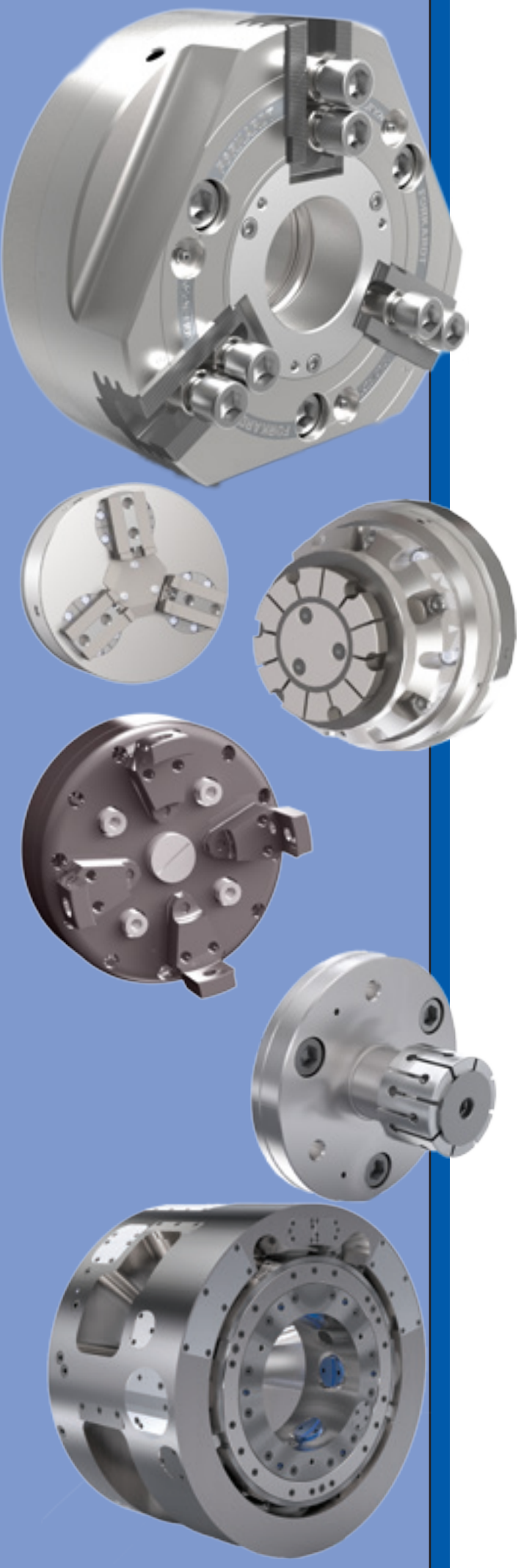


FORKARDT™



We Solve Your Gripping Problems

Extraordinary fields of application need extraordinary solutions. Owing to their shape, size, weight or other properties, many work pieces cannot be optimally clamped and machined with standard chucks. Our engineers are constantly on the lookout for these challenges.

Many of our applied solutions become standard products. One example would be the development of the indexing chuck, which has hydraulic centrifugal force compensation that makes it ideal for fittings manufacturers. Another is the equalizing counter-centrifugal ball chuck, which is ideal for machining thin-walled parts.

By constantly innovating for the various market segments such as medical, automotive, aerospace or energy, we develop solutions that can be market-specific or utilized across all markets to our customer's benefit.



It is for these reasons that Forkardt is constantly challenged to defend its position as the premier provider of innovative workholding technology.

We are constantly striving to improve our products, the dimensions and specifications in this catalog cannot always represent the latest state of our products; they are, therefore, given as an indication only and are not binding.

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Sliding Jaw Power Chucks

FOR**KARDT**TM

Sliding Jaw Power Chucks



FNC Quick Change Power Chuck

Ideal for

- Medium and small batch production
- Applications requiring frequent retooling

Key Features

- Quick change jaw system
- Light weight design
- High gripping forces

Available in sizes 175 to 630mm

SL 2/3 Jaw Combination Power Chuck

Ideal for

- Holding round or square parts with same chuck
- Applications where roundness is a concern

Key Features

- Adjust-Tru® for precision mounting
- Easily repaired in-house
- 4:1 mechanical advantage



Available in multiple jaw styles in sizes 250 to 630mm



PB 2 Jaw Pull Back Power Chuck

Ideal for

- Single or multiple spindle machines making heavy cuts on precision work

Key Features

- 100% more grip force than conventional chucks
- Pull-back positive end location
- 4:1 mechanical advantage

Available in 2 and 3 jaw designs in sizes 160 to 630mm

Sliding Jaw Power Chucks

BLN 2 Jaw Closed Center Power Chuck

Ideal for

- Machining of irregular shaped components such as valves or fittings
- Ball-shaped parts requiring full envelope of jaws

Key Features

- Lightweight for higher speeds
- No thru-hole
- Long stroke



Available in sizes 200 to 400 mm



BPC Thru-Hole OEM Replacement

Ideal for

- Conventional machining on CNC lathes

Key Features

- Lightweight for higher speeds
- Direct replacement for OEM power chucks
- Available with standard or big bore

Available in 2, 3 and 4 jaw design in sizes 110 to 450 mm.

MO Stationary Hydraulic/Pneumatic

Ideal for

- Use on machining centers
- Use as a fixture

Key Features

- Can be operated by either hydraulics or air
- Compact and lightweight
- Uses same top tooling as standard power chucks



Available in 2, 3 and 4 jaw design in sizes 110 to 450 mm

The QLC line of Wedge Hook Style Power Chucks provides a combination of innovative design, high quality materials, and advanced manufacturing techniques. All Forkardt products are developed and produced in accordance with the requirements of ISO 9001-2000.

QLC power chucks utilize a wedge hook mechanism. Each of the chuck models available in the QLC power chuck line feature centrifugal force compensation, allowing for higher speeds, higher gripping forces, improved accuracy, reliability, and safety.

The QLK offers all of the features of the QLC, without the centrifugal force compensation.

Although the various chucks provided in the QLC line are geared toward specific application types, any of these chucks can be used in practically any turning application.

The QLC/QLK family consists of chucks specially suited for large bore machining, long stroke, shaft balancing, and much more. Each chuck in the QLC/QLK group is available with optional Quick Change Jaw solutions.



**The Original
QLC/QLK**



**Closed Center
QLC-KT**



**Large Bore
QLC-KS**



**Shaft Clamping
QLC-AG**



**Low Maintenance
QLC-LM**



**Long Stroke
QLC-LS**

Structure & Function

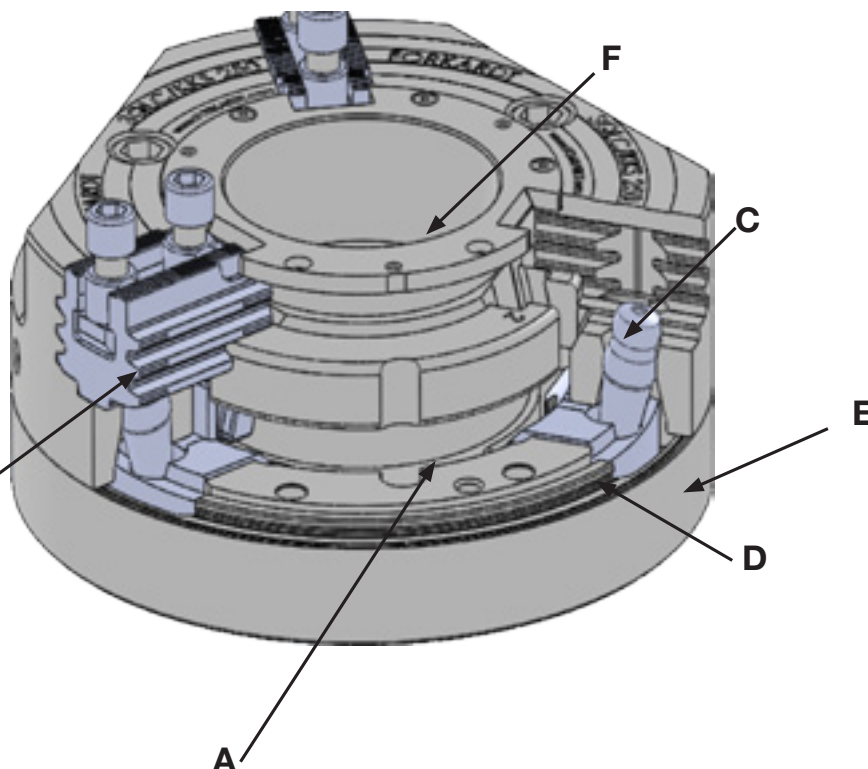
- A. **Patented Wedge Hook Design**- backlash free for maximum clamp forces
- B. **Patented Multiple Profile Base Jaw**- provides greater stability and precision
- C. **Patented Integrated Force Feed Circular Lubrication**- minimal loss of lubricating grease
- D. **Centrifugal Force Compensation** (QLC model) - allows for higher speeds
- E. **Nitrided Chuck Body**- increases service life
- F. **King Size Bore (KS Model)**- allows gripping of larger diameter parts



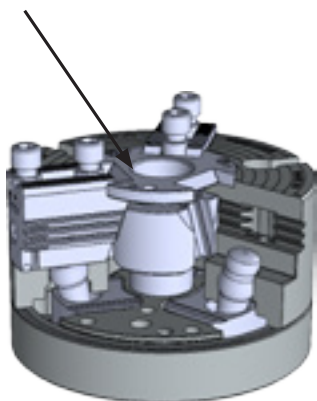
Integrated lubricant reservoir with improved forced circulation



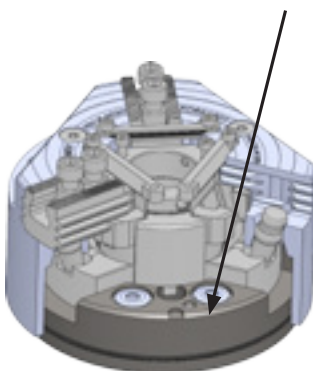
Patented multiple profile base jaw



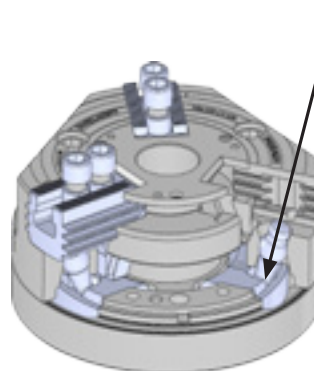
Closed Center (KT Model) - prevents chips from entering the chuck



Adjustable Pull-Back Action (AG Model)- for improved part location on center



Long Stroke (LS Model) - allows clamping on workpieces with variations in diameter

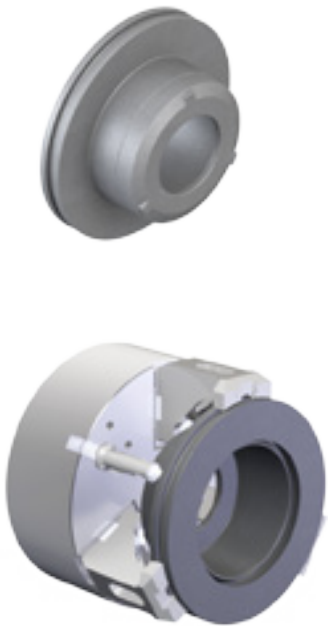


Application Examples

With the options of closed center, large thru-hole, long stroke, counter centrifugal, shaft balancing, and low maintenance the QLC line of power chucks can be used for almost any application.

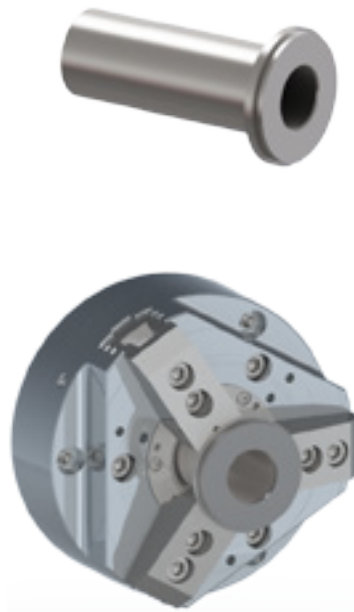
Below are some examples of applications where the QLC was used, with the addition of engineered top tooling and fixturing.

QLC-KT with Rotor



In this example, top jaws and fixtures were designed to hold the OD of the rotor. The closed center KT chuck was used so that chips did not enter the chuck as the ID of the rotor was machined.

QLC with Sun Gear



In this example, a QLC with a thru-hole was used with top jaws designed to hold the OD of the gear. The shaft of the gear was held in the thru-hole of the chuck.

QLC with Planetary Gear

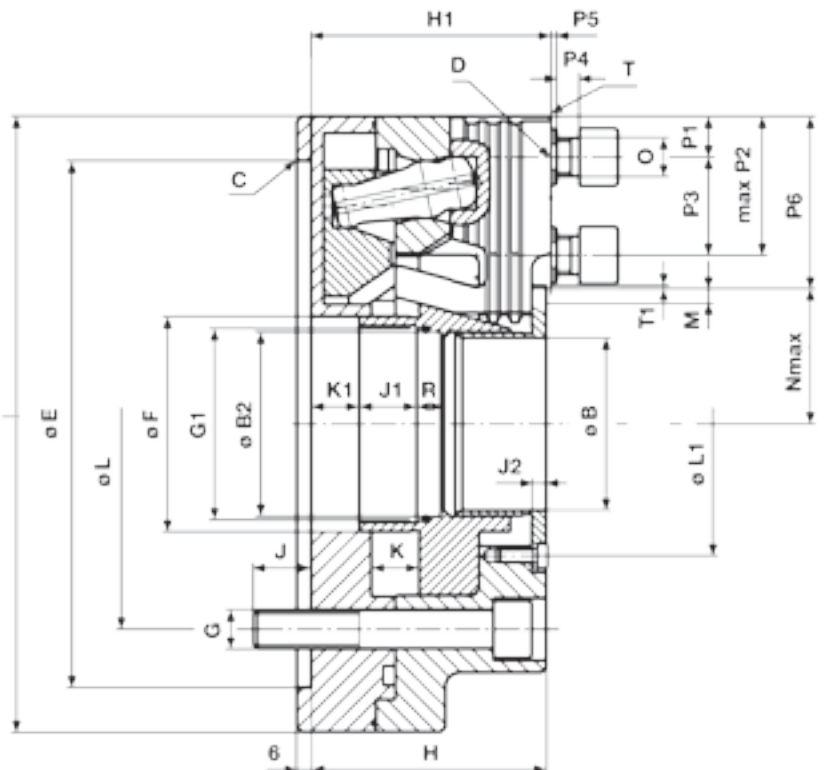
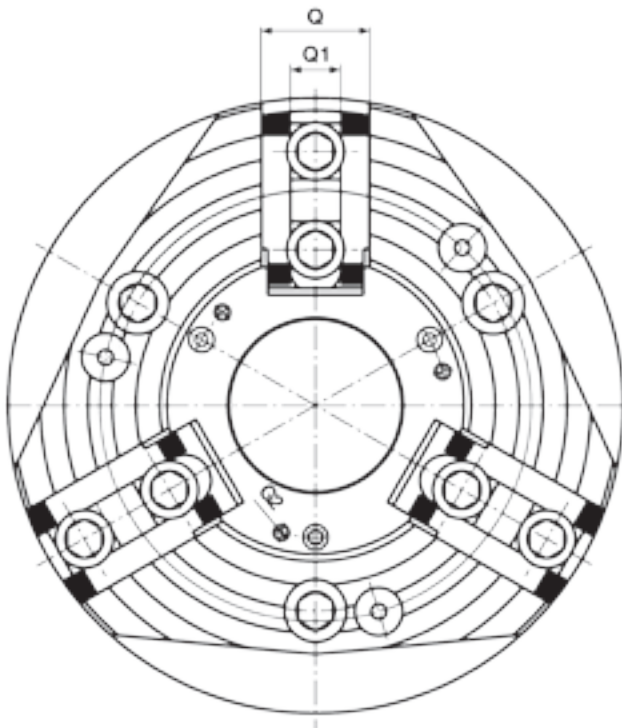


In this example, a QLC used with top jaws and fixturing designed to hold the OD of the gear.



The Forkardt QLC wedge style power chuck provides a high precision, universal application chuck that is suited for practically all turning applications. The lightweight design allows for faster speeds, which combined with the optional quick change jaw system makes the QLC an excellent choice for decreasing machine cycle times while saving energy and spindle wear.

The QLC features a higher clamping force and higher precision than a standard wedge style power chuck, making it especially suited for heavy duty machining of disk and bar components as well as high precision finish machining of easily deformed workpieces. The jaw selections available are compatible with the industry standards in the US, Europe and Asia, making top tooling purchases simple and economical.



3 Jaw QLC/QLK Model

QLC

			110-26*	140-35*	160-38	175-42	200-54	250-72	315-88	315-88	400-126	400-126	400-126	400-126
Outer Diameter	A	mm	110	140	162	175	210	257	320	320	400	400	400	400
Thru Bore	B	mm	26	35	38	42	54	72	88	88	126	126	126	126
Chuck Mounting	C	mm	Z4	120	Z5	Z5	Z6	Z8	Z8	Z11	Z11	Z15	Z11	Z15
Jaw Mounting	D		S8	S9	S11	S11	S11	S12	S12	S12	S12	S12	S23	S23
Mounting Recess	E ^{H6}	mm	100	120	140	140	170	220	220	300	300	300	380	380
Actuator Diameter	F	mm	45	48	52	62	76	90	110	110	150	150	150	150
Mounting Bolts	G		M10x80	M10x90	M10x95	M10x95	M12x90	M16x100	M16x100	M20x80	M20x130	M24x110	M24x110	M24x110
Draw Bushing Thread	G1		M36x1.5	M42x1.5	M45x2	M55x2	M68x2	M82x2	M100x2	M100x2	M100x2	M100x2	M100x2	M100x2
Chuck Height	H	mm	80	86	90	90	90	98	98	98	128	128	128	128
Base Jaw Over Face	J	mm	6	6	5	5	5	6	6	6	8	8	8	8
Actuator Thread Length	J1	mm	19	23	18	18	24	24	24	26	26	26	26	26
Actuator Stroke	K	mm	12	13	17	18.5	20	20	20	20	30	30	30	30
Actuator Position	K1	mm	12	13	17	18.5	20	20	20	20	30	30	30	30
Bolt Circle (PCD)	L ^{±0.2}	mm	82.6	104.8	104.8	104.8	133.4	171.4	171.4	235	235	330	235	330
Jaw Stroke	M	mm	3.2	3.5	4.5	5	5.4	5.4	5.4	5.4	8	8	8	8
Position Of Master Jaw	N max.	mm	22.5	28	33	36	44.5	56.5	61	61	85	85	85	85
Jaw Mounting Bolts	O		M8	M10	M12	M12	M12	M16	M16	M16	M16	M16	M20	M20
Distance Jaw Mounting Bolts	P1min	mm	4	5	6	6	6	8	8	8	12	12	15	15
	P1max	mm	13	15	17.5/14.5	21/18	27.5	34	58	58	70.5	70.5	60	60
Distance Jaw Mounting Bolts	P2min	mm	18	25	25/28	25/28	25	32	32	32	37	37	46	46
	P2max	mm	27	34	36.5/36.5	40/40	46.5	58	82	82	95.5	95.5	91	91
Minimum Distance	P3	mm	14	20	19/22	19/22	19	24	24	24	25	25	31	31
Minimum Distance	P4	mm	6.5	9.5	10	10	10	10	10	10	10	10	15	15
Dist. T-Nut to Serration	P5	mm	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5
Length Of Serrations	P6	mm	32.5	42	48	51.5	60.5	72	99	99	115	115	115	115
Jaw Width	Q	mm	25	30	35	35	35	45	45	45	60	60	60	60
Slot Width Imperial	Q1 ^{H7}	mm	10	12	17	17	17	21	21	21	21	21	25.5	25.5
Slot Width Metric	Q1 ^{H7}	mm	10	12	12	12	14	16	21	21	21	21	21	21
Width	R	mm	7.5	7.6	6.6	7.5	6	10	10	10	13	13	13	13
Performance Data														
Max. Actuating Force	Fmax.	kN	20	25	25	25	40	60	60	60	60	60	90	90
Max. Gripping Force	Fspmax.	kN	40	55	60	60	100	150	160	160	160	160	230	230
Max. Speed QLC	nmax.	RPM	-	-	8000	7000	6300	4500	4000	4000	3200	3200	3200	3200
Max. Speed QLK	nmax.	RPM	8000	7500	6300	5500	5000	4000	3500	3500	2500	2500	2500	2500
Weight		kg	5	8.5	11.5	13.5	18	26	38	38	90	90	90	90
Moment Of Inertia		kgm ²	-	-	0.055	0.095	0.2	0.65	0.65	0.65	2.1	2.1	2.1	2.1
Moment Of Inertia		kgm ²	0.0075	0.02	0.04	0.055	0.095	0.2	0.65	0.65	2.1	2.1	2.1	2.1

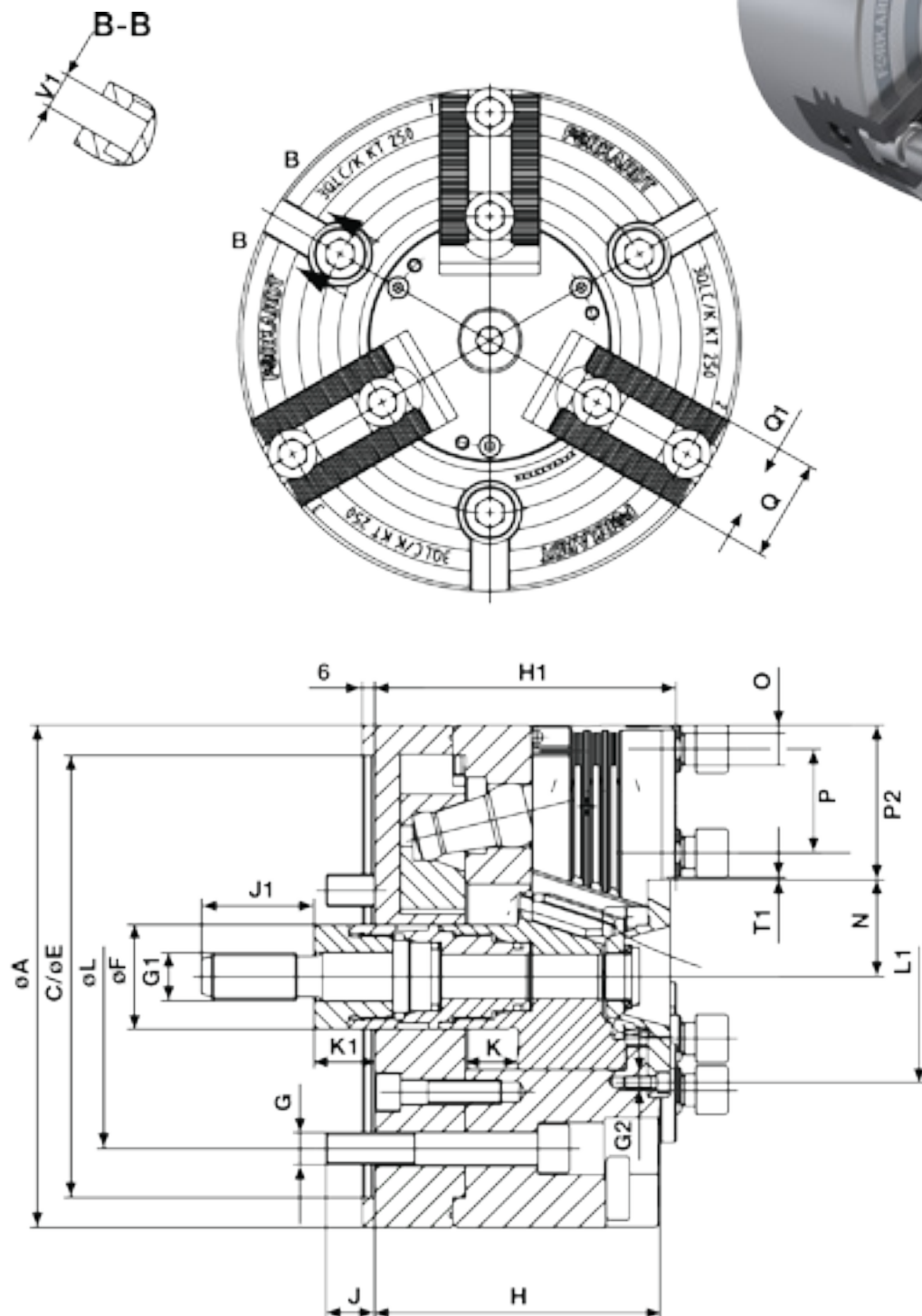
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

Part Numbers	110-26	140-35	160-38	200-54	250-72	315-88 Z8	315-88 Z11	400-126 Z11-S12	400-126 Z15-S12	400-126 Z11 S23	400-126 Z15 S23
Imperial QLC	-	D172001000	D172002000	D172004000	D172005000	D172006000	D172007000	D172008000	D172009000	D172010000	D172011000
Metric QLC	-	D172013000	D172014000	D172016000	D172017000	D172018000	D172019000	D172020000	D172021000	-	-
Imperial QLK	D172036000	D172037000	D172038000	D172040000	D172041000	D172042000	D172043000	D172044000	D172045000	D172046000	D172047000
Metric QLK	D172048000	D172049000	D172050000	D172052000	D172053000	D172054000	D172055000	D172056000	D172057000	-	-
T & G QLC	D172024000	D172025000	D172026000	D172028000	D172029000	D172030000	D172031000	D172032000	D172033000	-	-
T & G QLK	D172060000	D172061000	D172062000	D172064000	D172065000	D172066000	D172067000	D172068000	D172069000	-	-

The Forkardt QLC-KT three jaw closed center power chuck satisfies the need for ultimate performance. This design combines the patented QLC jaw guides with the rugged and precise elements of the previous KT design to provide a chuck designed for heavy duty machining.



3 Jaw Closed Center QLC-KT

QLC

			160	200	250	315	315	400	400	400
Outer Diameter	A	mm	184	200	250	315	315	400	400	400
Bore	B	mm	-	-	-	-	-	-	-	-
Chuck Mounting	C		Z5	Z6	Z8	Z8	Z11	Z11	Z11	Z15
Jaw Mounting	D		S11	S11	S12	S12	S12	S12	S23	S23
Jaw Serration	T		(1/16"x 90°)	(1/16"x 90°)	(1/16"x 90°)	(1/16"x 90°)	(1/16"x 90°)	(1/16"x 90°)	(3/32"x 90°)	(3/32"x 90°)
Mounting Recess	E	mm	140 ^{H6}	170 ^{H6}	220	220 ^{H6}	300 ^{H6}	300 ^{H6}	300 ^{H6}	380 ^{H6}
Actuator	F	mm	34	50	52	52	52	68	68	68
Mounting Bolts	G		M10	M12	M16	M16	M20	M20	M20	M24
Thread Mounting	G1		M16	M20	M24	M24	M24	M30	M30	M30
Thread Mounting	G2		M6	M6	M6	M6	M6	M10	M10	M10
Chuck Width	H	mm	114	124	142	142	142	177	177	177
H + Master Jaw	H1	mm	120	130	150	150	150	185	185	185
Thread Length	J	mm	15	18	24	24	30	30	30	30
Thread Length Of Actuator	J1	mm	40	45	56	56	56	55	55	55
Actuator Stroke	K	mm	20	20	26	26	26	32	32	32
Actuator Position	K1	mm	25	30	30	30	30	30	30	30
Pitch Circle Dia.	L	mm	104.8	133.4	171.4	171.4	235	235	235	330.2
Mounting Bolts	L1	mm	60	70	105	105	235	235	235	330.2
Jaw Stroke	M	mm	5.3	6.5	8	8	8	10	10	10
Position Of Master Jaw	N	mm	31.7	40.1	48	48	48	70	70	70
Jaw Mounting Bolts	O		M12	M12	M16	M16	M16	M16	M20	M20
Distance Jaw Mounting Bolt	P	mm	50.2	50.3	55.5	96	96	118	115	115
Length Of Serrations	P2	mm	60.3	59.9	77	109.5	109.5	130	130	130
Jaw Width	Q	mm	40	40	50	50	50	50	60	60
Slot Width	Q1	mm	17 ^{H7}	17 ^{H7}	21 ^{H7}	21 ^{H7}	21 ^{H7}	21 ^{H7}	25.5 ^{H7}	25.5 ^{H7}
Distance From 1st Serration	T1	mm	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5
T-Slot Width	V1	mm	14	14	18	18	18	22	22	22
Performance Data										
Max. Actuating Force	FAX	kN	30	55	75	80	80	73	120	120
Max. RPM		min ⁻¹	7,000	6,000	5,000	4,000	4,000	3,200	3,200	3,200
Max. Gripping Force	FSP	kN	70	115	160	170	170	160	260	260
Weight		kg	21	27	51	81	81	163	163	163

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

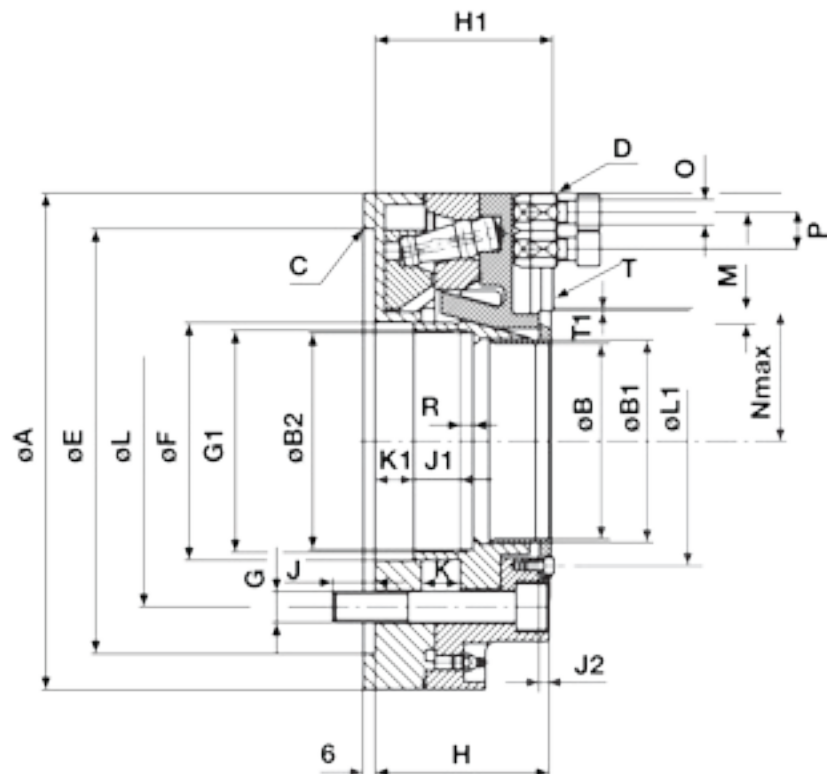
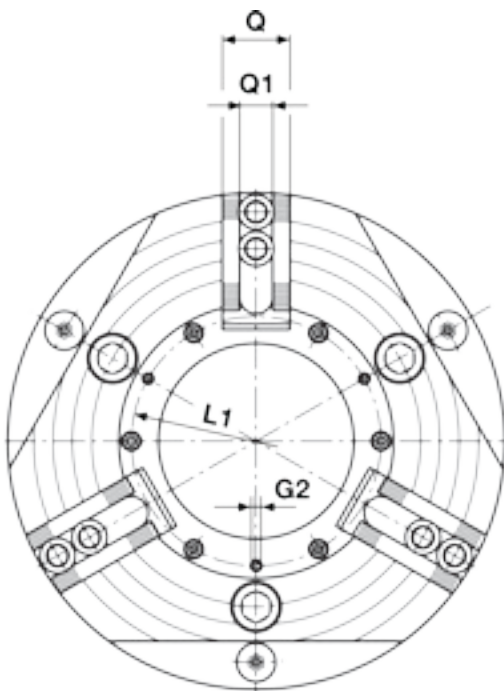
Dimensions in mm unless otherwise specified

	Chuck Mount	Jaw Mount			
		S11	S12	S23	Tongue & Groove
160	Z5	D174005000	-	-	D174007000
160	A5	D174010000	-	-	D174012000
200	Z6	D174025000	-	-	D174027000
200	A6	D174030000	-	-	D174032000
250	Z8	-	D174045000	-	D174047000
250	A8	-	D174050000	-	D174052000
315	Z8	-	D174065000	-	D174067000
315	A8	-	D174070000	-	D174072000
315	Z11	-	D174832000	-	D174834000
400	Z11	-	-	D174085000	D174087000
400	A11	-	D174090000	D174090000	D174092000
400	Z15	-	-	D174841000	D174838000



The Forkardt QLC-KS large bore three jaw wedge style power chuck is designed for applications requiring a larger through hole bore to handle large diameter workpieces.

The proportion between the through hole and the outer diameter of the chuck body is engineered to provide optimal stability. The shorter, multiple profile jaw guides allow the QLC-KS to have up to a 40% larger through hole than a standard wedge style chuck.



3 Jaw King Size Bore QLC-KS

QLC

			200-77	250-101	315-135	400-168
Outer Diameter	A	mm	210	257	320	400
Bore	B ^{+0.1}	mm	77	101	135	168
Chuck Mounting	C	mm	Z6	Z8	Z11	Z15
Jaw Mounting/Din 6353	D		S11	S11	S12	S12
Register Ø Of Draw Tube	B2 ^{H7}	mm	85	112	140	173
Mounting Recess	E ^{H6}	mm	170	220	300	380
Actuator Ø	F	mm	97	123	153	190
Mounting Bolts	G		M12 x 90	M16 x 95	M20 x 90	M24 x 80
Thread Mounting	G1		M90 x 2	M115 x 2	M145 x 2	M180 x 2
Puller Thread Protective Sleeve	G2		M5	M5	M6	M6
Chuck Width	H	mm	90	90	98	98
Chuck Width	H1	mm	92	92	100	100
Thread Length Of Mounting Bolts	J	mm	20	22	22	30
Thread Length Of Actuator	J1	mm	24	24	24	24
Base Jaw Protrusion Over Chuck Face	J2	mm	5	5	6	6
Actuator Stroke	K	mm	18.5	20	20	20
Actuator Position	K1	mm	18.5	20	20	20
Pitch Circle Ø Of Mounting Bolts	L ^{±0.2}	mm	133.4	171.4	235	330.2
Pitch Circle Ø Of Protective Sleeve	L1 ^{±0.2}	mm	100	129	173	210
Jaw Stroke	M	mm	5	5.4	5.4	5.4
Position Of Master Jaw	Nmax	mm	52.5	67.5	85	100.5
Jaw Mounting Bolts	O		M12	M12	M16	M16
Distance	P2min	mm	25	25	32	32
Length Of Serrations	P6	mm	52.5	61	75	99.5
Jaw Width	Q	mm	35	35	45	45
Slot Width Imperial	Q1 ^{H7}	mm	17	17	21	21
Slot Width Metric	Q1 ^{H7}	mm	12	14	16	21
Pitch Of Serration / Imperial	T		1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°
Jaw Mounting Metric	D		MS12	MS14	MS16	MS21
Pitch Of Serration Metric	T		1.5 x 60°	1.5 x 60°	1.5 x 60°	1.5 x 60°
Distance From 1st Serration	T1	mm	1.5	1.5	1.5	1.5
Performance Data						
Max. Actuating Force	F max	kN	25	40	60	60
Max. Gripping Force	Fsp max	kN	60	100	150	160
Max. RPM	QLC KS	min ⁻¹	6,300	5,000	4,000	3,200
Max. RPM	QLK KS	min ⁻¹	5,000	4,200	3,000	2,800
Weight		kg	16	26	37	63
Moment Of Inertia	QLC KS	kgm ²	0.08	0.18	0.4	1.04
Moment Of Inertia	QLK KS	kgm ²	0.08	0.18	0.4	1.04

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

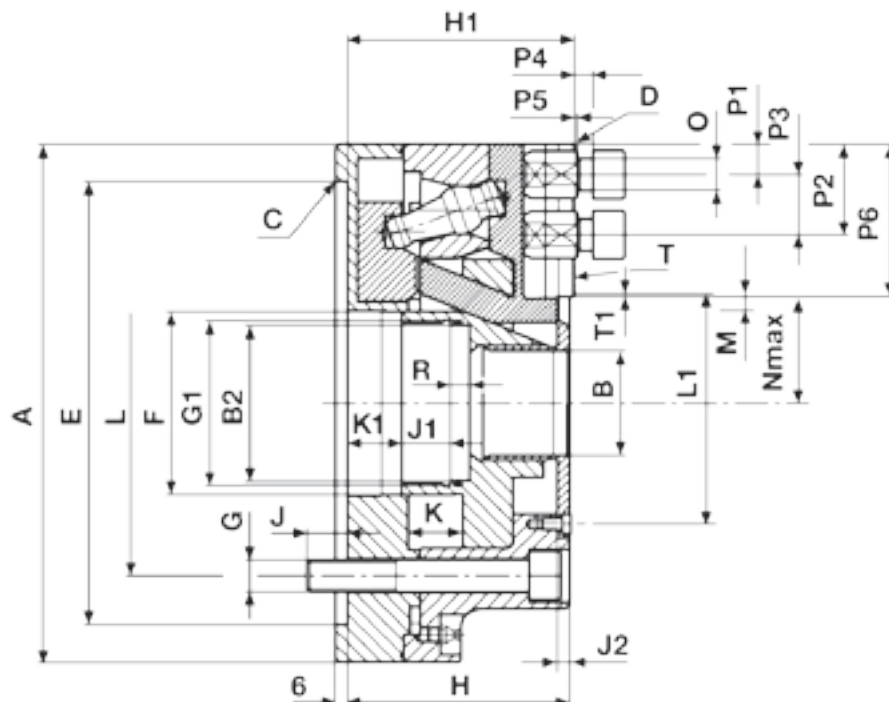
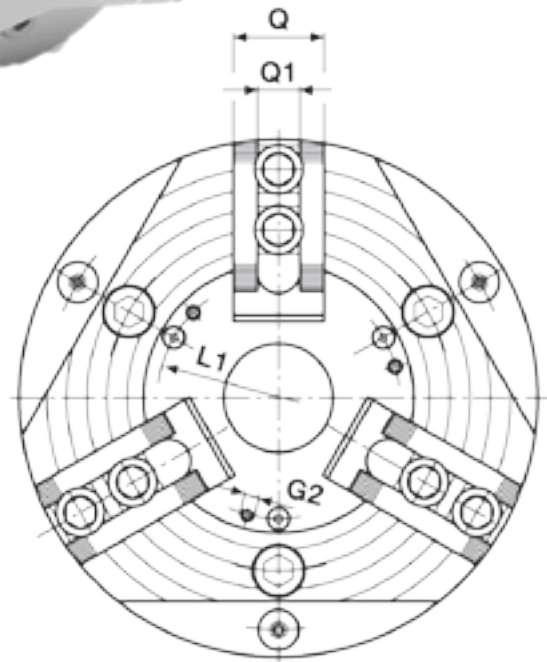
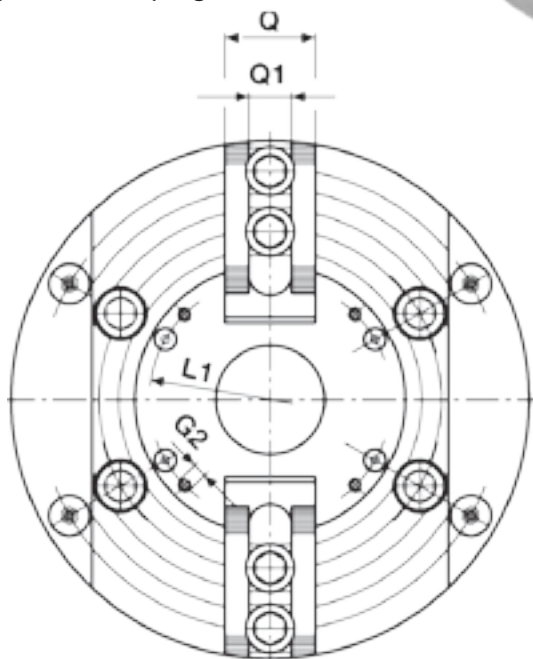
Dimensions in mm unless otherwise specified

Chuck Part Numbers

		200-77	250-101	315-135	400-168
Imperial serration	QLC KS	D170130000	D172073000	D168480000	D168481000
Metric serration	QLC KS	D168718000	D168719000	D168720000	D168721000
Imperial serration	QLK KS	D170131000	D168576000	D168577000	D168578000
Metric serration	QLK KS	D170132000	D168538000	D168539000	D168540000

The Forkardt QLC-LS long stroke power chuck is designed to provide up to 95% more clamping stroke for workpieces with variations in diameter.

