Oil and Gas

Clamping technology for crude oil and natural gas industries

ROHM

driven by technology

Crude oil and natural gas - the energy of today

RÖHM is the specialist for clamping technology with a wide product range, unrivaled with regard to variety. Our solutions for your special requirements are also unlimited in the oil and gas extraction areas.

The crude oil and natural gas industries are still the center of the worldwide energy production today. The extraction and further processing of these two raw materials require top precision and maximum safety. Our products are characterized by just these properties. In the past years, RÖHM was able to increasingly adapt the product range to the most important industries.

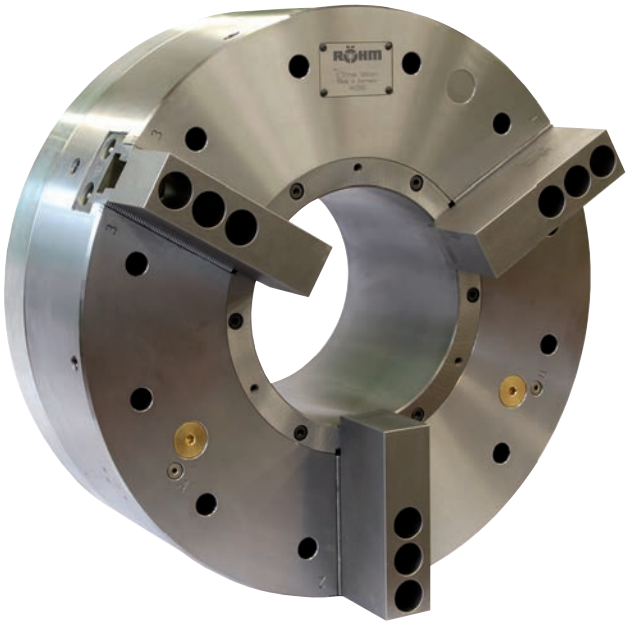
Sophisticated products allow the reliable machining of a wide range of workpieces. It goes without saying that RÖHM has high safety standards.

RÖHM products are specially tailored to the special needs of this important market. Our strengths not only involve offering an especially wide range of standard products, but also to convince our customers with individually developed special designs.

Content

Pipe Machining: Pneumatic Front-End Chucks

The pneumatic front-end chucks are optimally suited for machining the ends of pipes, especially large and long pipes like the ones used for extracting crude oil or natural gas.
For this, a chuck is mounted to the front and rear sides of the machine spindle. This combination allows large chip-cutting performance at high turning precision.
The possible chuck combinations for the front and rear sides can be found in the overview on pages 3 and 4.



Distributor ring

The distributor ring has the function of transmitting the compressed air from outside into the chuck.
This means that the ring is always stationary while the chuck rotates when the workpiece is being machined.
It is therefore supported on the chuck and is prevented from turning with the chuck by means of a fork.
Special seals seal the gap between ring and chuck during the clamping movement to ensure smooth pressure transmission.
Important: To prevent destruction of the sealing ring pressure transmission must only be carried out with chuck stopped.

Control unit

The control unit has the function of keeping the compressed air required for clamping within a closed system throughout the whole machining operation.
It automatically seals the piston side under pressure, whereby the compressed air is automatically released from the opposite side of the piston. The valve can be dismounted as a complete unit and replaced.

Setup and mode of operation

A special feature of this chuck is a pneumatic piston built into the chuck body and supplies the chucking power. The workpiece is clamped or released by compressed air supplied, with chuck stopped, via the distributor ring and a non-return valve to the pneumatic piston.
The pneumatic piston is screwed on to the clamping piston, which is itself connected to the base jaws via a wedgesystem. An axial movement of the pneumatic piston thus produces a radial movement of the base jaws.
The large power transmission surfaces guarantee long service life and permanent high precision of clamping.

Control system

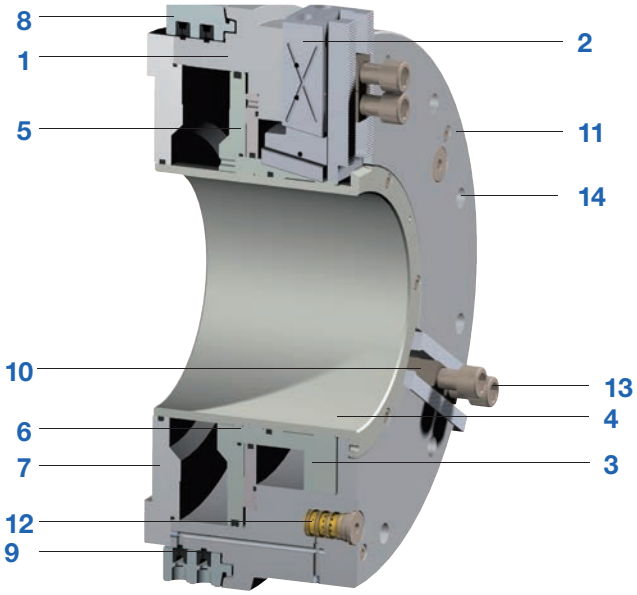
Clamping efficiency depends very much on the tightness of the sealed air chamber. A pressure drop during machining means a drop in clamping force.

With the ”RÖHM control” the pressure in the sealed air chamber is monitored. If the pressure drops below a set minimum value, this is being detected and reported by a sensor.

Control

A selector switch on our combined pneumatic and electrical control unit enables the two chucks to be used together or separately and even with different chucking pressures.

Pipe Machining: Pneumatic Front-End Chucks



Components LVE

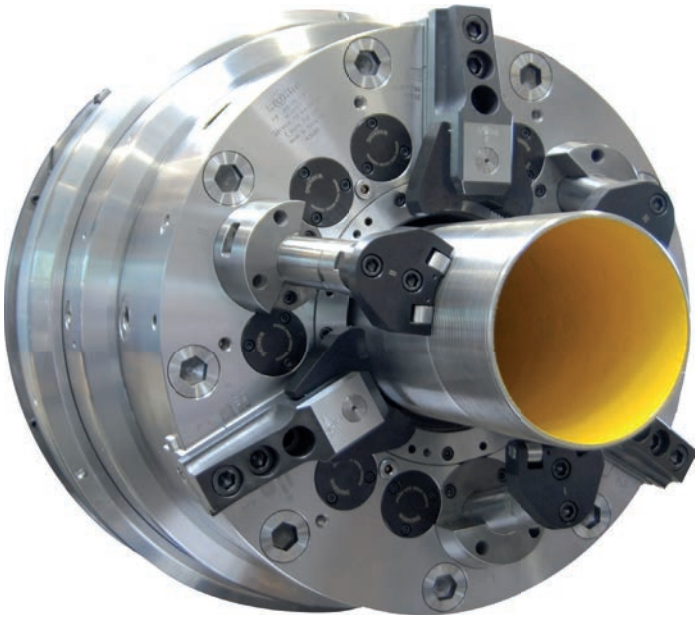
1. Body
2. Base jaw
3. Piston
4. Protective bush
5. Intermediate washer
6. Piston plate
7. Flange
8. Distributor ring
9. Seal
10. T-Nut
11. Air-vent screw
12. Control valve
13. Jaw fixing screws
14. Chuck fixing screws

Pneumatic control unit

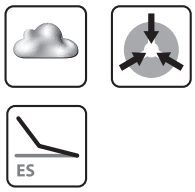
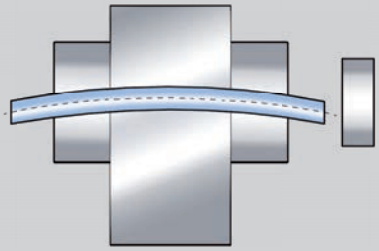
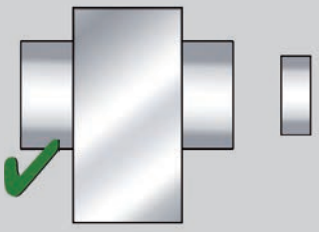
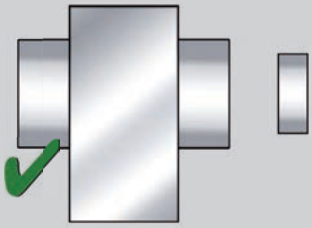
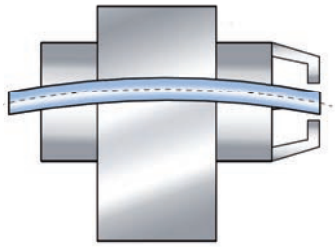
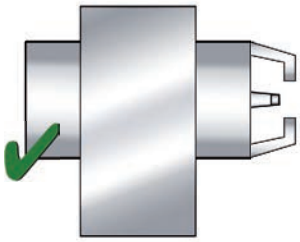
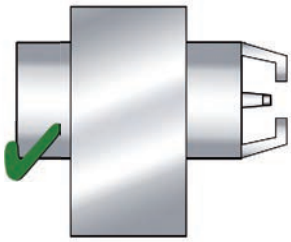
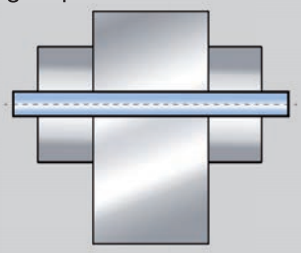
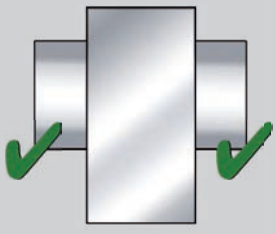
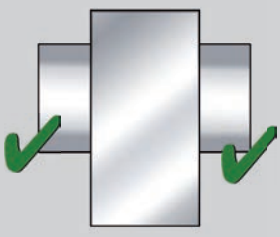
Control voltage 24 V
Connection R 1/2" inside thread
Weight approx. 3 kg
Dimensions: 280x250x100 mm (WxHxD)
Item no.: 426560

