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TOOL CLAMPING SYSTEMS

EDITION 8.1



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Table of contents

TOOL CLAMPING SYSTEMS

HSK - Automatic clamping systems

Clamping set - Standard	8007
Clamping set - High Speed	8008
Assembly tool for HSK clamping sets	8009
Clamping unit, draw bar extension and release unit	8010

HSK - SUPER-LOCK

Clamping unit	8015

HSK - Manual clamping set

HSK-C clamping set	8019
HSK-C clamping set with adaptor	8020

Lubrication device for HSK

Lubritool®	8023

SK - Automatic clamping systems

SK clamping sets	8027
Clamping system with stationary release unit	8029
Clamping system with integrated release hydraulic	8030

Pull-in force measurement device

F-SENSO 2	8033

Built-in clamping head RESK

Built-in clamping head	8037

Clamping heads SPK

Spring operated clamping head	8041
Hydraulic clamping head	8042

Errors and corrections are reserved!

Operation guide






TYPE	HSK - Automatic clamping system	HSK - SUPER-LOCK	HSK - Manual clamping set	Lubritool® lubrication device
	Tool clamping system			
Interface	HSK	HSK	HSK	HSK
Actuation	hydraulic, pneumatic	hydraulic, pneumatic	manual	-
Energy store	spring	self-locking interlock	self-locking interlock	-
Page	8005	8015	8019	8023






TYPE	SK - Automatic clamping system	F-SENSO 2	Built-in clamping head RESK	Clamping heads SPK
	Tool clamping system	Clamping force measuring device	For machine components	Pallet clamping
Interface	SK	suitable for HSK, SK and SPK	universal interface	SPK taper
Actuation	hydraulic, pneumatic	-	hydraulic	hydraulic
Energy store	spring	-	self-locking interlock	spring, self-locking interlock
Page	8026	8032	8036	8040

hydraulic — pneumatic — manual

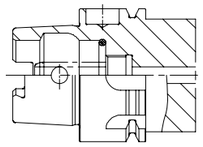
spring — self-locking interlock

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Tool clamping systems

Designs

Positive taper lock for automatic tool change

Form A / T

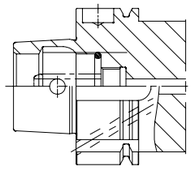


Positive taper lock (version A)
Automatically-changeable tool adapter, torque transmission on positive taper lock, small square face with gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and milling machines), high speed range, conventional material machining, torque transmission via milled driver within the spindle adapter.

Design T analog to desgin A, but limited backlash of the driver.

Form B

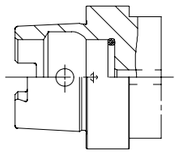


Positive taper lock (version B)
Automatically-changeable tool adapter, torque transmission on collar via grooves, large square face with gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and milling machines), medium speed range, heavy-duty material machining, torque transmission via driver keys, suitable for heavy-duty material machining (cutter heads).

Positive taper lock for manual tool change

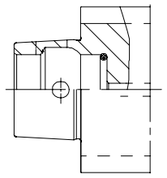
Form C



Positive taper lock (version C)
Manually-changeable tool adapter, torque transmission on positive taper lock, small square face without gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and milling machines), high speed range, conventional material machining, torque transmission via milled driver within the spindle adapter.

Form D

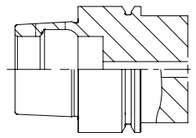


Positive taper lock (version D)
Manually-changeable tool adapter, torque transmission on collar via grooves, large square face without gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and milling machines), medium speed range, heavy-duty material machining, torque transmission via driver keys, suitable for heavy-duty material machining (cutter heads).

Positive taper lock for automatic tool change and for high speeds (HSC)

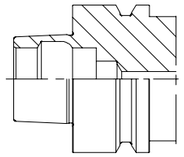
Form E



Positive taper lock (version E)
Automatically-changeable tool adapter, torque transmission via collar and spherical surface, small square face with gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and grinding machines), extremely high speed range (depending on diameter size), grinding work, wood machining, suitable for HSC, utilised for minimal material removal.

Form F



Positive taper lock (version F)
Automatically-changeable tool adapter, torque transmission via collar and spherical surface, large square face with gripping channel.

Applications:
Machine tools (e.g. lathes, drilling and grinding machines), extremely high speed range (depending on diameter size), grinding work, wood machining, suitable for HSC, utilised for minimal material removal.



CONVINCING ACROSS THE BOARD

- - 27 % shorter installation length of clamping set for lower space requirement
- - 27 % shorter distance of plane face to clamping shoulder for compact force flow
- - 33 % lower spring force required for clamping
- + 39 % higher clamping force for safe and reliable clamping of the tools

- Standard DLC coating for longer service life
- Simple and fast installation of clamping sets
- Safe release and ejection due to forced guidance of clamping segments without additional spring elements
- Lower wear of the spindle due to the loss of sliding at the clamping shoulder

(Compared to the usual clamping systems of size HSK-A 63)

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HSK - AUTOMATIC CLAMPING SYSTEM

Reliability, safety and long service life are the main requirements for a tool clamping system. It is also important for clamping systems to be able to be individually adapted to the customer requirements. Many years of experience as well as technical dominance in all areas allow RÖHM to meet these requirements exactly.

ADVANTAGES AT A GLANCE

- Proven functional principle for safe clamping and release of the tools
- 39 % higher clamping force than required in the standard
- Individual adaptation to customer-specific requirements

CLEARLY DEFINED ROLES FOR EVERY MODULE.



Single-channel supply of coolant and compressed air

MODUL 1

GUIDE PISTON WITH CONNECTION INTERFACE

Due to standardization of tool spindles, this component typically has a uniform geometry. However, several special versions are also available.

MODUL 2

CLAMPING UNIT

This unit is identical for all HSK-FLEX versions. Its compact design is made possible not only by the special clamping set but also by the use of high-performance disc springs. These allow for a more compact structure compared to traditional Belleville springs and significantly extend the tool clamp‘s service life—making up to 5 million clamping cycles possible.

MODUL 3

DRAWBAR EXTENSION

Used to individually adapt the length of the HSK-FLEX system to the spindle length. As a semi-finished part, it can be shortened to any desired length—true to its name, it comes “from the bar.”

MODUL 4

HSK CLAMPING SET

RÖHM clamping sets offer greater force transmission than conventional versions, enabling shorter clamping units. This is essential for modular system design.



Dual-channel supply of coolant and compressed air

The connections between the modules are permanently pinned and bonded. This ensures stability and balance quality equivalent to that of a single-piece system.

Technical data

For automatic tool clamping system of positive taper lock tools HSK to DIN 69893

ADVANTAGES:

- Steady clamping force due to the symmetric clamping surfaces of the clamping segments
- Compact power flow resulting in high static and dynamic rigidity of the tool joint
- High power amplification by transmission of the clamping set
- Force controlled release of the collet
- Automatic ejection of the tool by the clamping bolt during release
- Sealed central coolant supply system
- Perfect suitable to be built into the spindles of machine tools and machining centers

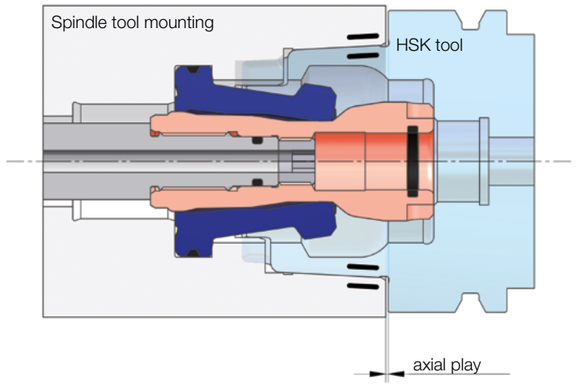
TECHNICAL FEATURES

The advantages of the positive taper lock system originates in the combination of defined radial pretensioned taper and tool face stop. A safe transmission of the torque is archieved by the elastic deformation of the taper resulting in a gap-free connection with the tool. High interchanging and repeating accuracy is leading to increased production quality during the machining.

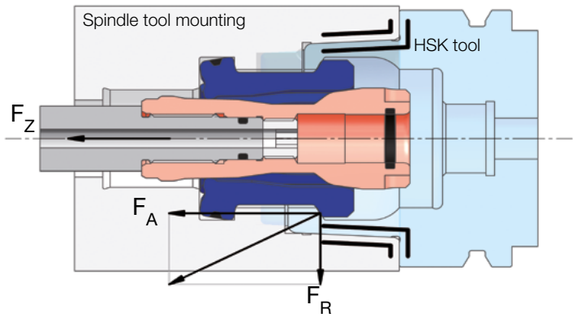
The clamping process is started by the springs and the movement is transmitted to the clamping set by the draw bar, in direction F_Z. The clamping segments of the collet are pushed to the outside by the clamping bolt. The clamping forces are multiple amplified by the angled arrangement of the contact areas. The produced axial forces F_A and radial forces F_R result in a pretension of the positive taper on the entire taper area and, the axial contact area. The proportion of the axial contact force is over 80 % of the total clamping force. This explains the importance of the size of the axial contact area concerning the critical load and rigidity of the taper and hollow shank joint.
See also DIN 69893 - Hollow taper shanks types B, D and F. Hollow taper shanks types A and C have two additional positive drive grooves at the end of the taper which interlock with the tool mounting and produce a form-locking, orientated radial positioning.

During the release the tool will be positively unlocked and ejected from the tool spindle by the multifunctional clamping bolt and taper sleeve.

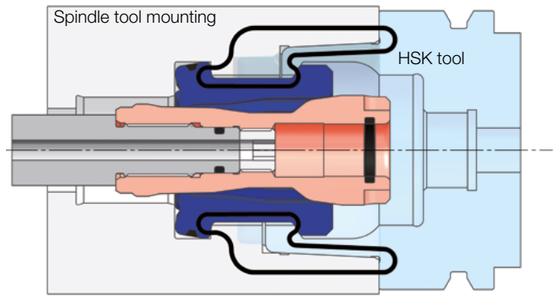
Joining position with locating surface



Clamping situation with locating surface



Clamping situation with compact power flow



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Clamping set - Standard



APPLICATION

Clamping set for HSK clamping systems.

TYPE

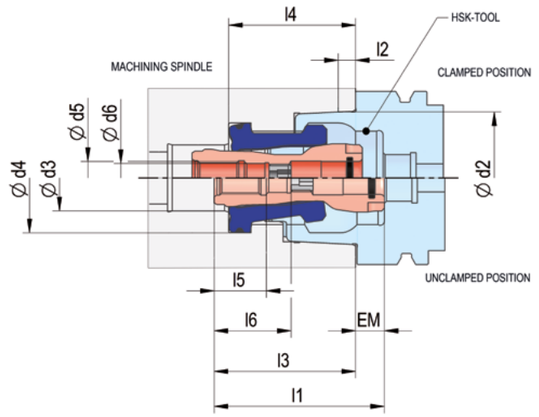
Standard version in compact design.

