



VICES

EDITION 8

RÖHM
driven by technology



RKE 125

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Operation guide



TYPE	RKE				RKE-M				RKE-LV		RKK		
NC-Compact vices													
Features	- Highest clamping precision - Clamping force presetting - Precise, wear-resistant body				- Highest clamping precision - Without clamping force presetting - Precise, wear-resistant body				- Very good accessibility for 5-axis machining - Clamping force presetting - Large clamping range		- Designed to resist deformation for the highest clamping precision - Greatest repeatability - Clamping force presetting		
Clamping system	mechanical-mechanical size 92: mechanical-hydraulic				mechanical				mechanical-mechanical		mechanical-mechanical		
Force amplification	✓								✓		✓		
Set-up options	3-Side, Duo-Tower Quattro-Tower				3-Side, Duo-Tower Quattro-Tower				Base		3-Side, Duo-Tower Quattro-Tower		
Machining centers with high working accuracy	✓✓				✓✓				✓✓		✓✓		
Universal milling machines with high working accuracy	✓✓				✓✓				✓✓		✓✓		
Universal milling machines standard version	✓				✓				✓		✓		
Jig boring machines	✓✓				✓✓				✓✓		✓✓		
5-axis machining	✓				✓				✓✓		✓		
Grinding machines	✓				✓				✓		✓		
Series production	✓				✓				✓		✓		
For limited space	✓				✓				✓✓		✓		
Jaw width mm	92 ¹⁾	125 ¹⁾	160 ¹⁾	200 ¹⁾	92 ¹⁾	125 ¹⁾	160 ¹⁾	200 ¹⁾	125 ¹⁾	125 ³⁾	135 ²⁾	160 ²⁾	200 ²⁾
Clamping range (max.)	208	312	451	451	208	312	451	451	192	225	215	340	340
Length (opened) mm	345	478	633	633	315	442	607	607	372	372	483	618	618
Width mm	94	126	162	162	94	126	162	162	126	126	150	205	205
Height mm	112	140	165	175	112	140	165	175	140	130	148	179	189
Clamping force (max.) kN	25	40	60	60	25	40	60	60	40	40	40	60	60
Weight kg	15	41	79	85	15	41	79	85	29	29	50	107	108
Page	4014				4022				4034		4040		



yes



suitable



very suitable

¹⁾ with stepped jaws
²⁾ with standard jaws
³⁾ with carrier jaws

⁴⁾ with claw-type jaws
⁵⁾ with heightend stepped jaws

Operation guide



TYPE	RKD-M		RZM				RKZ-M				
	NC-Compact twin vices		NC-Compact self centering vices								
Features	<ul style="list-style-type: none"> - Double, centric and compact wrench (removable middle jaw) - Greatest repeatability - Low rapid traverse 		<ul style="list-style-type: none"> - Very large clamping stroke due to patented guide system - Open design for optimal chip flow - Overhead spindle for optimal power transmission 				<ul style="list-style-type: none"> - Highest average precision and repeatability - Minimum collision contour 				
Clamping system	mechanical		mechanical				mechanical				
Force amplification	*		*				*				
Set-up options	3-Side Duo-Tower, Quattro-Tower		Base				Base				
Machining centers with high working accuracy	✓✓		✓				✓				
Universal milling machines with high working accuracy	✓✓		✓				✓				
Universal milling machines standard version	✓✓		✓				✓				
Jig boring machines	✓✓		✓				✓				
5-axis machining			✓✓				✓				
Grinding machines	✓		✓				✓				
Series production	✓		✓				✓				
For limited space	✓		✓✓				✓				
Jaw width mm	92 ¹⁾	125 ¹⁾	92 ⁴⁾	92 ⁴⁾	125 ⁴⁾	125 ⁴⁾	50 ¹⁾	70 ¹⁾	92 ¹⁾	125 ¹⁾	125 ⁵⁾
Clamping range (max.)	127	180	160	100	142	222	111	153	208	269	269
Length (opened) mm	480	617	230	170	298	218	157	209	283	353	353
Width mm	94	126	94	94	125	125	52	72	94	126	126
Height mm	117	145	174	174	196,5	196,5	75	95	117	145	165
Clamping force (max.) kN	25	40	20	20	25	25	10	15	20	25	25
Weight kg	24	52	11,7	11,5	17,4	20,3	3,5	7	18	32,5	35
Page	4052		4060				4064				

* Constant clamping force for each clamping process and high repeatability in combination with a torque wrench

Operation guide



ORANGE LINE



Operation guide

TYPE	RB-K Orange Line					RBAW		
	Machine vices					NC-power vices		
Features	- Great accuracy due to precise jaw guidance - Fast clamping range adjustment using the pin system					- Integrated angular drive - Clamping width presetting		
Clamping system	mechanical-hydraulic					mechanical-hydraulic		
Force amplification	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		
Set-up options	Base					3-Side		
Machining centers with high working accuracy	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>					<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
Universal milling machines with high working accuracy	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>					<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
Universal milling machines standard version	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		
Jig boring machines	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>					<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
5-axis machining								
Grinding machines	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		
Series production	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		
For limited space	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		
Jaw width mm	92	113	135	160	200	113	135	160
Clamping range (max.)	100	170	220	310	350	175	225	310
Length (opened) mm	490	583	679	817	1022	500	578	702
Width mm	160	160	200	240	280	115	137	162
Height mm	91	97	112	133	171	96	111	132
Clamping force (max.) kN	25	30	40	50	100	30	40	50
Weight kg	15,5	24	39	60	112	22	36	62
Page	4076					4082		



yes



suitable



very suitable

Operation guide



TYPE	MSR					RS					UZ				
Machine vices															
Features	- Fast clamping range adjustment using the pin system					- Made of special steel casting for flexible application - Entire clamping range can be reached by turning the crank					- Centric clamping - Spindle covered in the working area				
Clamping system	mechanical					mechanical					mechanical				
Force amplification	*					*					*				
Set-up options	Base					Base					Base				
Machining centers with high working accuracy	✓					✓					✓				
Universal milling machines with high working accuracy	✓					✓					✓				
Universal milling machines standard version	✓					✓					✓				
Jig boring machines															
5-axis machining															
Grinding machines	✓					✓					✓				
Series production	✓					✓					✓				
For limited space	✓					✓					✓				
Jaw width mm	125	150	150	175	175	92	113	135	160	200	113	135	160	200	250
Clamping range (max.)	150	200	300	400	400	85	105	125	145	185	110	140	180	300	400
Length (opened) mm	401	487	587	701	701	362	423	510	575	675	358	408	495	655	767
Width mm	95	125	125	145	145	160	160	200	240	280	132	152	180	200	220
Height mm	80	100	100	118	118	79,6	89,6	103,6	119,6	144,6	92,6	105,1	123,6	141,6	147,6
Clamping force (max.) kN	30	50	50	60	60	18	25	35	45	55	15	22	24	25	28
Weight kg	12,7	25,6	29,5	51,2	51,2	12	13,5	25	40	65	12,4	19	31	52	71
Page	4088					4090					4094				

Operation guide

*Constant clamping force for each clamping process and high repeatability in combination with a torque wrench

Operation guide



Operation guide

TYPE	KZS-P					KZS-PG				
	Stationary power chucks									
Features	<ul style="list-style-type: none"> - Optimally suited for automated work sequences - Centric clamping - Jaws with fine serration and cross-tenon interface 					<ul style="list-style-type: none"> - Optimally suited for automated work sequences - Centric clamping - Jaws with fine serration and cross-tenon interface - Large jaw stroke 				
Clamping system	pneumatic					pneumatic				
Clamping force										
Set-up options	Base, zero point clamping system					Base, zero point clamping system				
Machining centers with high working accuracy										
Universal milling machines with high working accuracy										
Universal milling machines standard version										
Jig boring machines										
5-axis machining										
Grinding machines										
Series production										
For limited space										
Size	64	100	160	200	250	100	160	200	250	
Jaw stroke mm	2,3	2,3	3,5	4,8	6	7	9,5	12	18,2	
Clamping force (max.) kN	4,5	18	45	52	55	8	20	24	21	
Weight kg	1,25	3,9	11,2	20,4	32,5	4	11,5	20,8	32,8	
Page	4101					4103				



yes



suitable



very suitable

Operation guide



TYPE	KZS-H			KZS-HG				SSP			
	Stationary power chucks										
Features	<ul style="list-style-type: none"> - Optimally suited for automated work sequences - Centric clamping - Jaws with fine serration and cross-tenon interface 			<ul style="list-style-type: none"> - Optimally suited for automated work sequences - Centric clamping - Jaws with fine serration and cross-tenon interface - Large jaw stroke 				<ul style="list-style-type: none"> - Optimally suited for automated work sequences - Centric clamping - Without through-hole - Jaws with fine serration 			
Clamping system	hydraulic			hydraulic				pneumatisch			
Clamping force											
Set-up options	Base, zero point clamping system			Base, zero point clamping system				Base, zero point clamping system			
Machining centers with high working accuracy											
Universal milling machines with high working accuracy											
Universal milling machines standard version											
Jig boring machines											
5-axis machining											
Grinding machines											
Series production											
For limited space											
Size	64	100	160	100	160	200	250	160	200	250	315
Jaw stroke mm	2,3	2,3	3,5	7	9,5	12	18,2	4,2	4,2	5	5
Clamping force (max.) kN	5	18	45	16	40	50	50	36/38	55/60	90/96	111/118
Weight kg	1,5	5	14,2	5,1	14,5	24,8	37,9	25	34	54	65
Page	4107			4109				4112			

*Constant clamping force for each clamping process and high repeatability in combination with a torque wrench

Operation guide



Operation guide

TYPE	BSS		BOF				BSH						DPV				DPV 3-W	
Drilling machine vices																		
Features	- Compact and stable construction - Entire clamping range can be reached by turning the crank		- Compact and stable construction - Entire clamping range can be reached by turning the crank - Long guidance of the movable jaws also in the outer clamping range				- Do-it-yourself version		- Robust and stable version				- Covering of the threaded spindle by cover sleeve - Constructional length remains the same - Entire clamping range can be reached by turning the crank					
Clamping system	mechanical manually operated		mechanical manually operated				mechanical manually operated						mechanical manually operated					
Force amplification																		
Set-up options	Base		Base				Base						Base				3-Side	
Machining centers with high working accuracy																		
Universal milling machines with high working accuracy																		
Universal milling machines standard version																		
Jig boring machines																		
5-axis machining																		
Grinding machines																		
Series production	✓		✓				✓						✓					
For limited space																		
Jaw width mm	110	135	90	110	135	160	65	80	100	80	100	120	140	80	100	120	150	100
Clamping range (max.) mm	100	160	90	130	160	220	65	85	80	80	95	110	150	70	92	110	125	93
Length (opened) mm	510	587	195	315	365	445	125	150	170	200	215	260	300	154	175	225	238	189
Width mm	175	205	145	175	205	245	105	130	175	140	175	215	220	142	152	180	198	159
Height mm	72,5	80,5	60	72,5	80,5	95,5	43	46	47	70	75	85	85	58	63,5	63,5	65	65
Clamping force (max.) kN	10	10	8	10	12	15												
Weight kg	9,5	13,5	5,5	9,5	13,5	25	1,2	1,7	4,2	5	7	11	12,5	3,6	4,3	6,3	8,1	5,1
Page	4120		4120				4121						4122				4122	



yes



suitable



very suitable

Operation guide



TYPE	PL-S micro		PL-S			PLF			PL-G			PS-SV		PS-ZD	
Grinding and inspection vice															
Features	<ul style="list-style-type: none"> - Draw-down effect - Simple clamping and releasing with allen key - Clamping jaw adjustable in steps; engages automatically - No spindle 					<ul style="list-style-type: none"> - Draw-down effect - Made of alloyed tool steel, hardened and finely ground - Horizontal and vertical ground prism - No spindle which could, become dirty during erosion 			<ul style="list-style-type: none"> - Clamping and releasing with threaded spindle - Made of alloyed tool steel, hardened and finely ground 			<ul style="list-style-type: none"> - Made of alloyed tool steel, hardened and finely ground - Bearing and location pins hardened and ground with a precision of 0.001 mm - The clamping device can be positively locked in any angular position 		<ul style="list-style-type: none"> - Positive locking in any desired angular position by locking screws - Made of alloyed tool steel, hardened and finely ground - Can be rotated 360° 	
Clamping system	mechanical, manually operated					mechanical, manually operated			mechanical, manually operated			mechanical, manually operated		mechanical, manually operated	
Force amplification															
Set-up options	Base					Base			Base			Base		Base	
Machining centers with high working accuracy															
Universal milling machines with high working accuracy															
Universal milling machines standard version															
Jig boring machines															
5-axis machining															
Grinding machines	✓✓					✓✓			✓✓			✓✓		✓✓	
Series production															
For limited space															
Jaw width mm	34	45	70	90	120	50	73	100	60	73	88	70	90	70	120
Clamping range (max.)	25	50	80	120	150	65	100	125	55	100	125	80	120	80	150
Length (opened) mm	75	110	160	210	280	140	190	245	110	210	250	160	210	180	270
Width mm	34	45	70	90	120	50	73	100	60	73	88	70	90	110	160
Height mm	35	45	62	80	90	50	67	90	50	67	88	93	113	137	210
Clamping force (max.) kN	2	2	2,5	3	4	1,6	2	5	2	4	4	6	7	-	-
Weight kg	0,35	1	3	5,8	13,5	1,4	4,1	7,3	1,6	4	7,6	5,3	11	11,1	43
Page	4126					4127			4127			4128		4128	

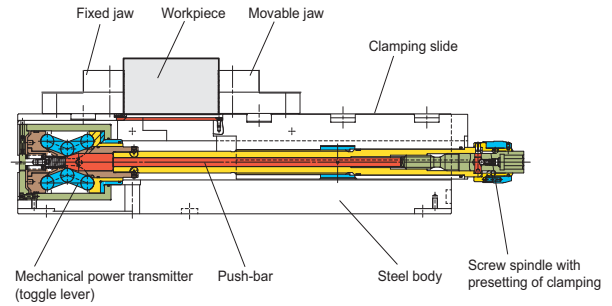
* Constant clamping force for each clamping process and high repeatability in combination with a torque wrench

Sectional view toggle lever principle

NC-COMPACT VICES RKE

High-end NC-Compact vice. Mounting of the power transmitter in the steel body. Further designs (iron cast body, hydraulic actuation etc.) on request.

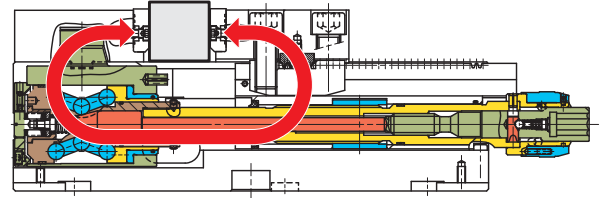
SECTIONAL VIEW RKE



RKK SIZE 3-5

NC-Compact vice for very high clamping precision. Clamping slide with tothing for continuously variable presetting. The power transmitter is mounted in the fixed jaw. This form of support enables high-precision clamping.

SECTIONAL VIEW RKK SIZE 3 - 5



Functional description

CLAMPING SYSTEM MECHANICAL-MECHANICAL WITH TOGGLE LEVER

SINGLE CLAMPING

a) Clamping with power transmission

Mechanical pretensioning is achieved by turning the hand-crank. The threaded spindle with the large incline brings the movable clamping jaw into contact with the workpiece, whereby resistance can be noted on the hand-crank. Continuing to turn the crank in clockwise direction triggers automatic disengagement and switch to mechanical transmission. Further turning of the crank moves a pressure pin axially, which generates the high clamping force through spreading of the toggle lever.

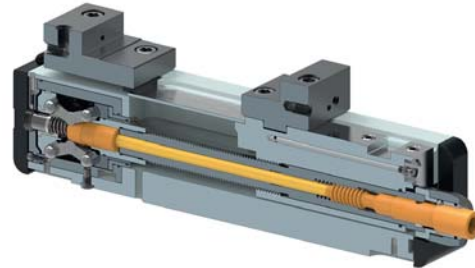
b) Presetting of different clamping forces

To avoid damage to sensitive workpieces caused by excessive clamping force, different clamping forces can be preset. The presetting can be performed simply by turning the adjustment collar on the end of the spindle.

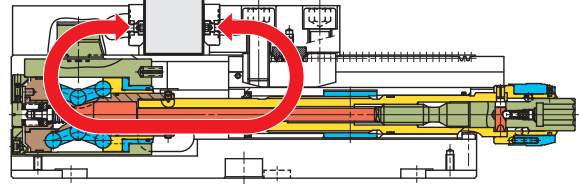
c) Mechanical clamping without power transmission

For consecutive clamping of multiple workpieces having uneven contact surfaces, greater pretensioning is required. Turning the adjustment collar to "0" deactivates the mechanical power transmission. The workpieces can then be mechanically pretensioned until the yield in the workpieces is eliminated. The adjustment collar can then be set to the desired clamping force, and the high clamping force introduced.

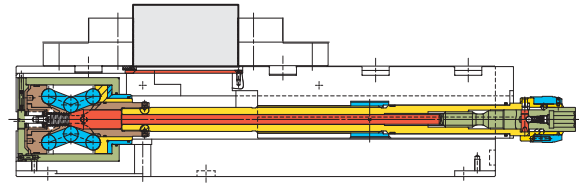
RKK: The power transmission guarantees that the body remains free from deformation; a very high clamping accuracy is achieved.



Type RKK



Type RKE



TWIN CLAMPING RKD-M

The anchoring nut on the drive spindle is turned to the right (delivery condition). The moveable clamping jaw 1 is adjusted up to the workpiece in station 1 by turning the spindle in a clockwise direction with the hand crank and held with ca. 1 kN (third manual function). By continuing to turn the hand crank in a clockwise direction as far as it goes, clamping jaw 2 is also placed on the workpiece on station 2. The build-up of force acts on the clamping jaws via the mechanical spindle. The balance springs compensate for dimensional differences of up to ± 3 mm from workpiece 1 to workpiece 2. When clamping, both clamping positions must be filled with the same workpieces. To induce the exact clamping force repeatedly, the exact, specified torque must be induced via a torque wrench (see clamping force chart in the BDA).



Type RKD-M

CENTRIC CLAMPING RKD-M

The anchoring nut on the drive spindle is turned to the left. The spindle is rigid. The centre jaw is removed. The moveable clamping jaws 1 and 2 are adjusted up to the workpiece by turning the spindle in a clockwise direction with the hand crank. The build-up of force acts on the clamping jaws. The position of the centre of the workpiece is always the same with respect to the transverse groove. To achieve the exact clamping force repeatedly, the exact, specified torque must be induced via a torque wrench (see clamping force chart in the BDA).

SINGLE CLAMPING RKD-M

The anchoring nut on the drive spindle is turned to the left. The spindle is rigid. A stepped jaw must be used here (not in delivery contents), and moveable clamping jaw 1 removed. Also remove the centre jaw. The moveable clamping jaw 2 is adjusted up to the workpiece in station 1 by turning the spindle in a clockwise direction with the hand crank. The build-up of force acts on the clamping jaws uniformly via the mechanical spindle. To induce the exact clamping force repeatedly, the exact, specified torque must be induced via a torque wrench (see clamping force chart in the BDA).



THE PREMIUM VICE FOR ANY AREA OF APPLICATION



The NC-compact vices from RÖHM are excellently suited for use in single or series production. Different types and constructional lengths enable the optimal adaptation to the work area, workpiece and machining task.



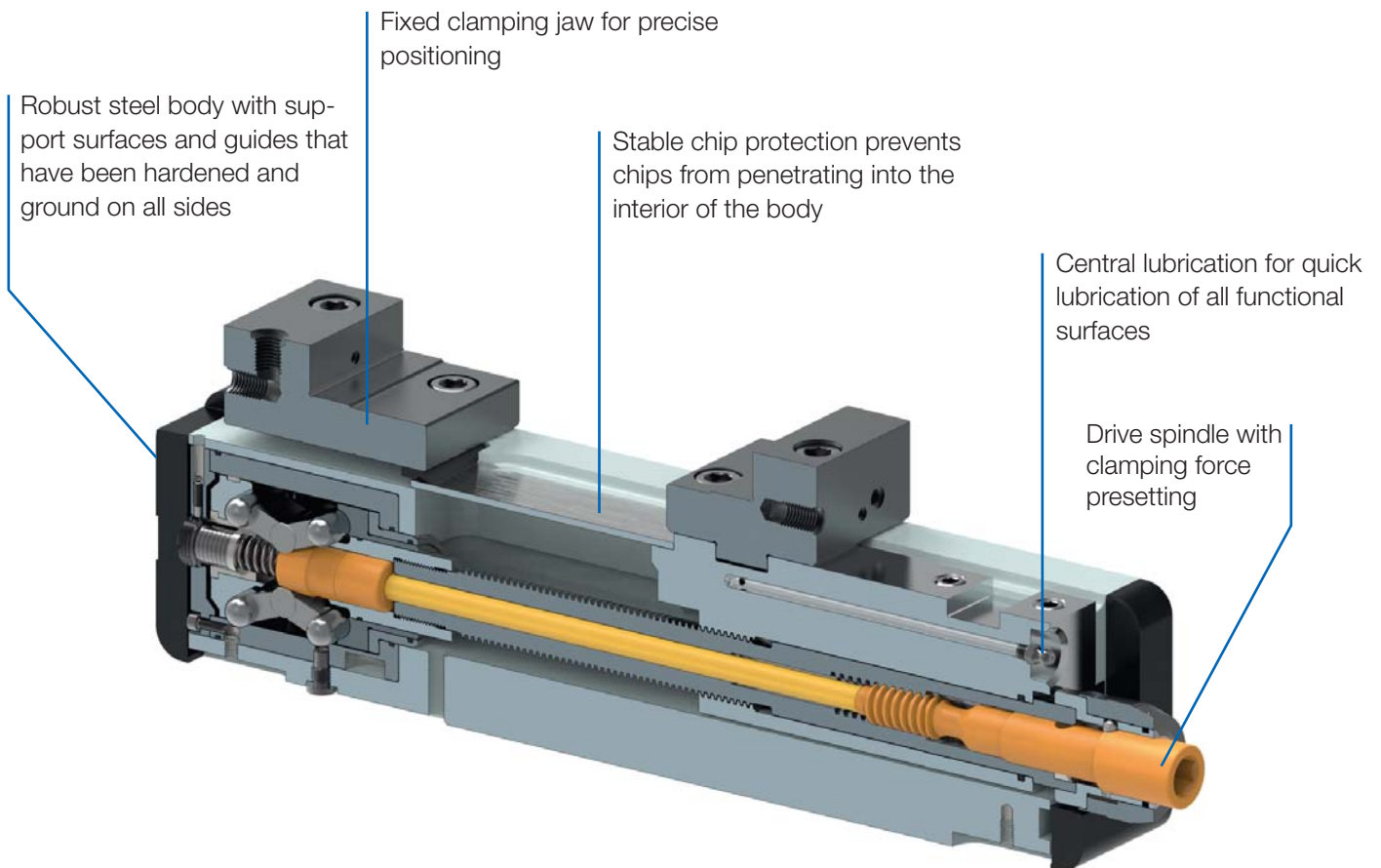
Video RKE

NC-COMPACT VICES

NC-compact vices are particularly suited for use on machining centers, milling machines and are ideal for 5-axis machining. These premium vices are very impressive with their stable and compact design for maximum clamping accuracy and optimal workpiece accessibility. By simply turning the clamping force presetting, a clamping force of up to 60 kN can be achieved. With workpieces that are sensitive to deformation, the force amplification can be disabled.

ADVANTAGES AT A GLANCE

- ⊕ Large clamping range and precise positioning due to fixed clamping jaw
- ⊕ The compact design resists deformation for the greatest possible clamping precision
- ⊕ Consistent clamping force and maximum repeatability of 0.01 mm



RKE - with power transmitter



APPLICATION

Particularly suitable for use on machining centers.

TYPE

Size 92 - clamping system mechanical-hydraulic with power transmitter, manually operated.

Size 125, 160 and 200 - clamping system mechanical-mechanical with power transmitter, manually operated.

CUSTOMER BENEFITS

- ③ Horizontal, side or in connection with a base plate vertical mounting, for example as DUO clamping tower (back to back)
- ③ Sturdy chip protection prevents chips from penetrating
- ③ Drive spindle with clamping force presetting
- ③ Clamping surface for clamping claws
- ③ Central lubrication of guides and spindle thread
- ③ Thread for fastening angle drive

TECHNICAL FEATURES

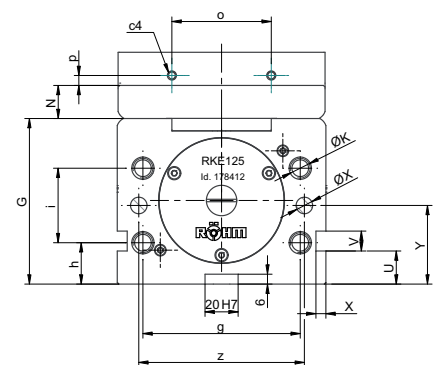
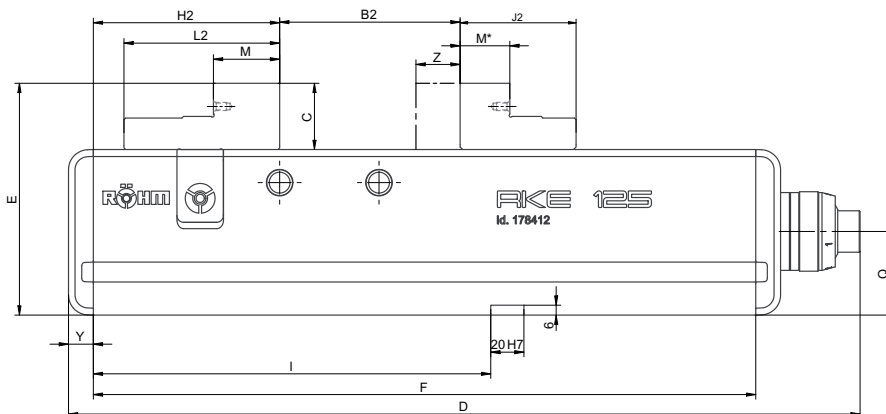
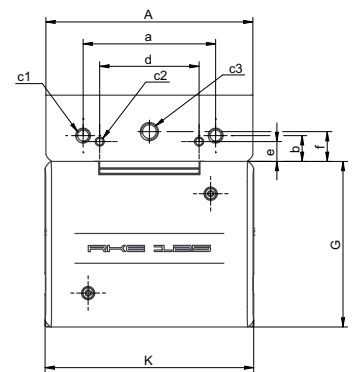
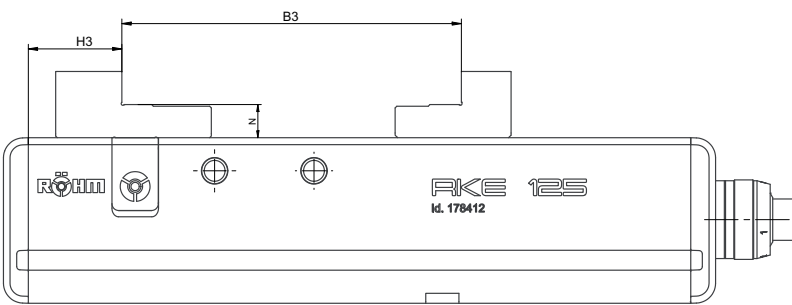
- Sturdy steel body and all guides are hardened and ground on all sides
- Long clamping slide with cross slots, hardened on all sides, functional surfaces ground
- Threaded bores for taking up all RÖHM flat clamping jaws with jaw width 125/160 mm

RKE = RÖHM, compact, single clamping

A32
RKE, with stepped jaws

Item no.	178411	178412	178413	178414
Jaw width A mm	92	125	160	200
Jaw design	stepped jaws	stepped jaws	stepped jaws	stepped jaws
B2 mm	0 - 138	0 - 216	0 - 320	0 - 315
B3 mm	71 - 208	97 - 312	131 - 451	131 - 451
C mm	32	40	50	60
D mm	345	478	633	633
E mm	112	140	165	175
F mm	276	400	530	530
G _{0,02} mm	80	100	115	115
H2 mm	80	112,5	130	135
H3 mm	41	56,5	64	64
J2 mm	56	70	97	97
K mm	94	126	162	162
L2 mm	64	94	98	103
M mm	25	40	34	39
M* mm	25	30	32,5	32,5
N _{0,01} mm	16	20	25	25
U mm	20	20	20	20
V mm	12	12	12	12
W mm	68	1x108	2x102,5	2x102,5
X mm	10	10	10	10
Y mm	15	15	15	15
Z mm	70	109	117	117
a mm	63	80	100	125
b mm	13,6	15,6	19,6	24,6
c1	M 6x14	M 8x14	M 8x14	M 10x15
c2	M 5x9	M 5x10	M 5x9	M 5x10
c3	M 10x16	M 10x18	M 10x18	M 14x20
d mm	48	60	80	110
e mm	8	12	12	12
f mm	14	18	20	25
g mm	70	95	125	125
h mm	20	25	17,5	17,5
i mm	40	45	80	80
Ø k	M10x18	M12x22	M16x25	M16x25
l mm	140	240	200	200
m2±0,02 mm	60	127,5	70	65
n±0,02 mm	99	183,5	136	136
y ^{+0,01} mm	40	47,5	57,5	57,5
z mm	72	100	135	135
Clamping force kN	25	40	60	60
Weight kg	15	41	79	85

RKE - with power transmitter



NC-Compact vices
RKE

Accessories RKE

A37

Standard top jaws SA, reversible

Item no.	Contents of delivery	Size	Width mm	Height mm
162628 ▲	set	125	125	40
162629	set	160	160	50
162984	set	200	200	60



A37

Stepped jaws SB, reversible

Item no.	Contents of delivery	Size	Width mm	Height mm
178776	set	92	92	32
178230	set	125	125	40
178754	set	160	160	50
178937	set	200	200	60



A37

Double stepped jaws DSB, „smooth“

Item no.	Contents of delivery	Size	Width mm	Height mm
168698	set	92	50	48
168693 ▲	set	125	62	60
175387 ▲	set	160	160	50



A37

Carrier jaws TB, without swivelling claw inserts

Item no.	Contents of delivery	Size	Width mm	Height mm
165856	set	125	125	20
166218 ▲	set	160/200	160	25



A37

Carrier jaws, without claw inserts

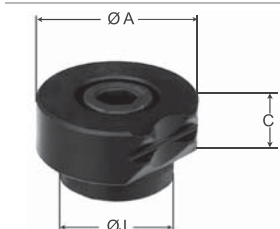
Item no.	Contents of delivery	Size	Width mm	Height mm
169383	set	92	115	20
165861	set	125	160	20
166223 ▲	set	160/200	200	25



A37

Swivelling claw inserts, for carrier jaws 743-72

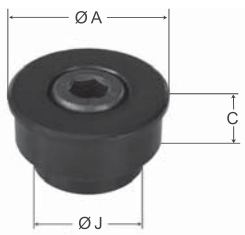
Item no.	Contents of delivery	Size	Ø A mm	Ø J mm	Height mm
165854	piece	92/125	28	20	10
166216	piece	160/200	30	22	10



Accessories RKE

A37

Tensioner, for carrier jaws 743-72



Item no.	Contents of delivery	Size	Ø A mm	Ø J mm	Height mm
169389	piece	92/125	28	20	10
169391	piece	160/200	30	22	10

A37

One-piece steel top jaws, for self-production of formed jaws or for clamping formed parts

Item no.	Contents of delivery	Size	Width mm	Height mm
160352	set	125	125	60
160353▲	set	160	160	70



A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152752	piece	92	92	31,6
178112▲	piece	125	125	39,7
152755	piece	160	160	49,6
152759	piece	200	200	62,6

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163218▲	piece	92	92	31,6
180679▲	piece	125	125	39,7
156197	piece	160	160	49,6
156198	piece	200	200	62,6

Including fixing screws

A37

Claw jaws SKB with fine step, 2,5 mm clamping depth



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166514	set	92	92	32	14
166520	set	125	125	40	16
166522	set	160	160	50	18

Including fixing screws

Accessories RKE

A37

Claw jaws SKB without step, universal for clamping depth > 2.5 mm

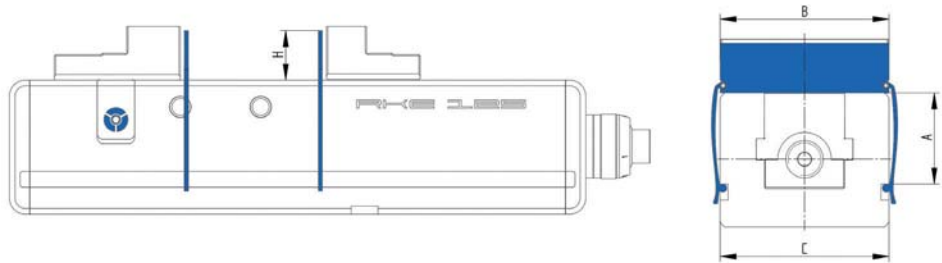

Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166661 ▲	set	92	92	32	14
166667	set	125	125	40	16
166669	set	160	160	50	18

Including fixing screws

A37

Support rails Cliparc, set with 10 different pairs of rails and 4 clamps in wooden box


Item no.	Web height A	Jaw width B mm	Rail height H	Guiding width C	Spare clamp (Set = 4 pieces)
1269621 ▲	48	92	10/16/18/20/23/25/26/27/28/29	94	1269624
1269622	68	125	10/15/20/25/28/30/33/35/36/37	126	1269625
1269623	83	160	10/15/20/25/30/35/40/43/45/47	162	1269626



A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN


Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
128770	piece	92	92	31,6	3-13	5-32
082363	piece	125	135	39,6	4-20	6-40
082364	piece	160	160	49,6	5-29	7-48
082365	piece	200	200	62,6	6-37	8-56

Including fixing screws

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground


Item no.	Contents of delivery	Width mm	Height mm
150740 ▲	piece	135	39,6
150741 ▲	piece	160	49,6

Including fixing screws

A37

Draw-down jaws SNF, with spring plate, hardened and ground


Item no.	Contents of delivery	Size	Width mm	Height mm
077105 ▲	set	125	135	39,6
077106 ▲	set	160	160	49,6
077107 ▲	set	200	200	62,6

Including fixing screws

Accessories RKE

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support



Item no.	Contents of delivery	Width mm	Height mm	Chucking capacity mm	
				Horizontal	Vertical
317260	set	135	39,8	3-13	6-40
317261	set	160	49,8	5-22	7-48

Including fixing screws

A37

Draw-down jaws RNG, with two permanent magnets



Item no.	Contents of delivery	Size	Width mm	Height mm
155237▲	set	92	92	32
159227	set	125	125	39,5
155240	set	160	160	50
163782▲	set	200	200	60

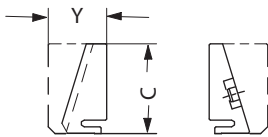
Including fixing screws

A37

Standard insert RNS, held by two permanent magnets



Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155242▲	set	92	92	32	21
159232	set	125	125	40	26
155245▲	set	160	160	50	30
163783	set	200	200	60	34

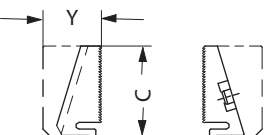


A37

Standard insert finely checkered RNSf, held by two permanent magnets



Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
163270	set	92	92	32	21
163267▲	set	125	125	40	26
163273▲	set	160	160	50	30
163784▲	set	200	200	60	34

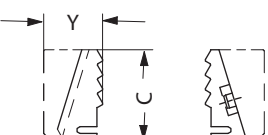


A37

Claw insert RNK, held by two permanent magnets



Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155247	set	92	92	32	21
159235▲	set	125	125	40	26
155250▲	set	160	160	50	30
163785▲	set	200	200	60	34



Accessories RKE

A37

Floating jaw horizontal PEB, for clamping non-parallel workpieces


Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
156190 ▲	piece	92	113	32	36
156191	piece	125	135	40	40
156192 ▲	piece	160	160	50	45
156193 ▲	piece	200	200	63	55

A37

Hand crank, turnable handle, hexagon socket


Item no.	Contents of delivery	Size	Hexagon	A	L
134198	piece	92	12	60	90
134600	piece	125/160/200	14	104	160

A37

Angle drive 90°


Item no.	Contents of delivery	Size	A	B	C
154185	piece	92	113,5	90	83,5
158339	piece	125	133	106	98
158888 ▲	piece	160/200	166	111	98

A37

Single clamp SPE, for mounting vices on end and on the base


Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw


Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

C15

Grease F91 for vices, for lubrication and conservation of chucking power


Item no.	Design	Contents
777021 ▲	Cartridge	0,4 kg

C15

Grease gun DIN1283


Item no.	Connection	Contents of delivery
329093	M10x1	150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece



Notes

RKE-M - without power transmitter

APPLICATION

Particularly suitable for use on machining centers and palletisers.

TYPE

Clamping system mechanical without power transmitter, manually operated.