Control unit for dual chucks

with dual foot switch, wired, 6m cable
Control voltage 24 V
Dimensions: 300x300x120 mm (WxHxD)
Width with plug: 340 mm
Item no.:
426482 without pressure monitoring
426464 with pressure monitoring



Pipe Machining: Pneumatic Front-End Chucks

Chuck type	LVE	LVE-ES
Description	- Pneumatic front-end chuck - Concentric clamping	- Pneumatic front-end chuck - Concentric clamping - With rapid stroke and clamping stroke
Page	5	6
Characteristics		
Machining situation: Bent pipe Centering via centering chuck		
		
Machining situation: Bent pipe Centering by front-end chuck		
		
Machining situation: Exactly straight pipe No centering required		
		

 pneumatic

 hydraulic

 spring

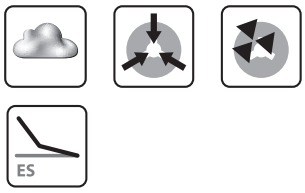
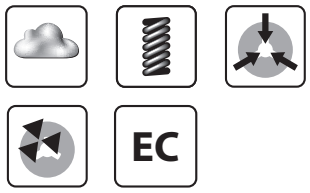
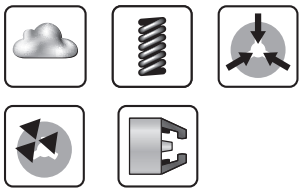
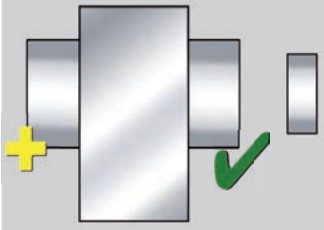
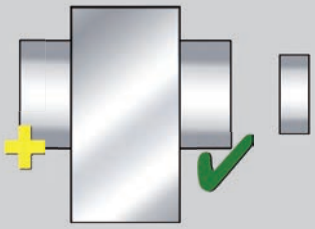
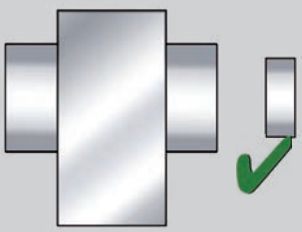
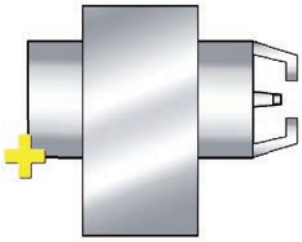
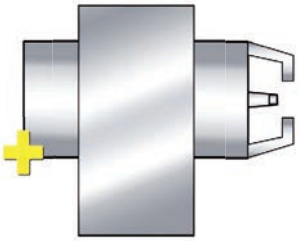
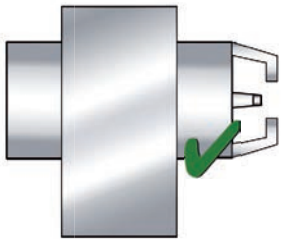
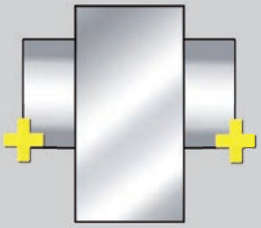
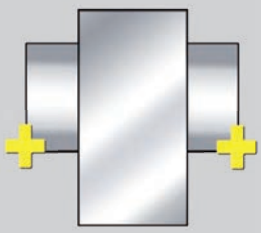
 rapid stroke and clamping stroke

 centering

 with compensation

 retractable clamping arms for pre-centering

EC low-maintenance (Easy Care)

LVE-AZ ES	LVE-F AZ EC	LVE-V AZ	Centering chuck KFG
- Pneumatic front-end chuck - Concentric clamping or with compensation - With rapid stroke and clamping stroke	- Front-end chuck - Clamping with springs, pneumatic release - Concentric clamping or with compensation - Low-maintenance design	- Pneumatic/spring-operated front-end chuck - Concentric clamping or with compensation - Retractable clamping arms for pre-centering the workpiece	- Pneumatic angle lever chuck - Concentric clamping - Integrated flapper with stroke inquiry
7	8	9	10
			
			
			
			