CUSTOMER BENEFITS

- DLC coating guarantees a longer service life of the clamping set
- Short length for compact force flow and high rigidity
- High force amplification due to transmission in the clamping set
- Safe clamping and unclamping of the tools

TECHNICAL FEATURES

- Connected collet segments simplify installation



C 15
Automatic HSK clamping set - Standard in compact design

Item No.	1037445	1037446	1037447	1037448	1037449	1037450	1037451	1037452
Size HSK-A/C/E/T	25	32	40	50	63	80	100	125
Size HSK-B/D/F	32	40	50	63	80	100	125	160
Total stroke	7	9	13	15	14	17	18	20
Pull-out stroke AM	0,2	0,3	0,5	0,5	0,5	0,5	0,8	0,8
Taper Ø d_2	19	24	30	38	48	60	75	95
d3	10	12	15	18	24	32	40	46
d4	17	21	25,5	32	40	50	63	80
d5	M4	M6x0,75	M8x1	M10x1	M12x1	M16x1,5	M20x1,5	M24x1,5
d6	4,2	6,5	6,4	8	10,5	14,3	17,5	20
l1	28,8	35,1	42,5	50	62	80	98,5	121,2
l2	2,5	3,2	4	5	6,3	8	10	12,5
l3	22,6	26,7	34	39,5	51,5	67	85,2	104,4
l4	20,3	24,5	31,9	37,2	46,2	59,7	73	96,9
l5	9,5	12,5	13	17	19	30	34,5	40
l6	2,5	3	20	26	28	42	51	60
Adjusting size EM	6,2	8,3	8,5	10,5	10,5	13	13,3	16,8
Draw bar pull kN	0,7	1	2	3	4	7,5	10	15
Clamping force kN	3,5	5	10	15	25	37,5	50	70
Max. application speed[1] min^{-1}	70000	48000	36000	30000	24000	18000	14000	10000

[1] Please note the speed diagram according to the corresponding clamping set datasheet

HSK - Automatic clamping systems

Clamping set - High Speed



APPLICATION

Clamping set suited for high speeds.

TYPE

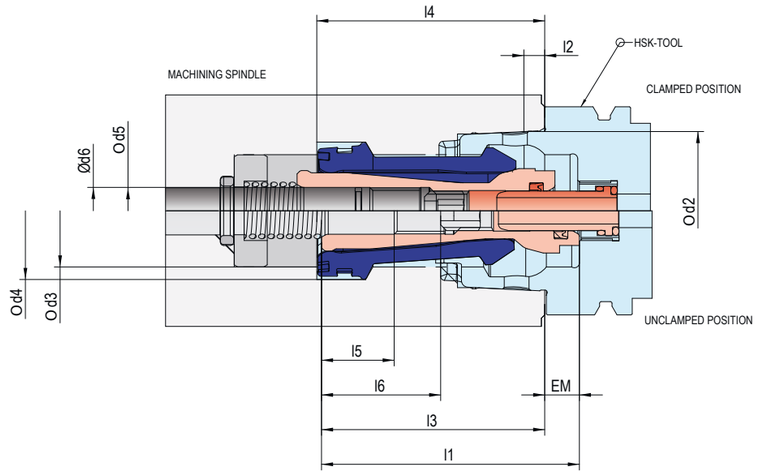
High Speed version for higher speeds due to exact guidance of the clamping segments.

CUSTOMER BENEFITS

- DLC coating guarantees a longer service life of the clamping set
- Short length for compact force flow and high rigidity
- High force amplification due to transmission in the clamping set
- Safe clamping and unclamping of the tools
- High balancing quality maintained due to exact guidance of the collet chuck

TECHNICAL FEATURES

- Connected collet segments simplify installation



C 15

Automatic HSK clamping set High Speed, due to the exact guidance of the collet chuck segments, this clamping set is especially suitable **for higher speeds**

Item No.	594332	1035347	1011063	1037501	1015151	474917	462324
Size HSK-A/C/E/T	25	32	40	50	63	80	100
Size HSK-B/D/F	32	40	50	63	80	100	125
Total stroke	7	9	13	15	14	17	18
Pull-out stroke AM	0,2	0,3	0,5	0,5	0,5	0,5	0,8
Taper Ø d_2	19	24	30	38	48	60	75
d3	10	12	15	18	24	32	40
d4	17	21	25,5	32	40	50	63
d5	M4	M6x0,75	M8x1	M10x1	M12x1	M16x1,5	M20x1,5
d6	4,2	6,5	6,4	8	10,5	14,3	17,5
l1	28,8	35,1	42,5	50	62	80	98,5
l2	2,5	3,2	4	5	6,3	8	10
l3	22,6	26,7	34	39,5	51,5	67	85,2
l4	20,3	24,5	31,9	37,2	46,2	59,7	73
l5	9,5	12,5	13	17	19	30	34,5
l6	2,5	3	20	26	28	42	51
Adjusting size EM	6,2	8,3	8,5	10,5	10,5	13	13,3
Draw bar pull kN	0,7	1	2	3	4	7,5	10
Clamping force kN	3,5	5	10	15	25	37,5	50
Max. application speed[1] min^{-1}	120000	80000	60000	50000	40000	25000	18000

[1] Please note the speed diagram according to the corresponding clamping set datasheet

HSK - Automatic clamping systems

Clamping set - HSK-Slim



APPLICATION

Tool clamping sets are mainly used on CNC milling machines and machining centers in metal cutting or woodworking.

TYPE

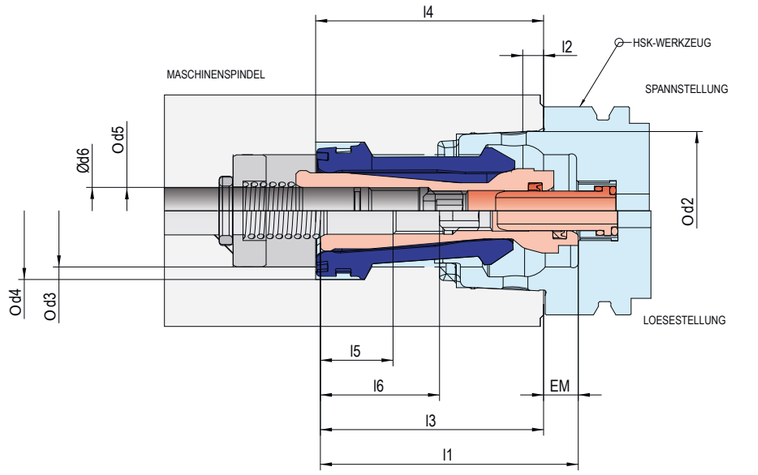
Tool clamping set for automatic clamping of tools with HSK-A, HSK-B, HSK-E, or HSK-F shanks. Thanks to its slim outer contour, it also fits into milling spindles with a contour of OTT-JAKOB.

CUSTOMER BENEFITS

- DLC coating guarantees a longer service life of the clamping set
- Short length for compact force flow and high rigidity
- High force amplification due to transmission in the clamping set
- Safe clamping and unclamping of the tools

TECHNICAL FEATURES

- Connected collet segments simplify installation



C 15

Automatic HSK-Slim clamping set - Standard version in slim design, also suitable for milling spindles with a contour from OTT-JAKOB

Id.-Nr.	1386149	1341914	1341915	1341916
Size HSK-A/C/E/T	40	50	63	100
Size HSK-B/D/F	50	63	80	125
Total stroke	8	9	10	12,5
Pull-out stroke	0,5	0,5	0,5	0,5
Taper-Ø d2	30	38	48	75
d3	21	26	34	53
d4	26,5	33	41,6	63
d5	M8	M10	M14x1,5	M16x1,5
d6	8,2	10,2	14,2	16,2
l1	64,4	71	78,1	105
l2	4	5	6,3	10
l3	55,9	60,5	67,6	92
l4	58	61	69	93
l5	19	22	22	32
l6	29	34	36	57,5
Adjusting size EM	8,5	10,5	10,5	13
Draw bar pull kN	2,4	3,8	6	15
Clamping force kN	6,8	12,5	20	50
Max. application speed[1] min^{-1}	30000	30000	24000	14000

[1] Please note the speed diagram according to the corresponding clamping set datasheet

Assembly tool for HSK clamping sets



APPLICATION

For an easy, fast and save mounting of HSK clamping sets.
Mounting of the collet into the spindle with only a few movements.

TYPE

Please check the suitability for your clamping set before ordering. You may find the information in the Manual.

CUSTOMER BENEFITS

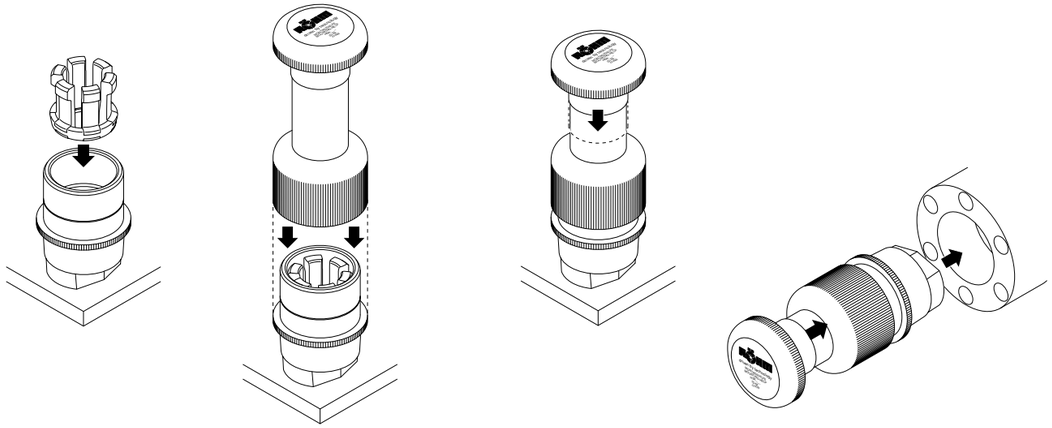
- Avoidance of damages at the clamping set and the spindle
- Easy and save installation of the clamping set
- User-friendly design

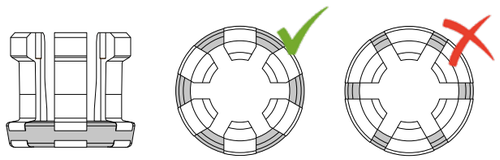
TECHNICAL FEATURES

- Available for all HSK sizes A 25 - 125
- Works with all HSK types A/C/E/T/B/D/F
- Fits for ROHM clamping sets with short and slim segments
- Special design for ROHM segment collets in „long“ design in size HSK-E-50/F-63

C 15
Assembly tool for HSK clamping sets

Item No.	1329030	1329025	1329015	1329001	1324230	1329020	1329010	1329035
Size HSK-A/C/E/T	25 (HSK E)	32	40	50	63	80	100	125
Size HSK-B/D/F	32	40	50	63	80	100	125	160





Clamping unit and draw bar extension



APPLICATION

Actuation unit for HSK clamping systems.

TYPE

Spring-actuated clamping unit with individually adapted draw bar extension.

CUSTOMER BENEFITS

- Energy stored in the spring package
- Slender design
- Reliable function thanks to sturdy design

TECHNICAL FEATURES

- Clamping system is designed individually for the spindle

Stationary release unit



APPLICATION

Stationary release unit for tool clamping systems.