CUSTOMER BENEFITS

- ③ Horizontal, side or in connection with a base plate vertical mounting, for example as DUO clamping tower (back to back)
- ③ Sturdy chip protection prevents chips from penetrating
- ③ Large clamping stroke
- ③ Clamping surface for clamping claws
- ③ Central lubrication of guides and spindle thread
- ③ Constant clamping force for every clamping operation and high clamping repeatability when a torque wrench is used

TECHNICAL FEATURES

- Sturdy steel body and all guides are hardened and ground on all sides
- Long clamping slide with cross slots, hardened on all sides, functional surfaces ground
- Threaded bores for taking up all RÖHM flat clamping jaws with jaw width 125/160 mm

RKE-M = RÖHM, compact, single clamping, manual

A32
RKE-M, with stepped jaws

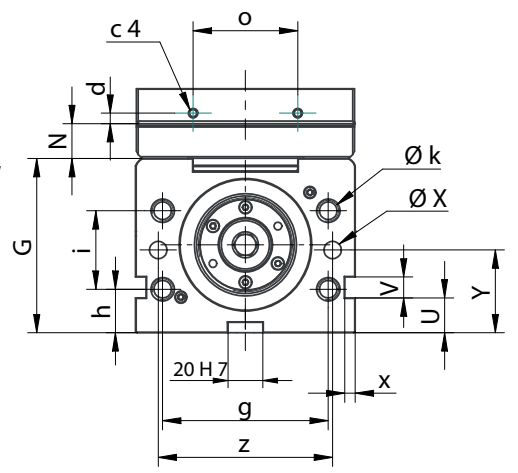
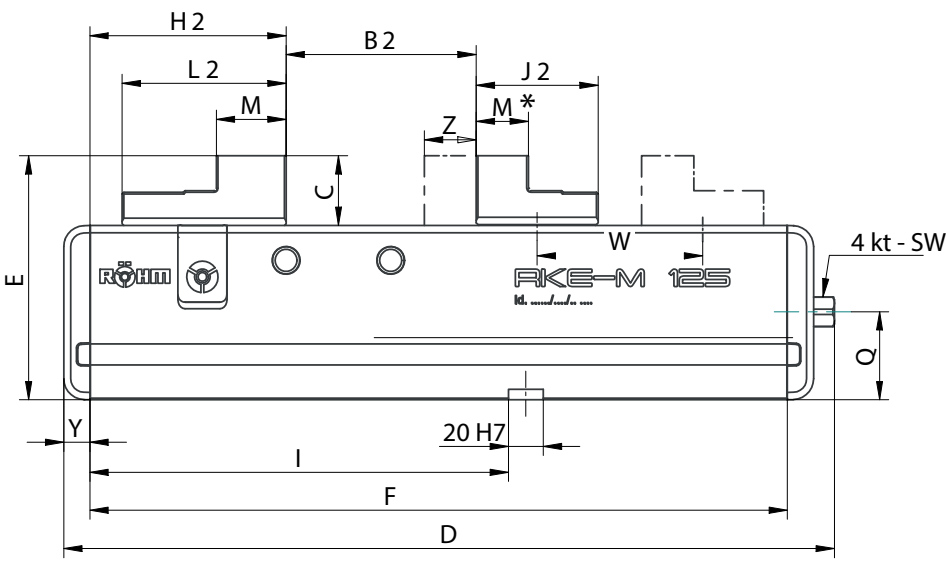
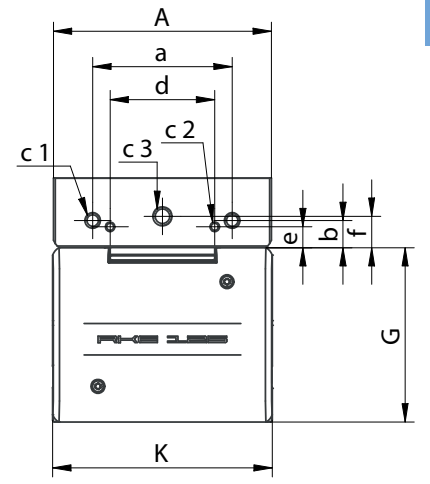
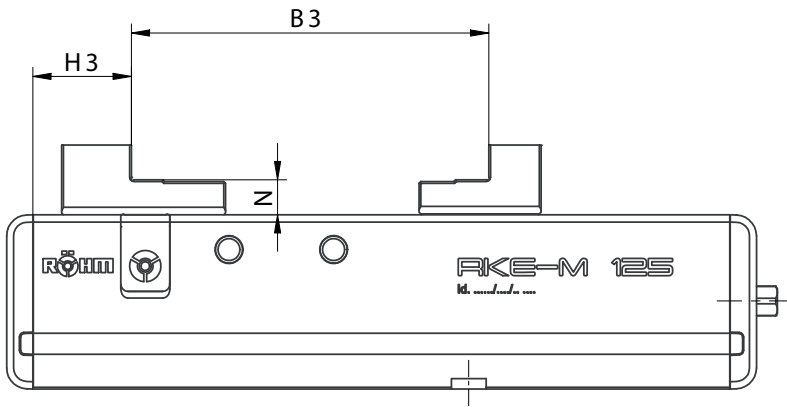
Item no.	182137	182138	182139	182140 ▲
Jaw width A mm	92	125	160	200
Jaw design	stepped jaws	stepped jaws	stepped jaws	stepped jaws
B2 mm	0-138	0 - 216	0 - 320	0 - 315
B3 mm	71-208	97 - 312	131 - 451	131 - 451
C mm	32	40	50	60
D mm	315	442	607	607
E mm	112	140	165	175
F mm	276	400	530	530
G _{0,02} mm	80	100	115	115
H2 mm	80	112,5	130	135
H3 mm	41	56,5	64	64
J2 mm	56	70	97	97
K mm	94	126	162	162
L2 mm	64	94	98	103
M mm	25	40	34	39
M* mm	25	30	32,5	32,5
N _{0,01} mm	16	20	25	25
U mm	20	20	20	20
V mm	12	12	12	12
W mm	68	1x108	2x102,5	2x102,5
X mm	15	15	15	15
Y mm	10	10	10	10
Z mm	70	109	117	117
a mm	63	80	100	125
b mm	13,6	15,6	19,6	24,6
c1	M 6x14	M 8x14	M 8x14	M 10x15
c2	M 5x9	M 5x10	M 5x9	M 5x10
c3	M 10x16	M 10x18	M 10x18	M 14x20
d mm	48	60	80	110
e mm	8	12	12	12
f mm	14	18	20	25
g mm	70	95	125	125
Ø k	M10x18	M 12x22	M 16x25	M 16x25
l mm	140	240	200	200
m2±0,02 mm	60	127,5	70	65
n±0,02 mm	99	183,5	136	136
y ^{-0,01} mm	40	47,5	57,5	57,5
z mm	72	100	135	135
Square AF	12	14	19	19
Ø X ^{H7}	10	10	10	10
Clamping force kN	25	40	60	60
Weight kg	15	41	79	85



RKE-M - without power transmitter



NC-Compact vices
RKE-M



Accessories RKE-M

A37

Standard top jaws SA, reversible

Item no.	Contents of delivery	Size	Width mm	Height mm
162628 ▲	set	125	125	40
162629	set	160	160	50
162984	set	200	200	60



A37

Stepped jaws SB, reversible

Item no.	Contents of delivery	Size	Width mm	Height mm
178776	set	92	92	32
178230	set	125	125	40
178754	set	160	160	50
178937	set	200	200	60



A37

Double stepped jaws DSB, „smooth“

Item no.	Contents of delivery	Size	Width mm	Height mm
168698	set	92	50	48
175387 ▲	set	160	160	50
168693 ▲	set	125	62	60



A37

Carrier jaws TB, without swivelling claw inserts

Item no.	Contents of delivery	Size	Width mm	Height mm
165856	set	125	125	20
166218 ▲	set	160/200	160	25



A37

Carrier jaws, movable jaw pendular, without claw inserts

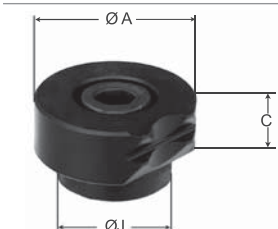
Item no.	Contents of delivery	Size	Width mm	Height mm
169383	set	92	115	20
165861	set	125	160	20
166223 ▲	set	160/200	200	25



A37

Swivelling claw inserts, for carrier jaws 743-72

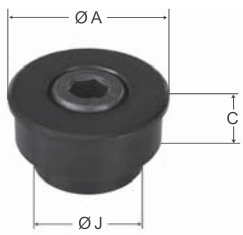
Item no.	Contents of delivery	Size	Ø A mm	Ø J mm	Height mm
165854	piece	92/125	28	20	10
166216	piece	160/200	30	22	10



Accessories RKE-M

A37

Tensioner, for carrier jaws 743-72



Item no.	Contents of delivery	Size	Ø A mm	Ø J mm	Height mm
169389	piece	92/125	28	20	10
169391	piece	160/200	30	22	10

A37

One-piece steel top jaws, for self-production of formed jaws or for clamping formed parts

Item no.	Contents of delivery	Size	Width mm	Height mm
160352	set	125	125	60
160353▲	set	160	160	70



A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152752	piece	92	92	31,6
178112▲	piece	125	125	39,7
152755	piece	160	160	49,6
152759	piece	200	200	62,6

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163218▲	piece	92	92	31,6
180679▲	piece	125	125	39,7
156197	piece	160	160	49,6
156198	piece	200	200	62,6

Including fixing screws

A37

Claw jaws SKB with fine step, 2,5 mm clamping depth



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166514	set	125	92	32	14
166520	set	160	125	40	16
166522	set	200	160	50	18

Including fixing screws

Accessories RKE-M

A37
Claw jaws SKB without step, universal for clamping depth > 2.5 mm



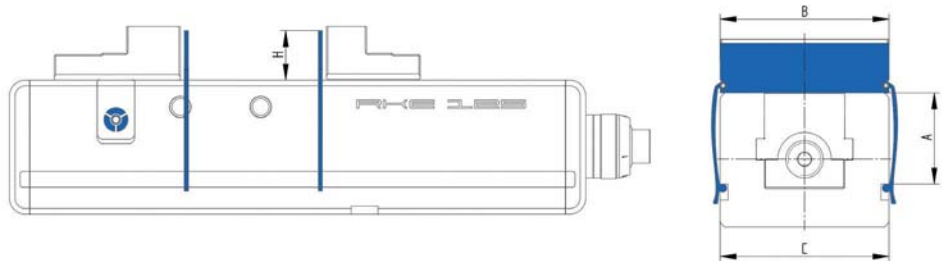
Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166661 ▲	set	92	92	32	14
166667	set	125	125	40	16
166669	set	160	160	50	18

Including fixing screws

A37
Support rails Cliparc, set with 10 different pairs of rails and 4 clamps in wooden box



Item no.	Web height A	Jaw width B mm	Rail height H	Guiding width C	Spare clamp (Set = 4 pieces)
1269621 ▲	48	92	10/16/18/20/23/25/26/27/28/29	94	1269624
1269622	68	125	10/15/20/25/28/30/33/35/36/37	126	1269625
1269623	83	160	10/15/20/25/30/35/40/43/45/47	162	1269626



Accessories NC-Compact vices RKE-M

A37
V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
128770	piece	92	92	31,6	3-13	5-32
082363	piece	125	135	39,6	4-20	6-40
082364	piece	160	160	49,6	5-29	7-48
082365	piece	200	200	62,6	6-37	8-56

Including fixing screws

A37
Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150740 ▲	piece	125	135	39,6
150741 ▲	piece	160	160	49,6

Including fixing screws

A37
Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077105 ▲	set	125	135	39,6
077106 ▲	set	160	160	49,6
077107 ▲	set	200	200	62,6

Including fixing screws

Accessories RKE-M

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support


Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317260	set	125	135	39,8	3-13	6-40
317261	set	160	160	49,8	5-22	7-48

Including fixing screws

A37

Draw-down jaws RNG, with two permanent magnets

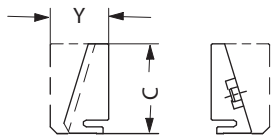

Item no.	Contents of delivery	Size	Width mm	Height mm
155237 ▲	set	92	92	32
159227	set	125	125	39,5
155240	set	160	160	50
163782 ▲	set	200	200	60

Including fixing screws

A37

Standard insert RNS, held by two permanent magnets

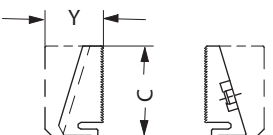

Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155242 ▲	set	92	92	32	21
159232	set	125	125	40	26
155245 ▲	set	160	160	50	30
163783	set	200	200	60	34



A37

Standard insert finely checkered RNSf, held by two permanent magnets

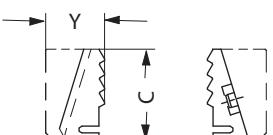

Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
163270	set	92	92	32	21
163267 ▲	set	125	125	40	26
163273 ▲	set	160	160	50	30
163784 ▲	set	200	200	60	34



A37

Claw insert RNK, held by two permanent magnets


Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155247	set	92	92	32	21
159235 ▲	set	125	125	40	26
155250 ▲	set	160	160	50	30
163785 ▲	set	200	200	60	34



Accessories RKE-M

A37

Floating jaw horizontal PEB, for clamping non-parallel workpieces


Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
156190 ▲	piece	92	113	32	36
156191	piece	125	135	40	40
156192 ▲	piece	160	160	50	45
156193 ▲	piece	200	200	63	55

C15

Hand crank HKU, with octagon socket


Item no.	Contents of delivery	Size	Octagon	Key-width SW	L
009151 ▲	piece	92	12		100
009152	piece	125	14	Octagon	125
009154	piece	160/200	19	Octagon	200

A37

Single clamp SPE, for mounting vices on end and on the base


Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw


Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A26

Torque wrench

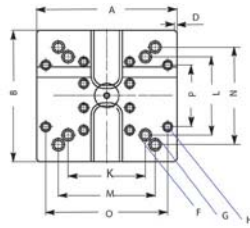

Item no.	Torque Nm	Length mm	Output	Working accuracy
10004116	20-120	435	12,7=1/2"	3%
10004117	60-320	659	12,7=1/2"	3%

A37

Drive adapter ATA


Item no.	Contents of delivery	Size	Square
168721	piece	92	12-1/2"
161103	piece	125	14-1/2"
161730	piece	160/200	19-1/2"

Accessories RKE / RKE-M / RKK



APPLICATION

Suitable for the complete setup of two NC compact clamps, back-to-back.

TYPE

With centering for machine table/pallet.
Without mounting or height adjustment of the clamps.
Incl. T-nuts, clamping claws and screws for aligning and fastening the clamps on the basic plate.

TECHNICAL FEATURES

- Bores for modular grid 40/50/63
- Without aligning groove/bore (machine side)

A37

Standard basic plate GP, for DUO-tower for NC-compact vices

Item no.	164016 ▲	164018 ▲	164020 ▲	164022 ▲	164024 ▲	164026 ▲
For	RKD-M 92	RKE 92 / RKE-M 92	RKE 125 / RKE-M 125 / RKD-M 125	RKK 135	RKK 160 / RKK 200	RKE 160 / (RKE 200) / RKE-M 160 / (RKE-M 200)
A mm	250	250	290	290	350	350
B mm	250	250	270	270	350	350
C mm	45	45	45	45	45	45
D mm	5x45°	5x45°	5x45°	5x45°	5x45°	5x45°
E mm	20	20	20	20	20	20
F	KM 12	KM 12	KM 16	KM 16	KM 16	KM 16
G	KM 16	KM 16	KM 16	KM 16	KM 12	KM 12
H	KM 16	KM 16	KM 12	KM 12	KM 16	KM 16
J mm	50	50	50	50	50	50
K mm	126	126	160	200	240	240
L mm	126	126	160	200	160	160
M mm	160	160	200	240	252	252
N mm	160	160	200	240	252	252
O mm	200	200	252	252	300	300
P mm	200	200	126	126	300	300
Weight kg	24	24	29	29	45	45

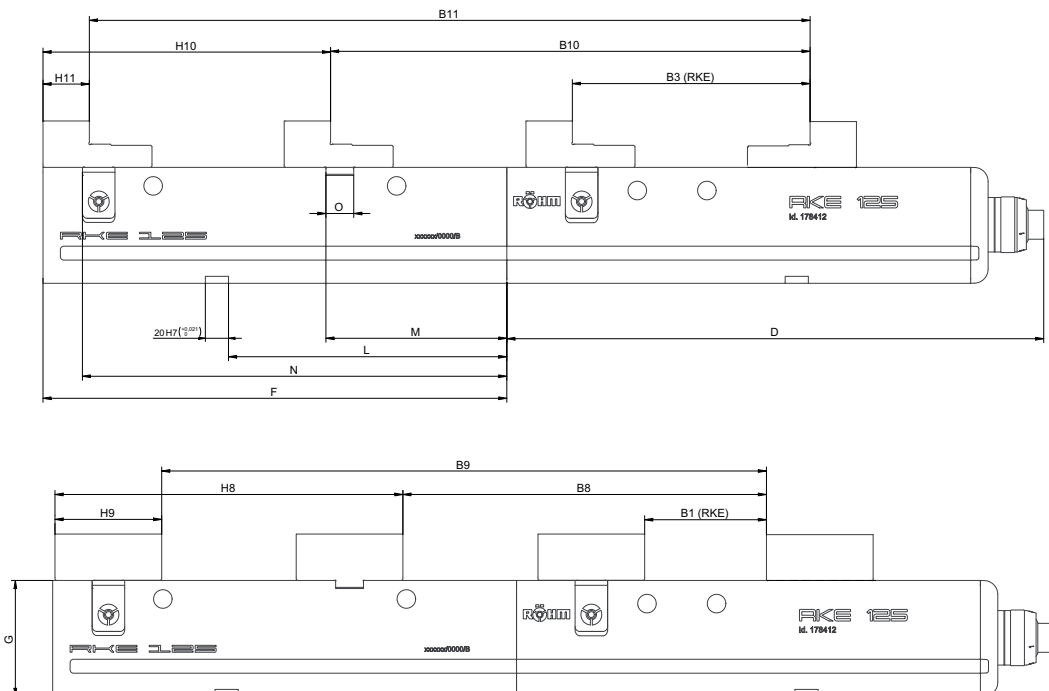
Accessories RKE / RKE-M



A37
Extension GKV, for extension of clamping capacity for extra-long workpieces (**only RKE, RKE-M**) Fastening with screws (included in the scope of delivery)

Accessories RKE / RKE-M

Item no.	178418	178419 ▲	178420	178421 ▲	178422 ▲	178423 ▲
For	RKE 125 / RKE-M 125	RKE 125 / RKE-M 125	RKE 125 / RKE-M 125	RKE 160 / RKE-M 160	RKE 160 / RKE-M 160	RKE 160 / RKE-M 160
D	463	463	463	618	618	618
F	105	200	400	190	295	530
G	100	100	100	115	115	115
L	-	-	240	-	-	200
M	-	-	156	-	-	225
N	68	160	364	150	253	493
O	24	24	24	30	30	30
B1	0-215	0-215	0-215	0-320	0-320	0-320
B3 mm	97-312	97-312	97-312	131-451	131-451	131-451
B8	-	-	208-422	-	-	290-605
B9	121-335	213-427	416-630	215-535	318-638	560-875
B10	-	-	306-520	-	-	421-736
B11	218-432	310-524	514-728	346-666	449-769	681-1006
H8	-	-	302	-	-	370
H9	95	98	94	105	107	102
H10	-	-	248	-	-	304
H11	41	44	40	39	41	36
Weight kg	6,5	13	26	18	27	49

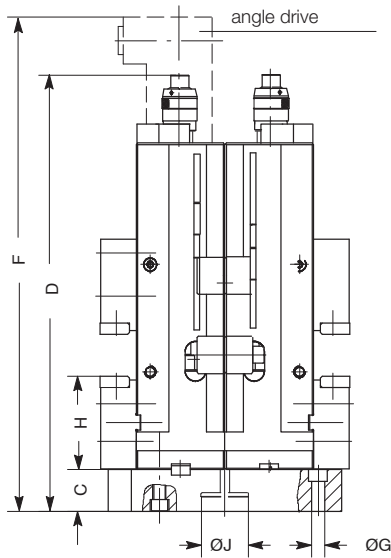




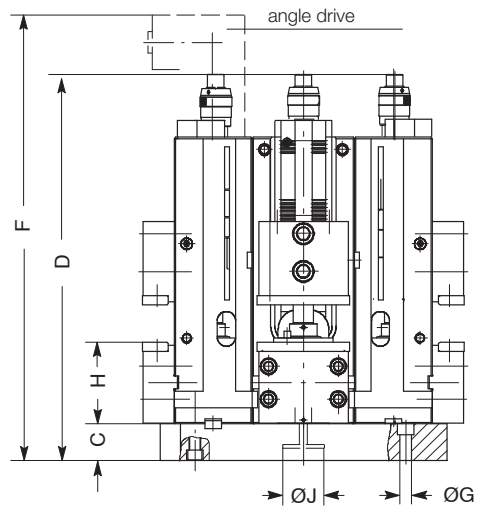
Notes

Duo and Quattro clamping towers RKE / RKE-M

Duo-clamping towers (on request)



Quattro-clamping towers (on request)



Technical data

Size	125	160 / 200
Jaw width	125	160
A	250	350
B	250	350
C	45	45
D	508	663
E	200	230
F	578	741
G*		
H	110,5	130
J*		
K*		
L*		
kg	105	200

* On inquiry insert dimensions please

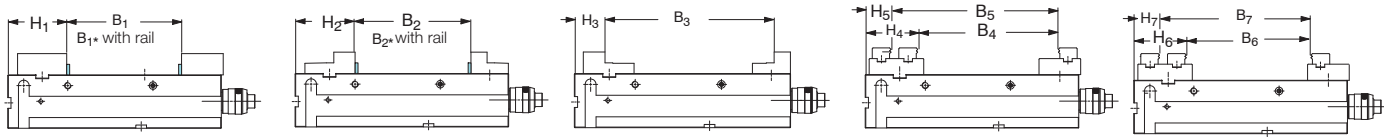
Technical data

Size	125	160 / 200
Jaw width	125	160
A	350	400
B	350	400
C	45	45
D	508	663
E	325	392
F	578	741
G*		
H	110,5	130
J*		
K*		
L*		
kg	210	375

* On inquiry insert dimensions please

Find dual clamp in the sector General accessories.

Clamping range RKE / RKE-M

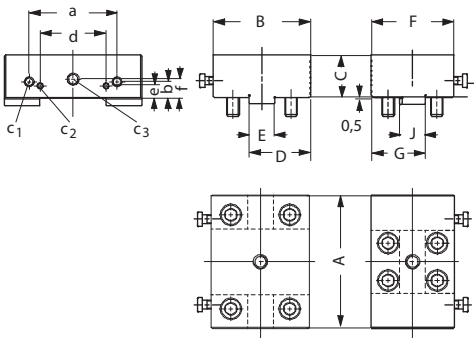


	Standard jaws		Stepped jaws		Carrier jaws with pronged inserts					
	H1	B1 B1* with rail	H2	B2 B2* with rail	H3	B3	H4/H5	B4/B5	H6/H7	B6/B7
Size 125	110,5	0-215	112,5	0-216	56,5	97-312	H4: 98 H5: 48	B4: 50-262 B5: 100-321	H6: 98 H7: 48	B6: 20-232 B7: 70-282
Size 160	130	0-320	130	0-320	64	131-451	H4: 122	B4: 67-383	H6: 122	B6: 18-334

Clamping jaw dimensions for NC-Compact vices

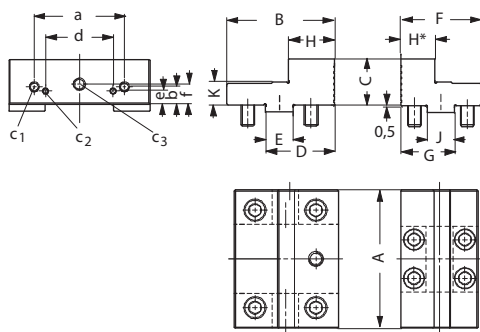
Clamping range RKE

Standard top jaws - set



Jaw width	125	160	200
Item No.	162628	162629	162984
B	92	100	105
C	40	50	60
D	58	65	65
E _{h7}	24	30	30
F	78	100	100
G	51	65	65
J _{g6}	24	30	30
a	80	100	125
b	15,6	19,6	24,6
c1	M8	M8	M10
c2	M5	M5	M5
c3	M10	M10	M14
d	60	80	110
e	12	12	12
f	18	20	25

Stepped jaws - set



Jaw width	92	125	160	200
Item No.	162851	160343	162630	162985
B	64	94	98	103
C	32	40	50	60
D	42	60	65	70
E _{h7}	20	24	30	30
F	56	70	97	97
G	38	47	63,5	63,5
H/H*	25/25	40/30	34/32,5	39/32,5
J _{g6}	20	24	30	30
K	16	20	25	25
a	63	80	100	125
b	13,6	15,6	19,6	24,6
c1	M6	M8	M8	M10
c2	M5	M5	M5	M5
c3	M10	M10	M10	M14
d	48	60	80	110
e	8	12	12	12
f	14	18	20	25

RKE-LV - with power transmitter, short design



APPLICATION

Optimized for collision-free 5-axis machining in one set-up.
Specially suited for 5-axis machines in combination with a base plate.

TYPE

Clamping system mechanical-mechanical with power transmitter, manually operated.
Short, compact design.

CUSTOMER BENEFITS

- ☺ With tension clamping, zero point of the workpiece on the operator side
- ☺ Large clamping range
- ☺ High-precision positioning
- ☺ Stable chip guard for longer life

TECHNICAL FEATURES

- Sturdy steel body and all guides are hardened and ground on all sides
- Carrier jaws incl. swivelable claw inserts for round and rectangular workpieces
- **Clamping ranges carrier jaws:**
Rightangular workpieces: 35 - 215 mm
Circular workpieces: 65 - 225 mm

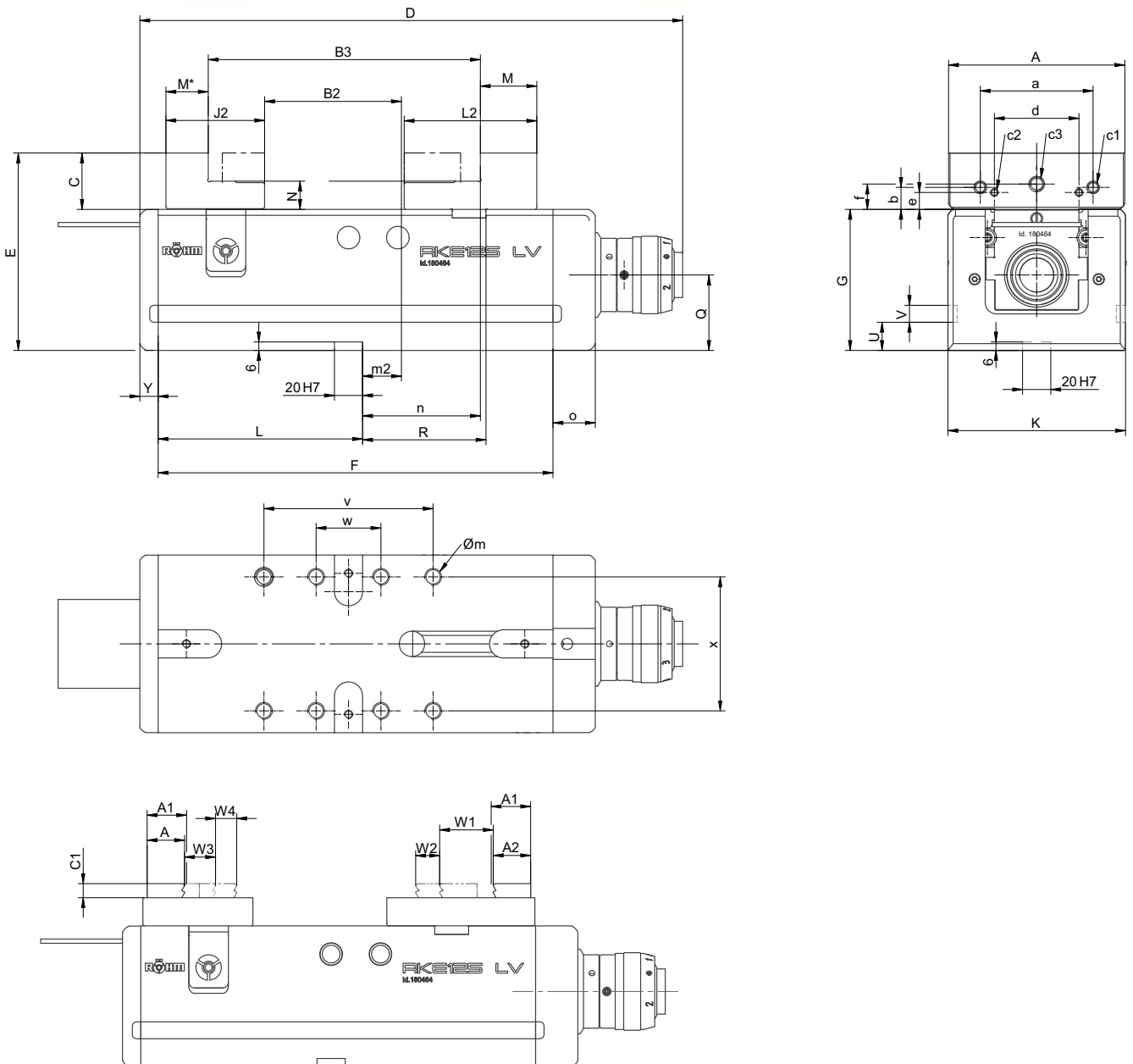
RKE-LV = RÖHM, compact, single clamping, light design, short design

A32

RKE-LV, with reversible stepped jaws or carrier jaws

Item no.	180464 ▲	180465 ▲
Jaw width A mm	125	125
Jaw design	stepped jaws	carrier jaws
B2 mm	0-96	35-215
B3 mm	96-192	65-225
C mm	40	20
D mm	385	385
E mm	140	130
F mm	280	280
G _{±0,02} mm	100	100
J2 mm	70	78
K mm	126	126
L mm	145	145
L2 mm	94	105
M mm	40	-
M* mm	30	-
N _{±0,01} mm	20	20
O mm	30	30
Q mm	53,5	53,5
R mm	87,5	87,5
U mm	20	20
V mm	12	12
Y mm	13	13
a mm	60	-
b mm	15,6	-
c1	M8	-
c2	M5	-
c3	M10	-
d mm	80	-
e mm	12	-
f mm	18	-
m2±0,02 mm	27,5	-
n±0,02 mm	83,5	-
o mm	30	30
v mm	120	120
w mm	46	46
x mm	95	95
Øm x depth	M12x20	M12x20
Clamping force kN	40	40
A1 mm	-	28
A2 mm	-	26,5
C1 mm	-	10
W1 mm	-	38
W2 mm	-	17
W3 mm	-	22
W4 mm	-	15
Weight kg	29	29

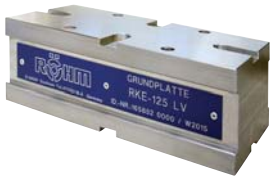
RKE-LV - with power transmitter, short design



NC-Compact vices
RKE-LV

Accessories RKE-LV

A37
Standard base plate GP



Item no.	Contents of delivery	Size	Length	Width	Height	Weight kg
165852 ▲	piece	125	280	126	90	24

A37
Standard top jaws SA, reversible



Item no.	Contents of delivery	Size	Width mm	Height mm
162628 ▲	set	125	125	40

A37
One-piece steel top jaws, for self-production of formed jaws or for clamping formed parts



Item no.	Contents of delivery	Size	Width mm	Height mm
160352	set	125	125	60

A37
Stepped jaws SB, reversible



Item no.	Contents of delivery	Size	Width mm	Height mm
178230	set	125	125	40

A37
Double stepped jaws DSB, „smooth“



Item no.	Contents of delivery	Size	Width mm	Height mm
168693 ▲	set	125	62	60

A37
Carrier jaws TB, without swivelling claw inserts



Item no.	Contents of delivery	Size	Width mm	Height mm
165856	set	125	125	20

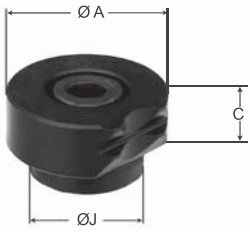
A37
Carrier jaws, without claw inserts



Item no.	Contents of delivery	Size	Width mm	Height mm
165861	set	125	160	20

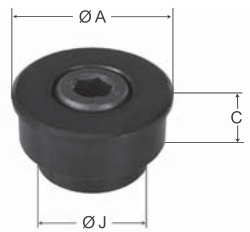
Accessories RKE-LV

A37
Swivelling claw inserts, for carrier jaws 743-72



Item no.	Contents of delivery	Size	Height mm
165854	piece	125	10

A37
Tensioner, for carrier jaws 743-72



Item no.	Contents of delivery	Size	Height mm
169389	piece	125	10

A37
Claw jaws SKB with fine step, 2.5 mm clamping depth



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166520	set Including fixing screws	125	125	40	16

A37
Claw jaws SKB without step, universal for clamping depth > 2.5 mm

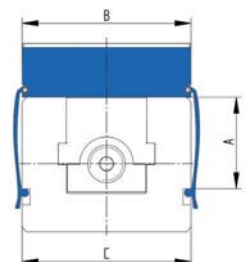
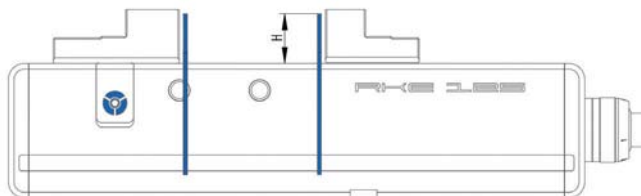


Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166667	set Including fixing screws	125	125	40	16

A37
Support rails Cliparc, set with 10 different pairs of rails and 4 clamps in wooden box



Item no.	Web height A	Jaw width B mm	Rail height H	Guiding width C	Spare clamp (Set = 4 pieces)
1269622	68	125	10/15/20/25/28/30/33/35/36/37	126	1269625



Accessories RKE-LV

A37

Standard jaws SGN, one side smooth, one side grooved, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
158897	set	125	125	39,7

A37

Standard jaws finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163225	set	125	125	39,7

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
082363	piece	125	135	39,6	4-20	6-40

Including fixing screws

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150740 ▲	piece	125	135	39,6

Including fixing screws

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077105 ▲	set	125	135	39,6

Including fixing screws

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317260	set	125	135	39,8	3-13	6-40

Including fixing screws

Accessories RKE-LV

A37

Hand crank, turnable handle, hexagon socket



Item no.	Contents of delivery	Size	Hexagon	A	L
134600	piece	125	14	104	160

A37

Angle drive 90°



Item no.	Contents of delivery	Size	A	B	C
158339	piece	125	133	106	98

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

RKK - with power transmitter, high precision



APPLICATION

Optimized for modern CNC milling machines and machining centers with very high working precision.

TYPE

Size 1: clamping system mechanical-hydraulic.
Size 2-5: clamping system mechanical-mechanical.