The QLC-LS is especially suited for machining a large range of workpiece diameters and parts with difficult geometry, such as step over clamping.



2 & 3 Jaw Long Stroke QLC-LS

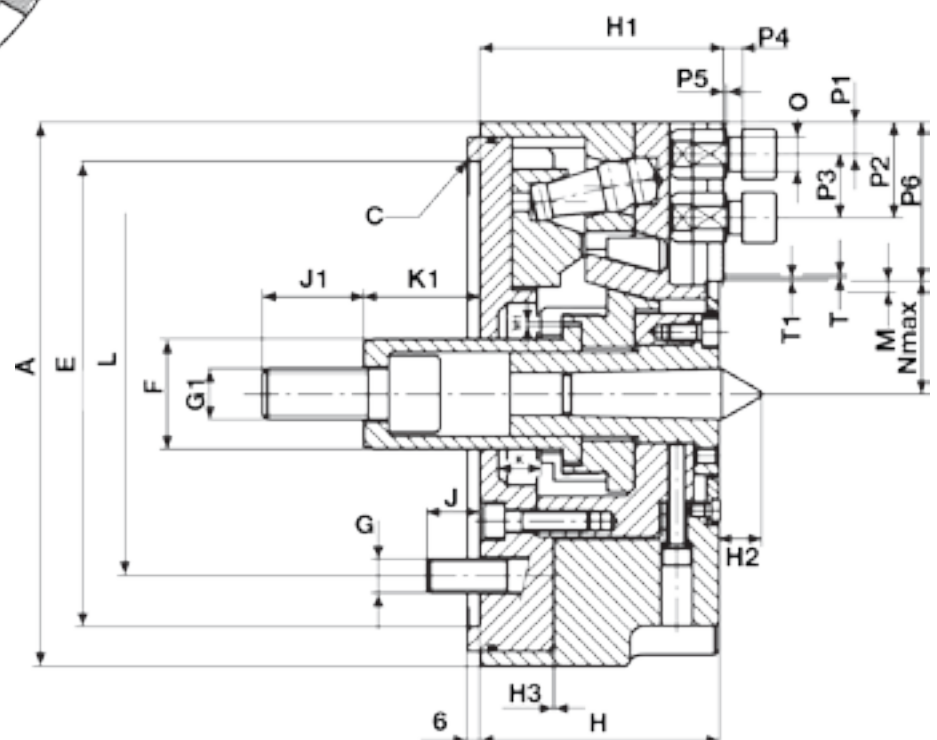
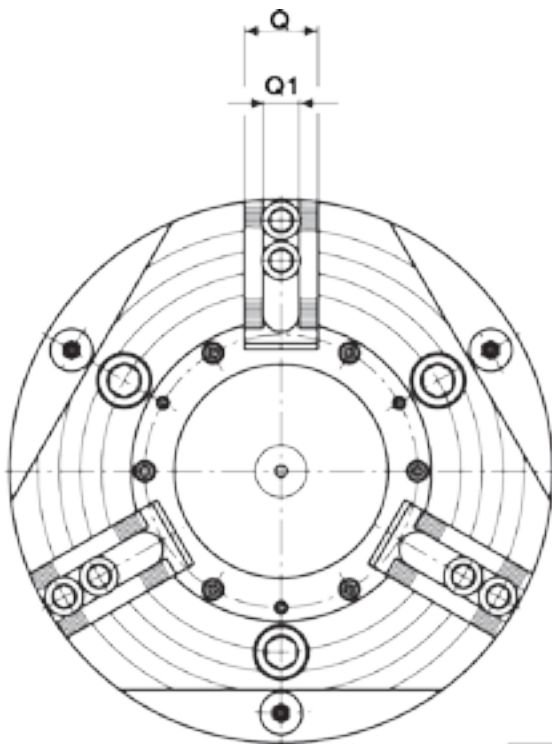
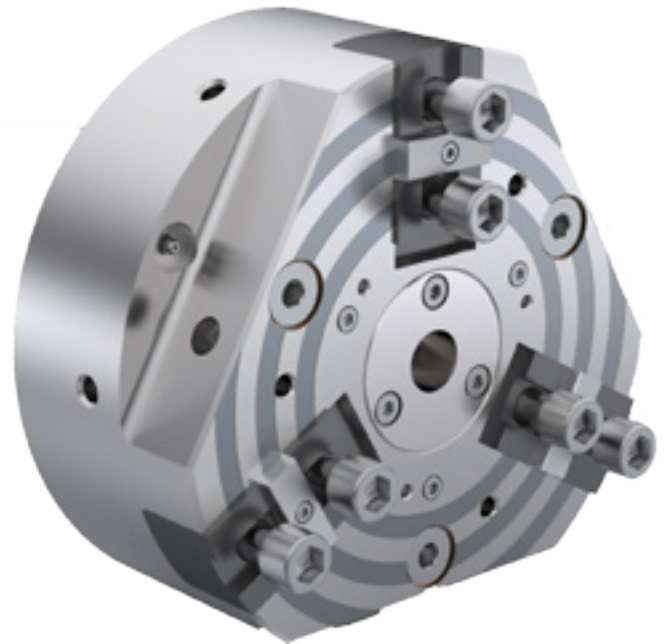
QLC

			160-30	200-41	250-52	315-71
Outer Diameter	A	mm	162	210	257	320
Bore	B ^{+0.1}	mm	30	41	52	71
Chuck Mounting	ØC	mm	Z5	Z6	Z8	Z11
Jaw Mounting/Din 6353	D		S11	S11	S12	S12
Register Ø Of Draw Tube	B2 ^{H7}	mm	42	65	77	93
Mounting Recess	E ^{H6}	mm	140	170	220	300
Actuator Ø	F	mm	52	76	91	110
Mounting Bolts	G		M10 x 95	M12 x 100	M16 x 110	M20 x 90
Thread Mounting	G1		M45 x 2	M68 x 2	M82 x 2	M100 x 2
Puller Thread Protective Sleeve	G2		M4	M5	M6	M6
Chuck Width	H	mm	93	96	110	120
Chuck Width	H1	mm	95	98	112	122
Thread Length Of Mounting Bolts	J	mm	15.7	19	20	25
Thread Length Of Actuator	J1	mm	23.4	24	24	24
Base Jaw Protrusion Over Chuck Face	J2	mm	5	5	6	6
Actuator Stroke	K	mm	20	23	27	32
Actuator Position	K1	mm	20	23	27	32
Pitch Circle Ø Of Mounting Bolts	L ^{+0.2}	mm	104.8	133.4	171.4	235
Pitch Circle Ø Of Protective Sleeve	L1 ^{+0.2}	mm	88	96	120	140
Jaw Stroke	M	mm	8	9.3	10.9	12.9
Position Of Master Jaw	N max	mm	36	43.7	52.9	70.5
Jaw Mounting Bolts	O		M12	M12	M16	M16
Distance	P1min	mm	6	6	8	8
Jaw Mounting Bolts	P1max	mm	14	35	40	58
Distance	P2min	mm	25	25	32	32
Jaw Mounting Bolts	P2max	mm	33	49	58	73
Minimum Distance	P3	mm	19	19	24	24
Minimum Distance	P4	mm	10	10	10	10
Distance T-Nut And Serration	P5	mm	2.5	2.5	2.5	2.5
Length Of Serrations	P6	mm	45	61	75.5	89
Jaw Width	Q	mm	35	35	45	45
Slot Width Imperial	Q1 ^{H7}	mm	17	17	21	21
Slot Width Metric	Q1 ^{H7}	mm	12	14	16	21
Width	R	mm	6.6	6.6	9.6	9.6
Pitch Of Serration / Imperial	T		1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°
Jaw Mounting Metric	D		MS12	MS14	MS16	MS21
Pitch Of Serration Metric	T		1.5 x 60°	1.5 x 60°	1.5 x 60°	1.5 x 60°
Distance From 1st Serration	T1	mm	1.5	1.5	1.5	1.5

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless
otherwise specified

			160-30	200-41	250-52	315-71
Performance Data						
Max. Actuating Force	2QLC LS	F max	kN	24	37	46
Max. Gripping Force	2QLC LS	Fsp max	kN	37	60	75
Max. Actuating Force	3QLC LS	F max	kN	35	55	70
Max. Gripping Force	3QLC LS	Fsp max	kN	55	90	11
Max. RPM			min ⁻¹	6,000	5,500	4,000
Weight			kg	9	18	31
Moment Of Inertia			kgm ²	0.028	0.09	0.25
Chuck Part Nos.						
Imperial Serration	2QLC LS		D169619000	D169621000	D169622000	D169623000
Metric Serration	2QLC LS		D169817000	D169818000	D169819000	D169820000
Imperial Serration	3QLC LS		D169563000	D169565000	D169566000	D169567000
Metric Serration	3QLC LS		D169813000	D1698134000	D1698145000	D169816000

The Forkardt QLC-AG power chuck is specially designed for machining of shafts. The QLC-AG compensates to clamp off-center parts with high precision at high clamping force. A pull back action provides for improved part location on the center, and the centers are easily interchangeable and finely adjustable.



			200	250	315
Outer Diameter	ØA	mm	210	257	315
Bore	ØB	mm	0	0	0
Chuck Mounting	ØC	mm	Z6	Z8	Z8
Jaw Mounting	D		S11	S12	S12
Mounting Recess	E	mm	170	220	220
Actuator Ø	F	mm	44	50	50
Mounting Bolts	G		M12	M16	M16
Thread Mounting	G1		M20	M24	M24
Chuck Width	H	mm	106	113	113
Chuck Back To Serration	H1	mm	108	115	115
Point Height	H2	mm	18	22	22
Pull-Back Stroke	H3	mm	0.2	0.2	0.2
Thread Length Of Mounting Bolts	J	mm	18	24	24
Thread Length Of Actuator	J1	mm	40	45	45
Actuator Stroke	K	mm	20	20	20
Actuator Position	K1	mm	45	55	55
Pitch Circle Ø Mounting Bolts	L	mm	133.4	171.4	171.4
Jaw Stroke	M	mm	5.4	5.4	5.4
Compensating Stroke	M1	mm	2	2	2
Position Of Master Jaw	Nmax	mm	42.9	53.5	55.5
Jaw Mounting Bolts	O		M12	M16	M16
Distance Jaw Mounting Bolts	P1min	mm	6	8	8
	P1max		34	41	65
Distance Jaw Mounting Bolts	P2min	mm	25	32	32
	P2max		53	65	89
Minimum Distance	P3	mm	19	24	24
Minimum Distance	P4	mm	10	10	10
Distance T-Nut And Serration	P5	mm	2.5	2.5	2.5
Length Of Serrations	P6	mm	61	75	99.5
Jaw Width	Q	mm	35	45	45
Slot Width / Imperial	Q1	mm	17	21	21
Pitch Of Serration / Imperial	T		1/16" x 90°	1/16" x 90°	1/16" x 90°
Performance Data					
Max. Actuating Force	F max	kN	36	50	55
Max. Gripping Force	Fsp max	kN	70	120	130
Max. RPM	n max	min ⁻¹	4,700	4,500	4,000
Weight		kg	21	32	44
Moment Of Inertia		kgm ²	0.11	0.3	0.8

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

Part Numbers	200	250	315
Imperial Serration	D170783000	D170393000	D169907000
Metric Serration	D170788000	D170789000	D170790000

Forkardt's QLC-LM power operated three jaw through hole chuck brings a maintenance free option to the QLC series. The QLC Low Maintenance power chuck is based internally on the patented QLC principle, with special covers over the chuck body to prevent contaminants from entering.

The QLC-LM is ideal for series production, heavy duty machining, and finish machining. The jaw connection is standardized, making top tooling purchases simple and affordable. This chuck also features a constant clamping force with mechanical centrifugal force compensation.



Features & Benefits

- Based on patented QLC principle
- Maintenance free design
- Standardized jaw compensation for economic and simple top tooling solutions
- Mechanical centrifugal force compensation
- Constant clamping force
- High precision
- Suitable for both heavy duty machining and fine finishing
- Reduced jaw lift
- Long service life



Under the protective body cover, the QLC-LM still features the patented QLC multiple profile base jaw



Bayonet Mount J, DIN 55022, DIN 55027

Part Numbers								Studs And Collar Nuts Purchase Separately		
Spindle Size	Chuck Size							FN	Part No.	Qty.
	110	140	160	200	250	315	400			
4	D1074085000	-	-	-	-	-	-	322	D1070505000	3
5	-	D1074086000	D1074086000	-	-	-	-	322	D1070505000	4
6	-	-	-	D1074090000	-	-	-	322	D1070506000	4
8	-	-	-	-	D1074097000	-	-	322	D1070507000	4
11	-	-	-	-	-	D1074104000	-	322	D1070508000	6
15	-	-	-	-	-	-	D1074108000	324	D1070517000	6



Mount A1/A2, B, DIN 55021, DIN 55026 Including Mounting Bolts

Part Numbers								Mounting Bolts
Spindle Size	Chuck Size							DIN 912 10.9
	110	140	160	200	250	315	400	
4	D1044757000	D1074053000	-	-	-	-	-	3 x M10 X 20
5	-	-	D1074056000	D1074056000	-	-	-	4 x M10 x 25
6	-	-	-	D1074060000	D1074060000	-	-	4 x M12 x 30
8	-	-	-	-	D165568K08	D165569K08	-	4 x M16 x 35
11	-	-	-	-	-	D165570K11	D165839K11	6 x M20 x 40

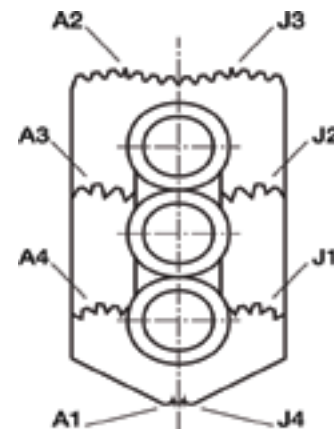


Cam-lock Mount D1 to DIN 55029

Part Numbers								Cam-Lock Studs Purchase Separately		
Spindle Size	Chuck Size							FN	Part No.	Qty.
	110	140	160	200	250	315	400			
4	-	-	-	-	-	-	-	-	-	-
5	-	D1074119000	D1074119000	-	-	-	-	287	D1070512000	6
6	-	-	-	D1074123000	-	-	-	288	D1070513000	6
8	-	-	-	-	D1074130000	-	-	289	D1070514000	6
11	-	-	-	-	-	D1074137000	D1074137000	289	D1070515000	6

Additional standard and a wide variety of special mounting styles also available.

Clamping Ranges for QLC Model Chucks with HB Style Hard Top Jaws



Clamping Range QLC/K with HB Style Jaws

Chuck Size	Top Jaw	OD Clamping				ID Clamping			
		A1	A2	A3	A4	J1	J2	J3	J4
160	HB11/65	22-56	47-81	92-125	135-170	65-97	108-141	153-187	172-206
200	HB11	32-122	38-126	89-188	140-230	80-168	130-219	179-268	180-270
250	HB12	24-120	49-155	131-238	212-361	75-165	147-246	255-326	253-313
315	HB12	28-182	64-217	146-300	227-381	80-226	155-308	234-388	268-423
400	HB12	90-256	109-291	191-373	273-455	120-300	199-381	279-462	314-497
400	HB23/18	41-208	89-262	193-365	294-467	115-281	213-322	312-484	369-541

Clamping Range QLC/K- LS with HB Style Jaws

Chuck	Top Jaw	OD Clamping				ID Clamping			
		A1	A2	A3	A4	J1	J2	J3	J4
160	HB11/65	24-55	49-80	94-125	138-170	67-97	110-141	155-186	174-206
200	HB11	20-124	26-128	77-179	128-231	70-169	118-221	166-270	167-272
250	HB12	20-123	37-158	119-240	200-322	68-168	140-248	218-329	241-363
315	HB12	32-183	68-218	150-300	231-382	83-227	159-308	238-389	272-423

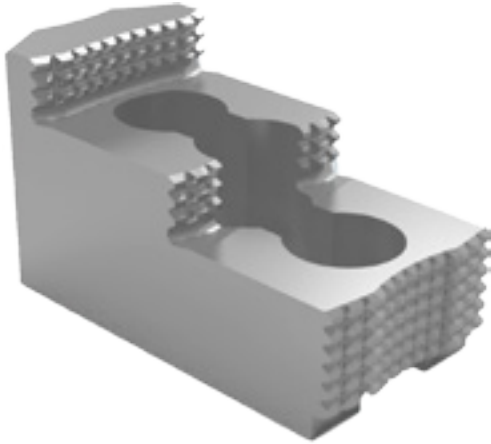
Clamping Range QLC/K- KS with HB Style Jaws

Chuck	Top Jaw	OD Clamping				ID Clamping			
		A1	A2	A3	A4	J1	J2	J3	J4
200	HB11/65	65-114	89-128	135-173	179-218	106-145	151-189	196-235	216-255
250	HB11	75-171	80-175	131-226	183-278	121-216	172-268	221-317	223-319
315	HB12	76-183	111-218	193-301	275-283	122-227	201-309	281-389	316-424
400	HB12	107-254	142-300	224-382	306-464	141-308	232-390	312-471	347-506



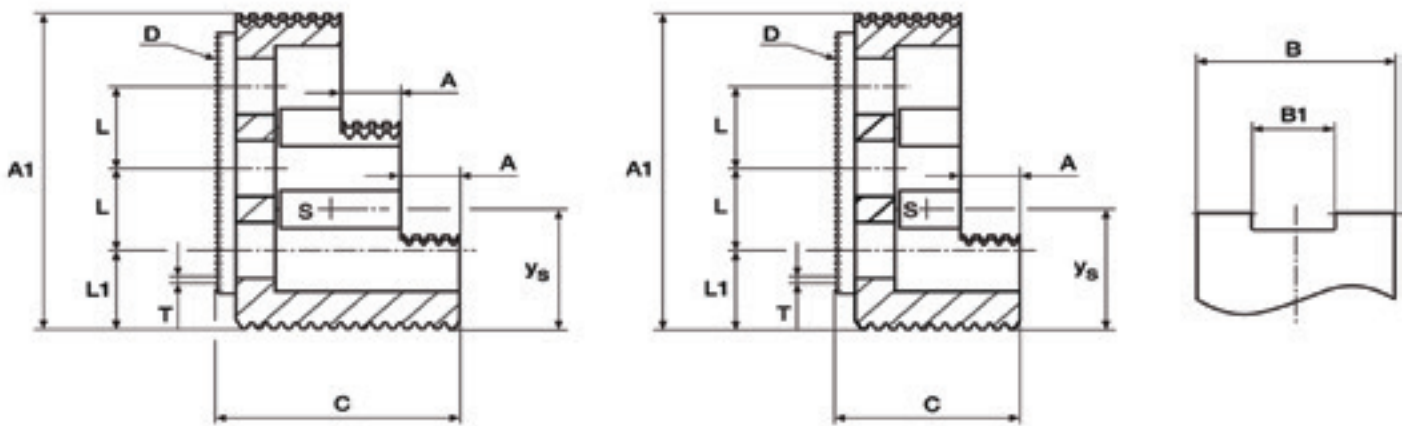
Electronic Grip Force Meter SKM

Ask about our static grip force meter!



HB Hard Top Jaws

HB hard top jaws are ideal for universal applications. The diamond style serration allows for higher clamping force. When delivered with a Forkardt chuck, the jaws are ground in the chuck and ready for use.

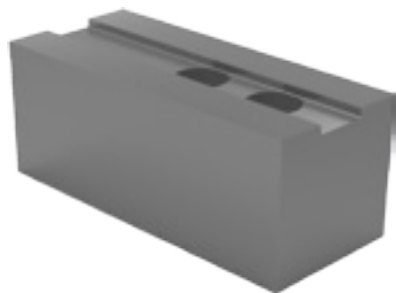


Chuck Size	Jaw Type	Dimensions				Part No.	A1	B1	L	L1	T	Y _s	Weight Per Jaw (kg)
		A	B	C	D								
160, 200	HB 11/65	10	35	44	S11	D38762014	64.7	17.0	19.0	28.0	1/16" x 90°	27.5	0.39
200, 250	HB 11	12	40	49	S11	D1071961000	72.6	17.0	19.0	18.0	1/16" x 90°	32.5	0.47
250, 315, 400	HB 12	14	50	58	S12	D1071915000	103.5	21.0	25.0	33.5	1/16" x 90°	42.5	1.12
400 S23	HB 23/18	18	60	75	S23	D45702000	139.7	25.5	31.0	53.0	3/32" x 90°	56.5	2.52



T-Nuts for QLC Power Chucks

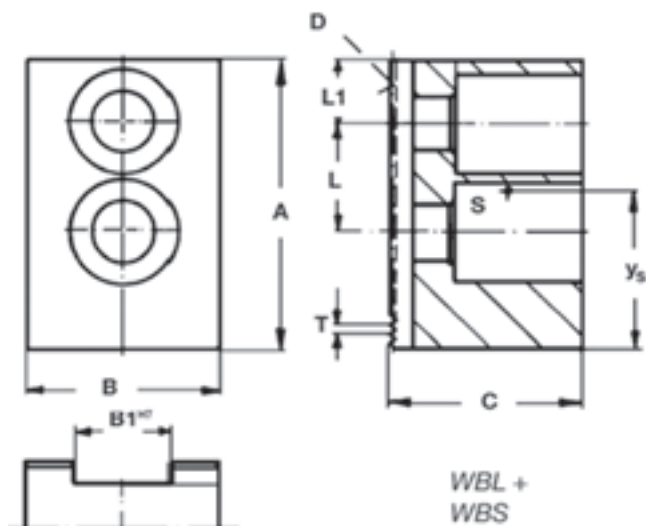
T-Nut	Nominal Dimensions			Part No.	Main Dimensions				For Jaw Style	Jaw Mounting Bolt
	A	B	C		E	F	G	H		
FN231	17.0	M12	23.0	71376000	22.5	19.0	19.0	9.0	HB11, HB11/110, WBL11/80	M12x30
FN232	21.0	M16	27.0	71378000	28.5	23.5	23.5	11.0	HB12, WBL12	M16x35
FN233	25.5	M20	29.0	71380000	36.0	27.5	27.5	11.0	HB23/140, WBL23	M20x40



WBL/WBS Soft Top Jaws

Soft jaws are used for the accurate clamping of already machined workpieces on which clamping surfaces must not be damaged.

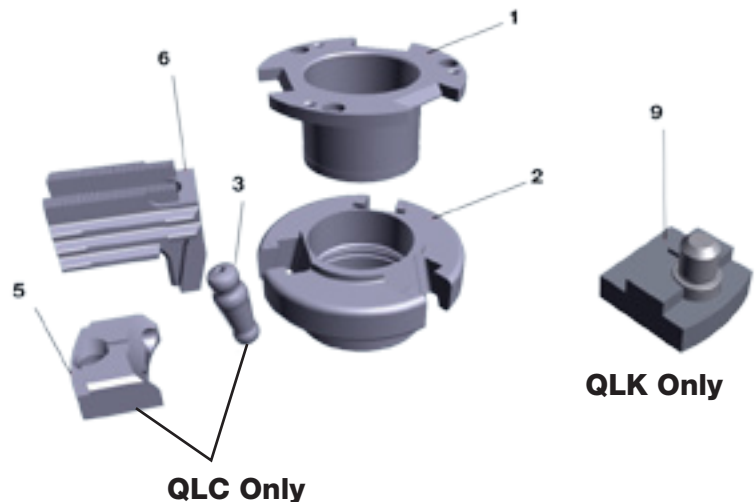
These jaws are to be turned by the user, under clamping pressure, to the respective clamping diameter to ensure extremely high accuracy and repeatability.



Chuck Size	Jaw Type	Dimensions				Part No.	B1	L	L1	T	Y _s	Weight Per Jaw (kg)
		A	B	C	D							
110	WBL 08	47	25	22.5	S9	D168906000	10.0	14	6.5	1/16" x 90°	19.5	0.15
140	WBL 09	60	30	25	S9	D168907000	12.0	20	8.0	1/16" x 90°	26.0	0.25
160, 200	WBL 11	70	40	40	S11	D49302000	17.0	22	15	1/16" x 90°	31.5	0.68
160, 200	WBS 11	70	40	60	S11	D49829001	17.0	22	15	1/16" x 90°	31.5	1.02
160, 200	WBS 11	70	60	60	S11	D49830001	17.0	22	15	1/16" x 90°	31.5	1.67
160, 200	WBL 11	80	40	40	S11	D49303000	17.0	22	25	1/16" x 90°	35.0	0.89
160, 200	WBS 11	90	40	40	S11	D49831001	17.0	22	25	1/16" x 90°	35.0	0.91
160, 200	WBS 11	90	40	60	S11	D49831002	17.0	22	25	1/16" x 90°	35.0	1.38
160, 200	WBS 11	90	40	80	S11	D49831003	17.0	22	25	1/16" x 90°	35.0	1.84
160, 200	WBS 11	90	60	60	S11	D49832001	17.0	22	25	1/16" x 90°	35.0	2.22
160, 200	WBS 11	90	60	80	S11	D49832004	17.0	22	25	1/16" x 90°	35.0	2.97
250, 315, 400	WBL 12	110	50	50	S 12	D49304000	21.0	28	30	1/16" x 90°	51.0	1.70
250, 315, 400	WBS 12	120	50	50	S 12	D49834001	21.0	28	30	1/16" x 90°	59.0	1.91
250, 315, 400	WBS 12	120	50	80	S 12	D49834002	21.0	28	30	1/16" x 90°	59.0	3.07
250, 315, 400	WBS 12	120	50	100	S 12	D49834009	21.0	28	30	1/16" x 90°	59.0	3.85
250, 315, 400	WBS 12	120	60	60	S 12	D49835001	21.0	28	30	1/16" x 90°	59.0	2.86
250, 315, 400	WBS 12	120	60	80	S 12	D49835007	21.0	28	30	1/16" x 90°	59.0	3.87
250, 315, 400	WBS 12	120	60	90	S 12	D49835002	21.0	28	30	1/16" x 90°	59.0	4.50
400 S23	WBL 23	140	60	60	S 23	D49306000	25.5	35	30	3/32" x 90°	58.0	3.12
400 S23	WBS 23	155	60	60	S 23	D49839001	25.5	35	30	3/32" x 90°	58.0	3.55
400 S23	WBS 23	155	60	90	S 23	D49839002	25.5	35	30	3/32" x 90°	58.0	5.34
400 S23	WBS 23	155	60	120	S 23	D49839003	25.5	35	30	3/32" x 90°	58.0	7.12
400 S23	WBS 23	155	80	80	S 23	D49840001	25.5	35	30	3/32"x 90°	58.0	6.68

Although Forkardt's line of QLC power chuck is built to be robust and long-lasting, spare parts are still necessary on occasion. For safety reasons, please use only original Forkardt spare parts.

When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required.



CHUCK TYPE 3 QLC	Qty	Key	160 – 38 168116	175 – 42 165566	200 – 54 167983	250 – 72 165568	315 – 88		400 – 126	
							165569	165570	165808	165813
Protective Bushing	1	1	168025004	165566004	165567004	165568004	165569004		165808004	
Chuck Actuator	1	2	168025002	165566002	165567002	165568002	165569002		165808002	
Lever	3	3	165566010	165566010	156122010	165568010	156584010		44343010	
Counterweight	3	5	168025009	165566009	167983009	165568009	165569009		165808009	
Master Jaw	3	6	168116003	165566003	165567003	165568003	165569003		165808003	

CHUCK TYPE 3 QLK	Qty	Key	110-26 168894	140-35 168895	160-38 168996	175-42 168897	200-54 168898	250-72 168899	315-88		400-126	
									168900	168901	168902	168903
Protective Bushing	1	1	168894004	168752004	168025004	165566004	165567004	165568004	165569004		165808004	
Chuck Actuator	1	2	168894002	168752002	168025002	165566002	165567002	165568002	165569002		165808002	
Master Jaw	3	6	168894003	168752003	168166003	165566003	165567003	165568003	165569003		165808003	
Jaw Clamping Device	3	9	168894007	168752007	168730009	168538001	168521001	168539001	168539001		168736009	

CHUCK TYPE 3 QLC-KS AND 3 QLK-KS	Qty	Key	QLC-KS 200 168478	QLK-KS 200 168575	QLC-KS 250 168479	QLK-KS 250 168576	QLC-KS 315 168480	QLK-KS 315 168577	QLC-KS 400 168481	QLK-KS 400 168578
Protective Bushing	1	1	168478004		168479004		168480004		168481004	
Chuck Actuator	1	2	168478002		168479002		168480002		168481002	
Lever	3	3	165566010	-	156122010	-	165568010	-	156584010	-
Counterweight	3	5	165566009	-	167983009	-	165568009	-	165569009	-
Master Jaw	3	6	165566003		165568003		165569003		-	
Jaw Clamping Device	3	9	-	168538001	-	168521001	-	168539001	-	168539001

Lubricating grease is supplied with your Forkardt QLC chuck, however, continued re-greasing is necessary to keep your chuck running at it's optimal level. Replacement grease can be ordered directly from Forkardt.

Description	Type	Part No.	Size
Special Grease	PF5	101400084	1.0 kg
Special Grease	PF6	101400088	1.0kg
Lever Action Grease Gun	HH1	101400121	

The FNC three jaw power chuck is a universally applicable wedge style power chuck with a quick change jaw system as a standard feature. The jaws for the FNC are European Standard Cross Tenon so the top tooling is easily interchangeable with other standard chuck models available in the industry.

The trapezoidal wedge hook profile allows for the transfer of high gripping forces and optimum efficiency when machining at high speeds, while maintaining high accuracy. The jaw travel time for the FNC is much faster than most other quick change jaw chucks due to the shorter stroke of the central actuator.

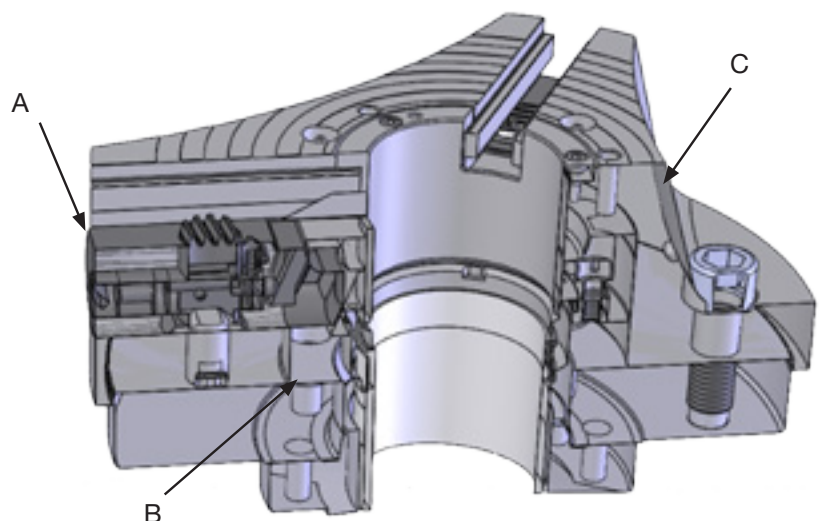


Features & Benefits

- Optimum production efficiencies due to minimal jaw changeover times
- Lightweight design- 25-40% lighter than similar style chucks
- High grade specially heat treated chuck body with slim design and weight reducing cutouts
- Closely maintained concentricity and repetitive accuracy as well as long service life
- Mounting accessories available to suit any machine spindle
- Extremely high gripping forces due to patented heavy duty, trapezoidal wedge hook actuation
- Proven F jaw system is interchangeable with the Forkardt F+ , allowing jaws to be shared between chucks, reducing the cost of tooling

Structure and Function

- A. Quick Change Jaw- proven F jaw system reduces changeover time to just a few seconds
- B. Trapezoidal Wedge Hook-allows for extremely high gripping forces
- C. Weight Reducing Cutouts-provides additional tool clearance and increases maximum speed





Bayonet Mount J, DIN 55022, DIN 55027

Spindle Size	Part Numbers							Studs And Collar Nuts Purchase Separately		
	175	200	250	315	400	500	630	FN	Part No.	Qty.
4	D1074085000							322	D1070504000	3
5	D10704086000	D1074089000						322	D1070505000	4
6		D1074090000	D1074096000	D1074096000				322	D1070506000	4
8			D1074097000	D1074097000	D1074103000			322	D1070507000	4
11					D1074104000	D1074107000	D1074107000	322	D1070508000	6
15						D1074108000	D1074108000	324	D1070517000	6



Cam-lock Mount D1 to DIN 55029

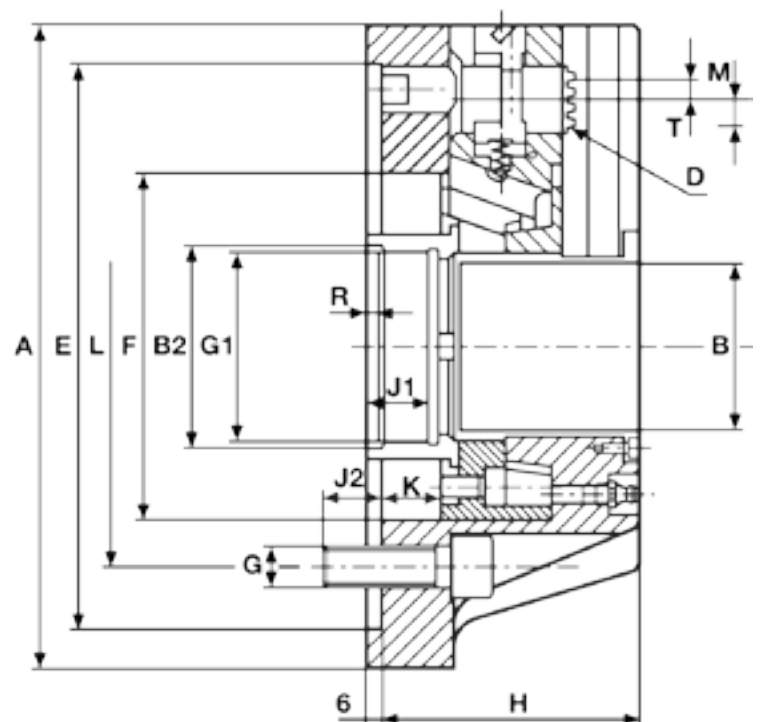
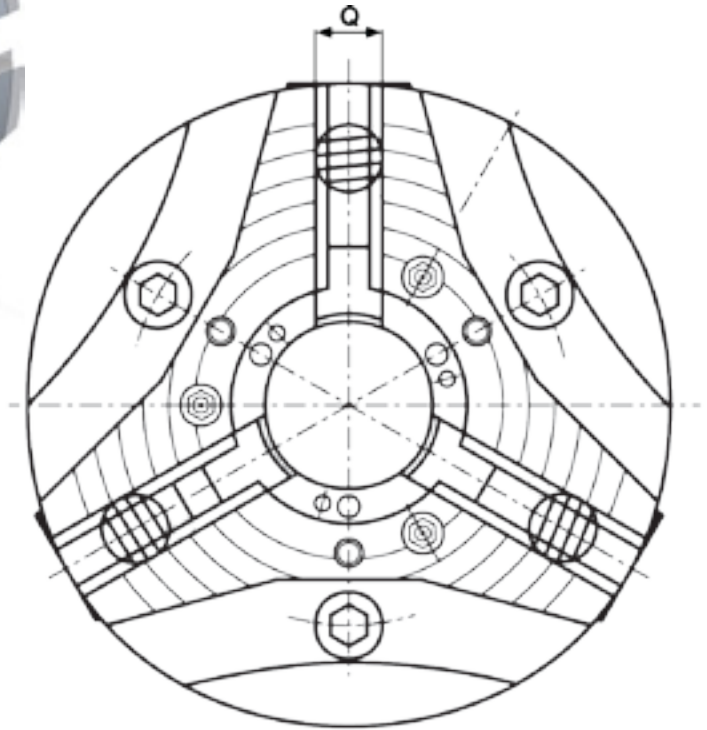
Spindle Size	Part Numbers							Cam-Lok Studs Purchase Separately		
	175	200	250	315	400	500	630	FN	Part No.	Qty.
4	D1074118000	-	-	-	-	-	-	286	D1070511000	3
5	D1074119000	D1074122000	-	-	-	-	-	287	D1070512000	6
6	-	D1074123000	D1074129000	D1074129000	-	-	-	288	D1070513000	6
8	-	-	D1074130000	D1074130000	D1074136000	-	-	289	D1070514000	6
11	-	-	-	-	D1074137000	D1074140000	D1074140000	290	D1070515000	6
15	-	-	-	-	-	D1074141000	D1074141000	291	D1070516000	6



Mount A1/A2, B, DIN 55021, DIN 55026 Including Mounting Bolts

Spindle Size	Part Numbers							Mounting Bolts	
	Chuck Size							DIN 912 10.9	
4	D164905000							3 x M10 x 20	
5	D159570K05	D1074056000						4 x M10 x 25	
6		D159571K06	D162896000					4 x M10 x 25	
8			D159427K08	D164908000	D164908000			4 x M12 x 30	
11				D159572A11	D159572A11	D164909000	D164909000	4 x M16 x 35	
15						D159577A15	D159577A15	6 x M20 x 40	

Additional standard and a wide variety of special mounting styles are also available

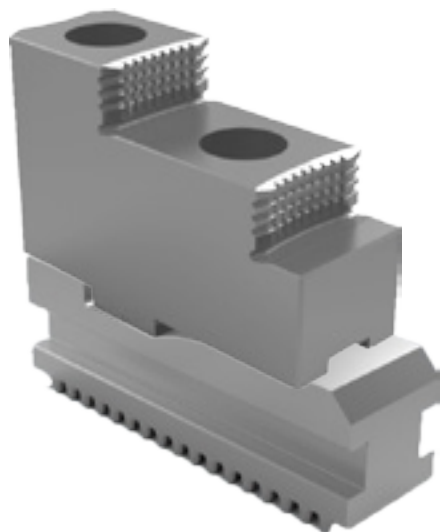


			175-42	200-45	250-72	315-82	400-92	500-125	630-125
Outer Diameter	A	mm	180	206	257	315	400	500	630
Bore	B	mm	42	45	72	82	92	125	125
Chuck Mounting Recess	C / E	mm	Z5 / 140	Z6 / 170	Z8 / 220	Z11 / 300	Z11 / 300	Z15 / 380	Z15 / 380
Jaw Mounting Pitch Of Serration	D		F 160	F 200	F 250	F 250	F 315	F 400	F 400
Pitch Of Serration	T		4.8	4.8	6.0	6.0	7.0	8.5	8.5
Actuator Diameter	F	mm	90	106	140	150	192	230	230
Mounting Bolts	G		M 10	M 12	M 16	M 20	M 20	M 24	M 24
Thread Mounting	G1		M 50 x 2	M 52 x 2	M 80 x 2	M 92 x 2	M 100 x 2	M 135 x 2	M 135 x 2
Chuck Width	H	mm	78	83	100	100	127	138	138
Thread Length	J1	mm	22	22	28	28	28	28	28
Thread Length	J2	mm	15	18	24	30	30	36	36
Actuator Stroke	K	mm	20	20	23	23	28	33	33
Pitch Circle	L	mm	104.8	133.4	171.4	235.0	235.0	330.2	330.2
Jaw Stroke	M	mm	7.2	7.2	8.3	8.3	10.0	12.0	12.0
Jaw Width	Q	mm	20	22	26	26	32	45	45
Mounting Recess Thread Mounting	PH7	mm	51	53	81	94	102	136	136
Width	R	mm	6	6	6	6	6	6	6
Performance Data									
Max. Actuating Force	F max	kN	30	45	60	80	133	120	120
Max. Gripping Force	Fsp max	kN	55	84	120	160	240	240	240
Max. Speed	n max	min ⁻¹	7,000	6,300	4,500	4,000	3,300	2,200	1,700
Max. Weight Top Jaw	**	kg / PC.	0.22	0.34	0.74	0.74	2.24	3.60	3.60
Max. Jaw Height Top Jaw	**	mm	40	45	58	58	65	85	85
Weight	G	kg	11	15	24	37	68	115	200
Moment Of Inertia	J	kgm ²	0.04	0.09	0.20	0.50	1.50	4.00	11.00
Chuck Constant	C1	mm	390	412	580	780	940	1200	1760
	C2	mm	213	221	290	390	482	600	880
	C3	kgm	0.065	0.09	0.187	0.33	0.73	1.66	2.80
Chuck Part No.			D159570000	D159571000	D159427000	D159572000	D159575000	D159577000	D159578000

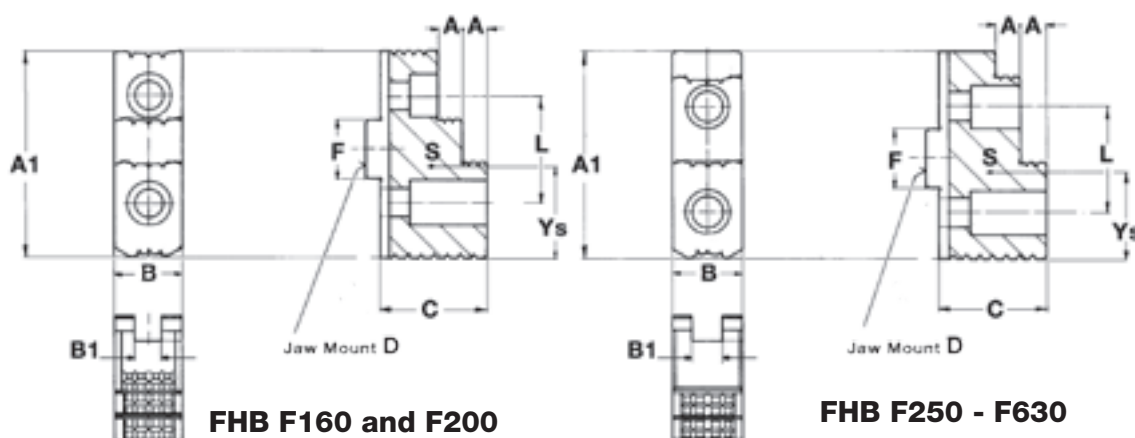
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

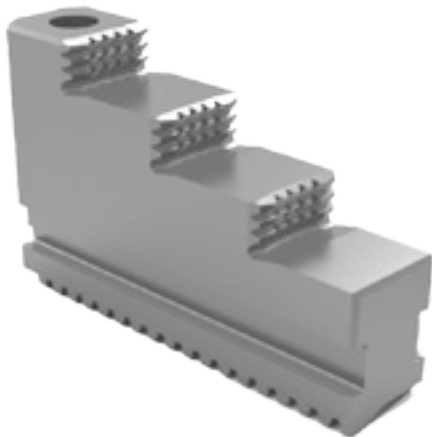


The FGB-FHB jaw set is used for gripping unmachined or rough machined workpieces. The hard FHB top jaws have serrated gripping surfaces to increase the grip between the top jaws and the workpiece. The gripping surfaces are ground in the chuck under gripping force in order to increase concentricity. To maintain this concentricity, the top jaw should not be removed from the base jaw.