TYPE

Hydraulic or pneumatic design, stationary attachment.

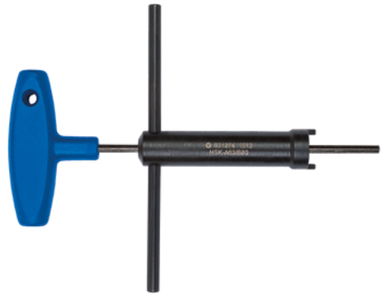
CUSTOMER BENEFITS

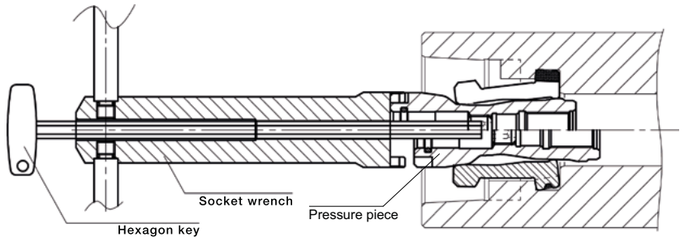
- Clamping system and release piston are separated from one another during the spindle rotation
- No oil supply required in the rotating spindle part
- Low-wear operation

TECHNICAL FEATURES

- Release system designed individually for the spindle

Accessories

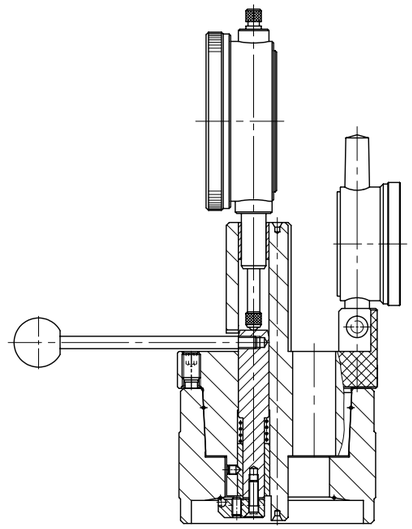




C 15
Socket wrench for pressure piece screw-in assembly

Item No. Socket wrench	Size HSK-A/C/E/T	Size HSK-B/D/F	Item No. Hexagon wrench	L	SW
830252	32	40	**830253**	wrench	-
831296	40	50	**863494**	200	3
831291	50	63	**817262**	200	4
831274	63	80	**844250**	200	5
831289	80	100	**756660**	200	6
831434	100	125	**381601**	200	8
812550	125	160	**698938**	200	10





C 15
Measuring device for measuring the installation contour (clamping shoulder) for automatic HSK clamping sets

Item No.	1181005	1156601	1179168	1201360	1149877	1233614	1233553	1233615
Size HSK-A/C/E/T	25	32	40	50	63	80	100	125
Size HSK-B/D/F	32	40	50	63	80	100	125	160

Notes



50 % SHORTER LENGTH THAN CLAMPING SYSTEMS WITH SPRINGS

HSK clamping system with SUPER-LOCK



HSK clamping system with spring package

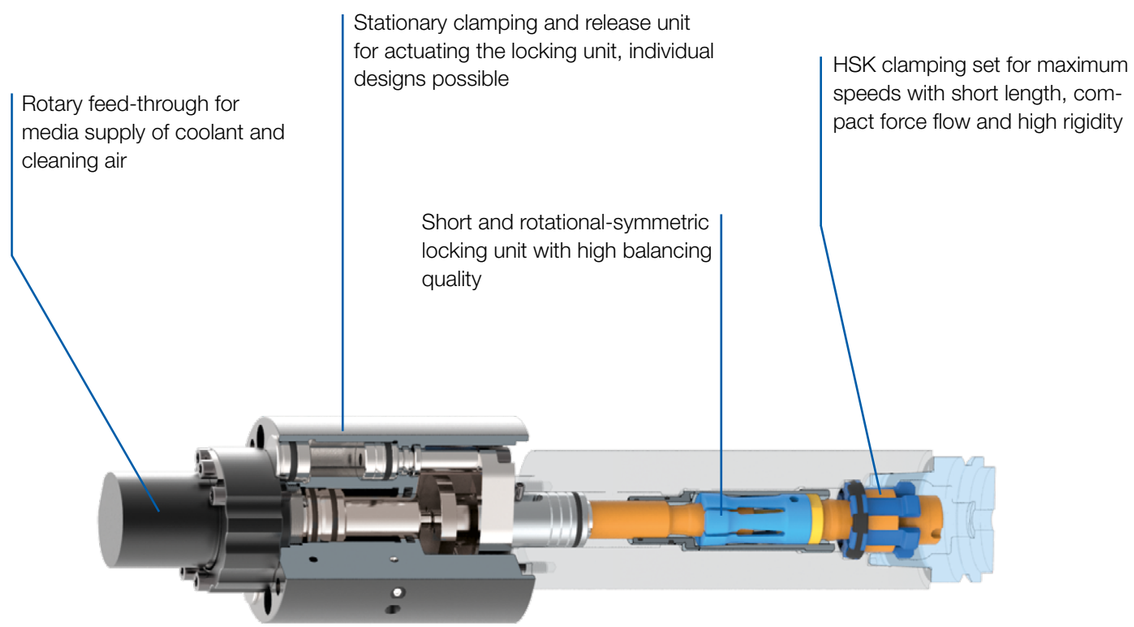
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HSK - SUPER-LOCK

The trend toward modern milling machines involves two requirements with regard to the automatic clamping systems. In the area of High Speed Cutting (HSC), increasingly higher speeds and therefore higher balancing qualities are required. Due to higher machining forces during High Performance Cutting (HPC), interfaces must additionally be more rigid. SUPER-LOCK meets these requirements, and with an approx. 50 % shorter length as compared with conventional clamping systems with springs.

ADVANTAGES AT A GLANCE

- Compact and extremely short design
- Optimally suited for maximum speeds and machining forces
- Lower force introduced into the spindle as compared to spring clamping systems



HSK - SUPER-LOCK

Clamping unit



APPLICATION

For HSK clamping systems.
Can be used universally, preferably for high speeds.

TYPE

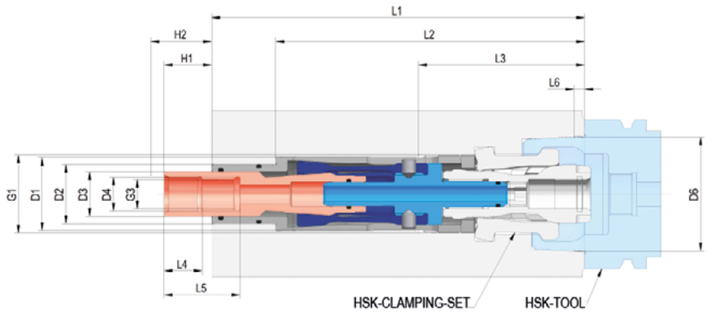
Locking unit for HSK clamping set.
HSK clamping set separately available.

CUSTOMER BENEFITS

- Without springs - clamping force is maintained with self-locking
- Short and compact design
- Low force transmission during releasing

TECHNICAL FEATURES

- For actuation, a clamping and unclamping unit are required



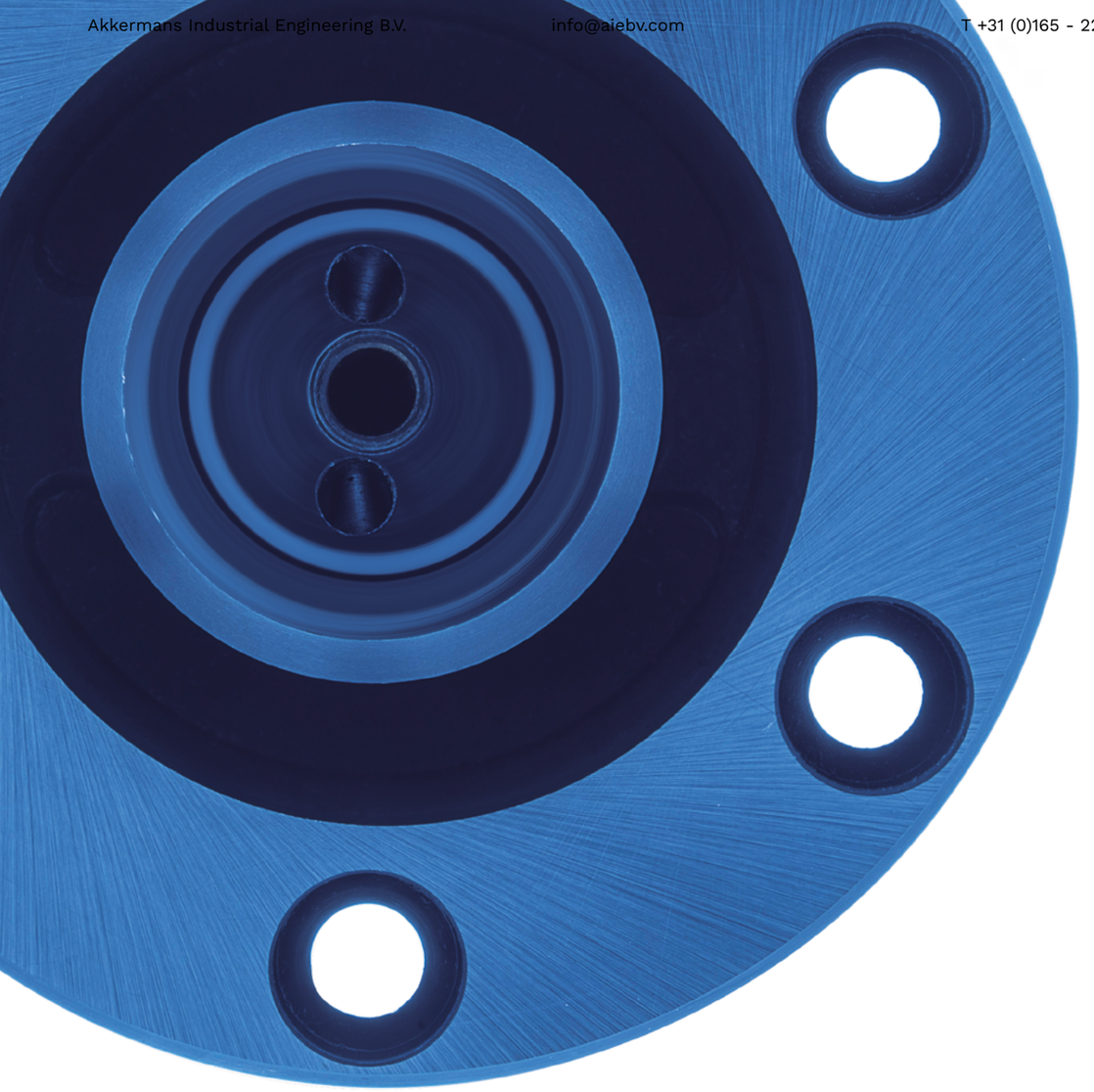
C 15
Clamping unit SUPER-LOCK, self-locking mechanism **without springs** for automatic tool clamping