CUSTOMER BENEFITS

- ③ Drive spindle with clamping force presetting
- ③ Deformation-resistant design for maximum clamping precision
- ③ Fastening thread for workpiece stop
- ③ Clamping surface for clamping claws
- ③ With grease nipples installed on both sides, that all guides and the spindle thread can be lubricated quickly and easily

TECHNICAL FEATURES

- Sturdy steel body and all guides are hardened and ground on all sides
- **Size 1:** long clamping slide with slot and tenon, hardened on all sides, functional surface ground
- **Sizes 2-5:** long clamping slide with toothing

RKK = RÖHM, compact, power amplified

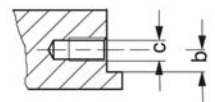
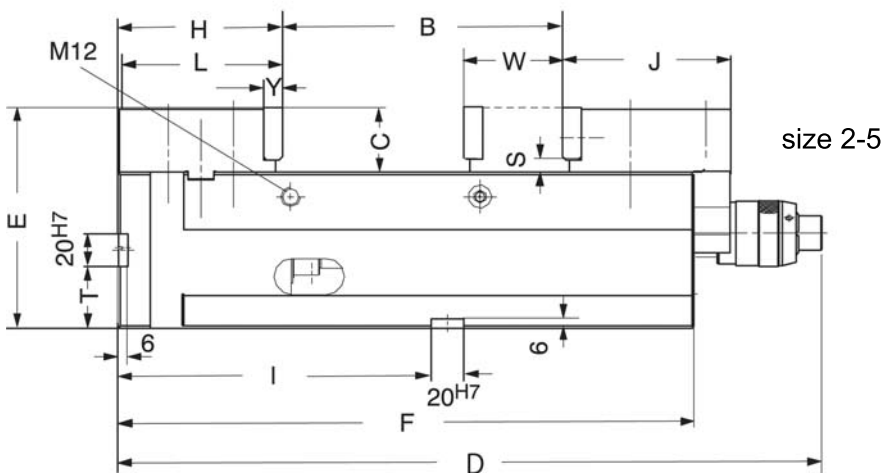
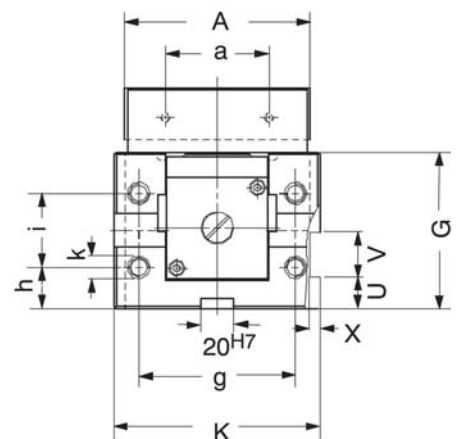
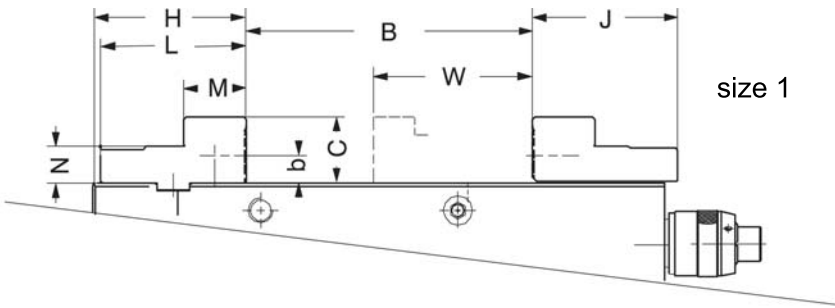
A32
RKK, with standard jaws SA and SGN normal jaw

Item no.	148545	148682 ▲	149371 ▲
Size	3	4	5
Jaw width A mm	135	160	200
Clamping capacity B mm	0-215	0-340	0-340
C mm	49	60	70
D mm	483	618	618
E mm	148	179	189
F mm	400	525	525
G _{0,02} mm	100	120	120
H-0,05 mm	110,5	130	130
J mm	102	110	110
K mm	150	205	205
L mm	109	128	128
S mm	9,4	10,4	7,4
T _{0,02} mm	40	50	50
U mm	20	20	20
V mm	40	40	40
W mm	168	235	235
X mm	6,5	6,5	6,5
Y mm	15,6	15,6	19,6
Clamping travel mm	60	108	108
a mm	80	100	125
b mm	15,6	19,6	24,6
c mm	M8x13	M8x13	M10x15
g mm	110	145	145
h mm	22,5	20	20
i mm	55	80	80
k x depth	M12x22	M16x20	M16x20
l _{0,02} mm	240	365	365
Clamping force kN	40	60	60
Weight kg	50	107	108

RKK - with power transmitter, high precision



NC-Compact vices
RKK



Accessories RKK

A37

Standard top jaws SA, reversible, for screwing on clamping jaws, with fixing screws

Item no.	Contents of delivery	Size	Width mm	Height mm
149236	set	3	132	49
149373	set	4	157	60
149374	set	5	197	70



A37

Top jaws SN, reversible, for hooking in quick-change clamping inserts and for screwing on clamping jaws, with fixing screws

Item no.	Contents of delivery	Size	Width mm	Height mm
149240 ▲	set	3	133	53
149375	set	4	158	67
149376 ▲	set	5	198	67



A37

Carrier jaws TB, reversible, for screwing on claw inserts or special jaws, with fixing screws

Item no.	Contents of delivery	Size	Width mm	Height mm
147748 ▲	set	3	135	30
148688 ▲	set	4	160	30
149384 ▲	set	5	200	30



A37

Claw insert KRE, for carrier jaws 743-70, with fixing screw

Item no.	Contents of delivery	Size	Width mm	Height mm
146070	piece	3/4/5	30	20



A37

Claw jaws SKB with fine step, 2.5 mm clamping depth

Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166520	set	3	125	40	16
166522	set	4	160	50	18



Including fixing screws

A37

Claw jaws SKB without step, universal for clamping depth > 2.5 mm

Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166667	set	3	125	40	16
166669	set	4	160	50	18



Including fixing screws

Accessories RKK

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152754	piece	3	135	39,6
152755	piece	4	160	49,6
152759	piece	5	200	62,6

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
156196	piece	3	135	39,6
156197	piece	4	160	49,6
156198	piece	5	200	62,6

Including fixing screws

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
082363	piece	3	135	39,6	4-20	6-40
082364	piece	4	160	49,6	5-29	7-48
082365	piece	5	200	62,6	6-37	8-56

Including fixing screws

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077106▲	set	4	160	49,6
077107▲	set	5	200	62,6

Including fixing screws

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317260	set	3	135	39,8	3-13	6-40
317261	set	4	160	49,8	5-22	7-48

Including fixing screws

Accessories RKK

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground

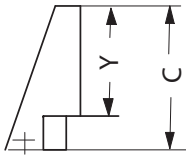

Item no.	Contents of delivery	Size	Width mm	Height mm
150740 ▲	piece	3	135	39,6
150741 ▲	piece	4	160	49,6

Including fixing screws

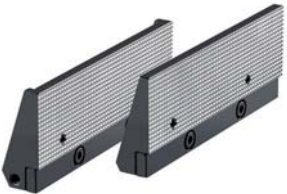
A37

Standard inserts NCS, hardened and ground, for machined workpieces without angular error

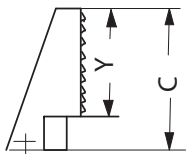

Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
147954	set	3	135	53	40
147955	set	4	160	67	50
158823	set	5	200	67	50



A37

Standard inserts finely checkered NCSf, with small surface area to increase the specific surface clamping (higher holding Forces)


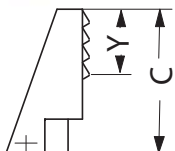
Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
163228 ▲	set	3	135	53	40
163229	set	4	160	67	50
163230 ▲	set	5	200	67	50



A37

Claw inserts NCK, hardened and ground, for unmachined workpieces


Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
148917	set	3	135	53	24
148918 ▲	set	4	160	67	45
159447 ▲	set	5	200	67	45



Accessories RKK

A37

Hand crank, turnable handle, hexagon socket



Item no.	Contents of delivery	Size	Hexagon	A	L
134600	piece	3/4/5	14	104	160

A37

90°Angle drive, for RKK 3-5



Item no.	Contents of delivery	Size	A	B	C
151651 ▲	piece	3	161	101	98
151652 ▲	piece	4/5	174	111	98

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

C15

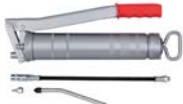
Grease F91 for vices, for lubrication and conservation of chucking power



Item no.	Design	Contents
777021 ▲	Cartridge	0,4 kg

C15

Grease gun DIN1283

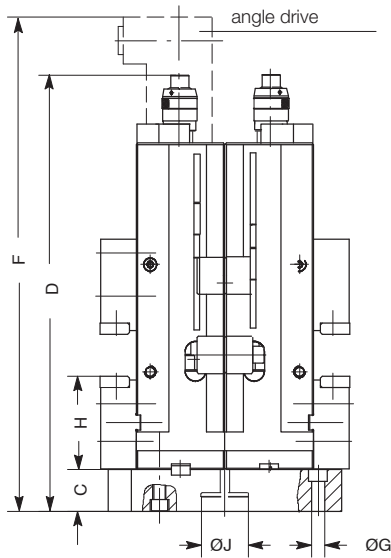


Item no.	Connection	Contents of delivery
329093	M10x1	150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece

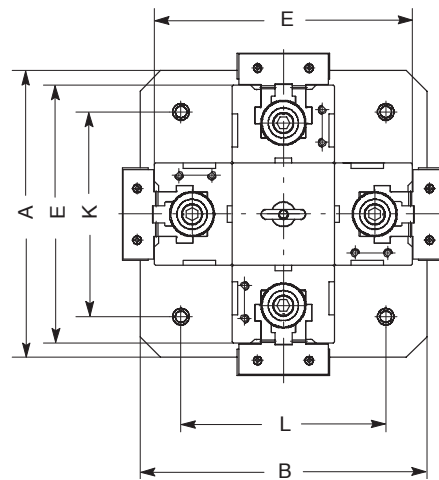
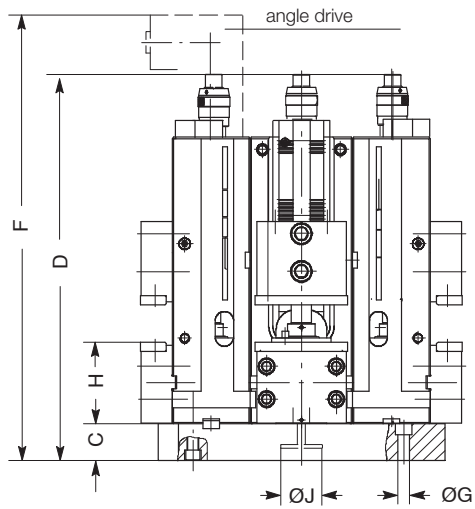
Accessories NC-Compact vices RKK

Duo and Quattro clamping towers RKK

Duo-clamping towers (on request)



Quattro-clamping towers (on request)



DUO- / QUATTRO clamping tower

Technical data

Size	RKK 135	RKK 160	RKK 200
Jaw width	135	160	200
A	290	350	350
B	270	350	350
C	45	45	45
D	528	663	663
E	200	240	240
F	606	744	744
G*			
H	110,5	130	130
J*			
K*			
L*			
kg	125	260	260

* On inquiry insert dimensions please

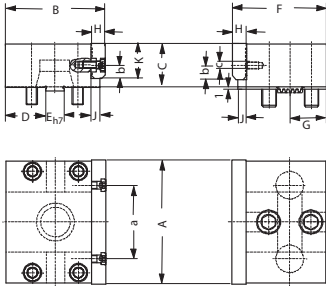
Technical data

Size	RKK 135	RKK 160	RKK 200
Jaw width	135	160	200
A	400	500	500
B	400	500	500
C	45	45	45
D	528	663	663
E	350	445	445
F	606	744	744
G*			
H	110,5	130	130
J*			
K*			
L*			
kg	250	530	530

* On inquiry insert dimensions please

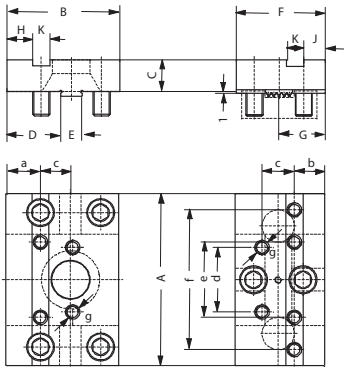
Jaw dimensions and clamping range RKK

Standard top jaws SA, reversible



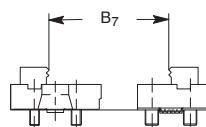
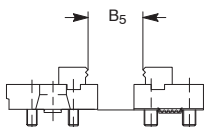
Size	3	4	5
A	135	160	200
B	109	128	128
C	49	60	70
D	44	50	50
E _{h7}	20	20	20
F	102	110	110
G	39	42	42
H	15,6	15,6	19,6
J	9,6	9,6	13,6
K	39,6	49,6	62,6
a	80	100	125
b	15,6	19,6	24,6
c	M8	M8	M10

Carrier jaws, reversible



Size	3	4	5
A	135	160	200
B	95	105	105
C	30	30	30
D	44	50	50
E _{h7}	20	20	20
F	83	83	83
G	43	43	43
H	21	24	24
J	20	20	20
K _{H7}	16	16	16
a	29	32	32
b	28	28	28
c	25	30	30
d	60	70	70
e	60	70	110
f	110	130	160
g	M12	M12	M12

Clamping ranges: External clamping RKK



Carrier jaws with pronged inserts

Carrier jaws with pronged inserts

Size

3	30-257	110-337
4+5	59-395	144-481



SET-UP AND WORKING TIME REDUCTION BY TWIN CLAMPING



Function description

Two movable clamping jaws and a fixed middle jaw allow a set-up and working time reducing twin clamping. The movable clamping jaw is placed by turning the spindle with the crank against the workpiece and held with about 1 kN (third-hand function).

Then the crank is turned further, the other movable clamping jaw is placed against the workpiece, fixed and force is built up via the mechanical spindle.

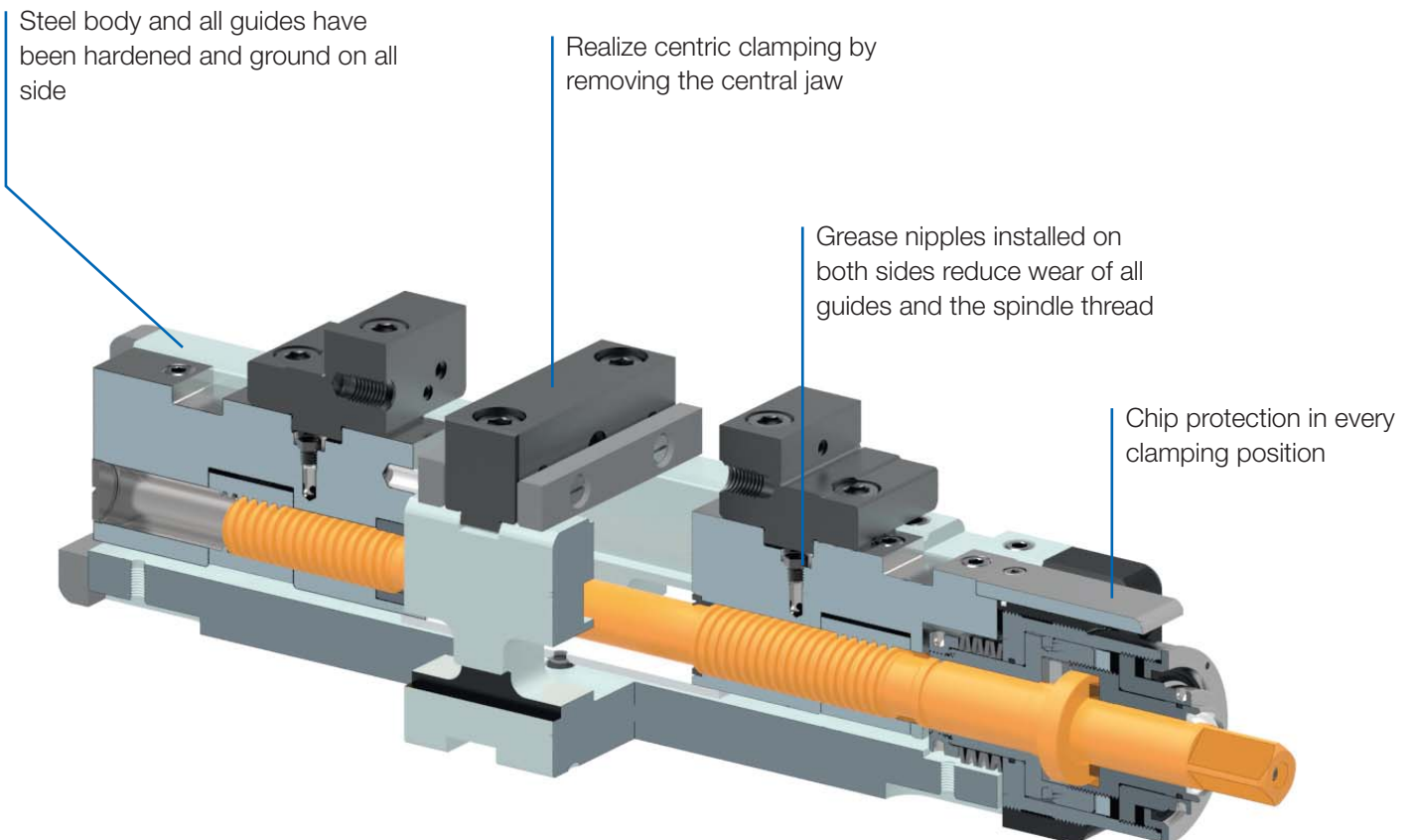
Balance springs compensate dimensional discrepancies from up to ± 3 mm between workpiece I and workpiece II.

NC-COMPACT TWIN VICES

Especially for the series production, setting up and cycle times are the critical factors. Due to their twin clamping, the NC-compact twin vices from RÖHM are ideally suited for efficient machining. Two movable clamping jaws and a fixed middle jaw enable a high repeatability of 0.01 mm and constant clamping force during every clamping operation.

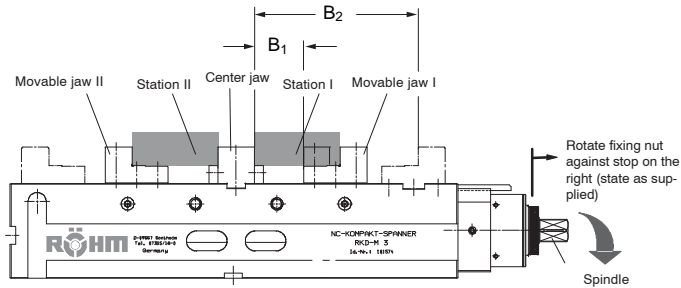
ADVANTAGES AT A GLANCE

- ⊕ Maximum flexibility and versatile thanks to the possibility of 3-sided clamping
- ⊕ High repeatability of 0.01 mm as well as consistent clamping force for each clamping process
- ⊕ Set-up and working time reduction by double clamping



Clamping versions RKD-M

Clamping ranges: Twin clamping



Function:

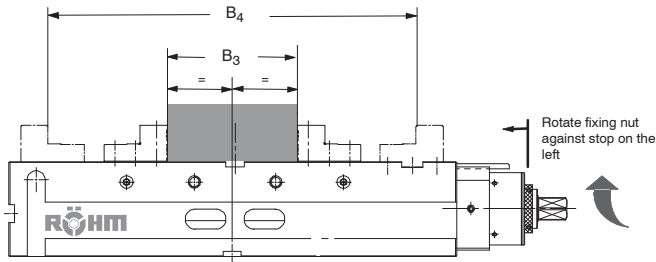
To adjust mobile jaw I with regard to the workpiece of station I turn the spindle to the right by means of the handle (left-right handed thread). About 1 kN are applied to keep the jaw in the adjusted position (third-hand function).
By further turning the lever, mobile jaw II is adjusted with regard to workpiece in station II, locked and power via the mechanical spindle is transmitted.
By means of compensating springs, variations between workpiece I and II of up to ± 3 mm are compensated.

Both stations must always be equipped with identical workpieces for clamping!

Fixing nut - stop on the right (spindle provides compensation)
Jaw stroke: "Z" Station I: 50 mm
Station II: 56 mm

Size		92	125
B ₁	Groove 1	0 - 48	0 - 48
	Groove 2	48 - 96	46 - 94
	Groove 3	-	92 - 140
B ₂	Groove 1	42 - 79	51 - 88
	Groove 2	79 - 127	86 - 134
	Groove 3	-	132 - 180

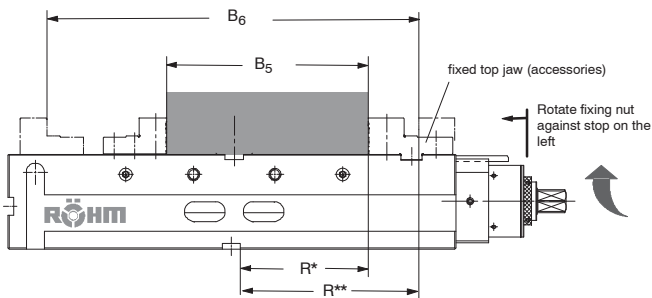
Clamping ranges: Centric clamping



Remove central jaw
Fixing nut - stop on the left (spindle rigid)
Stroke per jaw: "Z" 53 mm

Size		92	125
B ₃	Groove 1	30 - 132	40 - 142
	Groove 2	126 - 228	132 - 235
	Groove 3	-	224 - 327
B ₄	Groove 1	92 - 195	120 - 222
	Groove 2	188 - 290	212 - 315
	Groove 3	-	304 - 407

Clamping ranges: Single clamping



Remove central jaw and movable mounting jaw I.
Install fixed mounting jaw (accessory - not in scope of delivery).
Fixing nut - stop on the left (spindle rigid)
Stroke of moving jaw: "Z" 53 mm

Size		92	125
B ₅	Groove 1	126 - 177	171 - 222
	Groove 2	174 - 225	217 - 268
	Groove 3	-	263 - 314
B ₆	Groove 1	196 - 247	267 - 318
	Groove 2	244 - 295	313 - 364
	Groove 3	-	360 - 410
	R*	101	141
	R**	140	197



Notes

RKD-M - double clamping, without power transmitter

APPLICATION

For flexible clamping tasks on machining centers and other production systems.
Triple clamping function: Double clamping - Centric clamping - Single clamping.

TYPE

Clamping system mechanical without power transmitter, manually operated.

With one-sided drive spindle.

CUSTOMER BENEFITS

- ③ Large clamp stroke (50 mm per jaw)
- ③ The clamping thread of the spindle is protected from dirt and chips in every basic jaw position
- ③ With grease nipples installed on both sides, that all guides and the spindle thread can be lubricated quickly and easily
- ③ Horizontal, vertical or side mounting

TECHNICAL FEATURES

- Vice with two movable clamping jaws and a stationary center jaw
- Steel basic body as well as all guides hardened and ground on all sides
- Fastening only possible with clamping claws (direct fastening on request)
- Constant clamping force for every clamping operation and high repeatability when a torque wrench is used

RKD-M = RÖHM, compact, double clamping, manual

A32

RKD-M, with reversible stepped jaws and centre jaw

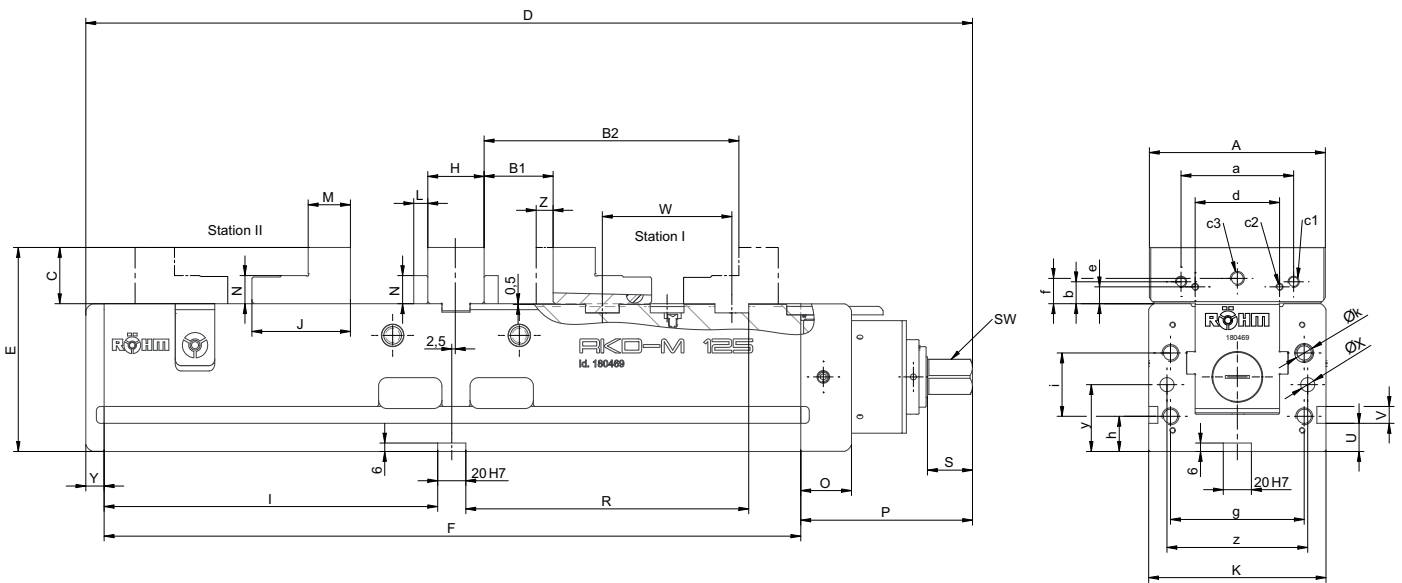
Item no.	180468 ▲	180469
Jaw width A mm	92	125
B1 slot 1 mm	0-48	0-48
B1 slot 2 mm	48-96	46-94
B1 slot 3 mm	-	92-140
B2 slot 1 mm	42-79	51-88
B2 slot 2 mm	79-127	86-134
B2 slot 3 mm	-	132-180
C mm	32	40
D mm	492	630
E mm	117	145
F mm	366	495
G _{±0,02} mm	85	105
H _{±0,02} mm	30	40
J mm	56	70
K mm	94	126
L mm	10	10
M mm	25	30
N _{±0,01} mm	16	20
O mm	36	36
P mm	114	122
R mm	143	201
S mm	31	32
T _{±0,02} mm	30	37,5
U mm	20	20
V mm	12	12
W mm	1 x 48	2 x 46
Y mm	12	13
Z mm	50/53	50/53
Key-width SW	17	19
a mm	63	80
b mm	13,6	15,6
c1	M6 x 14	M8 x 14
c2	M5 x 9	M5 x 10
c3	M10 x 16	M10 x 18
d mm	48	60
e mm	8	12
f mm	14	18
g mm	70	95
h mm	20	25
i mm	50	45
k x depth	M10 x 18	M12 x 22
l _{±0,02} mm	177	237
y±0,01 mm	40	47,5
z mm	72	100
Clamping force kN	25	40
Weight kg	24	52



RKD-M - double clamping, without power transmitter



NC-Compact vices
RKD-M



Accessories RKD-M

A37

Stepped jaws SB, reversible, with fixing screws


Item no.	Contents of delivery	Size	Width mm	Height mm
161831 ▲	set	92	92	32
162631	set	125	125	40

A37

Standard jaws SGN, one side smooth, one side grooved, hardened and ground


Item no.	Contents of delivery	Size	Width mm	Height mm
162363	set	92	92	32
158897	set	125	125	39,7

A37

Standard jaws finely checkered SGNf, one side finely checkered, one side grooved, hardened and ground


Item no.	Contents of delivery	Size	Width mm	Height mm
163223	set	92	92	32
163225	set	125	125	39,7

A37

V-jaw PB, horizontal and vertical


Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm	Height prism mm	Chuckling capacity mm	
							horizontal	vertical
162365 ▲	set	92	92	32	16	19,5	12-36	12-36
158641	set	125	125	40	20	24	15-40	18-60

A37

Claw jaws SKB with fine step, 2.5 mm clamping depth


Item no.	Contents of delivery	Width mm	Height mm	Thickness mm
166514	set	92	32	14
166520	set	125	40	16

Including fixing screws

A37

Claw jaws SKB without step, universal for clamping depth > 2.5 mm

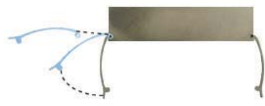

Item no.	Contents of delivery	Width mm	Height mm	Thickness mm
166661 ▲	set	92	32	14
166667	set	125	40	16

Including fixing screws

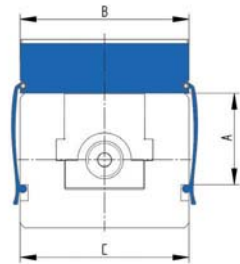
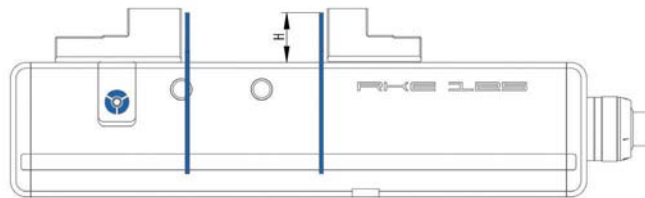
Accessories RKD-M

A37

Support rails Cliparc, set with 10 different pairs of rails and 4 clamps in wooden box



Item no.	Web height A	Jaw width B mm	Rail height H	Spare clamp (Set = 4 pieces)
1295913 ▲	53	92	10/16/18/20/23/25/26/27/28/29	1295916
1295914 ▲	73	125	10/15/20/25/28/30/33/35/36/37	1295917



A37

Draw-down jaws RNG, with two permanent magnets



Item no.	Contents of delivery	Width mm	Height mm
155237 ▲	set	92	32
159227	set	125	39,5

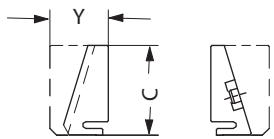
Including fixing screws

A37

Standard insert RNS, held by two permanent magnets



Item no.	Contents of delivery	Width mm	C mm	Y mm
155242 ▲	set	92	32	21
159232	set	125	40	26

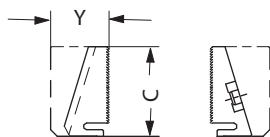


A37

Standard insert finely checkered RNSf, held by two permanent magnets



Item no.	Contents of delivery	Width mm	C mm	Y mm
163270	set	92	32	21
163267 ▲	set	125	40	26



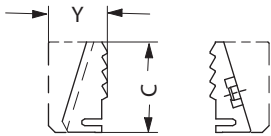
Accessories RKD-M

A37

Claw insert RNK, held by two permanent magnets



Item no.	Contents of delivery	Width mm	C mm	Y mm
155247	set	92	32	21
159235 ▲	set	125	40	26



A37

Drive adapter ATA



Item no.	Contents of delivery	Size	Square
162192	piece	92	17-1/2"
161730	piece	125	19-1/2"

A37

Fixed stepped jaw FSB, for single clamping, reversible



Item no.	Contents of delivery	Size	Width mm
178777	piece	92	92
178231	piece	125	125

A37

Center jaws MBA



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
161833 ▲	piece	92	92	32	30
162632	piece	125	125	40	40

C15

Hand crank HKU, with octagon socket



Item no.	Contents of delivery	Size	Octagon	Key-width SW	L
009153	piece	92	17	Octagon	160
009154	piece	125	19	Octagon	200

Accessories RKD-M

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



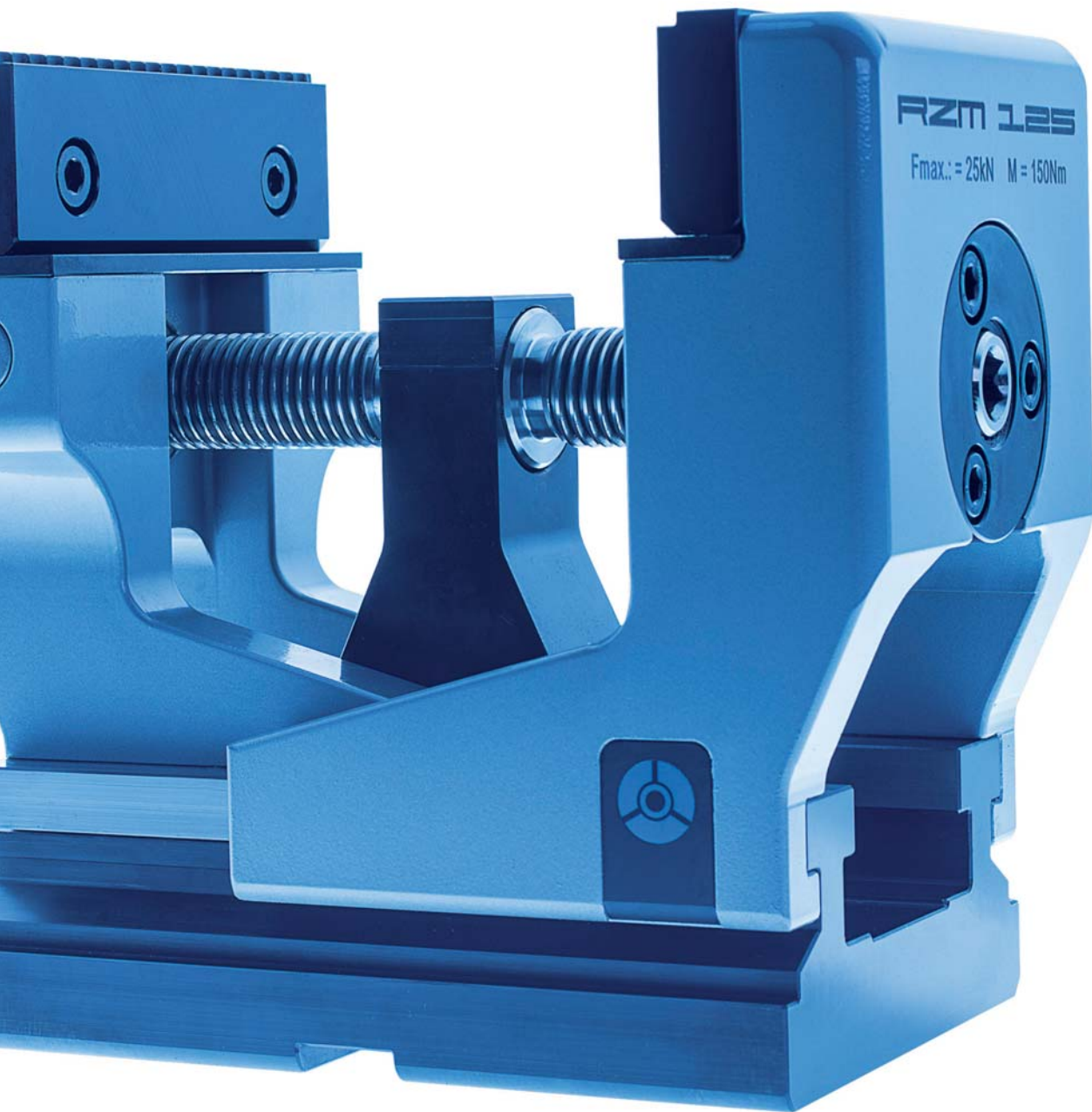
Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A26

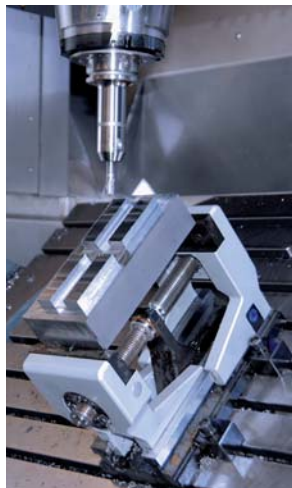
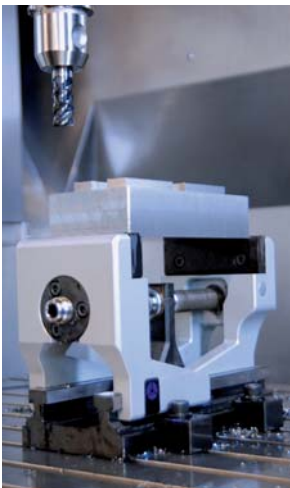
Torque wrench



Item no.	Torque Nm	Length mm	Output	Working accuracy
10004116	20-120	435	12,7=1/2"	3%
10004117	60-320	659	12,7=1/2"	3%



IDEAL FOR 5-AXIS MACHINING



Without additional foundations or special jaws, the RZM centric vice holds the workpiece securely – and does this with a minimal interference contour. The clamping spindle is located very close to the workpiece, creating an effective force flow and providing an extremely rigid clamping. The patented guide system of the jaws makes a very large clamping range possible.



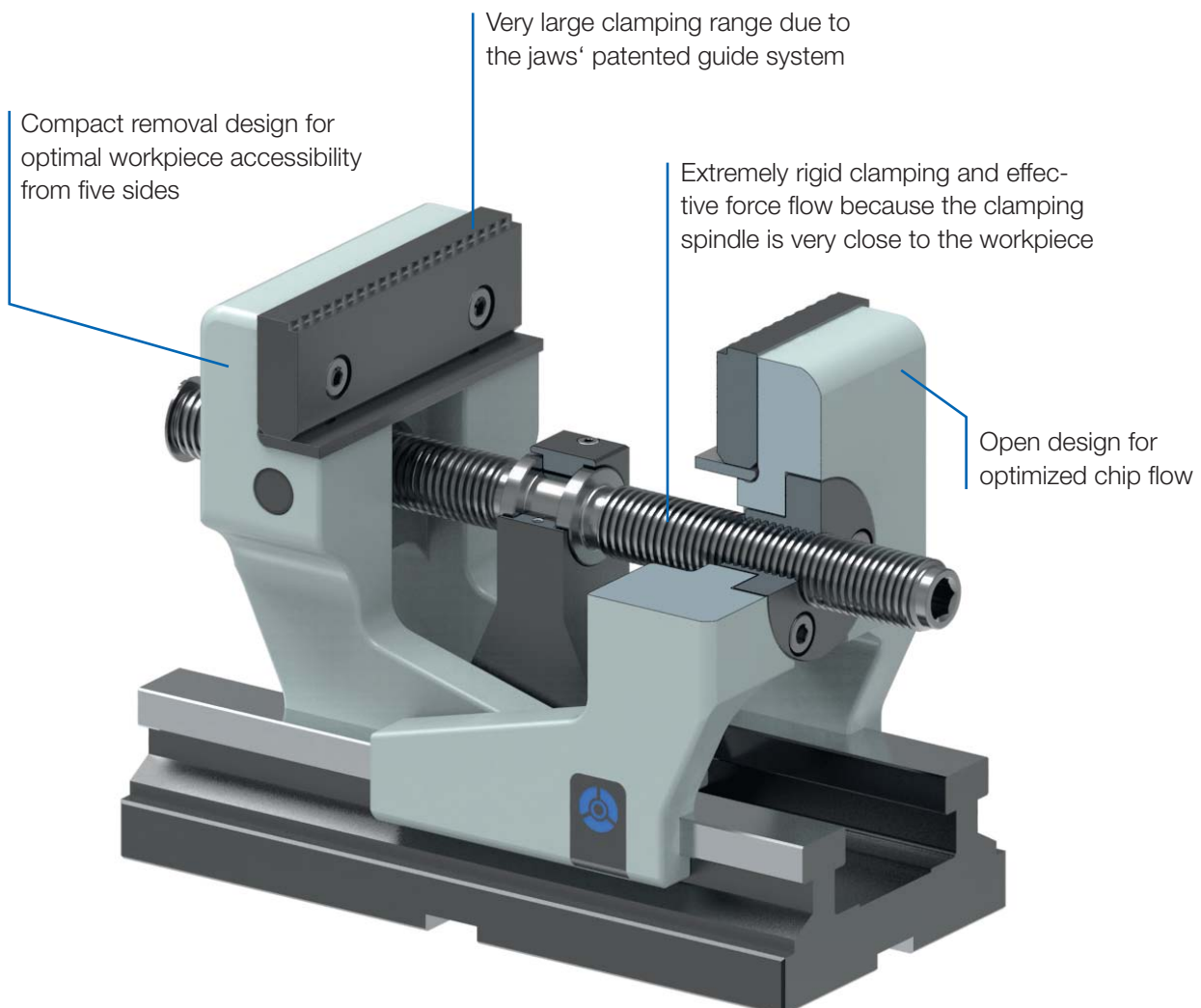
Video RZM

NC-COMPACT SELF CENTERING VICES

Thanks to its compact and robust design, the NC-compact self centering vices from RÖHM have a minimal interference contour, enabling optimal workpiece accessibility in 5-axis machining. Two movable clamping jaws ensure a constant clamping force, high repeatability and large clamping stroke.

ADVANTAGES AT A GLANCE

- ⊕ Ideal for 5-axis machining due to its minimal collision contour
- ⊕ Hardened and ground on all sides for long service life
- ⊕ Constant clamping force and high repeatability



RZM - central, without power transmitter



APPLICATION

Optimized for 5-axis machining.