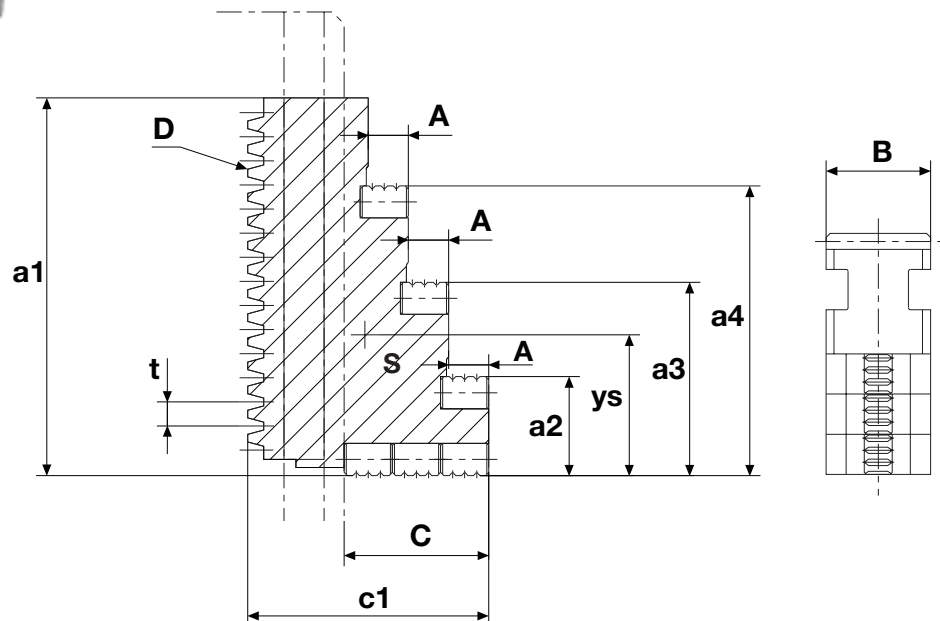


Chuck Size	Max Swing (dia)	Jaw Style	Nominal Dimension						Part No.		A1	B1	Ys	Weight Per Jaw (kg)
			A	B	C	D	F	L	Base Jaw FGB	Top Jaw FHB				
175 - 42	234	160	7.5	20	24	F160	18	32	D180567000	D1070016624	67	8	33.9	0.22
200 - 45	273	200	10	22	35	F200	20	40	D180577000	D1070021624	75	10	40.3	0.34
250 - 72	346	250	14	26	40	F250	20	40	D180588000	D1070026524	90	12	48.5	0.74
315 - 82	377	250	14	26	40	F250	26	54	D180588000	D1070026524	90	12	48.5	0.74
400 - 92	462	315	15	32	46	F315	30	60	D180596000	D1070026524	106	18	55.3	2.24
500 - 125	586	400	20	45	52	F400	40	76	D180606000	D1070038524	128	18	75.5	3.60
630 - 125	690	400	20	45	52	F400	40	82	D180606000	D1070038524	145	24	75.5	3.60

Gripping ranges for FHB jaws can be found on FSTB page.

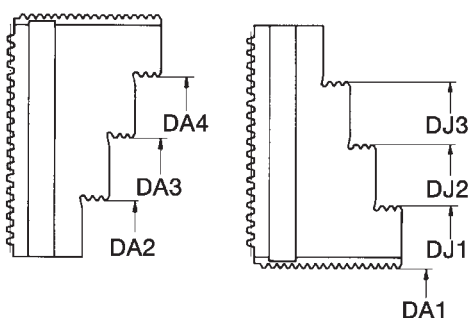


One-piece FSTB stepped jaws are hardened jaws with serrated gripping surfaces to increase the grip between the chuck jaw and the workpiece. The gripping surfaces are ground in the chuck under gripping force. These jaws are used for gripping unmachined or rough machined workpieces requiring medium cuts.



Chuck Size	Max Swing (dia)	Jaw Style	Nominal Dimension				Part No.	a1	a2	a3	a4	c1	Ys	Weight Per Jaw (kg)
			A	B	C	D								
175 - 42	234	160	7.5	20	24	F160	D1070016633	79	23	43	63	45	35.5	0.350
200 - 45	273	200	10	22	35	F200	D1070021633	94	24	48	72	60	41.0	0.615
250 - 72	346	250	14	26	40	F250	D1070026533	115	39.7	-	79.9	70	53.0	1.090
315 - 82	377	250	14	26	40	F250	D1070026533	115	39.7	-	79.9	70	53.0	1.090
400 - 92	462	315	15	32	46	F315	D1070033533	129	37.5	-	92.8	81	59.0	1.770
500 - 125	586	400	20	45	52	F400	D1070038533	167	52.5	-	113.8	93	75.5	3.600
630 - 125	690	400	20	45	52	F400	D1070038533	167	52.5	-	113.8	93	75.5	3.600

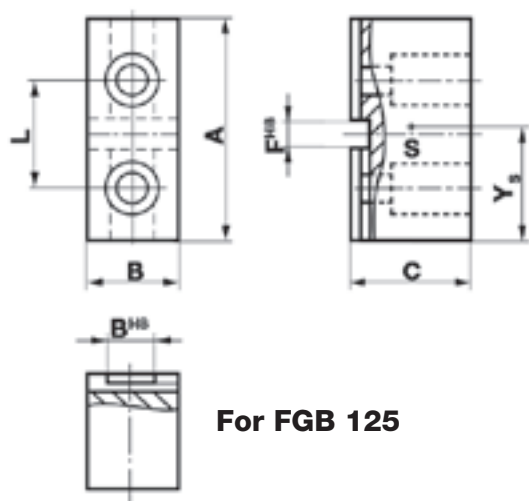
Gripping Ranges for FSTB and FHB Jaws



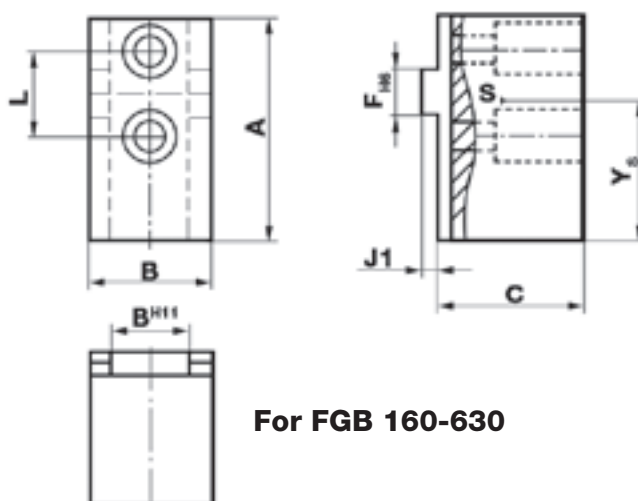
Chuck Size	For External Chucking				For Internal Chucking		
	DA1	DA2	DA3	DA4	DJ1	DJ2	DJ3
175 - 42	8-65	59-108	99-148	138-188	63-112	102-152	142-192
200 - 45	8-76	69-128	116-176	164-224	65-124	113-173	160-220
250 - 72	10-101	96-181	-	175-261	96-182	-	-
315 - 82	10-137	96-217	-	175-297	96-218	-	-
400 - 92	40-202	106-276	-	216-386	109-278	-	-
500 - 125	40-236	150-357	-	272-480	152-367	-	274-480
630 - 125	110-339	150-459	-	272-582	152-460	-	274-582



FWB soft jaws are used for precision gripping of previously machined workpieces which must not be damaged on the gripped surface. These jaws are suitable for light cutting and are turned and ground to suit the shape of the workpiece in the chuck under gripping force. Turned FWB top jaws maintain their precision as long as they are not removed from the base jaw they were ground in.



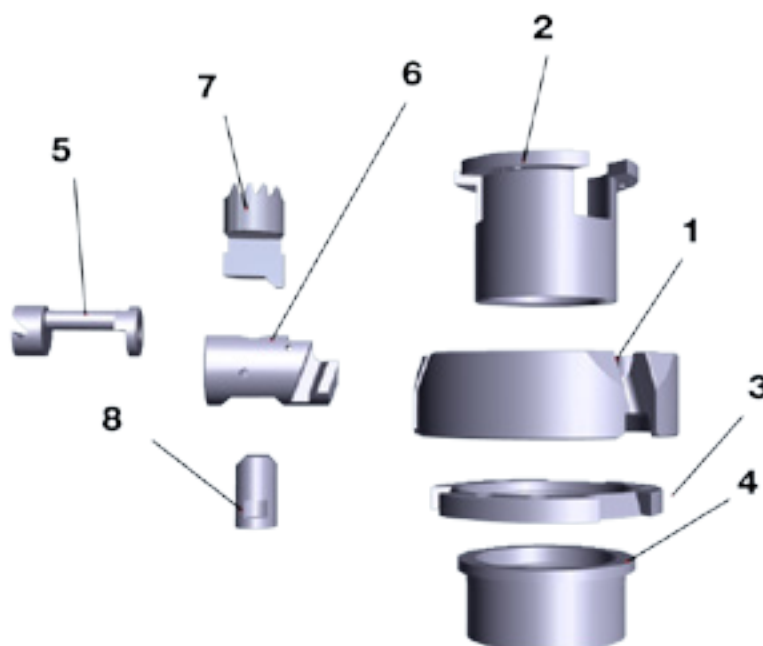
For FGB 125



For FGB 160-630

Chuck Size	Jaw Style	Nominal Dimension			Part No.	F	J1	L	Ys	Weight Per Jaw (kg)
		A	B	C						
175	160	85	20	35	D1070016525	18	4.5	32	43	0.40
200	200	105	25	40	D1070021525	20	5	40	53	0.66
250	250	125	30	55	D1070026425	20	5	40	63.5	1.34
315	250	125	30	55	D1070026425	20	5	40	63.5	1.34
400	315	145	50	54	D1070033425	26	6	54	73.7	2.04
500	400	180	50	80	D1070038425	30	7	60	86.7	4.16
630	400	180	50	80	D1070038425	30	7	60	86.7	4.16

Forkardt offers a wide variety of specially machined top tooling, as well as standard style jaws such as roughing jaws. Please contact our sales office for more information.



	Qty	Key	175-42	200-54	250-72	315-82	400-92	500-125	630-125
Chuck Actuator	1	1	159570/2	159571/2	159427/2	159572/2	159575/2	159577/2	159577/2
Protective Bush	1	2	159570/5	159571/5	159427/5	159572/5	159575/5	159577/5	159577/5
Ring	1	3	159570/7	159571/7	159427/7	159572/7	159575/7	159577/7	159577/7
Draw Tube Connector	1	4	159570/6	159571/6	159427/6	159572/6	159575/6	159577/6	159577/6
Eccentric Locking Pin	3	5	159570/9	159571/9	159427/9	159572/9	159574/9	159577/9	159578/9
Transmission Jaw	3	6	159570/3	159571/3	159424/3	159572/3	159574/3	159577/3	159578/3
Engaging Plunger	3	7	159570/8	159571/8	159424/8	159424/8	159574/8	159577/8	159577/8
Safety Catch	3	8	159570/11	159571/11	159424/11	159424/11	159574/11	159577/11	159578/11

When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required.

Grease

Lubricating grease is supplied with your Forkardt FNC chuck, however, continued re-greasing is necessary to keep your chuck running at it's optimal level. Replacement grease can be ordered directly from Forkardt.

Description	Type	Part No.	Size
Special Grease	PF5	101400084	1.0 kg
Special Grease	PF6	101400088	1.0kg
Lever Action Grease Gun	HH1	101400121	-

Chuck Key

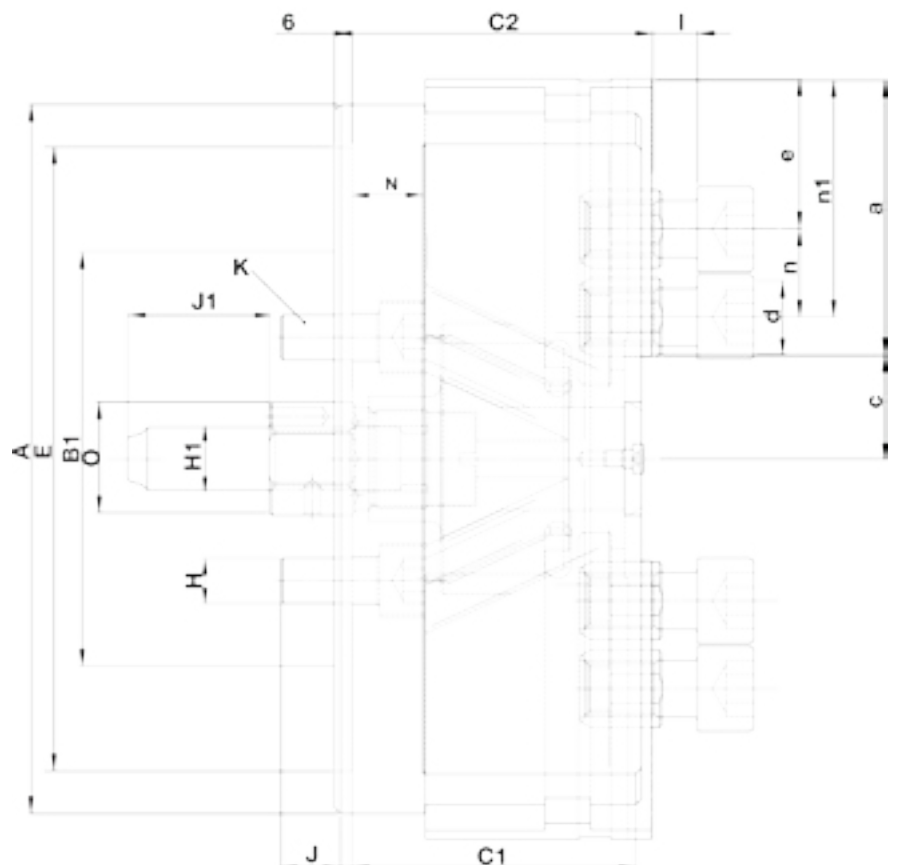
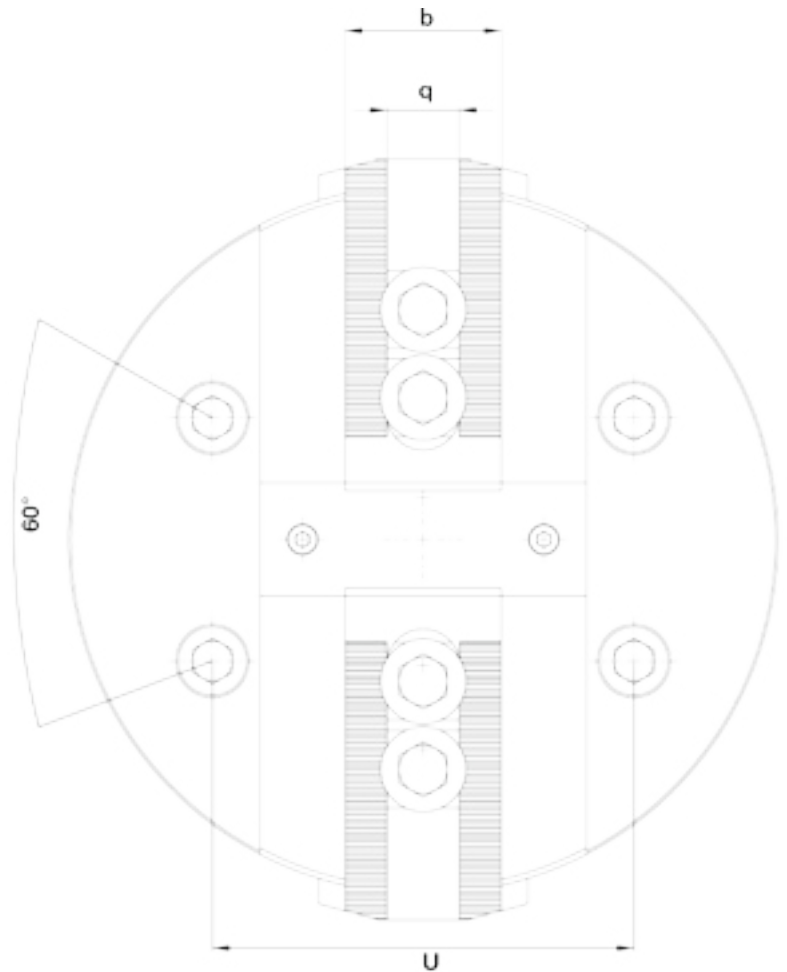
A special key for locking and unlocking of the transmission jaws for chuck actuation is supplied with your chuck. Replacement keys are available for purchase.

Chuck Size	Key Part No.
175	159570/16
200	159570/16
250 & 315	159424/16
400, 500 & 630	159574/16



The Forkardt BLN two jaw wedge hook power chucks are specially designed to provide the ability to machine irregular shaped components with workpiece specific jaws.

The BLN can grip over projections when machining fittings or similar parts, and features the long jaw stroke necessary for machining ball shaped parts that must be enveloped by the jaws.



2 Jaw Wedge Style Power Chuck

BLN

SPECIFICATIONS							
Type 2BLN		125	160	200	250	315	400
Part No.		D154890000	D154891000	D154892000	D154893000	D154894000	D154895000
A	mm	125	160	200	250	315	400
B1 ^{H6}	mm	62	75	98	98	98	120
C1	mm	72	84	100	102	102	108
C2 ^{-0.1}	mm	70	81	103.7	105.7	105.7	111.7
E ^{H6}	mm	115	140	185	220	220	300
H	mm	M12	M10	M12	M16	M16	M24
H1	mm	M16	M16	M22	M22	M22	M24
J	mm	15	16	20	25	25	35
J1	mm	40	40	50	50	50	50
K max	mm	50	60	60	60	60	55
K min	mm	28	33	30	29	29	25
N	mm	22	27	30	31	31	30
O	mm	-	35	44	44	44	52
U	mm	72	86	108	115	120	135
Pitch Circle LK ^{+0.2}	mm	135	177	133.4	171.4	171.4	235
Outer Dia. Max (SK)	mm	-	104.8	220	270	334	420
a	mm	44	59	73	98	130	168
b	mm	32	40	55	55	55	60
c max	mm	30	43.5	36	36.4	36.4	40
c min	mm	21.5	32.5	22	22	22	26
d	mm	M12	M16	M16	M20	M20	M20
e min	mm	-	-	12	14	14	14
j1 90°	mm	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
l min	mm	10	14	12	16	16	16
n	mm	16	18	25	31	31	31
n1max	mm	-	-	60	84	116	154
q ^{H7 g6}	mm	14	18	21	25.5	25.5	25.5
Stroke Per Jaw	mm	14.0	14.0	14.0	14.4	14.4	14.0
Max. Actuating Force	kN	13	16	42	45	45	57
Max Grip Force	kN	20	26	62	66	66	90
Max RPM	min ⁻¹	3500	3000	3000	2500	2200	2000
Weight	kg	5	9	17	25	36.5	60
Moment of inertia GD ²	kpm ²	0.04	0.16	0.35	0.7	1.6	4.5

1 kN = 224.81 lbs. (Force)

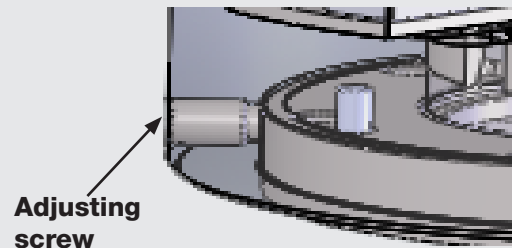
1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

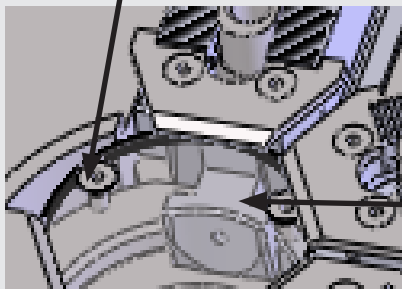
The Superlife power chuck line was built for long life and precision. The Ajust-Tru® feature allows re-chucking precision at .001" TIR, and when reconditioning is needed, you can do it in your own plant. The Superlife power chuck line offers many sizes, number of jaws, and jaw styles, from a 2 jaw, 3 jaw, the 2/3 jaw chuck featured in this catalog to a 6 jaw version.

Power Chucking With the Advantage of the Ajust-Tru® Principle

Ajust-Tru® chucks have .030" clearance between the chuck body and the mounting plate OD. Opposed adjusting screws in the chuck body move the chuck and work on the mounting plate for precision adjustment within .001" TIR for re-chucking. Adjustment is made under pressure duplicating operating conditions.



Cover plate



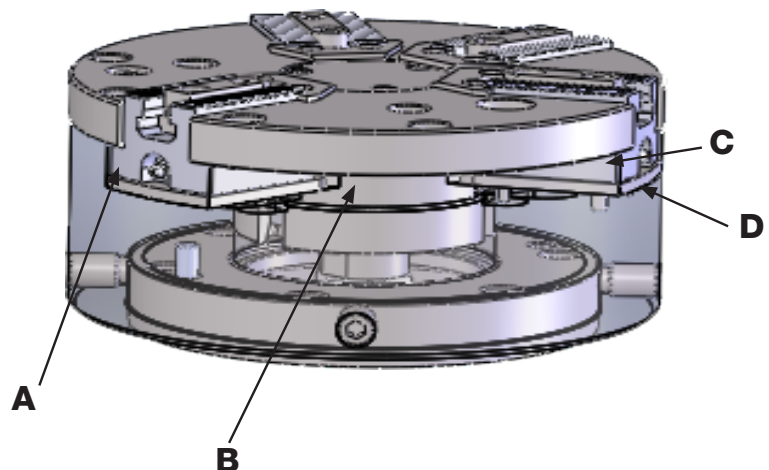
Jaw Extensions

This closeup with the front cover cut away shows how the Superlife jaws extend under the chuck front plate. This extra support eliminates part distortion common to conventional power chucks.

Master Jaw

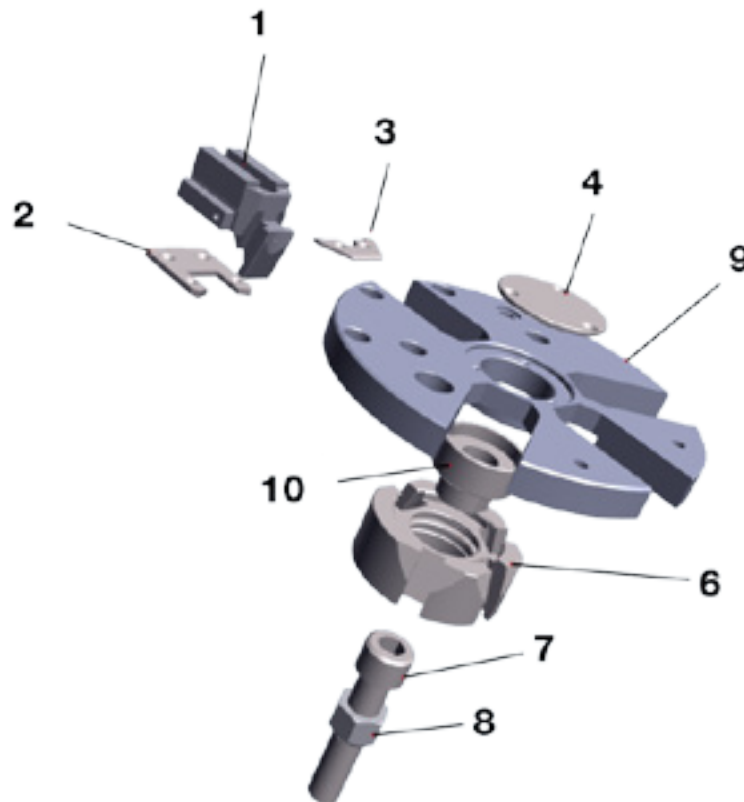
Structure and Function

- A. Master Jaw- hardened and ground and available in various styles
- B. Wedge Bushing- hardened and ground and easily replaced as needed
- C. Master Jaw Key ways- wider key ways increase bearing surfaces for longer wear
- D. Wear Plates- plates are tamper proof to machine operators but easily shimmed or replaced in the tool room.



2/3 Jaw Chuck Replacement Components

SL



When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required. Components are available for other Super-life models.

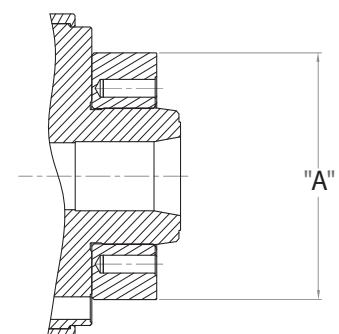
	Qty	Key	4610	4612	4615	4618
Master Jaws	4	1	13661	13668	11047	11143
Wear Plate	4	2	13662	13669	12691	12696
Dust Plates	4	3	11293	11086	11084	11084
Front Plate Cover	1	4	11119	11119	11083	11083
Wedge	1	6	13663	13663	12699	12699
Draw Bar Bolt	1	7	10011	10011	10011	10011
Lock Nut	1	8	10010	10010	10010	10010
Front Plate	1	9	11048	11061	11042	15933
Wedge Plug	1	10	13664	13664	12695	12695
Hardware Kit	1		4610-KIT	4612-KIT	4615-KIT	4618-KIT

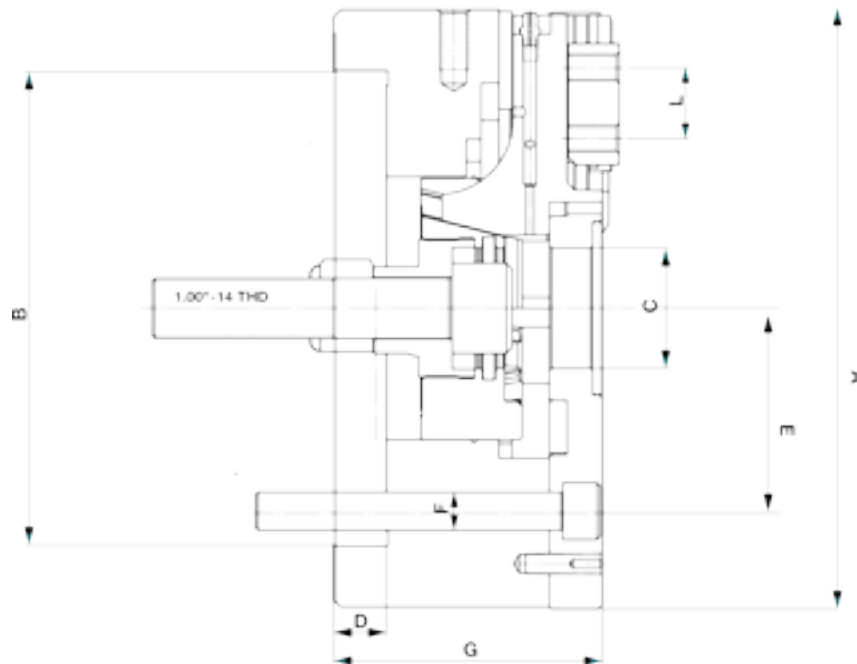
Part numbers shown are base numbers. Actual number may vary dependent on chuck number. Chuck number is required at time of parts order.

Mounting Plates for Super Life Power Chucks to American Standard Style A1 and A2 Spindles

Spindle	A	175	200	250/315	400/450	500/630
A3	2.13"	10168	-	-	-	-
A4	2.50"	10438-1	-	-	-	-
A5	3.25"	13877	10266	-	-	-
A6	4.19"	-	13498-2	13339-4	-	-
A8	5.50"	-	-	10006-1	13573-7	-
A11	7.75"	-	-	-	10408-1	14140-3
A15	11.25"	-	-	-	-	14141-3

Additional standard and a wide variety of special mountings also available.





PERFORMANCE DATA						
Model	Jaw Travel	Max Drawbar Force 3 Jaw (kN)	Max Drawbar Force 2 Jaw (kN)	Wedge Travel	Max RPM	Weight (kg)
4610	9.65	40.03	26.69	38.10	2600	42
4612	9.65	46.71	31.14	38.10	2200	61
4615	9.65	66.72	44.48	38.10	1500	99
4618	9.65	66.72	44.48	38.10	1200	151
4621	12.70	66.72	44.48	50.80	1000	259
4624	12.70	66.72	44.48	50.80	900	340

SPECIFICATIONS											
Model	A	B	C	D	E	F	G	H	J	K	L
4610	254.00	200.91	50.80	22.35	85.85	5/8"-11	113.54	1"-14	19.05	4.83	53.85
4612	304.80	200.91	50.80	22.35	85.85	5/8"-11	113.54	1"-14	19.05	4.83	63.50
4615	381.00	299.21	81.03	23.88	117.60	3/4"-10	131.06	1"-14	19.05	4.11	76.20
4618	457.20	299.21	81.03	23.88	117.60	3/4"-10	131.06	1"-14	19.05	4.11	76.20
4621	411.73	407.16	95.25	30.23	165.10	3/4"-10	165.10	1"-14	19.05	7.87	76.20
4624	60.96	407.16	95.25	30.23	165.10	3/4"-10	165.10	1"-14	19.05	7.87	76.20

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

Superlife Ajust-Tru® 2/3 Jaw Power Chuck

SL



Shown with fine serrated master jaws

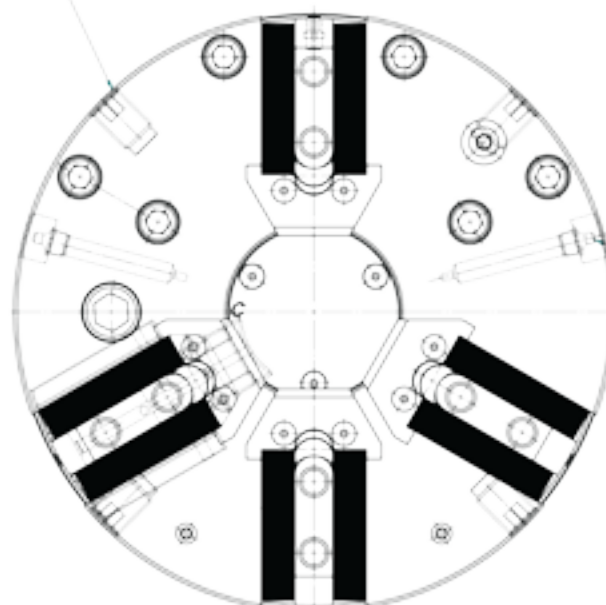
The 2/3 jaw combination chuck can hold either round or square parts, allowing for greater flexibility and shorter down time.

The chuck is designed to either use three jaws or 2 jaws, depending on the application.

Features & Benefits:

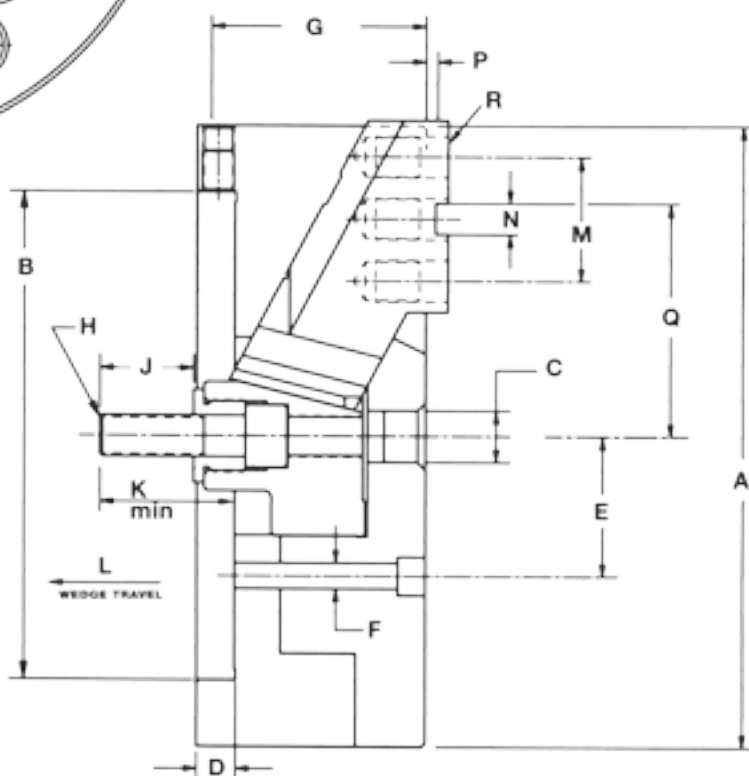
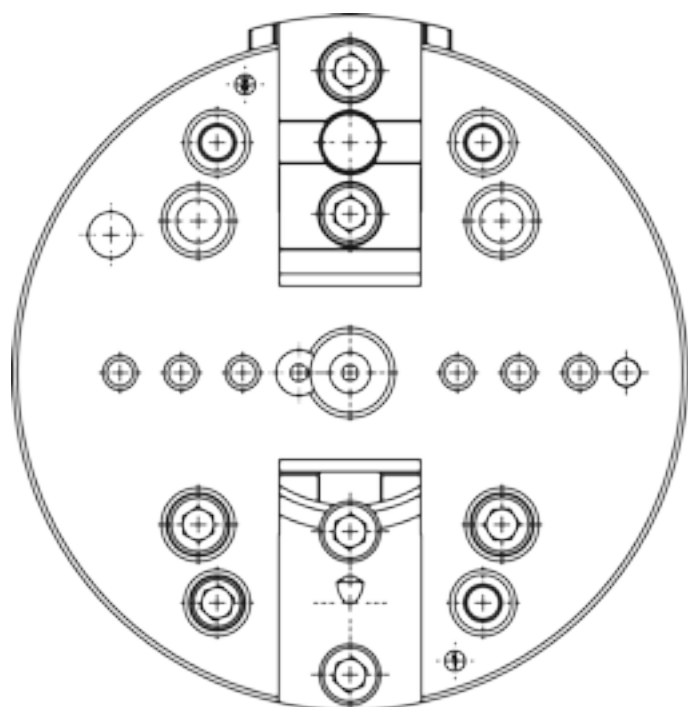
- Can be used as 2 or 3 jaw to hold round or square parts
- Extremely rugged and precise – designed for easy maintenance
- Guaranteed repeatability of .001" TIR or better on duplicate part production
- 4:1 mechanical advantage
- Various master jaw styles available
- Available with or without a Thru Hole
- 2-Jaw, 3-Jaw or 2/3-Jaw styles available
- Also available in lightweight aluminum body
- Ajust-Tru® power chuck mounting plate required

(4) EQ SPCD ON OD
(AJUST-TRU SCREWS)



GREASE FITTING

The Pull-Back chuck is the perfect match for single or multiple spindle machines making heavy cuts on precision work.



Superlife Ajust-Tru® 2 Jaw Pull Back Power Chuck

SL

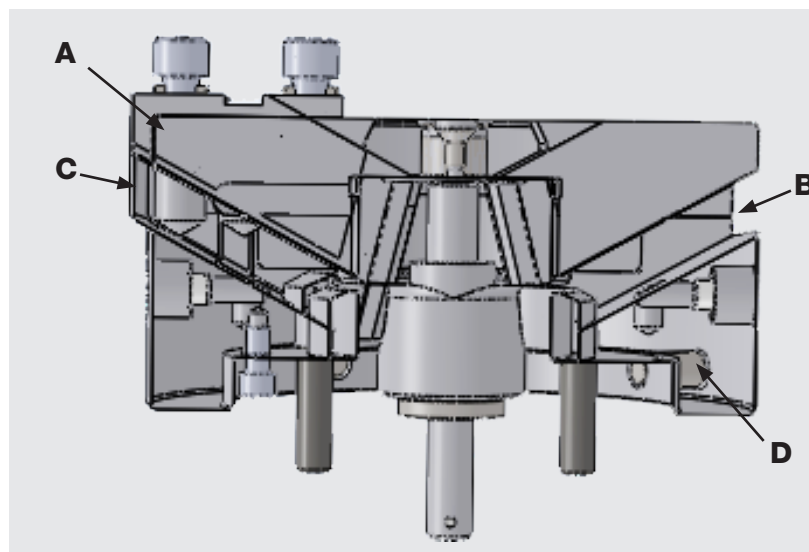
Angular Jaws Built to Deliver Increased Gripping Power

The gripping power of the Buck Pull Back chuck is more than 100% greater than a conventional chuck. This is achieved by the large angular jaws on wider longer key ways, a wedge built to take more than twice the usual draw bar pull, and the strength and rigidity of pulling the part against stops.



Stronger Top Jaw Connection

In order to increase the gripping strength of the Buck Pull Back chuck, oversize tapped holes are provided for use of heavy duty top jaws. To accommodate standard top jaws, threaded inserts are also provided with the chuck.