Item No.	1122572	1122574	1122718	1122725	1122569	1122731	1122581
Size HSK-A/C/E/T	25	32	40	50	63	80	100
Size HSK-B/D/F	32	40	50	63	80	100	125
D1	13,2	15,1	18,6	23,6	31	39	49
D2	11	12,5	16,4	20,4	25	31,2	40
D3	8	10	13	16	19	24	31
D4	6,2	8,2	10,3	12,5	14,4	17	21
D6	19	24	30	38	48	60	75
G1 mm	M14x0,5	M16x0,75	M20x1	M25x1	M33x1	M42x1,5	M52x2
G3	M6x0,75	M8x0,75	M10x1	M12x1,25	M14x1,5	M16x1,5	M20x2
H1 mm	10,8	13,6	17,8	19,9	20	27,3	30,8
H2	15,6	18,9	22,8	26,3	28	38,3	42,4
L1	71,4	83,5	106,4	127,7	157	201,3	262
L2	56	69	86	104	130	167	207
L3	32,25	36,7	45,9	57	70	88	110
L4	6,3	8	10	12,5	16	20	25
L5	12,5	16	20	25	32	40	50
L6	2,5	3,2	4	5	6,3	8	10
Clamping set	**594332**	**1035347**	**1011063**	**1037501**	**1015151**	**474917**	**462324**
Draw bar pull kN	0,7	1	2	3	4	7,5	10
Clamping force kN	3,5	5	10	15	25	37,5	50
Max. application speed[1] min^{-1}	120000	80000	60000	50000	40000	30000	24000

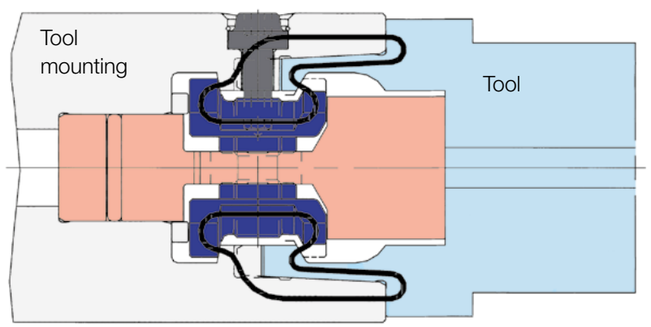
[1] Please note the speed diagram according to the corresponding clamping set datasheet

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Notes



MANUAL CLAMPING SET FOR COMPACT FORCE FLOW WITHOUT INFLUENCING THE HSK TAPER



RÖHM HSK system for manual force clamping with compact force flow.

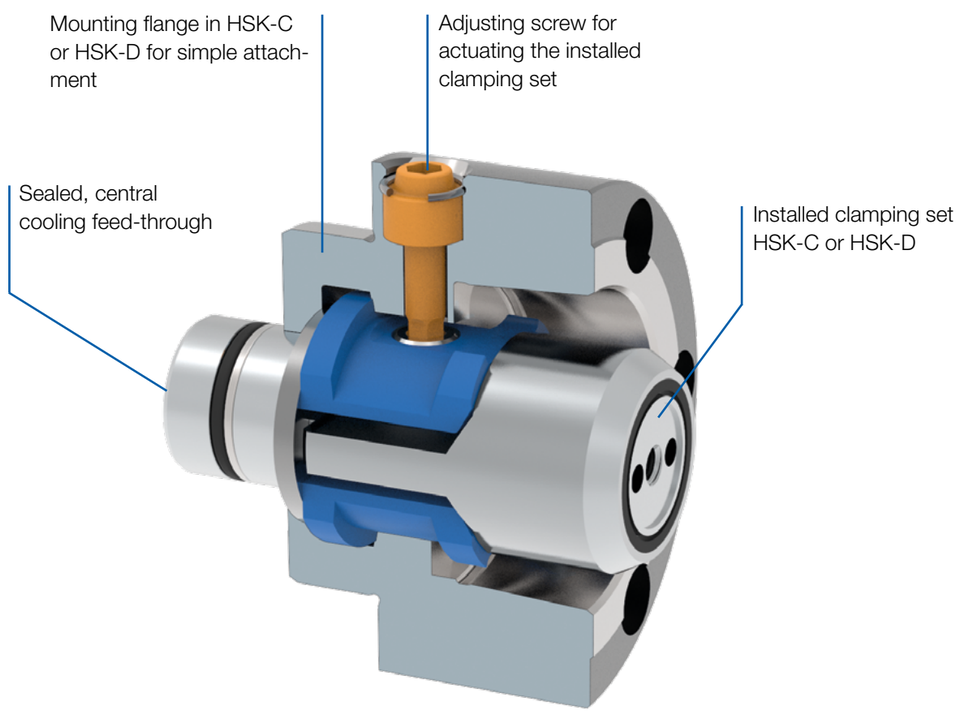
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HSK - MANUAL CLAMPING SET

A critical factor for the HSK interface with manual tool change in lathes or turrets as well as milling machines is the rigidity and change precision. Manual clamping systems from RÖHM achieve this via the compact force flow within a minimum amount of space.

ADVANTAGES AT A GLANCE

- Convincingly simple construction for high reliability and simple installation
- Safe ejection of tools during release by means of the guide bolt
- No negative influence of the HSK taper, since the actuation screw lies in the driver area



HSK-C clamping set

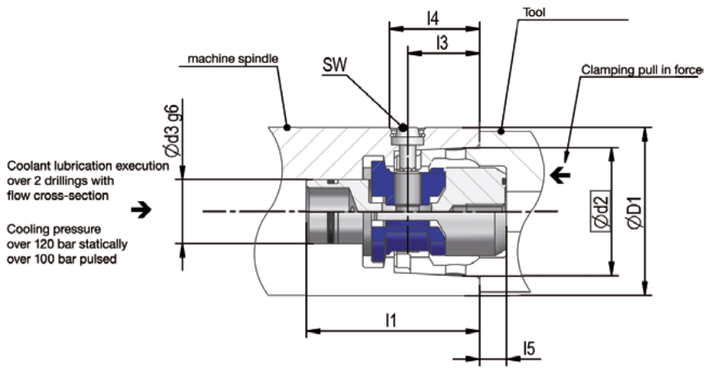


APPLICATION
Manual clamping of HSK tools.

TYPE
HSK-C for tool shafts A/C/T.

CUSTOMER BENEFITS
- Convincingly simple construction for high reliability and simple installation
- Safe ejection of tools during unclamping by means of the guide bolt
- No negative influence of the HSK taper, since the actuation screw lies in the driver area

TECHNICAL FEATURES
- Central coolant supply (exept size 25)



C 15
Clamping set HSK-C with coolant supply through the centre (except size 25) for tool holders with internal drivers HSK-A/C/T

Item no.	760530	784603	812617	831435	586214	475170	475172	483213	831306
Size HSK-A/C/E/T	25	32	40	50	63	80	100	125	160
D1	25	32	40	50	63	80	100	125	160
Taper Ø d_2	19	24	30	38	48	60	75	95	120
$d3^{H7}_{g6}$	10	12	15	18	24	32	40	48	60
l1	28	34	45	55	65	80	97,5	124	160
l3	11,4	14	17,5	21,5	27	34	42	53	68
l4	15	18,5	22	27	34	42	53	67	85
l5	6	8	8	10	10	12,5	12,5	16	16
Key SW	2,5	2,5	3	4	5	6	8	10	12
Tightening torque Nm	1,8	2,5	3,5	6,5	14	25	42	80	100
Clamping force kN	3,5	5	6,8	11	18	30	45	70	115
Flow cross section mm^2	-	6,3	10,6	14,1	27,7	56,5	100,5	100,5	157
Adjusting screw complete Item no.	**760628**	**1176471**	**760463**	**760464**	**760465**	**760466**	**760467**	**812815**	**831311**

Built-in clamping set HSK-D on request

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HSK - Manual clamping system

HSK-C clamping set with adaptor

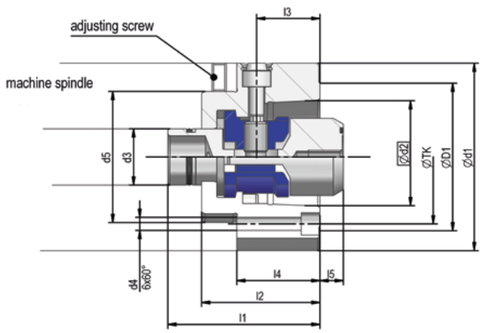


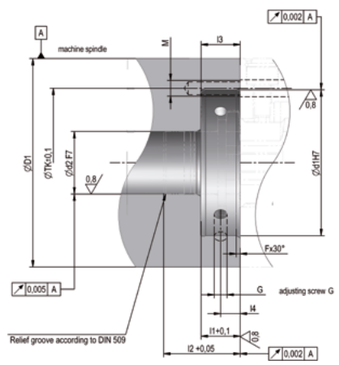
APPLICATION
For attachment to spindles, turrets, etc.

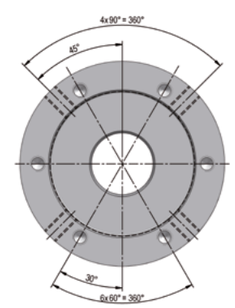
TYPE
HSK-C for tool shafts A/C/T.

CUSTOMER BENEFITS
- Convincingly simple construction for high reliability and simple installation
- Safe ejection of tools during unclamping by means of the guide bolt
- No negative influence of the HSK taper, since the actuation screw lies in the driver area

TECHNICAL FEATURES
- Balancing quality G 2.5
- Central coolant supply (exept size 25)







C 15
Adaptors with clamping set HSK-C, balanced and with coolant supply through the centre (except size 25)

Item no.	850322	820802	820803	820804	820805	820806	820807
Initial size D1	25	32	40	50	63	80	100
d1	37	40	50	63	80	100	123
Taper Ø d_2	19	24	30	38	48	60	75
$d3^{H7}_{g6}$	10	12	15	18	24	32	40
d4	3,4	3,4	4,5	5,5	6,5	9	11
$d5_{g6}$	24	27	33,5	42	56	68	84
Ø-TK	29	32	40,5	52	66	82	102
l1	26	34	45	55	65	80	97,5
l2	22	26	34	41	50	64	76
l3	11,4	14	17,5	21,5	27	34	42
l4	15,5	19	23	28	35	44	54
l5	6	8	8	10	10	12,5	12,5
Adjusting screw complete Item no.	**870022**	**870023**	**870024**	**870025**	**870026**	**870027**	**870028**

Dyn. balanced: G 2,5 DIN ISO 21940

Accessories

C 15
Measuring device for measuring the installation contour (clamping shoulder) for manual clamping sets

Item no.	1233617	1195813	1233618	1195814	1233619	1233554	1233620	1233621	1233616
Size HSK-A/C/E/T	25	32	40	50	63	80	100	125	160
Size HSK-B/D/F	32	40	50	63	80	100	125	160	-

HSK - Manual clamping system



AUTOMATED MAINTENANCE OF YOUR TOOL INTERFACE

After about 75 operating hours or 20,000 changes of tool, tool clamping systems should be maintained in order to ensure process reliability and rule out mechanical breakdowns. In most cases this involves manual lubrication. This means time has to be taken to maintain manually, and there is a margin for error: the time chosen may not be ideal, or the quantity of lubricant may be incorrectly judged. Quite apart from the fact that in some cases lubrication fails to be carried out at all. In hope of making these problems a thing of the past, RÖHM has developed its innovative Lubritool® lubrication device. Having been informed by the machine controls of the right moment in time, the product novelty Lubritool® is automatically deployed directly from the tool magazine, supplies the tool clamping system at HSK, or the locating surface at Capto with the ideal quantity of lubricant within second. This eliminates timewasting and costly maintaining operations, as well as ruling out mechanical breakdown.

