38	Locking pin	3	3	3	3	3	3	3	3	3	3	3
39	Cylindrical pin	3	3	3	3	3	3	3	3	3	3	3
40	Spring	3	3	3	3	3	3	3	3	3	3	3
41	Key	1	1	1	1	1	1	1	1	1	1	1
42	Dummy pin	1	1	1	1	1	1	1	1	1	1	1
44	Screw	3	3	3	3	3	3	3	3	3	3	3
45	Screw	3	3	3	3	3	3	3	3	3	3	3
46	Screw	3	3	3	3	3	3	3	3	3	3	3
47	Screw	6	6	6	6	6	6	6	6	6	6	6
50	Grease nipple	3	3	3	3	3	3	3	3	3	3	3
51	Set screw	3	3	3	3	3	3	3	3	3	3	3
60	Futterabdeckung-Set	1	1	1	1	1	1	1	1	1	1	1
61	Chuck cover set	-	-	-	-	-	-	-	1	1	1	1
80	Sign chuck height	1	1	1	1	1	1	1	1	1	1	1

Spare part list
KNCS-NB

SMW-AUTOBLOK Type		KNCS-NB 500 / 630 / 800									
Size / Mounting		500-155 Z300	500-155 Z380	500-155 A11	500-155 A15	630-165 Z380	630-165 A11	630-165 A15	800-165 Z520	800-165 A15	800-165 A20
Pos.	Description	Qty.									
1	Chuck body	1	1	1	1	1	1	1	1	1	1
3	Piston	1	1	1	1	1	1	1	1	1	1
4	Guide bushing	1	1	1	1	1	1	1	1	1	1
5	Wedge bar	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set
7	Backplate	1	1	1	1	1	1	1	1	1	1
10	Flange	-	-	1	1	-	1	1	-	1	1
19	Mounting key	1	1	1	1	1	1	1	1	1	1
23	Cam bolt	3	3	3	3	3	3	3	3	3	3
24	Ball	3	3	3	3	3	3	3	3	3	3
25	Retaining bolt	3	3	3	3	3	3	3	3	3	3
26	Ball	3	3	3	3	3	3	3	3	3	3
27	Spring	3	3	3	3	3	3	3	3	3	3
37	Safety pin	3	3	3	3	3	3	3	3	3	3
38	Locking pin	3	3	3	3	3	3	3	3	3	3
39	Cylindrical pin	3	3	3	3	3	3	3	3	3	3
40	Spring	3	3	3	3	3	3	3	3	3	3
41	Key	1	1	1	1	1	1	1	1	1	1
42	Dummy pin	1	1	1	1	1	1	1	1	1	1
44	Screw	3	3	3	3	3	3	3	3	3	3
45	Screw	6	6	6	6	12	12	12	18	18	18
46-1	Screw	3	6	3	6	3	3	3	3	3	3
46-2	Screw	3	-	3	-	6	6	6	6	6	6
47	Screw	6	6	6	6	-	-	-	-	-	-
48	Screw	-	-	-	-	-	6	-	-	6	3
50	Grease nipple	3	3	3	3	3	3	3	3	3	3
51	Set screw	3	3	3	3	3	3	3	3	3	3
52	Set screw	-	-	-	-	12	12	12	12	12	12
60	Chuck cover set	1	1	1	1	1	1	1	1	1	1
80	Sign chuck height	1	1	1	1	1	1	1	1	1	1

For spare parts orders please advise chuck type and serial No.!

Ordering example: For KNCS-NB / NBX 210-3 chuck serial No. 100912
Pos. 5: 1 set wedge bars

