



OIL AND GAS

CRUDE OIL AND NATURAL GAS: AN ONGOING CORNERSTONE OF THE ENERGY MIX

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

The crude oil and natural gas industries are still a crucial element of the worldwide energy production today. The extraction and further processing of these two raw materials require top precision and maximum safety. RÖHM 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 engineered to meet the unique requirements of this important market. Our strengths not only involve offering an especially wide range of standard products, but also to support our customers with individually developed customized designs.



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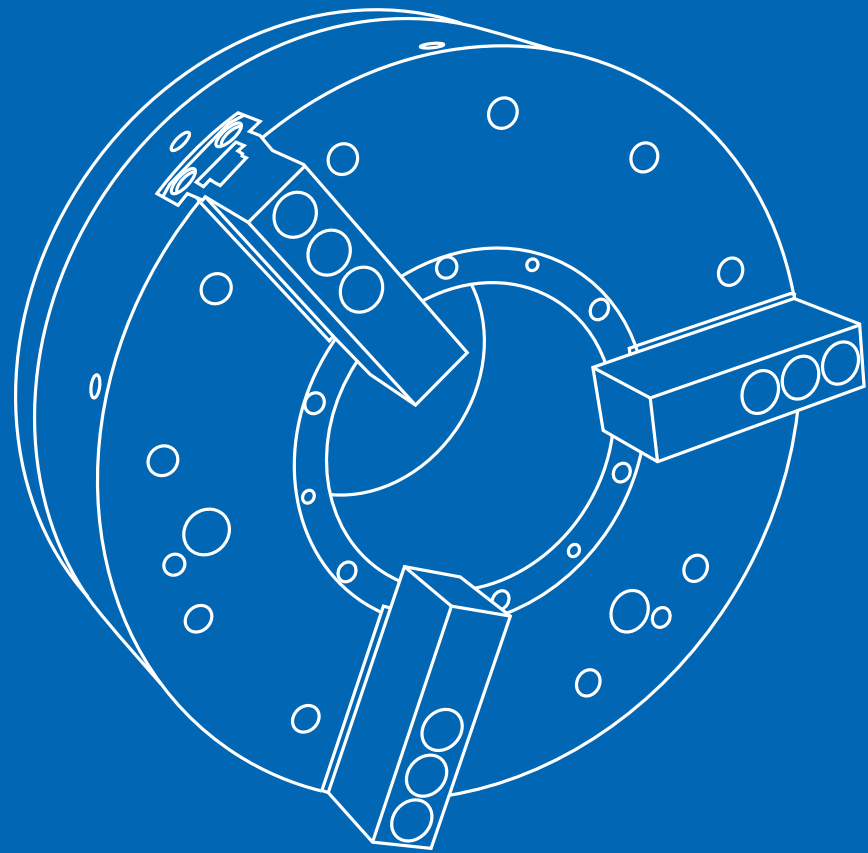
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PIPE MACHINING

PNEUMATIC FRONT-END CHUCKS

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 chipcutting performance at high turning precision.

Possible application

Two chucks are mounted on the front and rear sides of the machine spindle. Via a selection switch on our electronic control unit DF type 525-90 combined with one pneumatic control unit LSV type 525-91 each, the two chucks can be used together or separately and also with different clamping pressures. This combinations make a high cutting capacity and high turning precision possible for the end machining of long pipes.

Air-operated self-contained chucks, sizes 400-1000

Characteristic for this chuck is a pneumatic piston integrated in the chuck body for generating the clamping force. To clamp or unclamp the workpiece, the compressed air is conducted to the pneumatic piston while the chuck is stationary via the distributor ring and non-return valve. The pneumatic piston is screwed to the clamping piston, with which, in turn, the base jaws are connected via a wedge hook system. An axial movement of the pneumatic piston therefore causes a radial movement of the base jaws.

Distributor ring

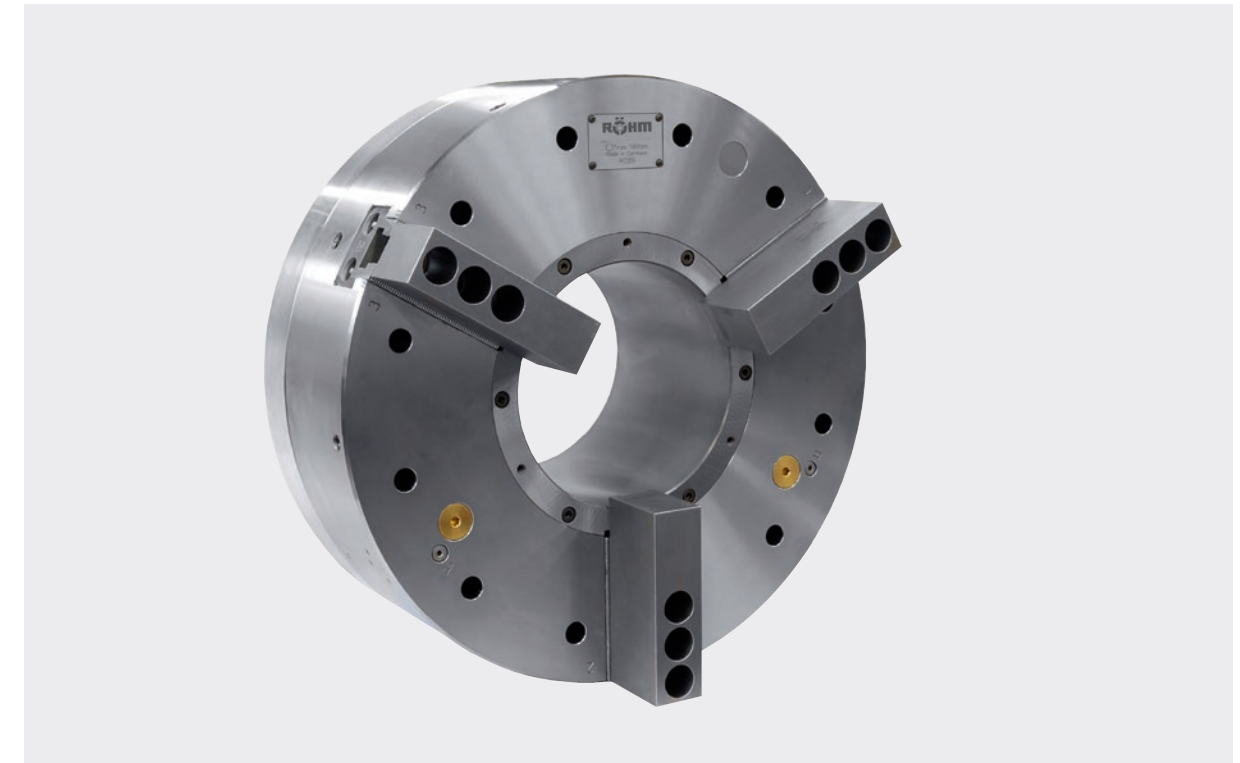
The distributor ring has the function of transferring compressed air from the outside into the chuck. This means that the distributor ring is always stationary, while the chuck rotates during workpiece machining. It is therefore mounted to the spindle box, and is therefore secured against rotating along. Special seals seal the gap between the distributor ring and chuck during the clamping operation so that the pressure can be transferred with no problems.

Important: To prevent the sealing ring from being destroyed, the pressure may only be transferred when the chuck is at a standstill.

Control valve

The control valve has the job of securing the compressed air required for clamping in a closed system throughout machining. It automatically secures the piston side which is pressurized, whereby the compressed air of the opposite-lying piston side is unclamped automatically. The valve can be dismantled as a complete unit and is available as replacement unit.

LVE



APPLICATION

Optimal for the end machining of large and long pipes, e.g. for the oil and gas industry (especially as front and rear chuck).

TYPE

Power chuck with integrated pneumatic cylinder and cylindrical centre mount. 3-jaw version with serration 90°.

CUSTOMER BENEFITS

- Extra-large through-hole
- Can be easily exchanged with manual clamping chuck
- Compact system dimensions because it is self-contained
- Unobstructed bore through spindle thanks to omission of the draw tube
- Flange and bar machining possible without retrofitting

TECHNICAL FEATURES

- Clamping and unclamping only when spindle at standstill
- Wedge hook system with integrated clamping cylinder
- Control valves maintain the clamping pressure during machining
- Short clamping cycle thanks to rapid and clamping stroke (optionally)
- Permanent monitoring of the clamping pressure while machining (optionally)

Note:

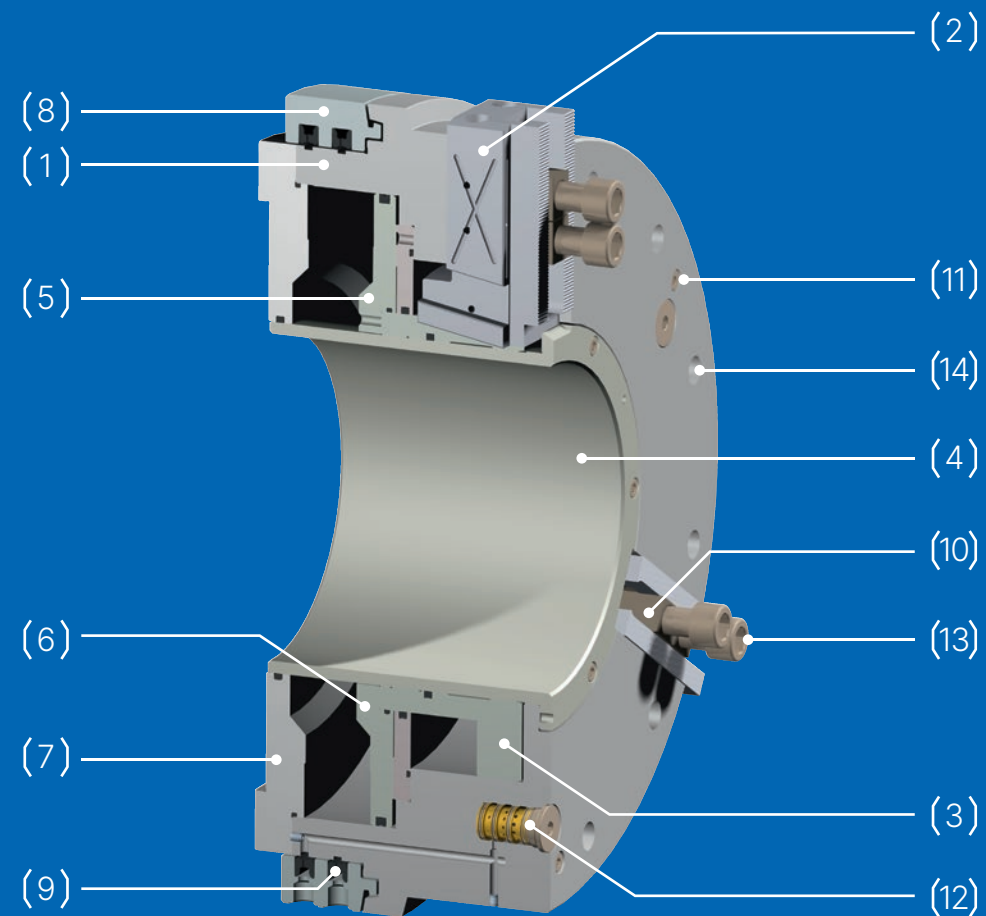
Other versions on request: e.g. front-end chucks for compensating clamping, compensating self-contained chucks and chucks that can be converted from selfcentering to compensating.

Included in scope of delivery:

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)

TECHNOLOGY

LVE WITH PNEUMATIC CYLINDER



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

PIPE MACHINING:

PNEUMATIC FRONT-END CHUCKS

Control system

The clamping safety mainly depends on the leak-tightness of the closed pneumatic chamber. A pressure drop during machining causes a reduction in the clamping force.

The „RÖHM control system“ is used to control the pressure of the closed pneumatic chamber. If the pressure falls below a defined minimum level, a spring-loaded pin attached to the rear side of the chuck moves out to the rear.

At the same height as the pin, a contactless inductive probe is fastened at a certain radial distance. If the extended pin moves through the magnetic field of the probe, an electrical pulse is triggered, which can be used to shut the machine down.

Wedge hook system

The axial piston force is transferred and transmitted into the radial jaw force via the proven wedge hooks. The large force transfer surfaces guarantee a long service life and a sustainably high clamping precision. These features apply both to the chuck with normal jaw stroke as well as to chucks with rapid and gripping jaw movements.

Pneumatic control unit



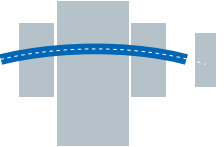
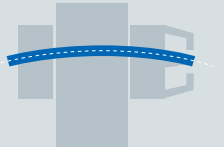
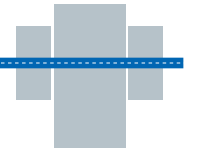
- Control voltage 24 V
- Connection R 1/2" inside thread
- Weight approx. 3 kg
- Dimensions: 280x250x100 mm (WxHxD)
- **Item no.: 426560**

Control unit for dual chucks

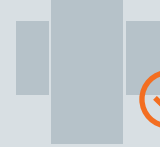


- With dual foot switch, wired, 6m cable
- Control voltage 24 V
- Dimensions: 300x300x120 mm (WxHxD)
- Width with plug: 340 mm
- **Item no.: 426482** without pressure monitoring
- **Item no.: 426464** with pressure monitoring

OPERATION GUIDE LVE & KFG

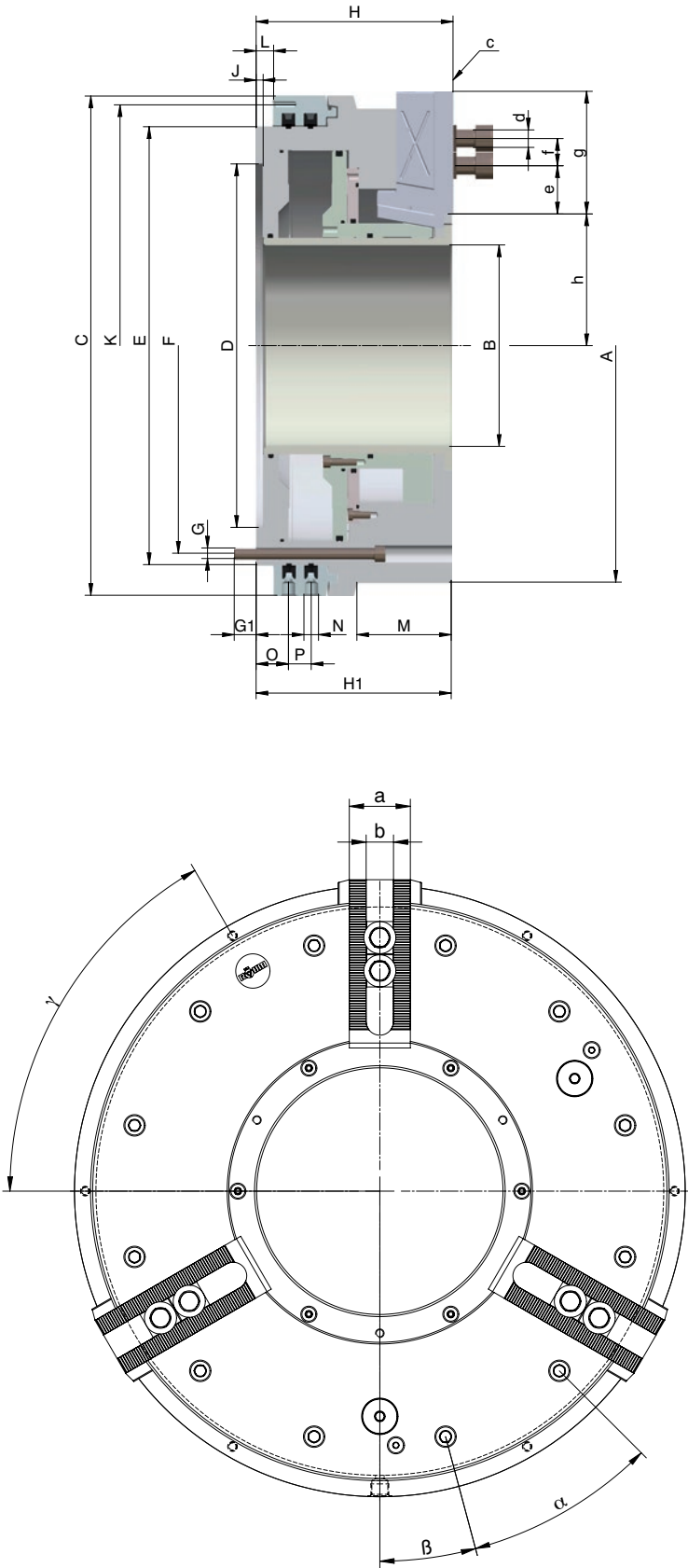
TYPE	LVE	LVE-ES
Description	- Pneumatic front-end chuck - Concentric clamping	- Pneumatic front-end chuck - Concentric clamping - With rapid stroke and clamping stroke
Characteristics	 	  
Machining situation Bent pipe centering via centering chuck	  	 
Machining situation Bent pipe centering by front-end chuck	  	 
Machining situation Exactly straight pipe No centering required	  	 
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 pneumatic	 spring	 centering	 retractable clamping arms for pre-centering
 hydraulic	 rapid stroke and clamping stroke	 with compensation	 low-maintenance (Easy Care)

LVE-AZ ES	LVE-FAZ EC	LVE-VZA	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
  	   	   	 
  	  		 
 	 	 	
  	  		
16	18	20	22

 ideally suited	 bent pipe	 rear-end chuck	 front-end chuck with centering
 suited	 exactly straight pipe	 front-end chuck	 centering chuck