Structure and Function

- A. Angular Pull-Back jaw and wedge design permit doubling draw bar pull
- B. Wider, longer key ways extend accuracy life with less maintenance
- C. Extra key way on front plate counteracts top jaw bell-mouthing
- D. Ajust-Tru feature provides .001" TIR repeatability on duplicate parts

SPECIFICATIONS

Part #	A	B	C	D	E	F	G	H	J	K	L	M	N	P MIN	P MAX	Q	R
3806	165.10	121.41	19.05	16.00	52.32	11.91	77.72	.625"-18	31.75	57.15	28.70	38.10	12.70	7.87	4.06	61.98	.437"-14
3808	209.55	156.46	22.35	16.76	66.80	13.46	95.25	.625"-18	44.45	64.26	32.51	44.45	12.70	7.87	4.06	77.72	.750"-16
3810	254.00	200.91	22.35	22.35	66.80	13.46	119.89	1"-14	67.56	93.73	42.93	54.10	12.70	8.64	4.06	96.77	.875"-14
3812	304.80	200.91	22.35	22.35	85.85	16.76	130.30	1"-14	67.56	93.73	42.93	54.10	12.70	9.65	4.83	114.30	.875"-14
3815	381.00	299.21	31.75	23.88	117.60	19.81	139.70	1"-14	57.15	81.03	42.93	76.20	12.70	14.73	4.83	143.00	1"-14
3818	457.20	299.21	31.75	23.88	117.60	19.81	152.40	1"-14	38.10	68.33	42.93	76.20	12.70	14.73	7.87	143.00	1"-14
3821	533.40	407.16	50.80	30.23	165.10	23.88	201.68	1"-14	44.45	101.60	57.91	76.20	12.70	14.73	7.87	181.10	1"-14
3824	609.60	407.16	50.80	30.23	165.10	23.88	201.68	1"-14	44.45	101.60	57.91	76.20	12.70	14.73	7.87	181.10	1"-14

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

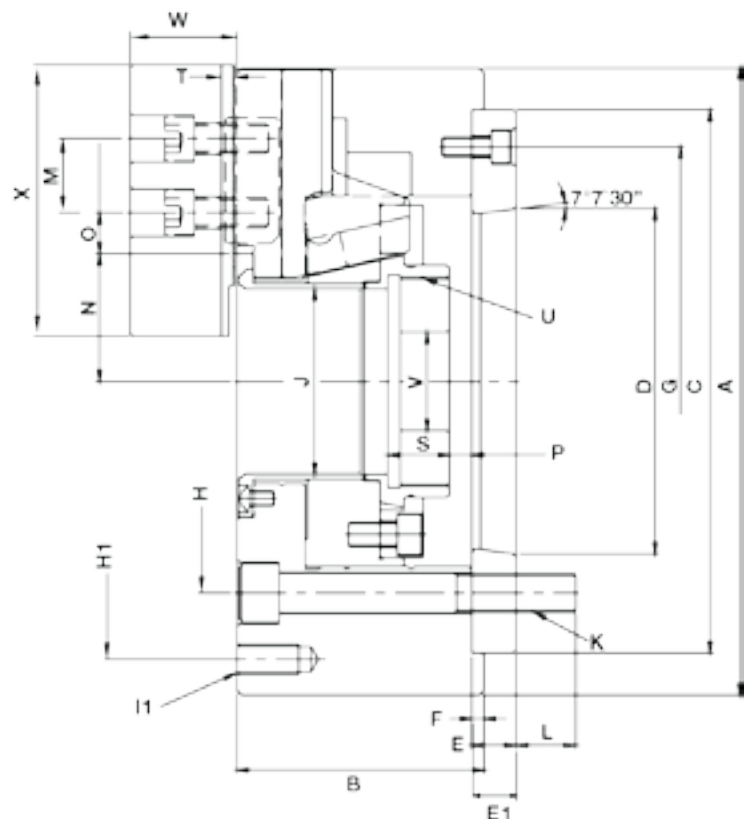
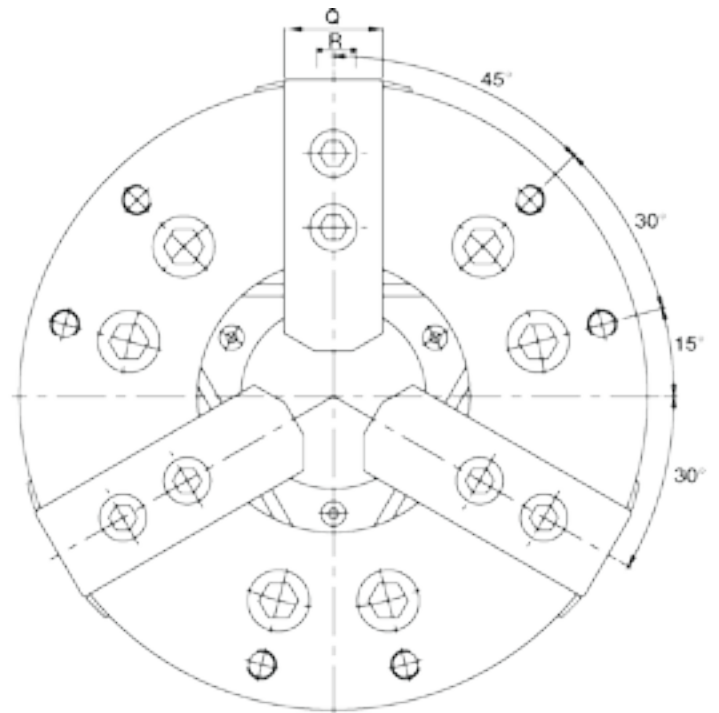
PERFORMANCE DATA

Part #	Cross Keys	Jaw Travel	Wedge Travel	Max. Drawbar Force (kN)	Max. RPM	Weight (kg)
3806	1	6.35	28.70	26.69	3000	10
3808	1	7.11	32.51	44.48	2500	21
3810	1	9.65	42.93	66.72	2000	35
3812	1	9.65	42.93	80.07	1700	50
3815	1	9.65	42.93	111.21	1400	82
3818	2	9.65	42.93	111.21	1100	124
3821	2	12.70	57.91	111.21	1080	213
3824	3	12.70	57.91	111.21	900	280



Features & Benefits:

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)



High Speed Thru Hole 3 Jaw Power Chuck

BPC

HIGH SPEED THRU HOLE 3 JAW POWER CHUCK SPECIFICATIONS A-N

Model	Spindle Nose	A	B	C	D	E	E1	F	G	H	H1	I1	J	K	L	M	N Max.	N Min.
BPC204	—	110	59	85	—	—	—	4	—	70.6	—	—	26	M10x1.5P	—	14	23	20.30
BPC205	A2-4	135	60	110	63.51	20	—	4	96	82.6	118	M8x1.25P	33	M10x1.5P	15	14	26.20	23.50
BPC206	A2-5	169	81	140	82.56	15	—	5	116	104.8	145	M10x1.5P	45	M10x1.5P	16	20	32.35	29.60
BPC208	A2-6 (A2-5)	210	91	170	106.98	17	23	5	150	133.4	180	M10x1.5P	52	M12x1.75P	18	25	39.10	35.40
BPC210	A2-8 (A2-6)	254	100	220	139.72	18	28	5	190	171.4	225	M12x1.75P	75.0	M16x2P	19	30	51.5	47.1
BPC212	A2-8 (A2-6)	304	110	220	139.72	18	—	6	190	171.4	250	M12x1.75P	91.0	M16x2P	25	30	61.6	56.3
BPC215	A2-11 (A2-8)	381	133	300	196.87	22	33	6	260	235.0	324	M12x1.75P	117.5	M20x2.5P	28	43	82.3	77.0
BPC218	A2-11 (A2-8)	450	133	300	196.87	22	33	6	260	235.0	230	M12x1.75P	120.0	M20x2.5P	28	43	83.8	78.5

HIGH SPEED THRU HOLE 3 JAW POWER CHUCK SPECIFICATIONS O-X

Model	Spindle Nose	O Max.	O Min.	P Max.	P Min.	Q	R	S	T	U	V	W	X	Thru-Hole Dia.	Draw Nut Thread
BPC204	—	11.5	6.7	3.5	-6.5	23	10	17.5	2	M32X1.5P	12	24	49.5	26	M32X1.5P
BPC205	A2-4	19.0	6.0	1.0	-9.0	25	10	20.0	2	M40x1.5P	12	31.5	62.0	33.0	M40x1.5P
BPC206	A2-5	24.0	7.0	11.0	-1.0	31	12	19.0	2	M55x2P	20	37.0	73.0	45.0	M55x2P
BPC208	A2-6 (A2-5)	30.0	10.0	14.5	-1.5	35	14	20.5	2	M60x2P	30	39.0	95.0	52.0	M60x2P
BPC210	A2-8 (A2-6)	34.0	12.0	8.5	-10.5	40	16	25.0	2	M85x2P	40	43	110	75.0	M85x2P
BPC212	A2-8 (A2-6)	46.0	12.0	8.0	-15.0	50	21	28.0	2	M100x2P	50	51	129	91.0	M100x2P
BPC215	A2-11 (A2-8)	46.0	13.0	7.0	-16.0	62	22	42.5	5	M130x2P	48	66	165	117.5	M130x2P
BPC218	A2-11 (A2-8)	78.0	18.0	7.0	-16.0	62	22	42.5	5	M130x2P	48	66	165	120.0	M130x2P

PERFORMANCE DATA

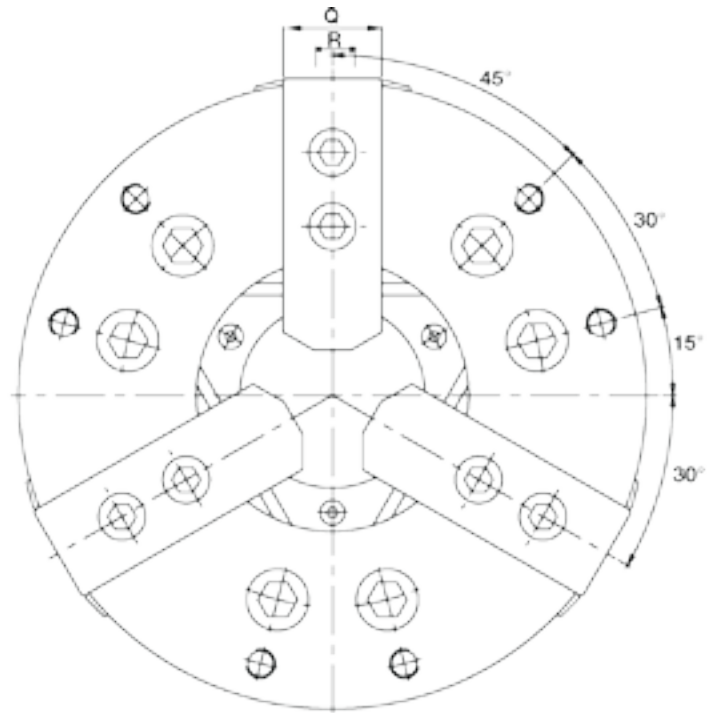
Model	Plunger Stroke	Jaw Stroke Dia.	Max. RPM	Weight (kg)	Max. Pull Force (kN)	Max. Grip Force (kN)	Max. Pressure (Mpa)	Gripping Range Min.	Gripping Range Max.	Matching Cylinder
BPC204	10	5.4	8000	4	14	28	2.30	7	110	BC098
BPC205	10	5.4	7000	7	17	35	2.80	10	135	BC1036
BPC206	12	5.5	6000	13	21	56	2.70	13	169	BC1246
BPC208	16	7.4	5000	22	33	82	2.50	13	210	BC1552
BPC210	19	8.8	4200	34	42	108	2.60	30	254	BC1875
BPC212	23	10.6	3300	55	54	141	2.60	35	304	BC2091
BPC215	23	10.6	2500	107	70	179	2.40	35	381	BC2511
BPC218	23	10.6	2000	114	70	179	2.40	40	450	BC2511

Specially threaded or blank draw nuts available

1 kN = 224.81 lbs. (Force)

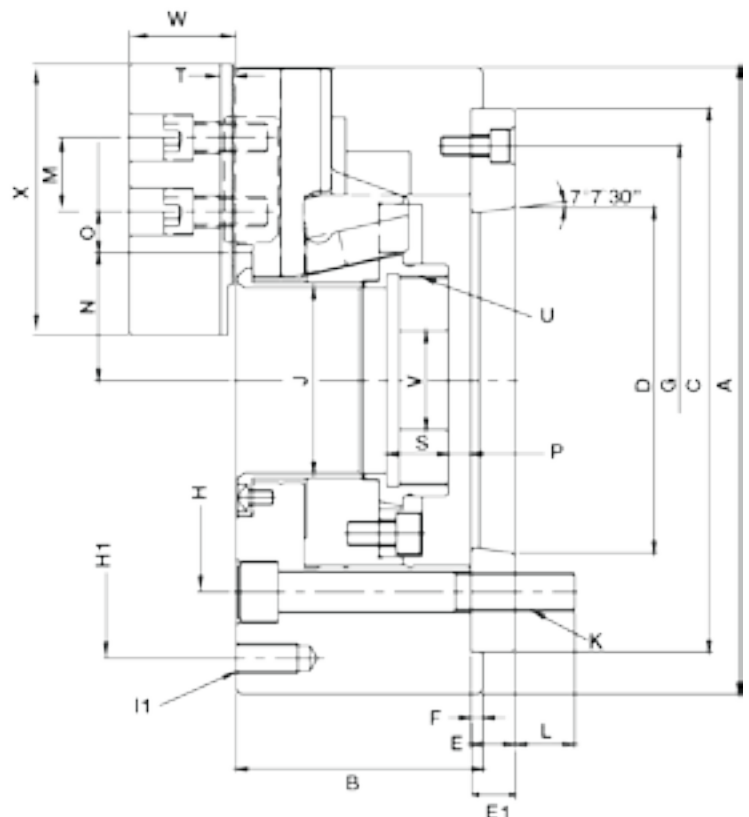
1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified



Features & Benefits:

- Larger thru-hole allows for gripping of larger workpieces
- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)



High Speed Large Bore 3 Jaw Power Chuck

BBC

HIGH-SPEED LARGE BORE 3 JAW POWER CHUCK SPECIFICATIONS A-N

Model	Spindle Nose	A	B	C	D	E	E1	F	G	H	H1	I1	J	K	L	M	N Max	N Min
BBC206	A2-5	170	81	140	82.6	--	20	5	--	122	52	M10x1.5P	52	M10x1.5P	--	20	36.4	33.6
BBC208	A2-6	215	91	170	106.4	--	22	5	--	150	66	M12x1.75P	66	M12x1.75P	--	25	46.6	42.9
BBC210	A2-8	256	100	220	139.7	--	28	5	--	180	81	M16x2P	81	M16x2P	--	30	54.6	50.1
BBC212	A2-11(A2-8)	315	108	300	196.9	22	33	5	260.0	235	106	M20x2.5P	106	M20x2.5P	27	30	69.7	64.3
BBC215	A2-15(A2-11)	405	133	380	285.8	27	41	6	330.2	330.2	142	M24x3P	142	M24x3P	32	43	95.1	89.5
BBC218	A2-15(A2-11)	455	134	380	285.8	27	41	6	330.2	330.2	166.5	M24x3P	166.50	M24x3P	32	43	108.3	102.5

HIGH-SPEED LARGE BORE 3 JAW POWER CHUCK SPECIFICATIONS O-Y

Model	Spindle Nose	O Max.	O Min.	P Max.	P Min.	Q	R	S	T	U	V	W	X	Y	Thru-Hole Dia.	Draw Nut Thread
BBC206	A2-5	21.1	9.1	7.0	-5.0	31	12	23.0	2	M60x2P	20	37.5	73	104.8	52	M60x2P
BBC208	A2-6	26.6	11.6	10.0	-6.0	35	14	25.0	2	M75x2P	30	39.5	80	133.4	66	M75x2P
BBC210	A2-8	33.1	13.6	8.5	-10.5	40	16	25.0	2	M90x2P	40	43	110	171.4	81	M90x2P
BBC212	A2-11(A2-8)	45.6	12.6	8.0	-15.0	50	21	28.0	2	M115x2P	50	51	129	171.4	106	M115x2P
BBC215	A2-15(A2-11)	43.6	16.6	8.0	-15.0	62	22	42.5	5	M155x2P	80	66	165	235	142	M155x2P
BBC218	A2-15(A2-11)	55.6	16.6	11.5	-13.0	62	22	38.0	5	M180x3P	48	66	165	171.4	120.0	M180x3P

PERFORMANCE DATA

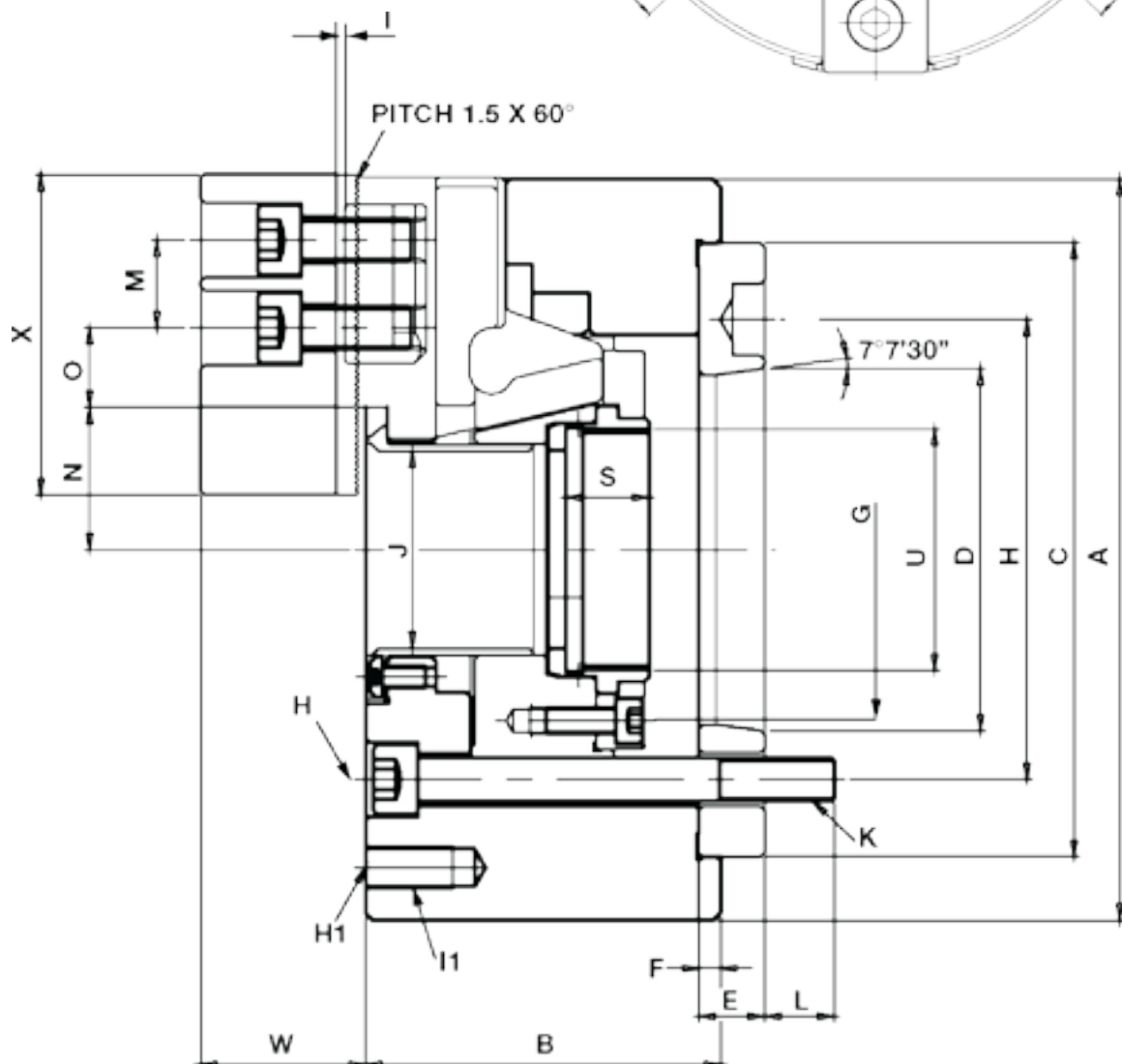
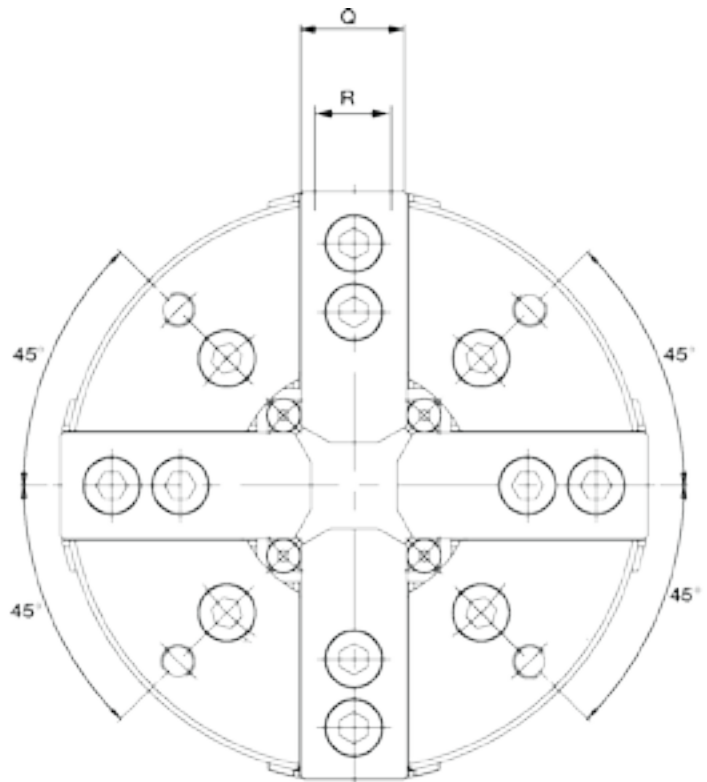
Model	Plunger Stroke	Jaw Stroke Dia.	Max RPM	Weight (kg)	Max. Pull Force (kN)	Max. Grip Force (kN)	Max. Pressure (Mpa)	Gripping Range Min	Gripping Range Max	Matching Cylinder
BBC206	12.0	5.5	6000	13	21.5	58	2.0	13	170	BC1452S
BBC208	16.0	7.4	5000	22	33	86	2.5	50	215	BC1666S
BBC210	19.0	8.8	4200	34	42	109	2.8	34	254	BC1881S
BBC212	23.0	10.6	3400	58	55	143	1.8	50	315	BC2511
BBC215	23.0	10.6	2500	160	71	179	2.5	60	405	BC2816
BBC218	24.5	11.3	2000	165	71	179	2.5	80	455	BC2816

Specially threaded or blank draw nuts available

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified



High Speed Thru Hole 4 Jaw Power Chuck

OPF

Features & Benefits:

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)

HIGH SPEED THRU HOLE 4 JAW POWER CHUCK SPECIFICATIONS A-N

Model	Spindle Nose	A	B	C	D	E	E1	F	G	H	H1	I1	J	K	L	M	N Max.	N Min.
OPF206	A2-5	169	81	140	82.56	15	–	5	116	104.8	145	M10x1.5P	45	M10x1.5P	16	20	32.35	29.60
OPF208	A2-6(A2-5)	210	91	170	106.38	17	23	5	150	133.4	180	M10x1.5P	52	M12x1.75P	18	25	38.70	35.40
OPF210	A2-8(A2-6)	210	100	220	139.72	18	28	5	190	171.4	225	M12x1.75P	75	M16x2P	19	30	51.50	47.10
OPF212	A2-8(A2-6)	304	110	220	139.72	18	–	6	190	171.4	250	M12x1.75P	91	M16x2P	25	30	61.60	56.30
OPF215	A2-11(A2-8)	381	133	300	196.87	22	33	6	260	235	324	M12x1.75P	117.5	M20x2.5P	28	43	82.30	77.00
OPF218	A2-11(A2-8)	450	133	300	196.87	22	33	6	260	235	300	M12x1.75P	120	M20x2.5P	28	43	83.80	78.50

HIGH SPEED THRU HOLE 4 JAW POWER CHUCK SPECIFICATIONS O-Y

Model	Spindle Nose	O Max.	O Min.	P Max.	P Min.	Q	R	S	T	U	V	W	X	Y	Thru-Hole Dia.	Draw Tube Thread
OPF206	A2-5	24	7.0	11.0	-1	31	12	19.0	2	M55x2P	20	37.5	73	–	45.0	M55x2P
OPF208	A2-6(A2-5)	30	10.0	14.5	-1.5	35	14	20.5	2	M60x2P	30	39.5	95	104.8	52.0	M60x2P
OPF210	A2-8(A2-6)	34	12.0	8.5	-10.5	40	16	25.0	2	M85x2P	45	43.0	110	133.4	75.0	M85x2P
OPF212	A2-8(A2-6)	46	12.0	8.0	-15	50	21	28.0	2	M100x2P	50	51.0	129	–	91.0	M100x2P
OPF215	A2-11(A2-8)	46	13.0	7.0	-16	62	22	42.5	5	M130x2P	48	66.5	165	171.4	117.5	M130x2P
OPF218	A2-11(A2-8)	78	16.5	7.0	-16	62	22	42.5	5	M130x2P	48	66.5	165	171.4	120.0	M130x2P

PERFORMANCE DATA

Model	Plunger Stroke	Jaw Stroke Dia.	Max RPM	Weight (kg)	Max. Pull Force (kN)	Max. Grip Force (kN)	Max. Pressure (Mpa)	Gripping Range Min	Gripping Range Max	Matching Cylinder
OPF206	12	5.5	4500	15	16	41	2.1	22	169	BC1246
OPF208	16	7.4	3600	25	24	59	1.9	25	210	BC1552
OPF210	19	8.8	3200	38	31	79	2.0	28	254	BC1875
OPF212	23	10.6	2500	61	40	102	2.0	35	304	BC2091
OPF215	23	10.6	1800	112	53	134	1.9	63	381	BC2511
OPF218	23	10.6	1500	165	53	134	1.9	80	450	BC2511

Specially threaded or blank draw nuts available

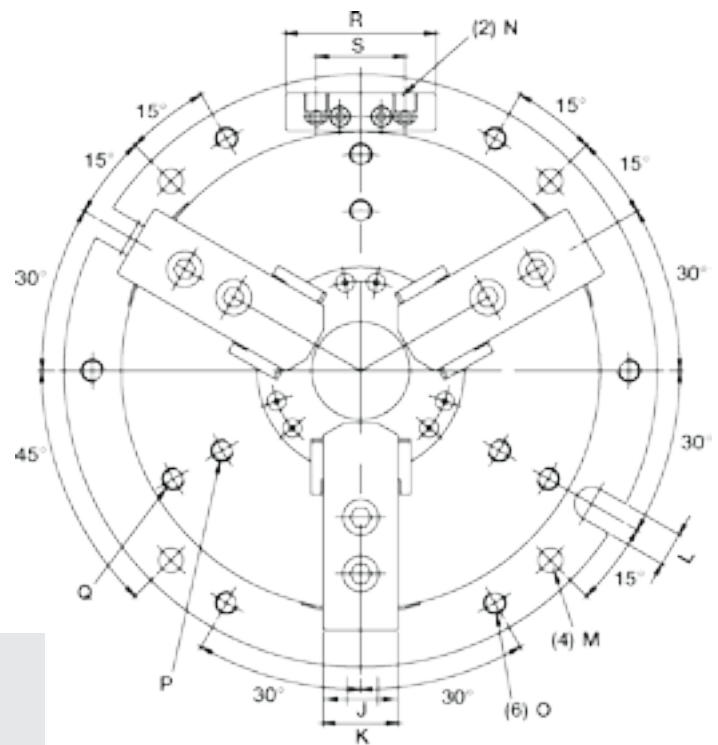
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified



Also available in 2 and 4 jaw styles.

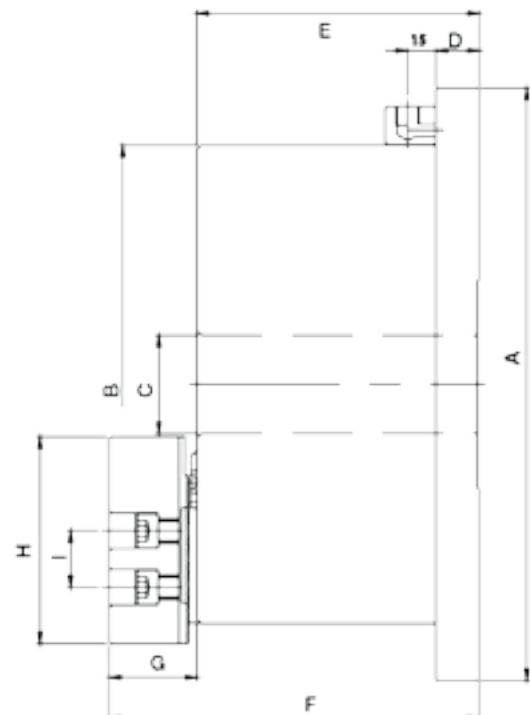


Features And Benefits:

- Flange bottom allows chuck to be easily fixed on a plate for quick changeovers
- Built-in cylinder allows for better stability and takes up less space, which allows for higher machining efficiency
- Chuck can be controlled by M-code for use in an auto loading system
- Master jaws with 1.5 mm X 60° pitch enables hard and soft jaw interchangeability with CNC lathe chucks, allowing reduction in cost of spare jaws
- Dust-proof and water-resistant structure increases chuck life and efficiency
- Includes one set of soft top jaws (as shown)

Optional Accessories

- Pneumatic Switch
- Manual switch



Stationary 3 Jaw Hydraulic/Pneumatic Power Chuck

MO

SPECIFICATIONS											
Model	A	B	C	D	E	F	G	H	I	J	K
M0-04	155	115	–	15	77.5	103.5	26	49.5	14	10	23
M0-05	185	135	–	15	95	128	33	62	14	10	25
M0-06	224	169	25	16	118	158	40	73	20	12	31
M0-08	265	210	30	20	138	180	42	95	25	14	35
M0-10	315	254	52	23	150	196	46	110	30	16	40
M0-12	375	304	80	23	165	219	54	129	30	21	50

SPECIFICATIONS								
Model	L	M	N	O	P	Q	R	S
M0-04	13	165	PT1/8	M8x1.25P	–	–	64	47
M0-05	13	135	PT1/4	M8x1.25P	M8x1.25P	–	80	47
M0-06	18	202	PT1/4	M10x1.5P	M8x1.25P	–	80	47
M0-08	18	243	PT1/4	M10x1.5P	M10x1.5P	M10x1.5P	80	47
M0-10	18	285	PT1/4	M12x1.75P	M12x1.75P	M12x1.75P	80	47
M0-12	18	340	PT3/8	M16x2P	M12x1.75P	M12x1.75P	80	55

PERFORMANCE DATA									
Model	Piston Area (cm ²)	Plunger Stroke	Jaw Stroke Dia.	Max. Grip Force (kN)	Max. Hydr. Pressure (Mpa)	Gripping Force at Air Pressure 0.7Mpa in kN	Gross Weight (kg)	Gripping Range	
								Min	Max
M0-04	57	9	3.8	23.5	1.5	10.8	8	9	115
M0-05	74	10	5.4	32.2	2.0	12.7	12	12	135
M0-06	97	12	5.5	49.4	2.0	19.6	21	15	169
M0-08	156	16	7.4	79.4	2.0	32.3	37	20	210
M0-10	235	19	8.8	119.7	2.0	47.0	57	33	254
M0-12	292	23	10.6	142.1	2.0	50.0	89	40	304

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

BPC, BBC, OPF and MO Replacement Top Jaws

Hard Jaws

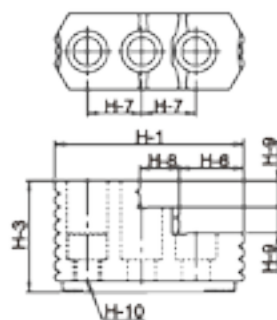


FIG. 1

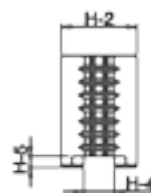
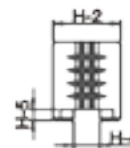
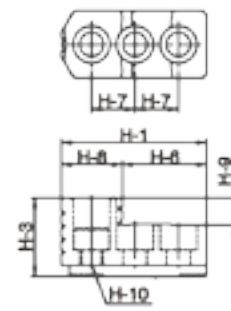


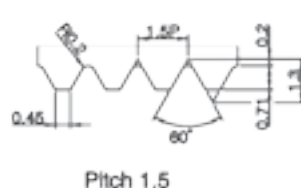
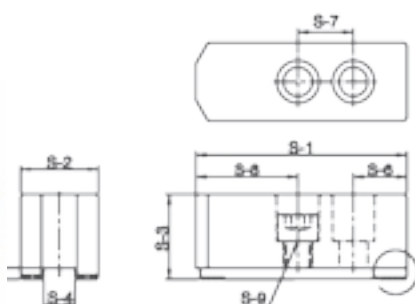
FIG. 2



HARD JAW SPECIFICATIONS

Chuck Size	Part No.	H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	H-9	H-10	Serration Pitch	Weight (kg)	Reference Drawing
110	HJ-04	53	23	28	10	4	29	14	24	10	M8x1.25P	1.5 x 60	1	Fig-2
135	HJ-05	53	23	28	10	4	29	14	24	10	M8x1.25P	1.5 x 60	1	Fig-2
169	HJ-06	67	31	36	12	5	39	20	28	12	M10x1.5P	1.5 x 60	1	Fig-2
210	HJ-08	87	35	51	14	5	29.5	25	18	12	M12x1.75P	1.5 x 60	2	Fig-1
254	HJ-10	101	40	54	16	5	45.5	30	18	13	M12x1.75P	1.5 x 60	3	Fig-1
304	HJ-12	108	50	67	21(18)	4(5)	49	30	20	16	M16x2P(M14x2P)	1.5 x 60	4	Fig-1
381	HJ-15	143	62	86	22(25.5)	8(5)	55	43	38	20	M20x2.5P	1.5 x 60	10	Fig-1
450	HJ-18	143	62	86	22(25.5)	8(5)	55	43	38	20	M20x2.5P	1.5 x 60	10	Fig-1
530	HJ-21	159.5	80	90	25	9	97.5	50	62	40	M20x2.5P	3.0 x 60	16	Fig-2
630	HJ-24	159.5	80	90	25	9	97.5	50	62	40	M20x2.5P	3.0 x 60	16	Fig-2
	HJ-32	159.5	80	90	25	9	97.5	50	62	40	M20x2.5P	3 x 60	16	Fig-2

Soft Jaws



Pitch 1.5



Pitch 3.0

SOFT JAW SPECIFICATIONS

Chuck Size	Part No.	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	Serration Pitch	Weight (kg)
110	SJ-04	49.5	23	23	10	4.5	10	14	25.5	M8x1.25P	1.5 x 60	1
135	SJ-05	62	25	30	10	4.5	10	14	38	M8 x1.25P	1.5 x 60	1
169	SJ-06	73	31	36	12	5	15	20	38	M10 x1.5P	1.5 x 60	2
210	SJ-08	95	35	38	14	5	24	25	46	M12x1.75P	1.5 x 60	3
254	SJ-10	110	40	42	16	5	30	30	50	M12x1.75P	1.5 x 60	4
304	SJ-12	129	50	50	21(18)	6	39	30	60	M16x2P(M14x2P)	1.5 x 60	7
381	SJ-15	165	62	62	22(25.5)	8(5)	37	43	85	M20x2.5P	1.5 x 60	13
450	SJ-18	165	62	62	22(25.5)	8(5)	37	43	85	M20x2.5P	1.5 x 60	13
530	SJ-21	180	65	70	25	9	40	60	80	M20x2.5P	3.0 x 60	13
630	SJ-24	180	65	70	25	9	40	60	80	M20x2.5P	3.0 x 60	17
800	SJ-32	180	65	70	25	9	40	60	80	M20x2.5P	3.0 x 60	17

Manually Operated Chucks

FORKARDT™

Manually Operated Chucks



Available in sizes 125 to 630mm

F+ Manual Quick Change Three Jaw Wedge Hook Chuck

Ideal for

- Bar work
- High grip force applications

Key Features

- Quick change jaw system
- High grip force
- Lightweight for high speeds

PSA Manual Quick Change Four Jaw Independent Chuck

Ideal for

- Cylindrical work pieces
- Square or irregular shaped workpieces

Key Features

- Individually adjustable jaws
- Quick change jaw design



Available in sizes 400 to 630mm



Available in 3, 4 and 6 jaw designs in sizes 1100 to 500mm. Larger sizes available.

Buck Manual Scroll Chuck

Ideal for

- Bar work
- General machining operations

Key Features

- Adjust-Tru[®] for high precision and repeatability
- Self-centering operation

3 Jaw Quick Change Wedge Block Chuck



The ORIGINAL Wedge Block Chuck F+ Quick Change Manual Wedge Block Chuck

The F+ manual three jaw wedge block chuck is based on the wedge block principle pioneered by Forkardt. It features a true quick change jaw feature, and its standard mounting features make it suitable for all types of lathes. Internal components are easily changed by the users, making the F+ robust with a long service life.

The F+ manual chuck shares the same jaw style as the FNC power chuck and offers a wide variety of jaw options. The base jaws are DIN standard and top tooling is interchangeable with other DIN style manual and power chucks. The F+ has a large thru-hole, making it ideal for bar work.

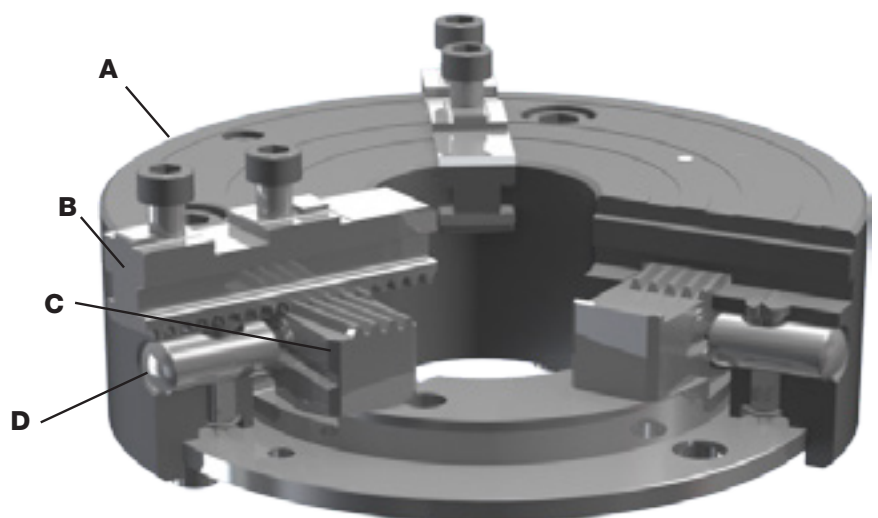


Features & Benefits

- Hardened chuck body for maximum precision and service life
- Internal components constructed of high quality steel to provide maximum gripping force
- Large thru-hole for bar work
- Top jaw styles available for a wide range of applications
- Quick change jaw feature reduces changeover times
- High repeatability
- High rotating speed due to light weight of jaws
- Backlash free mechanism for maximum accuracy
- Wedge hook design reduces accumulation of chips

Structure and Function

- A. Chuck body is hardened for maximum precision and service life
- B. Base jaws designed with minimum weight to increase maximum rotating speed
- C. Wedge blocks work at right angles to the chuck jaws to allow for quick release for fast jaw changeover
- D. Jaw lock units act as buttons to release the base jaw from the wedge block for quick changeover of the jaws



The Wedge Block Principle

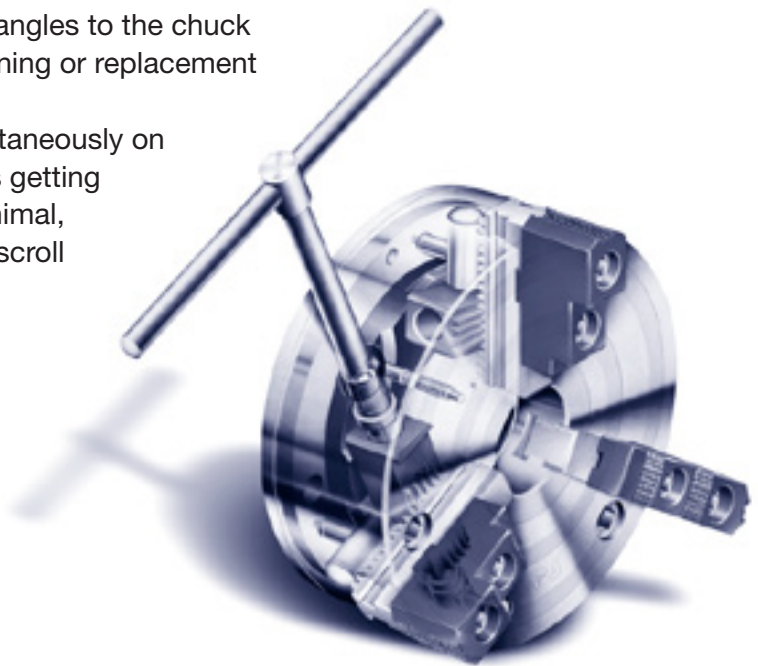
The heart of the F+ Manual three jaw chuck is the wedge block drive of the chuck jaws. In the chuck body, behind each base jaw is a wedge block which moves laterally to the jaw. It engages with an inclined module in the teeth on the end of the jaw. When the wedge blocks move, the jaws make a clamping movement inwards or outwards, depending on the direction the wedge blocks move.