SMW-AUTOBLOK Type		KNCS-NBX 425 / 530 / 630								
Size / Mounting		425-170 Z380	425-170 A11	425-170 A15	530-210 Z380	530-210 A11	530-210 A15	630-262 Z520	630-262 A15	630-262 A20
Pos.	Description	Qty.								
1	Chuck body	1	1	1	1	1	1	1	1	1
3	Piston	1	1	1	1	1	1	1	1	1
4	Guide bushing	1	1	1	1	1	1	1	1	1
5	Wedge bar	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set	1 set
7	Backplate	1	1	1	1	1	1	1	1	1
10	Flange	-	1	1	-	1	1	-	1	-
23	Cam bolt	3	3	3	3	3	3	3	3	3
24	Ball	3	3	3	3	3	3	3	3	3
25	Retaining bolt	3	3	3	3	3	3	3	3	3
26	Ball	3	3	3	3	3	3	3	3	3
27	Spring	3	3	3	3	3	3	3	3	3
37	Safety pin	3	3	3	3	3	3	3	3	3
38	Locking pin	3	3	3	3	3	3	3	3	3
39	Zylinderstift	3	3	3	3	3	3	3	3	3
40	Spring	3	3	3	3	3	3	3	3	3
41	Key	1	1	1	1	1	1	1	1	1
42	Dummy pin	1	1	1	1	1	1	1	1	1
44	Screw	6	6	6	6	6	6	6	6	6
45	Screw	3	3	3	6	6	6	6	6	6
46	Screw	3	3	3	3	3	3	3	3	3
47	Screw	6	6	6	6	6	6	6	6	6
50	Grease nipple	3	3	3	3	3	3	3	3	3
51	Set screw	3	3	3	3	3	3	3	3	3
52	Set screw	12	12	12	12	12	12	12	12	12
54	Screw	-	6	-	-	-	-	-	-	-
60	Chuck cover set	1	1	1	1	1	1	1	1	1
80	Sign chuck height	1	1	1	1	1	1	1	1	1

SMW-AUTOBLOK Type		KNCS-NBX 800 / 1000					
Size / Mounting		800-262 Z520	800-262 A15	800-262 A20	1000-262 Z520	1000-262 A15	1000-262 A20
Pos.	Description	Qty.					
1	Chuck body	1	1	1	1	1	1
3	Piston	1	1	1	1	1	1
4	Guide bushing	1	1	1	1	1	1
5	Wedge bar	1 set	1 set	1 set	1 set	1 set	1 set
7	Backplate	1	1	1	1	1	1
10	Flange	-	1	-	-	1	1
23	Cam bolt	3	3	3	3	3	3
24	Ball	3	3	3	3	3	3
25	Retaining bolt	3	3	3	3	3	3
26	Ball	3	3	3	3	3	3
27	Spring	3	3	3	3	3	3
37	Safety pin	3	3	3	3	3	3
38	Locking pin	3	3	3	3	3	3
39	Zylinderstift	3	3	3	3	3	3
40	Spring	3	3	3	3	3	3
41	Key	1	1	1	1	1	1
42	Dummy pin	1	1	1	1	1	1
44	Screw	6	6	6	6	6	6
45	Screw	12	12	12	30	30	30
46	Screw	9	9	9	9	9	9
47	Screw	6	6	6	6	6	6
50	Grease nipple	3	3	3	3	3	3
51	Set screw	3	3	3	3	3	3
52	Set screw	12	12	12	12	12	12
54	Screw	-	-	-	-	-	-
60	Chuck cover set	1	1	1	1	1	1
80	Sign chuck height	1	1	1	1	1	1

Spare part list
KNCS-NBX

For spare parts orders please advise chuck type and serial No.!

Ordering example: For KNCS-NB / NBX 210-3 chuck serial No. 100912
Pos. 5: 1 set wedge bars

Calculation formulas for practical use

F_{sp}	=	req. static chuck grip force	N	F_s	=	main cutting force	N
F_{spd}	=	dyn. chuck grip force	N	F_c	=	centrifugal force of jaws	N
M_{dz}	=	machining torque	Nm	M_{dsp}	=	chuck clamping torque	Nm
a	=	depth of cut	mm	d_{sp}	=	clamping diameter	m
d_z	=	machining diameter	m	f	=	feed	mm/rev.
k_s	=	specific cutting force (see diagram)	N/mm²	m_B	=	mass jaws per set	kg
n	=	speed	min^{-1}	r_S	=	cent. of gravity radius jaw	m
μ_{sp}	=	coefficient of friction (see diagram)		S	=	safety factor (1.5 - 2)	

req. static chuck grip force:

$$F_{sp} = \frac{F_s \bullet S}{\mu_{sp}} \bullet \frac{d_z}{d_{sp}} \text{ [N]}$$

main cutting force:

$$F_s = f \bullet a \bullet k_s \text{ [N]}$$

centrifugal force of jaws:

$$F_c = \Sigma(m_B \bullet r_S) \bullet \left(\frac{\pi \bullet n}{30}\right)^2 \text{ [N]}$$

dyn. chuck grip force:

$$F_{spd} = F_{sp} - F_c \text{ [N]}$$

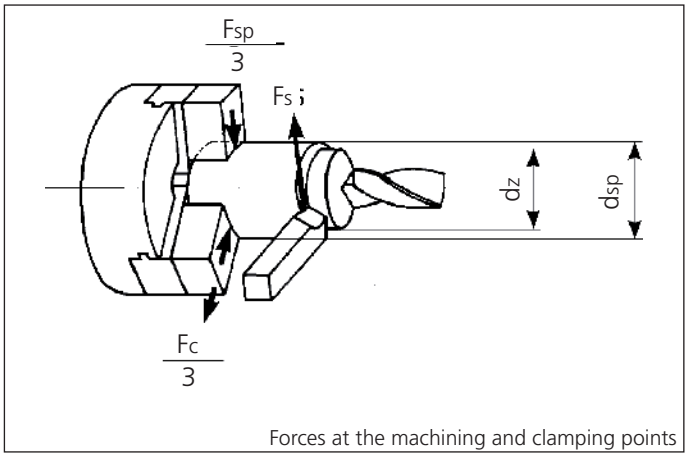
machining torque:

$$M_{dz} = \frac{F_s \bullet d_z}{2} \text{ [Nm]}$$

chuck clamping torque:

$$M_{dsp} = \frac{F_{sp} \bullet \mu_{sp} \bullet d_{sp}}{2} \text{ [Nm]}$$

The dynamic grip force **F_{spd}** is calculated from the static grip force **F_{sp}** less total centrifugal force of jaws **F_c**.



Forces at the machining and clamping points

Tolerance classes

The axial and radial runout tolerances are according to the Technical Terms of Delivery for power operated lathe chucks **DIN 6386** of tolerance class 1.

Permissible unbalance

The max. permissible unbalance for lathe chucks is according the Technical Terms of Delivery for power operated lathe chucks **DIN 6386** of tolerance class 1.

Determination of the permissible speed of lathe chucks (jaw chucks) has to be carried out according to VDI 3106!