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RÖHM

LUBRITOOL® LUBRICATION DEVICE

In order to guarantee the impeccable functioning of milling machines and machining centres, the tool clamping system should be maintained regularly. Unfortunately this requirement is often neglected in practice. With its innovative Lubritool® lubrication device, which has been submitted for a patent, RÖHM is launching a completely new product on the market – one that brings about automated lubrication within seconds.

ADVANTAGES AT A GLANCE

- Optimal lubrication – always the ideal lubricant, just at the right time, in the right quantity and place
- No manual intervention needed – no failure to carry out maintenance
- Reduced maintenance times – 5 seconds rather than 5 minutes



Lubritool® lubrication device



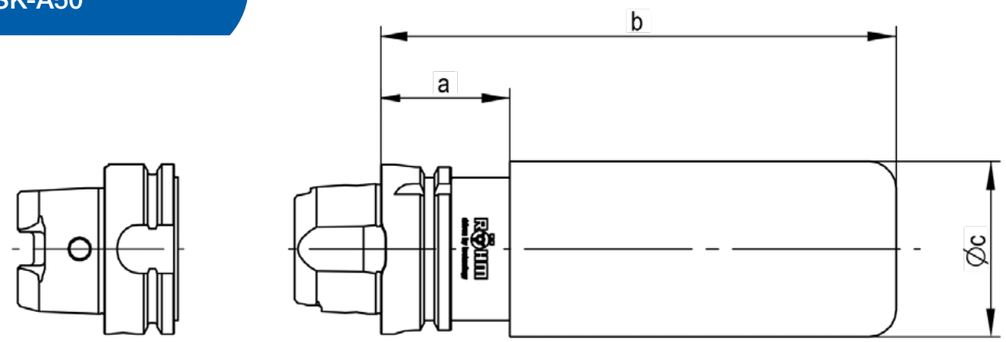
APPLICATION
For automated and manual maintenance of RÖHM clamping sets.

TYPE
HSK-A for tool shafts A, 40, 50, 63, 100 / Capto C6

CUSTOMER BENEFITS
- Optimal lubrication - always the ideal lubricant, just at the right time, in the right quantity and place
- Minimal maintenance times - 5 seconds than 5 minutes
- Increasing the machine availability by about 10 hours/year.
- Automated lubrication - never forget the maintenance again
- Compact design - fits in any conventional machine tool

TECHNICAL FEATURES
- Manifold ring for optimal distribution of the lubricant at the clamping se or locating surfaces

NOW ALSO AS HSK-A40 AND HSK-A50



C 15
Lubritool® lubrication device

Item No.	1334394	1334306	1330233	1323415	1323477
Interface design (ISO12164-1) HSK A/C/E/T	40	50	63	100	C6
Interface design (IS012164-1) HSK B/D/F	50	63	80	125	-
a mm	45	46,1	48	50,5	27
b mm	188,6	189,6	191,5	194	208,5
Ø c mm	65	65	65	65	65
Weigth kg (without cartridge)	1	1,1	1,4	2,7	1,5
Weigth kg (with cartridge)	1,2	1,3	1,6	2,9	1,7
Lubrication applications	100 cycles	100 cycles	100 cycles	100 cycles	100 cycles
Item No. Lubriflux grease cartridge (1 piece)	**1339629**	**1339629**	**1339629**	**1339629**	**1339629**

Lubritool® is approved for all clamping sets from RÖHM and OTT Jakob.

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How Lubritool® works in the machine tool



Lubritool® is located in the tool magazine. Whenever the machine control notifies that a lubrication process is necessary, Lubritool® will be sent up into the spindle.



The lubrication impulse is automatically activated within the spindle. An optimal amount of Lubriflux lubricant is applied to the clamping set at the HSK interface or, in the case of Capto, to the locating surface within the polygon interface.



After the lubrication process, Lubritool® is sent back to the tool magazine and remains there until the next lubrication cycle.

Video Lubritool® in use

Lubritool® lubrication device



THE RIGHT FUNCTIONAL PRINCIPLE FOR EVERY APPLICATION



Clamping system with stationary release unit
Stationary release unit is disconnected from the rotating system during spindle rotation and is therefore especially suited for higher speeds.



Clamping system with integrated release hydraulic
Hydraulic release mechanics are attached/installed on the spindle shaft. No force acts on the spindle bearing during the tool change.

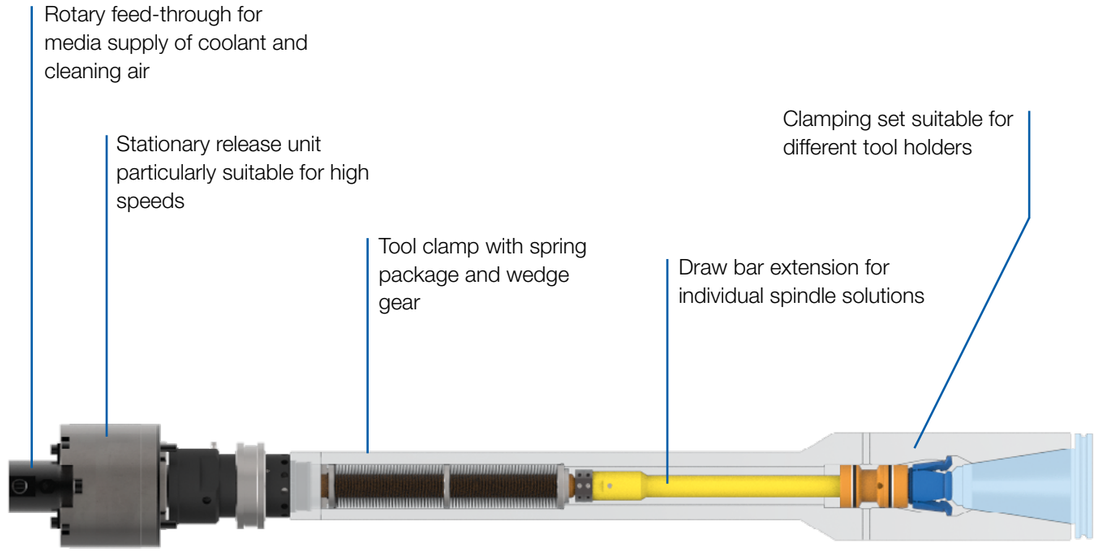
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SK - AUTOMATIC TOOL CLAMPING SYSTEM

For the automatic clamping of steep-taper tools, reliability, safety and long service life are essential basic requirements. Particularly for machine tools with a rotating working spindle, high rotational frequencies and high clamping forces. Due to many years of experience in this area, RÖHM can specifically see to customized requirements, thereby meeting this requirement.

ADVANTAGES AT A GLANCE

- Safe clamping and release of the steep-taper tools by using proven components
- High variant variety for a wide range of installation situations
- Individual adaptation to customer-specific requirements



SK clamping sets

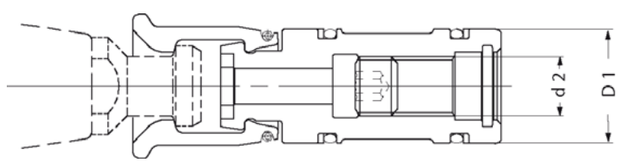


APPLICATION
For the automatic clamping of steep-taper tools.

TYPE
Available in different versions to match the respective tool.

CUSTOMER BENEFITS
- Proven construction and high-quality processing
- Safe clamping and unclamping of the tools

TECHNICAL FEATURES
- With internal coolant supply



C 15
Clamping sets type DIN 69871/72

Item no.	Design	D1	d 2	Pull-in force max. N
784481	SK 30	19	M10x1,5	7500
756340	SK 40	27	M14x1,5	15000
760391	SK 50	40	M16 x1,5	26000
760390	SK 60	52	M30x1,5	80000

Further designs available on request

C 15
Clamping sets type MAS BT 45°

Item no.	Design	D1	d 2	Pull-in force max. N
1070315	SK 30	19	M10x1,5	6000
861930	SK 40	27	M14x1,5	15000
795390	SK 50	40	M16x1,5	26000

Further designs available on request

C 15
Clamping sets type ANSI 5.50-78 „CAT“

Item no.	Design	D1	d 2	Pull-in force max. N
890828	SK 30	19	M10x1,5	6000
766334	SK 40	27	M14x1,5	15000
831393	SK 50	40	M16x1,5	26000

Further designs available on request

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Clamping system with stationary release unit

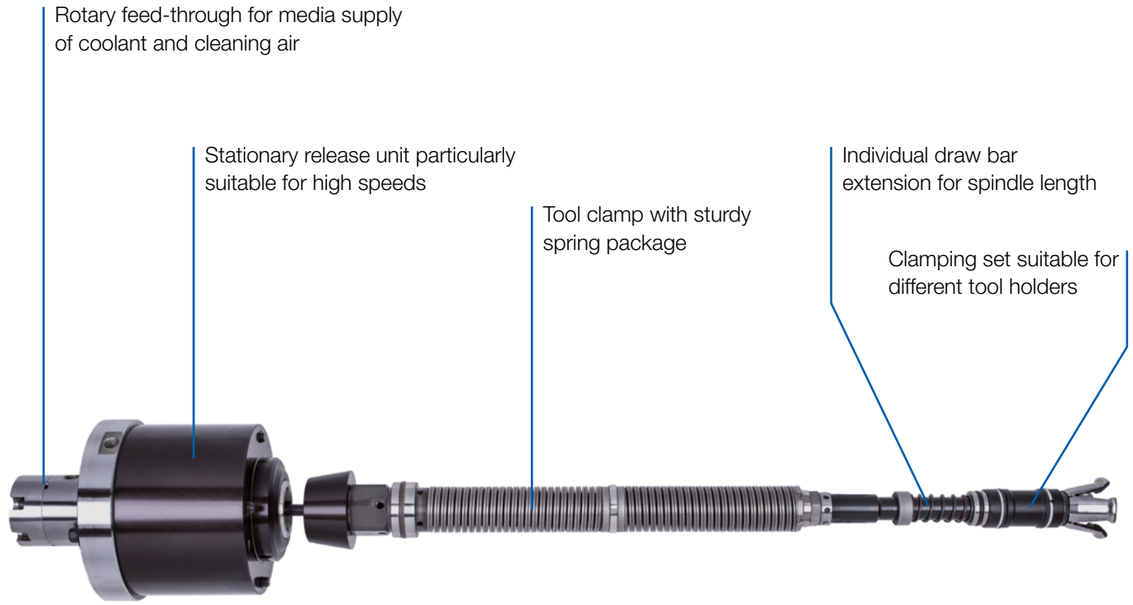


APPLICATION
Suitable for SK spindles in higher speed range.