ideally suited

suited

bent pipe

exactly straight pipe

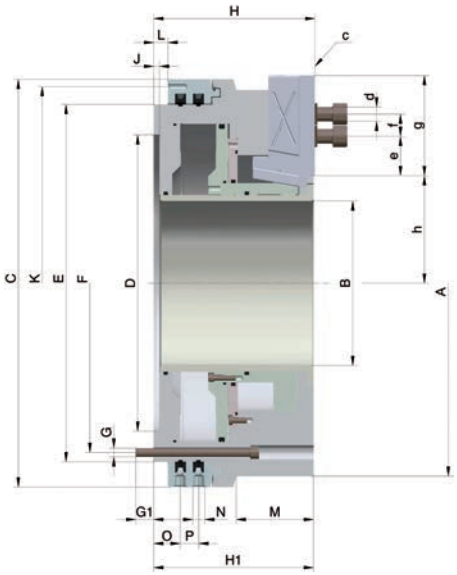
rear-end chuck

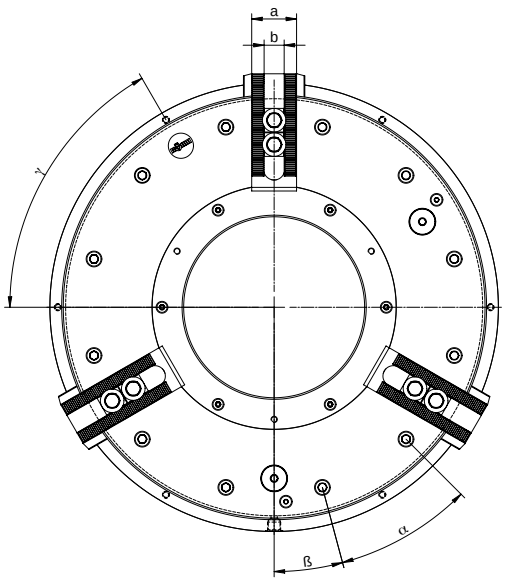
front-end chuck

front-end chuck with centering

centering chuck

LVE

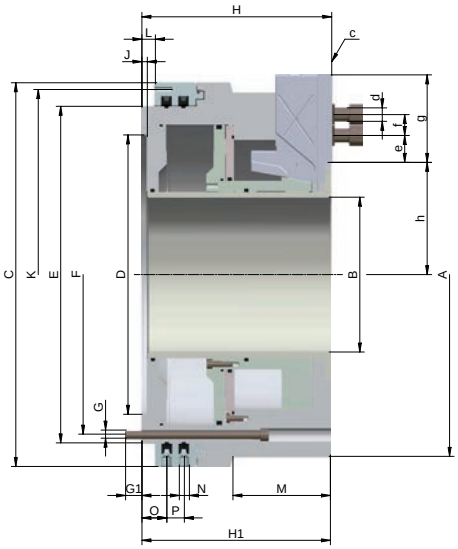


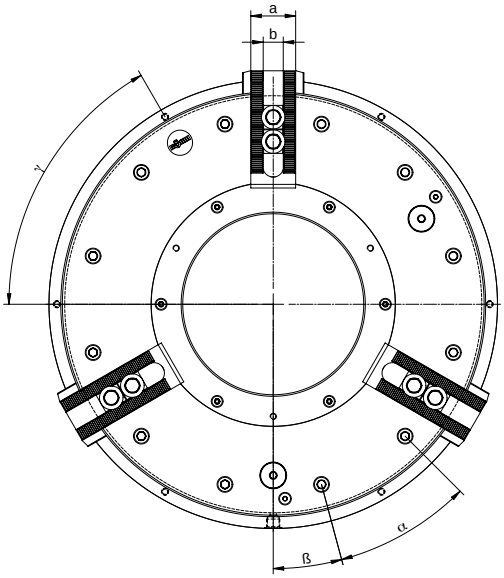


		LVE 420-140	LVE 480-185	LVE 540-205	LVE 570-230	LVE 600-275	LVE 640-275	LVE 680-325	LVE 730-375	LVE 800-375	LVE 830-410	LVE 1000-570
Type 525-00	Item no.	169400	169401	169402	169403	169404	169405	169406	169407	169408	169409	169410
Type 525-10	Item no.	169411	169412	169413	169414	169415	169416	169417	169418	169419	169420	169421
Size		400	400	500	500	600	600	600	700	800	800	1000
Jaw stroke	mm	7,0	8,5	8.5	8.5	8.5	10	10	10	12	12	12
Rapid/clamping stroke	mm	-	-	-	-	-	-	-	-	-	-	-
Operating pressure min./max.	bar	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	3/8
Total gripping force at 6 bar	kN	140	155	210	190	200	240	155	175	405	360	180
Speed max.	min $^{-1}$	1700	1500	1300	1300	1200	1000	900	800	750	750	450
Cylinder area	cm^2	710	899	1024	939	990	1414	1181	1307	2382	2121	1075
Air consumption/ Jaw stroke 6bar	l	20	31	35	32	34	58	49	55	117	104	85
Weight	kg	150	215	230	200	275	413	418	560	712	650	950
Moment of inertia	kgm^2	3.50	7.50	8.50	8.00	14.50	24.25	29.10	45.80	67.80	71.25	157.5
A	mm	425	480	540	570	600	640	685	735	800	835	1000
B	mm	140	185	205	230	275	275	325	375	375	410	570
C	mm	470	530	570	570	615	685	685	735	850	850	925
D^{H6}	mm	310	365	415	415	415	510	510	560	700	700	700
E	mm	400	460	500	500	545	610	610	660	775	775	850
Pitch diameter (12x30°) F	mm	374	434	474	474	519	580	580	630	745	745	815
G/G1	mm	M12/25	M12/25	M12/25	M12/25	M12/25	M16/30	M16/30	M16/30	M16/30	M16/30	M16/30
H	mm	196	225	225	225	225	263	263	263	305	305	315
H1	mm	194	223	223	223	223	261	261	261	303	303	313
J	mm	8	8	8	8	8	8	8	8	8	8	10
Pitch diameter (6x60°) M8-20 K	mm	448	510	550	550	595	666	666	716	830	830	910
L	mm	20	20	20	20	20	20	20	20	25	25	33
M	mm	70	90	100	-	-	110	-	-	155	155	225
Pneumatic connection N	inch	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8
O	mm	37	37	37	37	37	39.5	39.5	39.5	44.5	44.5	52.5
P	mm	26	26	26	26	26	33	33	33	33	33	33
a	mm	57	57	57	57	57	75	75	75	75	75	75
b^{H7}	mm	25.5	25.5	25.5	25.5	25.5	30	30	30	30	30	30
Serration c	inch	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°
Screw DIN 912-12.9 d	mm	M20x50	M20x50	M20x50	M20x50	M20x50	M24x65	M24x65	M24x65	M24x65	M24x65	M24x65
min. e	mm	20	20	20	20	20	28	28	28	28	28	28
min./max. f	mm	32/85	32/85	32/105	32/105	32/105	42/100	42/100	42/100	42/125	42/125	42/125
g	mm	120	120	140	140	140	145	145	145	173	173	173
min./max. h	mm	94/101	118.5/127	131.5/140	141.5/150	161.5/170	175/185	195/205	220/230	225/237	242.5/254.5	323/345
α	degree	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
β	degree	15°	15°	15°	15°	15°	15°	15°	15°	15°	15°	15°
γ	degree	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°

Type 525-00 standard design
Type 525-10 with pressure control device for external clamping

LVE-ES

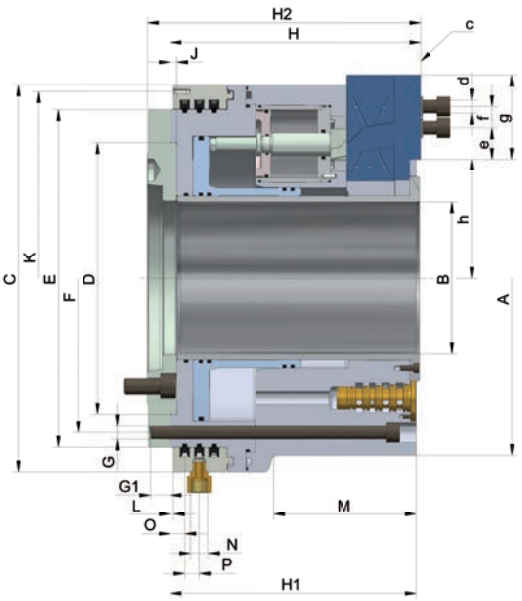


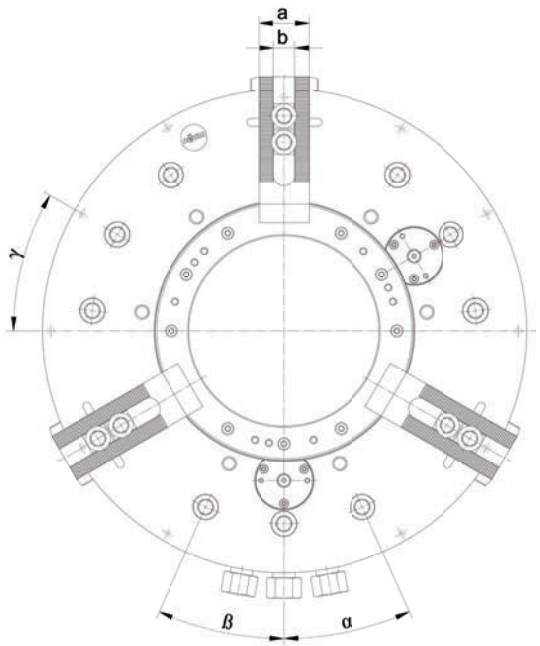


		LVE 470-140 ES	LVE 490-185 ES	LVE 570-205 ES	LVE 570-230 ES	LVE 610-275 ES	LVE 680-275 ES	LVE 680-325 ES	LVE 730-375 ES	LVE 850-375 ES	LVE 850-410 ES	LVE 1000-570 ES
Type 525-20	Item no.	169422	169423	169424	169425	169426	169427	169428	169429	169430	169431	169432
Type 525-30	Item no.	169433	169434	169435	169436	169437	169438	169439	169440	169441	169442	169443
Size		400	400	500	500	600	600	600	700	800	800	1000
Jaw stroke	mm	19	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
Rapid/clamping stroke	mm	12/7	16.9/8.5	16.9/8.5	16.9/8.5	16.9/8.5	16.9/8.5	16.9/8.5	16.9/8.5	14.9/10.5	14.9/10.5	14.9/10.5
Operating pressure min./max.	bar	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	3/8
Total gripping force at 6 bar	kN	120	150	210	190	170	240	200	175	200	185	180
Speed max.	min^{-1}	1500	1300	1200	1200	1100	900	800	750	750	750	450
Cylinder area	cm^2	700	862	1024	939	1004	1414	1181	1307	1345	1130	1075
Air consumption/ Jaw stroke 6bar	l	32	42	50	45	49	68	57	63	80	67	65
Weight	kg	200	260	320	270	365	500	490	580	970	825	955
Moment of inertia	kgm^2	6.50	8.25	14.65	12.75	19.95	32.80	34.25	47.50	103.0	91.85	158.2
A	mm	470	490	570	570	615	685	685	735	850	850	1000
B	mm	140	185	230	230	275	275	325	375	375	410	570
C	mm	470	530	570	570	615	685	685	735	850	850	925
D^{H6}	mm	310	365	415	415	415	510	510	560	700	700	700
E	mm	400	460	500	500	545	610	610	660	775	775	850
Pitch diameter (12x30°) F	mm	374	434	474	474	519	580	580	630	745	745	815
G/G1	mm	M12/25	M12/25	M12/25	M12/25	M12/25	M16/30	M16/30	M16/30	M16/30	M16/30	M16/30
H	mm	240	282	282	282	282	308	308	308	322	322	332
H1	mm	238	280	280	280	280	306	306	306	320	320	330
J	mm	8	8	8	8	8	8	8	8	8	8	10
Pitch diameter (6x60°) M8-20 K	mm	448	510	550	550	595	666	666	716	830	830	910
L	mm	20	20	20	20	20	20	20	20	25	25	33
M	mm	-	140	100	-	-	110	-	-	-	-	225
Pneumatic connection N	inch	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8
O	mm	37	37	37	37	37	39.5	39.5	39.5	44.5	44.5	52.5
P	mm	26	26	26	26	26	33	33	33	33	33	33
a	mm	57	57	57	57	57	75	75	75	75	75	75
b^{H7}	mm	25.5	25.5	25.5	25.5	25.5	30	30	30	30	30	30
Serration c	inch	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°	3/32"x90°
Screw DIN 912-12.9 d	mm	M20x50	M20x50	M20x50	M20x50	M20x50	M24x65	M24x65	M24x65	M24x65	M24x65	M24x65
min. e	mm	20	20	20	20	20	28	28	28	28	28	28
min./max. f	mm	32/80	32/80	32/95	32/95	32/95	42/95	42/95	42/95	42/120	42/120	42/120
g	mm	112	112	130	130	130	140	140	140	170	170	170
min./max. h	mm	126/145	132.6/158	142.1/167.5	154.6/180	177.1/202.5	182.6/208	202.6/228	227.6/253	234.6/260	252.1/277.5	329.6/355
α	degree	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
β	degree	15°	15°	15°	15°	15°	15°	15°	15°	15°	15°	15°
γ	degree	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°