The exact synchronization of the three wedge blocks is ensured by the transmission ring located under the blocks. This ring has three radial grooves in which the slide block on the journal of each wedge block engages.

One of the three wedge blocks is driven by the threaded spindle in the chuck body. To actuate the chuck, a key is placed into the spindle's square drive.

There are four major benefits to the wedge block design:

1. The mechanical elements are backlash-free, even under heavy load, thus guaranteeing the highest precision.
2. The grip force is always transmitted via generously dimensioned surfaces (no point or linear contact), guaranteeing maximum load bearing strength and resistance to wear.
3. The movement of the wedge block at right angles to the chuck jaws releases the jaws for repositioning, turning or replacement after a short disengagement stroke.
4. As each jaw is moved individually but simultaneously on their own wedge block, the chance of chips getting into the chuck and causing it to seize is minimal, offering a great advantage over a standard scroll chuck design.



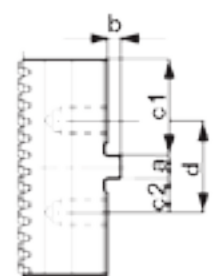
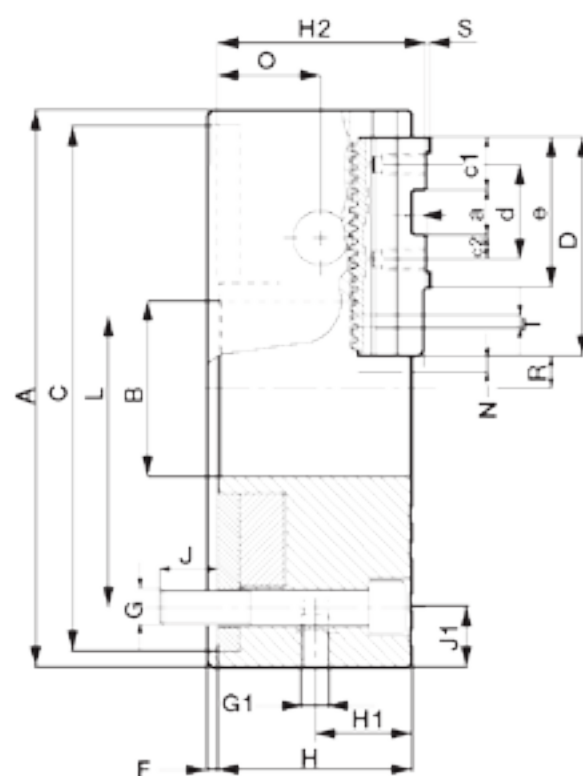
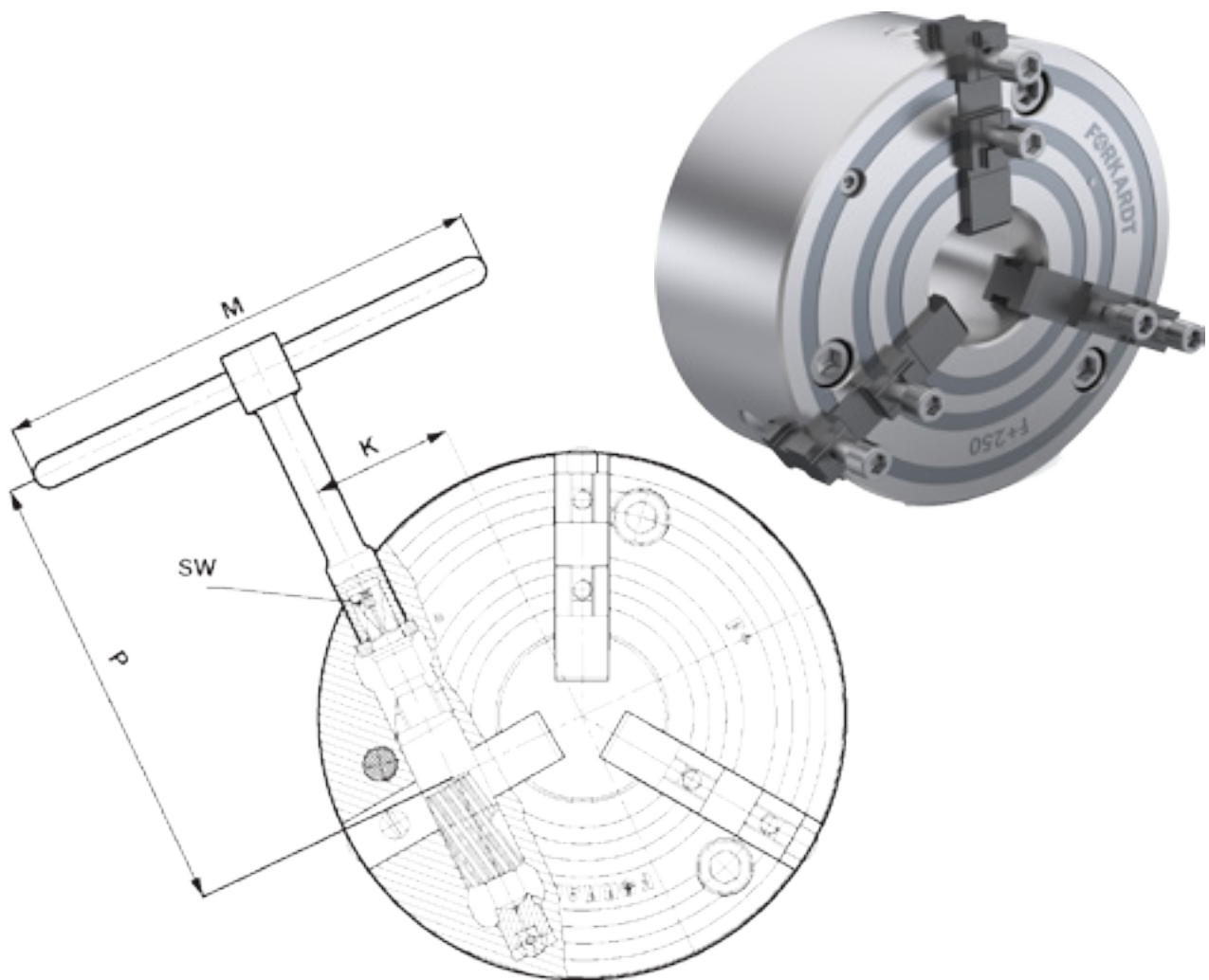
3 Jaw Quick Change Wedge Block Chuck



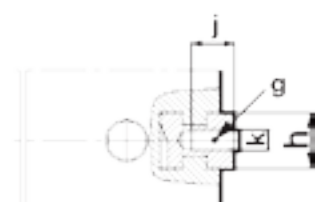
F+ Part Numbers

		Chuck with FSTB Jaws	Chuck with FMB and FHB Jaws	Chuck with FMB Jaws
Chuck Type	Spindle Type	Part Nos.		
F+125	Z	D164662Z00B	-	D164662Z00D
	J3	D164662J03B	-	D164662J03D
	J4	D164662J04B	-	D164662J04D
	J5	D164662J05B	-	D164662J05D
	D3	D164662D03B	-	D164662D03D
	D4	D164662D04B	-	D164662D04D
F+160	Z	D164663Z00B	D164663Z00E	D164663Z00D
	J4	D164663J04B	D164663J04E	D164663J04D
	J5	D164663J05B	D164663J05E	D164663J05D
	J6	D164663J06B	D164663J06E	D164663J06D
	D3	D164663D03B	D164663D03E	D164663D03D
	D4	D164663D04B	D164663D04E	D164663D04D
	D5	D164663D05B	D164663D05E	D164663D05D
	D6	D164663D06B	D164663D06E	D164663D06D
	D8	D164663D08B	D164663D08E	D164663D08D
F+200	Z	D164664Z00B	D164664Z00E	D164664Z00D
	J4	D164664J04B	D164664J04E	D164664J04D
	J5	D164664J05B	D164664J05E	D164664J05D
	J6	D164664J06B	D164664J06E	D164664J06D
	J8	D164664J08B	D164664J08E	D164664J08D
	D4	D164664D04B	D164664D04E	D164664D04D
	D5	D164664D05B	D164664D05E	D164664D05D
	D6	D164664D06B	D164664D06E	D164664D06D
	D8	D164664D08B	D164664D08E	D164664D08D
F+250	Z	D164665Z00B	D164665Z00E	D164665Z00D
	J4	D164665J04B	D164665J04E	D164665J04D
	J5	D164665J05B	D164665J05E	D164665J05D
	J6	D164665J06B	D164665J06E	D164665J06D
	J8	D164665J08B	D164665J08E	D164665J08D
	J11	D164665J11B	D164665J11E	D164665J11D
	D4	D164665D04B	D164665D04E	D164665D04D
	D5	D164665D05B	D164665D05E	D164665D05D
	D6	D164665D06B	D164665D06E	D164665D06D
	D8	D164665D08B	D164665D08E	D164665D08D

		Chuck with FSTB Jaws	Chuck with FMB and FHB Jaws	Chuck with FMB Jaws
Chuck Type	Spindle Type	Part Nos.		
F+315	Z	D164666Z00B	D164666Z00E	D164666Z00D
	J6	D164666J06B	D164666J06E	D164666J06D
	J8	D164666J08B	D164666J08E	D164666J08D
	J11	D164666J11B	D164666J11E	D164666J11D
	D6	D164666D06B	D164666D06E	D164666D06D
	D8	D164666D08B	D164666D08E	D164666D08D
	D11	D164666D11B	D164666D11E	D164666D11D
F+400	Z	D164667Z00B	D164667Z00E	D164667Z00D
	J6	D164667J06B	D164667J06E	D164667J06D
	J8	D164667J08B	D164667J08E	D164667J08D
	J11	D164667J11B	D164667J11E	D164667J11D
	J15	D164667J15B	D164667J15E	D164667J15D
	D6	D164667D06B	D164667D06E	D164667D06D
	D8	D164667D08B	D164667D08E	D164667D08D
	D11	D164667D11B	D164667D11E	D164667D11D
	D15	D164667D15B	D164667D15E	D164667D15D
F+500	Z	D164668Z00B	D164668Z00E	D164668Z00D
	J8	D164668J08B	D164668J08E	D164668J08D
	J11	D164668J11B	D164668J11E	D164668J11D
	J15	D164668J15B	D164668J15E	D164668J15D
	D8	D164668D08B	D164668D08E	D164668D08D
	D11	D164668D11B	D164668D11E	D164668D11D
	D15	D164668D15B	D164668D15E	D164668D15D
F+630	Z	-	D164669Z00E	D164669Z00D
	J11	-	D164669J11E	D164669J11D
	J15	-	D164669J15E	D164669J15D
	D11	-	D164669D11E	D164669D11D
	D15	-	D164669D15E	D164669D15D



Base Jaw F+125



3 Jaw Quick Change Wedge Block Chuck



F+ Performance Data

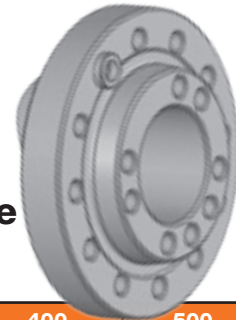
	Max Grip Force	Max Actuating Force	Max RPM	Weight with Jaws
	kN	Nm	min-1	kg
F+125	37	40	6,000	3.7
F+160	80	80	5,200	8.6
F+200	120	120	4,600	18.5
F+250	175	190	4,000	32.5
F+315	215	210	3,200	62
F+400	234	260	2,200	102
F+500	234	260	1,500	159
F+630	280	315	1,000	293

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

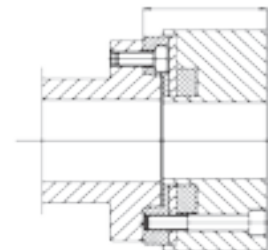
			125	160	200	250	315	400	500	630
Chuck Size	A	mm	125	161	206	255	318	400	500	630
Bore	B ^{+0.1}	mm	35	45	55	75	100	130	180	270
Mounting Recess	C ^{H6}	mm	115	145	185	235	300	380	460	580
Jaw Connection			F125	F160	F200	F250	F315	F400	F400	F630
Base Jaw Length	D	mm	47	74	90	110	125	160	160	230
Height of Mounting Recess	F	mm	4	5	5	6	6	6	6	6
Mounting Bolts	G	mm	3xM8	3xM10	3xM12	3xM16	3xM20	3xM24	3xM24	3xM24
Eye-Bolt Thread	G1	mm	-	-	-	-	M16	M16	M16	M20
Chuck Height	H	mm	46.5	63	81.3	92	111	118	119	143
Clearance	H1	mm	-	-	-	-	55	55	55	70
Clearance	H2	mm	53.1	69	88	99	119	129	130	155
Thread Length	J	mm	11	13	18	27	33	34	34	34
Thread Depth	J1	mm	-	-	-	-	30	30	30	35
Center Distance of Chuck Key	K	mm	33	43	54	67	86	111	153.5	196
Bolt Circle Diameter	L	mm	100	125	160	200	250	315	235*/400	330.2*/520
Lever Length	M	mm	150	200	280	450	500	600	600	710
Jaw Stroke	N	mm	4.8	6.3	6.8	7.5	9.6	12	12	14.1
Clearance	O	mm	22.5	31.5	43	47	59	57.5	58.5	72
Distance Of Lever	P	mm	115	180	210	300	310	360	520	570
Position Of Base Jaw	R min	mm	9.2	12.1	13.2	14.8	18.7	24.7	41.6	33.4
	R max	mm	23.6	31.5	42.6	51	68	93.1	135.7	169.8
Dimension	S	mm	-	2.5	3	3	3	4	4	4
Width Across Flats	SW	mm	8	10	12	14	16	19	19	24
Serration Pitch	T	mm	3.6	4.8	4.8	6	7	8.5	8.5	8.5
Angle A°			6°36'	6°36'	3°	4°30'	4°30'	4°30'	4°30'	4°30'
Angle B°			21°36'	21°36'	18°	19°30'	16°30'	19°30'	14°30'	69°30'
Sloth Width	a	mm	5	18	20	20	26	30	30	40
Sloth Depth	b	mm	3	5	6	6	8	9	9	9
Dimension	c1	mm	21	19	23	26	30	35	35	52
Dimension	c2	mm	7.5	7	10	10	14	15	15	21
Hole Spacing	d	mm	20	32	40	40	54	60	60	82
Length	e	mm	47	56	67	73	86	103	103	145
Thread	g	mm	M6	M8x1	M8x1	M12x1.5	M12x1.5	M16x1.5	M16x1.5	M20
Jaw Width	h	mm	14	20	22	26	32	45	45	65
Thread Depth	j	mm	10	16	20	23	25	30	30	32
Tongue	k	mm	14	8	10	12	12	18	18	24
Chuck Constant	C1	kN	65	111	131	311	391	442	442	562
Chuck Constant	C2	mm	165	260	320	390	440	570	570	820



Plain Back Mount Chuck with Spindle Adapter Flange for Mounting to Style A1/A2, DIN 55026

Spindle Nose	Chuck Size	125	160	200	250	315	400	500	630
3	Type	F125-A3	-	-	-	-	-	-	-
	C1	64.5	-	-	-	-	-	-	-
	Part. No	D1076104000	-	-	-	-	-	-	-
4	Type	F125-A4	F160-A4	F200-A4	-	-	-	-	-
	C1	64.5	81.3	110	-	-	-	-	-
	Part. No	D1070764001	D1070418002	-	-	-	-	-	-
5	Type	-	F160-A5	F200-A5	F250-A5	-	-	-	-
	C1	-	81.3	110	110	-	-	-	-
	Part. No	-	D1070419002	D1070417002	D1070352002	-	-	-	-
6	Type	-	-	F200-A6	F250-A6	F315-A6	-	-	-
	C1	-	-	112	112	136	-	-	-
	Part. No	-	-	D1070421002	D1070353002	D1070363002	-	-	-
8	Type	-	-	-	F250-A8	F315-A8	F400-A8	F500L-A8	-
	C1	-	-	-	117	136	148	154	-
	Part. No	-	-	-	D1070424002	D1070376002	D1070427102	D1070754002	-
11	Type	-	-	-	-	F315-A11	F400-A11	F500L-A11	F630-A11
	C1	-	-	-	-	143	150	154	183
	Part. No	-	-	-	-	D1070375002	D1070428002	—	D107043100
15	Type	-	-	-	-	-	-	F500L-A15	F630-J15
	C1	-	-	-	-	-	-	159	167
	Part. No	-	-	-	-	-	-	D1070755002	-

C1



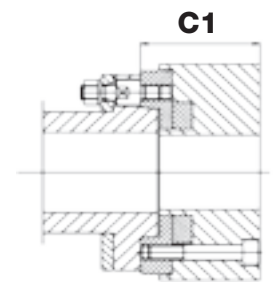
Chuck Key

A special key for locking and unlocking of the transmission jaws for chuck actuation is supplied with your chuck. Replacement keys are available for purchase.

Chuck Size	Key Part No.
125	D180412000
160	D180413000
200	D180414000
250	D180415000
315	D180416000
400	D180417000
500	D180418000
630	D180419000

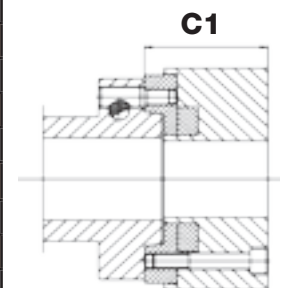
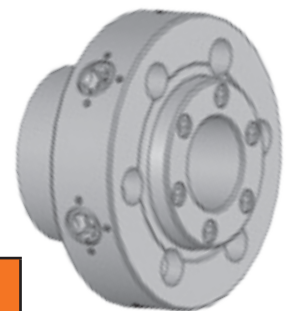
Direct Mount Chuck Bayonet Type J, 55027

Spindle Nose	Chuck Size	125	160	200	250	315	400	500	630
3	Type	F125-J3	-	-	-	-	-	-	-
	C1	59.5	-	-	-	-	-	-	-
4	Type	F125-J4	F160-J4	F200-J4	-	-	-	-	-
	C1	59.5	75.3	93.3	-	-	-	-	-
5	Type	F125-J5	F160-J5	F200-J5	F250-J5	-	-	-	-
	C1	66.5	79.3	95.3	107	-	-	-	-
6	Type	-	F160-J6	F200-J6	F250-J6	F315-J6	-	-	-
	C1	-	85.3	97.3	108	128	-	-	-
8	Type	-	-	F200-J8	F250-J8	F315-J8	F400-J8	F500L-J8	-
	C1	-	-	108.3	110	130	138	138	-
11	Type	-	-	-	-	F315-J11	F400-J11	F500L-J11	F630-J1
	C1	-	-	-	-	133	138	138	165
15	Type	-	-	-	-	-	-	F500L-J15	F630-J1
	C1	-	-	-	-	-	-	145	167

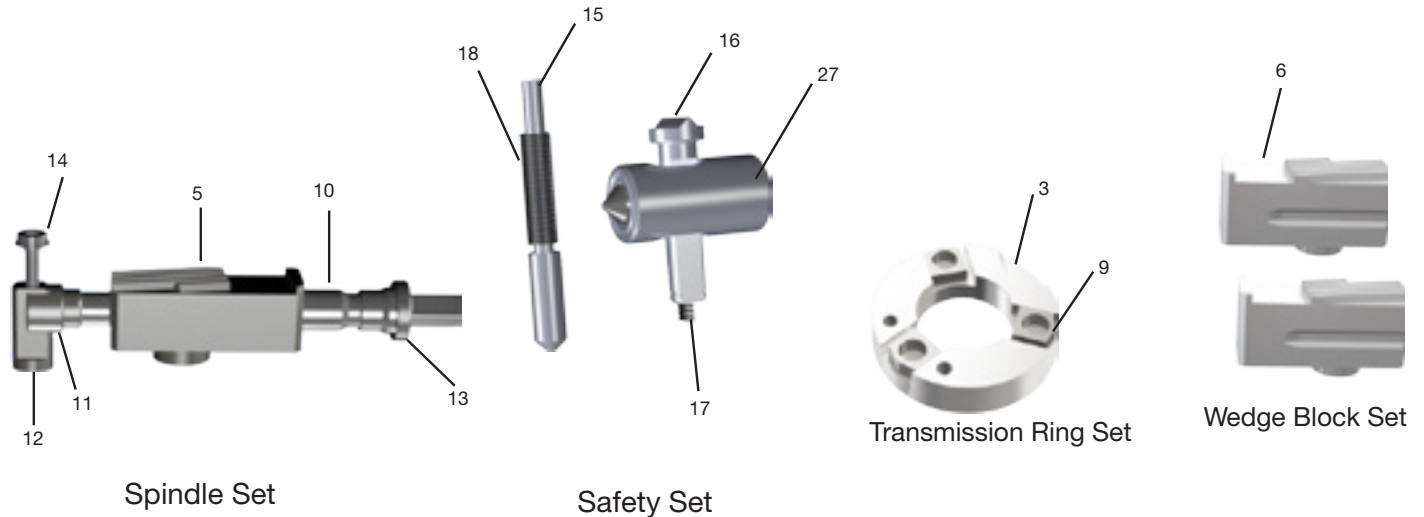


Direct Mount Chuck Cam-Lock Type D1, DIN 55029

Spindle Nose	Chuck Size	125	160	200	250	315	400	500	630
3	Type	F125-D3	-	-	-	-	-	-	-
	C1	66.5	-	-	-	-	-	-	-
4	Type	F125-D4	F160-D4	F200-D4	-	-	-	-	-
	C1	67.5	85.3	99.3	-	-	-	-	-
5	Type	-	F160-D5	F200-D5	F250-D5	-	-	-	-
	C1	-	87.3	101.3	112	-	-	-	-
6	Type	-	F160-D6	F200-D6	F250-D6	F315-D6	-	-	-
	C1	-	103.3	106.3	117	146	-	-	-
8	Type	-	-	-	F250-D8	F315-D8	F400-D8	F500L-D8	-
	C1	-	-	-	122	138	143	143	-
11	Type	-	-	-	-	F315-D11	F400-D11	F500L-D11	F630-D11
	C1	-	-	-	-	143	148	148	170
15	Type	-	-	-	-	-	-	F500L-D15	F630-D15
	C1	-	-	-	-	-	-	153	175



Forkardt F+ Chucks are built to last and designed to be maintained on the shop floor by maintenance personnel with replacement of key components.



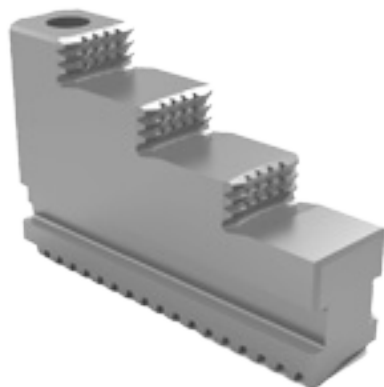
Spindle Set			Kit Number by Chuck Size							
Key	Description	Qty	125	160	200	250	315	400	500	630
5	Threaded Wedge Block	1	D164662600 Does not contain Keys 39 or 41	D164663600 Does not Contain Key 41	D164664600	D164665600	D164666600	D164667600	D164668600	D164669600
10	Operating Screw	1								
11	Thrust Bolt	1								
12	Stop Screw	1								
13	Thrust Ring	1								
14	Retaining Stud	1								
39	Grease Nipple (not shown)	1								
41	Toothed Washer (not shown)	1								

Safety Set			Kit Number by Chuck Size							
Key	Description	Qty	125	160	200	250	315	400	500	630
15	Indicator Pin	1	D164662601 Does not contain Keys 27 or 40	D164663601	D164664601	D164665601	D164666601	D164667601	D164668601	D164669601
16	Jaw Holder	1								
17	Pressure Spring	1								
18	Indicator Spring	1								
27	Jaw Lock Unit	1								
40	Circlip (not shown)	1								

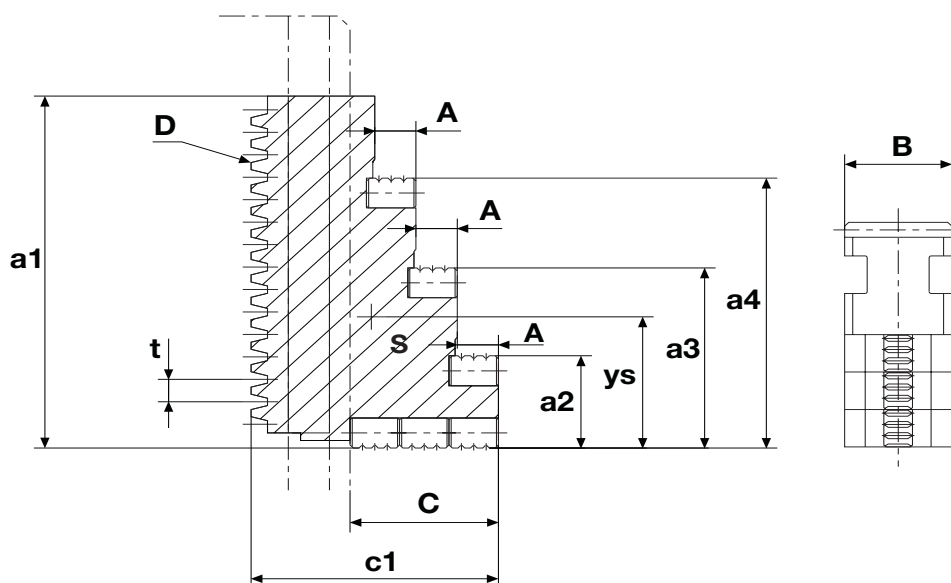
Transmission Ring Set			Kit Number by Chuck Size							
Key	Description	Qty	125	160	200	250	315	400	500	630
3	Transmission Ring	1	D164662603	D164663603	D164664603	D164665603	D164666603	D164667603	D164668603	D164669603
9	Pivot Block	3								

Wedge Block Set			Part Number by Chuck Size							
Key	Description	Qty	125	160	200	250	315	400	500	630
6	Unthreaded Wedge Block	2	D164662602	D164663602	D164664602	D164665602	D164666602	D164667602	D164668602	D164669602

FSTB Hardened Solid One Piece Jaws

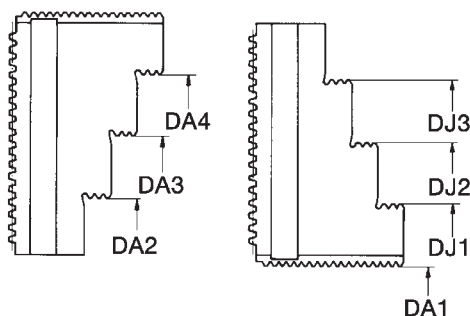


One-piece FSTB stepped jaws are hardened jaws with serrated gripping surfaces to increase the grip between the chuck jaw and the workpiece. The gripping surfaces are ground in the chuck under gripping force. These jaws are used for gripping unmachined or rough machined workpieces requiring medium cuts.



Chuck Size	Max Swing (dia)	Jaw Style	Nominal Dimension				Part No.	a1	a2	a3	a4	c1	Ys	Weight Per Jaw (kg)
			A	B	C	D								
175 - 42	234	160	7.5	20	24	F160	D1070016633	79	23	43	63	45	35.5	0.350
200 - 45	273	200	10	22	35	F200	D1070021633	94	24	48	72	60	41.0	0.615
250 - 72	346	250	14	26	40	F250	D1070026533	115	39.7	-	79.9	70	53.0	1.090
315 - 82	377	250	14	26	40	F250	D1070026533	115	39.7	-	79.9	70	53.0	1.090
400 - 92	462	315	15	32	46	F315	D1070033533	129	37.5	-	92.8	81	59.0	1.770
500 - 125	586	400	20	45	52	F400	D1070038533	167	52.5	-	113.8	93	75.5	3.600
630 - 125	690	400	20	45	52	F400	D1070038533	167	52.5	-	113.8	93	75.5	3.600

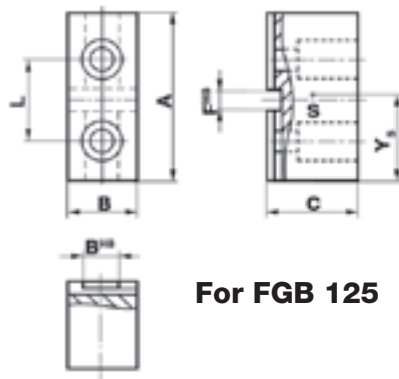
Gripping Ranges for FSTB and FHB Jaws



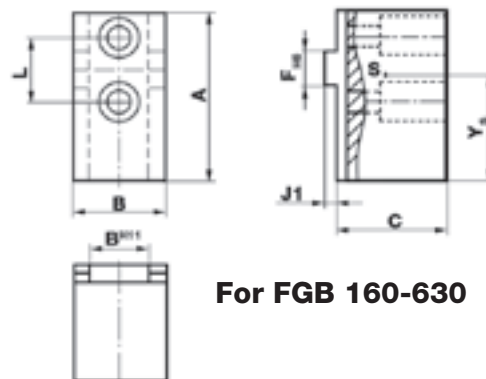
Chuck Size	For External Chucking				For Internal Chucking		
	DA1	DA2	DA3	DA4	DJ1	DJ2	DJ3
175 - 42	8-65	59-108	99-148	138-188	63-112	102-152	142-192
200 - 45	8-76	69-128	116-176	164-224	65-124	113-173	160-220
250 - 72	10-101	96-181	-	175-261	96-182	-	
315 - 82	10-137	96-217	-	175-297	96-218	-	
400 - 92	40-202	106-276	-	216-386	109-278	-	
500 - 125	40-236	150-357	-	272-480	152-367	-	274-480
630 - 125	110-339	150-459	-	272-582	152-460	-	274-582



FWB soft jaws are used for precision gripping of previously machined workpieces which must not be damaged on the gripped surface. These jaws are suitable for light cutting and are turned and ground to suit the shape of the workpiece in the chuck under gripping force. Turned FWB top jaws maintain their precision as long as they are not removed from the base jaw they were ground in.



For FGB 125

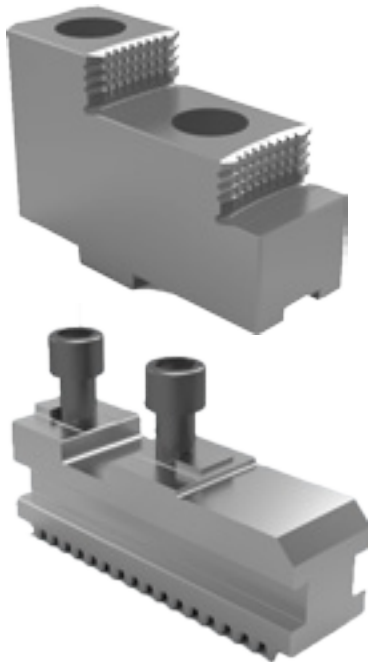


For FGB 160-630

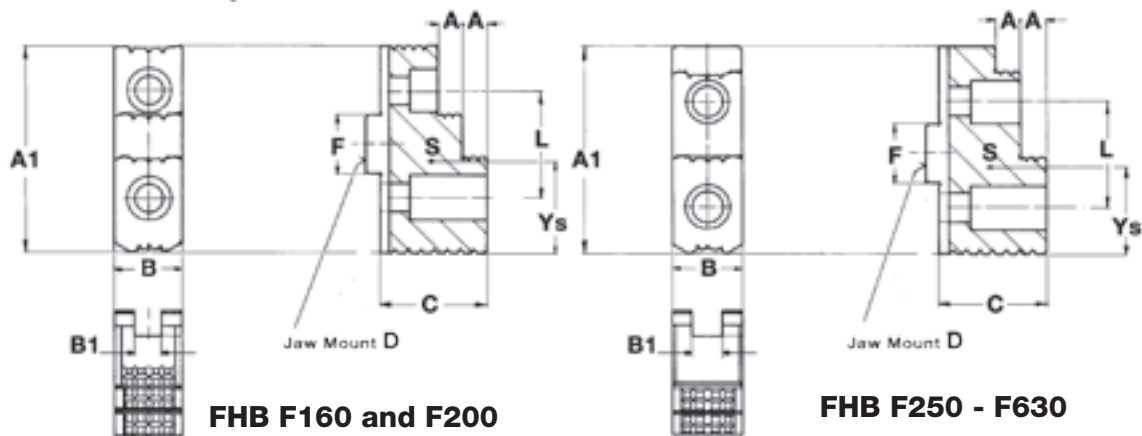
Chuck Size	Jaw Style	Nominal Dimension			Part No.	F	J1	L	Y _s	Weight Per Jaw (kg)
		A	B	C						
175	160	85	20	35	D1070016525	18	4.5	32	43	0.40
200	200	105	25	40	D1070021525	20	5	40	53	0.66
250	250	125	30	55	D1070026425	20	5	40	63.5	1.34
315	250	125	30	55	D1070026425	20	5	40	63.5	1.34
400	315	145	50	54	D1070033425	26	6	54	73.7	2.04
500	400	180	50	80	D1070038425	30	7	60	86.7	4.16
630	400	180	50	80	D1070038425	30	7	60	86.7	4.16

Forkardt offers a wide variety of specially machined top tooling, as well as standard style jaws such as roughing jaws. Please contact our sales office for more information.

FGB Base Jaws with FHB Hard Jaws



The FGB-FHB jaw set is used for gripping unmachined or rough machined workpieces. The hard FHB top jaws have serrated gripping surfaces to increase the grip between the top jaws and the workpiece. The gripping surfaces are ground in the chuck under gripping force in order to increase concentricity. To maintain this concentricity, the top jaw should not be removed from the base jaw.



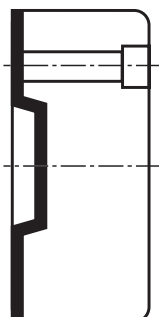
FHB F160 and F200

FHB F250 - F630

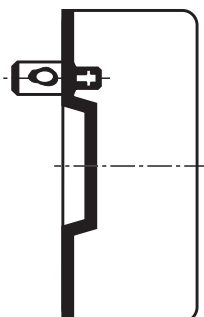
Chuck Size	Max Swing (dia)	Jaw Style	Nominal Dimension						Part No.		A1	B1	Ys	Weight Per Jaw (kg)
			A	B	C	D	F	L	Base Jaw FGB	Top Jaw FHB				
175 - 42	234	160	7.5	20	24	F160	18	32	D180567000	D1070016624	67	8	33.9	0.217
200 - 45	273	200	10	22	35	F200	20	40	D180577000	D1070021624	75	10	40.3	0.340
250 - 72	346	250	14	26	40	F250	20	40	D180588000	D1070026524	90	12	48.5	0.740
315 - 82	377	250	14	26	40	F250	26	54	D180588000	D1070026524	90	12	48.5	0.740
400 - 92	462	315	15	32	46	F315	30	60	D180596000	D1070026524	106	18	55.3	2.240
500 - 125	586	400	20	45	52	F400	40	76	D180606000	D1070038524	128	18	75.5	3.600
630 - 125	690	400	20	45	52	F400	40	82	D180606000	D1070038524	145	24	75.5	3.600

Gripping ranges for FHB jaws can be found on FSTB page.

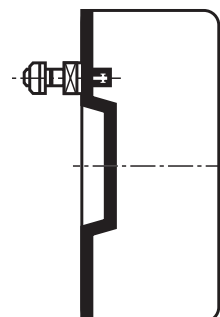
**Front Mount
ASA A1/2 and
DIN 55026**



**Rear Mount
Bayonet Style and
DIN 55027**



**Rear Mount
ASA D1 Cam-lock and DIN
55029**



DIN 55026 and ASA A1/2			DIN 55027 Bayonet Style			DIN 55029 and ASA D1		
Chuck Size	Spindle Size	Part No.	Chuck Size	Spindle Size	Part No.	Chuck Size	Spindle Size	Part No.
400	6	DP 254033120	400	6	DP 254023120	400	6	DP 254013120
400	8	DP 254034120	400	8	DP 254024120	400	8	DP 254014120
400	11	DP 254035120*	400	11	DP 254025120*	400	11	DP 254015120*
450	6	DP 254533120	450	6	DP 254523120	450	6	DP 254513120
450	8	DP 254534120	450	8	DP 254524120	450	8	DP 254514120
450	11	DP 254535120*	450	11	DP 254525120*	450	11	DP 254515120*
500	6	DP 255033120	500	6	DP 255023120	500	6	DP 255013120
500	8	DP 255034120	500	8	DP 255024120	500	8	DP 255014120
500	11	DP 255035120*	500	11	DP 255025120*	500	11	DP 255015120*
560	6	DP 255633120	560	6	DP 255623120	560	6	DP 255613120
560	8	DP 255634120	560	8	DP 255624120	560	8	DP 255614120
560	11	DP 255635120	560	11	DP 255625120	560	11	DP 255615120
610	8	DP 256134120	610	8	DP 256124120	610	8	DP 256114120
610	11	DP 256135120	610	11	DP 256125120	610	11	DP 256115120
630	8	DP 256334120	630	8	DP 256324120	630	8	DP 256314120
630	11	DP 256335120	630	11	DP 256325120	630	11	DP 256315120
710	8	DP 257134120	710	8	DP 257124120	710	8	DP 257114120
710	11	DP 257135120	710	11	DP 257125120	710	11	DP 257115120
800	8	DP 258034120	800	8	DP 258024120	800	8	DP 258014120
800	11	DP 258035120	800	11	DP 258025120	800	11	DP 258015120
800	15	DP 258036120	800	15	DP 258026120	800	15	DP 258016120
800	20	DP 258037120*	800	20	DP 258027120*	800	20	DP 258017120*
900	11	DP 259035120	900	11	DP 259025120	900	11	DP 259015120
900	15	DP 259036120	900	15	DP 259026120	900	15	DP 259016120
1000	11	DP 250035120	1000	11	DP 250025120	1000	11	DP 250015120
1000	15	DP 250036120	1000	15	DP 250026120	1000	15	DP 250016120
1000	20	DP 250037120*	1000	20	DP 250027120*	1000	20	DP 250017120*
1200	11	DP 250235120	1200	11	DP 250225120	1200	11	DP 250215120
1200	15	DP 250236120	1200	15	DP 250226120	1200	15	DP 250216120
1200	20	DP 250237120	1200	20	DP 250227120	1200	20	DP 250217120

Quick Change 4 Jaw Independent Chucks

PSA

The Forkardt Model PSA four jaw independent chucks provide rugged versatility and a quick change jaw system. The four independent jaws can be adjusted individually, making the PSA ideal for both cylindrical and irregular shaped workpieces. The spindle housing and jaws are made from hardened steel, guaranteeing a long service life and high precision.

The jaws are made according to American Standard Tongue and Groove and are equipped with a quick change jaw system. The base jaws are divided with a thread for the adjustable spindle and stepped reversible top jaws. To turn the top jaw on the base jaw, simply release the jaw mounting bolt.



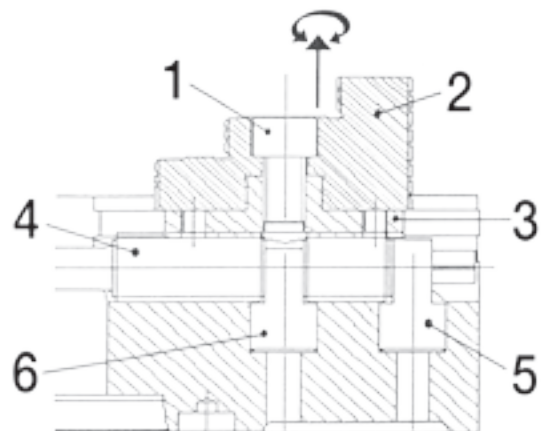
Features & Benefits:

- Individually adjustable jaws allow for high precision
- American Standard Tongue & Groove master jaws allow for a variety of readily available top tooling
- Quick change jaw design allows for faster changeover from ID to OD gripping
- Internal components made from case hardened steel, increasing service life, precision and load bearing capacity

The Quick Change System

The clamping jaws are set into guide slots and are fitted with a split master jaw.

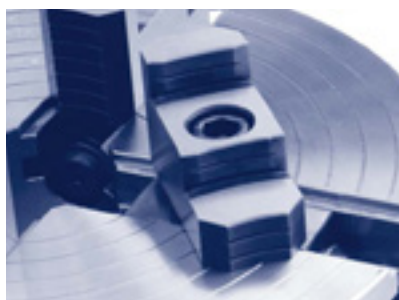
Each jaw consists of a section (3) with cut thread for the operating screw (4) and the three stage top jaw (2). To turn the top jaw (2) on the master jaw (3) you need only to loosen the jaw bolt (1).