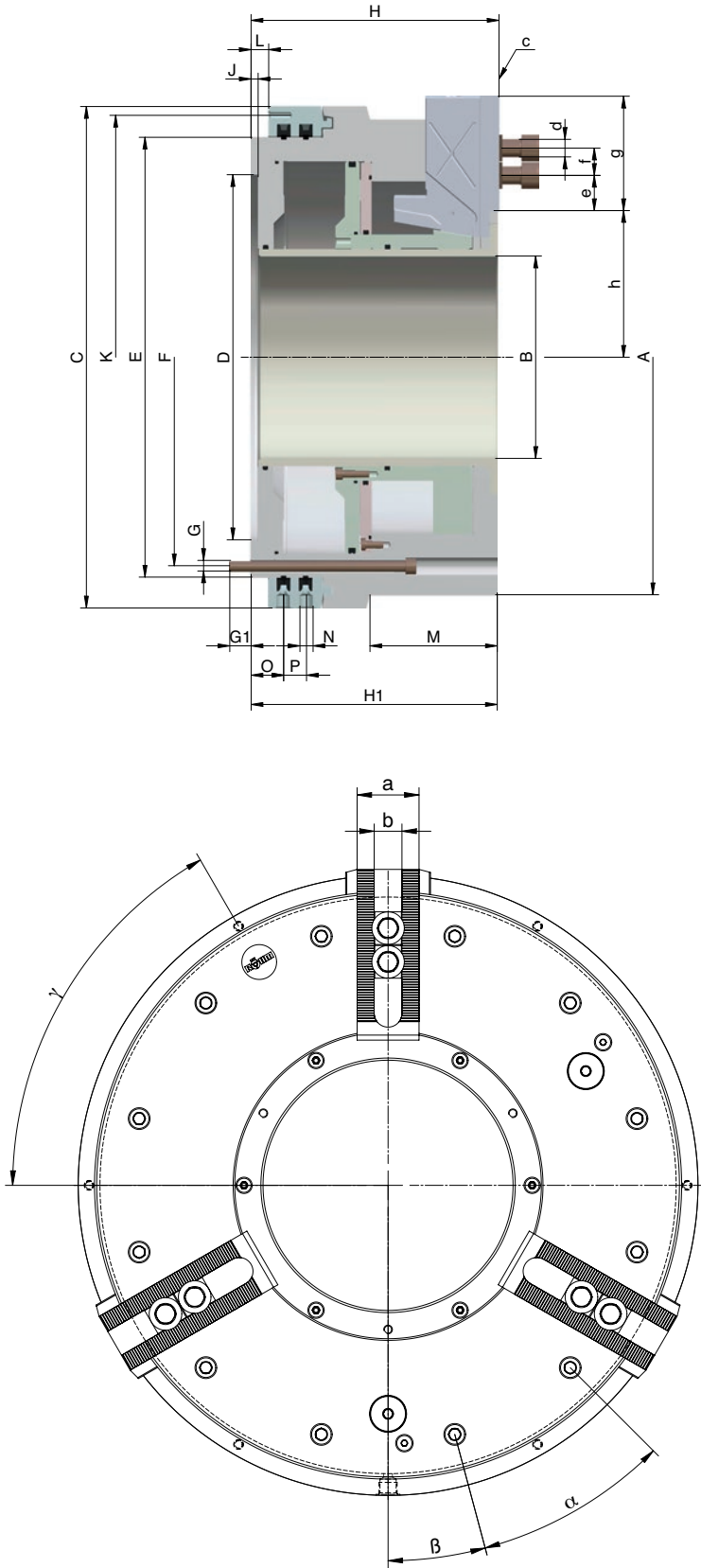
LVE - LARGE THROUGH-HOLE



3-jaw self-contained chucks LVE, with large through-hole, max. operating pressure 8 bar, with serration, cylindrical center mount

Standard design Id.-Nr.	169400	169401	169402	169403	169404	169405	169406	169407	169409
With pressure control device for external clamping Item No.	169411	169412	169413	169414	169415	169416	169417	169418	169420
Size	400	400	500	500	600	600	600	700	800
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 830-410
Jaw travel, mm	7	8,5	8,5	8,5	8,5	10	10	10	12
A, mm	425	480	540	570	605	640	685	735	835
B, mm	140	185	205	230	275	275	325	375	410
C, mm	470	530	570	570	605	685	685	735	850
D ^{H6} , mm	310	365	415	415	450	510	510	560	700
E, mm	400	460	500	500	535	610	610	660	775
F, mm	374	434	474	474	500	580	580	630	745
G	M12	M12	M12	M12	M12	M16	M16	M16	M16
G _p , mm	25	25	25	25	25	30	30	30	30
H, mm	196	225	225	225	225	263	263	263	305
H _i , mm	194	223	223	223	223	261	261	261	303
J, mm	8	8	8	8	8	8	8	8	8
K, mm (6xM8)	448	510	550	550	585	666	666	666	830
L, mm	20	20	20	20	20	20	20	20	25
M, mm	70	90	100	-	-	110	-	-	155
N	G 3/8	G 3/8	G 3/8	G 3/8	G 1/2	G 1/2	G 1/2	G 1/2	G 1/2
O, mm	37	37	37	37	37	39,5	39,5	39,5	44,5
P, mm	26	26	26	26	26	33	33	33	33
a, mm	57	57	57	57	57	75	75	75	75
b ^{H7} , mm	25,5	25,5	25,5	25,5	25,5	30	30	30	30
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°
d	M20×50	M20×50	M20×50	M20×50	M20×50	M24×60	M24×60	M24×60	M24×60
e, mm	20	20	20	20	20	28	28	28	28
f min., mm	32	32	32	32	32	42	42	42	42
f max., mm	85	85	105	100	105	100	100	100	125
g, mm	120	120	140	140	135	145	145	145	173
h min., mm	94	118,5	131,5	141,5	164	175	195	220	242,5
h max., mm	101	127	140	150	172,5	185	205	230	254,5
α, degree	30°	30°	30°	30°	30°	30°	30°	30°	30°
β, degree	15°	15°	15°	15°	15°	15°	15°	15°	15°
γ, degree	60°	60°	60°	60°	60°	60°	60°	60°	60°
Min. operating pressure, bar	2	2	2	2	2	2	2	2	3
Max. operating pressure, bar	8	8	8	8	8	8	8	8	8
Total clamping force at 6 bar, kN	140	155	210	190	200	240	155	175	360
Cylinder surface area, cm²	710	899	1045	939	1010	1414	1181	1307	2121
Air consumption (total stroke), l	20	31	36	32	35	58	49	55	104
Max. admissible speed, min ⁻¹	1700	1500	1300	1300	1200	1000	900	800	750
Moment of inertia, kgm²	3,50	7,00	10,50	12,50	15,5	24,75	29,50	38,50	76,25
Weight, kg	150	215	263	272	289	423	426	470	723

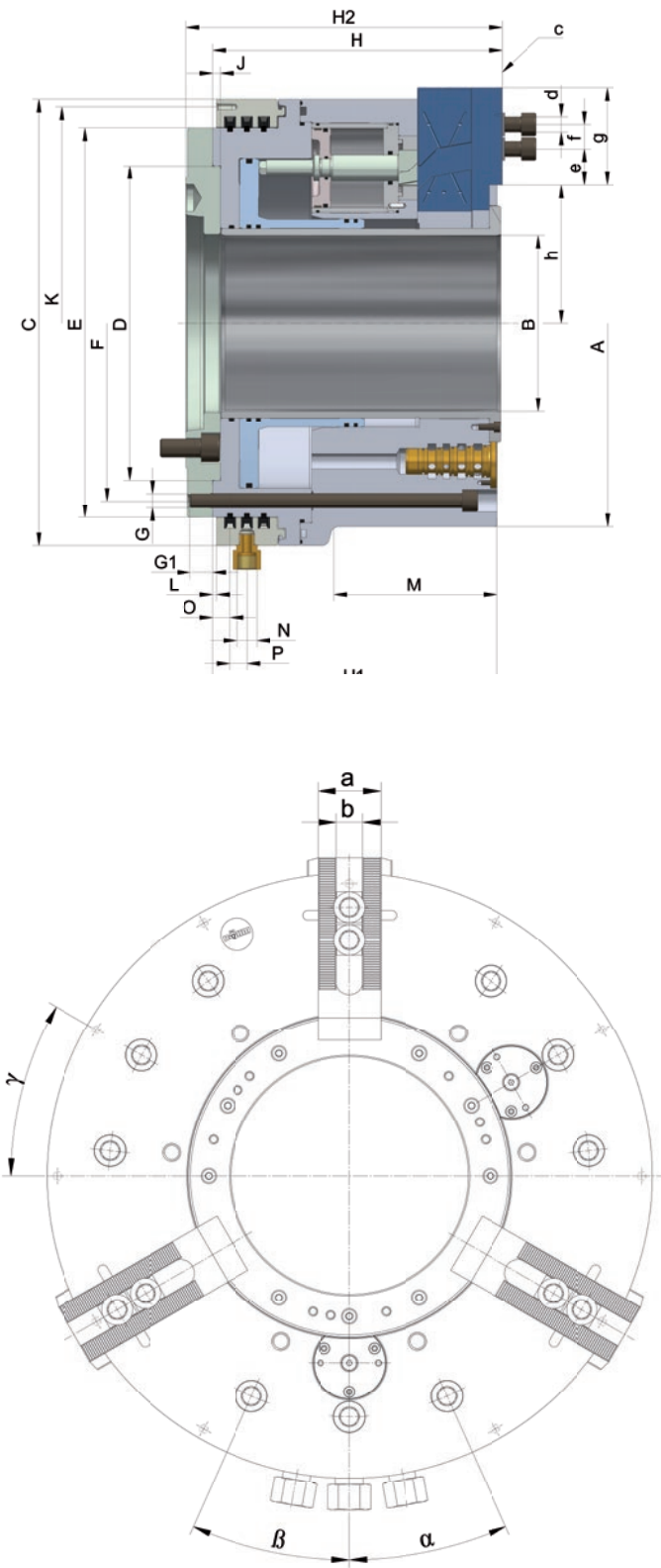
LVE ES - LARGE THROUGH-HOLE, WITH RAPID AND CLAMPING JAW MOVEMENTS



3-jaw self-contained chucks LVE ES with rapid and clamping jaw movements, with large through-hole, external chucking, max. operating pressure 8 bar, with serration, cylindrical center mount