Type 525-00 standard design
Type 525-10 with pressure control device for external clamping

LVE-AZ ES

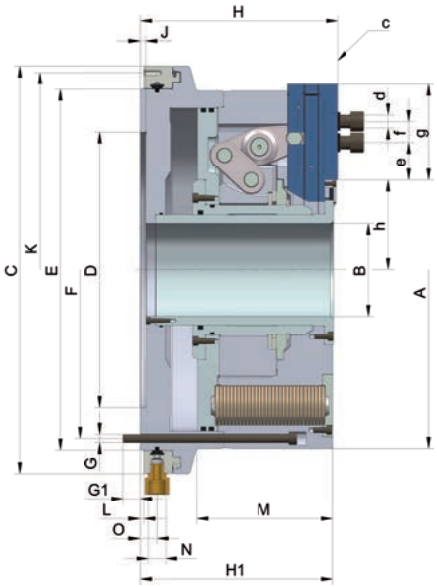


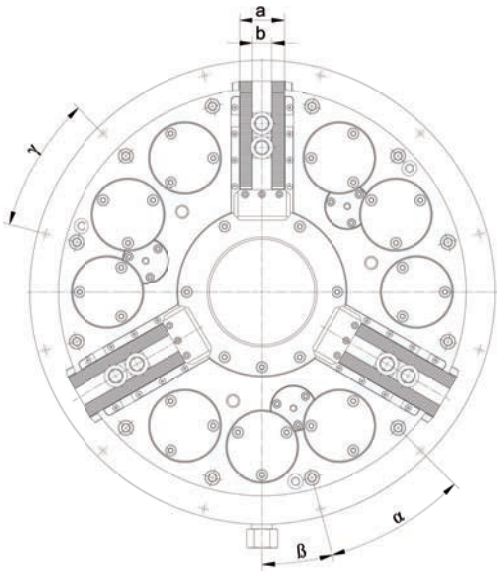


		LVE-AZ ES 570-220 KK15	LVE-AZ ES 650-275 KK15 - KK20	LVE-AZ ES 760-375 KK20
Item no.		169519	169520	169521
Jaw stroke	mm	25.4	25.4	25.4
Rapid/clamping stroke	mm	15.9/9.5	15.9/9.5	15.9/9.5
Operating pressure min./max.	bar	2/8	2/8	3/8
Gripping force concentric at 6 bar	kN	155	180	240
Gripping force comp. at 6 bar	kN	75	85	100
Speed max.	min^{-1}	1200	1000	750
Cylinder area -Z-/-A-	cm^2	1015/520	1360/680	1620/680
Air consumption -Z-/-A-	l	50/70	67/90	80/100
Weight	kg	535	730	925
Moment of inertia	kgm^2	25.00	45.00	80.00
A	mm	570	650	760
B	mm	220	275	375
C	mm	570	685	780
D^{H6}	mm	415	510	590
E	mm	500	615	710
Pitch diameter F	mm	470	555	640
G/G1	mm	M20/30 (9x)	M20/35 (9x)	M20/35 (12x)
H	mm	382	382	382
H1/H2	mm	375/417	375/(417) 422	375/422
J	mm	10	10	10
Pitch diameter (12x30°) M8-20 K	mm	555	670	765
L	mm	10	10	10
M	mm	-	220	220
Pneumatic connection N	inch	G 3/4	G 3/4	G 3/4
O	mm	25	25	25
P	mm	22	22	22
a	mm	61	75	75
b^{H7}	mm	25.5	30	30
Serration c	inch	3/32"x90°	3/32"x90°	3/32"x90°
Screw DIN 912-12.9 d	mm	M20x55	M24x65	M24x65
min. e	mm	20	25	25
min./max. f	mm	32/90	40/95	40/95
g	mm	128	140	140
min./max. h	mm	154.1/179.5	179.4/205.0	232.1/257.5
α	degree	22,5°	25°	20°
β	degree	22,5°	25°	20°
γ	degree	30°	30°	30°

KK = short taper mount

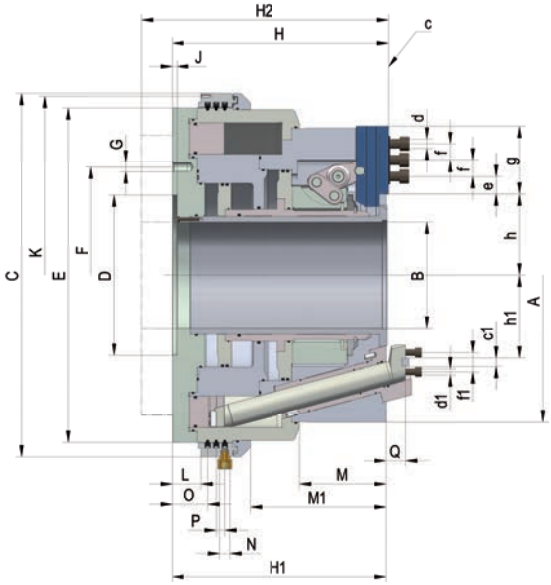
LVE-F AZ EC

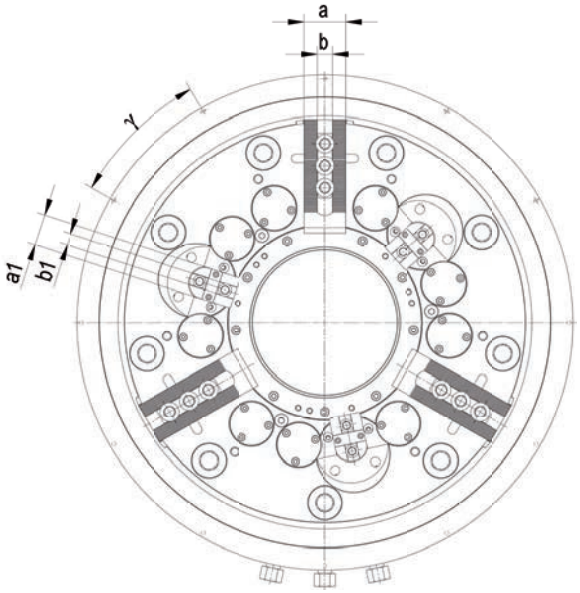




		LVE-F AZ EC 675-275	LVE-F AZ EC 825-395	LVE-F AZ EC 1000-570
Item no.		169516	169517	169518
Jaw stroke	mm	18.0	22.0	22.0
Opening pressure min./max.	bar	3/5	5/8	5/8
Gripping force max.	kN	30/60/90 (3/6/9 Springs)	90/135/180 (6/9/12 Springs)	90/135/180 (6/9/12 Springs)
Speed max.	min^{-1}	1000	750	450
Cylinder area	cm^2	2170	2890	3790
Air consumption	l	50	60	80
Weight	kg	525	900	1150
Moment of inertia	kgm^2	35.00	95.00	190.00
A	mm	675	825	1000
B	mm	275	395	570
C	mm	750	900	1075
D^{H6}	mm	510	700	870
E	mm	680	830	1000
Pitch diameter (12x30°) F	mm	640	785	960
G/G1	mm	M12/25	M16/30	M16/30
H	mm	298	320	320
H1	mm	290	310	310
J	mm	8	10	10
Pitch diameter (12x30°) M8-20 K	mm	730	880	1055
L	mm	20	20	20
M	mm	205	225	225
Pneumatic connection N	inch	G 3/4	G 3/4	G 3/4
O	mm	25	25	25
a	mm	60	80	80
b^{H7}	mm	25.5	30	30
Serration c	inch	3/32"x90°	3/32"x90°	3/32"x90°
Screw DIN 912-12.9 d	mm	M20x45	M24x65	M24x65
min. e	mm	14	28	28
min./max. f	mm	32/115	40/105	40/105
g	mm	145	155	155
min./max. h	mm	184.5/202.5	238.0/260.0	328.0/350.0
α	degree	30°	30°	30°
β	degree	15°	15°	15°
γ	degree	30°	30°	30°