Jaw at Starting Position

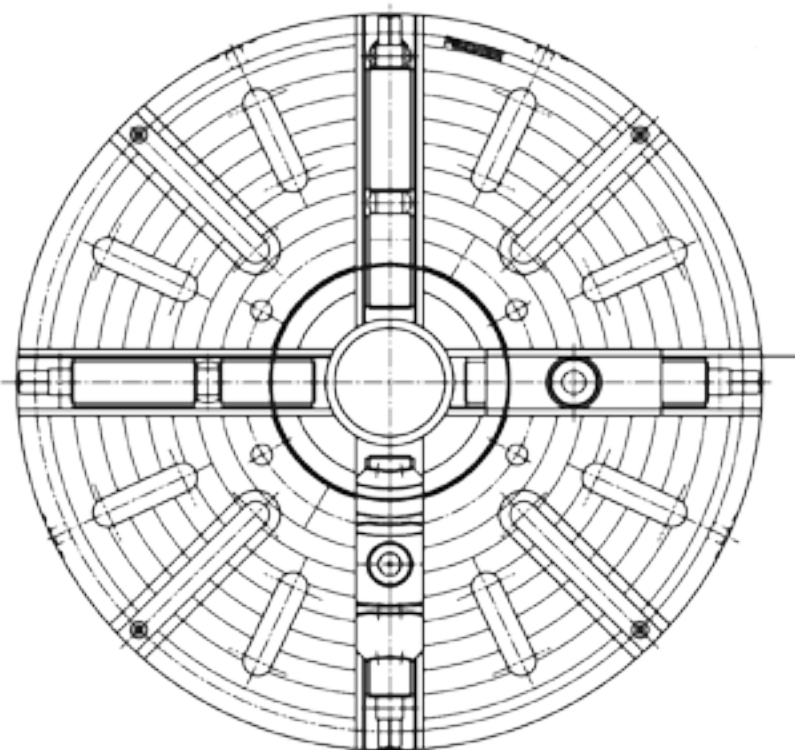
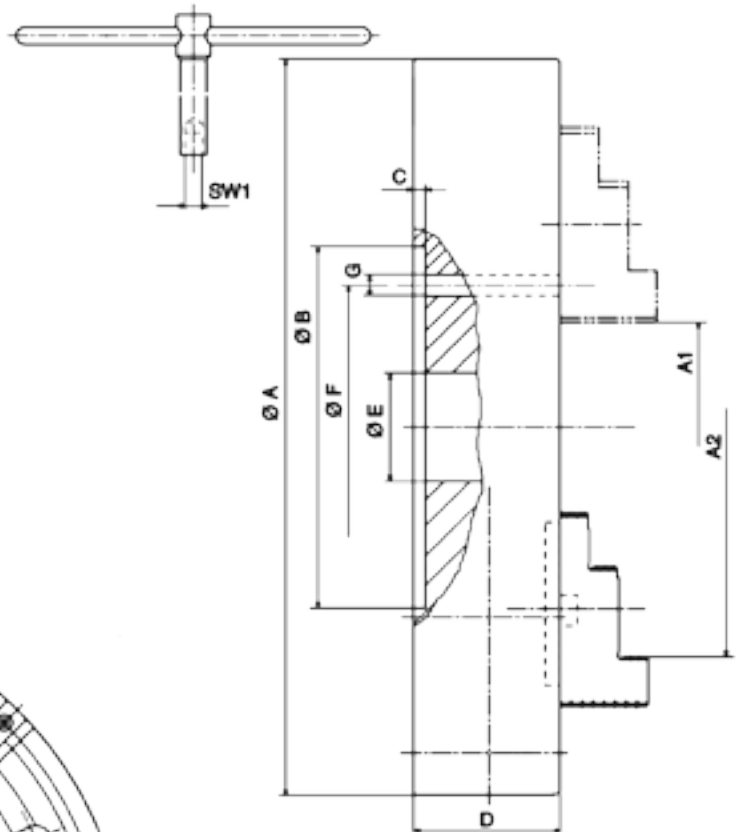


Jaw Being Turned



Jaw at New Position





Quick Change 4 Jaw Independent Chucks

PSA

Dimensions and Performance Specifications										
Chuck Diameter	A	mm	400	450	500	560	610	630	710	710
Mounting Recess Diameter	B	mm	200	200	260	260	260	260	260	370
Mounting Recess Thickness	C	mm	10	10	13	13	13	13	13	13
Chuck Height	D	mm	100	100	110	110	120	120	135	135
Through Hole	E	mm	90	90	90	90	90	90	110	110
Mounting Bolt PCD	F	mm	172	172	220	220	220	220	220	330
Mounting Bolt Size	G		M16	M16	M20	M20	M20	M20	M20	M20
Minimum Clamping OD	A1	mm	40	40	40	40	45	45	50	50
Maximum Clamping ID	A2	mm	400	450	500	560	610	630	710	710
Max Swing Diameter		mm	465	515	580	540	695	715	800	800
Max Torque of Operating Screw		Nm	180	180	250	250	350	350	350	350
Max Clamp Force		kN	126	126	160	160	196	196	196	196
Max RPM		min ⁻¹	1,530	1,360	1,220	1,100	1,020	980	875	875
Weight		kg	58	71	106	111	140	155	187	187
Part Number			DP169250000	DP169250000	DP169254000	DP169920000	DP169930000	DP169937000	DP169944000	DP169945000

Dimensions and Performance Specifications									
Chuck Diameter	A	mm	800	800	900	900	1000	1000	1200
Mounting Recess Diameter	B	mm	260	370	260	370	260	370	370
Mounting Recess Thickness	C	mm	13	13	13	13	13	13	13
Chuck Height	D	mm	135	145	150	150	150	150	160
Through Hole	E	mm	120	120	120	120	120	120	120
Mounting Bolt PCD	F	mm	220	330	220	330	220	330	330
Mounting Bolt Size	G		M20	M20	M20	M20	M20	M20	M20
Minimum Clamping OD	A1	mm	60	60	60	60	60	60	100
Maximum Clamping ID	A2	mm	800	800	900	900	1000	1000	1200
Max Swing Diameter		mm	910	910	1010	1010	1130	1130	1330
Max Torque of Operating Screw		Nm	550	550	550	550	550	550	550
Max Clamp Force		kN	286	286	286	286	286	286	286
Max RPM		min ⁻¹	765	765	680	680	610	610	510
Weight		kg	298	298	380	380	475	475	715
Part Number			DP169955000	DP169956000	DP169966000	DP169967000	DP169974000	DP169975000	DP169982000

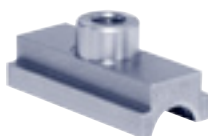
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

Forkardt offers replacement jaws and spare parts to help extend the life of your chuck. Please provide chuck model number when ordering spare parts.

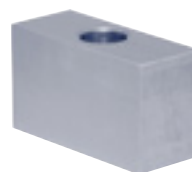
Master Jaw



Hard Top Jaw



Soft Top Jaw



Chuck Size	Part No.	Part No.	Part No.
400	DP 169240015	DP 169247016	DP 240170000
450	DP 169247015	DP 169247016	DP 240170000
500	DP 169586015	DP 169586016	DP 250170000
560	DP 169586015	DP 169586016	DP 250170000
610	DP 169930015	DP 169930016	DP 261170000
630	DP 169930015	DP 169930016	DP 261170000
710	DP 169944015	DP 169944016	DP 271170000
800	DP 169955015	DP 169955016	DP 280170000
900	DP 169955015	DP 169955016	DP 280170000
1000	DP 169974015	DP 169974016	DP 200170000
1200	DP 169974015	DP 169974016	DP 200170000

Operating Screw



Open Thrust Bearing



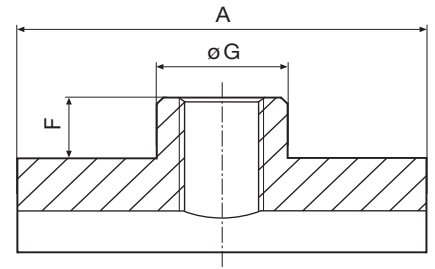
Closed Thrust Bearing



Chuck Key

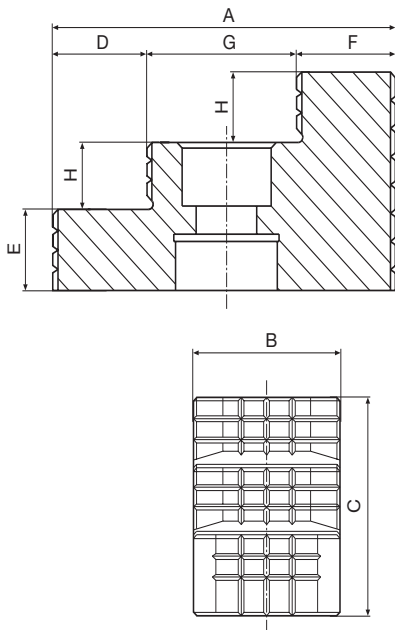
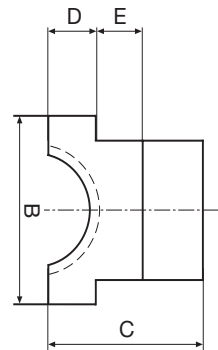


Chuck Size	Part No.	Part No.	Part No.	Part No.
400	DP 169247002	DP 169247004	DP 169247003	DP 169286000
450	DP 169247002	DP 169247004	DP 169247003	DP 169286000
500	DP 169586002	DP 169586004	DP 169247003	DP 169287000
560	DP 169586002	DP 169586004	DP 169586003	DP 169287000
610	DP 169930002	DP 169930004	DP 169586003	DP 169288000
630	DP 169930002	DP 169930004	DP 169930003	DP 169288000
710	DP 169944002	DP 169930004	DP 169930003	DP 169288000
800	DP 169955002	DP 169955004	DP 169930003	DP 169289000
900	DP 169955002	DP 169955004	DP 169955003	DP 169289000
1000	DP 169974002	DP 169974004	DP 169974003	DP 169289000
1200	DP 169974002	DP 169974004	DP 169974003	DP 169289000



Master Jaws

Size (mm)	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
A	100	100	120	120	144	144	165	165	204	204	210	210	210
B	46	46	50	50	55	55	60	60	70	70	75	75	75
C	39.5	39.5	45	45	47.5	47.5	51	51	60	60	62	62	62
D	12	12	14	14	16	16	16	16	16	16	18	18	18
E	12	12	14	14	14	14	16	16	20	20	20	20	20
F	15.5	15.5	17	17	17.5	17.5	19	19	24	24	24	24	24
G	32	32	37	37	40	40	44	44	54	54	54	54	54

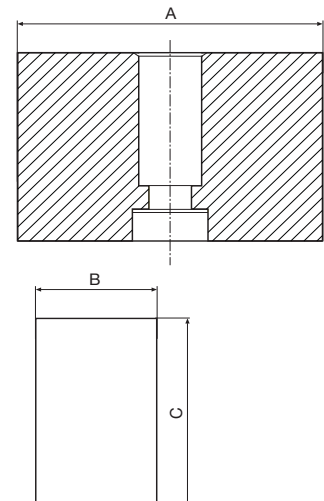


Quick Change Top Jaws

Size (mm)	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
A	107.5	107.5	142	142	161	161	180	180	214	214	224	224	224
B	46	46	50	50	55	55	60	60	70	70	75	75	75
C	62	62	70	70	78	78	84	84	95	95	113	113	113
D	29.5	29.5	42	42	45	45	50	50	60	60	64	64	64
E	24	24	26	26	30	30	32	32	35	35	43	43	43
F	31	31	40	40	41	41	44	44	54	54	59	59	59
G	47	47	60	60	75	75	86	86	100	100	101	101	101
H	19	19	22	22	24	24	26	26	30	30	35	35	35

Unstepped Top Jaws

Size (mm)	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
	16	18	20	22	24	25	28	30	31	35	39	43	48
A	107	107	142	142	161	161	180	180	215	215	224	224	224
B	46	46	50	50	55	55	60	60	70	70	75	75	75
C	62	62	70	70	78	78	84	84	95	95	113	113	113



**The ORIGINAL adjustable scroll chuck that offers
dead true precision and longer chuck life!**



PINION C moves chuck jaws to grip work.

ADJUSTING SCREWS G are used to move
the chuck on its mounting plate.

BUCK Ajust-Tru® Chucks offer dead true precision and guarantee .0005" repeatability on duplicate parts. This precision comes from a built-in .020" clearance between the chuck body cavity and the mounting plate hub. This allows opposing screws ample movement to adjust work accurately.

This adjustment takes less than a minute, and no further adjustment is needed to get precision within .0005" TIR on duplicate parts.

Since the key to Buck Ajust-Tru® Precision is in the way mounting plate clearance is used, it is essential to have the proper mounting plate for your BUCK Chuck. Mountings are available for all standard spindles, and our engineering department can design a plate to fit almost any mounting surface.

Scroll Chucks are available in 3, 4 and 6 jaw styles with
either solid one piece or reversible two piece jaws.
DIN Mount options are also available.



Pneumatic Operated Chucks

FORKARDTTM

Pneumatic Operated Chucks

Forkardt offers a variety of pneumatic chucks and can customize them to suit the application. These air chucks are made with high quality materials and offer high precision and accuracy.



Available in 2 and 3 jaw in sizes from 84 to 250mm

High Precision Turning Air Chuck

Ideal for

- Conventional turning machines

Key Features

- 0.002 mm TIR repeatability

High Precision Grinding Air Chuck

Ideal for

- Use on grinding machines
- Machining of abrasive materials

Key Features

- 0.002 mm TIR repeatability
- Hermetically sealed



Available in 2 and 3 jaw in sizes from 84 to 250mm



Available in 2 and 3 jaw in sizes from 140 to 250mm

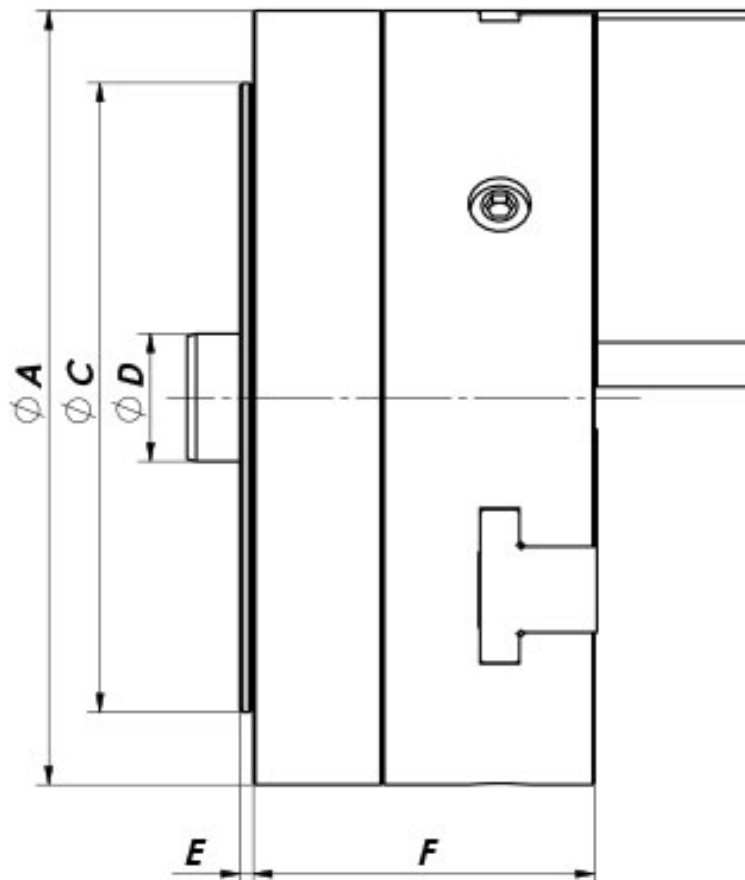
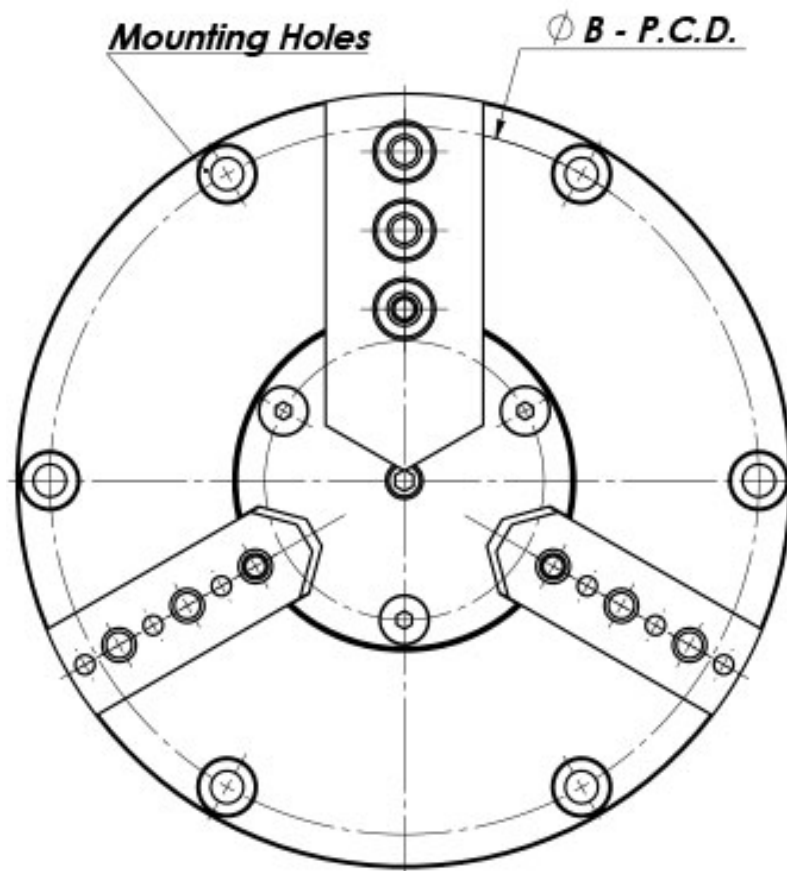
Rotary Table Air Chuck

Ideal for

- Rotary tables
- 4th axis machines

Key Features

- Dustproof & waterproof cover
- Chuck rotates with spindle and air collar remains stationary





Features & Benefits

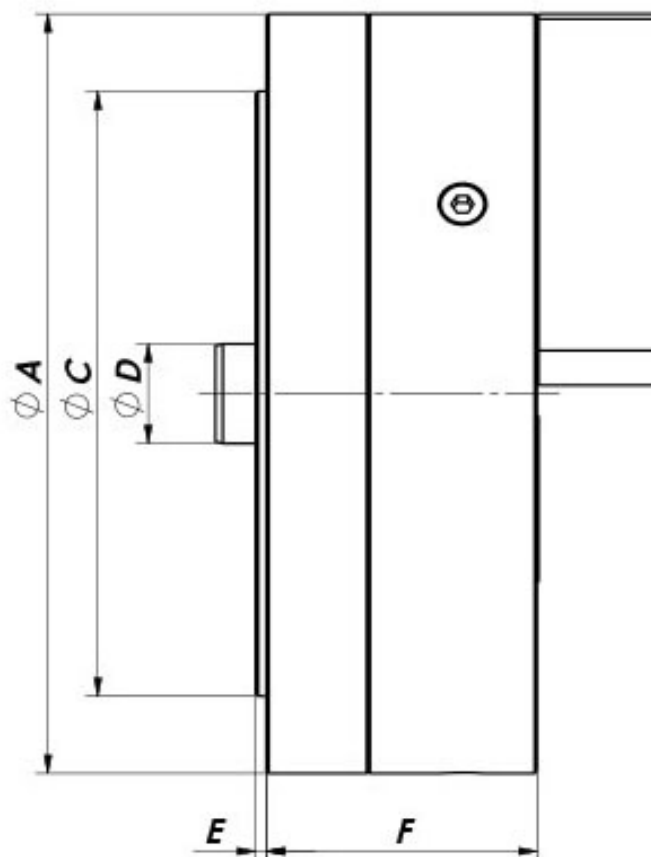
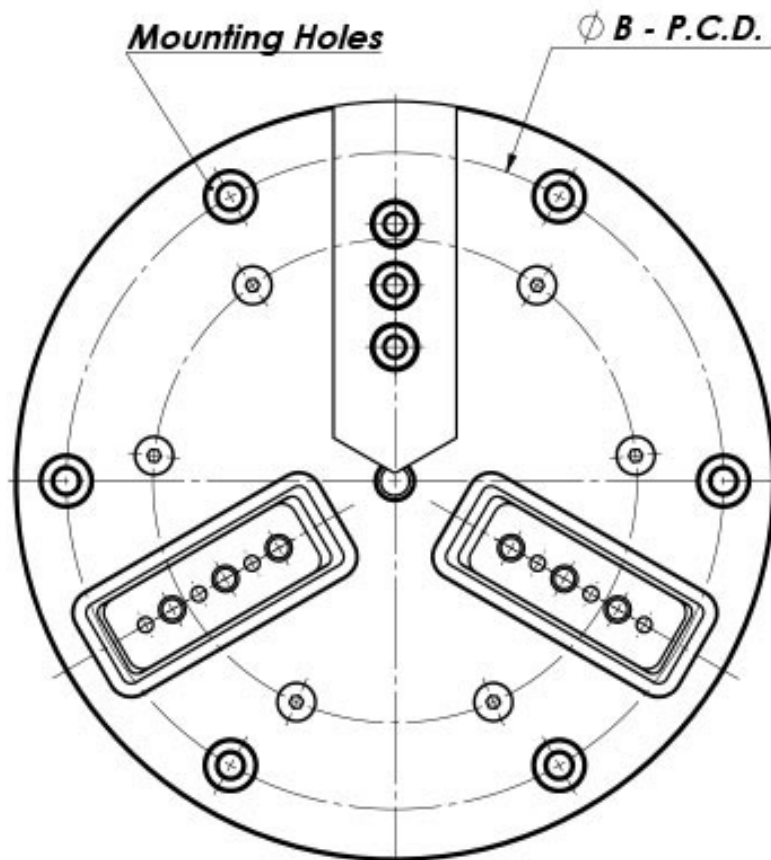
- Designed to be used on any conventional turning machine
- Air pressure monitored which is ideal for fragile and thin walled parts
- 0.002 mm TIR repeatability
- Air supplied via air feed tube to the back of the chuck

Model	A	B	C	D	E	F	No. of Jaws	Stroke (Dia) mm	Max RPM min ⁻¹	Total Grip Force kN
64-3-2 BC & NBC	63.5	52	50	21	2	42	2,3	2	3500	0.81
82-3-2 BC & NBC	82	70	60	21	2	50	2,3	2	3000	1.8
83-3-2.5 BC & NBC	83	70	60	21	2	55	2,3	2.5	3500	2.58
100-3-2.5 BC & NBC	100	88.9	82.6	21	2	56	2,3,4	2.5	3500	4.76
115-3-3-NBC-K	115	104	93.5	25	2	55	3	3	4000	7.65
125-3-2.5 BC & NBC	125	114.3	102	21	2	55	2,3,4	2.5	4000	9.51, 6.67*
150-3-2.5 BC & NBC	150	135.8	125	21	2	55	2,3,4*	2.5	4000	12.16
150-3-2.5 BC & NBC-S	150	135.8	125	21	2	60	2,3	2.5	4500	14.71
200-3-2.5 BC & NBC	203	183	168	21	7	81	2,3	2.5	2000	17.36
250-3-2.5 BC & NBC	254	233.7	215.8	21	7	73.5	2,3	2.5	2000	27.46
										30.89

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified





Features & Benefits

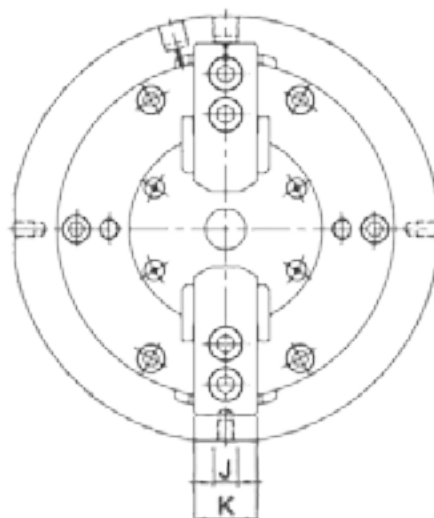
- Hermetically sealed to prevent contaminants from entering the chuck, minimizing maintenance and down time
- Designed for use on CNC grinding machines or any conventional machine and is ideal for machining abrasive materials
- 0.002 mm TIR Repeatability
- Air supplied via air feed tube to the back of the chuck

Model	A	B	C	D	E	F	No. of Jaws	Stroke (Dia) mm	Max RPM min ⁻¹	Total Grip Force kN
87-3-2.5 BCG	87	70	60	21	2	53	2,3	2.5	3000	2.55
107-3-2.5 BCG	107	88.9	82.6	21	2	56	2,3	2.5	4000	4.81
135-3-2.5 BCG	135	101.6	114	21	2	60	2,3	2.5	4000	9.32
157-3-2.5 BCG	157	135.75	125	21	2	56	2,3	2.5	3500	10.35
214-3-2.5 BCG	214	183	168	21	7	81	3	2.5	2000	27.46
265-3-2.5 BCG	365	233.7	216	21	7	74	3	2.5	2000	30.89

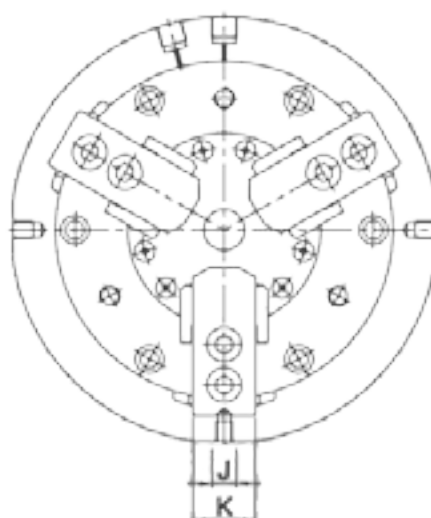
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

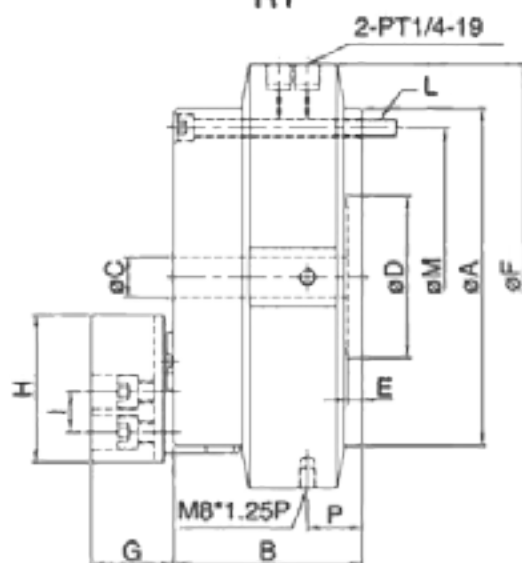
Dimensions in mm unless otherwise specified



RT-T



RT





Features & Benefits

- Chuck rotates with the spindle while the air collar remains stationary
- Rustproof treated cylinder for high moisture environments
- Dust-proof and waterproof cover prevent contaminants from entering the chuck allowing accuracy to be maintained and prolonging service life
- Integral pneumatic cylinder offers better operation stability and convenient operation
- Available in 2 or 3 jaw

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	P
RT-05	140	85	16	60	6	180	33	62	14	10	25	6- M8×1.25P	Ø118	27
RT-06	170	93	20	80	7	210	40	73	20	12	31	6- M8×1.25P	Ø147	27
RT-08	215	112	30	110	8	250	42	95	25	14	35	6- M10×1.5P	Ø185	28
RT-10	255	120	43	140	8	290	46	110	30	16	40	6- M10×1.5P	Ø220	30.5
RT-05T	140	85	16	60	6	180	33	62	14	10	25	6- M8×1.25P	Ø118	27
RT-06T	170	93	20	80	7	210	40	73	20	12	31	6- M8×1.25P	Ø147	27

Model	Thru Hole	Piston Area cm ²	Plunger Stroke	Jaw Stroke (Dia.)	Max RPM min ⁻¹	Max Pressure MPa	Gripping Force at .69 MPa kN	Gripping Range	Weight kg
RT-05	16	74	10	4.6	51	.69	13.14	4 - 136	10
RT-06	20	120	13	5.5	41	.69	22.85	25 - 166	16
RT-08	30	190	16	6.8	33	.69	36.58	33 - 215	29
RT-10	43	280	19	8	26	.69	53.74	43 - 255	43
RT-05T	16	74	10	4.6	51	.69	13.14	4 - 136	9
RT-06T	20	120	13	5.5	41	.69	22.85	25 - 166	15

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise specified

Ball Lok Chucks

FOR**KARDT**TM

Ball-Lok Chucks

Forkardt offers an impressive line-up of ball-lok chucks, from the ORIGINAL Universal Ball Lok Chuck (UBL), the LS Long Stroke Chuck, to the ECC Counter centrifugal Chuck to the newest addition, the Advance Ball Lok Chuck (ABL).

The N.A. Woodworth UBL set the standard for all other power chucks in the industry with its unique design that allows both centralizing and compensating. Forkardt has taken this design to a new level with the development of the ECC and the ABL.



Universal Ball Lok - UBL Pull Down Chuck

Ideal for

- Automotive components such as compressors, rotors, yokes and housings
- Gears
- Bearings
- Large diesel engine components
- Irregular shaped parts

Key Features

- Positive pull-back
- Available as compensating or centralizing
- Jaw homing

Advanced Ball Lok - ABL Pull Down Chuck

Ideal for

- Tapered workpieces
- Bearing races
- Bevel gears

Key Features

- NEW post style arm
- Composite core
- Quick change jaw mount





Equalizing Counter Centrifugal- ECC Pull Down Chuck

Ideal for

- Thin walled parts
- High speed applications
- Brake drums
- Impellers

Key Features

- 12 points of equalized force
- Post style jaw mount
- Differential chucking capability

High Capacity - LS Pull Down Lever Chuck

Ideal for

- Mass production
- Turning operations for roughing and finishing

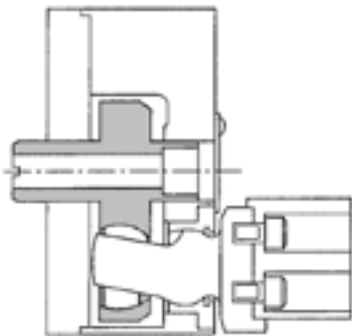
Key Features

- Hermetically sealed
- Long stroke
- Quick change jaws available



Ball-Lok Chucks Features

Centralizing Type



Centralizing Ball-Lok chucks work by utilizing a one-piece actuator device which allows the chuck jaws to establish the axis of rotation. The diameters being turned will then be concentric to the chucking diameter. The pull back feature insures the work piece is against an axial locator which guarantees perpendicularity and parallelism.

The centralizing feature makes the Forkardt Ball-Lok Chucks ideal for gripping:

- Rotors
- Gears
- Tapered Workpieces
- Extended Workpieces

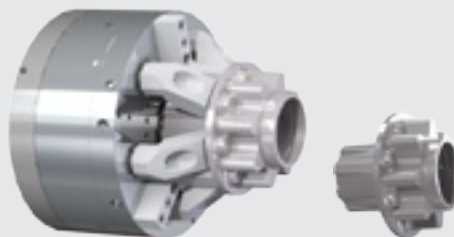
Practical Examples

UBL



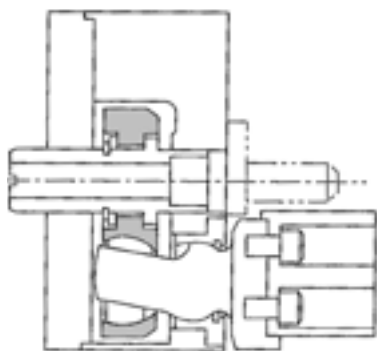
Oil Pump Housing

ECC



Hub

Compensating Type

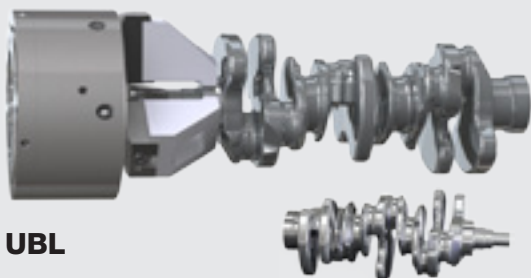


Compensating Ball Lok chucks work by utilizing a two piece actuator device which allows the chuck jaws to compensate for any eccentricity between the chucking diameter and the datum diameter. The centralizing device is generally an arbor, plug or center mounted on the face of the chuck. The centralizing device establishes the axis of rotation from the datum diameter in the work piece. The diameters being turned will then be concentric to the datum diameter.

The compensating feature makes these chucks ideal for the clamping of cast surfaces while locating the part with a fixture device like a Tork-Lok Arbor, a plug, or held between two centers.

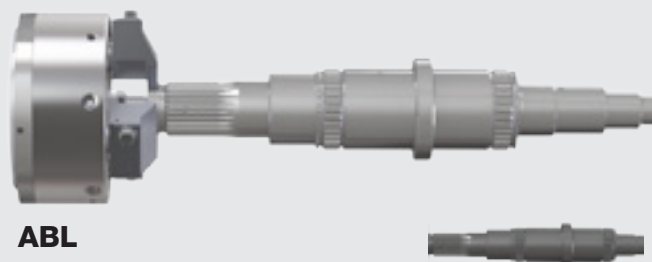
Practical Examples

UBL



Crankshaft

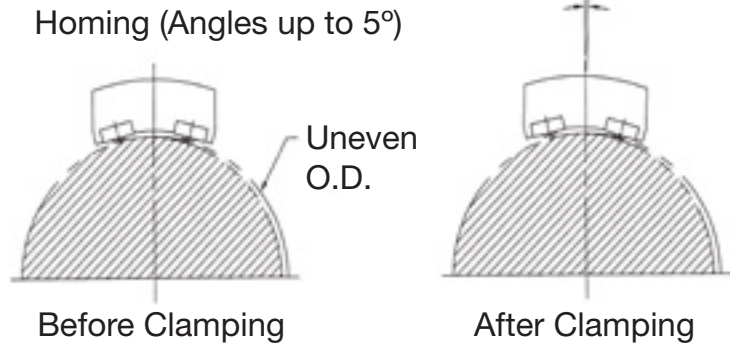
ABL



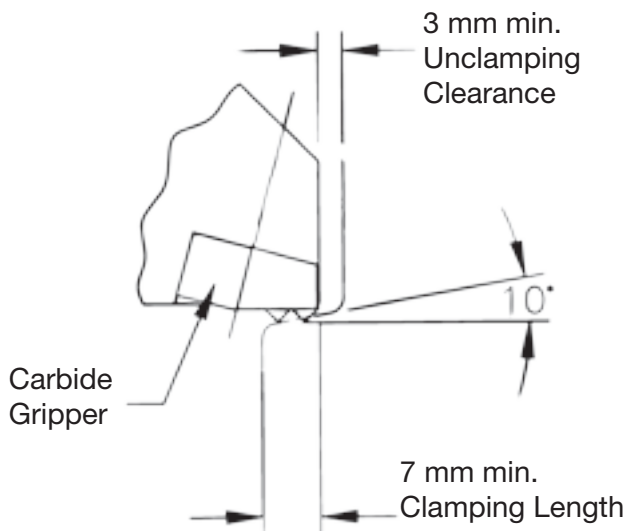
Driveshaft

Homing Function of Jaws

“Homing” is the ability of the jaws to rotate up to 5 degrees in either direction. “Homing” allows the jaws to compensate for castings and forgings that are not perfectly round and ensures secure and equalized gripping force at all chucking points. The homing feature still allows for best possible centralizing.

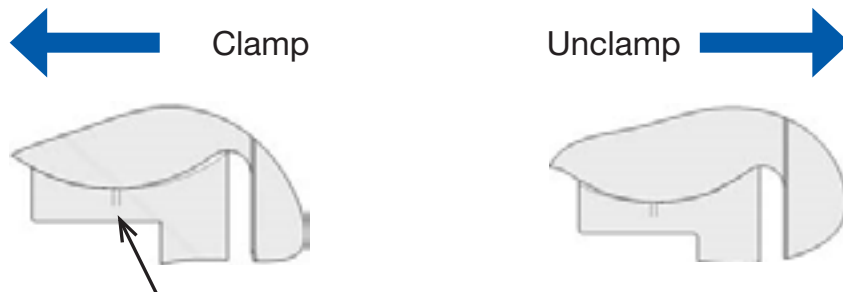


Grip Shorter Lengths and Tapered Diameters

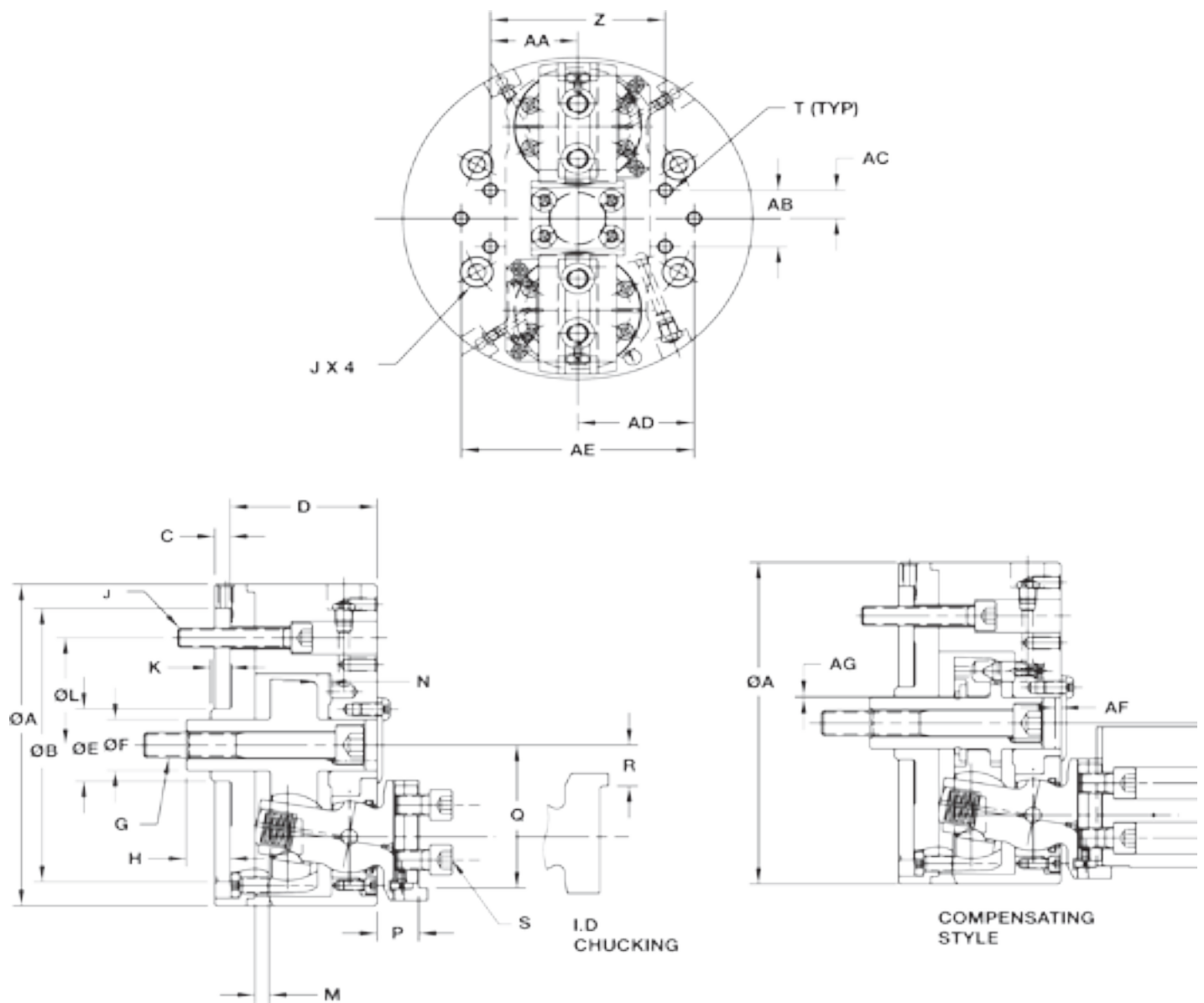


Ball-Lok chucks can grip work-pieces having up to a 7° taper with standard jaw design and up to 12° with minor modifications

Positive Pull-Back Action



A flat is provided at the center of the spherical diameter. This flat is what enables the pull-back feature. The flat is standard in Forkardt UBL bearings, or can be customized for specific needs. Limited pull back option is available when axial load is required.