TYPE
Spring package with or without transmission gears and stationary release unit.

CUSTOMER BENEFITS
- Slender design
- No oil supply required in the rotating spindle part
- Stationary release unit decoupled from spindle rotation, therefore low-wear

TECHNICAL FEATURES
- Release system designed individually for the spindle



Clamping system with integrated release hydraulic



APPLICATION

For SK spindles with compact design.

TYPE

Spring package with transmission gear and installed release hydraulics.

CUSTOMER BENEFITS

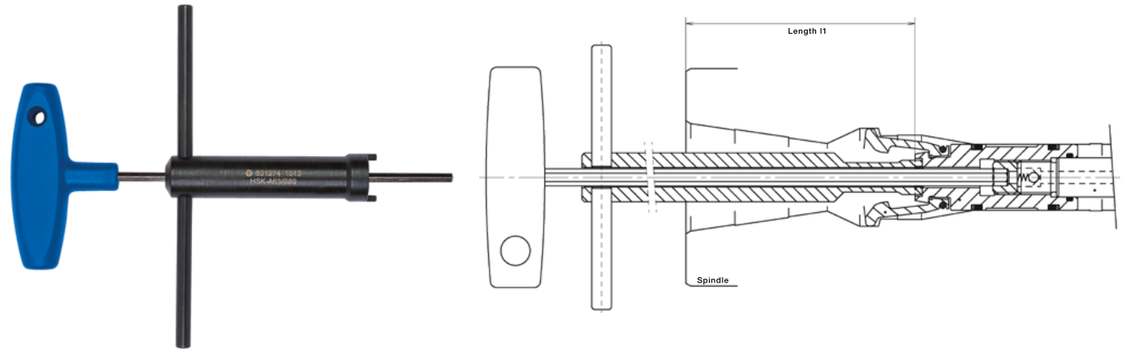
- No force acts on spindle bearing during the tool change
- Compact design and high pull-in forces due to integrated wedge gear

TECHNICAL FEATURES

- Release system designed individually for the spindle



Accessories



C 15

Socket wrench with through-hole

Itemo No. Socket wrench	Size	**Item No. Hexagon wrench**	Length l1 mm	Key width SW
772214	SK 30	**817262**	200	4
756393	SK 40	**802094**	350	6
756396	SK 40 (without through-hole)	-	-	-
760229	SK 50	**769078**	400	8
747337	SK 60	**769078**	400	8



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F-SENSO 2 SPINDLE PULL-IN FORCE MEASURING DEVICE

Ensuring consistently high machining quality has top priority. Regular inspection of the tool clamping system using the F-SENSO 2 clamping force measuring device allows for early detection of force deviations—before they impact the machining process.

ADVANTAGES AT A GLANCE

- Maximum flexibility thanks to interchangeable measuring adapters for all common HSK and SK sizes
- Optional measurement of clamping force for vises as well as manual and power chucks
- Outstanding user-friendliness through intuitive operation and delivery in a practical carrying case
- Visualization and documentation of data using the included software



F-SENSO 2



APPLICATION

HSK clamping sets, clamping heads, vises, manual and power chucks – for use in production environments, repair workshops, or laboratories.

F-SENSO 2 measures and checks the clamping force during both stationary and rotating operation, and the pull-in force under static conditions.

WARUM?

- Modular system, one Senso-Module for all modules
- Measurement possible under both static and rotational conditions
- Robust design
- Wireless transmission of measurement data
- Comprehensive software for visualization, archiving, and management of measurement values

C 15

Pull-in force measuring device F-SENSO 2 – model versions



Item No.	Description	Included Accessories
1414057	Model version 1, with Senso-Modul and tablet PC	Charging cable for Senso-Modul, RPM sensor, torx key
1414056	Model version 2, with Senso-Modul, without tablet PC	Charging cable for Senso-Modul, RPM sensor, torx key

C 15

F-SENSO 2 HSK Add-on module (for measuring pull-in force in HSK clamping sets)



Item No.	Size	Measuring range, axial [kN]
10016800	F-SENSO 2 HSK A40 Add-on module	0 – 20
10016801	F-SENSO 2 HSK A50 Add-on module	0 – 20
10016802	F-SENSO 2 HSK A63 Add-on module	0 – 50
10016803	F-SENSO 2 HSK A100 Add-on module	0 - 90

C 15

F-SENSO 2 SPK Add-on Module (for measuring pull-in force in clamping heads)



Item No.	Description	Measuring range, axial [kN]
1414048	F-SENSO 2 SPK 125 Add-on module	0 – 50
1414049	F-SENSO 2 SPK 140 Add-on module	0 – 50

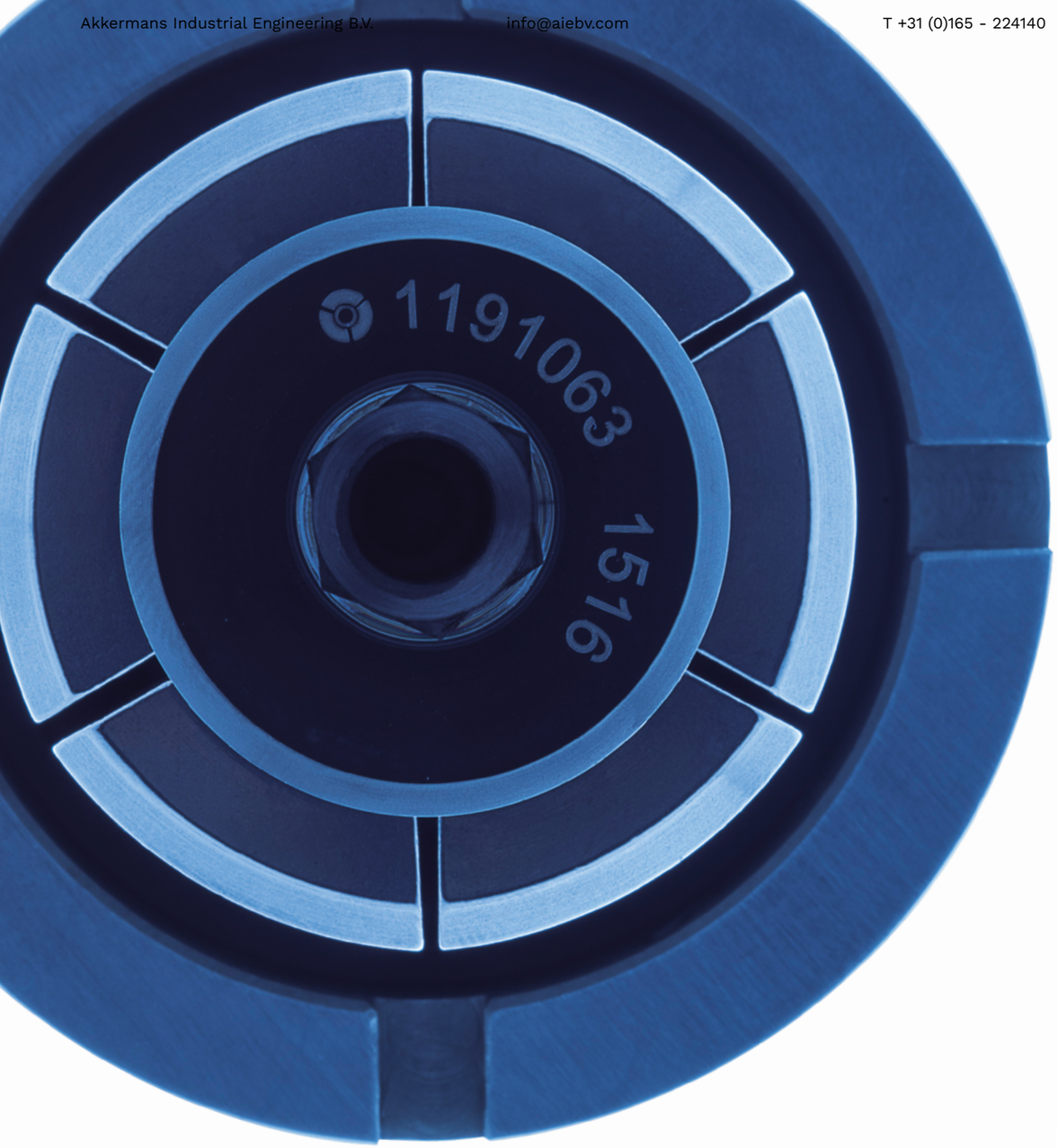
A 34

F-SENSO 2 Chuck Add-on Module (for measuring clamping force in jaw chucks and vises)



Item No.	Description	Measuring range, 3 measuring points [kN]	Measuring range, 2 measuring points [kN]	Max. rotational speed [rpm]
10016798	F-SENSO 2 Chuck 32 Add-on module	0 – 140	0 – 90	8000
10016799	F-SENSO 2 Chuck 65 Add-on module	0 – 225	0 – 150	6000

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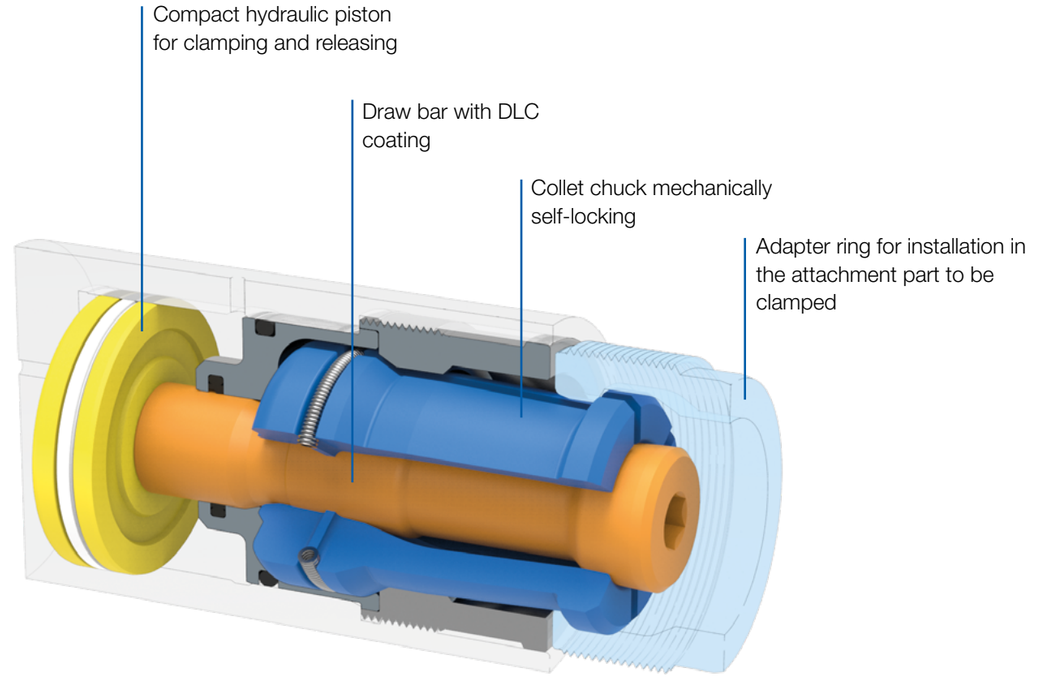
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BUILT-IN CLAMPING HEAD RESK

The built-in clamping head RESK is a universally usable interface for the easy and quick connection of machine components in a minimum amount of space, such as milling heads, machine tables and forming tools. It will convince you with its high pull-in forces and extremely compact design, as well as its process reliability.