Standard design Item No.	169422	169423	169424	169425	169426	169427	169428	169429	169431
With pressure control device for external clamping Item No.	169433	169434	169435	169436	169437	169438	169439	169440	169442
Size	400	400	500	500	600	600	600	700	800
LVE	LVE 470-140 ES	LVE 490-185 ES	LVE 570-205 ES	LVE 570-230 ES	LVE 600-275 ES	LVE 640-275 ES	LVE 680-325 ES	LVE 730-375 ES	LVE 850-410 ES
Jaw travel, mm	19	25,4	25,4	25,4	25,4	25,4	25,4	25,4	25,4
Rapid movement, mm	12	16,9	16,9	16,9	16,9	16,9	16,9	16,9	14,9
Clamping movement, mm	7	8,5	8,5	8,5	8,5	8,5	8,5	8,5	10,5
A, mm	470	490	570	570	605	645	685	735	850
B, mm	140	185	205	230	275	275	325	375	410
C, mm	470	530	570	570	605	685	685	735	850
D ¹⁶ , mm	310	365	415	415	450	510	510	560	700
E, mm	400	460	500	500	535	610	610	660	775
F, mm	374	434	474	474	509	580	580	630	745
G	M12	M12	M12	M12	M12	M16	M16	M16	M16
G _y , mm	25	25	25	25	25	30	30	30	30
H, mm	240	282	282	282	282	308	308	308	322
H _y , mm	238	280	280	280	280	306	306	306	320
J, mm	8	8	8	8	8	8	8	8	8
K, mm (6xM8)	448	510	550	550	585	666	666	716	830
L, mm	20	20	20	20	20	20	20	20	25
M, mm	-	140	100	-	-	150	-	-	-
N	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 1/2	G 1/2	G 1/2	G 1/2
O, mm	37	37	37	37	37	39,5	39,5	39,5	44,5
P, mm	26	26	26	26	26	33	33	33	33
a, mm	57	57	57	57	57	75	75	75	75
b ¹⁷ , mm	25,5	25,5	25,5	25,5	25,5	30	30	30	30
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°
d	M20×50	M20×50	M20×50	M20×50	M20×50	M24×60	M24×60	M24×60	M24×60
e, mm	20	20	20	20	20	28	28	28	28
f min., mm	32	32	32	32	32	42	42	42	42
f max., mm	80	80	95	95	90	95	95	95	120
g, mm	112	112	130	130	125	140	140	140	170
h min., mm	126	132,6	142,1	154,6	177,1	182,6	202,6	227,6	234,6
h max., mm	145	158	167,5	180	202,5	208	228	253	260
α, degree	30°	30°	30°	30°	30°	30°	30°	30°	30°
β, degree	15°	15°	15°	15°	15°	15°	15°	15°	15°
γ, degree	60°	60°	60°	60°	60°	60°	60°	60°	60°
Min. operating pressure, bar	2	2	2	2	2	2	2	2	3
Min. operating pressure, bar	8	8	8	8	8	8	8	8	8
Total clamping force at 6 bar, kN	120	150	210	170	180	185	180	200	325
Cylinder surface area, cm²	700	862	1024	895	958	1203	1181	1307	2121
Air consumption (totalstroke), l	32	42	50	45	46	58	57	63	113
Max. admissible speed, min ⁻¹	1500	1300	1200	1200	1100	900	800	750	750
Moment of inertia, kgm²	6,50	8,75	15,50	15,00	19,00	30,5	35,25	45,75	84,50
Weight, kg	200	267	348	334	356	515	505	554	785

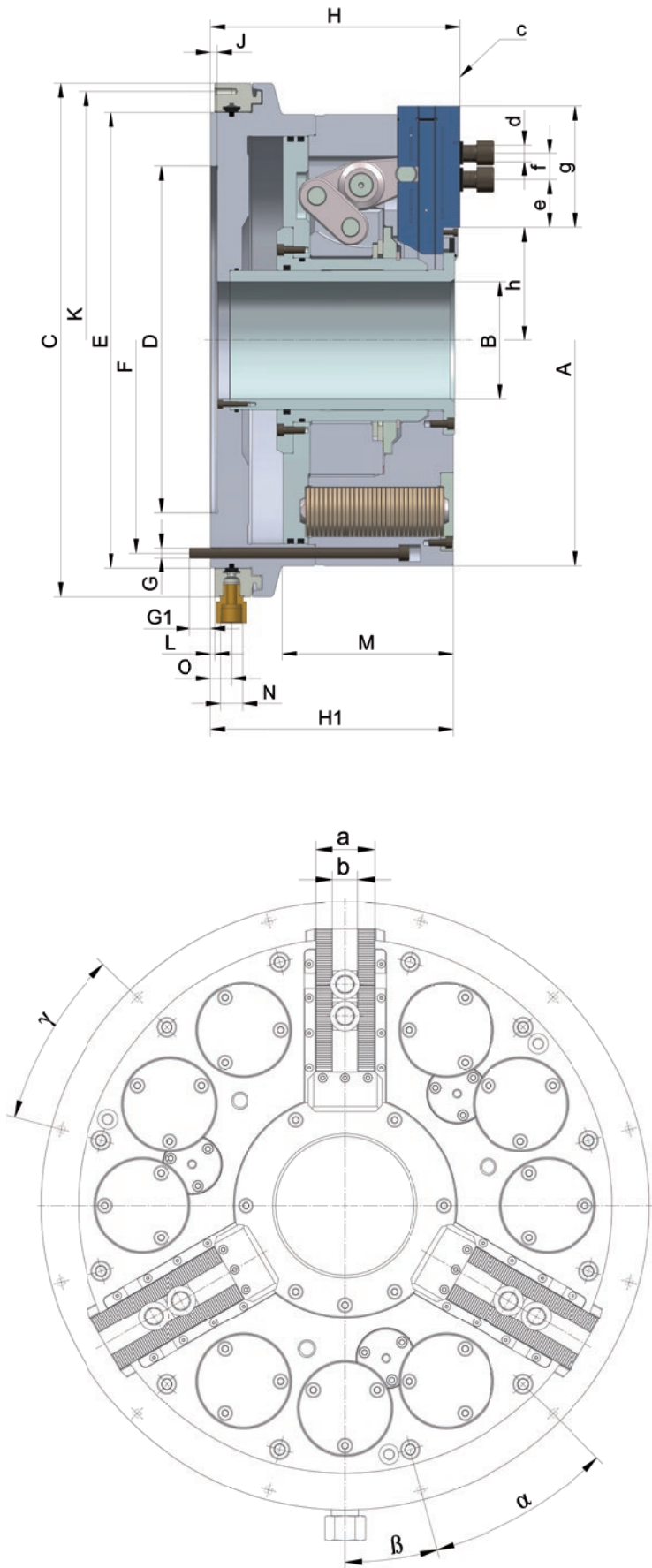
LVE-AZ ES



3-jaw front-end chuck LVE-AZ ES with rapid traverse and clamping stroke, large through-bore, for external clamping, max. operating pressure 8 bar, with serrated jaw interface, cylindrical centering mount, self-centering and compensating clamping

Type	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, mm	15,9/9,5	15,9/9,5	15,9/9,5
Min./max. Operating pressure, bar	2/8	2/8	3/8
Gripping force concentric, kN at 6 bar	155	180	240
Gripping force comp., kN at 6 bar	75	85	100
Max. Speed, min ⁻¹	1200	1000	750
-Z/-A- Cylinder area, cm ²	1015/520	1360/680	1620/680
-Z/-A- Air consumption, 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
F Pitch diameter, 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
K Pitch diameter (12×30°) M8-20, mm	555	670	765
L, mm	10	10	10
M, mm	-	220	220
N Pneumatic connection	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
c Serration, inch	3/32"x90°	3/32"x90°	3/32"x90°
d Screw DIN 912-12.9, mm	M20×55	M24×65	M24×65
e min., mm	20	25	25
f min./max., mm	32/90	40/95	40/95
g, mm	128	140	140
h min./max., 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°

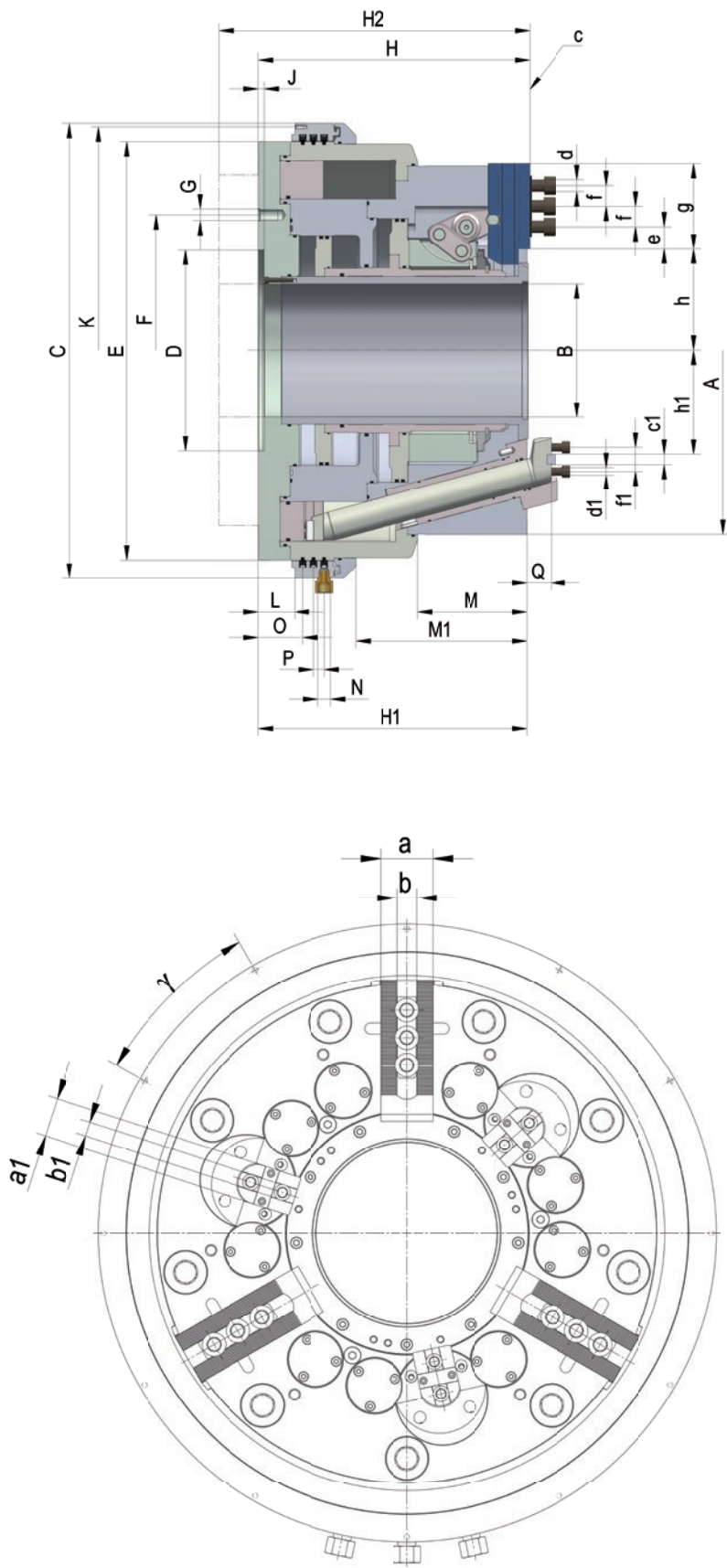
LVE-FAZ EC



3-jaw front-end chuck LVE-FAZ EC with rapid traverse and clamping stroke, for external clamping, with serrated jaw interface, cylindrical centering mount, self-centering and compensating clamping, low-maintenance design