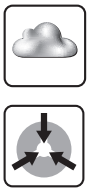
LVE-V AZ

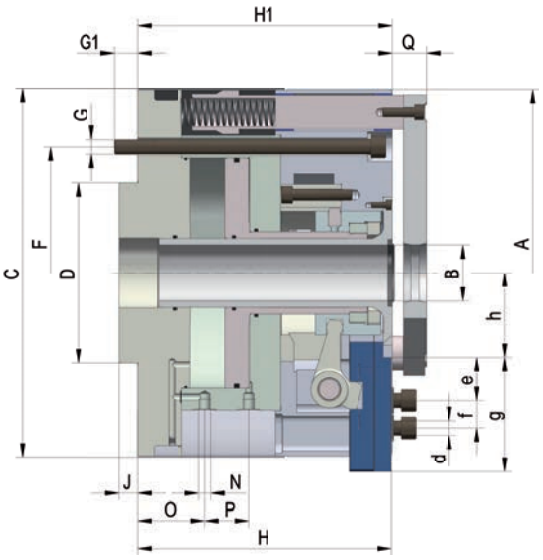


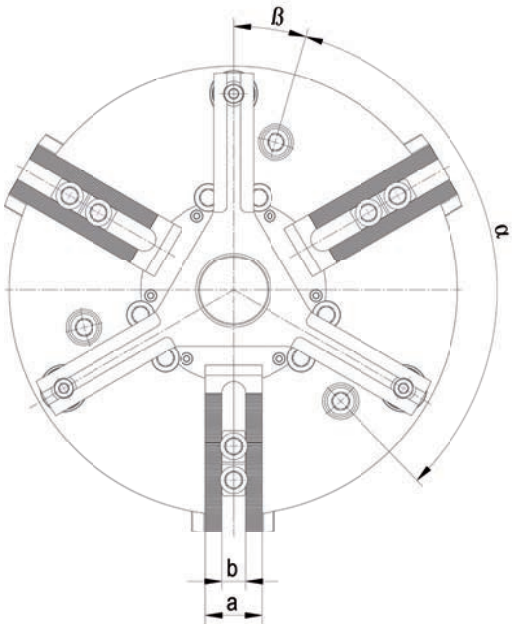


		LVE-V AZ 760-275	LVE-V AZ 880-380
Item no.		169522	169523
Clamping jaw stroke	mm	20	20
+/- Compensation	mm	±6	±8
Centering jaw stroke	mm	13	13
Opening pressure min./max.	bar	4/8	4/8
Gripping force 3/6/9 Springs max.	kN	40/80/120	50/95/140
Centering pressure max.	bar	3	4
Centering force at 3 bar max.	kN	60	80
Speed max.	min^{-1}	800	600
Air consumption opening min.	l	35	50
Air consumption center.	l	80	120
Weight	kg	1700	1950
Moment of inertia	kgm^2	140.00	245.00
A	mm	760	880
B	mm	275	380
C	mm	940	1060
D^{H6}	mm	415	560
E	mm	865	985
Pitch diameter (6x60°) F	mm	560	630
G	mm	M24	M24
H	mm	560	560
H1/H2	mm	555/645	555/645
J	mm	12	12
Pitch diameter (12x30°) M8-20 K	mm	925	1045
L	mm	75	75
M/M1	mm	225/350	225/350
Pneumatic connection N	inch	G 3/4	G 3/4
O	mm	92,5	92,5
P	mm	22	22
min./max. Q	mm	50/175	50/175
a/a1	mm	80/60	80/65
$b/b1^{H7}$	mm	30/22	30/25,5
Serration c	inch	3/32"x90°	3/32"x90°
$c1^{g6}$	mm	22	22
Screw DIN 912-12.9 d	mm	M24x60	M24x60
min./max. e	mm	20/70	20/70
f	mm	42	42
g	mm	175	175
min./max. h	mm	190.0/210.0	240.0/260.0
min./max. h1	mm	215.0/255.0	270.0/310.0
γ	degree	30°	30°

Centering Chuck KFG





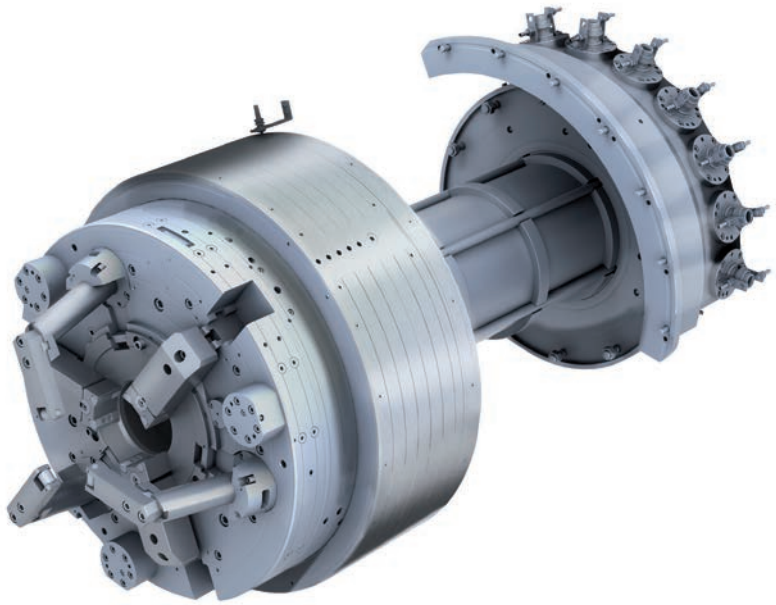


			KFG 400-62
Item no.			435160
Jaw stroke		mm	15
Flapper stroke		mm	50
Restoring force of flapper		kN	0,5
Operating pressure	**min./max.**	bar	2/10
Total gripping force	**at 6bar**	kN	45
Cylinder area		cm^2	430
Air consumption/Jaw stroke	**6bar**	l	12
Weight		kg	165
	A	mm	400
	B	mm	62
	C	mm	405
	D^{H6}	mm	196
Pitch diameter (3x120°)	**F**	mm	275
	G/G1	mm	M16/25
	H	mm	277
	H1	mm	278
	J	mm	20
Pneumatic connection	**N**	inch	G 1/4
	O	mm	70
	P	mm	50
min./max.	**Q**	mm	-10/+40
	a	mm	50
	b^{H7}	mm	21
Serration	**c**	mm	1,5x60°
Screw DIN 912-12.9	**d**	mm	M16x30
min.	**e**	mm	18
min./max.	**f**	mm	30/95
	g	mm	125
min./max.	**h**	mm	77.0/92.0
	α	degree	120°
	β	degree	16°

The centering chuck offers one of many options in the RÖHM-product range for centering pipes.
Alternative solutions are available on request.

Pipe Machining: Hydraulic Front-End Chucks

The hydraulic front-end chucks are optimally suited for machining the ends of pipes, especially large and long pipes like the ones used for extracting crude oil or natural gas.
For this, one chuck is mounted to the front and one to the rear side of the machine spindle. This combination allows large chip-cutting performance at high turning precision.
The possible chuck combinations for the front and rear sides can be found in the overview on pages 13 and 14.



Setup and mode of operation

RÖHM offers two concepts for hydraulically actuating the front-end chucks:

HVE IZ: Actuation is done via injection cylinder
HVE EK: Stationary actuation which is decoupled during rotation

The two variants can be used both with centric clamping as well as clamping with compensation. For this, the floating clamping claw disc is merely fastened with two bolts, or released for compensating clamping. The clamping jaws with rapid and clamping stroke ensure large strokes with short stroke times. The hydraulically operated chucks are available with central lubrication.

Actuation HVE-IZ

During pipe machining, the clamping system is decoupled from the supply via relief valves. A pressure accumulator ensures a sufficient resupply. A sensor system detects any drop in pressure.
The HVE-IZ chuck is actuated via injection cylinders. These are arranged radially with respect to the rotary axis.

The individual clamping chucks are supplied either

- via a distributor flange for each chuck, on the front and rear side of the spindle box
- via a distributor flange on the rear side of the spindle box and supply of the front-end chuck via the oil supply pipe or
- via a distributor flange on the front side of the spindle box and supply of the rear-end chuck via the oil supply pipe.