2 Jaw Universal Ball-Lok Chuck

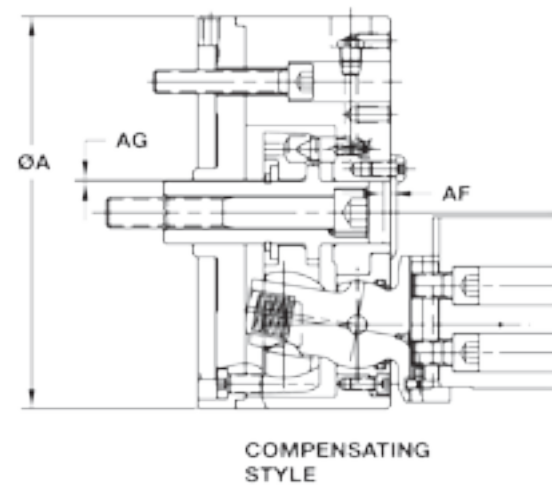
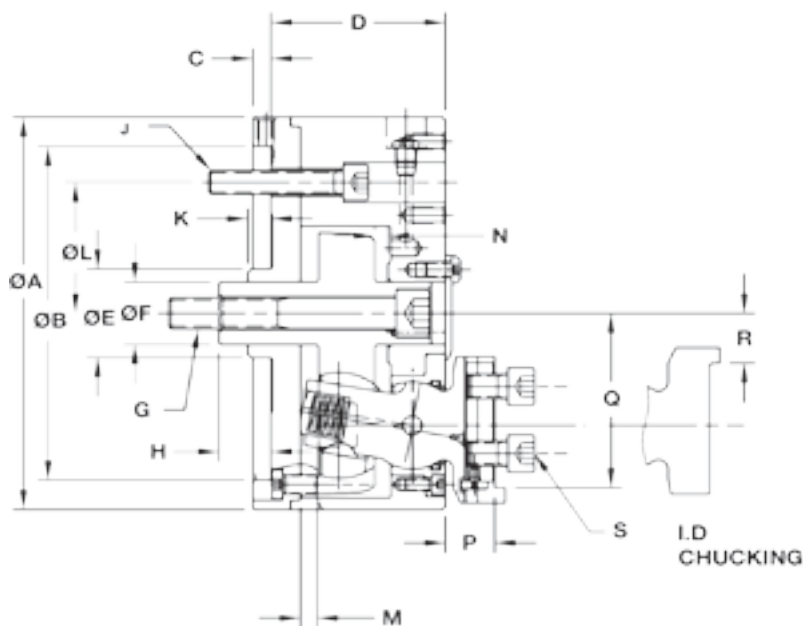
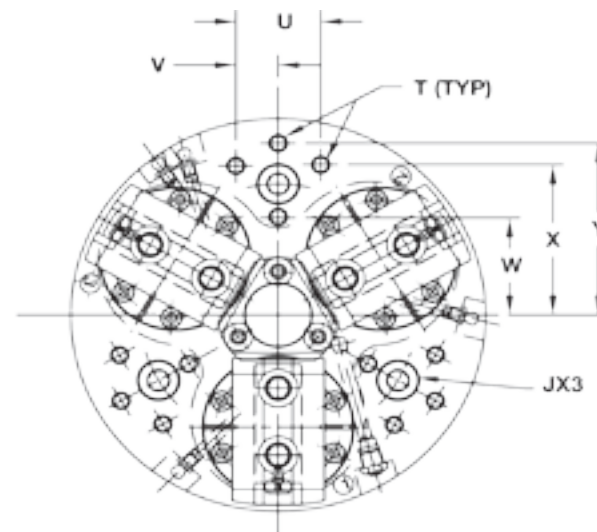
UBL

		Chuck Size					
		160	200	250	300	380	460
Centralizing Model Number		UBL160010	UBL200010	UBL250010	UBL300010	UBL380010	UBL460010
Compensating Model Number		UBL160012	UBL200012	UBL250012	UBL300012	UBL380012	UBL460012
Dimensions (mm)							
Chuck Diameter	A	160	200	254.1	298.6	381	457.3
Mounting Recess Dia.	B	140	170	220	220	300	380
Depth of Recess	C	8.7	8.7	8.7	8.7	14.3	13.5
Chuck Height	D	72.2	84.2	103.2	103.2	116.7	116.7
Back Plate Boss Dia.	E	42	45	57.2	60	85	120.7
Actuator Dia.	F	30.2	31.8	41.3	41.3	57.15	88.9
Draw Bar Thread	G	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5	M24 x 3	M24 x 3
Actuator Position	H	23.5	25.1	28	28	38.7	28
Chuck Mounting Bolt Size	J	M10 x 1.5	M12 x 1.75	M16 x 2	M20 x 2.5	M20 x 2.5	M24 x 3
Length of Boss	K	6.8	11.1	8.7	8.7	16	8.7
Mounting Bolt Circle Dia.	L	104.8	133.4	171.4	171.4	235	330.2
Actuator Stroke to Full Close	M	5.2	8	7.9	7.9	10.4	10.4
Actuator Stroke to Full Open	N	6.4	6.3	9.7	9.8	11.9	11.9
Total Actuator Stroke	M+N	11.6	14.3	17.6	17.7	22.3	22.3
Jaw Mounting Platform	P	19.4	23.7	29.2	29.2	32.5	32.5
Jaw Ledge (External Grip)	Q	73.0	88.9	112.7	133.35	171.5	209.6
Jaw Ledge (Internal Grip)	R	22.2	25.4	30.14	50.81	69.9	104.0
Jaw Mounting Screw Size	S	M10 x 1.5	M12 x 1.75	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5
Tooling Mounting Screw Size	T	M8 x 1.25	M8 x 1.25	M10 x 1.5	M10 x 1.5	M12 x 1.75	M16 x 2
Position of "T" (2)Jaw	Z	80	100	125	210	150	200
Position of "T" (2)Jaw	AA	40	50	62.5	105	75	100
Position of "T" (2)Jaw	AB	N/A	35	45	90	100	200
Position of "T" (2)Jaw	AC	N/A	17.5	22.5	45	50	100
Position of "T" (2)Jaw	AD	85	N/A	N/A	65	N/A	N/A
Position of "T" (2)Jaw	AE	170	N/A	N/A	130	N/A	N/A
Maximum drawbar force (2)Jaw (kN)		42	64	75	86	107	107
Maximum gripping force (3)Jaw (kN)		25	39	45	54	66	66
Maximum RPM		4800	3900	3000	2400	2000	1600
Jaw Weight (kg)		1	2	3	4	6	8
Chuck Weight (kg)		12	25	39	55	118	146

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Dimensions in mm unless otherwise noted



3 Jaw Universal Ball-Lok Chuck

UBL

		Chuck Size					
		160	200	250	300	380	460
Centralizing Model Number		UBL160000	UBL200000	UBL250000	UBL300000	UBL380000	UBL460000
Compensating Model Number		UBL160002	UBL200002	UBL250002	UBL300002	UBL380002	UBL460002
Dimensions (mm)							
Chuck Diameter	A	162	200	254.1	298.6	381	457.3
Mounting Recess Dia.	B	140.7	170.7	220.7	220.7	300.7	380.7
Depth of Recess	C	8.7	8.7	8.7	8.7	14.3	13.5
Chuck Height	D	72.2	84.2	103.2	103.2	116.7	116.7
Back Plate Boss Dia.	E	42	45	57.2	60	85	120.65
Actuator Dia.	F	30.2	31.8	41.3	41.3	57.15	88.9
Draw Bar Thread	G	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5	M24 x 3	M24 x 3
Actuator Position	H	23.5	25.1	28	28	38	38
Chuck Mounting Bolt Size	J	M10 x 1.5	M12 x 1.75	M16 x 2	M16 x 2	M20 x 2.5	M24 x 3
Length of Boss	K	6.8	11.1	8.7	8.7	16	16
Mounting Bolt Circle Dia.	L	104.8	133.4	171.4	171.4	235	330.2
Actuator Stroke to Full Close	M	5.2	8	7.9	7.9	10.4	10.4
Actuator Stroke to Full Open	N	6.4	6.3	9.7	9.8	11.9	11.9
Total Actuator Stroke	M+N	11.6	14.3	17.6	17.7	22.3	22.3
Jaw Mounting Platform	P	19.4	23.7	29.2	29.2	32.5	32.5
Jaw Ledge (External Grip)	Q	73.0	88.9	112.7	133.4	171.5	209.6
Jaw Ledge (Internal Grip)	R	22.2	25.4	30.2	50.8	69.85	108.0
Jaw Mounting Screw Size	S	M10 x 1.5	M12 x 1.75	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5
Tooling Mounting Screw Size	T	M8 x 1.25	M8 x 1.25	M10 x 1.5	M10 x 1.5	M12 x 1.75	M16 x 2
Position of "T" (3)Jaw	U	N/A	N/A	50	50	N/A	N/A
Position of "T" (3)Jaw	V	N/A	N/A	25	25	N/A	N/A
Position of "T" (3)Jaw	W	35	50	60	60	82.5	110
Position of "T" (3)Jaw	X	N/A	N/A	97.5	100	N/A	N/A
Position of "T" (3)Jaw	Y	70	87.5	NA	NA	152.5	200
Maximum drawbar force (3)Jaw (kN)		26	35	44.5	53	66	66
Maximum gripping force (3)Jaw (kN)		64	85	108	130	160	160
Maximum RPM		5500	4200	3600	3200	2600	2100
Jaw Weight (kg)		1	2	3	4	6	8
Chuck Weight (kg)		12	25	39	55	118	146

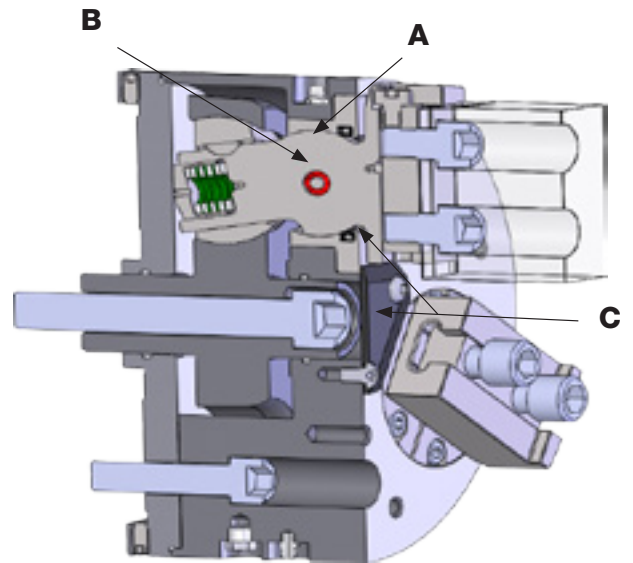
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

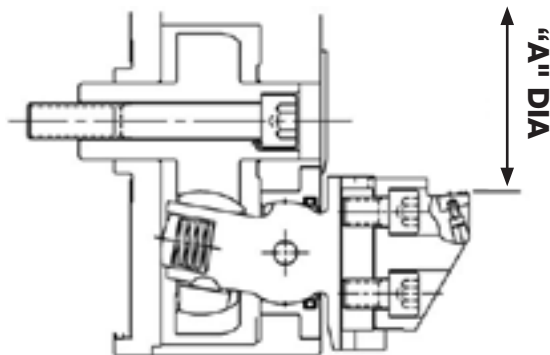
Dimensions in mm unless otherwise noted

Structure and Function

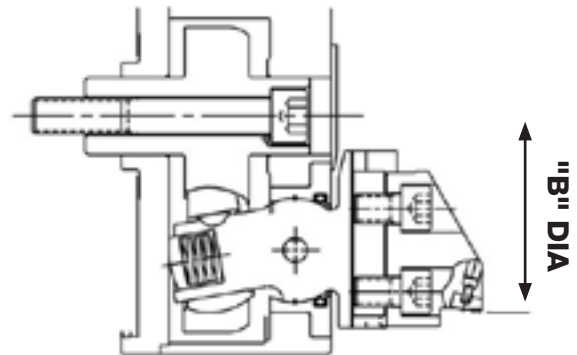
- A. Bearing Land- allows for pull-back
- B. Equalizing Unit- allows for the jaws' swing motion
- C. Cover & Arm Seal- protect against contamination



Recommended Chucking Ranges UBL



External Mode



Internal Mode

Chuck Size	"A" Diameter External Chucking Range (Recommended)	"B" Diameter Internal Chucking Range (Recommended)
	Maximum / minimum	Maximum / minimum
160	120 / 14	150 / 70
200	150 / 16	200 / 80
250	200 / 50	230 / 85
300	240 / 65	300 / 130
380	315 / 80	380 / 165
460	390 / 90	455 / 245

The UBL utilizes a spherical ball and bearing design which reduces wear, thus extending the life of the chuck.

Forkardt offers two arm styles: The traditional, two piece bearing style with jaw mounting base, and the new post style with one piece bearing and "Quick-Lok" jaw mount.

**Traditional Style Arm
Two-Piece Bearing**



**New Post Style Arm
One-Piece Bearing**

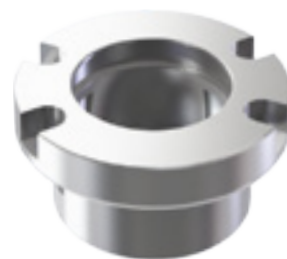


**NEW "Quick-Lok"
Jaw Mount**

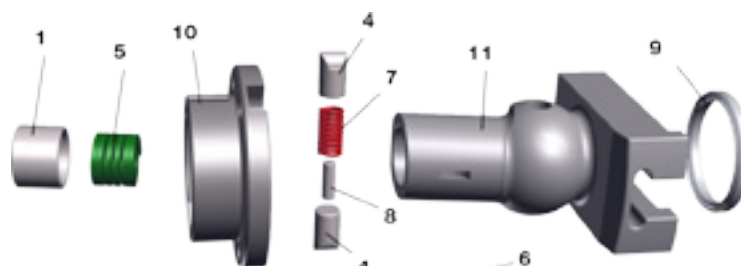


The new Quick-Lok jaw mount, available with the post style arm, provides a no loose screw design, easy changeover and a reduction in mass. Changeover can be done in less than 60 seconds.

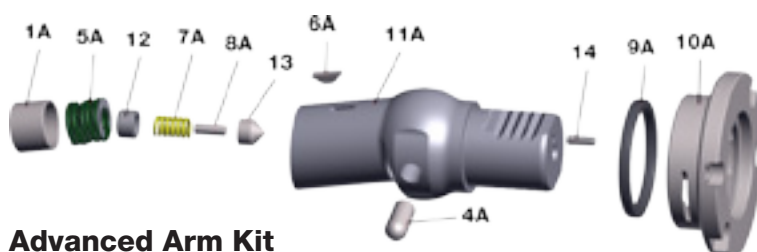
**NEW One-Piece
Bearing**



The new one-piece bearing design improves grease retention and provides for easier in-house maintenance.



Standard Arm Kit



Advanced Arm Kit



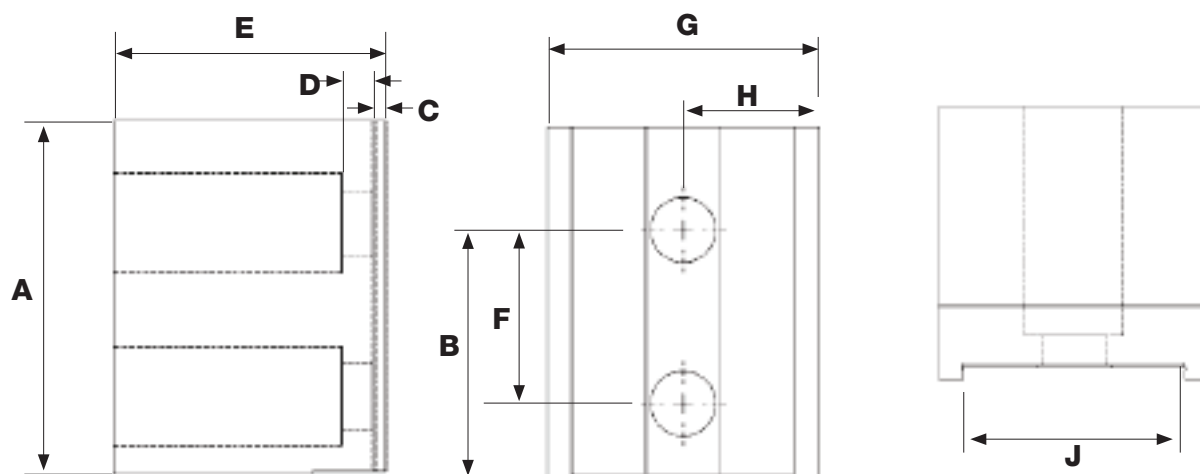
Front Bearing Kit

Front Bearing Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
9	Arm Seal	1	UBL1602BK	UBL2002BK	UBL2502BK	UBL2502BK	UBL3802BK	UBL3802BK
10	Front Bearing	1						

Standard Arm Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
1	Spring Cap	1	UBL1602AK	UBL2002AK	UBL2502AK	UBL2502AK	UBL3802AK	UBL3802AK
4	Homing Pin	2						
5	Arm Spring	1						
6	Arm Key	1						
7	Homing Spring	1						
8	Homing Pin	1						
9	Arm Seal	1						
10	Front Bearing	1						
11	Arm	1						

Advanced Arm Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
1A	Spring Cap	1	ABL602AK	ABL802UK	ABL1002UK	ABL1002UK	ABL1502UK	ABL1502UK
4A	Homing Pin	2						
5A	Arm Spring	1						
6A	Arm Key	1						
7A	Homing Spring	1						
8A	Homing Pin	1						
9A	Arm Seal	1						
10A	Front Bearing	1						
11A	Arm	1						
12	Special Screw	1						
13	Homing Cap	1						
14	Roll Pin	1						

Soft Blank Jaws



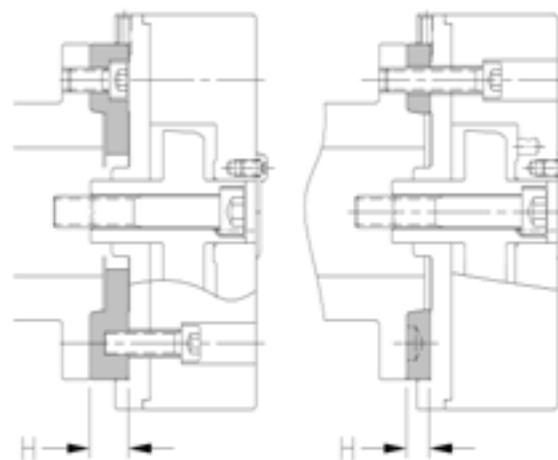
Chuck Model	Jaw No.	A	B	C	D	E	F	G	H	J
UBL160	UBL6801	67.56	43.94	3.30	5.33	50.80	29.46	50.80	25.40	38.10
UBL200	UBL8801A	85.85	51.56	3.30	6.35	57.15	34.04	57.15	28.45	44.45
UBL250	UBL10801A	88.90	63.50	3.30	7.87	69.85	44.45	69.85	35.05	57.15
UBL300	UBL12801A	107.95	63.50	3.30	7.87	69.85	44.45	69.85	35.05	57.15
UBL380	UBL15801A	139.70	77.72	3.30	7.87	76.20	54.10	76.20	38.10	66.68
UBL460	UBL18801A	171.45	77.72	3.30	7.87	76.20	54.10	76.20	38.10	66.68

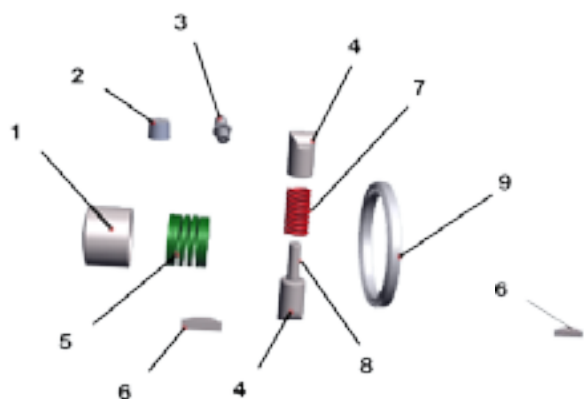
* Measurements in millimeters unless otherwise noted

Spindle Adapters UBL

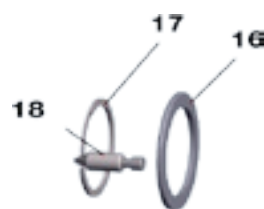
Chuck Size	Spindle Nose	H	Type	Indirect	Direct	L*
160	4	18	140-A4	D1074053000	-	-
	5	14	140-A5	-	D1074035000	15
200	5	24	170-A5	D1074056000	-	-
	6	15	170-A6	-	D1074036000	15
250	6	28	220-A6	D1074060000	-	-
	8	17	220-A8	-	D1074038000	15
300	6	28	220-A6	D1074060000	-	-
	8	17	220-A8	-	D1074038000	15
380	8	32	300-A8	D1074065000	-	-
	11	19	300-A11	-	D1074040000	20
460	11	35	380-A11	D1074068000	-	-
	15	21	380-A15	-	D1074042000	20

Additional standard and a wide variety of special mountings are also available





Hardware Kit



Compensating Kit



T-Nut Kit

Eccentric Bearing Kit

Hardware Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
1	Spring Cap	3	UBL160HK	UBL200HK	UBL250HK	UBL250HK	UBL380HK	UBL380HK
2	Pipe Plug	1						
3	Grease Fitting	4						
4	Homing Pin	6						
5	Arm Spring	3						
6	Arm Key	3						
7	Homing Spring	3						
8	Restrictor Pin	3	UBL160HK	UBL200HK	UBL250HK	UBL250HK	UBL380HK	UBL380HK
9	Arm Seal	3						

Eccentric Bearing Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
6	Arm Key	3	UBL06BK	UBL08BK	UBL10BK	UBL10BK	UBL15BK	UBL156BK
15	Eccentric Bearing	3						

Compensating Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
16	Retaining Spacer	1	UBL06CK	UBL200CK	UBL250CK	UBL250CK	UBL380CK	UBL380CK
17	Retaining Ring	1						
18	Centralizing Pin	3						

T-Nut Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
19	T-Nut	3	UBL160TN	UBL200TN	UBL250TN	UBL250TN	UBL380TN	UBL380TN
20	Jaw Bolts	6						
21	Safety Screw	3						

The items shown below are purchased separately. Please contact our office for part number and pricing.



Compensating Actuator



Actuator Support



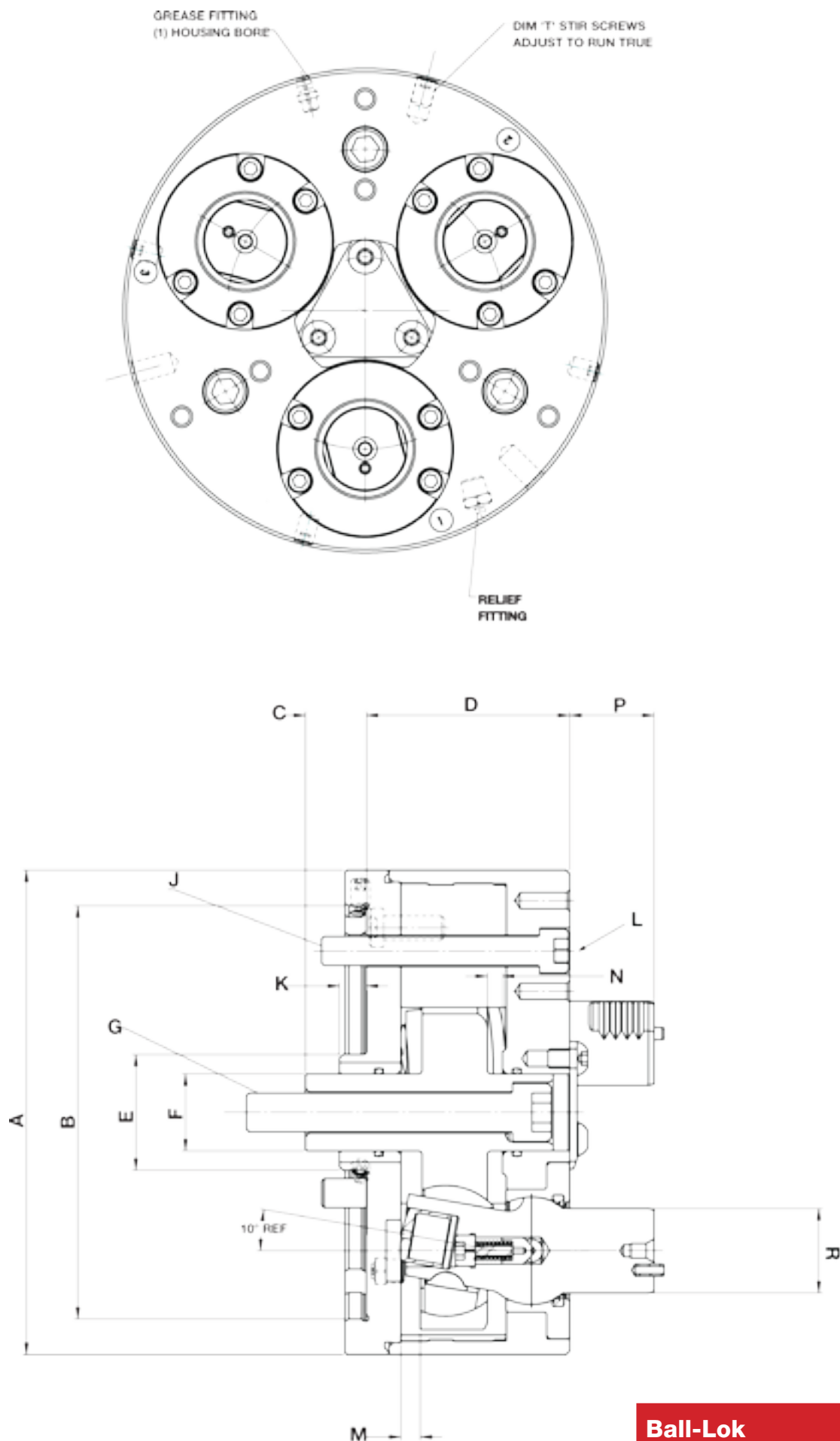
Centralizing Actuator



Dust Plate

3 Jaw Advanced Ball-Lok Chuck

ABL



		Chuck Size		
		200	250	300
Centralizing Model Number		ABL200000	ABL250000	ABL300000
Compensating Model Number		ABL200002	ABL250002	ABL300002
Dimensions (mm)				
Chuck Diameter	A	200	254.10	298.60
Mounting Recess Dia.	B	170.7	220.7	220.7
Actuator Position	C	25.2	27.6	27.4
Chuck Height	D	84.1	103.1	103.2
Back Plate Boss Diameter	E	47.8	57.1	60.0
Actuator Dia.	F	31.8	41.3	41.3
Draw Bar Thread	G	M16 X 2.00	M20 X 2.50	M20 X 2.50
Chuck Mounting Bolt Size	J	M12 X 1.75	M16 X 2.00	M16 X 2.00
Length of Boss	K	11.10	8.8	8.8
Mounting Bolt Circle	L	133.4	171.4	171.4
Actuator Stroke to Full Close	M	8.0	8.5	8.7
Actuator Stroke to Full Open	N	6.3	9.0	10.4
Total Actuator Stroke	M+N	14.3	17.5	19.1
Jaw Height (Reference)	P	53.1	65.7	65.7
Post Diameter	R	35.0	44.5	44.5
Maximum drawbar force Jaw	kN	35.6	44.5	53.0
Maximum RPM		4200	3600	3200
Chuck Weight Less Top Tooling	kg	14	27	36

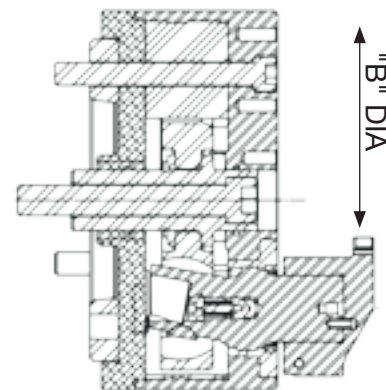
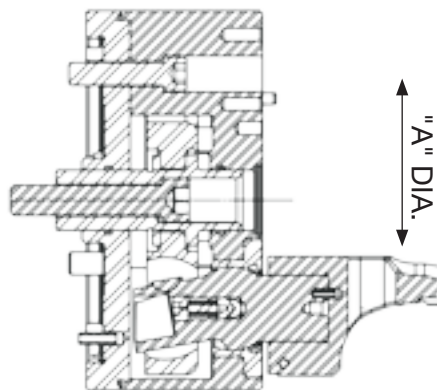
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Internal Mode

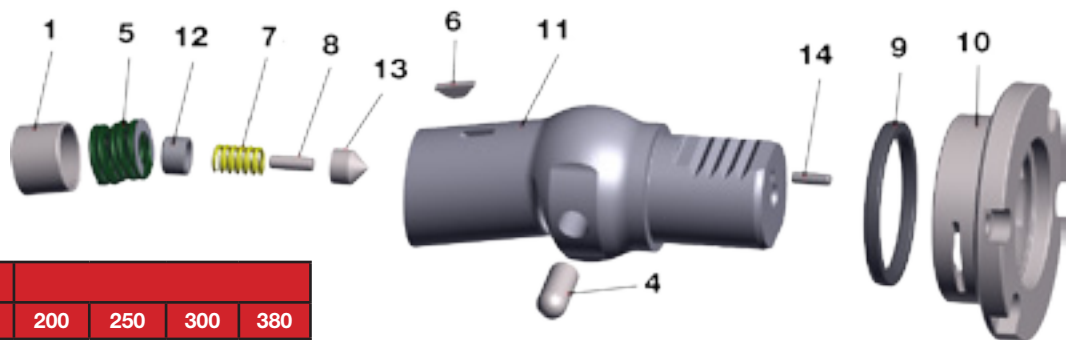
External Mode

Recommended Chucking Ranges ABL



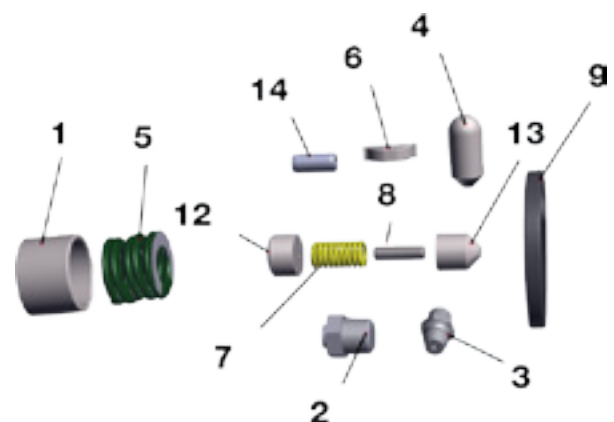
Chuck Size	"A" Diameter External Chucking Range (Recommended)	"B" Diameter Internal Chucking Range (Recommended)
	Maximum / minimum	Maximum / minimum
160	120 / 14	150 / 70
200	150 / 16	200 / 80
250	200 / 50	230 / 85
300	240 / 65	300 / 130
380	315 / 80	380 / 165
460	390 / 90	455 / 245

Front Bearing Kit						
Key	Description	Qty	200	250	300	380
9	Arm Seal	1	ABL2002BKP	ABL2502BKP	ABL2502BKP	ABL3802BKP
10	Front Bearing	1				

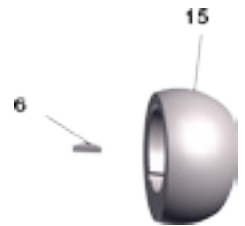


Arm Kit						
Key	Description	Qty	200	250	300	380
1	Spring Cap	1	ABL2002AKP	ABL2502AKP	ABL2502AKP	ABL3802AKP
4	Homing Pin	2				
5	Arm Spring	1				
6	Arm Key	1				
7	Homing Spring	1				
8	Homing Pin	1				
9	Arm Seal	1				
10	Front Bearing	1				
11	Arm	1				
12	Special Screw	1				
13	Homing Cap	1				
14	Roll Pin	1				

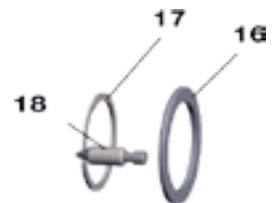
Hardware Kit						
Key	Description	Qty	200	250	300	380
1	Spring Cap	3	ABL2002HK	ABL2502HK	ABL2502HK	ABL3802HK
2	Pipe Plug	1				
3	Grease Fitting	4				
4	Homing Pin	6				
5	Arm Spring	3				
6	Arm Key	3				
7	Homing Spring	3				
8	Restrictor Pin	3				
9	Arm Seal	3				



Eccentric Bearing Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
6	Arm Key	3	UBL06BK	UBL08BK	UBL10BK	UBL10BK	UBL15BK	UBL156BK
15	Eccentric Bearing	3						



Compensating Kit			Kit Number by Chuck Size					
Key	Description	Qty	160	200	250	300	380	460
16	Retaining Spacer	1	UBL06CK	UBL200CK	UBL250CK	UBL250CK	UBL380CK	UBL380CK
17	Retaining Ring	1						
18	Centralizing Pin	3						



The items shown below are purchased separately. Please contact our office for part number and pricing.

Compensating Actuator



Actuator Support



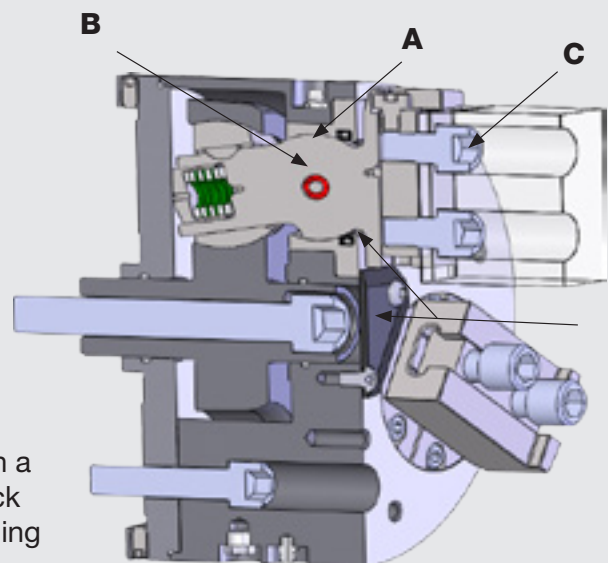
Dust Plate
Centralizing Actuator



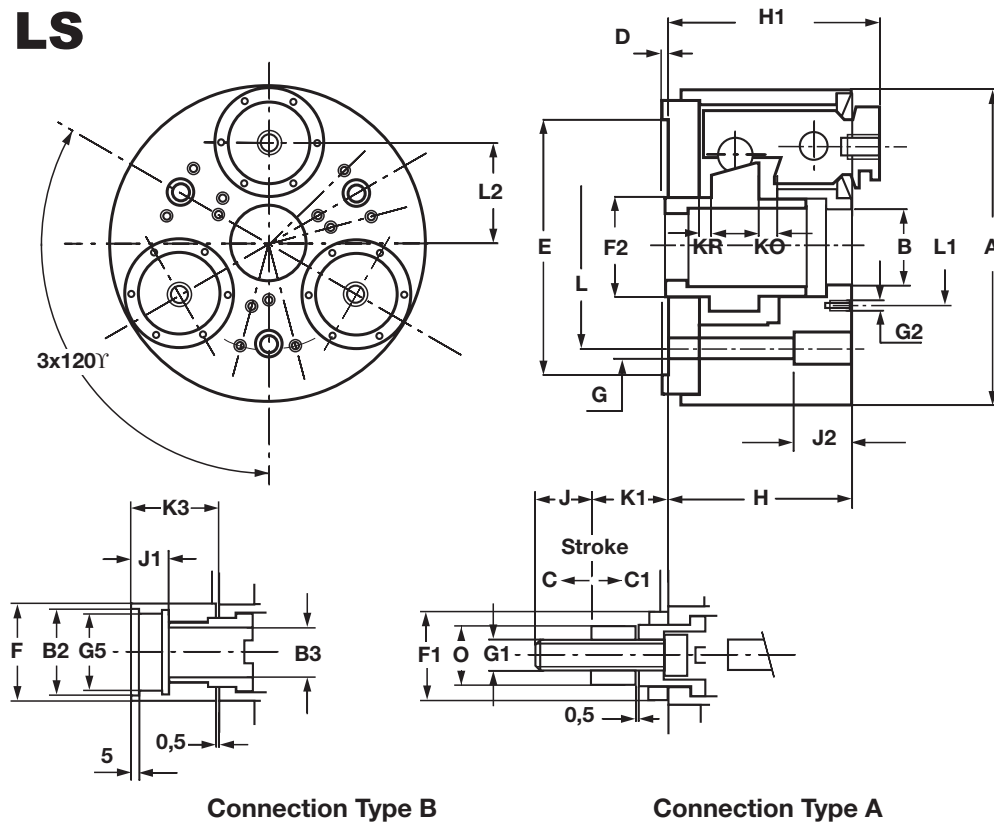
Structure and Function

- A. Bearing Land- allows for pull-back
- B. Equalizing Unit- allows for the jaws' swing motion
- C. Carbide Insert- allows for better surface penetration, greater clamping torque, and excellent interchangeability.
- D. Cover & Arm Seal- protect against contamination

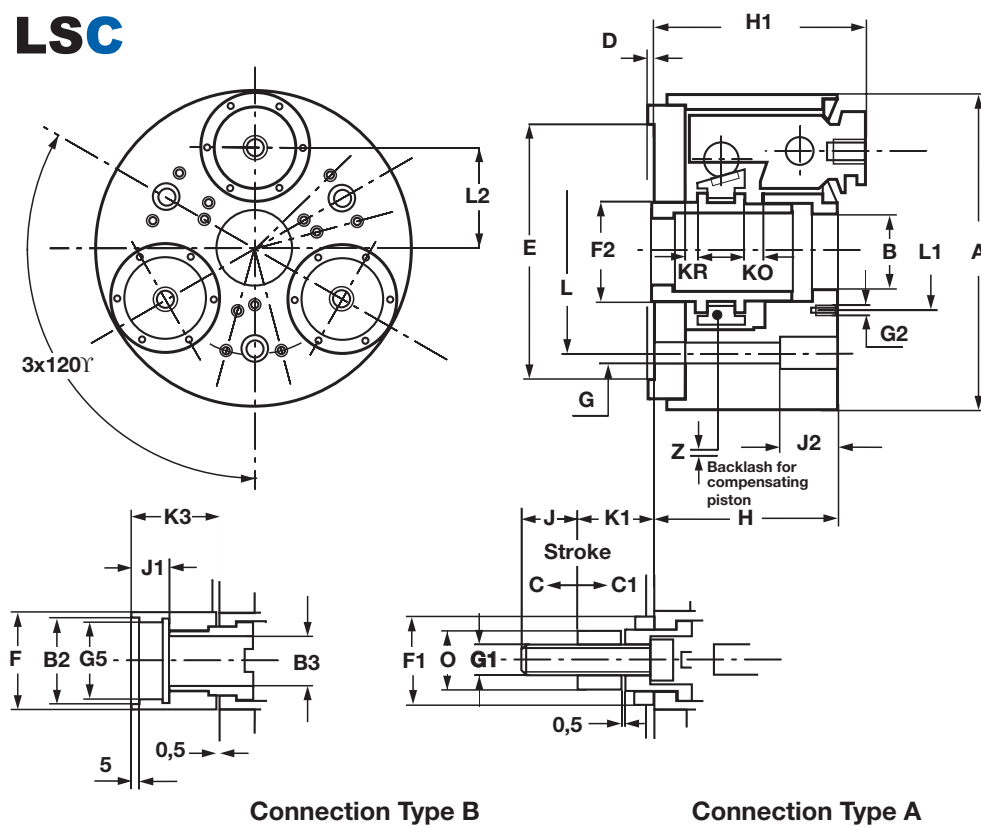
The ABL design removes a portion of the steel from the standard UBL body and replaces it with a composite core, reducing the weight of the chuck and providing a dampening effect when performing turning operations.