Specific cutting forces k_s N/mm²

Specific cutting force k_s at feed s and setting angle of 45°

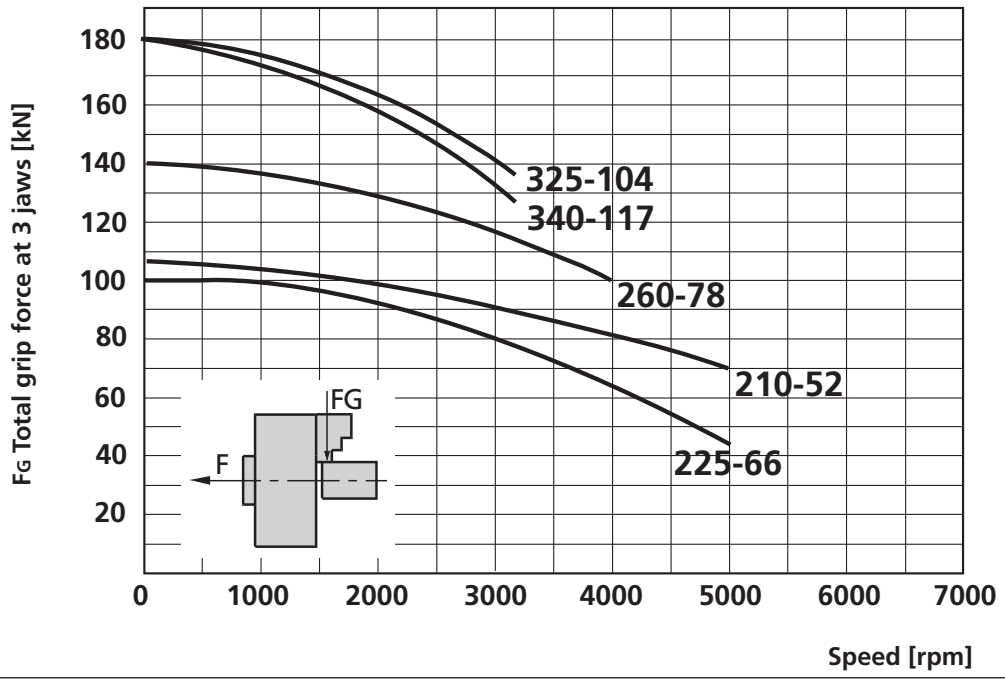
Material		Strength	Feed s (mm)					
		N/mm²	0.16	0.25	0.40	0.63	1.00	1.60
Steels	St42	... - 500	2600	2400	2200	2050	1900	1800
	St50	520	3500	3100	2750	2450	2150	1950
	St60	620	3050	2800	2600	2400	2200	2050
	C45	670	3050	2800	2600	2400	2200	2050
	C60	770	3050	2800	2600	2400	2200	2050
	St70	720	4350	3800	3300	2900	2500	2200
	18CrNi6	630	4350	3800	3300	2900	2500	2200
	42CrMo4	730	4350	3900	3450	3100	2750	2450
	16MnCr5	770	3750	3300	2950	2600	2300	2050
	Mn, CrNi	850 - 1000	3700	3400	3100	2800	2550	2350
	Mn-harded		5400	4900	4400	4000	3600	3300
Cast iron materials	GS45	300 - 500	2300	2100	1950	1800	1700	1600
	GS52	500 - 700	2550	2350	2200	2050	1900	1800
	GG16	HB 2000	1500	1350	1200	1100	1000	900
	GG25	HB 2000 - 2500	2050	1800	1600	1450	1300	1150
Non ferrous metals	Cast bronze		2550	2350	2200	2050	1900	1800
	Gunmetal		1100	1000	900	800	700	650
	Brass	HB 800 - 1200	1200	1100	1000	900	800	750
	Cast alu.	300 - 420	1100	1000	900	800	700	650

Coefficient of friction μ_{sp} for steel parts

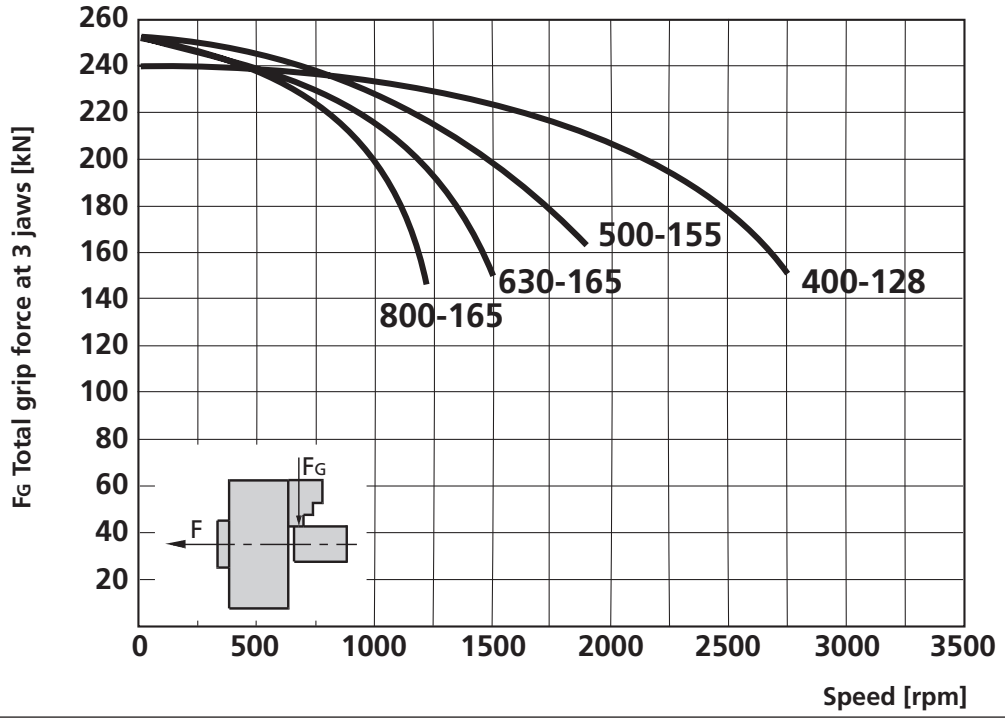
Surface of workpiece	Gripping surface of jaws		
	smooth	diamond style	serrated
smooth mach. finish ground	0.07	0.12	0.20
rough to med. machined	0.10	0.20	0.35
unmachined	0.15	0.30	0.45
Correction factors	Aluminium alloy = 0.95 Brass = 0.90 Grey cast iron = 0.80		