TYPE

Clamping system mechanical without power transmitter, manually operated.

Centric clamping with two moving jaws.

CUSTOMER BENEFITS

- ③ Ideal guidance characteristics of the jaws thanks to patented guidance system
- ③ Very large clamping stroke
- ③ Open design for optimized chip flow, which permits easy cleaning, even after heavy duty machining
- ③ Constant clamping force for every clamping operation and high clamping repeatability when a torque wrench is used
- ③ Optimally suitable for use of SKB clawed jaws. These top jaws can securely clamp raw and sawed parts with a max. strength of up to 900 N/mm² to a cutting depth of 2.5 mm

TECHNICAL FEATURES

- Steel basic body hardened and ground
- Highly positioned clamping jaw
- Top spindle lying near the clamping jaws for optimal force transfer
- Long jaw guide and compact design
- Including SKB clawed jaws
- Clamping repeatability 0.02 mm

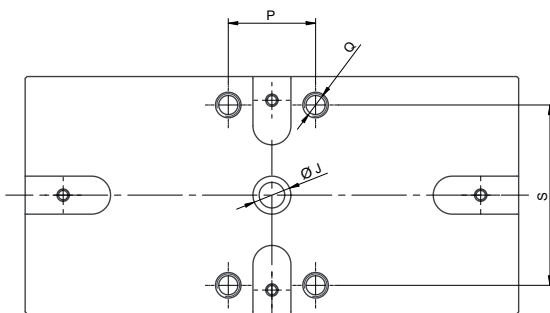
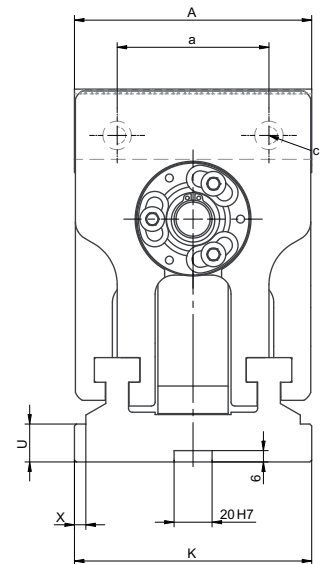
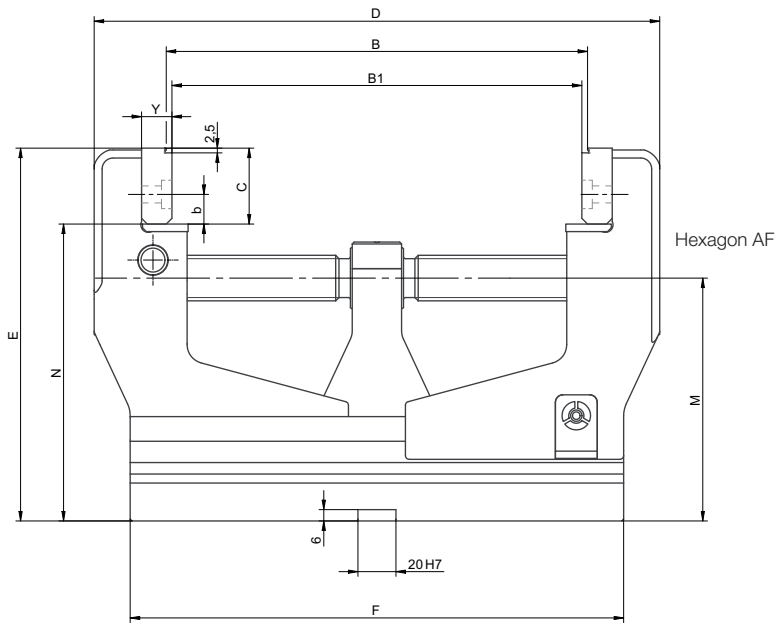
RZM = RÖHM, central, manual

A32

RZM, with SKB clawed jaws

Item no.	182230	182231	178910	178911
Jaw width A mm	92	92	125	125
Design	long design	short design	long design	short design
B min.	24	24	23	23
B max.	160	100	222	142
B1 mm	18-154	18-94	17-216	17-136
C mm	32	32	40	40
D mm	230	170	298	218
E mm	174	174	196,5	196,5
F mm	200	200	260	180
Ø J x depth mm	Ø20 ^{H7/6}	Ø20 ^{H7/6}	Ø20 ^{H7/6}	Ø20 ^{H7/6}
K mm	94	94	125	125
M mm	120	120	128	128
N mm	142	142	156,5	156,5
U mm	20	20	20	20
X mm	6	6	6	6
Hexagon AF	10	10	12	12
Clamping force kN	20	20	25	25
Tightening torque Nm			150	150
Weight kg	11,7	11,5	20,3	17,4

RZM - central, without power transmitter



NC-Centric clamping vices RZM

Accessories RZM

A37

Claw jaws SKB without step, universal for clamping depth > 2.5 mm



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166661 ▲	set	92	92	32	14
166667	set	125	125	40	16

Including fixing screws

A37

Claw jaws SKB with fine step, 2.5 mm clamping depth



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
166514	set	92	92	32	14
166520	set	125	125	40	16

Including fixing screws

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152752	piece	92	92	31,6
158897	set	125	125	39,7

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163223	set	92	92	32
163225	set	125	125	39,7

Including fixing screws

A37

V-jaw PB, horizontal and vertical



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm	Height prism mm	Chuck capacity mm	
							horizontal	vertical
162365 ▲	set	92	92	32	16	19,5	12-36	12-36
158641	set	125	125	40	20	24	15-40	18-60

Accessories RZM

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground


Item no.	Contents of delivery	Size	Width mm	Height mm
150739▲	piece	92	113	31,6
150740▲	piece	125	135	39,6

Including fixing screws

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support


Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317259	set	92	110	31,8	3-12	5-32
317260	set	125	135	39,8	3-13	6-40

Including fixing screws

A37

Spindle, for shortening the clamping range of the long RZM version


Item no.	Contents of delivery	Size	Length mm	Diameter mm
178958	piece	125	218	24
182233	piece	92	168	24

A37

Single clamp SPE, for mounting vices on end and on the base


Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw


Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A26

Torque wrench


Item no.	Torque Nm	Length mm	Output	Working accuracy
10004116	20-120	435	12,7=1/2"	3%
10004117	60-320	659	12,7=1/2"	3%

RKZ-M - central, without power transmitter



APPLICATION

Optimized for 5-axis machining.

TYPE

Clamping system mechanical without power transmitter, manually operated.

Centric clamping with two moving jaws.

CUSTOMER BENEFITS

- ③ Short, compact design
- ③ Large clamping stroke
- ③ Constant clamping force for every clamping operation and high clamping repeatability when a torque wrench is used
- ③ Clamping accuracy at the centre: ± 0.02 - clamping repeatability: 0.01

TECHNICAL FEATURES

- Steel basic body as well as all guides hardened and ground on all sides
- Standard-equipped with stepped top jaws

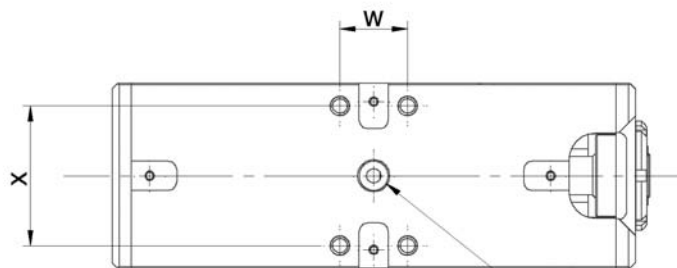
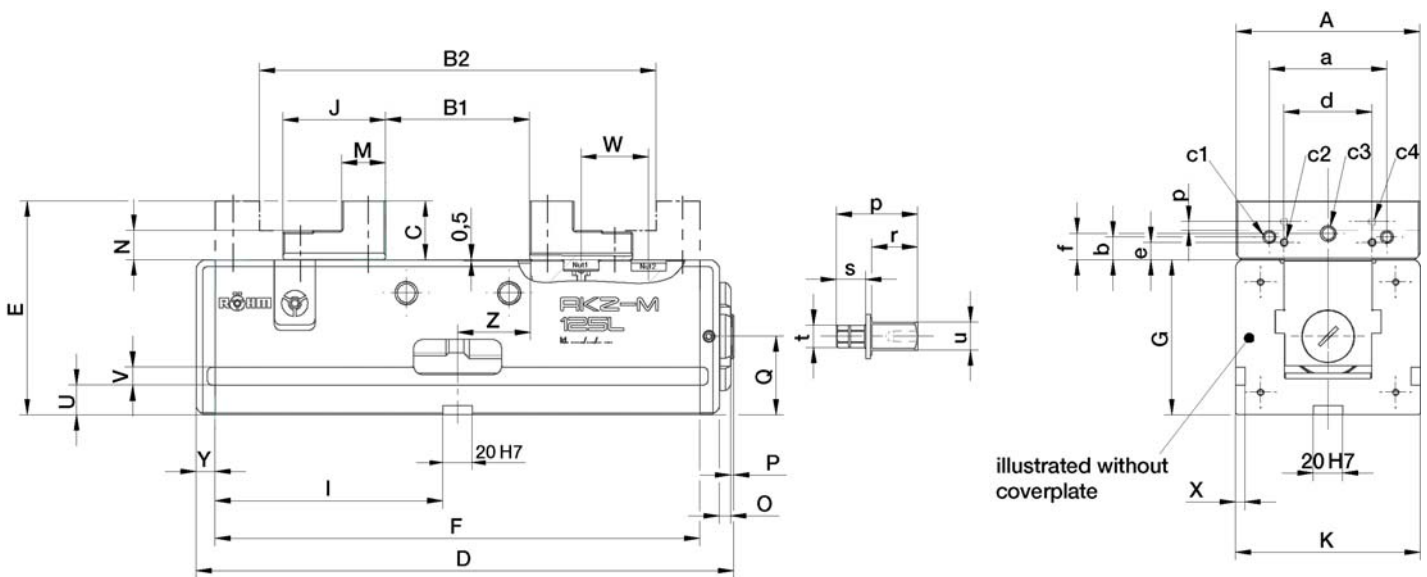
RKZ-M = RÖHM, compact, central, manual

A32
RKZ-M, with stepped jaws

Item no.	180190 ▲	180191 ▲	180192 ▲	180193 ¹⁾ ▲
Jaw width A mm	50	70	92	125
B1 slot 1 mm	0-39	0 - 58	0 - 76	0 - 97
B1 slot 2 mm	36-75	48-106	70-146	92-189
B2 slot 1 mm	37-75	48-105	78-138	81-177
B2 slot 2 mm	72-111	95-153	132-208	172-269
C mm	20	25	32	40
Dmax mm	167	219	295	366
E mm	75	95	117	145
F mm	140	190	260	330
G _{-0,02} mm	55	70	85	105
J mm	32	41	56	70
K mm	52	72	94	126
M mm	14	17,5	25	30
N _{-0,01} mm	10	12	16	20
O mm	10	10	13	13
P mm	1	1	2	2
Q mm	31	40	41,5	53
U mm	15	20	20	20
V mm	12	12	12	12
W mm	18	24	35	46
Y mm	10	10	12	13
Z mm	20,5	30	39	49,5
a mm	-	-	63	80
b mm	-	-	13,6	15,6
c1	-	-	M6x10	M8x14
c2	M 4 x 8	M 5 x 8	M5x8	M5x8
c3	-	-	M10x16	M10x18
c4	M3x6	M4x8	M5x8	M5x8
d mm	26	37	48	60
e mm	5	6	8	12
f mm	-	-	14	18
l mm	60	85	120	155
p mm	3,5	4,5	6	6
q mm	38	52	55	55
r mm	20	30	32	32
s mm	15	19	20	20
t mm	6 kt-SW 8	6 kt-SW 10	6 kt-SW 14	6 kt-SW 14
u mm	4 kt-SW 12	4 kt-SW 14	4 kt-SW 19	4 kt-SW 19
Ø J x depth mm	-	-	Ø20H ⁷ /8	Ø20H ⁷ /8
Clamping force kN	10	15	20	25
Weight kg	3,5	7	18	32,5

¹⁾ With enlarged stepped-jaws

RKZ-M - central, without power transmitter



J only jaw width 92 +125
with center hole

Accessories RKZ-M

A37

Stepped jaws SB, reversible, with fixing screws

Item no.	Contents of delivery	Size	Width mm	Height mm
164864 ▲	set	50	50	20
164844 ▲	set	70	70	25
161831 ▲	set	92	92	32
162631	set	125	125	40



A37

Raised stepped jaws ESB

Item no.	Contents of delivery	Size	Width mm	Height mm
164399 ▲	set	125	125	60



A37

Double V-jaw, reversible, with fine step, for jaw dimensions of the double V-jaws please see page 4068!

Item no.	Contents of delivery	Size	Width mm	Height mm	Length mm	Height prism mm	Size prism mm	Clamping dia. D1 mm		Clamping dia. D2 mm	
								slot 1	slot 2	slot 1	slot 2
169754 ▲	set	92	92	64,5	67	39	41,3	12-36	-	30-75*	-
169756 ▲	set	125	125	84,5	86	54	56	15-40	-	30-92**	89-105



A37

Standard jaws SGN, one side smooth, one side grooved, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
165161 ▲	set	50	50	19,6
165163	set	70	70	24,6
162363	set	92	92	32
158897	set	125	125	39,7

A37

Standard jaws finely checkered SGNf, one side finely checkered, one side grooved, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
165165 ▲	set	50	50	19,6
165167	set	70	70	24,6
163223	set	92	92	32
163225	set	125	125	39,7

Accessories RKZ-M

A37

V-jaw PB, horizontal and vertical



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm	Height prism mm	Chucking capacity mm	
							horizontal	vertical
165169	set	50	50	20	10	12	6-16	6-16
165171	set	70	70	25	12	14	8-24	8-24
162365▲	set	92	92	32	16	19,5	12-36	12-36
158641	set	125	125	40	20	24	15-40	18-60

A37

Claw jaws SKB with fine step, 2.5 mm clamping depth



Item no.	Contents of delivery	Width mm	Height mm	Thickness mm
166514	set	92	32	14
166520	set	125	40	16

Including fixing screws

A37

Claw jaws SKB without step, universal for clamping depth > 2.5 mm



Item no.	Contents of delivery	Width mm	Height mm	Thickness mm
166661▲	set	92	32	14
166667	set	125	40	16

Including fixing screws

C15

Hand crank HKU, with octagon socket



Item no.	Contents of delivery	Size	Octagon	Key-width SW	L
009150	piece	50	12	Octagon	80
009152	piece	70	14	Octagon	125
382112 ¹⁾	piece	92	19	Square	160
009154	piece	125	19	Octagon	200

A37

Drive adapter ATA



Item no.	Contents of delivery	Size	Square	Hexagon
164971▲	piece	50	12	8
164842▲	piece	70	14	10
164625	piece	92/125	19	14

Accessories RKZ-M

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A26

Torque wrench



Item no.	Torque Nm	Length mm	Output	Working accuracy
10004116	20-120	435	12,7=1/2"	3%
10004117	60-320	659	12,7=1/2"	3%

A37

Drive adapter ATA



Item no.	Contents of delivery	Size	Square
168721	piece	92	12-1/2"
161103	piece	125	14-1/2"
161730	piece	125	19-1/2"



Notes

General accessories - Cliparc



Fixed during machining and when released!
The precision support rails with the Cliparc-System remain in their original position during the machining and releasing process. No more time intensive repositioning necessary. Insert the Cliparc clamps into the rails and snap them into the vice. No tools necessary.

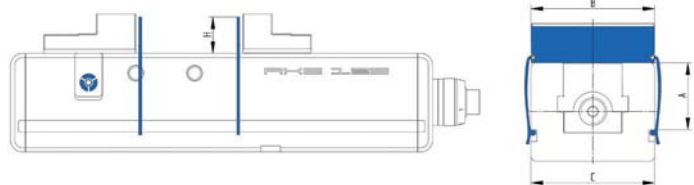
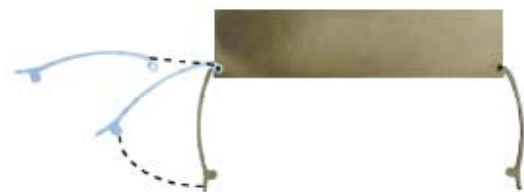
Technical features:

- Different height steppings
- Width only 3 mm (from size 160: 4 mm width)
- Rim near through holes can be machined without step jaws or problems due the slim precision support rails.
- Precision and quality parallelism better than 0.005 mm
- Quick cleaning

Contents of delivery: Set with 10 different pair of rails and 4 clamps in wooden box

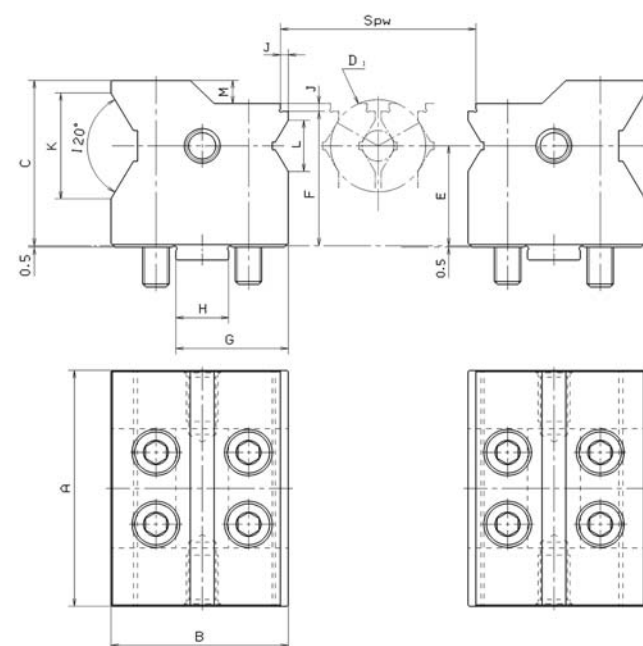
Support rails Cliparc

Item no.	1269621	1269622	1269623	1295913	1295914
For	RKE 92 / RKE-M 92	RKE 125 / RKE-M 125 / RKE-LV 125	RKE 160/200 / RKE-M 160/200	RKD-M, RKZ-M 92	RKD-M, RKZ-M 125
Web height	A 48	68	83	53	73
Jaw width	B 92	125	160	92	125
Rail height	H 10/16/18/20/23/25/26/27/28/29	10/15/20/25/28/30/33/35/36/37	10/15/20/25/30/35/40/43/45/47	10/16/18/20/23/25/26/27/28/29	10/15/20/25/28/30/33/35/36/37
Guidance width	C 94	126	162	94	126
Spare clamp (Set = 4 pieces)	1269624	1269625	1269626	1295916	1295917



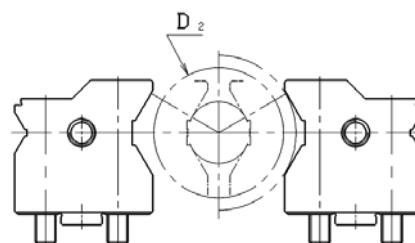
Jaw dimensions

Double V-jaw, reversible, with fine step



Item no.	169754	169756
Content of delivery	set	set
Size A	92	125
B	67	86
C	64,5	84,5
D1	Nut 1 12-36	15-40
	Nut 2 -	-
D2	Nut 1 30-75*	30-92**
	Nut 2 -	89-105
E	39	54
F	52,5	69,5
G	42,5	51,5
H	20	24
J	3	3
K	41,3	56
L	20	22,6
M	9	12
Clamping range ¹⁾	7-143	7-186

* Ø 63-75 side loading only ** Ø 72-92 side loading only ¹⁾ Clamping range example RKZ-M



General accessories

A37

Dual clamp DSP for mutual support in the case of front-sided set-up, in pairs



Item no.	Contents of delivery
149125 ▲	piece

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A37

Work locator WSA, universally adjustable, for screwing onto the NC-compact vice or machine vice, connecting thread M12



Item no.	Contents of delivery
320400	piece

A37

Work locator WSA, universally adjustable, for fastening to the machine table (size 14 T-slot) or for screwing onto the NC-compact vice / machine vice (M12)



Item no.	Contents of delivery
320401	piece

A37

Precision vice locator PSA, universally adjustable, for screwing onto the NC-compact vice or machine vice, connecting thread M12



Item no.	Contents of delivery
681192 ▲	piece

Clamping jaws

Clamping jaws to screw onto stepped jaws and standard top jaw

Clamping jaws compatible with NC-compact vices, NC-power vices and machine vices with the same jaw width

General accessories
NC Compact Vices

APPLICATION

Depending on the application and the workpiece to be machined, the clamping jaws shown on the right can be screwed onto the stepped jaw and standard top jaw.

With stepped jaws¹⁾



Standard top jaws¹⁾

SGN normal jaw – reversible, one side smooth, one side longitudinally
Serrated for precise clamping of parallel parts with delicate clamping surfaces.

SGN normal jaw, finely checkered– reversible, one side finely checkered, one side longitudinally
Serrated to increase the specific surface pressure (high holding force).

SPR prism jaw
For precise clamping of round material in vertical and horizontal position. The jaws are to be used in combination with a normal jaw, since a geometrically clear position is only achieved with a three-point clamping.

Pull-down jaws with SNF
Spring leaf are especially suitable for clamping raw parts. The leaf springs are pressed by the clamping force downwards, thereby causing pull-down force.

SBO prism and normal jaw – non-hardened, with prism and workpiece support

¹⁾ not suitable for RZM

Quick change clamping inserts

Draw-down base jaws with permanent magnet and quick changeable clamping inserts

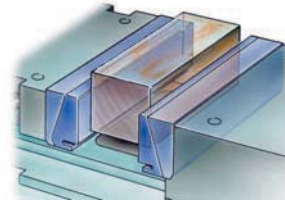
Clamping jaw comparable to the NC-compact vice and machine vices with the same jaw width



RNG base jaw with permanent magnet
for taking up of quick changeable draw-down clamping inserts. For screwing on at the fixed and movable jaws.

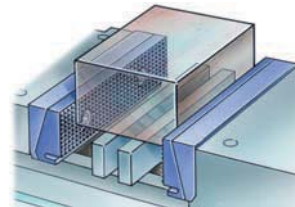
RNS standard insert

For machined workpieces without angle error.



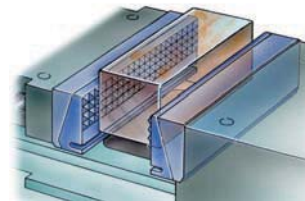
RNS standard insert, finely checked

To increase the specific surface pressure (higher holding force).



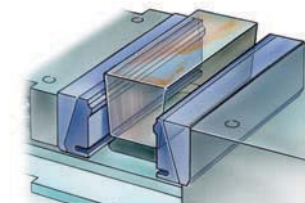
RNK claw insert

To increase the specific surface pressure (higher holding force).



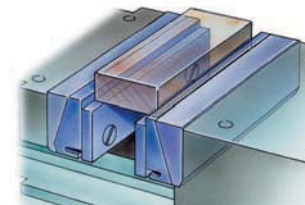
Insert with round RNR clamping base – line-shaped clamping base

For machined workpieces with and without angle error.

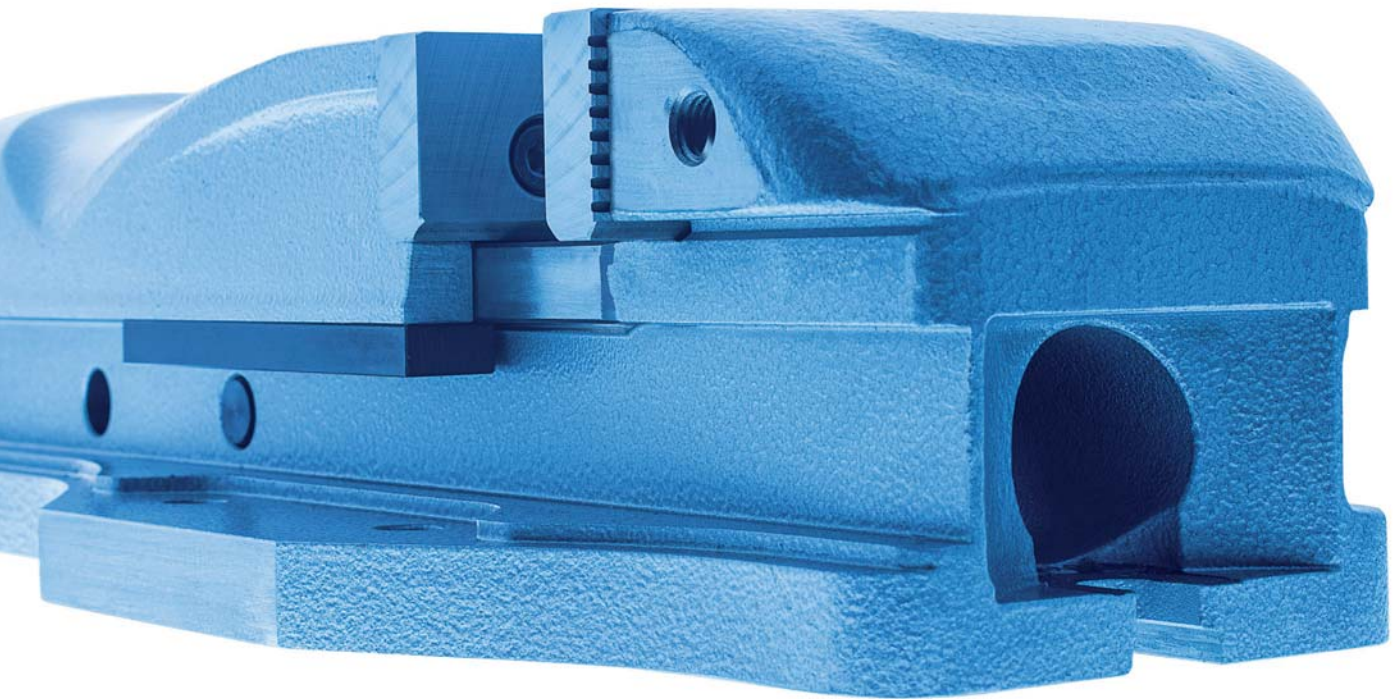


RWA workpiece support

For fastening to the standard inserts. For raising the height of the workpieces during the clamping process.



Other sizes and versions available upon request.



UNIVERSALLY USABLE AND PROVEN MANY TIMES OVER



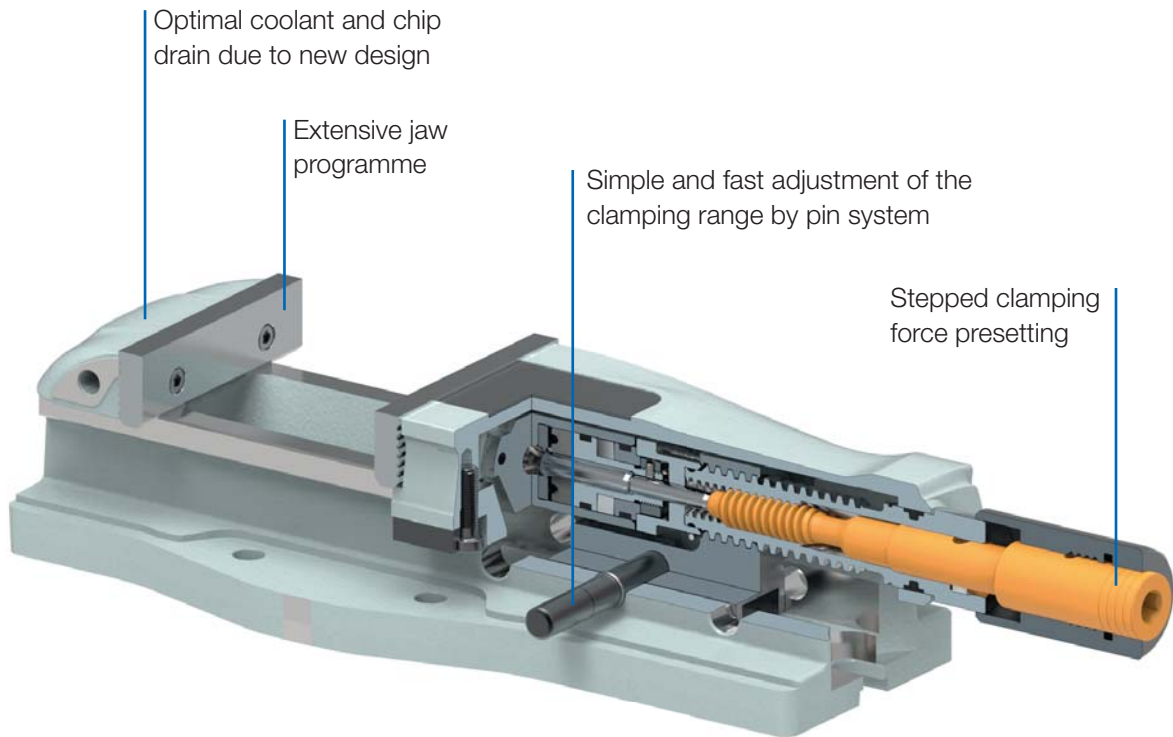
The RÖHM machine vice is suitable for universal application on milling machines and machining centers. The base is equipped with grooves to ensure a precise fastening on the machine table.

MACHINE VICES

RÖHM machine vices are ideally suited for universal use on milling machines and machining centers and feature impressively high reliability and long service lives. The clamping area above the pin system can be quickly and easily adjusted and the precise jaw guide enables great precision.

ADVANTAGES AT A GLANCE

- ⊕ Universally usable and proven many times over for numerous machining processes
- ⊕ Impressive reliability, service life and precision
- ⊕ Fast and simple adjustment of the clamping range by pin system



RB-K - with power transmitter



APPLICATION

For universal use on milling machines and machining centers.

TYPE

Manual clamping system with power transmitter.

CUSTOMER BENEFITS

- ⊕ Stepped clamping force presetting
- ⊕ High precision thanks to precise jaw guides
- ⊕ Fast clamping range adjustment via bolt system
- ⊕ Optimal coolant and chip drain
- ⊕ High wear-resistance thanks to hardened jaw guides
- ⊕ Use without force amplification possible for sensitive clamping

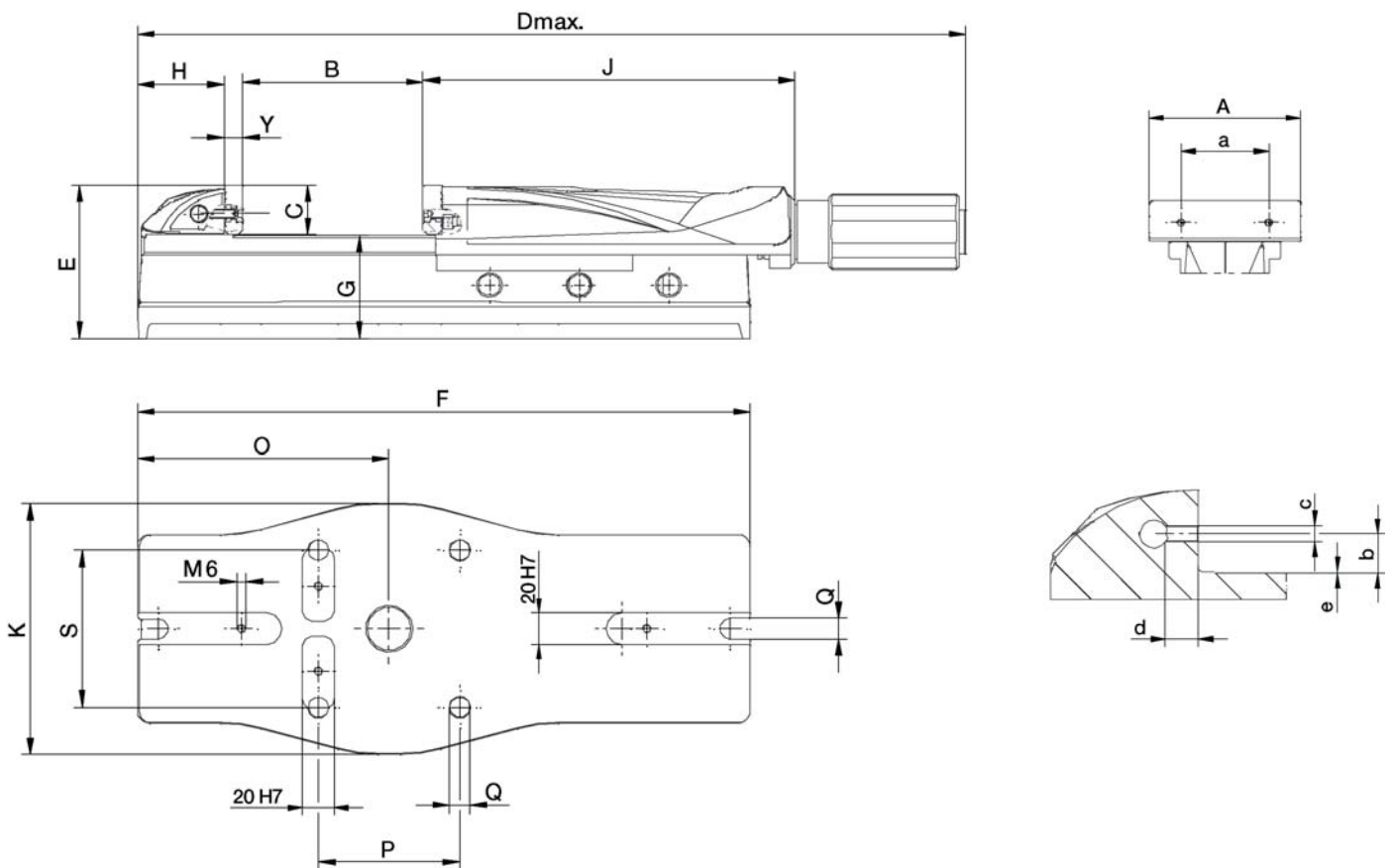
TECHNICAL FEATURES

- Base with longitudinal and transversal groove for exact fixation on the machine table
- Use on rotary plate with graduation
- Set-up option with clamping claws
- Encapsulated spindle

A10
RB-K, with SGN normal jaws and hand crank

Item no.	179075	179076	179077	179078	179079
Size	1	2	3	4	5
Jaw width A mm	92	113	135	160	200
Clamping capacity B mm	100	170	220	310	350
C mm	31,6	31,6	39,6	49,6	66,6
D mm	493	583	679	817	1022
E mm	95	97	112	133	171
F mm	320	390	468	574	685
G±0,02 mm	63	65,5	72,5	83,5	104,5
H mm	54	55	70	80	90
J mm	218	236,5	262	298	375
K mm	160	160	200	240	280
O mm	119	160	180	220	230
P mm	90	90	90	90	160
Q mm	13	13	13	17	21
S mm	100	100	135	180	180
Y mm	12	12	16	16	20
a mm	63	63	80	100	140
b mm	13,6	13,6	15,6	19,6	25
c	M6	M6	M8	M8	M10
d mm	12	12	13	13	16
Clamping force kN	25	30	40	50	100
Weight kg	15,5	24	39	60	112

RB-K - with power transmitter



Machine vices Orange Line

Accessories RB-K

A37

Draw-down jaws RNG, with two permanent magnets

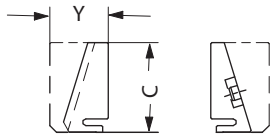

Item no.	Contents of delivery	Size	Width mm	Height mm
155237 ▲	set	1	92	32
155238	set	2	110	32
155239 ▲	set	3	135	40
155240	set	4	160	50
155241	set	5	200	67

Including fixing screws

A37

Standard insert RNS, held by two permanent magnets

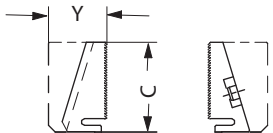

Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155242 ▲	set	1	92	32	21
155243	set	2	110	32	21
155244 ▲	set	3	135	40	26
155245 ▲	set	4	160	50	30
155246	set	5	200	67	36



A37

Standard insert finely checkered RNSf, held by two permanent magnets

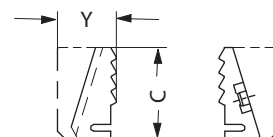

Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
163270	set	1	92	32	21
163271	set	2	110	32	21
163272	set	3	135	40	26
163273 ▲	set	4	160	50	30
163274	set	5	200	67	36



A37

Claw insert RNK, held by two permanent magnets


Item no.	Contents of delivery	Size	Width mm	C mm	Y mm	a mm
155247	set	1	92	32	21	
155248	set	2	110	32	21	
155249	set	3	135	40	26	80
155250 ▲	set	4	160	50	30	
155251	set	5	200	67	36	



Accessories RB-K

A37

Insert with round clamping shoulder RNR, held by two permanent magnets



Item no.	Contents of delivery	Size	Width mm	C mm	Y mm
155252▲	set	1	92	32	21
155253▲	set	2	110	32	21
155254▲	set	3	135	40	26
155255▲	set	4	160	50	30
155256▲	set	5	200	67	36

A37

Draw-down jaws STB, for parallel, angular or flat workpieces, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
134826▲	set	2	110	32
134830▲	set	3	135	40
134834▲	set	4	160	50
134854▲	set	5	200	67

A37

Floating jaws SRP, hardened and ground, for workpieces with/without angular and parallelism errors



Item no.	Contents of delivery	Size	Width mm	Height mm
077097▲	set	2	110	38
077098▲	set	3	135	46
077099▲	set	4	160	56
141791▲	set	5	200	68

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077104▲	set	2	113	31,6
077105▲	set	3	135	39,6
077106▲	set	4	160	49,6
141794▲	set	5	200	64,6

Including fixing screws

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152752	piece	1	92	31,6
152753	piece	2	113	31,6
152754	piece	3	135	39,6
152755	piece	4	160	49,6
152756	piece	5	200	64,6

Including fixing screws

Accessories RB-K

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163218 ▲	piece	1	92	31,6
156195	piece	2	113	31,6
156196	piece	3	135	39,6
156197	piece	4	160	49,6
156199 ▲	piece	5	200	64,6

Including fixing screws

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chuck capacity mm	
					Horizontal	Vertical
128770	piece	1	92	31,6	3-13	5-32
082362	piece	2	113	31,6	3-13	5-32
082363	piece	3	135	39,6	4-20	6-40
082364	piece	4	160	49,6	5-29	7-48
129734 ▲	piece	5	200	64,6	6-37	8-56

Including fixing screws

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150739 ▲	piece	2	113	31,6
150740 ▲	piece	3	135	39,6
150741 ▲	piece	4	160	49,6

Including fixing screws

A37

Floating jaw horizontal PEB, for clamping non-parallel workpieces



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
156190 ▲	piece	2	113	32	36
156191	piece	3	135	40	40
156192 ▲	piece	4	160	50	45

A37

Hand crank, turnable handle, hexagon socket



Item no.	Contents of delivery	Size	Hexagon	A	L
134593	piece	1/2	12	48	80
134198	piece	3	12	60	90
134499	piece	4	12	117	90
134600	piece	5	14	104	160

Accessories RB-K

A37
Hydraulic unit HDE



Item no.	Contents of delivery	Size	A	B
094170	piece	1	102	56
226502	piece	2	109	62
226503	piece	3	114	70
226504	piece	4	115	70
226505	piece	5	147	98

A37
Spindle, complete



Item no.	Contents of delivery	Size	L
134185	piece	1	91
134186	piece	2	99
134187	piece	3	116
134188	piece	4	151
134189	piece	5	182

A37
Standard rotation plate DP, with fixing screws and T-slot nuts ground contact edge, graduation



Item no.	Size	External Ø mm	Height	Center Ø	Weight
082441	1/2	242	30	28	7,5
082442	3	280	30	28	11
082443	4	340	34	28	18

A37
Universal rotation plate DP, with fixing screws and T-slot nuts ground contact edge, graduation



Item no.	Size	External Ø mm	Height	Center Ø	Weight
090854 ▲	5	420	40	28	23

RBAW - with angle drive, with power transmitter



APPLICATION

For universal use on milling machines and machining centers.