Type	LVE-FAZ EC 675-275	LVE-FAZ EC 825-395	LVE-FAZ EC 1000-570
Item no.	169516	169517	169518
Jaw stroke, mm	18,0	22,0	22,0
Min./max. Opening pressure, bar	3/5	5/8	5/8
Max. Gripping force, kN	30/60/90 (3/6/9 spring)	90/135/180 (6/9/12 spring)	90/135/180 (6/9/12 spring)
Max. Speed, 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 ¹⁶ , mm	510	700	870
E, mm	680	830	1000
F Pitch diameter (12×30°), 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
K Pitch diameter (12×30°) M8-20, mm	730	880	1055
L, mm	20	20	20
M, mm	205	225	225
N Pneumatic connection, inch	G 3/4	G 3/4	G 3/4
O, mm	25	25	25
a, mm	60	80	80
b ¹² , mm	25,5	30	30
c Serration, inch	3/32"x90°	3/32"x90°	3/32"x90°
d Screw DIN 912-12.9, mm	M20×45	M24×65	M24×65
e min., mm	14	28	28
f min./max., mm	32/115	40/105	40/105
g, mm	145	155	155
h min./max., 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°

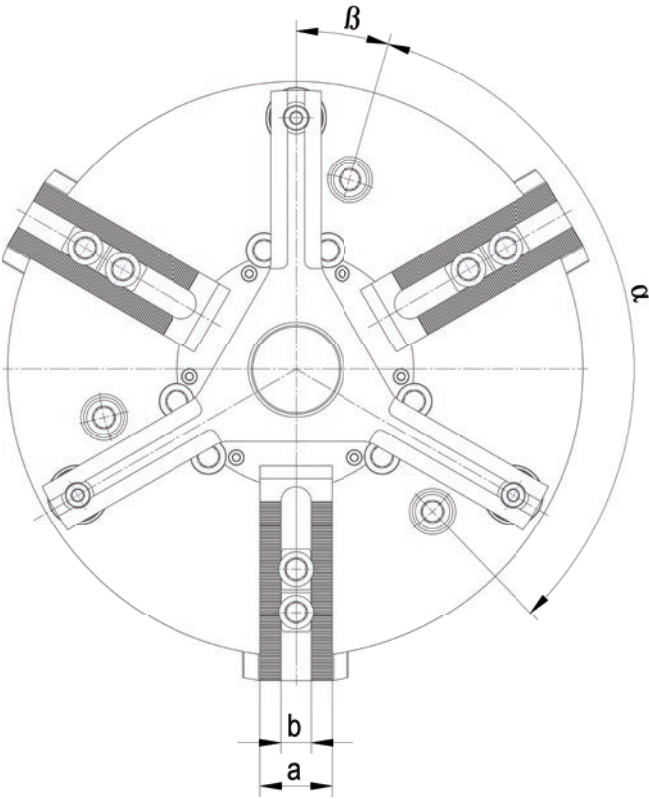
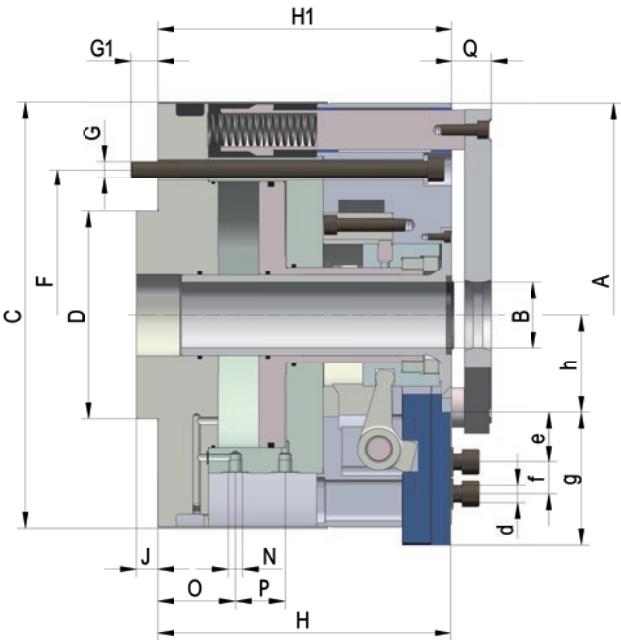
LVE-VZA



3-jaw front-end chuck LVE-VZA with rapid traverse and clamping stroke, for external clamping, with serrated jaw interface, cylindrical centering mount, self-centering and compensating clamping, with pre-centering by means of clamping arms

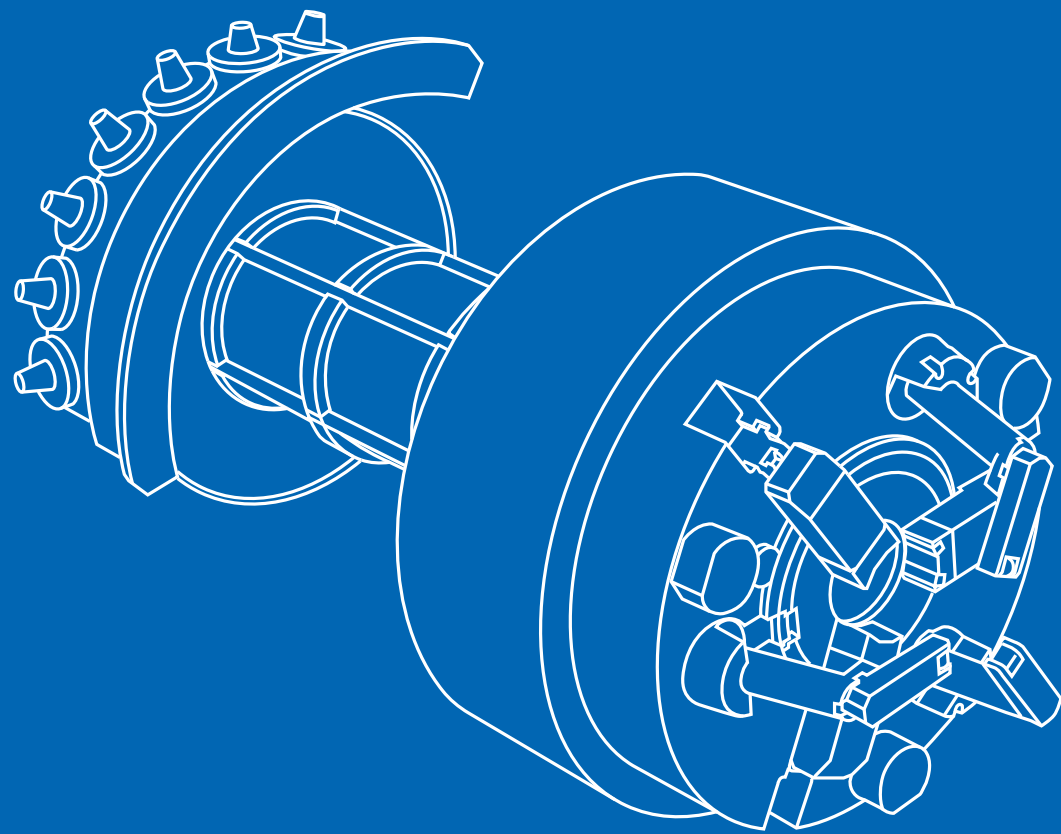
Type	LVE-VZA 760-275	LVE-VZA 860-375	LVE-VZA 960-475
Item no.	169522	169523	169514
Clamping jaw stroke, mm	20	20	20
+/- Compensation, mm	±5	±6	±6
Centering jaw stroke, mm	38,5	38,5	38,5
Min./max. Opening pressure, bar	4/8	4/8	4/8
Max. Gripping force 3/6/9/12 Springs, kN	40/80/120	40/80/120	40/80/120/160
Max. Centering pressure bar, bar	3	3	3
Max. Centering force, kN at 3 bar	85	100	120
Max. Speed, min ⁻¹	750	500	450
Min. Air consumption opening, l	50	75	115
Air consumption center, l	80	95	110
Weight, kg	1250	1475	1705
Moment of inertia, kgm ²	107,50	170,00	252,50
A, mm	760	860	960
B, mm	275	375	475
C, mm	900	1000	1100
D ^{h6} , mm	415	560	680
E, mm	825	925	1025
F Pitch diameter (9×40° / 12×30°), mm	540	640	740
G/G1, mm	M24/--	M24/--	M24/--
H, mm	496	496	496
H1/H2, mm	490/580	490/580	490/580
J, mm	12	12	12
K Pitch diameter (12×30°) M8-20, mm	885	985	1085
L, mm	70	70	70
M/M1, mm	172,5/297,5	172,5/297,5	172,5/297,5
N Pneumatic connection, inch	G 3/4	G 3/4	G3/4
O, mm	87,5	87,5	87,5
P, mm	22	22	22
Q min./max., mm	50/195	50/195	50/195
a/a1, mm	80/60	80/60	80/60
b/b1 ^{h7} , mm	30/22	30/22	30/22
c Serration inch, inch	3/32"x90°	3/32"x90°	3/32"x90°
c1 ^{g6} , mm	22	22	22
d / d1 Screw DIN 912-12.9	M24×60 / M16×60	M24×60 / M16/60	M24×60 / M16/60
e min./max., mm	20/70	20/70	20/70
f / f1, mm	42/50	42/50	42/50
g, mm	175	175	175
h min./max., mm	190,0/210,0	240,0/260,0	290,0/310,0
h1 min./max., mm	175,5/214,0	225,5/264,0	275,5/314,0
γ, degree	30°	30°	30°