Gripping force / speed diagram

KNCS-NB 210-52 - KNCS-NB 325-104/340-117



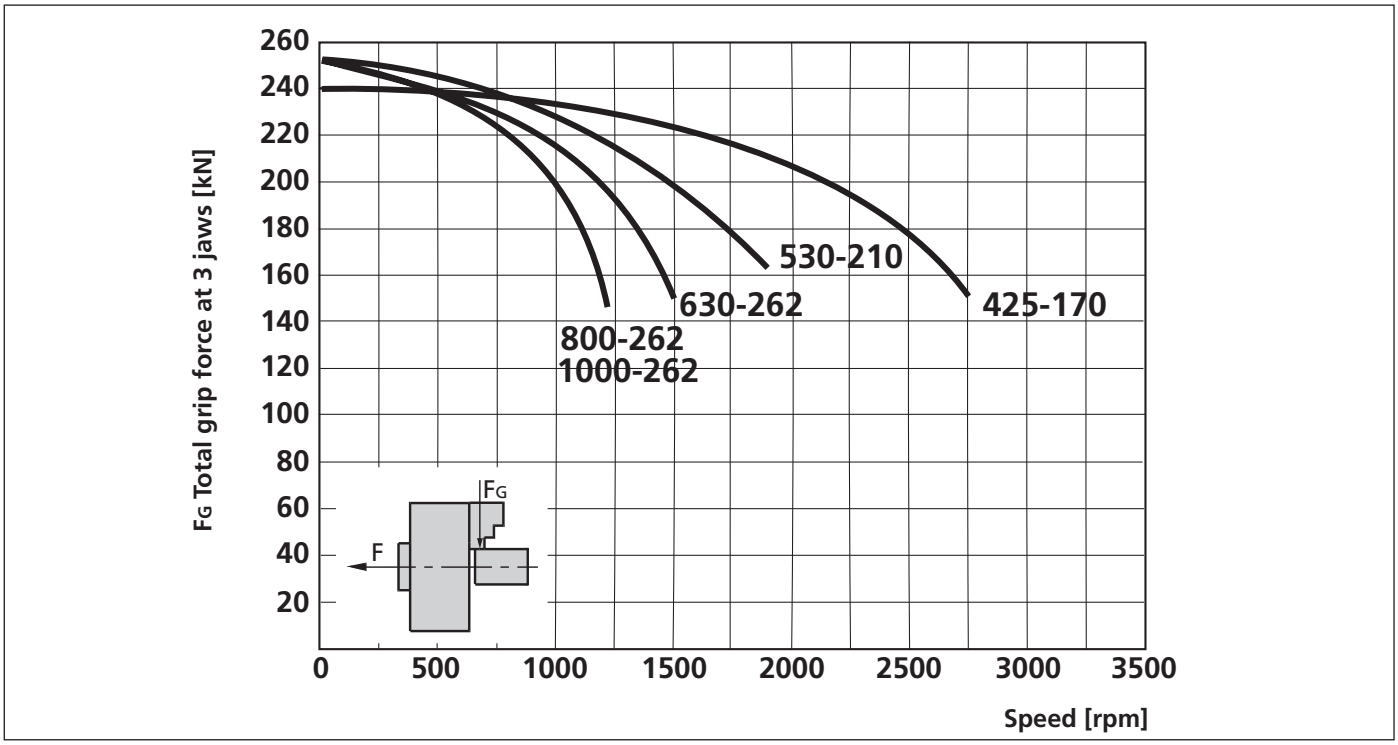
KNCS-NB 400-128 - KNCS-NB 800-165



- The diagrams refer to 3-jaw chucks.
- The max. gripping force is the total, acting on the 3 jaws, obtained by applying to the chuck the max. allowed traction to the draw bar. The data refer to a chuck in good condition, using SMW K05 grease.
- The dynamic gripping forces have been measured using hardened standard stepped monoblock jaws type GST which are not exceeding the outer diamter of the chuck. In case of heavier clamping jaws it is necessary to reduce the rotating speed.