TYPE

Clamping system mechanical-hydraulic with power transmitter, manually operated.

CUSTOMER BENEFITS

- ⊕ Horizontal, vertical and laterally clampable with height adjustment ± 0.02
- ⊕ Sturdy, maintenance-free spindle
- ⊕ Additional stepped jaws or special form jaws can be fastened to the surface of the stationary and moving jaw
- ⊕ Drive spindle is protected against dirt and chips
- ⊕ Large clamping range
- ⊕ Short version of moving jaw (made of steel) results in short design length, even for max. clamping width
- ⊕ With angle drive

TECHNICAL FEATURES

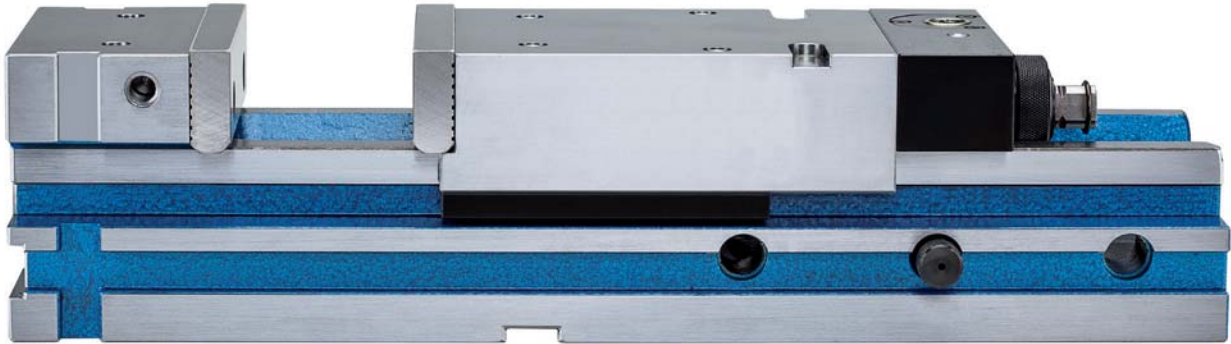
- Steel body with stationary clamping jaw, drop forged
- Automatic reclamping in the hydraulic unit by means of built-in disc springs
- All wear parts, especially the jaw guides, are hardened and ground
- Robust flat-trajectory guide of moving jaw
- With normal jaws and hand crank

A27

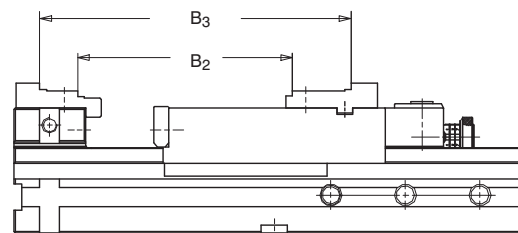
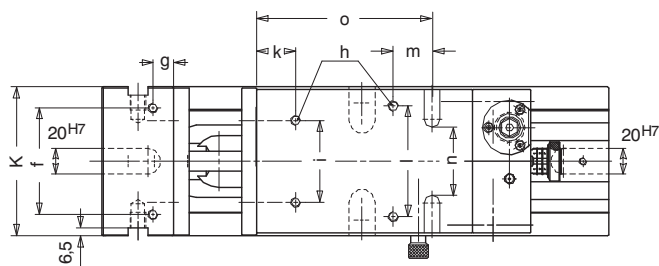
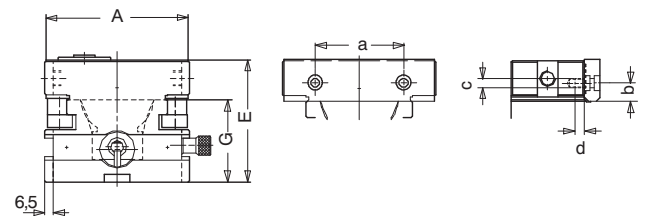
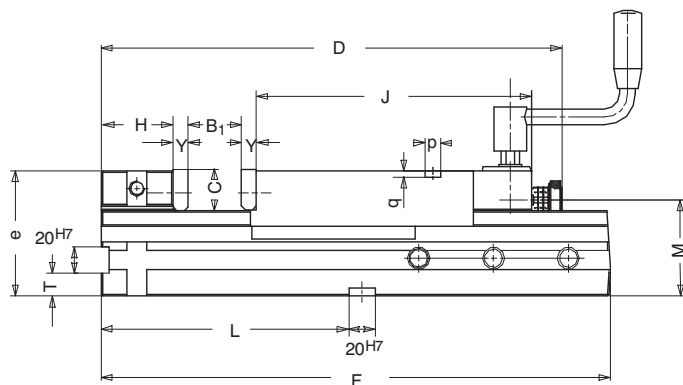
RBAW, with SGN normal jaws, hand crank and angle drive

Item no.	154763	154764	154765 ▲
Size	2	3	4
Jaw width A mm	113	135	160
B1 mm	0-175	0-225	0-310
B2 mm	125-300	138-363	146-454
B3 mm	199-374	220-445	248-556
C mm	31,6	39,6	49,6
Dmax mm	500	578	702
E $\pm 0,02$ mm	97,7	112,7	133,7
F mm	390	468	574
G $\pm 0,02$ mm	65,5	72,5	83,5
H $\pm 0,02$ mm	55	70	80
J mm	211	213	240
K $\pm 0,02$ mm	115	137	162
L $\pm 0,02$ mm	190	190	240
M mm	73,5	80,5	96
T $\pm 0,02$ mm	17,5	17,5	22,5
Y _{0,01} mm	11,6	15,6	15,6
a mm	63	80	100
b mm	13,6	15,6	19,6
c mm	M6	M8	M8
d mm	12	13	13
e $\pm 0,02$ mm	96	111	132
f mm	82	80	100
g mm	16	30	30
h mm	M 8 x 14	M10x16	M12x20
i mm	63	80	100
k mm	30	30	30
l mm	85	105	120
m mm	30	35	35
n mm	52	70	96
o mm	135	135	142
pH7 mm	12	14	14
q mm	5	5	5
Clamping force kN	30	40	50
Weight kg	22	36	62

RBAW - with angle drive, with power transmitter



NC power vices RBAW



Accessories RBAW

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077104 ▲	set	2	113	31,6
077105 ▲	set	3	135	39,6
077106 ▲	set	4	160	49,6

Including fixing screws

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152753	piece	2	113	31,6
152754	piece	3	135	39,6
152755	piece	4	160	49,6

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
156195	piece	2	113	31,6
156196	piece	3	135	39,6
156197	piece	4	160	49,6

Including fixing screws

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
082362	piece	2	113	31,6	3-13	5-32
082363	piece	3	135	39,6	4-20	6-40
082364	piece	4	160	49,6	5-29	7-48

Including fixing screws

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317259	set	2	110	31,8	3-12	5-32
317260	set	3	135	39,8	3-13	6-40
317261	set	4	160	49,8	5-22	7-48

Including fixing screws

Accessories RBAW

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150739▲	piece	2	113	31,6
150740▲	piece	3	135	39,6
150741▲	piece	4	160	49,6

Including fixing screws

A37

Draw-down jaws STB, for parallel, angular or flat workpieces, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
134826▲	set	2	110	32
134830▲	set	3	135	40
134834▲	set	4	160	50

A37

Floating jaws SRP, hardened and ground, for workpieces with/without angular and parallelism errors



Item no.	Contents of delivery	Size	Width mm	Height mm
077097▲	set	2	110	38
077098▲	set	3	135	46
077099▲	set	4	160	56

A37

Stepped top jaw ASB, for stationary jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
153403▲	piece	2	113	19
153405▲	piece	3	135	22
153407▲	piece	4	160	25

A37

Stepped top jaw ASB, for movable jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
153404▲	piece	2	113	19
153406▲	piece	3	135	22
153408	piece	4	160	25

A37

Floating jaw horizontal PEB, for clamping non-parallel workpieces



Item no.	Contents of delivery	Size	Width mm	Height mm	Thickness mm
156190▲	piece	2	113	32	36
156191	piece	3	135	40	40
156192▲	piece	4	160	50	45

Accessories RBAW

A37

Hand crank, turnable handle, hexagon socket



Item no.	Contents of delivery	Size	Hexagon	A	L
134499	piece	2/3/4	12	117	90

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

General accessories

A37

Dual clamp DSP, for mutual support in the case of front-sided set-up, in pairs



Item no.	Contents of delivery
149125 ▲	piece

A37

Single clamp SPE, for mounting vices on end and on the base



Item no.	Contents of delivery	T-slot	Thread
149121	piece	12	M10x50
149122	piece	14	M12x55
149123	piece	16	M12x60
149124	piece	18	M16x60
155722	piece	20	M16x65
151507	piece	22	M16x65

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32

A37

Work locator WSA, universally adjustable, for screwing onto the NC-compact vice or machine vice, connecting thread M12



Item no.	Contents of delivery
320400	piece

A37

Work locator WSA, universally adjustable, for fastening to the machine table (size 14 T-slot) or for screwing onto the NC-compact vice / machine vice (M12)



Item no.	Contents of delivery
320401	piece

A37

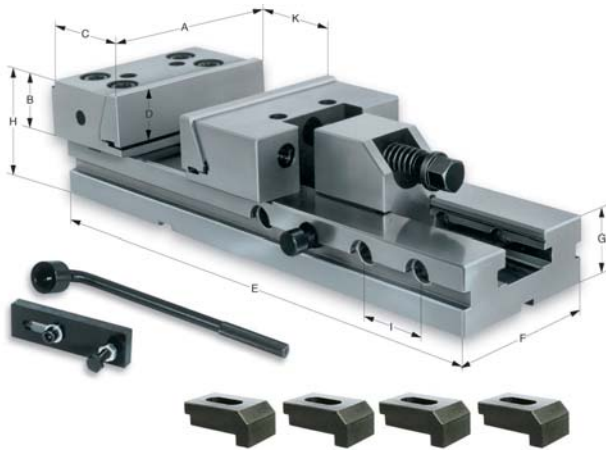
Precision vice locator PSA, universally adjustable, for screwing onto the NC-compact vice or machine vice, connecting thread M12



Item no.	Contents of delivery
681192 ▲	piece

General accessories NC power vices

MSR - with draw-down jaws



APPLICATION

For universal use on milling machines and machining centers.

TYPE

Clamping system mechanical without power transmitter, manually operated.

CUSTOMER BENEFITS

- ⊕ Optimal price/performance ratio
- ⊕ Fast clamping range adjustment via bolt system

TECHNICAL FEATURES

- Scope of delivery, complete with clamping wrench, workpiece stop and four clamping claws
- With draw-down jaws
- Hardened steel body (60 HRC)
- Clamping repeatability 0.02 mm

A11
MSR, with draw-down jaws

Item no.	Jaw width A mm	B mm	C mm	D mm	E mm	E max mm	F mm	G mm	H mm	I mm	K mm	Clamping force kN	Weight kg
161828	125	40	78	32	345	401	95	40	80	50	150	30	12,7
161827	150	50	90	40	420	487	125	50	100	50	200	50	25,6
161826	150	50	90	40	520	587	125	50	100	50	300	50	29,5
161825	175	60	97	43	655	701	145	58	118	50	400	60	51,2

A37
Clamping jaw, for movable jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
006589	piece	125	125	38
006616	piece	150	150	48
006684	piece	175	171	58

A37
Clamping jaw, for fixed jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
006590	piece	125	120	38
006617	piece	150	146	48
006687	piece	175	171	58

A37
Step jaw SB, for stationary jaw with jaw steps 5x5 mm



Item no.	Contents of delivery	Size	Width mm	Height mm
1043226 ▲	piece	125	120	38
1043228	piece	150	146	48
1043230 ▲	piece	175	171	58

A37
Step jaw SB, for movable jaw with jaw steps 5x5 mm



Item no.	Contents of delivery	Size	Width mm	Height mm
1043227	piece	125	120	38
1043229	piece	150	146	48
1043231 ▲	piece	175	171	58

Accessories MSR

A37
V-jaw PB with jaw steps, for movable jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
1043409	piece	125	120	38
1043410	piece	150	146	48
1043411 ▲	piece	175	171	58

A37
Inclinde jaw WB, for circular parts for movable jaw



Item no.	Contents of delivery	Size	Width mm	Height mm
1043412 ▲	piece	125	120	38
1043413 ▲	piece	150	146	48
1043414 ▲	piece	175	171	58

A37
Single clamp SPE



Item no.	Contents of delivery	Size	T-slot	Thread
163329	piece	125	12	M10x45
163330	piece	125	14	M12x50
163331	piece	125	16	M12x50
163332	piece	125	18	M16x50
163333 ▲	piece	150/175	12	M10x50
163334 ▲	piece	150/175	14	M12x55
163335	piece	150/175	16	M12x55
163336	piece	150/175	18	M16x60

A37
Rotation plate DP



Item no.	Size	External Ø mm	Height
476867 ▲	125	226	23
476868 ▲	150	290	28
476870 ▲	175	320	28

RS - without power transmitter



APPLICATION

For conventional machine tools.

TYPE

Clamping system mechanical without power transmitter, manually operated.

CUSTOMER BENEFITS

- ⊕ Optimal price/performance ratio
- ⊕ Entire clamping range can be bridged over by turning the handcrank
- ⊕ Spindle is protected from dirt and chips
- ⊕ Extensive assortment of jaws

TECHNICAL FEATURES

- Made of special cast iron for versatile use
- Long guidance of moving jaw
- Force transfer by means of threaded spindle
- With normal jaws SGN and handcrank
- Use on rotary plate with graduation

A11

RS, with SGN normal jaws and hand crank

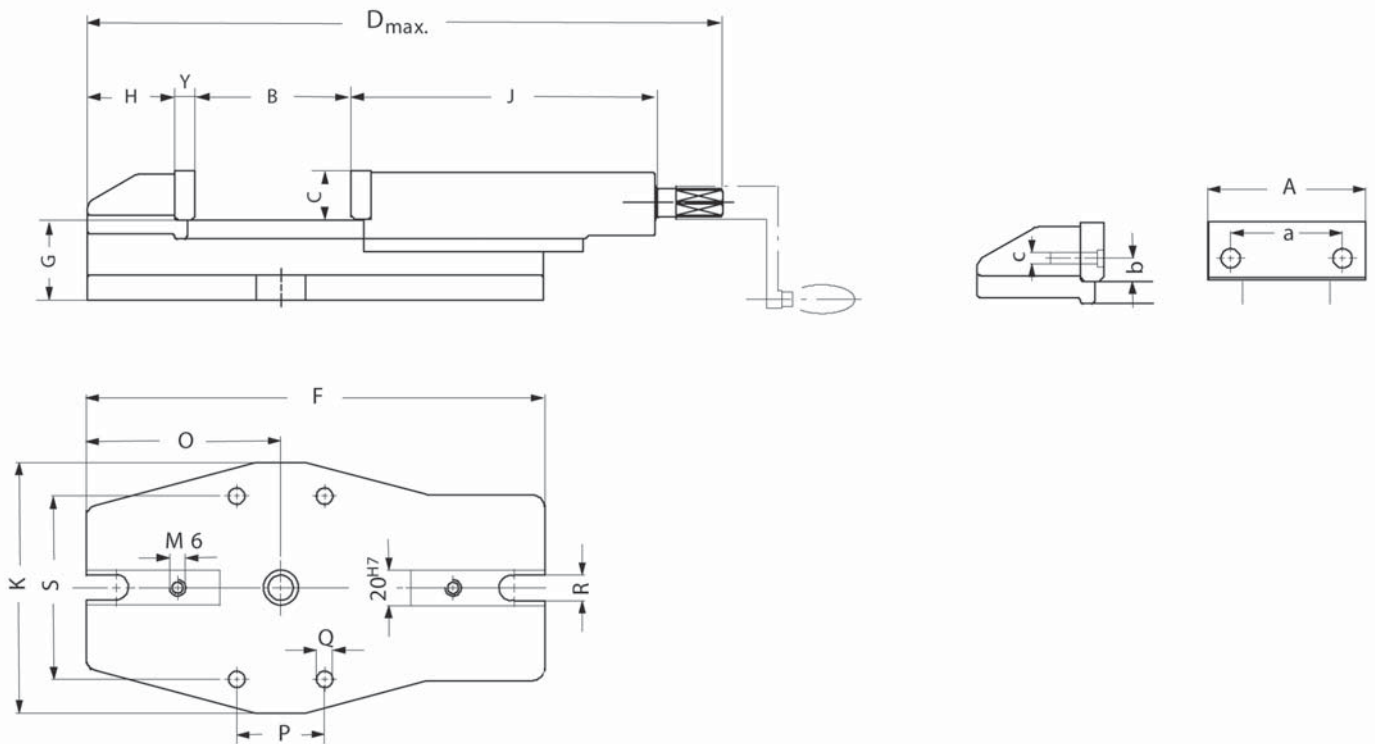
RS machine vice

Item no.	128031	128032	128033	128034	111648
Size	1	2	3	4	5
Jaw width A mm	92	113	135	160	200
B mm	85	105	125	145	185
C mm	31,6	31,6	39,6	49,6	62,6
D mm	362	423	510	575	675
F mm	260	300	365	410	460
G mm	48	58	64	70	82
H mm	50	55	70	80	90
J mm	174	200	242	273	322
K mm	160	160	200	240	280
O mm	115	125	155	175	200
P mm	60	60	70	80	118
Q mm	13	13	13	17	21
R mm	14	14	14	18	22
S mm	120	120	146	184,5	210
Y mm	12	12	16	16	20
a mm	63	63	80	100	125
b mm	13,6	13,6	15,6	19,6	24,6
c	M6	M6	M8	M8	M10
Clamping force kN	18	25	35	45	55
Weight kg	12	13,5	25	40	65

RS - without power transmitter



RS machine vice



Accessories RS

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077104 ▲	set	2	113	31,6
077105 ▲	set	3	135	39,6
077106 ▲	set	4	160	49,6
077107 ▲	set	5	200	62,6

Including fixing screws

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152752	piece	1	92	31,6
152753	piece	2	113	31,6
152754	piece	3	135	39,6
152755	piece	4	160	49,6
152759	piece	5	200	62,6

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
163218 ▲	piece	1	92	31,6
156195	piece	2	113	31,6
156196	piece	3	135	39,6
156197	piece	4	160	49,6
156198	piece	5	200	62,6

Including fixing screws

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
128770	piece	1	92	31,6	3-13	5-32
082362	piece	2	113	31,6	3-13	5-32
082363	piece	3	135	39,6	4-20	6-40
082364	piece	4	160	49,6	5-29	7-48
082365	piece	5	200	62,6	6-37	8-56

Including fixing screws

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150739 ▲	piece	2	113	31,6
150740 ▲	piece	3	135	39,6
150741 ▲	piece	4	160	49,6

Including fixing screws

Accessories RS

C15

Hand crank HKU, with octagon socket



Item no.	Contents of delivery	Size	Octagon	Key-width SW	L
009150	piece	1	12	Octagon	80
009152	piece	2	14	Octagon	125
009153	piece	3	17		160
009154	piece	4/5	19	Octagon	200

A37

Standard rotation plate DP, with fixing screws and T-slot nuts, ground contact edge, graduation



Item no.	Size	External Ø mm	Height	Center Ø	Weight
129814	1/2	242	30	28	7,5
082442	3	280	30	28	11
082443	4	340	34	28	18

A37

Universal rotation plate DP, with fixing screws and T-slot nuts, ground contact edge, graduation



Item no.	Size	External Ø mm	Height	Center Ø	Weight
090854 ▲	5	420	40	28	23

UZ - central, without power transmitter



APPLICATION

For conventional machine tools.

TYPE

Clamping system mechanical without power transmitter, manually operated.

CUSTOMER BENEFITS

- ⊕ Optimal price/performance ratio
- ⊕ Spindle covered in the work area
- ⊕ Extensive assortment of jaws
- ⊕ Low design
- ⊕ The lateral jaw guides allow the vice to be easily and exactly aligned

TECHNICAL FEATURES

- Made of special cast iron for versatile use
- Use on rotary plate with graduation
- With normal jaws SGN and handcrank
- Centric clamping through the left-hand and right-hand thread of the spindle

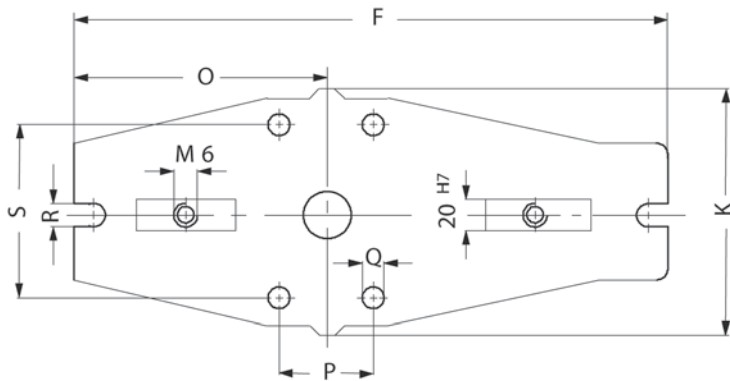
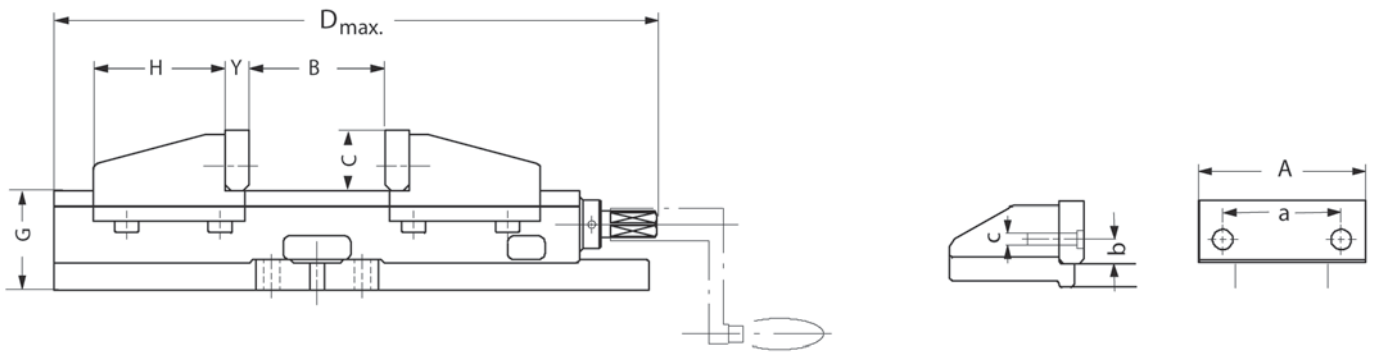
A11
UZ, self-centering vice

Item no.	014523	014740	014752	014802 ▲	014807 ▲
Size	2	3	4	5	6
Jaw width A mm	113	135	160	200	250
B mm	110	140	180	300	400
C mm	31,6	39,6	49,6	62,6	62,6
D mm	358	408	495	655	767
F mm	344	394	480	640	751
G mm	61	65,5	74	79	85
J mm	81	87	107	123	123
K mm	132	152	180	200	220
O mm	149	174	214	294	344
P mm	50	60	60	70	80
Q mm	11	11	17	17	17
R mm	13	13	17	17	21
S mm	101	118,5	142	158	175
Y mm	12	16	16	20	20
a mm	63	80	100	125	160
b mm	13,6	15,6	19,6	24,6	24,6
c	M6	M8	M8	M10	M10
Clamping force kN	15	22	24	25	28
Weight kg	12,4	19	31	52	71

UZ - central, without power transmitter



UZ machine vice



Accessories UZ

A37

Draw-down jaws SNF, with spring plate, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
077103	set	2	90	24,6
077104 ▲	set	2	113	31,6
077105 ▲	set	3	135	39,6
077106 ▲	set	4	160	49,6
077107 ▲	set	5	200	62,6

Including fixing screws

A37

Normal jaw SGN, one side smooth, one side grooved, both sides ground



Item no.	Contents of delivery	Size	Width mm	Height mm
152767	piece	2	90	24,6
152753	piece	2	113	31,6
152754	piece	3	135	39,6
152755	piece	4	160	49,6
152759	piece	5	200	62,6
152760 ▲	piece	6	250	62,6
152762 ▲	piece		300	79,6

Including fixing screws

A37

Normal jaw finely checkered SGNf, reversible, to increase the specific contact pressure (higher holding forces), one side finely checkered, one side longitudinally grooved



Item no.	Contents of delivery	Size	Width mm	Height mm
156195	piece	2	113	31,6
156196	piece	3	135	39,6
156197	piece	4	160	49,6
156198	piece	5	200	62,6

Including fixing screws

A37

V-jaw SPR, with vertically and horizontally ground-in prisms, hardened, for combination with SGN



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
082361	piece	2	90	24,6	3-13	5-32
082362	piece	2	113	31,6	3-13	5-32
082363	piece	3	135	39,6	4-20	6-40
082364	piece	4	160	49,6	5-29	7-48
082365	piece	5	200	62,6	6-37	8-56
082366 ▲	piece	6	250	62,6	7-45	9-65

Including fixing screws

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
317259	set	2	110	31,8	3-12	5-32
317260	set	3	135	39,8	3-13	6-40
317261	set	4	160	49,8	5-22	7-48

Including fixing screws

Accessories UZ

A37

Normal jaw SGNA, with movable workpiece stop, hardened and ground



Item no.	Contents of delivery	Size	Width mm	Height mm
150739▲	piece	2	113	31,6
150740▲	piece	3	135	39,6
150741▲	piece	4	160	49,6

Including fixing screws

C15

Hand crank HKU, with octagon socket



Item no.	Contents of delivery	Size	Octagon	Key-width SW	L
009152	piece	2/3	14	Octagon	125
009153	piece	4	17	Octagon	160
009154	piece	5/6	19	Octagon	200

A37

Universal rotation plate DP, with T-slot screws and nuts ground contact edge, graduation



Item no.	Size	External Ø mm	Height	Center Ø	Weight
014709▲	2	245	25	28	5
014712▲	3	295	27	38	8
014715▲	4	345	30	38	11,5
014718▲	5	450	30	38	16,5
014721▲	6	450	30	38	17,3

UZ machine vice

General accessories

A37

Work locator WSA, universally adjustable, for fastening to the machine table (size 14 T-slot) or for screwing onto the NC-compact vice / machine vice (M12)



Item no.	Contents of delivery
320401	piece

A37

Fixed slot nuts NTS, hardened and ground, with fixing screw



Item no.	Contents of delivery	Size	Length mm
014823	set	20x12	22
014825	set	20x14	25
014827	set	20x16	25
014829	set	20x18	25
014831	set	20x20	22
014833	set	20x22	32



IDEAL FOR STATIONARY USE

The stationary power clamping devices from RÖHM are predestined for stationary, centric clamping of round and angular workpieces on milling machines or machining centers or for the rational clamping in automated work sequences.



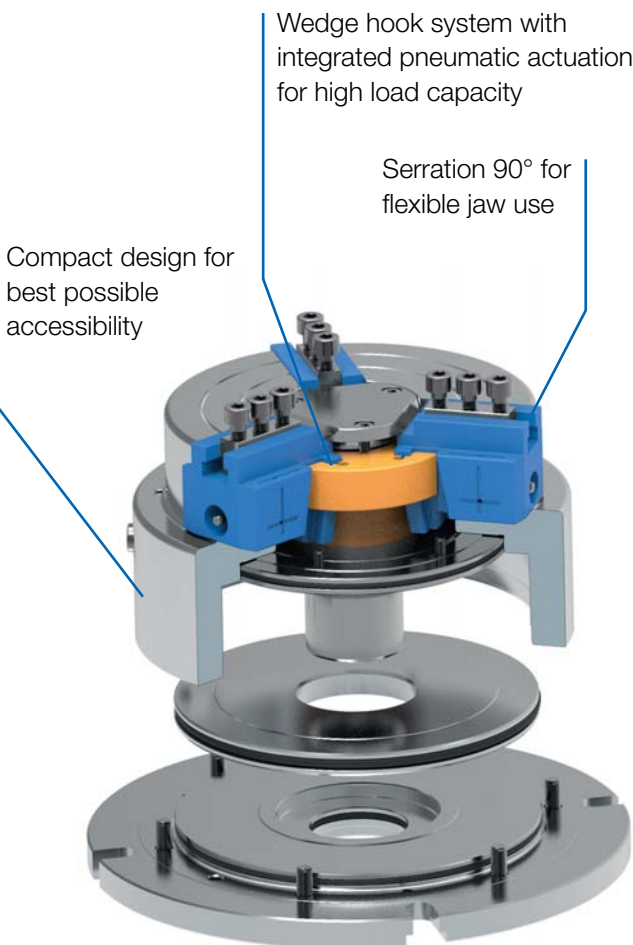
Stationary application

STATIONARY POWER CLAMPING DEVICES

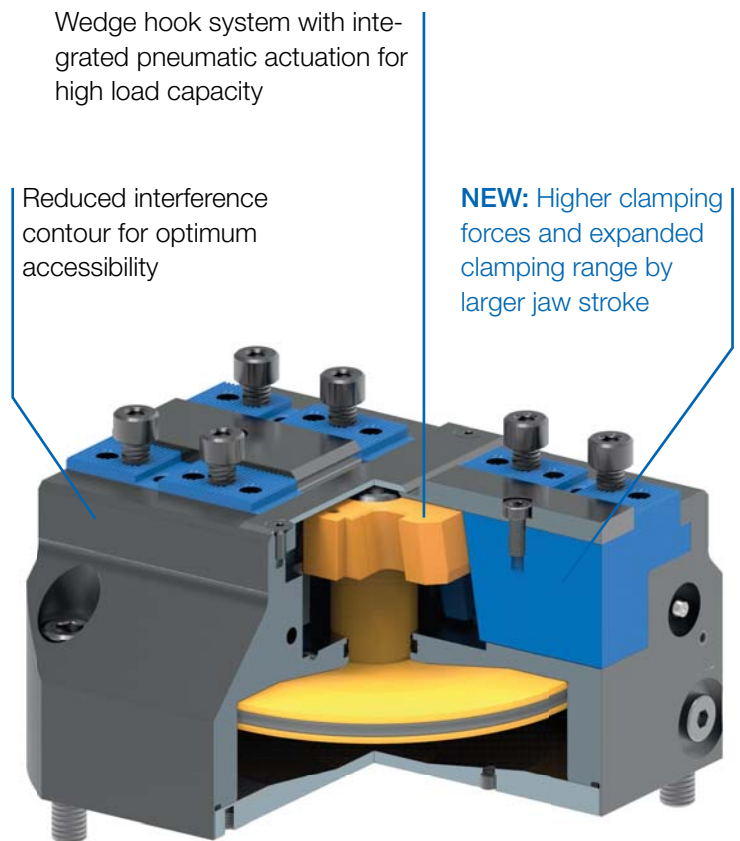
Stationary power clamping devices are characterized by many product advantages, which are essential for stationary, centric clamping on milling machines or machining centers or for the rational clamping in automated work sequences: Compact design for best possible work area utilization, high repeatability and constant clamping force at the same pressure, as well as maximum flexibility thanks to the centric clamping of round and angular workpieces.

ADVANTAGES AT A GLANCE

- ⊕ High efficiency thanks to automated and fast clamping in stationary use
- ⊕ Wedge hook system for high load capacity and clamping precision
- ⊕ Flexible use thanks to centric clamping of angular and round components



Stationary power chuck SSP



Pneumatically-operated centering vice KZS-P

KZS-P



APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

TYPE

Pneumatically actuated centering vice in standard design. Optionally with inductive sensors. 2-jaws version.

CUSTOMER BENEFITS

- ⊕ Jaw stroke expanded by up to 20% for a larger clamping range
- ⊕ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ⊕ Optimized lubrication system for constantly high clamping forces
- ⊕ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ⊕ Sturdy and low-backlash jaw guides for high repeatability

TECHNICAL FEATURES

- Jaws with cross tenon and serration

KZS-P = power-operated, centering, vice, pneumatically

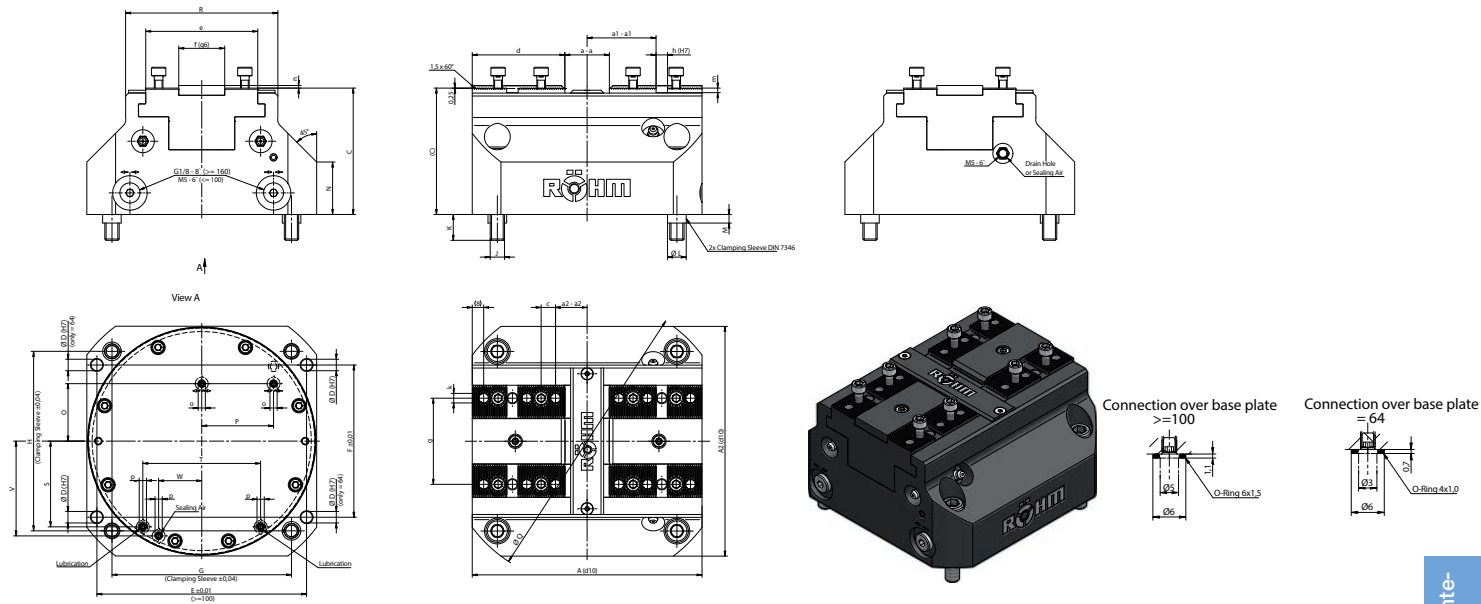


Power-operated centering vices KZS-P

The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



KZS-P



Power-operated centering vice KZS-P (standard jaw stroke), basic jaws with serration 1.5 x 60° and cross-tenon interface

Item No.	181480	181482	181486	181490	181494
Item no. with inductive sensors	181580 ▲	181582 ▲	181586 ▲	181590 ▲	181594 ▲
Size	KZS-P 64	KZS-P 100	KZS-P 160	KZS-P 200	KZS-P 250
A1 mm	64	100	160	200	250
Jaw stroke B mm	2.3	2.3	3.5	4.8	6
C mm	50.7	69.2	82.2	90.2	98.2
D H7 mm	4 - 7.5T	6 - 12T	8 - 14T	8 - 14T	10 - 20T
E±0.01 mm	36	90	146	184	230
F±0.01 mm	56	64	106	146	154
G±0.04 mm	50	80	125	160	200
H±0.04 mm	50	80	125	160	200
J mm	M6	M8	M10	M10	M12
K mm	12	15	18	18	20
L mm	8	11	13	13	16
M mm	4	4.5	6	6	6
N mm	31.5	34.8	31.5	34	30.5
O mm	17	32	40	50	64
P mm	17	29.5	50	65	75
Q mm	84	130	200	250	310
R mm	45	68	106	140	166
S mm	21	34.5	59.7	72.5	92.6
T mm	33.6	55	82	110	139.6
V mm	-26.75	44	74	81.8	107
W mm	0	25.5	32	40	45
a mm	12.8 - 17.4	20.4 - 25	24 - 31	34.4 - 44	34 - 46
a1 mm	12.9 - 15.2	25.7 - 28	44.5 - 48	53.2 - 58	55 - 61
a2 mm	9.9 - 12.2	14.7 - 17	18.5 - 22	32 - 27.2	24 - 30
b mm	4.8	5	8	8	11
c mm	5	7	10	10	12
d mm	23.3	37.5	64.5	78	102
e mm	30	47	78	102	125
f ⁹⁰ mm	14	20	32	40	50
g mm	24	35	60	80	90
h ^{H7} mm	4	6	8	8	10
k	M4 - 7T	M6 - 9T	M8 - 12T	M8 - 16T	M10 - 19T
k1	4	5	6	7	8
m mm	2.7	2.7	3.2	3.2	4
n mm	1.8	1.8	1.8	2.3	2.3
o mm	M3	M4	M5	M6	M6
p mm	M3	M3	M5	M5	M5
Max. operating pressure bar	9	9	9	9	6
Max. total clamping force kN	4.5	18	45	52	55
Weight kg	1.25	3.9	11.2	20.4	32.5
Cylinder volume (double stroke) cm ³	38	180	600	900	1730
Closing time s	0.1	0.3	0.5	0.6	1.1
Clamping repeatability mm	0.01	0.01	0.02	0.03	0.03

Power-operated centering vices KZS-P

KZS-PG - large jaw stroke



APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

TYPE

Pneumatically actuated centering vice with large jaw stroke. Optionally with inductive sensors. 2-jaws version.