ADVANTAGES AT A GLANCE

- Superior process reliability due to innovative design
- High pull-in forces with extremely compact design due to power transmission in the clamping set
- Integrated locking system maintains the clamping force without applied hydraulic pressure



Built-in clamping head

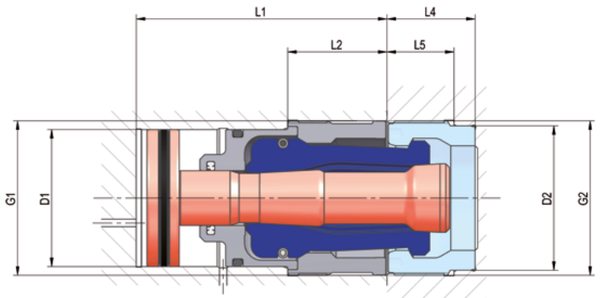


APPLICATION
Change interface for machine components.

TYPE
Clamping and unclamping are hydraulic.
Mechanically locking.
After clamping, the system remains securely locked, even without hydraulic pressure.

CUSTOMER BENEFITS
- Maximum process reliability thanks to innovative design without wedge gear
- High pull-in forces with extremely compact design due to power transmission in the clamping set
- Integrated locking system maintains the clamping force, even without hydraulic pressure applied

TECHNICAL FEATURES
- Centering must be ensured with additional elements, if required



C 15
Built-in clamping head RESK, change interface for machine components

Item No.	1191061	1191063
Size	30	50
D1 mm	Ø 36	Ø 55,5
D2 mm	Ø 38	Ø 58
G1 mm	M42x1,5	M62x1,5
G2	M42x1,5	M62x1,5
L1 mm	69,6	101
L2 mm	29	40
L4 mm	21	35,5
L5 mm	16	27
Clamping force kN	30	50
Operating pressure bar	100	80

Accessories built-in clamping head

C 15
Adaptor ring



Item no.	Size	D2	G2	L2	L4
1196524	30	Ø 38	M42x1,5	16	21
1195390	50	Ø 58	M62x1,5	27	35,5

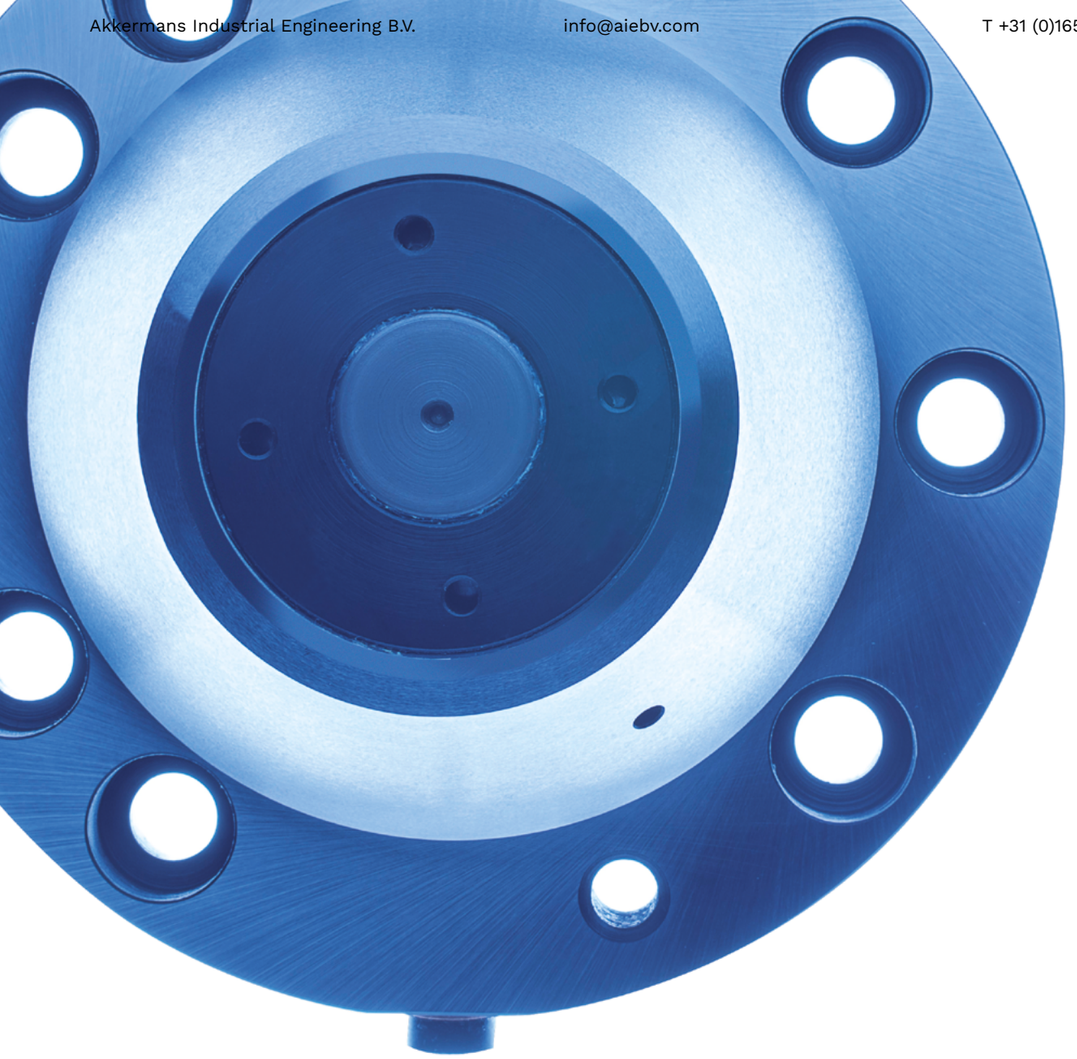
C 15

C 15

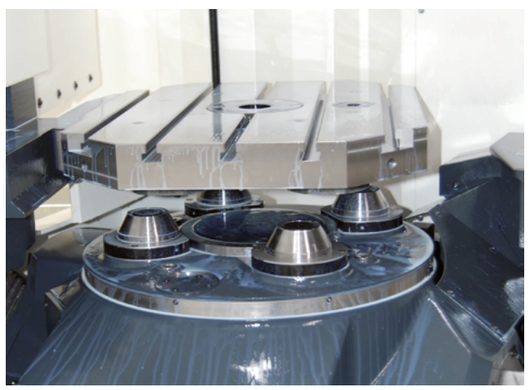
Item no.	Size A
1296114	30
1296115	50

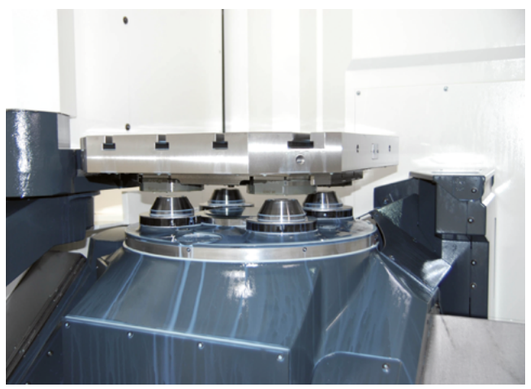
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Notes



CLAMPING HEADS IN USE





RÖHM clamping heads are especially suited for applications with pallet clamping, which require very high change precisions, such as machining centers and transfer lines.

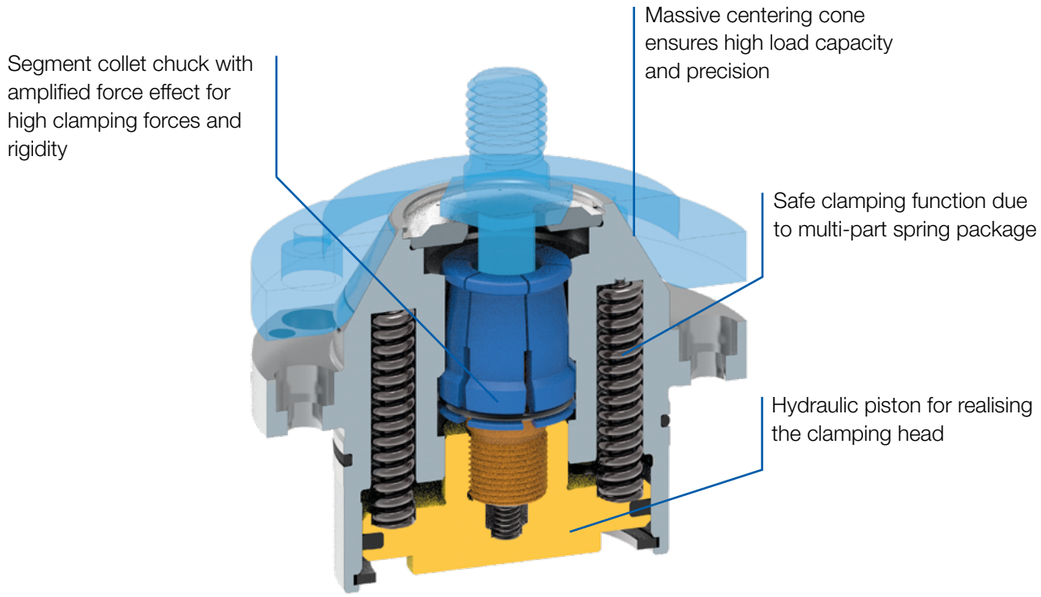
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CLAMPING HEADS SPK

RÖHM clamping heads can be used for all existing pallet clamps. They are particularly suitable for applications which require very high change precisions, such as machining centers or transfer lines. Integrated in the machine table, the clamping heads clamp workpiece pallets in a minimum amount of space with high precision in the axial run-out and positioning for maximum efficiency.

ADVANTAGES AT A GLANCE

- High change precision due to exact positioning of the pallet on the clamping tapers
- Force amplification of the collet chucks results in high clamping forces and high system rigidity
- Clamping force applied over long time period due to integrated spring package



Spring operated clamping head



APPLICATION

On machine tables, when secure clamping of the pallet must be guaranteed, even without hydraulic pressure applied.

TYPE

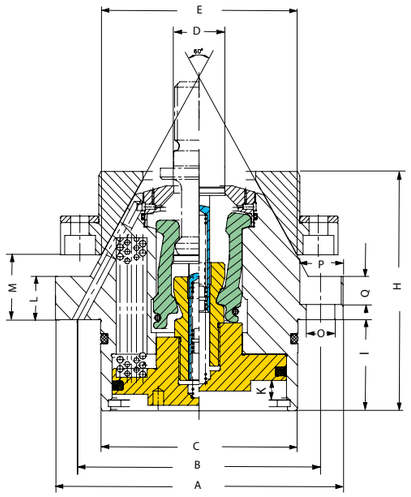
Spring-actuated clamping - hydraulic release.