Gripping force / speed diagram

KNCS-NBX 425-170 - KNCS-NBX 1000-262



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- The max. gripping force is the total, acting on the 3 jaws, obtained by applying to the chuck the max. allowed traction to the draw bar. The data refer to a chuck in good condition, using SMW K05 grease.
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Trouble shooting

Trouble	Caused by		Action
Heavy vibrations on the machine spindle	**A**	Inbalance due to component or top jaws	Change shape of top jaws or balance with counterweights on the chuck body
	B	Inbalance on the parts: • machine spindle • drive • actuating cylinder • cylinder adapter • chuck adapter • draw tube	Actuating cylinder defect one after another. Center, balance or replace the parts
	C	Inbalance due to collision	Send chuck back to **SMW-AUTOBLOK** for inspection
Gripping force is reduced	**A**	Lubrication is not sufficient; Chuck is contaminated by dirt.	Lubricate or clean the chuck; check type of grease, see page 15 + 16
	B	Malfunction of the chuck	Check all chuck parts; replace damaged parts by original **SMW-AUTOBLOK** spare parts
	C	Actuating cylinder defect	Check draw pull of the cylinder at different pressures
Radial runout or insufficient repeatability	**A**	Top jaws are not bored or ground properly	Rebore or regrind top jaws; see page 12
	B	Jaws are inserted into wrong guideway	Insert jaw 1 in guideway 1, jaw 2 in guideway 2 etc.
	C	Master jaw contaminated with dirt; Master jaw damaged	Clean serration of the master jaws; replace master jaws
	D	Mounting bolts for the top jaws too short or too long, overloaded	Check length of thread engagement, replace screw; check torque! See page 12
	E	Jaws are too high	Change top jaws, method of gripping
	F	Chuck is damaged or worn out	Send chuck back to **SMW-AUTOBLOK** for inspection
Insufficient jaw stroke	**A**	Wrong draw tube length	Check draw tube length, see page 10
	B	Cylinder stroke is too short	Check cylinder stroke
	C	Draw tube adapter has become loose	Check draw tube adapter
	D	Chuck is contaminated or filled with too much grease	Disassemble the chuck, clean and relubricate, see page 16
Jaw cannot be disengaged	**A**	At first installation: Draw tube is too short, complete frontend position of the piston/jaw change position cannot be reached	Check draw tube length; see installation page 10
	B	Chuck is heavily contaminated with dirt or filled with too much grease	Disassemble chuck and clean; see page 16
	C	Chuck was actuated during jaw change	Disassemble chuck, replace cambolts; refer to page 13 / 14 for jaw change!
	D	Wrong key is used	Use **original SMW-AUTOBLOK key**
Jaw is locked in the guideway	**A**	Jaw of other manufacturers which does not correspond to SMW-AUTOBLOK specifications	Use **original SMW-AUTOBLOK jaws**; see page 13
	B	Master jaw is deflected; Mounting surface of top jaws not on same level, contaminated or damaged	Check top jaws and replace if necessary; see page 13
	C	Master jaw is deflected; Torque of the mounting bolts too high	Correct torque must be kept; see page 12

12 months warranty

Product: Power chuck

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: Power chuck

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	
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Date	
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Remarks	

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Date	
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Remarks	

Documentation of maintenance

Product: _____

Serialno.: _____

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Remarks	

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Operating hours	
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Documentation of maintenance

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Documentation of maintenance

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Remarks	

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Name	
Date	
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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:

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Mail: vertrieb@smw-autoblok.de

Please send the filled in form back to:

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

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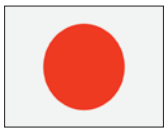

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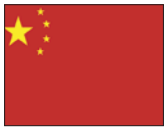

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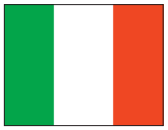

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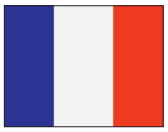

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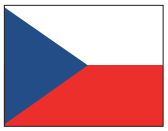

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