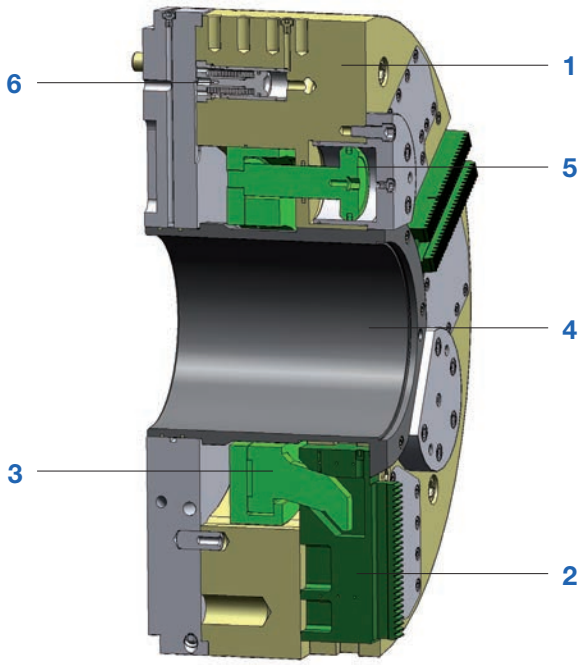
To couple the injection cylinder, it is necessary to exactly position the machine spindle. Here, the injection cylinder is monitored by limit switches. Decoupling is done without pressure. The generously dimensioned interface from the stationary to rotating areas allows short switching times, as little as one second per clamping function.

Actuation HVE-EK

The HVE EK chuck has stationary actuation, which is decoupled from the rotating system during machining. The stationary actuating unit is located between the chuck and spindle box, and is separated from the rotating components.

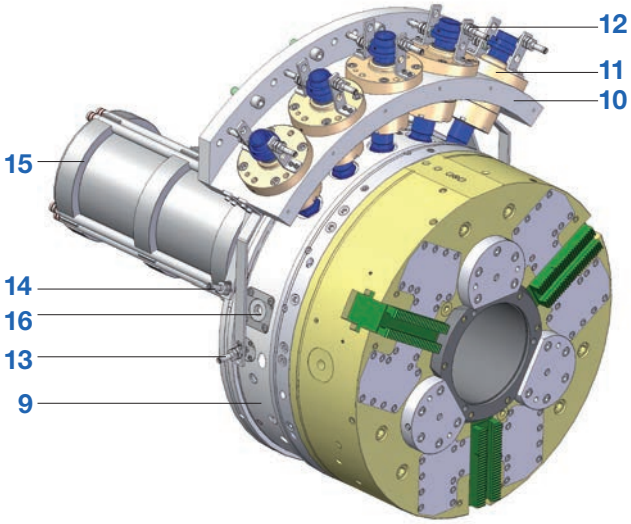
Pipe Machining: Hydraulic Front-End Chucks

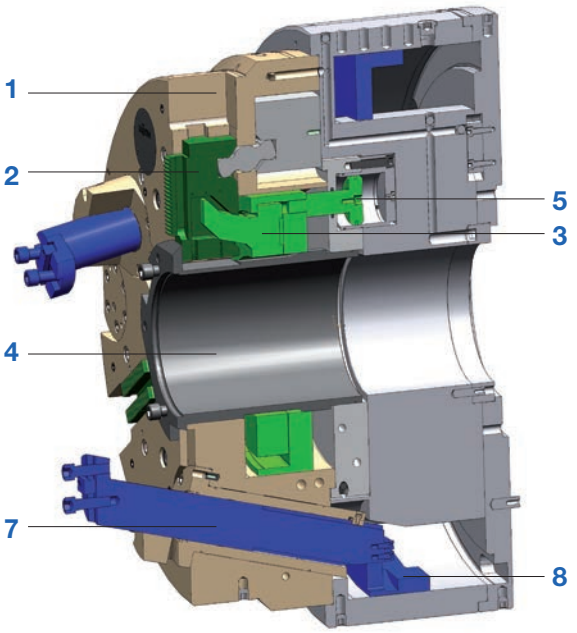
HVE with injection cylinders



Components HVE-IZ

1. Body
2. Base jaw
3. Clamping piston with floating clamping claw disc, concentric positionable
4. Protection bush
5. Piston
6. Pressure accumulator
7. Centering bar
8. Centering piston
9. Oil supply flange
10. Retaining ring
11. Injection cylinder
12. Control injection cylinder
13. Pressure control
14. Additional control for spindle zero point
15. Oil supply pipe for front-end chuck
16. Relief valve

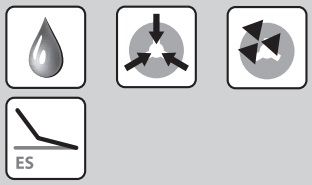
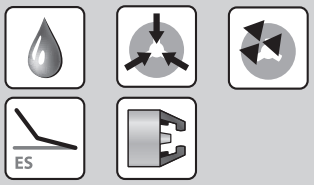
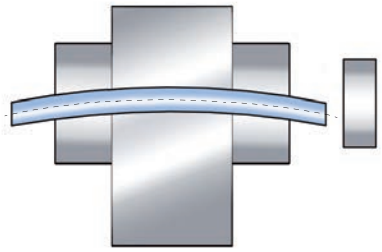
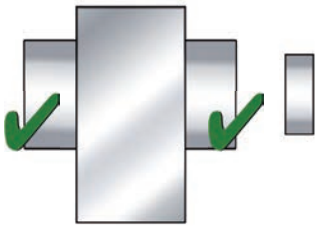
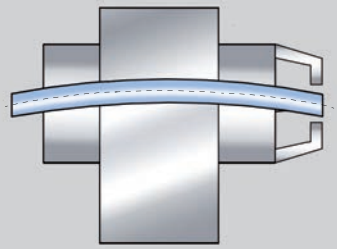
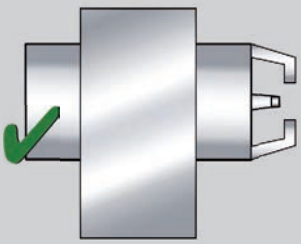
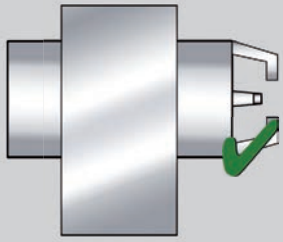




Different versions available on request

The hydraulic chuck as well as the necessary accessories are available on request. We would be happy to advise you with regard to the different variants in a personal meeting and design the optimal solution for your application.

Pipe Machining: Hydraulic Front-End Chucks

Chuck type	HVE-IZ AZ ES	HVE-IZ V AZ ES
Description	- Hydraulically operated front-end chuck - Actuation via injection cylinders - Concentric clamping or with compensation - With rapid stroke and clamping stroke	- Hydraulically operated front-end chuck - Actuation via injection cylinders - Concentric clamping or with compensation - With rapid stroke and clamping stroke - Retractable clamping arms for pre-centering the work-piece
Characteristics		
Machining situation: Bent pipe Centering via centering chuck		
Machining situation: Bent pipe Centering by front-end chuck		 

 pneumatic

 hydraulic

 spring

 rapid stroke and clamping stroke

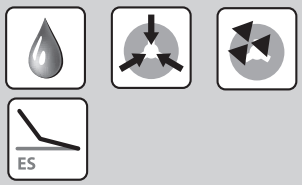
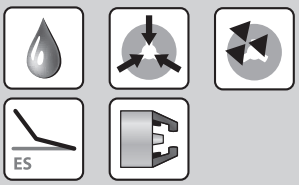
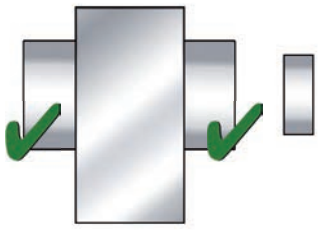
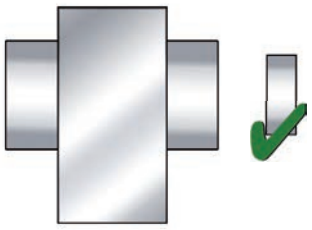
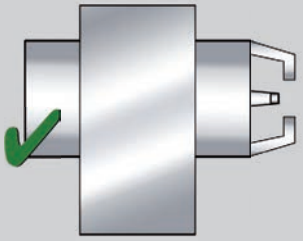
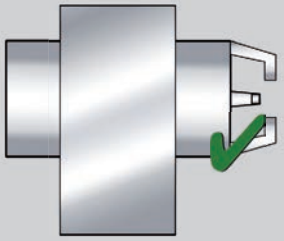
 centering

 with compensation

 retractable clamping arms for pre-centering

EC low-maintenance (Easy Care)

The optimal hydraulic chuck for your application is available on request. We would be happy to advise you with regard to the different variants in a personal meeting.