CENTERING CHUCK KFG



3-jaw centering chuck KFG for external clamping, air-operated, self-centering clamping, with integrated impact plate and stroke monitoring

Type	KFG 400-62	
Item no.	435160	
Jaw stroke, mm	15	
Hub Prallplatte, mm	50	
Flapper stroke kN	0,5	
Min./max. Operating pressure, bar	2/10	
Total gripping force kN	at 6 bar	45
Cylinder area, cm²	430	
Air consumption/Jaw stroke/6 bar, l	12	
Weight, kg	165	
A, mm	400	
B, mm	62	
C, mm	405	
D ^{H6} , mm	196	
F Pitch diameter (3×120°), mm	275	
G/G1, mm	M16/25	
H, mm	277	
H1/H2, mm	278/--	
J, mm	20	
N Pneumatic connection, inch	G 1/4	
O, mm	70	
P, mm	50	
Q min./max., mm	-10/+40	
A, mm	50	
b ^{H7} , mm	21	
c Serration, mm	1,5×60°	
d Screw DIN 912-12.9, mm	M16×30	
e, min., mm	18	
f, min./max., mm	30/95	
g, mm	125	
h, min./max., mm	77.0/92.0	
α, degree	120°	
β, degree	16°	



PIPE MACHINING

HYDRAULIC FRONT-END CHUCKS

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.

Actuation HVE-IZ

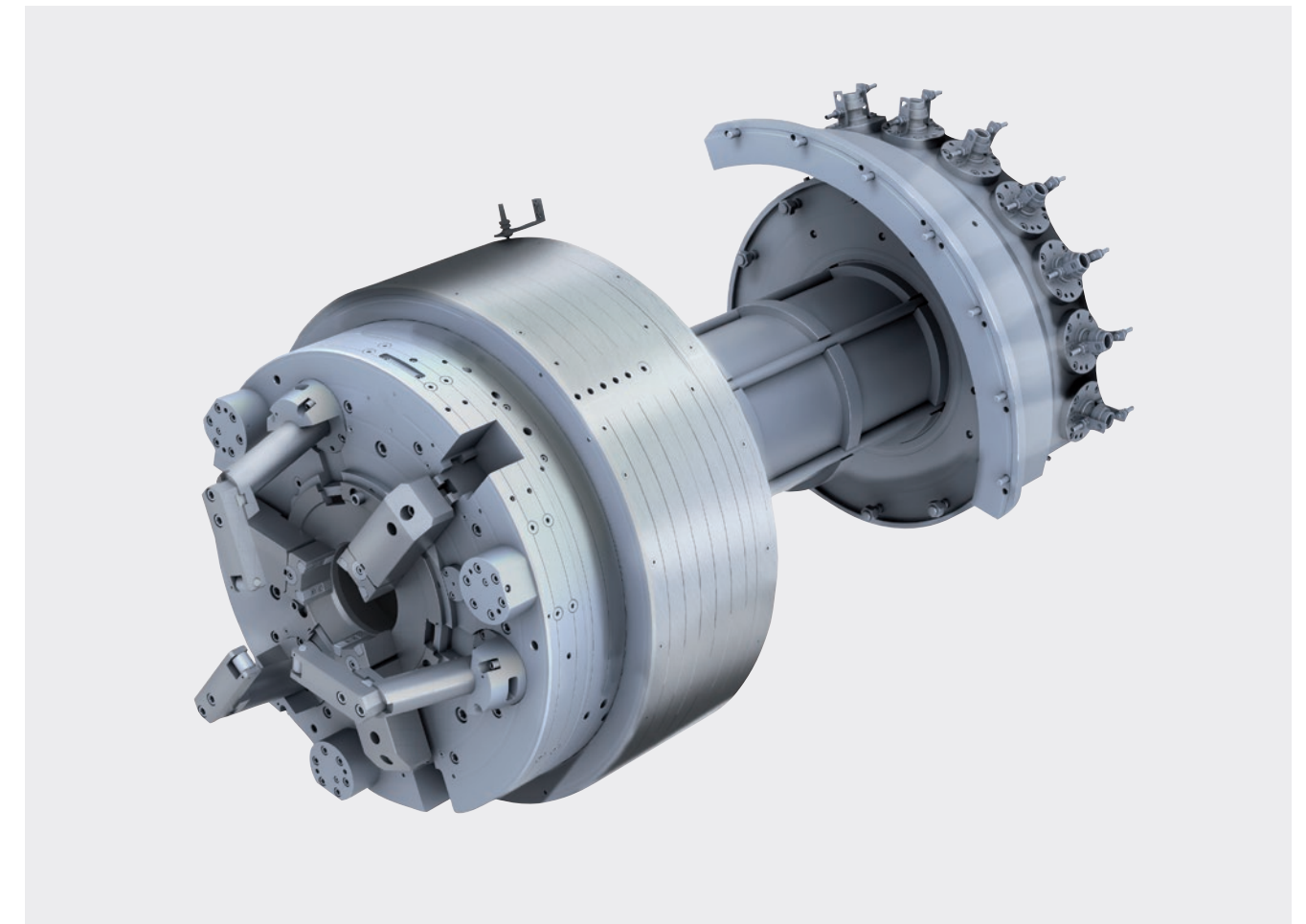
During pipe machining, the clamping system is decoupled from the supply via relief valves. A pressure accumulator ensures a sufficient resupply. A sensor system detects any drop in pressure. The HVE-IZ chuck is actuated via injection cylinders. These are arranged radially with respect to the rotary axis.

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.



HVE



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.

The individual clamping chucks are supplied either

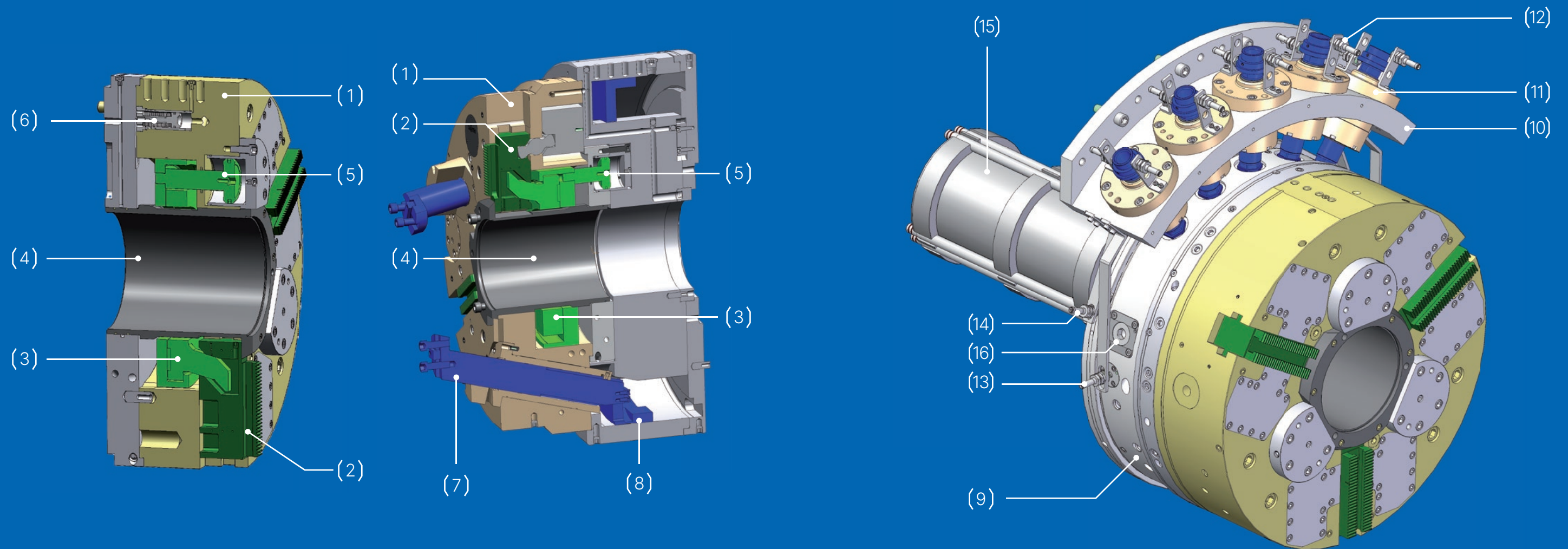
- via a distributor flange for each chuck, on the front and rear side of the spindle box

- 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.