CUSTOMER BENEFITS

- High system rigidity due to stable design due to the connecting ribs between the individual spring packages
- Hydraulic pressure is only required for release
- Pull-out safety device without additional elements
- Spring-actuated locking cover

TECHNICAL FEATURES

- Compact design
- More powerful effect of the collet chuck
- Air sensing possible



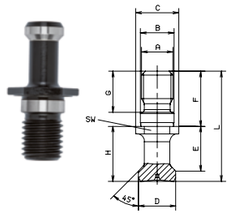
C 15
Spring operated clamping head for clamping pallets, hydraulic release

Size A	100	110	125	140
Contents of delivery	set	set	set	set
B	86	92	105	118
C	70	76	85	96
D	19	19	20	25
E	70	75	85	95
H	90	96	93	104
I	43	49	43	42
K	-	9,5	9,5	9,5
L	11	15	15	20
M	22	23	25	30
O	6,6	9	9	14
P	14	15	15	20
Q mm	7	8,5	8,5	13
Piston area: releasing cm²	28,3	33,18	44,1	56,7
Min. release pressure bar	-	50	40	40
Pull-in-force N	15000	20000	20000	40000
Blast-air pressure bar	10	10	10	10
Weight kg	2,5	3	4	6

Sets can be aligned in height on request

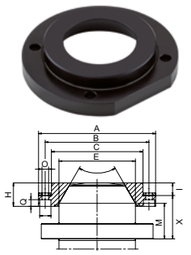
Accessories spring operated clamping head

A 34
Draw-in bolts for clamping heads



Item No.	For clamping head size	Size A	Contents of delivery	B	C	D	E	F	G	H	L	Key-width SW
1243664	100	M18x1,5	piece	19	25,4	15,5	23,7	21	19	28,2	49	22
1243665	110	M18x1,5	piece	19	25,4	19	25,1	23	20	30,3	53	22
850094	125	M20	piece	21	34	19	29	30	23	35	65	30
1116394	140	M24	piece	25	38	23	34,7	40	32	40	80	30

C 15
Mounting flange for clamping heads



Item No.	For clamping head size	Size A	Contents of delivery	B	C	C	E	H	I	M	O	P	Q mm	X
1176444	100	105	Satz	90	80	6x60°	64	20	9	27,2	6,6	11	6,8	33
1176382	110	110	Satz	96	85	6x60°	68	20	7,5	29,06	6,6	11	6,8	35,5
1296089	125	125	Satz	106	88	4x90°	85	32,5	18,5	25	9	15	9	39
1296090	140	135	Satz	116	98	-	95	38,5	23,5	30	9	15	9	45

Further details on request

Hydraulic clamping head



APPLICATION

On machine tables with constant hydraulic pressure applied.

TYPE

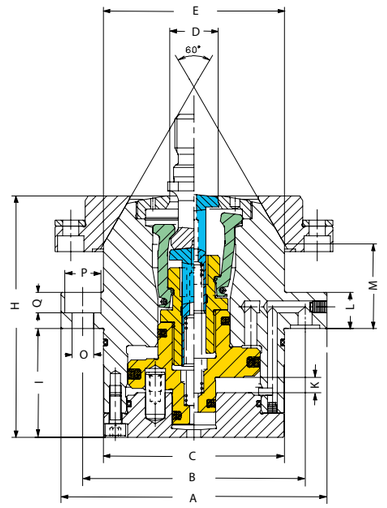
Clamping and release are hydraulic.

CUSTOMER BENEFITS

- High system rigidity due to stable design due to the connecting ribs between the individual spring packages
- Simple, reliable design
- Spring-actuated locking cover

TECHNICAL FEATURES

- Compact design
- More powerful effect of the collet chuck
- Air sensing possible



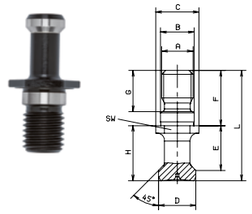
C 15
Hydraulic clamping head for clamping pallets

Size A	110	125	140	148
Contents of delivery	piece	piece	piece	piece
B	92	105	118	125
C	75	85	96	106
D	20	20	29,5	29,5
E	75	85	98	100
H	100	106,5	121,5	131
I	45	55	58	63
K	6,3	6,3	6,8	6,5
L	15	15	20	22
M	35	25	30	39,9
O	9	9	11	11
P	15	15	18	18
Q mm	8,5	8,5	11	11
Piston area: clamping cm²	16,7	24	37	28,9
Piston area: releasing cm²	23,7	31,2	44,2	33,3
Max. operating pressure bar	130	85	80	130
Pull-in-force N	21700	20400	29600	37500
Blast-air pressure bar	10	10	10	10
Weight kg	4	6	8	9

Sets can be aligned in height on request

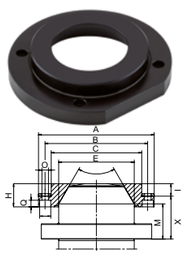
Accessories hydraulic clamping head

A 34
Draw-in bolts for clamping heads



Item No.	For clamping head size	Size A	Contents of delivery	B	C	D	E	F	G	H	L	Key-width SW
586393	110	M16	piece	17	21,9	18,95	22,75	28	21	28	56	19
850094	125	M20	piece	21	34	19	29	30	23	35	65	30
869859	140	M24	piece	25	41,5	27,5	34	40	33,5	40	80	36
586394	148	M24	piece	25	41,5	27,5	34	40	33,5	40	80	36

C 15
Mounting flange for clamping heads



Item No.	For clamping head size	Size A	Contents of delivery	B	Partiti-onw	C	E	H	I	M	O	P	Q mm	X
1128288	110	115	piece	102	90	75	23	4x90°	12,5	35	6,6	11	6,3	42,5
497213	125	125	piece	106	4x90°	88	85	32,5	18,5	25	9	15	9	39
497214	140	135	piece	116	6x60°	98	98	38,5	23,5	30	9	15	9	45
489557	148	160	piece	140	6x60°	120	100	38	23,5	39,9	9	15	9	50,5

Further details 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 I 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.

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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

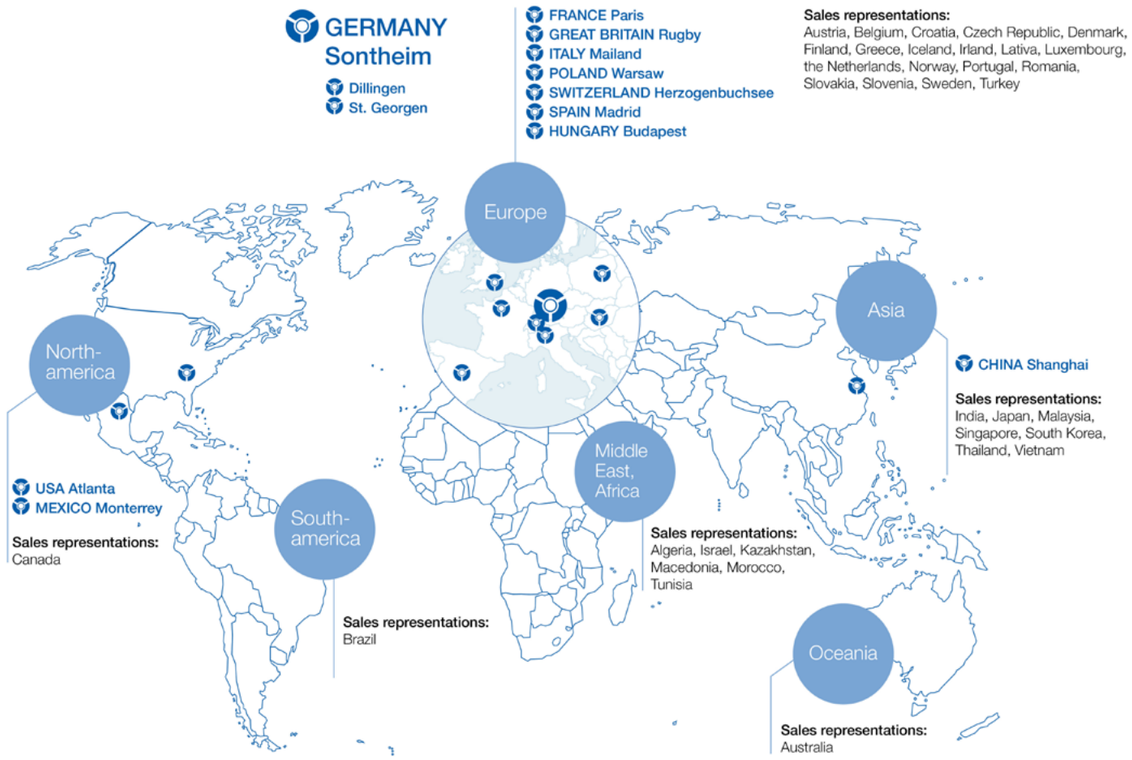


St. Georgen

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 had 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 complied with in their current version.
16. When a contract is concluded between Röhm and the buyer, both parties undertake to observe and comply with the applicable laws and regulations as well as the current RÖHM code of conduct. You can find the code of conduct at:
https://www.roehm.biz/unternehmen/code-of-conduct/

§ 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 15.00 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 Article 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.

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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 (Article 5).
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. Article 10 shall apply to claims for damages. Further or other than claims regulated in this Article or in Article 10 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 Article 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 Article 10.
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 Article 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 only be returned with the supplier's express permission. Any returned goods must be delivered free in their original packaging and must be accompanied by the return receipt provided by the supplier. The goods must be in their original state, i.e. undamaged and fully functional. Returned goods will no longer be accepted when six months have lapsed from the date of delivery. Returns of specially designed or custom-made items, as well as used goods will not be accepted. We will charge a handling fee of 20 % - 40 % of the value of the goods, however, at least EUR 100 per item plus statutory VAT. Following presentation of appropriate evidence, the supplier reserves the right to charge a higher amount to the purchaser in individual cases; the purchaser is free to prove that the damage was lower.

§ 12 Place of performance, Choice of Law and Place of Jurisdiction
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.

§ 13 Data protection
We process personal data in accordance with the General Data Protection Regulation (GDPR) and the Federal Data Protection Act (BDSG).

RÖHM GmbH
89565 Sontheim (Germany)

Status: July 2024

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:
a) 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.
b) Undertaking of all construction, bedding and scaffolding work including the procurement of the necessary building materials.
c) Provision of the necessary devices and heavy tools as well as the necessary commodities and required materials.
d) Provision of heating, lighting, operating power, water, including the necessary connections.
e) Provision of necessary, dry rooms, which can be locked for the storage of the tool for the repair personnel.
f) Protection of the repair place and materials against harmful influences of all kinds, cleaning of the repair place.
g) Provision of suitable, theft-proof recreation rooms and work rooms (with heating, lighting, washing possibility, sanitary facilities) and First Aid for the repair personnel.
h) 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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General Service Terms (ASB) of RÖHM GmbH, Sontheim

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, faulty 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.

RÖHM GmbH

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