HVE-EK AZ ES	HVE-EK V AZ ES	Centering chuck
- Hydraulically operated front-end chuck - Stationary actuation - Concentric clamping or with compensation - With rapid stroke and clamping stroke	- Hydraulically operated front-end chuck - Stationary actuation - Concentric clamping or with compensation - With rapid stroke and clamping stroke - Retractable clamping arms for pre-centering the workpiece	From a wide range of centering options, we will select the right centering chuck for your machining application.
		
		
		

 ideally suited

 suited

 bent pipe

 exactly straight pipe

 rear-end chuck

 front-end chuck

 front-end chuck with centering

 centering chuck

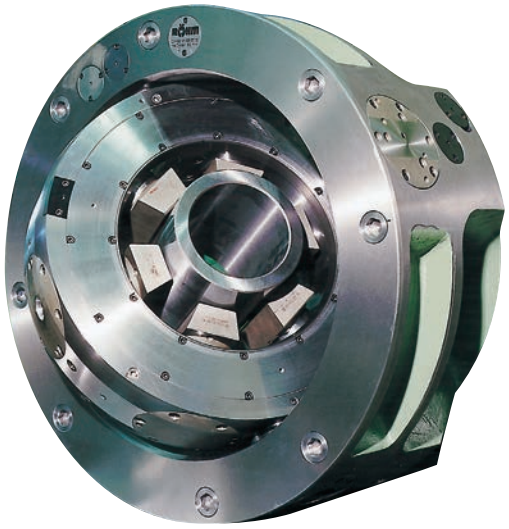
Bushing Machining: Swivel Chucks

Hydraulically operated swivel chucks HSFZ

Swivel chucks are optimally suited for machining bushings or connection pieces on both sides. With the swivel axis, which lies 90° relative to the rotary axis, the workpiece is brought into the respective machining positions fully automatically.

Machining in one setup offers two decisive advantages:
- Maximum axial precision
- Minimum setup effort

The combination of three concentric clamping jaws with three compensating clamping jaws ensures especially low-deformation clamping.



Setup and mode of operation

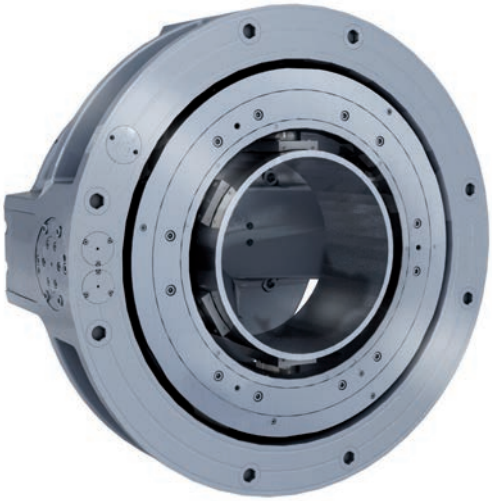
The swivel chuck has a closed chuck body, in which a ring, which can be swiveled by 180°, is supported with two gear racks. This serves as a clamping ring and has three concentric clamping jaws and three compensating clamping jaws. The clamping ring is fixed laterally on the outer diameter via two indexing bolts.
The compact design of the chuck ensures a favorable ratio of workpiece diameter to chuck size and weight.

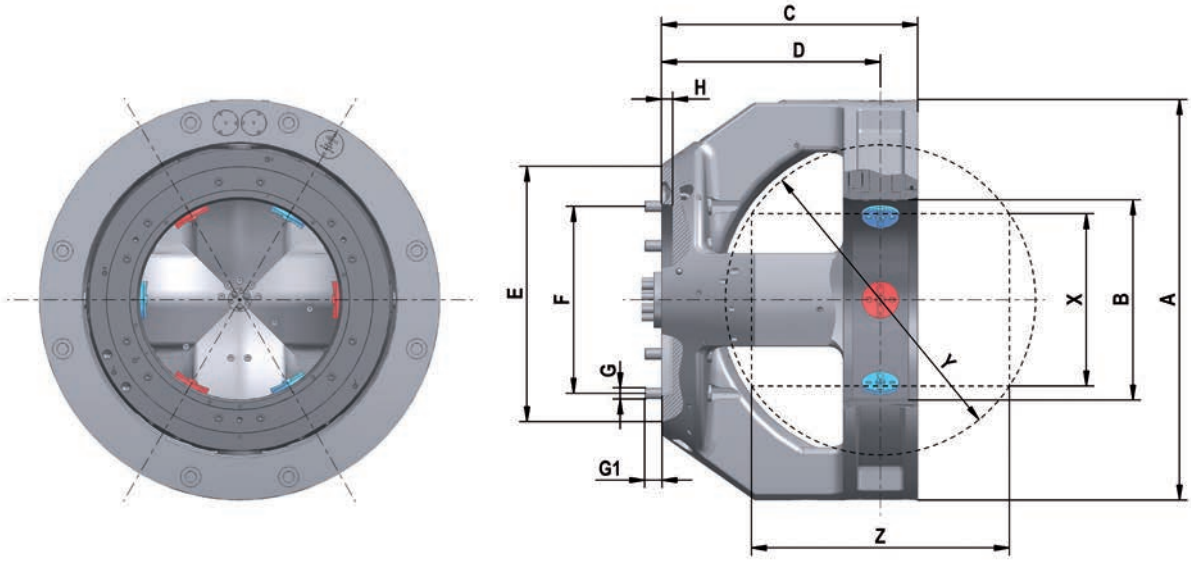
Actuation

The swivel chucks are supplied with the required energy via a 9- or 11-way oil distributor. The oil distributors are located at the end of the spindle.
The matching oil distributors and hydraulic units are available on request.

Control

A check is done via a feedback cylinder on the hydraulic unit in the swivel positions 0° and 180° and during locking.
Even if there is a pressure drop, the clamping as well as the locking are maintained by means of safety valves.





		HSFZ 560	HSFZ 710	HSFZ 860
Item no.		439237	439022	439023
Size	mm	560	710	860
Total stroke per jaw	mm	8	10	10
Recommended clamping stroke per jaw	mm	6	7	7
Clamping reserve per jaw	mm	2	3	3
Operating pressure	bar	45	45	45
Total gripping force at 45 bar	kN	130	159	159
Max. Speed	min^{-1}	1000	800	650
Weight	kg	360	650	920
Moment of inertia	kgm^2	14	38	86
A	mm	560	710	860
B	mm	216	280	430
C	mm	376	475	550
D	mm	312	395	470
Spindle connection		DIN 55021 size 15	DIN 55026 size 11	DIN 55026 size 20
E	mm	410	280	520
Pitch diameter F	mm	330 (6x60°)	235 (6x60°)	463,6 (12x30°)
G / G1	mm	M24 / 36 (4x)	M20 / 30 (6x)	M24 / 36 (8x)
H	mm	21	21	24
Max. Work piece diameter X_{max}	mm	160	220	370
Max. Interference circle diameter Y_{max}	mm	405	516	666
Max. Work piece length Z, depending on Work piece diameter X (at centric operation)	mm	$Z = \sqrt{Y^2 - X^2}$		

Power-operated swivel chuck KSFZ

The power-operated swivel chuck KSFZ is suitable as an alternative clamping solution for bushings. The workpiece is clamped at four points via two concentric clamping jaws. The clamping jaws are actuated via a clamping cylinder on the end of the spindle. Concentric clamping swivel chucks are available from a diameter of 210 mm to 820 mm and according to the individual wishes of the customer.

Pneumatic front-end chuck LVE

Another option for machining bushings is to use a LVE or LVE-ES front-end chuck. With this, the workpiece can be machined in two setups. The corresponding data can be found on pages 5 and 6.

Special Solutions: Pipe Machining

Centering and clamping unit

The stationary centering and clamping unit is used for clamping pipes, to allow the tapered outer thread to be attached to the ends of the pipes. Here, the pipe is clamped stationary and the tool moves to the pipe.
The centering and clamping unit allows compensating, clampable and centric clamping.