TECHNOLOGY

HVE WITH INJECTION CYLINDERS



- (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

OPERATION GUIDE HVE

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 workpiece
Characteristics		
Machining situation	Bent pipe centering via centering chuck	
Machining situation	Bent pipe centering by front-end chuck	

pneumatic

spring

centering

retractable clamping arms for pre-centering

hydraulic

rapid stroke and clamping stroke

with compensation

low-maintenance (Easy Care)

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

bent pipe

rear-end chuck

front-end chuck with centering

suited

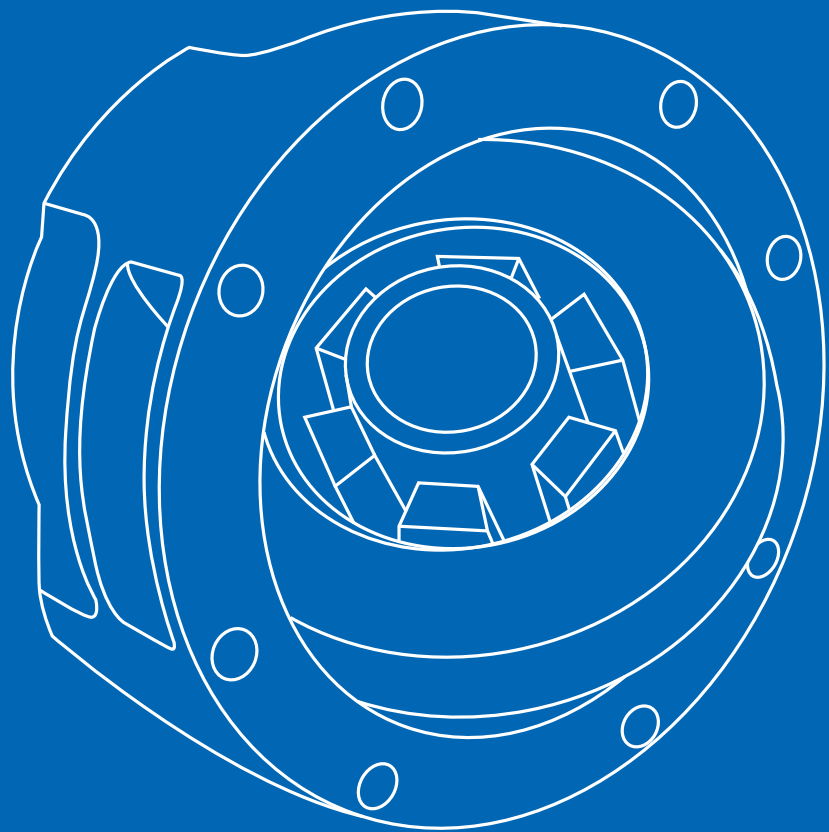
exactly straight pipe

front-end chuck

centering chuck

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.



COUPLING MACHINING

**SWIVEL
CHUCKS**

COUPLING MACHINING: SWIVEL CHUCKS

Swivel chucks are optimally suited for machining couplings 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.

HSFZ



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.

Machining in one setup offers two decisive advantages:

- Maximum axial precision
- Minimum setup effort

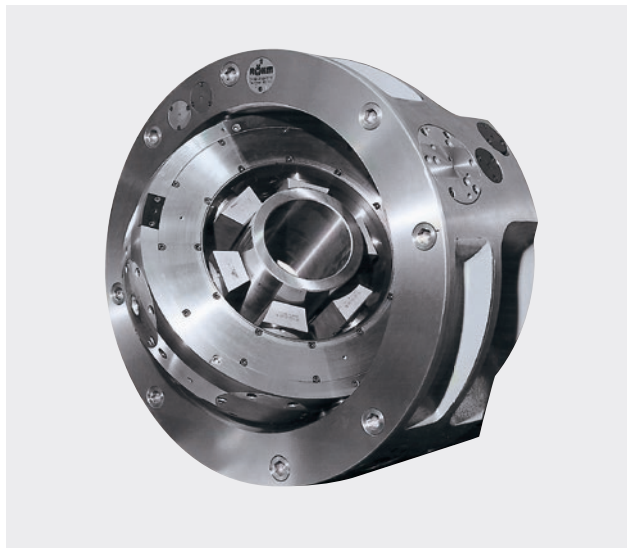
ACTUATION

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.



Power operated swivel chuck KSFZ

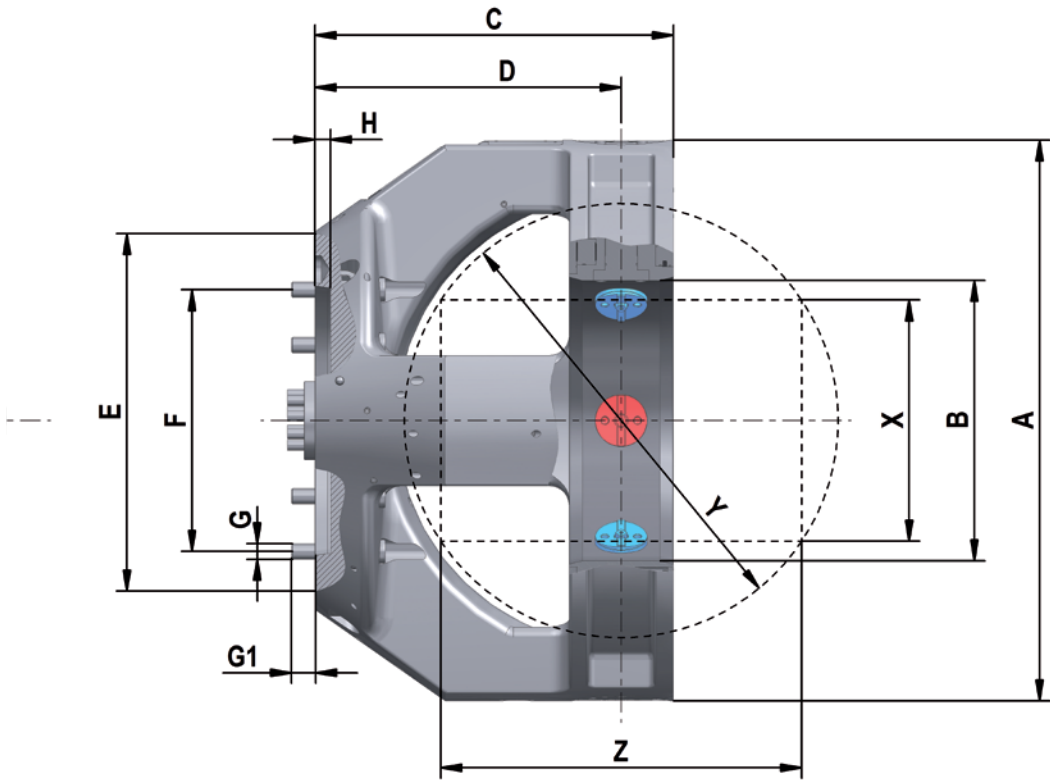
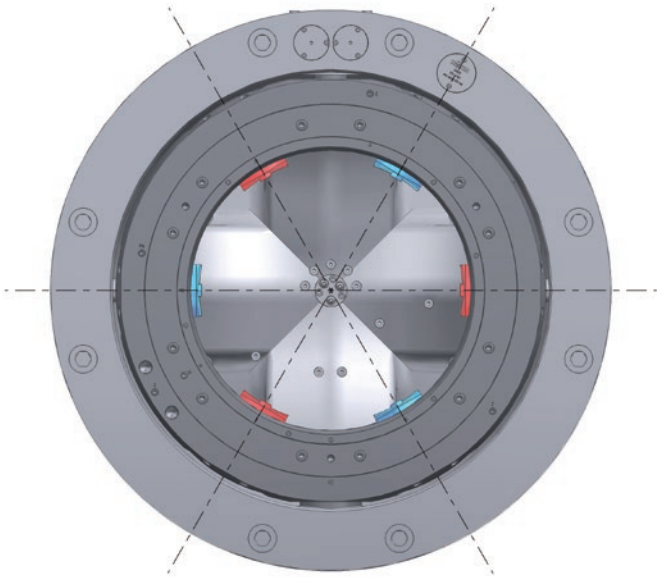
The power operated swivel chuck KSFZ is suitable as an alternative clamping solution for bushings. The workpiece is clamped at four points via two concentric clamping jaws. The clamping jaws are actuated via a clamping cylinder on the end of the spindle. Concentric clamping swivel chucks are available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



Pneumatic front-end chuck LVE

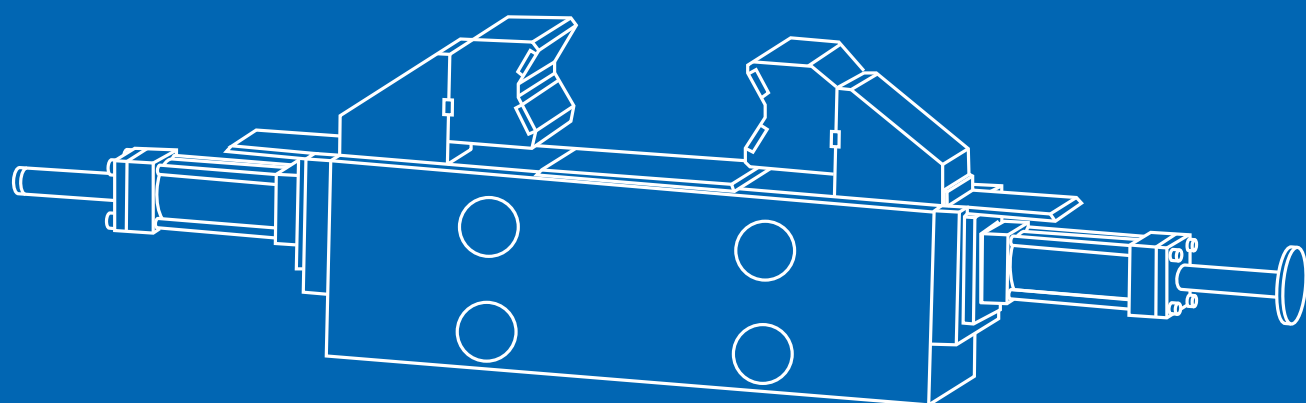
Another option for machining bushings is to use a LVE or LVE-ES front-end chuck. With this, the workpiece can be machined in two setups. The corresponding data can be found on pages 12 – 15.

HSFZ



Hydraulically operated swivel chuck HSFH with three self-centering clamping jaws and three compensating clamping jaws, 180° swivel angle, with hydraulic locking

Type	HSFZ 560	HSFZ 710	HSFZ 860
Idem 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, kN at 45 bar	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
F Pitch diameter, mm	330 (6×60°)	235 (6×60°)	463,6 (12×30°)
G / G1, mm	M24 / 36 (4x)	M20 / 30 (6x)	M24 / 36 (8x)
H, mm	21	21	24
X _{max} Max. Work piece diameter, mm	160	220	370
Y _{max} Max. Interference circle diameter, mm	405	516	666
Max. Work piece length Z, depending on Work piece diameter X (at centric operation), mm	$Z = \sqrt{Y^2 - X^2}$		



CUSTOMIZED SOLUTIONS

**CENTERING AND
CLAMPING UNIT**

**CENTER DRIVE CHUCK
HMAF**

**POWER CHUCK
KFD**

CUSTOMIZED SOLUTIONS FOR 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.