CUSTOMER BENEFITS

- ③ Jaw stroke expanded by up to 20% for a larger clamping range
- ③ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ③ Optimized lubrication system for constantly high clamping forces
- ③ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ③ Sturdy and low-backlash jaw guides for high repeatability

TECHNICAL FEATURES

- Jaws with cross tenon and serration

KZS-PG = power-operated, centering, vice, pneumatically, large jaw stroke

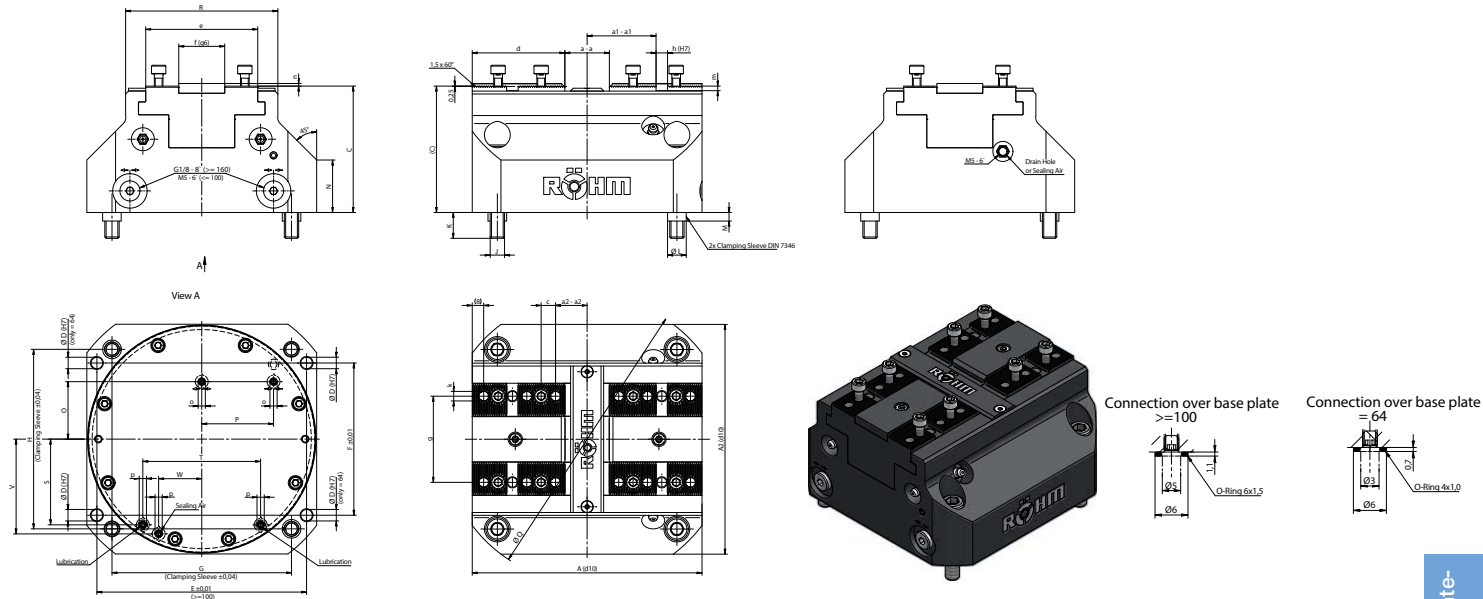


Power-operated centering vices KZS-PG

The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



KZS-PG - large jaw stroke



Power-operated centering vice **KZS-PG (large jaw stroke)**, basic jaws with **serration 1.5 x 60°** and **cross-tenon interface**

Item No.	181483	181487	181491	181495
Item no. with inductive sensors	181583 ▲	181587 ▲	181591 ▲	181595 ▲
Size	KZS-PG 100	KZS-PG 160	KZS-PG 200	KZS-PG 250
A1 mm	100	160	200	250
Jaw stroke B mm	7	9.5	12	18.2
C mm	69.2	82.2	90.2	98.2
D H7 mm	6 - 12T	8 - 14T	8 - 14T	10 - 20T
E±0.01 mm	90	146	184	230
F±0.01 mm	64	106	146	154
G±0.04 mm	80	125	160	200
H±0.04 mm	80	125	160	200
J mm	M8	M10	M10	M12
K mm	15	18	18	20
L mm	11	13	13	16
M mm	4.5	6	6	6
N mm	34.8	31.5	34	30.5
O mm	32	40	50	64
P mm	29.5	50	65	75
Q mm	130	200	250	310
R mm	68	106	140	166
S mm	34.5	59.7	72.5	92.6
T mm	55	82	110	139.6
V mm	44	74	81.8	107
W mm	25.5	32	40	45
a mm	20.2 - 33	25 - 44	34 - 58	41 - 77.4
a1 mm	25.5 - 32.5	44.8 - 54.3	52.5 - 64.5	51.5 - 70
a2 mm	14.5 - 21.5	18.8 - 28.3	26.5 - 38.5	32.5 - 50.7
b mm	7.5	11.2	11.5	15
c mm	7	10	10	12
d mm	40.5	67.5	81	99
e mm	47	78	102	125
f ⁶ mm	20	32	40	50
g mm	35	60	80	90
h ^{H7} mm	6	8	8	10
k	M6 - 9T	M8 - 12T	M8 - 16T	M10 - 19T
k1	5	6	7	7
m mm	2.7	3.2	3.2	4
n mm	1.8	1.8	2.3	2.3
o mm	M4	M5	M6	M6
p mm	M3	M5	M5	M5
Max. operating pressure bar	9	9	9	6
Max. total clamping force kN	8	20	24	21
Weight kg	4	11.5	20.8	32.8
Cylinder volume (double stroke) cm ³	180	600	900	1730
Closing time s	0.3	0.5	0.6	1.1
Clamping repeatability mm	0.01	0.02	0.03	0.03

Power-operated centering vices KZS-PG

Jaws KZS-P / KZS-PG

C 21

Soft top jaws, 2-jaw set, can be hardened serration 60° - material: 16MnCr5


Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm
166138	64	25	20	34
166140	100	42	25	55
166142	160	60	40	80
166144	200	75	45	100
166146	250	90	50	125

C 21

Soft top jaws, 2-jaw set tongue and groove, high design, material: 16MnCr5


Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm
166126	64	28,5	35	34
166128	100	47	48	55
166130	160	76	77,5	80
166132	200	96	85	100
166134	250	120	100	125

Jaws KZS-P / KZS-PG

Accessories KZS-P / KZS-PG

C15

Grease F91 for vices, for lubrication and conservation of chucking power


Item no.	Design	Contents
777021 ▲	Cartridge	0,4 kg

C15

Grease gun DIN1283


Item no.	Connection	Contents of delivery
329093	M10x1	150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece



Notes

KZS-H



APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

TYPE

Hydraulically actuated centering vice in standard design. Optionally with inductive sensors. 2-jaws version.

CUSTOMER BENEFITS

- ⊕ Jaw stroke expanded by up to 20% for a larger clamping range
- ⊕ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ⊕ Optimized lubrication system for constantly high clamping forces
- ⊕ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ⊕ Sturdy and low-backlash jaw guides for high repeatability

TECHNICAL FEATURES

- Jaws with cross tenon and serration

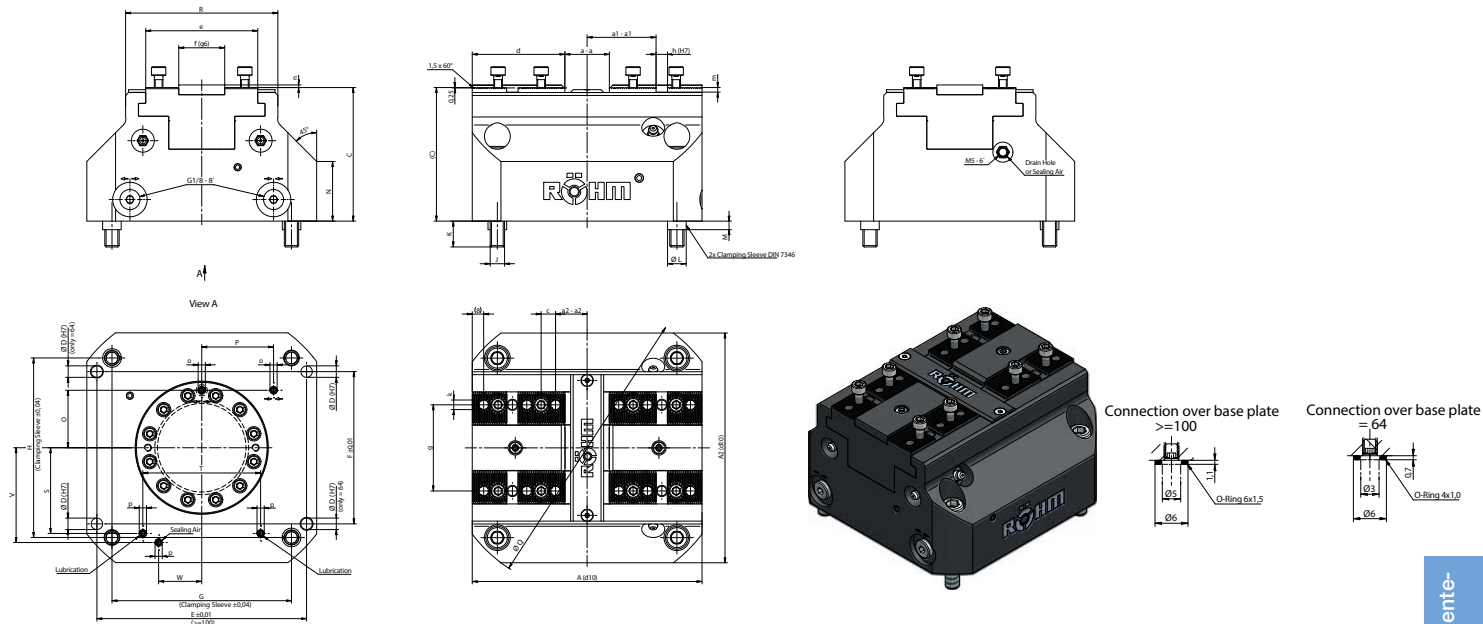
KZS-H = power-operated, centering, vice, hydraulically



The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



KZS-H



Power-operated centering vice KZS-H (standard jaw stroke), basic jaws with serration 1.5 x 60° and cross-tenon interface

Item No.	181481	181484	181488
Item no. with inductive sensors	181581 ▲	181584 ▲	181588 ▲
Size	KZS-H 64	KZS-H 100	KZS-H 160
A1 mm	64	100	160
Jaw stroke B mm	2.3	2.3	3.5
C mm	55.7	74.2	87.2
D H7 mm	4 - 7.5T	6 - 12T	8 - 14T
E ±0.01 mm	36	90	146
F ±0.01 mm	56	64	106
G ±0.04 mm	50	80	125
H ±0.04 mm	50	80	125
J mm	M6	M8	M10
K mm	12	15	18
L mm	8	11	13
M mm	4	4.5	6
N mm	36.5	39.8	36.5
O mm	17	32	40
P mm	17	29.5	50
Q mm	84	130	200
R mm	45	68	106
S mm	21	34.5	59.7
T mm	33.6	55	82
V mm	-26.75	44	74
W mm	0	25.5	32
a mm	12.8 - 17.4	20.4 - 25	24 - 31
a1 mm	12.9 - 15.2	25.7 - 28	44.5 - 48
a2 mm	9.9 - 12.2	14.7 - 17	18.5 - 22
b mm	4.8	5	8
c mm	5	7	10
d mm	23.3	37.5	64.5
e mm	30	47	78
f ⁶ mm	14	20	32
g mm	24	35	60
h ^{H7} mm	4	6	8
k	M4 - 7T	M6 - 9T	M8 - 12T
k1	4	5	6
m mm	2.7	2.7	3.2
n mm	1.8	1.8	1.8
o mm	M3	M4	M5
p mm	M3	M3	M5
Max. operating pressure bar	60	60	60
Max. total clamping force kN	5	18	45
Weight kg	1.5	5	14.2
Cylinder volume (double stroke) cm ³	7	30	100
Closing time s	0.5	1.2	1.7
Clamping repeatability mm	0.01	0.01	0.02

Power-operated centering vices KZS-H

KZS-HG - large jaw stroke



APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

TYPE

Hydraulically actuated centering vice with large jaw stroke. Optionally with inductive sensors. 2-jaws version.

CUSTOMER BENEFITS

- ③ Jaw stroke expanded by up to 20% for a larger clamping range
- ③ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ③ Optimized lubrication system for constantly high clamping forces
- ③ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ③ Sturdy and low-backlash jaw guides for high repeatability

TECHNICAL FEATURES

- Jaws with cross tenon and serration

KZS-HG = power-operated, centering, vice, hydraulically, large jaw stroke

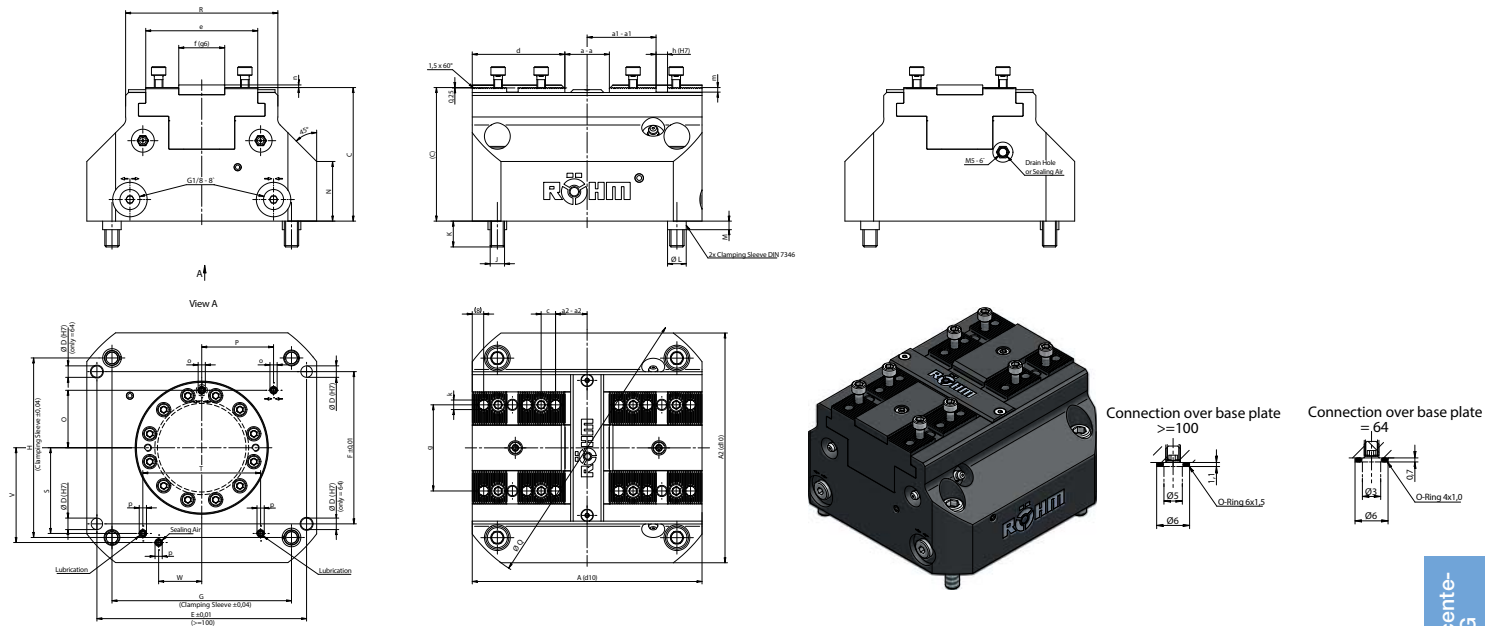


Power-operated centering vices KZS-HG

The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



KZS-HG - large jaw stroke



Power-operated centering vice **KZS-HG (large jaw stroke)**, basic jaws with **serration 1.5 x 60°** and **cross-tenon interface**

Item No.	181485	181489	181493	181497
Item no. with inductive sensors	181585 ▲	181589 ▲	181593 ▲	181597 ▲
Size	KZS-HG 100	KZS-HG 160	KZS-HG 200	KZS-HG 250
A1 mm	100	160	200	250
Jaw stroke B mm	7	9.5	12	18.2
C mm	74.2	87.2	95.2	103.2
D H7 mm	6 - 12T	8 - 14T	8 - 14T	10 - 20T
E±0.01 mm	90	146	184	180
F±0.01 mm	64	106	146	200
G±0.04 mm	80	125	160	180
H±0.04 mm	80	125	160	200
J mm	M8	M10	M10	M12
K mm	15	18	18	20
L mm	11	13	13	16
M mm	4.5	6	6	6
N mm	39.8	36.5	39	55.5
O mm	32	40	50	80
P mm	29.5	50	65	45
Q mm	130	200	250	310
R mm	68	106	140	166
S mm	34.5	59.7	72.5	50
T mm	55	82	110	140
V mm	44	74	81.8	73.3
W mm	25.5	32	40	45
a mm	20.2 - 33	25 - 44	34 - 58	41 - 77.4
a1 mm	25.5 - 32.5	44.8 - 54.3	52.5 - 64.5	51.5 - 70
a2 mm	14.5 - 21.5	18.8 - 28.3	26.5 - 38.5	32.5 - 50.7
b mm	7.5	11.2	11.5	15
c mm	7	10	10	12
d mm	40.5	67.5	81	99
e mm	47	78	102	125
f ⁶⁶ mm	20	32	40	50
g mm	35	60	80	90
h ¹⁷ mm	6	8	8	10
k	M6 - 9T	M8 - 12T	M8 - 16T	M10 - 19T
k1	5	6	7	7
m mm	2.7	3.2	3.2	4
n mm	1.8	1.8	2.3	2.3
o mm	M4	M5	M6	M6
p mm	M3	M5	M5	M5
Max. operating pressure bar	120	120	60	60
Max. total clamping force kN	16	40	50	50
Weight kg	5.1	14.5	24.8	37.9
Cylinder volume (double stroke) cm ³	30	100	300	420
Closing time s	1.2	1.7	2.1	3
Clamping repeatability mm	0.01	0.02	0,03	0,03

Jaws KZS-H / KZS-HG

C 21

Soft top jaws, 2-jaw set, can be hardened serration 60° - material: 16MnCr5



Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm
166138	64	25	20	34
166140	100	42	25	55
166142	160	60	40	80
166144	200	75	45	100
166146	250	90	50	125

C 21

Soft top jaws, 2-jaw set tongue and groove, high design, material: 16MnCr5



Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm
166126	64	28,5	35	34
166128	100	47	48	55
166130	160	76	77,5	80
166132	200	96	85	100
166134	250	120	100	125

Jaws KZS-H / KZS-HG

Accessories KZS-H / KZS-HG

C15

Grease F91 for vices, for lubrication and conservation of chucking power



Item no.	Design	Contents
777021 ▲	Cartridge	0,4 kg

C15

Grease gun DIN1283



Item no.	Connection	Contents of delivery
329093	M10x1	150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece



Notes



APPLICATION

For stationary centric clamping of workpieces on milling machines or machining centers.

TYPE

Clamping system consisting of a 3-jaw chuck, including an integrated pneumatic cylinder.
Serration 90°.

CUSTOMER BENEFITS

- ⊕ Compact design
- ⊕ Large variety of applications is possible by using different clamping jaws
- ⊕ Centric clamping of round and angular workpieces
- ⊕ High repeatability thanks to sturdy chuck construction and constant clamping force at same pressure
- ⊕ Purge air connection possible to prevent contamination

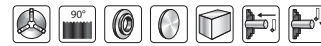
TECHNICAL FEATURES

- Wedge hook system with pneumatic actuation
- Clamping force can be regulated by changing the pressure

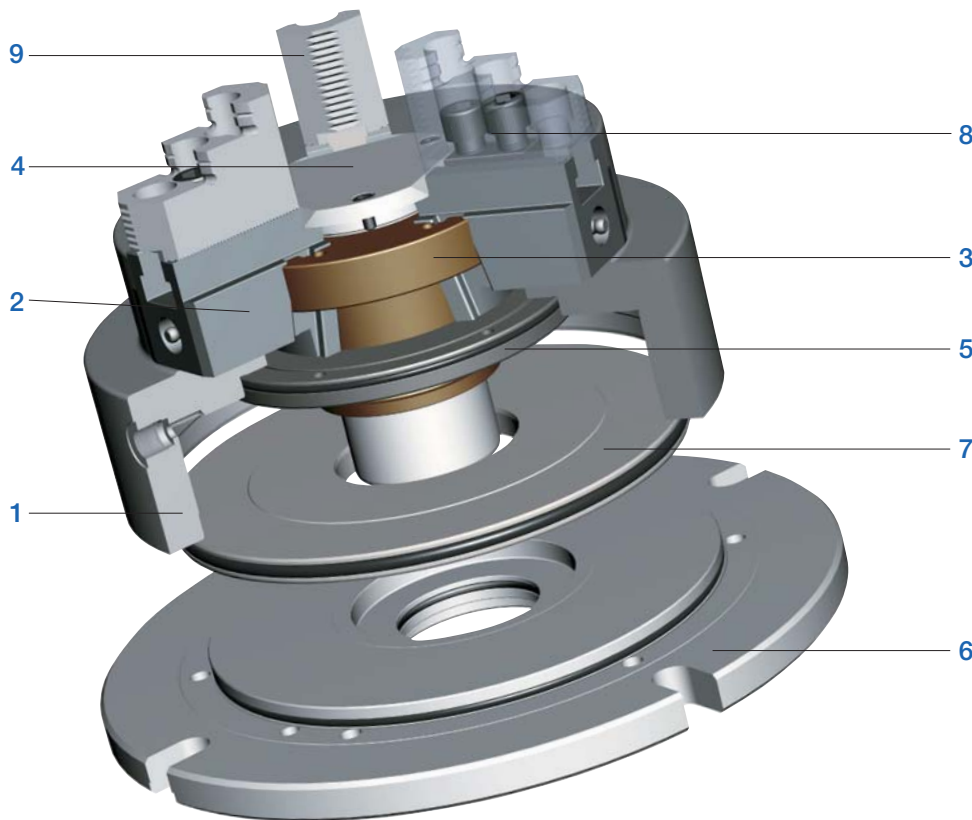
Note:

Hydraulic actuation on request

SSP = stationary, power chuck, pneumatically

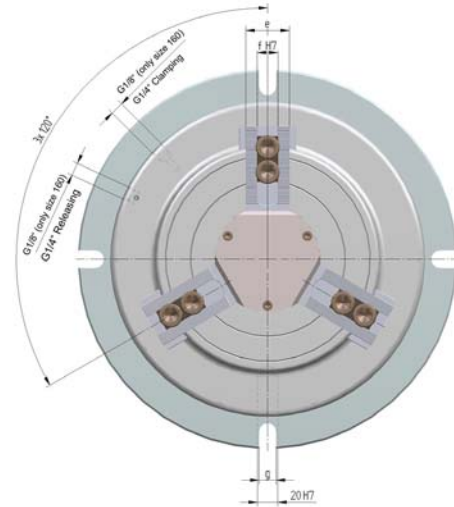
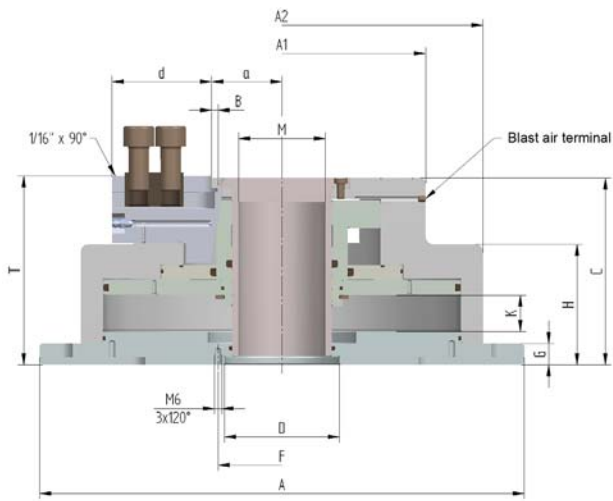


Stationary power chuck SSP



Components:

1. Body
2. Base jaw
3. Piston
4. Protective bushing
5. Intermediate disc
6. Mount
7. Piston disc
8. T-nut
9. Top jaws



C 15
 Stationary power chucks SSP, air operated 3-jaw chucks, without through-hole, serration 1/16" x 90°

Item no.	161505	161506▲	161507▲	161508
Size	160	200	250	315
Number of jaws	3	3	3	3
A mm	260	320	380	415
A1 mm	178	205	255	320
A2 mm	210	255	315	350
Jaw travel B mm	4,2	4,2	5	5
C mm	130,5	134	146	156,5
Mount D ^{H6}	55	70	90	110
D	M8	M12	M16	M16
F mm	65	80	100	120
G mm	15	17	17	21,5
H mm	84,5	86	94	104,5
Wedge stroke K mm	24	23,8	28,4	28,4
Possible through-hole M mm	38	52	68	90
T mm	131,5	135,5	147,5	158
U	M8	M12	M16	M16
a min.	31,8	41,2	50	61,5
a max.	36	45,4	55	66,5
c mm	15	19	25	25
d mm	54,5	62	78	99
e mm	32	36	44	44
f ^{H7} mm	12	17	21	21
g mm	13	17	17	17
Piston area cm ²	209	323	532	654
Min. operating pressure bar	2	2	2	2
Max. operating pressure bar	8	8	8	8
Max. total clamping force at working pressure - External clamping kN	36 (at 6 bar)	55 (at 6 bar)	90 (at 6 bar)	111 (at 6 bar)
Max. total clamping force at working pressure - Internal clamping kN	38 (at 6 bar)	60 (at 5 bar)	96 (at 6 bar)	118 (at 6 bar)
Weight without jaws approx. kg	25	34	54	65

Jaws SSP

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5


Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm	Serration
046404	160	56	37,5	26	1/16"x 90°
118522	200	75	49	36	1/16"x 90°
046414	250/315	103,5	58	50	1/16"x 90°

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened serration 90° - material: 16MnCr5


Item no.	Size	Jaw length mm	Jaw height mm	Jaw width mm	Serration
046403	160	55	38	26,5	1/16"x 90°
133153	200	75	53	36,5	1/16"x 90°
133154	250	95	54,5	45	1/16"x 90°

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 12


Item no.	Size	Jaw length mm	Jaw height mm	Claw length mm	Serration
144320	160	66	38	52	1/16"x 90°
144321	160	56	38	34	1/16"x 90°
144322	160	66	38	25	1/16"x 90°

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 17


Item no.	Size	Jaw length mm	Jaw height mm	Claw length mm	Serration
137031	200	67	45	53	1/16"x 90°
137032	200	65	45	46	1/16"x 90°
137039	200	55	45	40	1/16"x 90°
137034	200	50	45	31	1/16"x 90°
137035	200	55	45	27	1/16"x 90°
137036	200	65	45	19	1/16"x 90°
137037	200	65	45	26	1/16"x 90°
137038	200	55	45	24	1/16"x 90°
137033	200	55	45	39	1/16"x 90°

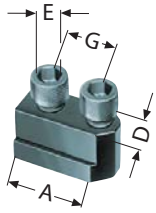
C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 21


Item no.	Size	Jaw length mm	Jaw height mm	Claw length mm	Serration
137041	250/315	95	50	80	1/16"x 90°
137042	250/315	75	50	60	1/16"x 90°
137043	250/315	60	50	43	1/16"x 90°
137044	250/315	70	50	37	1/16"x 90°
137045	250/315	95	50	25	1/16"x 90°
137046	250/315	80	50	30	1/16"x 90°

Accessories SSP

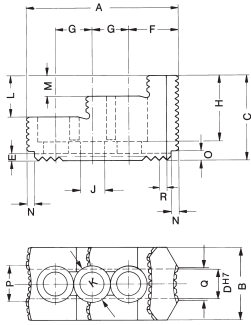
C 15
Extended T-nuts With screw



Item no.	Chuck Size	Con- tents of delivery	D mm	E	G mm
1305178 ▲	160	piece	12	M8x25	2x15
1305179	200	piece	17	M12x30	19
1305180 ▲	250/315	piece	21	M16x35	25

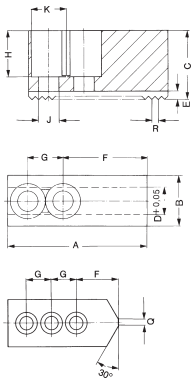
Jaw dimensions SSP

Reversible top jaws UB,
hardened, serration 90°



Chuck size	160	200	250/315
Type	538-02	538-04	538-05
Item no. 3-jaw set	046404	118522	046414
A	56	75	103,5
B	26	36	50
C	37,5	49	58
DH7	12	17	21
E	3,5	5	5
F	14	21,5	33,5
G	15	19	25
H	29	37,5	45
J	8,4	13	17
K	13,5	19	25
L	20	24	28
M	10	12	14
N	4	6	6
O	4	7,5	6,5
P	5	18	24,5
Q	5	7	22,5
R	1/16"×90°	1/16"×90°	1/16"×90°
Weight/jaw kg	0,170	0,460	1,130

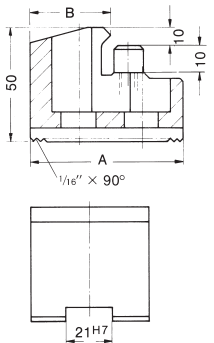
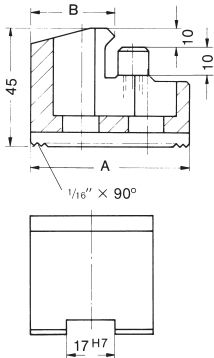
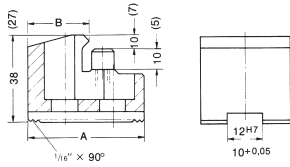
Soft top jaws AB,
Serration 90°



Chuck size	160	200	250/315
Type	538-02	538-03	538-05
Item no. 3-jaw set	046403	133152	133154
A	55	66,7	95
B	26,5	36,5	45
C	38	53	54,5
D	12	17	21
E	3,5	5	5
F	31	36	55
G	15	19	25
H	28	43	42,5
J	8,4	13	17
K	13,5	19	25
Q	-	-	-
R	1/16"×90°	1/16"×90°	1/16"×90°
Weight/jaw kg	0,330	0,700	1,400

Jaw dimensions und chucking capacities SSP

Claw type jaws KB, Serration 90°

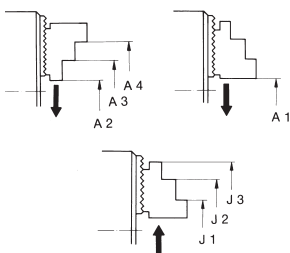


Größe	A	B	160
Item no. piece			Chuckling capacities external
144320	66	52	56-102
144321	56	34	96-152
144322	66	25	138-184
			Chuckling capacities internal
144322	66	25	70-116
144321	56	34	112-200
144320	66	52	152-198

Größe	A	B	200
Item no. piece			Chuckling capacities external
137031	67	53	66-104
137032	65	46	80-118
137039	55	40	106-144
137034	50	31	130-148
137035	55	27	126-164
			Chuckling capacities internal
137036	65	19	82-120
137037	65	26	92-130
137038	55	24	110-148
137035	55	27	132-170
137034	50	31	148-184
137039	55	40	134-190
137033	55	39	164-202
137032	65	46	178-216

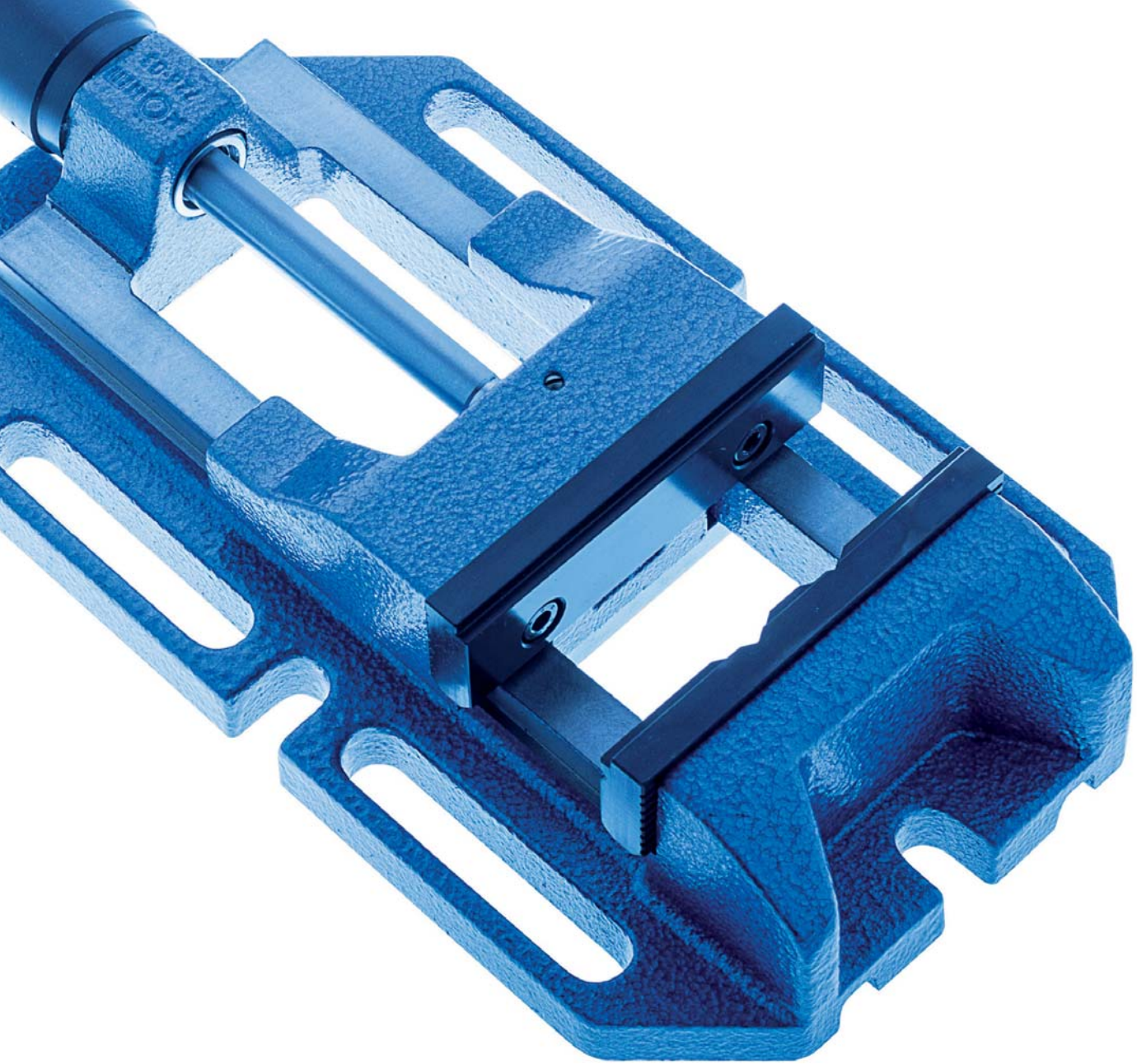
Größe	A	B	250	315
Item no. piece			Chuckling capacities external	
137041	95	80	54-112	78-186
137042	75	60	94-152	118-226
137043	60	43	128-186	152-260
137044	70	37	158-216	182-290
137045	95	25	238-280	262-330
			Chuckling capacities internal	
137045	95	25	72-130	96-204
137046	80	30	110-168	134-242
137044	70	37	152-210	176-284
137043	60	43	182-240	206-314
137042	75	60	216-274	-

Chuckling capacities with reversible top jaws UB



Chuck size		160	200	250	315
with reversible jaws	Type	538-02	538-04	538-05	538-05
	Jaw position				
External chucking	A1	28-80	30-115	20-128	41-194
	A2	32-84	44-128	46-154	67-220
	A3	82-132	101-185	128-238	150-303
	A4	118-168	152-236	210-318	231-384
Internal chucking	J1	64-116	80-165	70-188	91-244
	J2	96-148	130-214	146-255	168-320
	J3	140-192	182-266	225-334	246-400

Jaw dimensions und Chuckling capacite



IDEAL FOR DRILLING AND MEASURING MACHINES



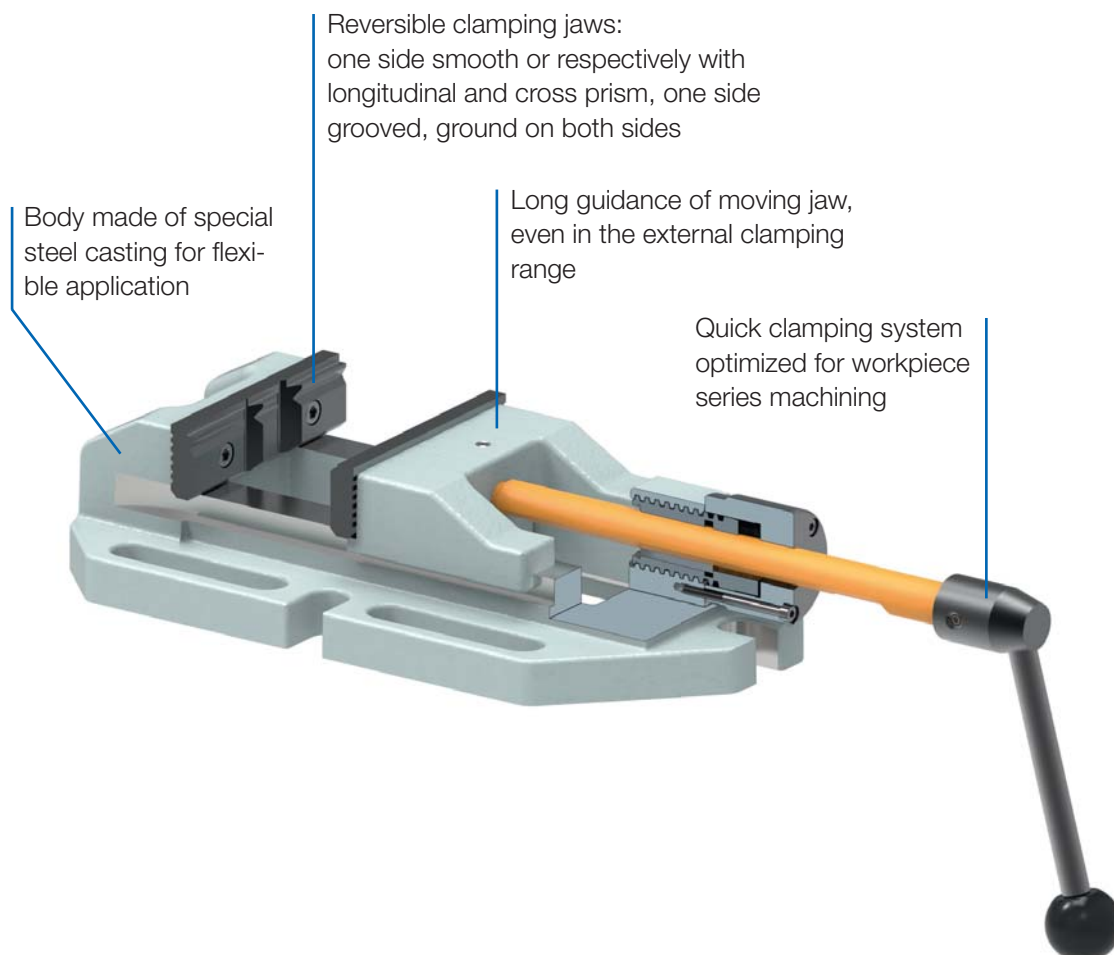
For decades, RÖHM drilling machine vices have been enabling reliable and quick clamping of workpieces on drilling and measuring machines. The entire clamping range can be set by one-handed turning.