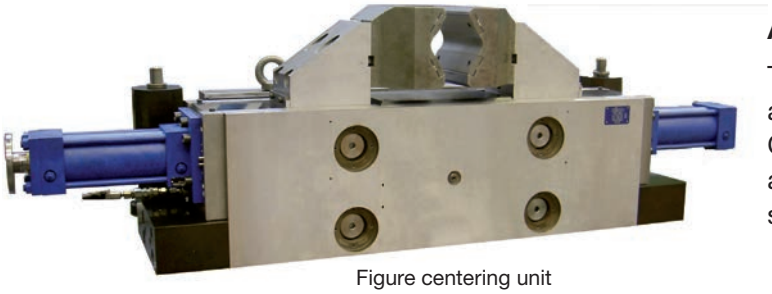
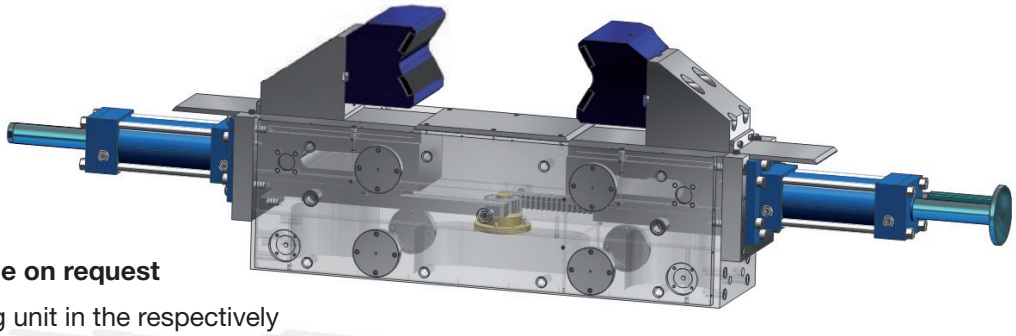


Figure centering unit
Jaw stroke 175 mm

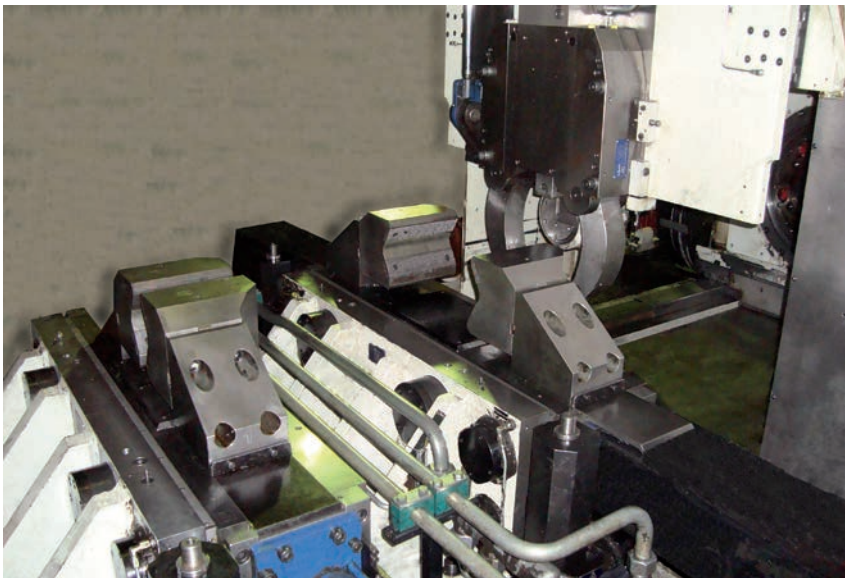
Actuation

The centric clamping is synchronized via a rack and toothed wheel.
Compensating clamping and hydraulic clamping are done via a separately attachable compensating and clamping unit.



Different versions available on request

The centering and clamping unit in the respectively required size and with the required equipment are specially produced according to customer wishes.

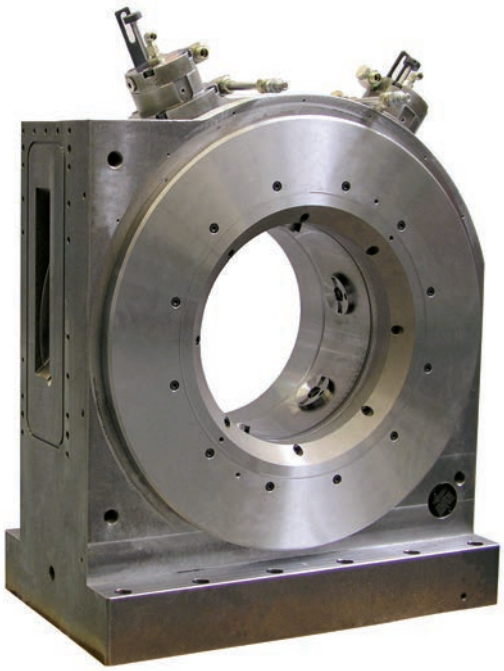


Use of two centering and clamping units with compensating and clamping units, centric alignment of the ends of the pipes via additional steady rest

Special Solutions: Bushing Machining

Center drive chuck HMAF

The stationary set-up center drive chuck allows the tapered bushing inner threads to be brought in on both sides simultaneously.

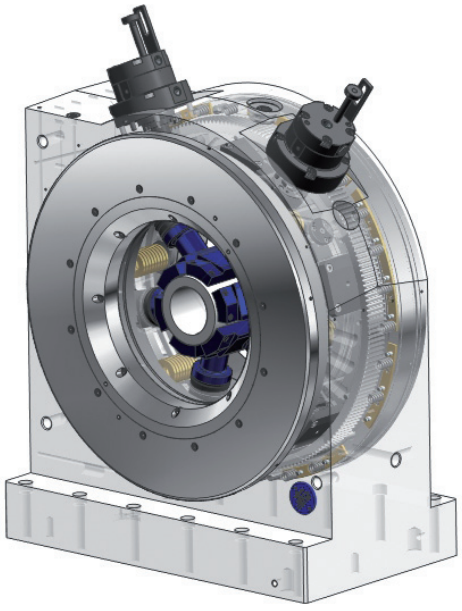


Actuation

The rotating inner chuck body is hydraulically operated. The energy for the piston which is responsible for centering and the following compensating clamping jaws (via the pressure connecting valve) is supplied via the injection cylinder during a defined standstill. The holding pressure is secured via a safety non-return valve and a pressure-controlled pressure accumulator. The pressure is monitored indirectly via a pin communicating with it, which energizes a sensor in the standing housing.

Setup and mode of operation

The bushings are taken up by a rotating inner chuck part and first clamped by three leading, centering clamping jaws and then by three compensating, trailing clamping jaws.
The machine drives it via a drive-in spur gear onto a corresponding equivalent one, which is fastened with a form-fit to the rotating inner chuck part. Central lubrication ensures it is maintenance-free.



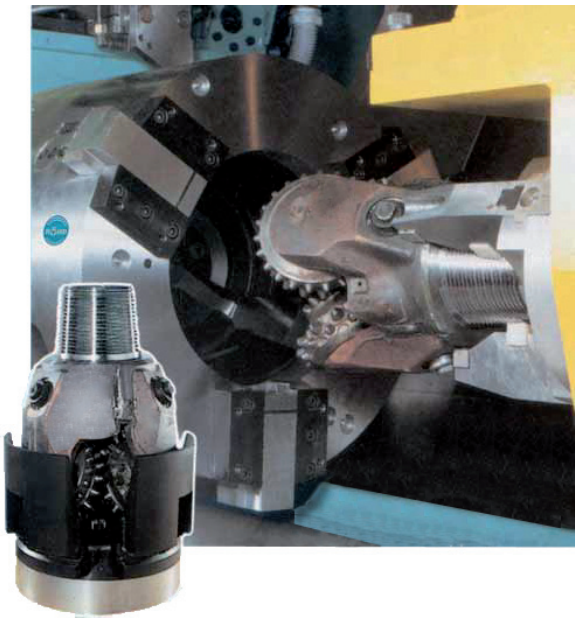
Different versions available on request

The chuck is specially produced in the required size and with the required equipment according to customer wishes.
We would be happy to support you with your project planning with our knowledge and our decades of experience.

Special Solutions: Drill Bit Machining

Special solutions for machining drill bits

RÖHM offers individual special solutions for machining drill bits.
Thanks to numerous, often very different contours, which often occur in crude oil and natural gas extraction, specially designed chucks are necessary for machining drill bits. Extreme precision as well as a high degree of safety and modern production are top priorities.
The workpieces can be clamped in on the head side. This allows the thread to be machined.



Jaws

The perfect adjustment of the chuck to the workpiece to be machined also requires the jaws to be adjusted. A wide range of standard jaws and different specially designed jaws round off the product range for machining drill bits.

Drill bit requirements

The drill bit must meet numerous requirements for drilling. In the case of crude oil or natural gas extraction, drilling is done both on land as well as on the sea floor. The drill bit must penetrate through different layers of rock. This not only requires high demands on the material of the head, but also extremely exact contours. The numerous fast movements which the head must execute during drilling machining require considerable precision, which can only be achieved with exact dimensions and shape precision.

Different versions available on request

Please request clamping chucks for machining drill bits for the crude oil and natural gas industry directly from RÖHM. The chuck is produced according to the workpiece requirements.

Your contacts at RÖHM.

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