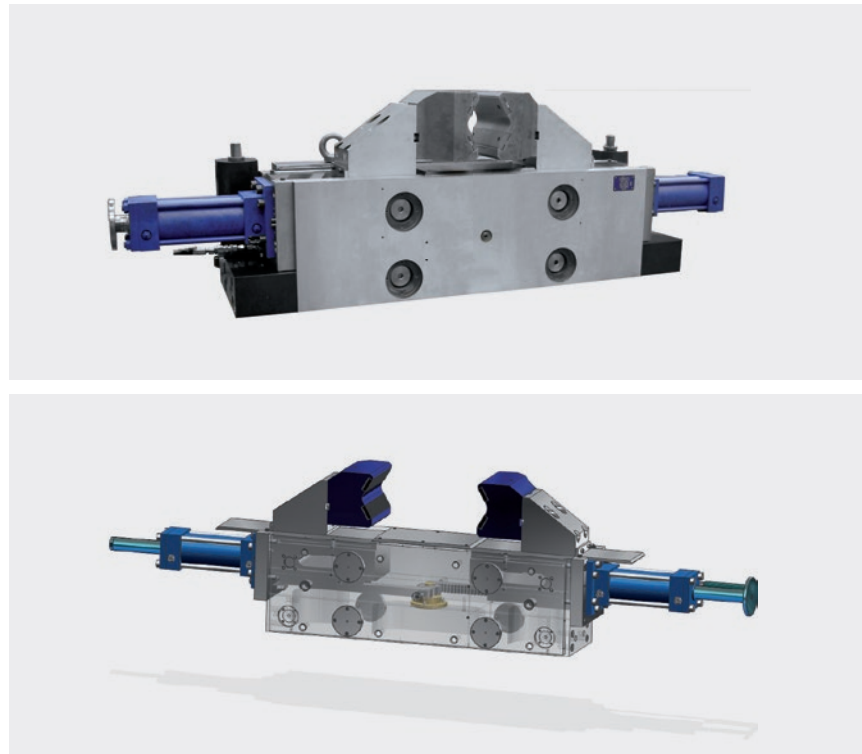


Figure centering unit, jaw stroke 175 mm

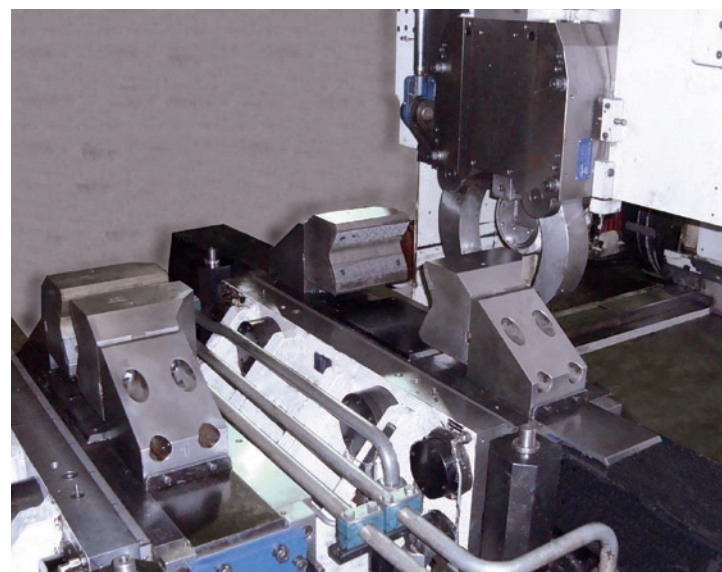
Use of two centering and clamping units with compensating and clamping units. Centric alignment of the ends of the pipes via additional steady rest

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.

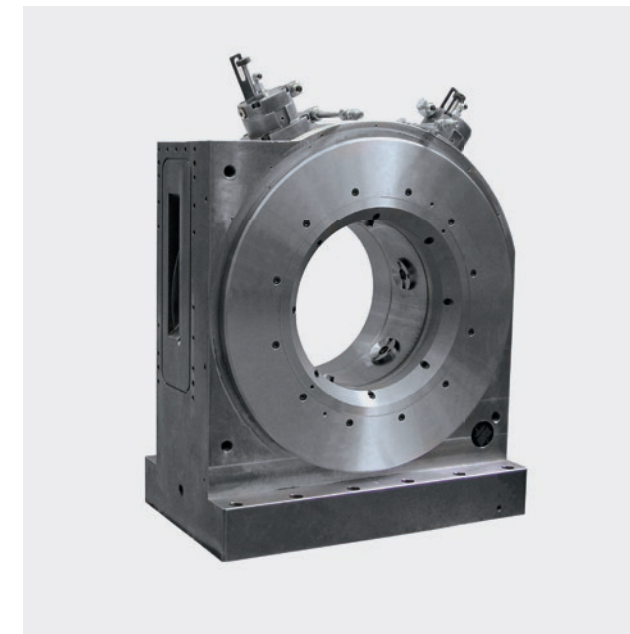
DIFFERENT VERSIONS AVAILABLE ON REQUEST

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



CUSTOMIZED SOLUTIONS FOR COUPLING MACHINING: CENTER DRIVE CHUCK HMAF

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



Center drive chuck HMAF

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.

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.

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.

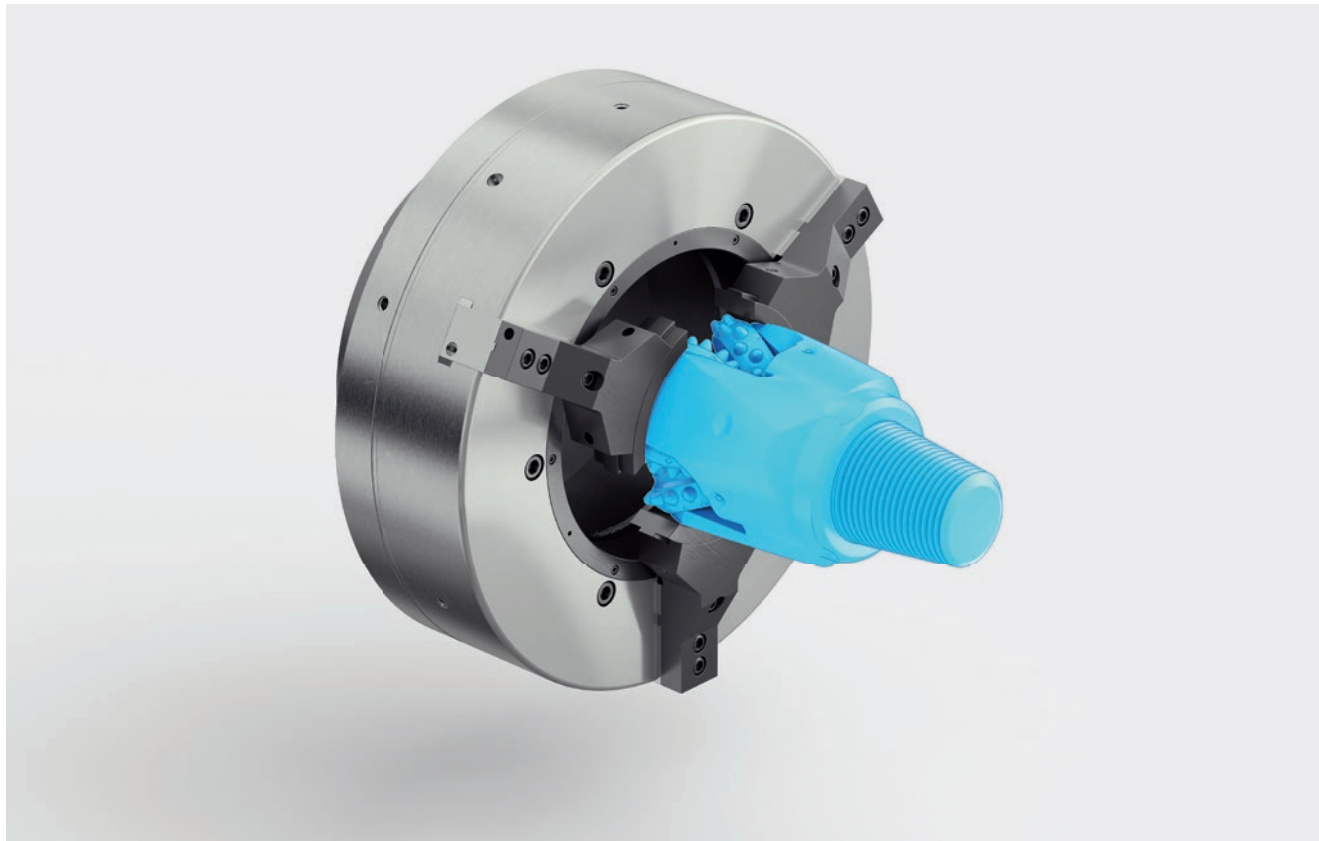
CUSTOMIZED SOLUTIONS FOR DRILL BIT MACHINING: POWER CHUCK KFD

RÖHM offers individual customized 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.

*Power chuck KFD-900/3
with customized jaws*



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 chucks for machining drill bits for the crude oil and natural gas industry directly from RÖHM. These will be manufactured according to the workpiece specifications.

RÖHM has the right answer for all clamping tasks, both in workpiece and tool clamping.
For the manufacture of products to the highest standards, all requirements are met from customer consultation, design and production through to service. Our specialised consultants will be happy to give you any more detailed information.



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