DRILLING MACHINE VICES

The drilling machine vices from RÖHM have seen decades of use in machine shops and production facilities. The vices are especially impressive in drilling and measuring machines thanks to their simple and fast attachment on the machine table as well as their easy and single-handed operation.

ADVANTAGES AT A GLANCE

- ⌚ Reliable and fast clamping of workpieces on drilling and measuring machines
- ⌚ Vice has proven itself over the decades with good price/performance ratio
- ⌚ Entire clamping range can be set by single-handed turning





APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

Clamping system mechanical, manually operated.
Standard version.

CUSTOMER BENEFITS

- ⌚ **Quick-clamping vice**
- ⌚ For quick clamping and unclamping, particularly in the case of series workpiece machining
- ⌚ Optimal price/performance ratio
- ⌚ One-hand operation
- ⌚ Long guidance of moving jaw, even in the external clamping range
- ⌚ Clamping jaws are reversible, one side smooth and ground on both sides
- ⌚ Solid clamping jaw with one longitudinal prism and two transverse prisms

TECHNICAL FEATURES

- Body made out of special steel casting
- One-hand operation
- Positive locking

A12
BSS, with V-jaw and normal jaw SBO

Item no.	Size	Jaw width mm	Clamping capacity mm	Jaw height mm	Length mm	Height mm	Length body mm	Slot width	Slot distance	Weight kg
134158	2	110	130	32	510	72,5	315	17	140	9,5
134159	3	135	160	40	587	80,5	365	17	170	13,5

Drilling machine vices
BMS



APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

Clamping system mechanical, manually operated.
Standard version.

CUSTOMER BENEFITS

- ⌚ Optimal price/performance ratio
- ⌚ Entire clamping range within reach by turning
- ⌚ Mounting possibilities on the side and frontal
- ⌚ Long guidance of moving jaw, even in the external clamping range
- ⌚ Clamping jaws are reversible, one side smooth and ground on both sides
- ⌚ Solid clamping jaw with one longitudinal prism and two transverse prisms
- ⌚ Both jaws with support surface for clamping flat workpieces

TECHNICAL FEATURES

- Body made out of special steel casting
- Low, stable design with thread spindle

A12
BOF, with V-jaw and normal jaw SBO

Item no.	Size	Jaw width mm	Clamping capacity mm	Jaw height mm	Length mm	Height mm	Length body mm	Slot width	Slot distance	Weight kg
142835	1	90	90	25	356	60	195	14	115	5,5
111595	2	110	130	32	470	72,5	315	17	140	9,5
111596	3	135	160	40	550	80,5	365	17	170	13,5
111597	4	160	220	50	692	95,5	445	17	210	25

BMS



APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

D.I.Y. design for small drill stands.

Clamping system mechanical, manually operated.

CUSTOMER BENEFITS

- ⊕ Lever movable (included in scope of delivery)
- ⊕ Both jaws have a seat for retaining flat workpieces

TECHNICAL FEATURES

- Solid clamping jaw with three vertical prisms and one horizontal prism
- Jaws and spindle gunmetal-finished
- Body made out of cast metal
- Long mounting slots

A12

BSH, small, light D.I.Y. design

Item no.	Size	Jaw width mm	Clamping capacity mm	Length body mm	Width body mm	Height mm	Jaw height mm	Slot distance	Weight kg
007193	1	65	65	125	105	43	25	80	1,2
007194	2	80	85	150	130	46	25	100	1,7
007196	3	100	80	170	175	57	25	135	4,2

APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

Sturdy version for drill stands, table drills and box column drills.

Clamping system mechanical, manually operated.

CUSTOMER BENEFITS

- ⊕ Long lever for maximal clamping force
- ⊕ Both jaws have a seat for retaining flat workpieces

TECHNICAL FEATURES

- Moving steel jaw is supported by a cast iron jaw with inner guidance
- Solid clamping jaw with three vertical prisms and one horizontal prism
- Jaws and spindle gunmetal-finished
- Body made out of cast metal
- Long mounting slots



A12

BSH, sturdy craftsman design

Item no.	Size	Jaw width mm	Clamping capacity mm	Length body mm	Width body mm	Height mm	Jaw height mm	Slot distance	Weight kg
007197	4	80	80	200	140	70	40	100	5
007201	5	100	95	215	175	75	40	125	7
007202	6	120	110	260	215	85	40	160	11
007207	7	140	150	300	220	85	40	165	12,5



APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

Clamping system mechanical, manually operated.
Standard version.

CUSTOMER BENEFITS

- ⌚ Entire clamping range within reach by turning
- ⌚ Constant design length, spindle moves protected in the handle
- ⌚ The thread spindle is covered by a protecting sleeve

TECHNICAL FEATURES

- Solid and handy version
- Body made out of cast metal
- Movable jaw, guided on side
- Solid clamping jaw with three vertical prisms and one horizontal prism
- Both jaws with support surface for clamping flat workpieces
- Jaws and spindle gunmetal-finished
- Long mounting slots

A12
DPV, with V-jaw and normal jaw SBO

Item no.	Size	Jaw width mm	Clamping capacity mm	Jaw height mm	Length mm	Height mm	Length body mm	Width mm	Slot width	Slot distance	Weight kg
863421	1	80	70	30	234	58	174	142	12,5	105	3,6
863422	2	100	88	30	272	63,5	188	188	14	125	4,3
863423	3	120	110	30	345	63,5	225	223	14	150	6,3
1132597	4	150	125	30	378	65	238	242	14	170	8,1

Drilling machine vices
BMS



APPLICATION

For securely clamping workpieces on drills and measuring machines.

TYPE

Clamping system mechanical, manually operated.
Standard version.
3 set-up options thanks to two additional, perpendicularly machined support surfaces: bottom, right and front.

CUSTOMER BENEFITS

- ⌚ Entire clamping range within reach by turning
- ⌚ Constant design length, spindle moves protected in the handle
- ⌚ The thread spindle is covered by a protecting sleeve
- ⌚ Mounting slots

TECHNICAL FEATURES

- Solid and handy version
- Body made out of cast metal
- Movable jaw, guided on side
- Solid clamping jaw with three vertical prisms and one horizontal prism
- Both jaws with support surface for clamping flat workpieces
- Jaws and spindle gunmetal-finished
- Long mounting slots

A12
DPV 3-W, with V-jaw and normal jaw SBO

Item no.	Size	Jaw width mm	Clamping capacity mm	Jaw height mm	Length mm	Height mm	Length body mm	Width mm	Slot width	Slot distance	Weight kg
007182	2	100	93	30	279	65	189	159	15	122	5,1

Accessories BMS

A37

V-jaw and standard jaw SBO, unhardened and burnished, with workpiece support für BOF und BSS



Item no.	Contents of delivery	Size	Width mm	Height mm	Chucking capacity mm	
					Horizontal	Vertical
332714	set	1	90	24,8	4-17	4-25
317259	set	2	110	31,8	3-12	5-32
317260	set	3	135	39,8	3-13	6-40
317261	set	4	160	49,8	5-22	7-48

Including fixing screws

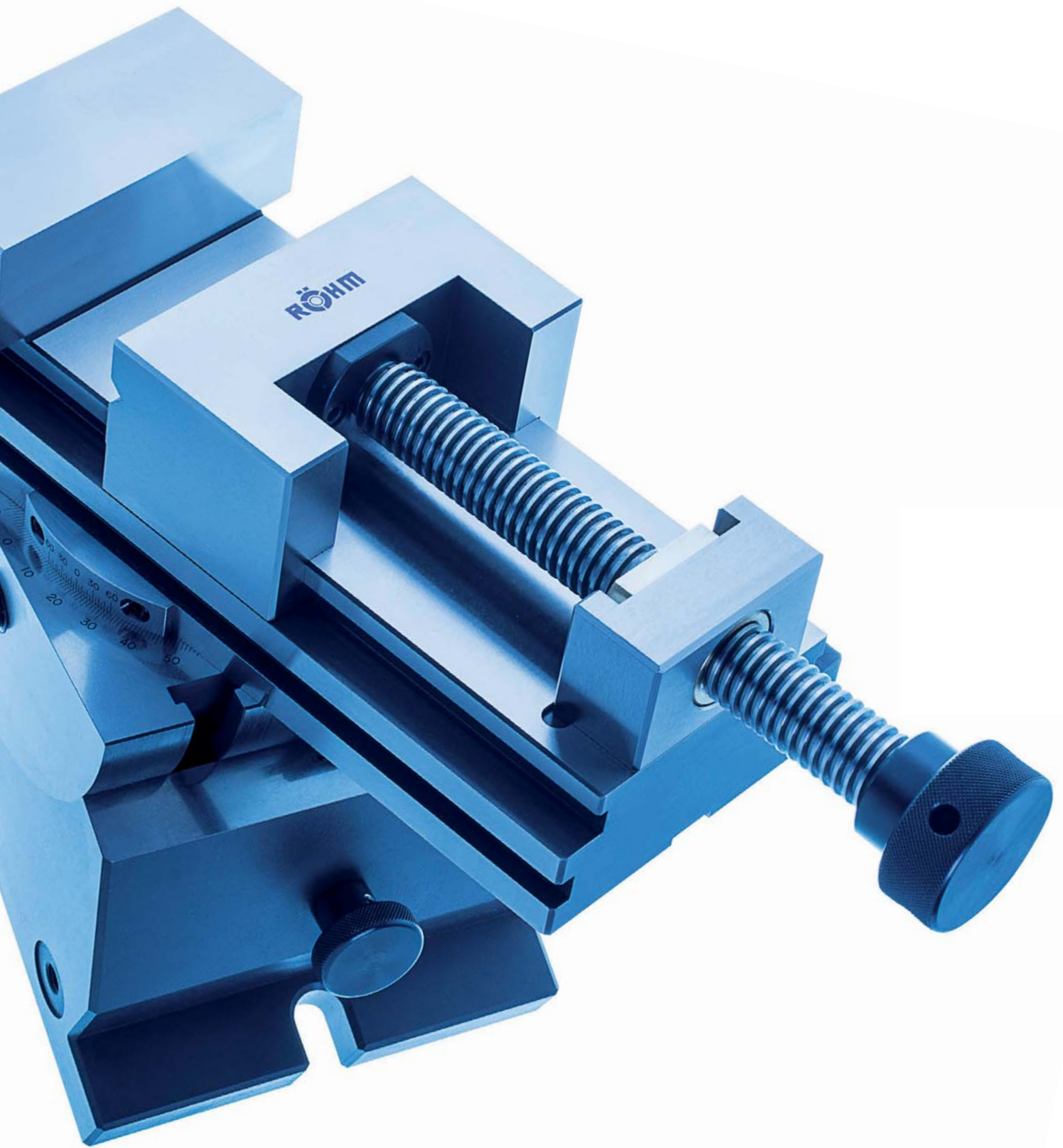
A37

V-jaw and standard jaw SBO, soft and gunmetal-finished, with work support, for DPV



Item no.	Contents of delivery	Size	Width mm
1128341	set	1	85
1128342	set	2	100
1128344 ¹⁾	set	2	100
1128343	set	3	120
1193108	set	4	150

¹⁾ Only for DPV 3-W

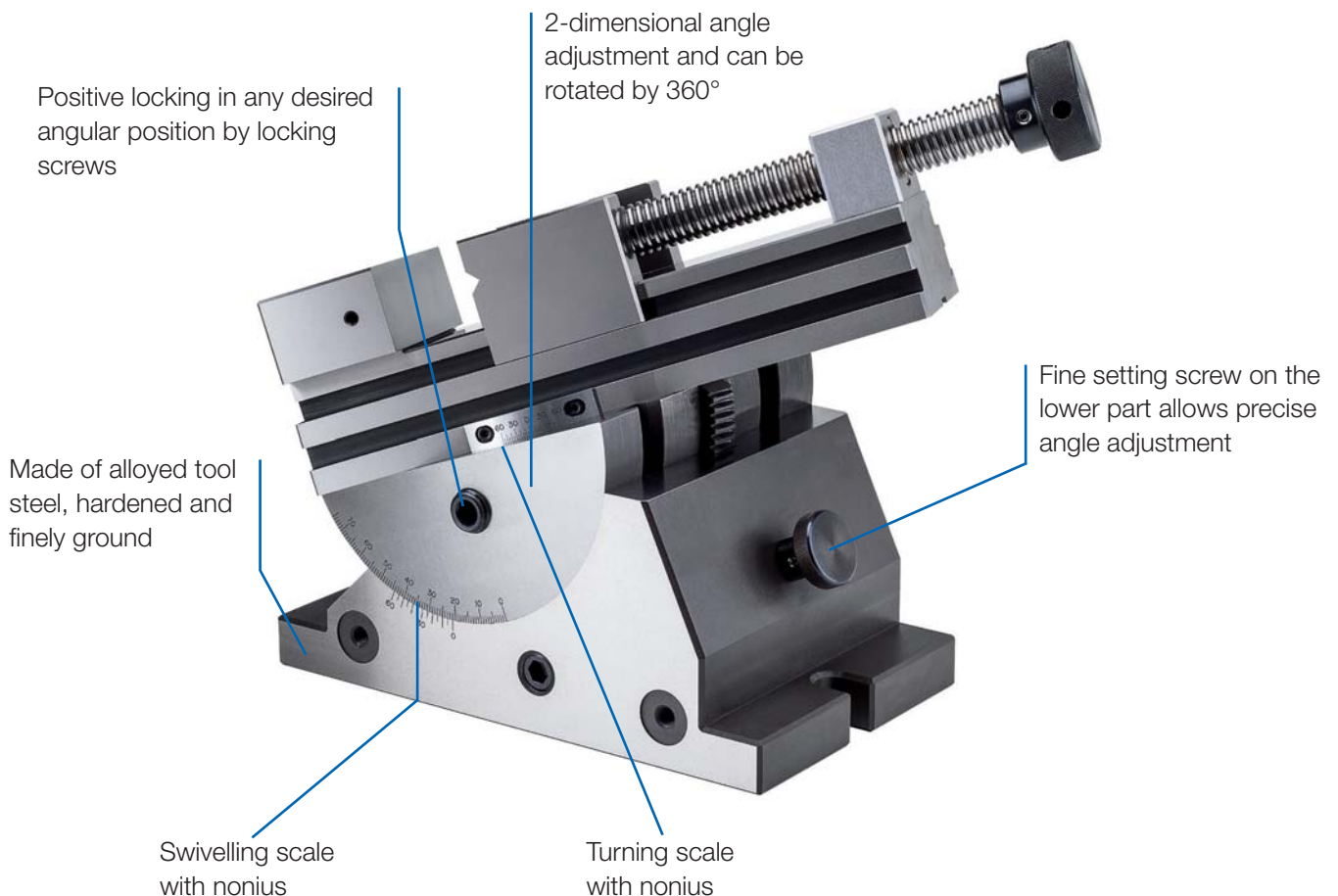


GRINDING AND INSPECTION VICES

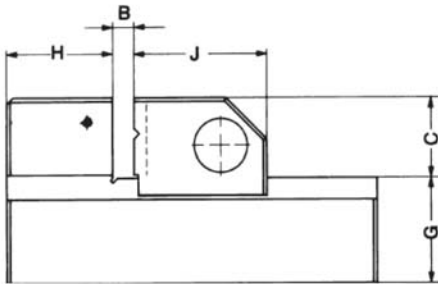
RÖHM grinding and inspection vices are primarily used in grinding, milling and engraving machines, at jig boring machines, for measurement and inspection work and for manufacturing processes which require the highest standards of clamping precision.

ADVANTAGES AT A GLANCE

- ⊕ Special vices for measuring, testing and engraving
- ⊕ Easy to use and universally applicable
- ⊕ Made of alloyed tool steel, hardened and finely ground



Grinding and inspection vices



A29
PL-S micro, with quick adjustment

Item no.	Size	Squareness ¹⁾ / 100 mm	Parallelism ²⁾ / 100 mm	Jaw width mm	B mm	Total height mm	C mm	Length body mm	G mm	H mm	J mm	Work locator	Weight kg
1179514	1	0,005	0,002	34	25	35	15	75	20	20	25	M5x17	0,35
1179515	2	0,005	0,002	45	50	45	20	110	25	25	35	M5x17	1

- 1) Base to stationary jaw clamping surface
- 2) Base to upper guide edge

Grinding and inspection vices

APPLICATION

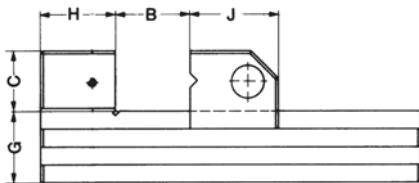
Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

CUSTOMER BENEFITS

- ⌚ Easy clamping and unclamping with allen key
- ⌚ Clamping jaw adjustable in stages, snaps in automatically

TECHNICAL FEATURES

- With draw-down effect
- Made of alloyed tool steel, hardened and very finely ground
- Horizontally and vertically ground prism
- No spindle which could cause contamination during electric discharge machining, for example



A29
PL-S, with quick adjustment

Item no.	Size	Squareness ¹⁾ / 100 mm	Parallelism ²⁾ / 100 mm	Jaw width mm	B mm	Total height mm	C mm	Length body mm	G mm	H mm	J mm	Work locator	Weight kg
1179516	1	0,005	0,002	70	80	62	30	160	32	33	45	M6	3
1179517	2	0,005	0,002	90	120	80	40	210	40	40	50	M5	5,8
1179518	3	0,005	0,002	120	150	90	40	280	50	60	70	M5	13,5

- 1) Base to stationary jaw clamping surface
- 2) Base to upper guide edge

APPLICATION

Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

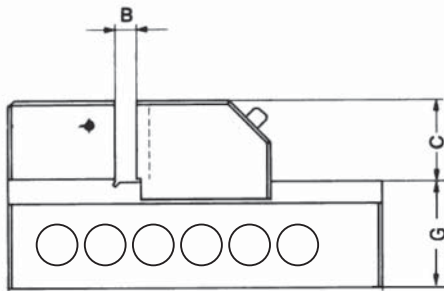
CUSTOMER BENEFITS

- ⌚ Easy clamping and unclamping with allen key
- ⌚ Clamping jaw adjustable in stages, snaps in automatically

TECHNICAL FEATURES

- With draw-down effect
- Made of alloyed tool steel, hardened and very finely ground
- Horizontally and vertically ground prism
- No spindle which could cause contamination during electric discharge machining, for example

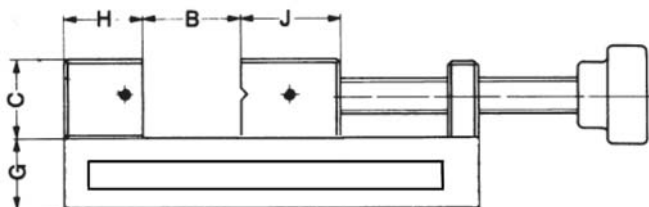
Grinding and inspection vices



A29
PLF, with quick adjustment in gauge accuracy

Item no.	Size	Squareness ¹⁾ / 100 mm	Parallelism ²⁾ / 100 mm	Jaw width mm	B mm	Total height mm	C mm	G mm	Length body mm	Weight kg
1111185	0	0,005	0,005	50	65	50	25	25	140	1,4
1111186	1	0,005	0,005	73	100	67	35	32	190	4,1
1111187	2	0,005	0,005	100	125	90	45	45	245	7,3

- 1) Base to stationary jaw clamping surface
- 2) Base to upper guide edge



A29
PL-G

Item no.	Size	Squareness ¹⁾ / 100 mm	Parallelism ²⁾ / 100 mm	Jaw width mm	B mm	Total height mm	C mm	Length body mm	G mm	H mm	J mm	Weight kg
1111182	0	0,005	0,002	60	55		25	110	25	25	33	1,6
1111183	1	0,005	0,002	73	100	74	35	210	32	33	45	4
1111184	2	0,005	0,002	88	125	88	40	250	48	40	50	7,6

- 1) Base to stationary jaw clamping surface
- 2) Base to upper guide edge

APPLICATION

Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

CUSTOMER BENEFITS

- ⊕ Easy clamping and unclamping with allen key
- ⊕ Clamping jaw adjustable in stages, snaps in automatically

TECHNICAL FEATURES

- With draw-down effect
- Made of alloyed tool steel, hardened and very finely ground
- Horizontally and vertically ground prism
- No spindle which could cause contamination during electric discharge machining, for example

APPLICATION

Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

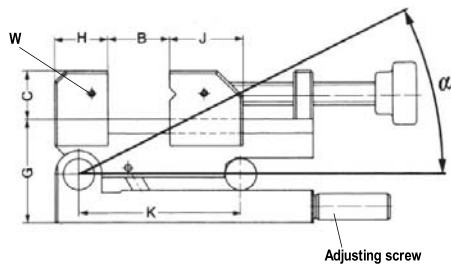
TYPE

- ⊕ Clamping and unclamping with threaded spindle

TECHNICAL FEATURES

- Horizontally and vertically ground prism
- Made of alloyed tool steel, hardened and very finely ground

Grinding and inspection vices



A29
PS-SV, front swivelling axis

Item no.	Size	Squareness / 100 mm	Parallelism / 100 mm	Angular accuracy	Jaw width mm	B mm	Total height mm	C mm	Length body mm	G mm	H mm	J mm	K mm	α	W	Weight kg
370778	1	0,005	0,002	bei 45° ± 15°	70	80	93	30	160	63	33	45	100	0° - 46°	2xM5x15	5,3
370779	2	0,005	0,002	bei 45° ± 15°	90	120	113	40	210	73	40	50	150	0° - 46°	2xM5x15	11

APPLICATION

Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

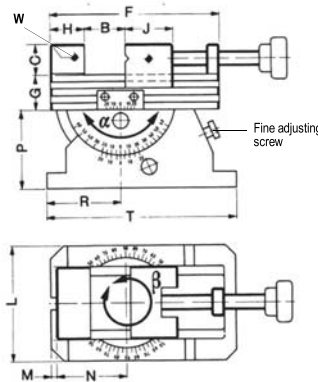
CUSTOMER BENEFITS

- ☺ The clamping device can be positively locked in any angular position

TECHNICAL FEATURES

- Made of alloyed tool steel, hardened and very finely ground
- Bearing and support pins hardened and ground to a precision of 0.001 mm

Grinding and inspection vices



A29
PS-ZD 2-dimensional

Item no.	Size	Squareness / 100 mm	Parallelism / 100 mm	Jaw width mm	B mm	Total height mm	C mm	Length body mm	G mm	H mm	J mm	L mm	M mm	N mm	P mm	R mm	T mm	β	α	W	Weight kg
370782	1	0,005	0,002	70	80	137	30	160	32	33	45	110	5	65	75	70	180	360°	0° - 120°	2xM5x15	11,1
370783 ▲	2	0,005	0,002	120	150	210	40	270	50	55	70	160	10	105	120	105	270	360°	0° - 70°	2xM6x20	43

APPLICATION

Mainly in tool construction on grinding, milling and engraving machines, on jig boring machines, for measuring and control work and for production operations requiring high clamping precision.

CUSTOMER BENEFITS

- ☺ 2-dimensional angle adjustment via vernia, for size 1 with 3'-vernia, for size 2 with 5'-vernia
- ☺ 360° turnable

TECHNICAL FEATURES

- Fine adjustment screw on bottom section makes exact angular adjustment possible
- Size 2 for heavy machining
- Positive locking in any desired angular position using fixing screws
- Made of alloyed tool steel, hardened and very finely ground

F-senso chuck clamping force measuring device



APPLICATION

Suitable for 3 jaw chucks and vices.

The F-senso clamping force measurement device enables you to check the clamping force as well as the rotational speed of your clamping tools. The centrifugal behavior is thus directly related to the accompanying software evaluated.

TYPE

- ⊕ Broad clamping range of 75 - 175 mm through interchangeable pressure pins
- ⊕ Broad measuring range from 0 - 100 kN per jaw
- ⊕ Dynamic clamping force measurement under rotation up to 8250 rpm
- ⊕ Real-time data transmission via Bluetooth to included tablet
- ⊕ Delivered in the practical hard-shell case

TECHNICAL FEATURES

- No additional attachments necessary on the machine
- Easy positioning through positioning aid
- Automated switch-off



Video F-senso chuck

ADVANTAGES AT A GLANCE

- ⊕ Direct output of the centrifugal force behavior through combined measurement of clamping force and speed
- ⊕ Flexibility through large clamping and measuring range
- ⊕ Easy handling without additional set-ups on the machine

Included in the scope of delivery:

- Base with foam insert
- Clamping force measuring head, F-senso chuck
- Pressure bolts in lengths 5 mm, 15 mm, 25 mm and 30 mm
- Pressure bolt elongation in length 25 mm
- Practical insertion aid
- Tablet PC with pre-installed measuring and evaluation program



C 15
Clamping force measurement device F-senso chuck

Item no.	179800
Measuring range / Clamping force kN	2 jaws: 0 - 200; 3 jaws: 0 - 300
Measuring range / Rotation speed min-1	0 - 8250
Accuracy	Force <0.5% / Rotation speed ±10 rpm within the complete measuring range
Clamping Ø mm	75 - 175
Dimensions (base unit)	Ø 75/80 x 130

EASYLOCK zero point clamping system



Palletising systems such as the EASYLOCK zero point clamping system from RÖHM achieve a considerable productivity increase. This modular system meets the requirements of customer-specific solutions with the best-possible utilisation of machine capacity. Although the machine tool had to stop for the set-up time until now, the workpiece can now be clamped and positioned on the pallet outside the machine tool. The set-up time is now only limited to loading and unloading the pallet, which happens in seconds. If multiple manufacturing processes are necessary for machining, then the pallet including the workpiece can be used without zero point loss. Due to the robust and rust-resistant construction, EASYLOCK zero point clamping can be used throughout, starting with machining up to the measuring machines.

EASYLOCK zero point clamping system

THE BENEFITS AT A GLANCE

INCREASED PRODUCTIVITY

- ⊕ Free machine capacity through reduction of set-up time by up to 90%
- ⊕ Very rapid change of workpiece and clamping fixtures on tilt-free clamping and positioning with long insert

HIGH PRECISION

- ⊕ Repeat accuracy of < 0.005 mm thanks to precision balls
- ⊕ Positive-locking self-inhibition unaffected by tensile and lateral forces

HIGHEST MODULARITY

- ⊕ Modular base carrier design variants for maximum flexibility
- ⊕ Flexible extension options

The pin system

HOW IT WORKS

With the RÖHM EASYLOCK zero point clamping system, the clamping pin is the interface between the machine table and the workpiece or fixture. The exact positioning guarantees secure clamping. At the same time the resulting machining forces are transferred via the clamping pin to the pressure cup. The high-precision pressure cups of the EASYLOCK system ensure an absolutely secure hold of the workpiece or fixture. The high locking and holding forces make the system suitable for all kinds of use.



EASYLOCK zero point clamping system

Machining with EASYLOCK?

EASYLOCK is ideally suited to all machining processes like grinding, milling, drilling and measuring.

What is meant by holding force?

Holding force is the force at which the pallet still rests securely on the clamping system. This force must not be exceeded during machining.

What is meant by repeat accuracy?

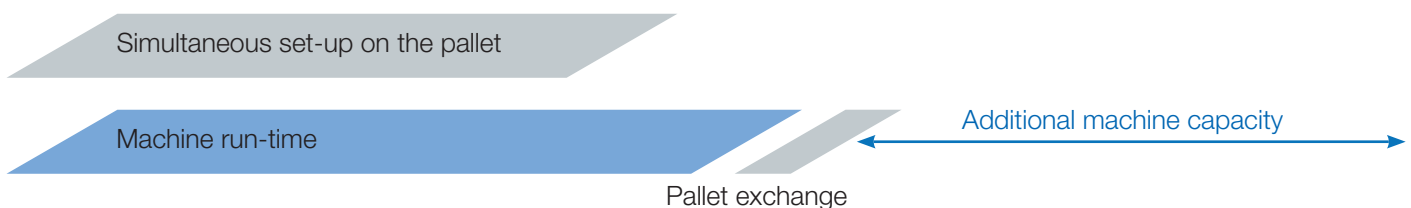
The repeat accuracy gives the tolerance range for the recorded workpiece references when the workpiece is removed and subsequently reclamped. The repeat accuracy of the EASYLOCK system is around < 0.005 mm.

REDUCED SET-UP TIMES BY UP TO 90%

Without palletising system



With EASYLOCK zero point clamping system



Palletising and clamping tools from a single source

THE SYSTEM SOLUTION

As a system supplier, RÖHM offers high quality clamping tools as well as the appropriate palleting solutions with zero point clamping. Coordinated with one another, base carriers and universal pallets support a wide range of combination options together with RÖHM vices, lathe chucks

and collet chucks as well as with pneumatically or hydraulically operated chucks and centric vices. The EASYLOCK base carriers can be provided with a variety of options on a modular basis.

BASE CARRIER EASYLOCK

- + optional with position sensing and cleaning function*
- + optional with indexing
- + optional with release control*
- + optional with media feed-through*



INDEXING:

Securing of the individual pallet against turning, so ensuring exact positioning every 90°.

MEDIA FEED-THROUGH:

Media transmission through the pallet, e.g. for activation of the pneumatically/hydraulically operated centric vices.

POSITION SENSING INCLUDING CLEANING FUNCTION:

This option includes a ventilation system for cleaning chips and monitoring the contact face.

RELEASE CONTROL:

Based on automated processes, this communicates to the robot that the insertion pins of the pallet have come loose.

* Further accessories are required (not included in the scope of delivery)

The right pallet makes the difference

PALLET VICES

suitable for NC-Compact vices RKE, RKE-LV, RZM, RKD-M, RKZ-M



PALLET MANUAL CHUCKS

suitable for DURO-T / DURO-TA chucks, CAPTIS-M collet chucks



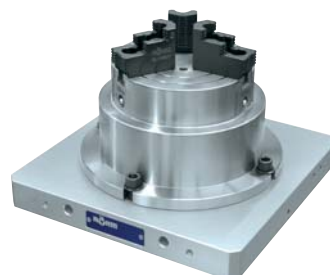
PALLET PNEUMATIC CENTRIC VICE

suitable for centric vice KZS-P / KZS-PG



PALLET PNEUMATIC CHUCK

suitable for chuck SSP



Technical data - standard carriers

1 PALLET CARRIER

ID	Operation	Diameter	Dimensions	Inside micrometer	Options
1314883	hydraulic	112	200x200x58	-	with indexing
1314882	pneumatic	112	200x200x58	-	with indexing
1313929	hydraulic	138	200x200x58	-	with indexing
1313928	pneumatic	138	200x200x58	-	with indexing



2 PALLET CARRIER

ID	Operation	Diameter	Dimensions	Inside micrometer	Options
1314885	hydraulic	112	200x400x58	200	-
1314884	pneumatic	112	200x400x58	200	-
1313931	hydraulic	138	200x400x58	200	-
1313930	pneumatic	138	200x400x58	200	-



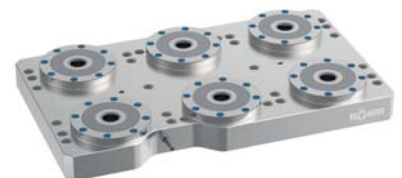
4 PALLET CARRIER

ID	Operation	Diameter	Dimensions	Inside micrometer	Options
1314887	hydraulic	112	350x350x58	200	-
1314886	pneumatic	112	350x350x58	200	-
1313933	hydraulic	138	350x350x58	200	-
1313932	pneumatic	138	350x350x58	200	-



6 PALLET CARRIER

ID	Operation	Diameter	Dimensions	Inside micrometer	Options
1313940	hydraulic	112	350x600x58	200	-
1352604	pneumatic	112	350x600x58	200	-
1313935	hydraulic	138	350x600x64	200	-
1313934	pneumatic	138	350x600x64	200	-



Further sizes on request

Technical data - Pallet

1 PALETT

ID	Diameter	Dimensions
1313941	112	200x200x40
1313936	138	200x200x40



2 PALETT

ID	Diameter	Dimensions
1313942	112	200x400x40
1313937	138	200x400x40



4 PALETT

ID	Diameter	Dimensions
1313943	112	350x350x40
1313938	138	350x350x40



6 PALETT

ID	Diameter	Dimensions
1313944	112	350x600x40
1313939	138	350x600x40



EASYLOCK zero point clamping system

Further sizes on request

The headquarters: our main plant in Sontheim/Brenz

The RÖHM main plant is located in Sontheim/Brenz. In this ultra-modern production facility comprising 41,000 m² optimum conditions have been achieved in order to solve the extensive range of discerning construction and production tasks making the company even better, faster and more efficient in the future.



Sontheim/Brenz

Sontheim | All national and international activities are planned and coordinated at the administrative headquarters in Sontheim. Thanks to the excellent infrastructure and transport routes, this location is ideal for a company relying on perfect product quality as well as maximum flexibility. Furthermore, the region around Sontheim offers another key basis for the success of our company: it is rich in quality awareness and motivated employees with the result that we are ideally prepared for the challenges of the future. The main plant uniquely unites mass production, serial production and customised individual production under a single roof.

Key locations for the company: Dillingen and St. Georgen

Such strong growth on the part of the RÖHM Group is also obviously associated with higher requirements on development and production capacities. The demands of today and tomorrow can be complied with the two facilities in Dillingen and St. Georgen.



Dillingen/Danube



St. Georgen

Plant Dillingen/Danube | This branch plant in Dillingen was put into operation by the RÖHM Group as early as 1953. Thanks to extremely positive development, the plant is subject to constant expansion and modernisation. For this reason, new modern production facilities were built in 1982 and 1991. In 2007 RÖHM built a new production hall for two portal turning and milling machines. This enables machining of workpieces up to 4 metres in length which will secure a leading market position for RÖHM in the future. More than 300 employees are primarily involved in engineering and manufacturing lathechucks, machine vices and special clamping equipment for turning and milling machinery as well as for machining centres.

Engineering and sales department St. Georgen | Apart from standard mandrels, tailor-made solutions for a wide variety of requirements are also manufactured here in this small but accomplished high-tech forge. RÖHM retains mechanical or power-operated mandrels, sliding jaw mandrels and hydraulic mandrels for its customers for tensioning workpieces in drill holes or interior contours.

Always close to our customers. With locations all around the world.



Customer orientation at RÖHM has less to do with marketing than with attitude. We consider customer proximity as an intensive dialogue with our partners as well as direct presence on key international markets.



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General Terms of Sale and Delivery

§ 1 Offer, conclusion of contract and contractual contents

1. Our Terms of Sale shall apply exclusively; we do not recognise contradictory terms and conditions or terms and conditions which deviate from our Terms of Sale unless we have explicitly approved their validity in writing. Our Terms of Sale shall also apply if we carry out the delivery to the buyer without reservation in the knowledge of contradictory terms and conditions of the buyer or terms and conditions which deviate from our Terms of Sale.
2. Our Terms of Sale shall only apply towards an entrepreneur within the meaning of Section 14 BGB [German Civil Code].
3. Our General Service Terms shall apply with precedence over these Terms of Sale in the respective valid version in cases, which comprise the service offer of RÖHM GmbH.
4. Our offers are always to be understood as invitatio ad offerendum and are therefore without obligation insofar as they have not explicitly been described as binding. The contract shall only be concluded with our written confirmation and in line with its contents and – if a written confirmation is missing – by the service/delivery. If a delivery/service is carried out immediately without a confirmation then the invoice shall at the same time be deemed as an order confirmation.
5. Costs for the production of drawings for special constructions are to be borne by the orderer insofar as the offer does not lead to an order for reasons, for which we are not responsible.
6. All details concerning weights, dimensions, services and technical data, which are contained in our printed material, catalogues, price lists or in other contractual documents, merely serve for purposes of information and are only binding insofar as they are explicitly described as binding.
7. We reserve the right to make construction and form changes to the object of contract insofar as no changes are made hereto, which are deemed unreasonable for the orderer.
8. The documentation consists of the compilation drawing, the BOM with marking of the parts subject to wear and tear and spare parts as well as assembly instructions upon request. Respectively in German and/or, upon request, in English. This free documentation will be supplied in a digital form. The PDF format shall apply to drawings, BOMs and texts. Any scope of documentation beyond this is liable to costs respectively requires a special agreement. The documents may not be reproduced in full or in part, not made accessible to third parties or used for any other purpose apart from that for which they were handed over to the customer without our prior written authorization.
9. The corresponding measurement methods for tests, with which certain temperatures, times and other measured or control values should apply, must be stipulated before start of delivery and recognised by both parties. If no stipulation is made the measurement methods usually applied by RÖHM shall apply, we shall provide the details thereof upon request.
10. Samples will only be supplied against payment and owing to a separately placed order.
11. Assurances, collateral agreements and amendments to the contract require a written form in order to be valid. This requirement cannot be waived orally.
12. Placed orders are irrevocable unless the supplier has approved the revocation in writing.
13. In case of export business the delivery is carried out at the conditions agreed on the order confirmation, the international regulations for the interpretation of customary contractual forms shall apply in addition (incoterms 2010 of the International Chamber of Commerce, respective valid status).
14. Our General Business Terms shall apply to the RÖHM online shop with the following supplementations:
 - a) The offer on the part of the customer is submitted binding as soon as the customer orders the products in the shopping basket by using the function „binding order“.
 - b) A purchase in the online shop is only possible if the customer actively agrees to our General Business Terms.
 - c) Mistakes and errors with regard to the goods availability, prices and other details and data excepted. Diagrams in the online shop are merely for the purpose of illustration respectively as visual aids; the description is binding.
 - d) We will inform the customer if the product ordered by the customer is temporarily or permanently not available.
15. Our „product information“, technical information leaflets as well as other product-specific publications shall apply in addition to the General Business Terms. These are always to be compiled with in their current version.

§ 2 Prices

1. In the absence of special written agreements the prices in the Federal Republic of Germany shall apply „carriage paid“ recipient plus the statutory value added tax. With export business the object of delivery shall be deemed as sold „ex works“ if nothing is determined in the contract concerning the type of sale. A processing fee of EUR 1.00 will be charged for individual orders with a goods value of less than EUR 150.00 net, a processing fee of EUR 30.00 for orders with a goods value of less than EUR 50.00 net respectively plus the applicable rate of value added tax. This shall apply to deliveries within the domestic country and overseas. At the customer's request the goods can be delivered to an alternative shipping address against a logistics fee in the amount of EUR 10.00.
2. We would like to point out that we will only carry out the shipment at the customer's request. This shall have no effect on the regulations according to Section 5.
3. We shall charge the prices valid upon conclusion of the contract, which are based on the cost factors which are valid at this time. Should these cost factors (in particular material, wages, energy, etc.) change between conclusion of the contract and the agreed delivery time then we are entitled to make a corresponding change to the prices. In case of export business the supplier is entitled to terminate the contract extraordinarily with regard to the part of the order that has not yet been completed or to adjust the prices for this accordingly in the event of a substantial devaluation in the currency, in which the order is concluded.
4. In case of conclusion ex works the goods will be conveyed at the costs and risk of the orderer. With all other consignments the provisions stipulated in the incoterms 2010, respective valid status, will apply with regard to insurance and the assumption of risks.
5. We will inform the buyer of our production quantity for parts/products, which are produced especially according to the buyer's requests. The buyer undertakes to purchase the quantities confirmed to him.
6. Excess and shortfalls in deliveries of up to 5 %, with special tools up to 10 %, at least however 2 pieces, are permitted and do not substantiate any quality defects. The respective delivery will be charged.

§ 3 Terms of payment

1. In the absence of a special agreement the payment is to be made without any deduction free paying agent within 10 days after the invoice date – also with partial deliveries.
2. In case of default of payment interest will be charged in the amount of the credit costs charged by banks, at least however interest in the amount of 9 % above the respective base lending rate of the ECB.
3. In case of export business the payments are to be made in line with the agreed terms of payment.
4. Costs of the payment transactions, in particular bank charges for overseas transfers to us, shall principally be for the expense of the customer.

§ 4 Delivery time

1. The start of the delivery deadline stated by us presumes the clarification of all technical questions. Delivery dates stated by us are – insofar as not explicitly agreed or described as binding – non-binding and shall merely represent an expected delivery date.
2. The compliance with our delivery obligation further presumes the timely and proper fulfilment of the buyer's obligations, in particular the compliance with the agreed terms of payment. The right is reserved to the plea of the unfulfilled contract. This right shall also consist of obligations from previous deliveries which have not been satisfied in full.
3. The delivery deadline shall begin with the sending of the order confirmation, however not before the provision of the documents, permit, releases, etc., which are to be procured by the orderer, as well as not before the receipt of the agreed down payment.
4. If a binding delivery date has been agreed then the supplier also has to deliver within the deadline. The delivery deadline shall have been adhered to if the object of delivery has left the plant by the time it expires or notification has been given that the object is ready for delivery, the right is reserved to the timely and correct self-delivery. If the orderer changes his order with regard to parts of the delivery then the delivery deadline shall only begin to apply new again with the confirmation of the change.
5. Force majeure, war, civil commotion, strike, lock-out or measures of authorities, no matter for what reason, which oppose a delivery, as well as deficiencies of raw materials, of transport means as well as theft – also at the sub-suppliers – shall release the supplier from the obligation to deliver within the agreed deadline. The orderer is to be notified immediately of the occurrence of the event and of the expected implications.
6. Deliveries before expiry of the delivery time and in reasonable parts are permitted.
7. The adherence to the delivery time presumes the fulfilment of the orderer's contractual obligations.
8. The regulations of Subclause 10 shall apply in the event of the delay in delivery or impossibility.

§ 5 Passing of risk and acceptance

1. The risk shall pass to the orderer by no later than with the despatch of the delivered parts also if partial deliveries are made or we have taken over other services e.g. the shipping costs or delivery to the location and installation.
2. At the orderer's request the shipment shall be insured by us against theft, damages caused by breakage, transport, fire and water and other insurable risks at his costs.
3. If the shipment is delayed as a result of circumstances, for which the orderer is responsible, then the risk shall pass to the orderer from the day upon which the goods are ready for shipment; however we are obliged to procure the insurances, which he requests, at the request and costs of the orderer.
4. Delivered objects are, even if they feature insignificant features, to be accepted by the orderer irrespective of the rights from Section 8.

§ 6 Delay in acceptance, order on call

1. If the orderer does not accept the object of contract within the deadline we are entitled to set him a reasonable final deadline, to dispose otherwise over the object after its expiry and to supply the orderer with a reasonably extended deadline. Our rights to cancel the contract under the pre-requisites of Section 326 BGB and to request damages owing to the non-fulfilment shall remain unaffected hereby. If we request damages owing to non-fulfilment we can request 40 % of the agreed price plus value added tax as compensation unless the orderer proves less damages. We reserve the right to assert higher actual damages.
2. Orders, which are confirmed by us on call, must – insofar as nothing special has been agreed – be accepted by no later than within one year from the order date. The same shall apply in case of date reservations or sustainable „on call position“. Subclause 6.1 shall apply accordingly in case the goods are not called within the stated deadline.

§ 7 Reservation of title

1. The objects of the deliveries (reserved goods) shall remain our property until the fulfilment of all claims to which we are entitled against the buyer from the business relationship. Insofar as the value of all security rights, to which we are entitled against the buyer, exceed the amount of all secured claims by more than 10 %, we will release a corresponding part of the security rights at the buyer's request.
2. During the existence of the reservation of title the buyer is prohibited from a pledge or assignment as collateral and the resale only permitted for resellers in the customary course of business and only under the condition that the reseller receives a payment from his customer or stipulates the reservation that the property shall only pass to the customer when he has satisfied his payment obligations.
3. In case of attachments, seizures or other disposals or interventions of third parties the buyer has to inform us immediately so that we can file an action according to Section 771 ZPO [German Code of Civil Procedure]. Insofar as the third party is not in the position to reimburse us the court and out-of-court costs of an action according to Section 771 ZPO, the buyer will be liable for the loss incurred to us.
4. The buyer undertakes to treat the object of purchase with due care and attention; he is in particular obliged to sufficiently insure these at the value as new at his own costs against damages caused by fire, water and theft. Insofar as maintenance and inspection work is necessary the buyer must carry this out in time at his own costs.

General Terms of Sale and Delivery

5. In case of breaches of duty by the buyer, in particular with default of payment we are entitled to cancellation and to take the goods back; the buyer is obliged to hand the goods over. The taking back of goods respectively the assertion of the reservation of title does not require any cancellation of the supplier; these acts or an attachment of the reserved goods by us shall not represent a cancellation of the contract unless we had explicitly declared this.

6. If the buyer has resold the object of purchase in the ordinary course of business then he shall hereby now already assign all claims to us in the amount of the final invoice amount (including value added tax) of our claim, to which he is entitled from the resale against his buyers or third parties, irrespective of whether the object of purchase has been resold without or after processing. The buyer shall also remain authorized to collect this claim after the assignment. Our authorization to collect the claim ourselves shall remain unaffected hereby. However, we undertake not to collect the claim as long as the buyer satisfies his payment obligations from the collected proceedings, is not in default of payment and in particular no application has been filed for the opening of insolvency proceedings or payments have been suspended. If this is however the case we can request that the buyer announces the assigned claims and their debtors to us, provides us all details which are necessary for the collection, hands over the associated documents and informs the debtors (third parties) of the assignment.

7. The processing or conversion of the object of purchase by the buyer is always carried out on our behalf. If the object of purchase is processed with other objects, which do not belong to us, then we shall acquire the co-ownership to the new object in the ratio of the value of the object of purchase (end invoice amount, including value added tax) to the other processed objects at the time of the processing. Incidentally, the same shall apply to the object produced by processing as to the object of purchase delivered under reservation.

8. If the object of purchase is inseparably mixed with other objects that do not belong to us then we shall acquire the co-ownership to the new object in the ratio of the value of the object of purchase (end invoice amount, including value added tax) to the other mixed objects at the time of the mixing. If the mixing is carried out to the extent that the object of the buyer is to be seen as the main object then it shall be deemed as agreed that the buyer assigns us the pro rata co-ownership. The buyer shall store the thus produced sole ownership or co-ownership on our behalf.

§ 8 Quality defects

We shall be liable for quality defects as follows:

1. All those parts or services are to be subsequently improved free of charge at our choice, delivered or provided new, which – irrespective of the operating duration – feature a quality defect if this cause existed already at the time when the risk was passed.

2. Claims for quality defects shall become statute-barred in 12 months. The deadline will begin with the passing of the risk (Subclause 6).

3. The buyer has to report quality defects to us immediately in writing.

4. In case of reports of defects payments of the buyer may be withheld in a scope, which is in reasonable relation to the occurred quality defects. If the defect is unjustifiably reported we are entitled to request reimbursement of the expenses incurred to us by the buyer.

5. We are first of all always to be granted the opportunity for the subsequent fulfilment within a reasonable period of time.

6. If the subsequent fulfilment fails the buyer can – irrespective of possible claims for damages – cancel the contract or reduce the remuneration. The buyer can only request reimbursement for fruitless expenses if we are responsible for the defect owing to wilful intent or gross negligence.

7. Defects shall not exist with an only insignificant deviation from the agreed conditions, with an only insignificant impairment to the usability, with natural wear and tear or damages, which are caused after the risk has passed as a result of faulty or negligent treatment, excessive use, unsuitable operating equipment or owing to special external influences, which are not presumed according to the contract, as well as with software faults that cannot be reproduced. If improper changes or repair work is carried out by the buyer or by third parties then this and the thus incurred consequences shall not substantiate any defects either. The same shall apply if our stipulations concerning the handling and other instructions are not complied with and a proper maintenance is not carried out.

8. Claims of the buyer owing to the expenses, which are necessary for the purpose of the subsequent fulfilment, in particular transport, route, labour and material costs, are excluded if the expenses increase, because the object of the delivery has subsequently been taken to another location than the buyer's branch unless the transportation corresponds with its use as intended.

9. Statutory claims for recourse of the buyer against us shall only exist to the extent that the buyer has not reached any agreements with its buyer that go beyond the statutory claims for defects.

10. Subclause 9 shall apply to claims for damages. Further or other than claims regulated in this Subclause or in Subclause 9 owing to a quality defect are excluded.

§ 9 Industrial property rights and copyrights, defects of title

Insofar as not otherwise agreed, we are obliged to merely provide the delivery in the country of the place of delivery free of industrial property rights and copyrights of third parties (hereinafter property rights). Insofar as a third party asserts justified claims owing to the infringement of property rights due to deliveries provided by us and used as per contract against the buyer, we shall be liable towards the buyer as follows within the deadline determined in Subclause 8.2:

1. We will, at our choice and at our costs, either obtain a right of use for the deliveries concerned, change these so that the property right is not infringed, or exchange these. If this is not possible for us at reasonable conditions, the buyer shall be entitled to the statutory rights to cancellation or reduction. The buyer can only request reimbursement for fruitless expenses if we are responsible for wilful intent or gross negligence. Our obligation to pay compensation is oriented to Subclause 10.

2. The afore-mentioned obligations shall only exist if the buyer informs us immediately in writing about the claims asserted by third parties, does not recognise an infringement and we reserve the right to all defence measures and settlement negotiations. If the buyer discontinues the use of the delivery for reasons to minimise damages or for other important reasons he undertakes to inform the third party that the discontinuation of the use is not associated with a recognition of an infringement of a property right.

3. Claims of the buyer are excluded insofar as he is responsible for the infringement of property right.

4. Claims of the buyer are further excluded insofar as the infringement of property right is caused by special stipulations of the buyer, due to an application that is not foreseeable for us or by the fact that the delivery is changed by the buyer or is used together with products not delivered by us.

5. In the event of infringements of property rights the provisions of Subclauses 8.4, 8.5 and 8.9 shall apply accordingly to the claims of the buyer regulated in Subclause 13.

6. Further or other claims of the buyer against us or our vicarious agents owing to a defect of title than those regulated in this Subclause 9 are excluded.

§ 10 Joint and several liability

1. Claims of the buyer for damages – irrespective of the legal nature of the asserted claim – are excluded.

2. Excluded from this are:

a) Damages owing to the breach of essential contractual obligations. Deemed as essential are such contractual obligations, the fulfilment of which makes the proper execution of the contract possible at all and on the compliance with which the contractual partner may as a rule rely and depend on.

b) Damages from the injury to life, the body or the health if we are responsible for the breach of obligation.

c) For other damages, which are due to a wilful or grossly negligent breach of duty, whereby our breach of duty is deemed equivalent to that of our legal representatives or vicarious agents.

d) Liability according to the ProdHaftG [German Product Liability Act]

3. A change to the burden of proof for the disadvantage of the buyer is not associated with the afore-mentioned regulations.

4. Insofar as the liability for damages is excluded or limited against us, this shall also apply with regard to the personal liability for damages of our employees, our commercial agents and our vicarious agents.

§ 11 Obligations of the buyer to provide assistance

1. Assistance services of the buyer, which are explicitly or tacitly agreed within the framework of the contract, shall be carried out without a special remuneration unless explicitly otherwise agreed.

2. The buyer is obliged to inform us about all facts in time, from which it can be derived that goods and products in stock in our company, which we have made available with regard to the production capacities reported to us, cannot be used or not used in full. If residual stocks remain the buyer shall take over the stocks and the, if applicable incurred destruction costs in the event of a premature change to its material scheduling. This shall also apply to products, with which we had to order minimum quantities on the part of our suppliers if we have informed the customer hereof in advance.

3. The buyer guarantees that the products supplied by him for processing are suitable for this purpose. We are not obliged to examine the products supplied by the buyer for the condition and the suitability for the further processing. Within the framework of ongoing business relationships as well as if an object for processing has initially been inspected, tested and released, the buyer undertakes to inform us of each product change without request in writing. In the case of regular processing of objects the buyer is further obliged to examine the object that is to be processed by us for deviations and changes for each change to the production conditions and in his company, in particular with the exchange of tools, machines or with the introduction of new production processes and to notify us of such changes and modifications in writing.

4. We do not have to examine the instructions of our buyers, the material selection or other regulations, which are made by our buyer, for their accuracy.

5. Therefore, the buyer has to examine all instructions, which he issues as well as the quality of the materials stipulated or made available to us for the compliance with the statutory and technical regulations.

6. If the buyer is in default with regard to his obligation for provision or to provide assistance after a written warning we are entitled to the statutory rights.

7. Goods may in each case only be carried out with the explicit consent of the supplier. The return must be carried out carriage paid, by stating the order number and delivery date in the original packaging. The goods have to be in the original condition, thus in an undamaged condition. We will charge 20 % of the goods value, at least however EUR 50.00 plus the applicable rate of value added tax for the processing work relating to the return. The supplier reserves the right, against proof, to charge a higher volume of work to the orderer in an individual case; the orderer is at liberty to prove less damages.

§ 12 Place of performance and place of jurisdiction/miscellaneous

1. The place of performance and place of payment is the registered seat of our company in Sontheim/Brenz.

2. The law of the Federal Republic of Germany is to be exclusively applied to the contractual relationship. The application of the Convention of the United Nations of 11 April 1980 concerning Contracts for the International Sale of Goods (CISG „Law governing the sale of goods of Vienna“) is excluded.

3. With all disputes ensuing from the contractual relationship, if the orderer is a merchant, a legal entity under public law or a special fund under public law, the action is to be filed at the court that has jurisdiction for our headquarters. We are also entitled to file action at the headquarters of the orderer.

4. We store your data according to Section 23 Federal Data Protection Act.

RÖHM GmbH

89565 Sontheim (Germany)

Status: October 2015

General Service Terms (ASB) of RÖHM GmbH, Sontheim

1. Validity

1.1 These ASB form the basis for all business transactions with our customers, which refer to the repair or maintenance of the products manufactured or delivered by us insofar as these customers concern entrepreneurs within the meaning of Section 14 BGB [German Civil Code].

1.2 Contradictory, supplementary contractual terms and conditions of the customer or those which deviate from these ASB will not be recognised.

1.3 Within the framework of a regular business relationship these ASB will also be valid after the effective inclusion for the first time if we do not explicitly refer hereto in follow-up transactions.

1.4 Insofar as the ASB do not include any regulations, the General Terms of Sale and Delivery of RÖHM GmbH shall apply.

2. Offer and conclusion of the contract

2.1 Our offers are – insofar as not explicitly marked as binding – without obligation and merely to be understood as invitatio ad offerendum. The right is reserved to an interim sale.

2.2 Contracts with us will only be concluded with our written acceptance declaration or – if such is not carried out – by our delivery and service. Changes and supplementations to the contracts concluded with us require a written form.

2.3 If the object of maintenance or repair was not delivered by us then the customer has to point out existing industrial property rights with regard to the object if we are not responsible for any fault the customer shall indemnify us from possible claims of third parties from industrial property rights.

2.4 Insofar as we are responsible for negligence Par. 2.3 shall apply accordingly.

3. Contractual parts

The offer and the product list respectively available to us and the customer are a part of the contract.

4. Technical documents and plans

4.1 All rights to our offer documents as well as documents, which have been handed over, shall remain reserved.

4.2 The customer shall recognise our rights and will not reproduce the documents in full or in part, not make these accessible to third parties or use these for any other purpose than that for which they were handed over to him without our prior written authorization.

5. Scope of services, maintenance, condition of device, repair

5.1 Decisive for the scope of our delivery and service is our binding offer or – if such is not available – our written declaration of acceptance. Both individual services can be agreed, which are principally to be remunerated according to Subclause 12.1, as well as the service packages described under Subclause 5.2, which are to be remunerated according to 12.2 respectively 12.3.

5.2 The following activities are a part of our service obligation with the processing of service packages:

5.2.1 Commissioning of service

- skilled execution of the necessary commissioning of the clamping device and control at the place of installation in line with the regulations of the manufacturer.
- assembly work over the course of the commissioning together with the machine manufacturer
- first instructions and operator training
- we will invoice separate requests for the training with regard to the maintenance and use as separate work.

5.2.2 Inspection service

Skilled execution of the necessary inspection of the clamping device and control at the place of installation in line with the regulations of the manufacturer. Insofar as additional maintenance or repairs become necessary at the customer's request or owing to special loads, these are to be remunerated separately by the customer.

5.2.3 Maintenance service

Skilled execution of the necessary maintenance of the clamping device and control at the place of installation in line with the regulations of the manufacturer. Insofar as additional repairs become necessary at the customer's request or owing to special loads, these are to be remunerated separately by the customer.

5.3 The service obligation shall begin with the purchase or conclusion of a service package. With the purchase or conclusion of a service package after the expiry of the warranty period the service obligation of RÖHM shall only refer to such products, which are capable of use and free of defects at the time of the conclusion or purchase of the service package. This is to be ensured by an inspection of the products; if defects are determined these are to be remedied before the start of validity of the service package by a necessary repair liable to costs; this repair is not part of the service package.

5.4 Our service obligation shall not include carrying out work on products and accessories, which was(were) not delivered by us.

5.5 Our service obligation shall lapse if the product was not subjected to the function and safety tests according to the details in the operating instructions or third parties have carried out work on the products concerned without our prior written consent unless this work has no disadvantageous influence on the provision of our service. The same shall apply if the products have been damaged due to causes for which we are not responsible, for example by water, fire, stroke of lightning or other implications of force majeure as well as with improper treatment by the customer or third parties.

5.6 Depending on the use and type of the product an overhaul may be necessary after longer use. This is the case if the costs of a repair exceed the current value of the product. Overhaul within this meaning is also the necessary new acquisition of a product in the absence of available spare parts. Overhauls are not part of the service obligation within the service packages. If we are of the opinion that a products that is to be maintained by us under a service package requires an overhaul, we will inform the customer hereof by stating the current value estimated by us and submit an offer for the overhaul to the customer with a remuneration calculated according to 12.1.

6. Repair/service that cannot be carried out

6.1 The services provided concerning the details of a cost estimate as well as the further incurred and to be proven work (fault search time equal to working hours) will be invoiced to the customer if the repair cannot be carried out due to reasons for which RÖHM GmbH is not responsible, in particular because the fault for which a complaint will be made did not occur during the inspection, spare parts cannot be procured, the customer culpably missed the agreed date or the contract was terminated during the execution.

6.2 The object of repair only needs to be restored to the original condition again at the explicit request of the customer against reimbursement of the costs unless the undertaken work was not necessary.

6.3 In case of a repair that cannot be carried out RÖHM GmbH shall not be liable subject to sentence 2 for damages to the object of repair, the breach of contractual secondary obligations and for damages, which were not suffered to the object of repair itself, no matter to which legal grounds the customer refers. RÖHM, on the other hand, will be liable in case of wilful intent, with gross negligence of the owner / the executive bodies or executives as well as with the culpable breach of essential contractual duties. Such contractual obligations are deemed essential, the fulfilment of which makes the proper execution of the contract possible at all and the compliance with which the contractual partner may as a rule rely and depend upon.

7. Duration of the service

7.1 The details with regard to the duration of repairs and services are based upon estimates and merely serve as information and a first estimate by the customer. They are therefore not binding if they have not been explicitly marked as binding.

7.2 In case of subsequently placed additional and extension orders or with necessary additional repair work the agreed repair deadline shall be extended accordingly.

8. Obligations to provide assistance of the customer

8.1 The customer has to draw our attention to the statutory, official and company safety and other regulations applicable at the place of destination of our delivery and service, which refer to the delivery, the assembly and the operation.

8.2 The customer will inform us with or immediately after his order about possible special features of the place of installation, which may have an implication on the proper function of the products, in particular about the structural condition and the concrete operating environment.

8.3 The customer shall ensure – also during the warranty period according to Subclause 17.5 – a regular and skilled maintenance of the products delivered by us insofar as this was not taken over by us as per contract.

8.4 The customer shall dispose of the goods delivered by us at his own responsibility and at his own costs according to the respective valid regulations. We are not obliged to create a possibility for the return unless this would have been stipulated by law.

8.5 The customer has to support the repair / maintenance personnel with the execution of the repair at his own costs.

8.6 The customer has to take the special measures, which are necessary for the protection of persons and objects at the workplace. He also has to inform the repair managers about existing special safety regulations insofar as these are of significance for the repair personnel. He shall inform us in case of breaches of the repair personnel of such safety regulations. In case of serious breaches he can refuse the infringing party access to the repair location by mutual agreement with the repair manager.

8.7 The customer shall bear a supervisory and assistance obligation for the compliance with the statutory working time limits. Breaches are to be reported to RÖHM GmbH.

8.8 The customer is obliged to provide the reasonable and necessary technical assistance at his costs, in particular to:

- Provision of the necessary, suitable assistants in the number that is necessary for the repair and for the necessary time; the assistants have to follow the instructions of the repair manager. We do not assume any liability for the assistants. If a defect or damages were caused by the assistants owing to instructions of the repair manager, then the regulations of Sections 17 and 18 shall apply accordingly.
- Undertaking of all construction, bedding and scaffolding work including the procurement of the necessary building materials.
- Provision of the necessary devices and heavy tools as well as the necessary commodities and required materials.
- Provision of heating, lighting, operating power, water, including the necessary connections.
- Provision of necessary, dry rooms, which can be locked for the storage of the tool for the repair personnel.
- Protection of the repair place and materials against harmful influences of all kinds, cleaning of the repair place.
- Provision of suitable, theft-proof recreation rooms and work rooms (with heating, lighting, washing possibility, sanitary facilities) and First Aid for the repair personnel.
- Provision of the materials and undertaking of all other acts, which are necessary for the adjustment of the object of repair and for carrying out a testing that is envisaged as per contract.

8.9 The technical assistance of the orderer must guarantee that the service can be started immediately after the arrival of our personnel and carried out without delay until the acceptance by the orderer. Insofar as special plans or instructions of RÖHM are necessary, RÖHM shall make these available to the orderer in time.

9. Obligations of the customer to provide assistance in case of maintenance

9.1 The products are to be used as intended and according to their protection type and in line with the operating instructions together with their annexes.

9.2 In case of an agreement of one of the service packages described in Subclause 5, the customer will place the products that are to be installed, maintained or repaired into a faultless condition, capable of use before conclusion of the contract at his own costs if the products are not already in such a condition. If the customer does not properly satisfy this obligation either after a warning on our part and within the deadline we are entitled to accordingly cancel the contract or the delivery. Further claims for damages on our part shall remain unaffected.

9.3 If the customer uses the maintenance service interferences are to be reported to us immediately in writing, in detail and in an understandable manner.

9.4 Our employees and vicarious agents are to be granted the unimpeded and safe access to the products. In case of delays for which the customer is responsible he is obliged to remunerate the waiting times of our employees and vicarious agents resulting from the delay separately.

9.5 The customer shall refrain from commission third parties with the services during the term of a service agreement, which we have to provide according to the agreement or from performing this work himself.

9.6 The customer has to draw our attention to the statutory, official and company safety regulations and other regulations applicable at the place of destination of our delivery and service, which refer to the delivery, the assembly and the operation.

10. Inspection and acceptance

10.1 Services will be provided by us according to the guidelines of our quality control and deliveries inspected accordingly. If the customer requests further inspections then these are to be agreed in writing and paid by the customer. This shall relate e.g. to special tests for the acceptance.



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10.2 The customer undertakes to accept our services under this contract immediately after the report that they have been completed. Upon request he has to declare their acceptance in writing towards our employees or vicarious agents insofar as there is no essential defect. This is carried out by the signing of the service report.

10.3 Our services shall be deemed as accepted free of defects with the re-commencement of the operational use of the maintained or repaired product, in particular for production purposes, if no defects have been previously reported by the customer.

11. Cost details and cost estimate

11.1 The creation of the cost estimates is liable to costs if the execution of the repair is not approved.

11.2 The costs for a cost estimate amount to the flat rates fixed in the current price list.

11.3 If the repair cannot be carried out at these costs or if our employees or vicarious agents consider the execution of additional work to be necessary during the repair the customer's consent is to be obtained if the stated costs are exceeded by more than 15%.

12. Remuneration, maturity and terms of payment

12.1 Insofar as not otherwise agreed and there is no warranty case our services are to be remunerated according to the actual work requirement pursuant to our respectively valid general price lists. The time required by our employees will be settled in time sections of 15 min. In addition to the time required for the work that is to be performed in these cases the customer will pay the travelling and waiting times, overtime surcharges, expenses, travelling and accommodation costs as well as the costs of spare parts, materials subject to wear and tear and consumables and replacement part sets according to our prices lists or in line with the offer.

12.2 Insofar as a flat rate remuneration was agreed for a service package, our work and travelling costs and expenses are thus covered, not however the costs for waiting times, overtime at the customer's request, spare parts, materials subject to wear and tear and consumables, replacement parts sets as well as other accessories. Our work for if applicable necessary repairs is to be remunerated separately by the customer according to Subclause 12.1.

12.3 The prices for our services can be derived from the respective price list valid upon conclusion of the contract and are deemed ex works plus value added tax. The calculation basis for the remuneration is the one-shift operation, i.e. a use of the products up to 160 hours in a calendar month. A surcharge to the list price of 50% is charged for the two-shift operation, a surcharge of 100% for the three-shift operation. The above two rates shall only apply to the service packages described under Subclause 5.. If the customer requests assignments outside of our normal working hours (Mo - Fr, 6:30 am - 6:30 pm, a max. of 7 h per day) surcharges will be calculated according to the respective valid price list.

12.4 If our personnel and material costs are increased then we are entitled to adjust the contractual prices after the expiry of the first year up to a maximum of 5% above the price of the previous year. Price changes will be announced to the customer at least one month before the new contractual prices come into force. The customer is entitled to terminate the contract effective as of the time at which the new price would become valid for him for the first time.

13. Transport and insurance with the repair in the plant of RÖHM GmbH

13.1 The object for repair will be delivered by the customer to us at his costs together with the repair and service form and after execution of the repair collected by the customer again or return to him at the customer's costs.

13.2 The customer shall bear the risk of transport.

13.3 At the customer's request a shipment carried out by us will be insured at the customer's costs against the insurable transport risks, e.g. theft, breakage and fire.

13.4 No insurance cover exists during the repair time in our plant. The customer has to ensure the maintenance of the existing insurance cover for the object of repair e.g. with regard to fire, pipe water, storm and machine breakage insurance. Insurance cover can only be procured for these risks at the explicit wish and costs of the customer.

13.5 In case of delay of the customer with the take-over we can charge a storage fee for the storage in our plant. The object of repair can also be stored otherwise at our discretion. The costs and risk of the storage during the delay shall be for the expense of the customer.

14. Repair deadline

14.1. The details concerning the repair deadlines are based on estimates and merely serve for the purpose of information and first orientation. They are therefore not binding unless this is explicitly agreed.

14.2. The agreement of a binding repair deadline, which must be described as binding, can only be requested by the customer if the scope of the work has been precisely determined.

14.3. The binding repair deadline will have been adhered to if by the time that it expires the object of repair is ready for take-over by the customer, in the event of a contractually envisaged testing ready for its execution.

14.4. In case of subsequently placed additional and extension orders or with necessary additional repair work the agreed repair deadline will be extended accordingly.

14.5. If the repair is delayed due to measures within the scope of industrial disputes, in particular strike and lock-out as well as the occurrence of circumstances, which were not caused by us, a reasonable extension to the repair deadline will occur insofar as such impediments have as proven a substantial influence on the completion of the repair; this shall also apply if such circumstances occur after we are in default.

15. Ban on offsetting and assignment; subcontractors

15.1 The customer is only entitled to offsetting in the event of undisputed claims or claims which have been declared final and binding. This shall not apply if the customer asserts claims in the reciprocal relationship, in particular claims for defects.

15.2 The assignment of rights of the customer from contractual relationships with us presumes our prior consent in order to be valid. This shall not apply insofar as Section 354 a HGB [German Commercial Code] applies.

15.3 We are entitled to use third parties in order to fulfil our contractual obligations.

16. Reservation of title

16.1 The goods delivered by us shall remain our property until the payment of all of our claims against the customer, no matter for what legal grounds, also future ones. In case of current account the afore-mentioned property shall be deemed as security for our balance claim.

16.2 The customer may only sell within the framework of his customary business transactions and neither pledge, nor assign the goods as collateral. The customer hereby

assigns us for security of our payment claims against him, in the amount of the value of our delivery and service, all claims with all secondary rights, which he acquires against his buyer owing to such a sale.

16.3 As long as the property has not yet been assigned, the customer has to inform us immediately in writing if the delivered object is attached or is exposed to other interventions of third parties. Insofar as the third party is not in the position to reimburse us the court and out-of-court costs of an action according to Section 771 ZPO [German Code of Civil Procedure] the customer shall be liable for the loss incurred to us.

16.4. We undertake to release the securities to which we are entitled at the customer's request insofar as their value exceeds the claims which are to be secured by more than 20 %."

17. Warranty

17.1 Insofar as the creation of a work has been agreed and thus the law governing contracts for work and services applies the following shall apply: If our services are faulty then we are first of all entitled and obliged to subsequent satisfaction according to Section 634 No. 1 BGB. If the subsequent satisfaction finally fails the customer can according to Section 634 No. 3 cancel the contract or reduce the remuneration and according to Section 634 No. 4 BGB request damages. Claims of the customer for reimbursement of expenses according to Section 634 No. 2 BGB (self-execution) are excluded. Subclause 18 shall apply to claims for damages.

17.2 Insofar as we provide planning services without executing these and thus the law governing service contracts applies (e.g. in the event of a breach of our duties under Subclauses 5.2.1, 5.2.2 and 5.2.3) the following applies: If our services are faulty then we are first of all entitled and obliged to subsequent improvement. If the subsequent improvement finally fails the customer is entitled to damages according to Subclause 18.

17.3 Excluded from the warranty are damages as a result of natural wear and tear, fault maintenance – insofar as we have not carried out this maintenance as per contract, failure to comply with operating equipment regulations, excessive use, unsuitable operating equipment, chemical or electrolytic influences, faulty construction and assembly work of third parties as well as other causes, for which we are not responsible.

17.4 The warranty shall lapse if the customer or third party makes changes or repairs to our services /products without our prior written consent unless the defect is not a result thereof.

17.5 Claims of the customer owing to defects of quality and title shall become statute-barred with the expiry of 12 months after the acceptance of the work or the knowledge of defects with the provision of planning services.

18. Liability

18.1 We shall be liable to an unlimited extent in case of wilful intent and gross negligence as well as with the injury to life, the body and the health as well as with the culpable breach of essential contractual obligations. Deemed as essential are such contractual obligations, the fulfilment of which makes the proper execution of the contract possible at all and the compliance with which the contractual partner may as a rule rely and depend on.

18.3 Incidentally our liability is excluded.

18.4 A liability according to the Product Liability Act remains unaffected.

18.5 The personal liability of our legal representatives and vicarious agents is limited as our own liability according to the afore-mentioned provisions.

19. Term of the contract; termination

19.1 Service agreements according to Subclause 5. shall come into force when signed by both parties and shall initially apply until the end of the calendar year, that follows the year in which the contract was concluded. The contractual relationship will subsequently be extended respectively by one further year unless it is terminated by one of the parties with a period of notice of 3 months to the end of the second or a following year. Contractual relationships can be terminated on the whole or only with regard to individual products.

19.2 The right to the extraordinary termination for an important reason remains unaffected.

20. Place of jurisdiction; applicable law

20.1 With all disputes ensuing from the contractual relationship if the orderer is a merchant, a legal entity under public law or a special fund under public law, the action is to be filed at the court that has jurisdiction for our headquarters. We are also entitled to file an action at the headquarters of the orderer.

20.2 The legal relationship is subject to the law of the Federal Republic of Germany. German international private law and the Viennese Convention of the United Nations concerning Contracts for the International Sale of Goods (CISG) will not apply.

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