LS



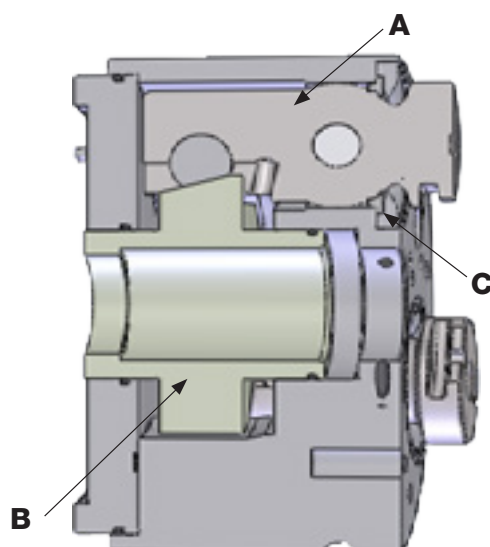
LSC



			Chuck Size				
			160	180	210	260	320
Model No.			F32424	F32440	F32400	F32444	F32427
Chuck Diameter	A		160	180	210	260	320
Bore	B	H6	40	43	50	65	115
Mounting Recess	B2	H7	44	49	60	75	82
Through Hole	B3	0.2	25	28	35	50	55
Max Grip Diameter			103	128	147	187	253
Stroke	C		4	6	8	10	10
	C1		7	8	12	15	15
Mounting Recess	D		13.5	5	5	5	6
Flange Mounting	E	0.01	140	140	170	220	220
	F		49.5	55	64.5	79.5	94.5
	F1		46	50	56	75	85
	F2		50	55	65	80	135
Mounting Bolt Diameter	G	3X	11 / M10	11 / M10	13 / M12	17 / M16	17 / M16
	G1		M 14	M 16	M 20	M 22	M 24
	G2	3X	M 6	M 6	M 6	M 8	M 10
	G5		M 42 x 2	M 48 x 2	M 56 x 2	M 75 x 2	M 80 x 2
Chuck Width	H	±0.05	71.5	103	120	150	157.5
	H1		87.5	121	140	173	180.5
	J		32	40.5	40	51.5	55
	J1		22	21.5	25	30	40
	J2		20.5	13	34	36	37
Clamping Stroke			5.5	8	12	15	17
			4.5	6	8	10	12
	K1		38	42	50.5	54.5	60.5
	K3		47.5	47.5	56.5	65	88
Mounting Bolt Circle	L	PCD	104.8	104.8	133.4	171.4	171.4
	L1	3X	59	65	75	93	171.4
	L2		51.5	57	67	85	115
Max. Angle of the lever	T6		2° 15'	2° 51'	2° 52'	2° 40'	2° 39'
	T7		1° 43'	2° 6'	2° 17'	2° 27'	2° 26'

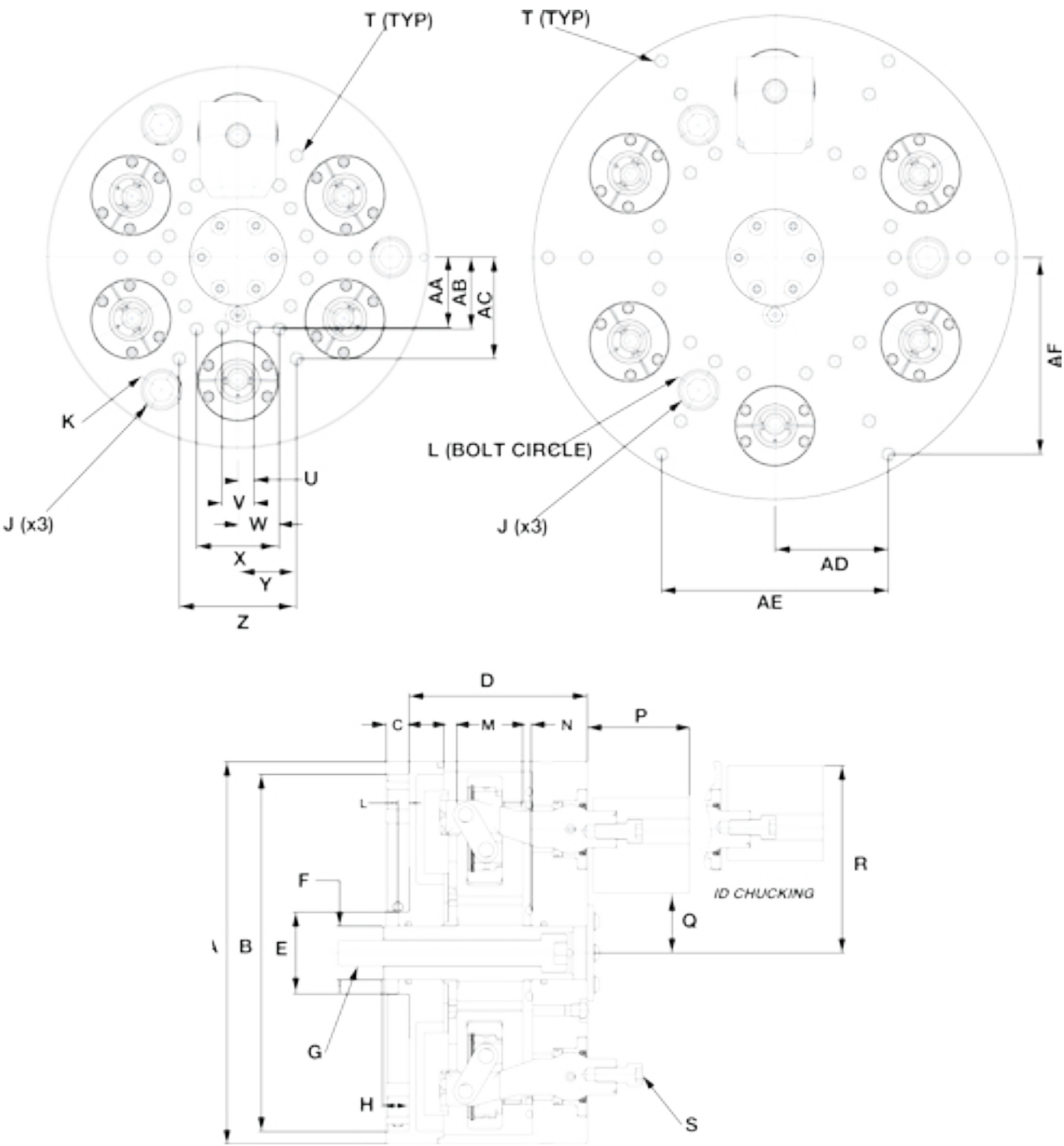
LS and LSC Structure and Function

- A. Bearing Land- allows for pull-back
- B. Piston- One piece piston in LS for better concentricity. Floating piston in LSC for compensating clamping
- C. Cover & Arm Seal-protect against contamination



6 Jaw Equalizing Counter-Centrifugal Chuck

ECC

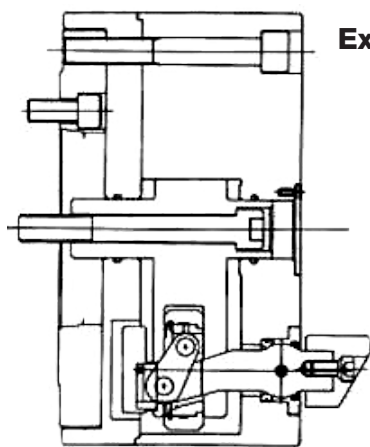


Dimensions		ECC300000C	ECC380000C
Chuck Diameter	A	300	380
Mounting Recess Dia.	B	280	280
Depth of Recess	C	17.7	17.7
Chuck Height	D	140	140
Back Plate Boss Dia.	E	64	64
Actuator Dia.	F	42	42
Draw Bar Thread	G	M20 x 2.5	M20 x 2.5
Actuator Position	H	20.7	21.6
Chuck Mounting Bolt Size	J	M20 x 2.5	M20 x 2.5
Mounting Bolt Circle Dia.	K	240	240
Length of Boss	L	8.7	8.7
Actuator Stroke to Full Close	M	10.4	9.5
Actuator Stroke to Full Open	N	6.6	7.5
Total Actuator Stroke	M+N	17	17.04
Jaw Mounting Platform	P	80.0	80.0
Jaw Ledge (External Grip)	Q	47	82
Jaw Ledge (Internal Grip)	R	147	182
Jaw Mounting Screw Size	S	M12 x 1.75	M12 x 1.75
Tooling Mounting Screw Size	T	M10 x 1.5	M10 x 1.5
Maximum drawbar force (kN)		44.5	44.5
Chuck Weight (kg)		58	104

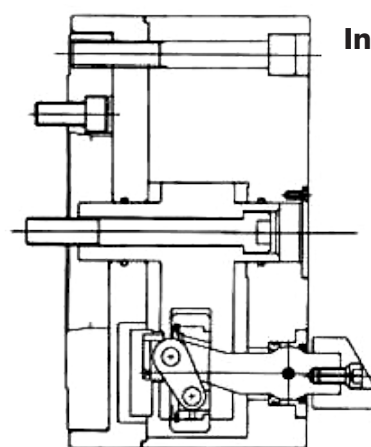
1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Recommended Chucking Ranges ECC



External Mode

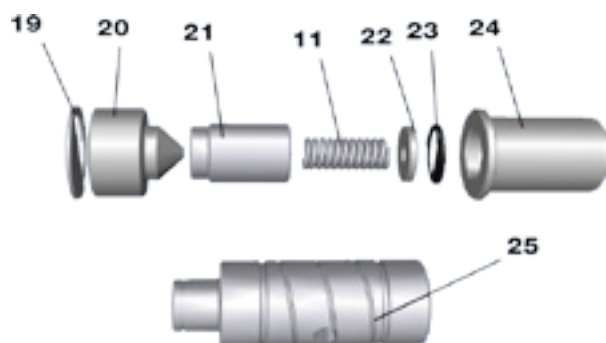


Internal Mode

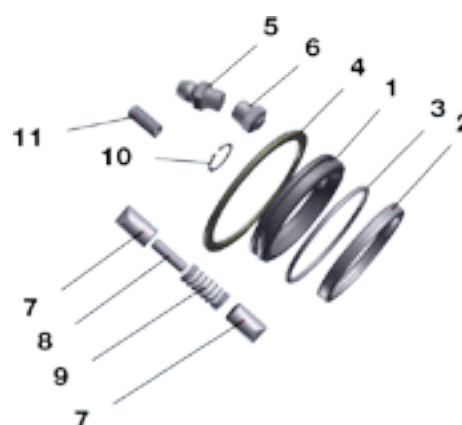
Chuck Size

	"A" Diameter mm External Chucking Range (Recommended)	"B" Diameter mm Internal Chucking Range (Recommended)
	Maximum / minimum	Maximum / minimum
300	228 / 76	330 / 152
380	304 / 152	406 / 228
450	381 / 228	558 / 304

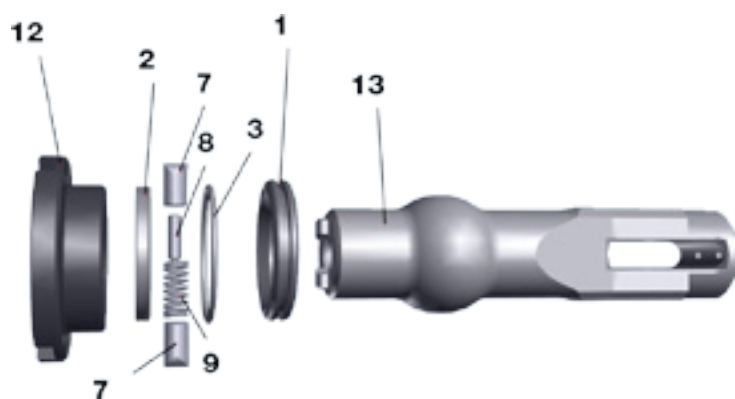
All sizes are in millimeters. The above recommended chucking ranges are for general applications. If an application has a part size that exceeds the above maximum or minimum, contact our proposal department for review.



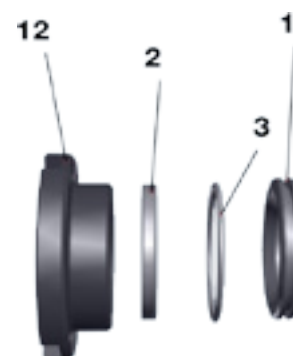
Equalizer Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
11	Plunger Spring	1	ECC300EK	ECC380EK
19	Spiro-lox Ring	2		
20	Centralizing Plug	1		
21	Plunger	1		
22	Spacer	1		
23	Tru Arc Ring	1		
24	Centralizing Housing	1		
25	Pivot Pin	1		



Hardware Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
1	Slotted Ring	6	ECC300HK	ECC380HK
2	Arm Seal	6		
3	Ring Seal	6		
4	Retaining Ring	6		
5	Grease Fitting	6		
6	Relief Valve	1		
7	Homing Pin	12		
8	Restrictor Pin	6		
9	Homing Spring	6		
10	Retaining Ring	3		
11	Plunger Spring	3		

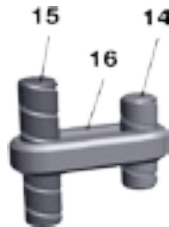


Arm Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
1	Slotted Ring	1	ECC300AK	ECC380AK
2	Arm Seal	1		
3	Ring Seal	1		
7	Homing Pin	2		
8	Restrictor Pin	1		
9	Homing Spring	1		
12	Front Bearing	1		
13	Arm	1		

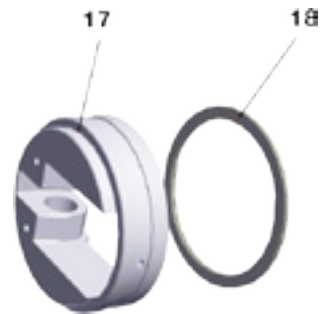


Front Bearing Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
1	Slotted Ring	6	ECC300BK	ECC380BK
2	Arm Seal	6		
3	Ring Seal	6		
12	Front Bearing	6		

Toggle Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
14	Clevis Pin	6	ECC300TK	ECC380TK
15	Toggle Pin	6		
16	Toggle	6		



Lower Bearing Kit			Kit Number by Chuck Size	
Key	Description	Qty	300	380
17	Lower Bearing	6	ECC300LBK	ECC380LBK
18	Spiro-lox Ring	6		



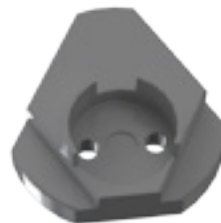
The items shown below are purchased separately. Please contact our office for part number and pricing.



Equalizer



Actuator



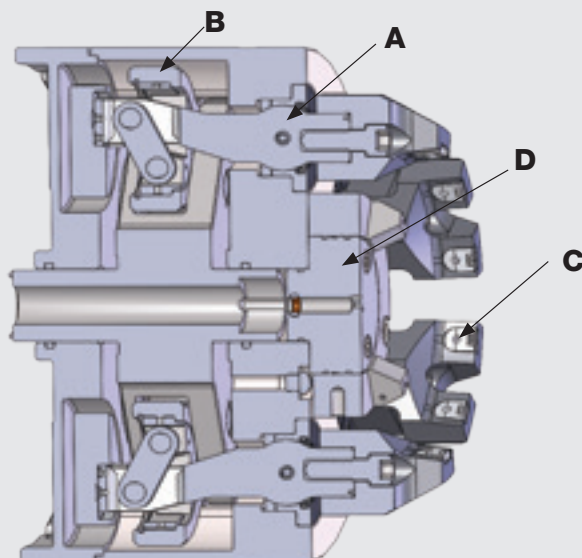
Counterweight



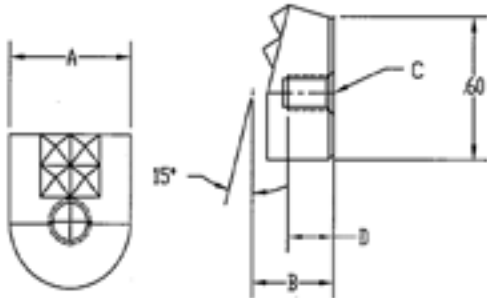
Dust Plate

Structure and Function

- A. Bearing Land- allows for pull-back
- B. Equalizer- allows chuck to grip out of round workpieces
- C. Carbide Insert- allows for better surface penetration, greater clamping torque, and excellent interchangeability.
- D. Cover & Arm Seal- protect against contamination



Angle Lok Style



- Resistant to high abrasion
- Non-adjustable
- Gripping points at top of jaw
- Ideal for castings, forgings, draft angles to 7° and bar stock

Angle Lok Style General Dimensions

Kit Number	A	B	C	D
PC1274SCK	.561" wide	0.375	#10-32	0.22
PC1274SCSK	.391" wide	0.375	#10-32	0.25
PC12710SCK	.561" wide	0.375	#10-32	0.25
PC1278SCK	.561" wide	0.375	#10-32	0.25
PC1284SCK	.750" wide	0.500	1/4-28	0.25
PC1302SCSK	.396" wide	0.375	#10-32	0.25
PC1304SCK	.561" wide	0.375	#10-32	0.25
PC1322SCSK	.396" wide	0.375	#10-32	0.25
PC1324SCK	.561" wide	0.375	#10-32	0.25
PC1455SCK	.561" wide	0.375	#10-32	0.25

General Use Angle Lok

PC-127-4SC

4 Points / .561" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-128-4SC

4 Points / .750" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-127-4SCS

4 Points / .391" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-127-8SC

8 Points / .561" Wide



- 8 points
- Medium duty
- Medium tooth penetration

PC-127-10SC

10 Points / .561" Wide



- 10 points
- Medium duty
- Medium tooth penetration

Application Specific Angle Lok

PC-130-2SCS

2 teeth / .396" Wide



- 2 straight tooth
- Medium duty
- Medium tooth penetration

PC-132-4SC

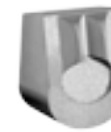
4 teeth / .561" Wide



- 4 spherical tooth
- Medium duty
- Medium tooth penetration

PC-132-2SCS

2 teeth / .396" Wide



- 2 spherical tooth
- Medium duty
- Medium tooth penetration

PC-145-5SC

5 teeth / .561" Wide



- 45° angle tooth
- Medium duty
- Medium tooth penetration

PC-130-4SC

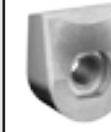
4 teeth / .561" Wide



- 4 straight tooth
- Medium duty
- Medium tooth penetration

PC-110

Spherical / .561" Wide



- Spherical
- No tooth penetration

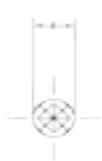
Replaceable Solid Carbide Inserts



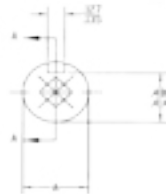
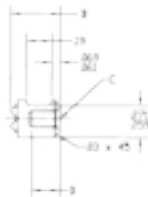
Forkardt's solid carbide inserts are available in various diameters, heights, and tooth patterns. Sold in kits of 10, with hardware included.



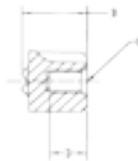
Multipurpose Round Style



PC-045-4SC



PC-070-4SC & 12SC



Kit Number	A	B	C	D
PC0454SCK	.312" dia.	0.375	#10-32	0.19
PC0704SCK	.500" dia.	0.500	#10-32	0.19
PC07012SCK	.500" dia.	0.500	#10-32	0.25

PC-045-4SC

4 Points / .312" Wide



- Light Duty
- Non-adjustable

PC-070-4SC

4 Points / .500" Wide



- 4 points
- Heavy duty
- Adjustable and non-adjustable

PC-070-12SC

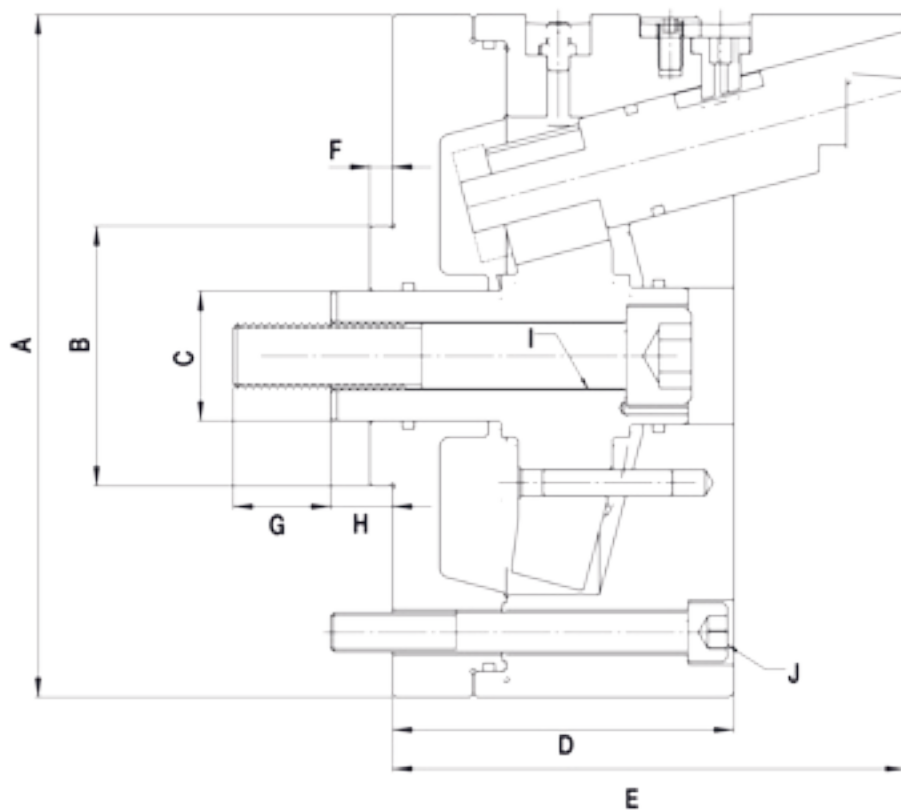
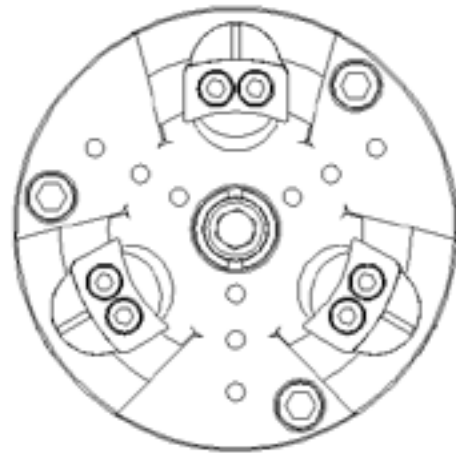
4 Points / .500" Wide



- 8 points
- Medium duty
- Adjustable and non-adjustable

OD Clamping Pin Arbor Chuck

FOR**KARDT**TM



Chuck Model	Max Clamp Force (kN)	Max Pull Force (kN)	Weight (kg)	Grip Range	
				Min	Max
FPC160	36.8	19.6	16	20	90
FPC200	46.1	24.5	25	60	130
FPC250	55.3	29.4	45	100	165
FPC300	73.7	39.2	70	120	220

Features & Benefits

- High accuracy and concentricity
- Excellent squareness and parallelism to standard end surface after machining
- High gripping force
- Chucking pins easily changed
- Available in sizes 170 to 320mm

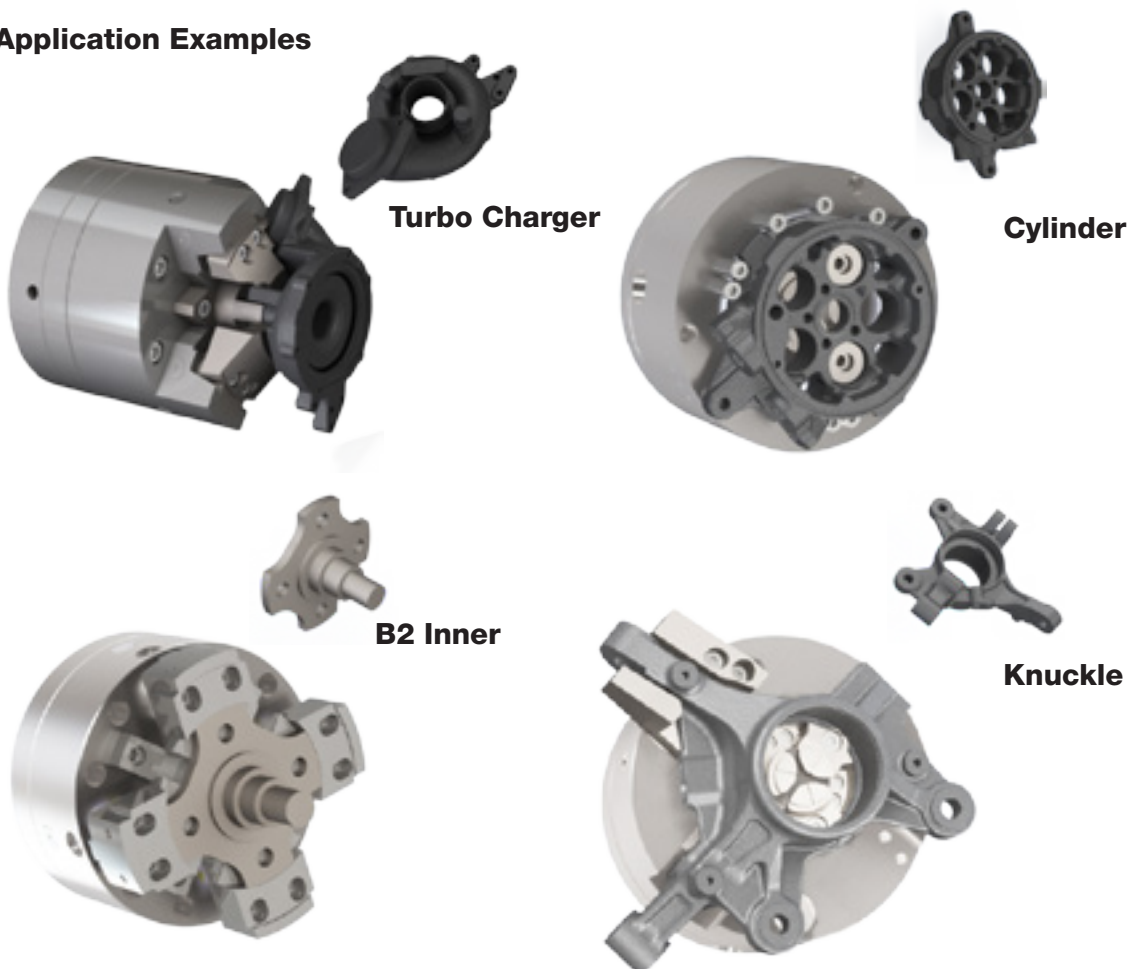
Chuck Model	A	B	C	D	E	F	G	H		I	J
								Max	Min		
FPC160	170	80	30	90	137	7	30	17	10	M16x2P	(3) M12 PCD 144
FPC200	210	80	40	105	158	7	30	23	15	M20x2.5P	(6) M12 PCD 170
FPC250	254	85	50	115	193	7	30	25	15	M20x2.5P	(6) M16 PCD 214
FPC300	320	85	60	120	213	7	40	30	20	M20x2.5P	(6) M16 PCD 275

1 kN = 224.81 lbs. (Force)

1 kg = 2.20 lbs. (Weight)

Measurements in millimeters unless otherwise noted

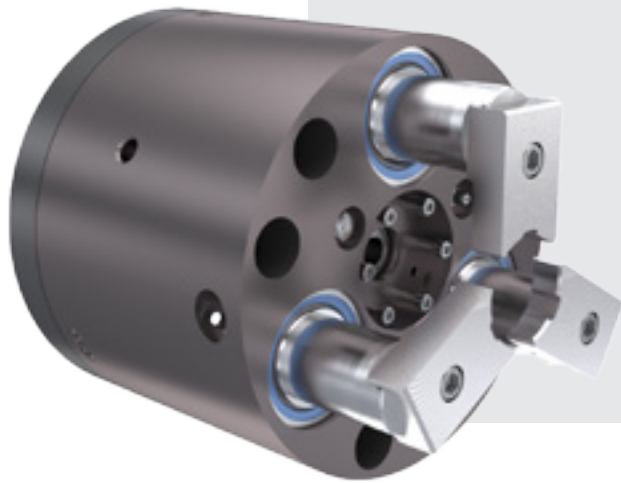
Application Examples



Retractable Work Driving Chuck

FORKARDT™

Forkardt's Retractable Work Driver Power Chuck (RWD) extends and retract to cut shaft turning operations in half. The retractable jaw chuck allows for one continuously run turning operation; a major improvement over conventional chucking which requires two operations and two machines for shaft turning.



Features & Benefits:

- Up to 32,000 lbs of freely compensating chucking pressure
- Total turning without interruption
- Improved concentricity and end location
- Accuracies of 0.001" TIR
- Speeds up to 4000 RPM
- Minimal centrifugal force loss
- Positive end driving
- Pre-loaded center

Total Turning Without Interruption

Forkardt's RWD chucks allow machining of workpieces between centers over the entire length, eliminating unnecessary part handling

Improved Concentricity and End Location

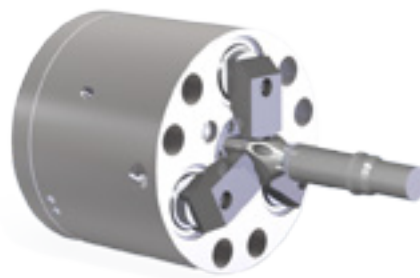
Drive Centers provide true between centers machining for greater accuracy, eliminating part turnaround

Positive End Driving

The RWD utilizes a self-contained equalizing drive pin mechanism. Each pin adjusts to the end of the workpiece, even if there is a slight out-of-squareness from part to part, ensuring evenly distributed driving force.

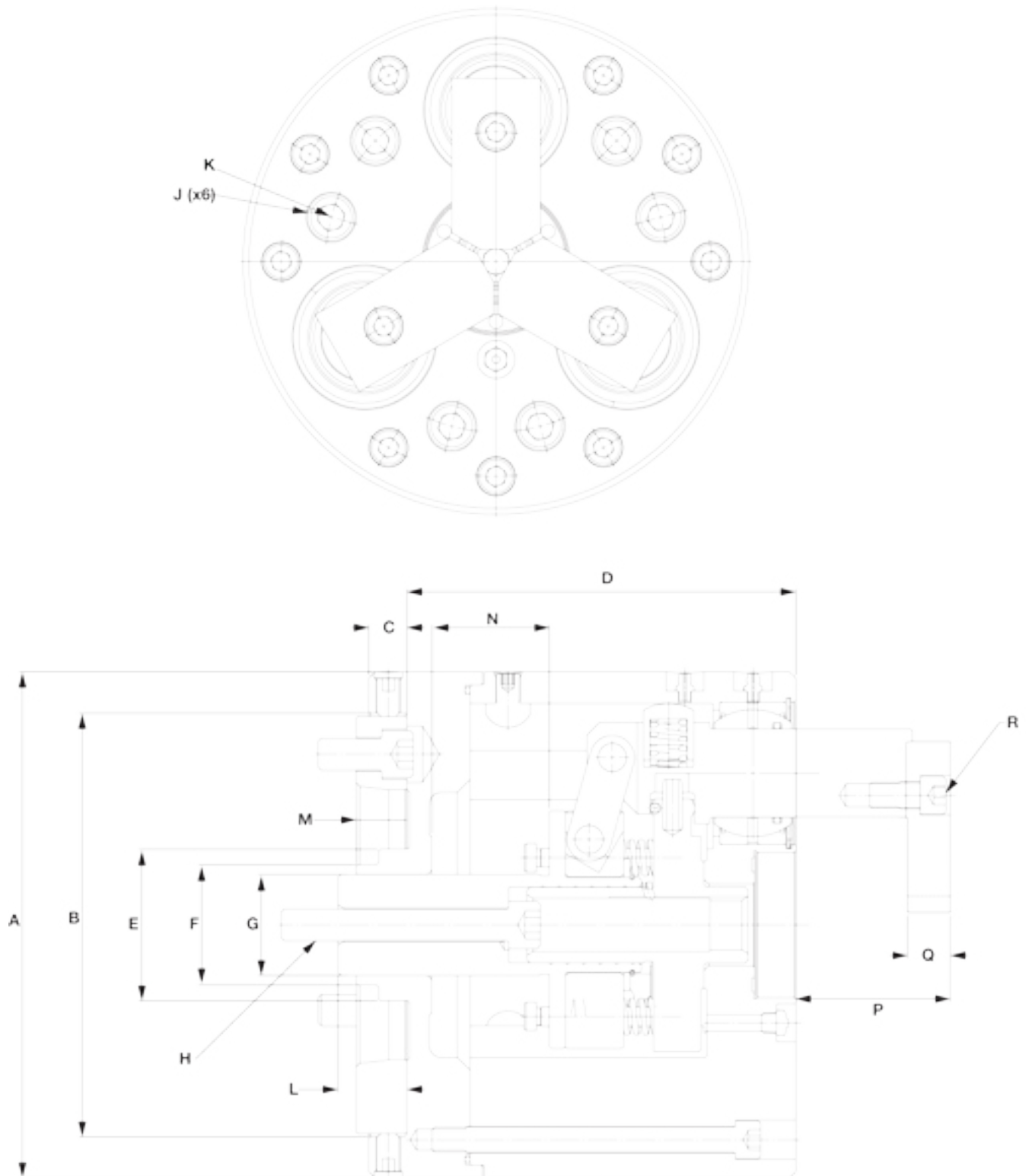
Pre-loaded Center

The RWD is provided with a long, guided spring loaded center to accommodate locating center tolerance variation



Ideal for a wide variety of shaft applications including:

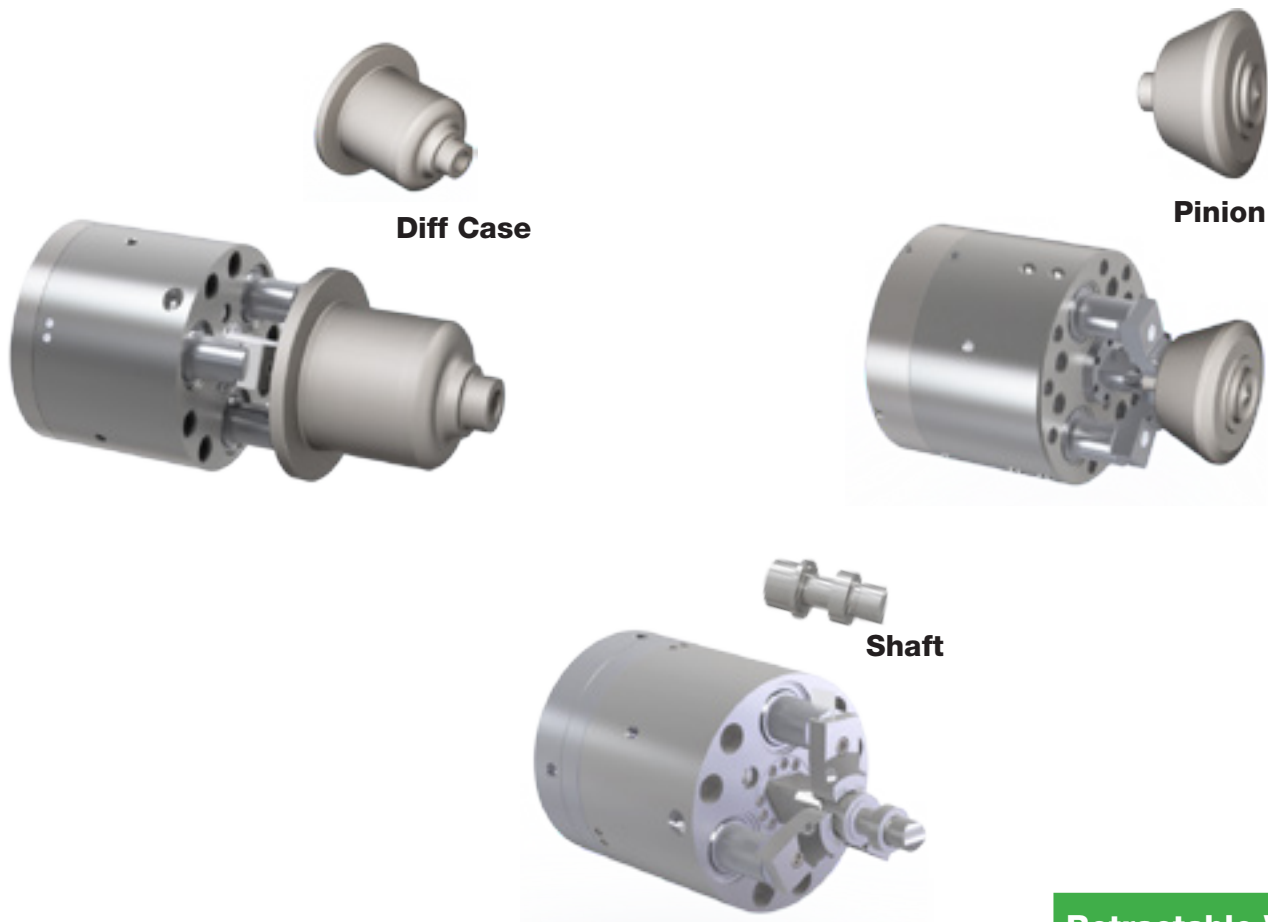
- Camshafts
- Drive Shafts
- Crankshafts
- Motor Shafts
- Transmission Shafts
- Axle Shafts



		RWD8000A	RWD10000D	RWD12000D
Chuck Diameter	A	196	245	294
Mounting Recess Dia.	B	-	205.56	254.31
Depth of Recess	C	-	18.38	18.38
Chuck Height	D	160.97	188.41	188.41
Back Plate Boss dia.	E	129.36	73.50	79.63
Back Plate Boss Step dia.	F	55.13	58.31	64.44
Actuator Dia.	G	36.75	49.00	55.13
Draw Bar Thread	H	5/8"-11	5/8"-11	3/4"-10
Chuck Mounting Bolt Size	J	5/8"-11	5/8"-11	5/8"-11
Mounting Bolt Circle Dia	K	162.44	165.38	214.38
Actuator Position	L	35.28	33.57	27.56
Length of Boss	M	28.42	24.50	24.50
Actuator Stroke to Full Retract	N	49.00	56.84	62.97
Jaw Mounting Platform	P	62.72	74.97	81.10
Jaw Height	Q	14.70	20.83	20.83
Jaw Mounting Screw Size	R	3/8"-16	1/2"-20	1/2"-20
Maximum drawbar force (kN)		35.59	44.48	44.48
Maximum RPM		4000	3500	3000
Jaw Blank Weight (kg)		0.69	1.30	1.68
Chuck Weight (kg)		78	142	224

Dimensions in mm unless otherwise noted

Application Examples



Diaphragm Chucks

FOR**KARDT**TM

The Forkardt diaphragm chuck is based on the original N.A. Woodworth design principle of simplicity. There are no sliding parts, no friction, and no wear. It operates similar to an oil can bottom with a simple flexing action, assuring consistently controlled concentricity and may be actuated by a built in cylinder or machine drawbar. With the standard Dovetail or Master Jaw style, the Universal Gear, and the Pitch Line Diaphragm chuck options, Forkardt has the solution you need for any application.

Standard Design Dovetail or Master Jaw Style

Ideal for:

- Secondary operations such as grinding, boring, facing and light turning

Key Features:

- No sliding parts
- Consistently controlled concentricity



Available in 3, 4 and 6 jaw design standard sizes 130 to 330mm. Larger sizes available

Universal Gear- UG Pull Back Gear Diaphragm

Ideal for:

- Gear turning
- Hard turning and grinding applications

Key Features:

- Pull-back action
- Fast gear changeover



Available in standard sizes from 130 to 330mm. Larger sizes available.

Pitch Line Diaphragm - PLD Counter Centrifugal Diaphragm

Ideal for:

- Gear turning
- Hard turning and grinding applications

Key Features:

- Centrifugal force compensation
- Quick jaw changeover



Available in 3, 4 and 6 jaw design standard sizes 130 to 330 mm. Larger sizes available

Diaphragm Chucks

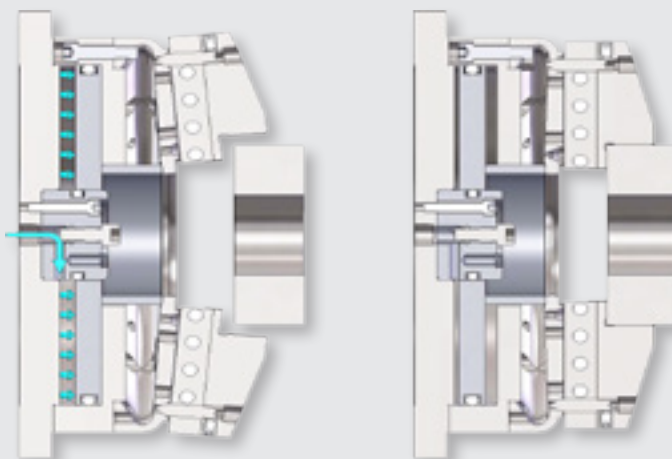
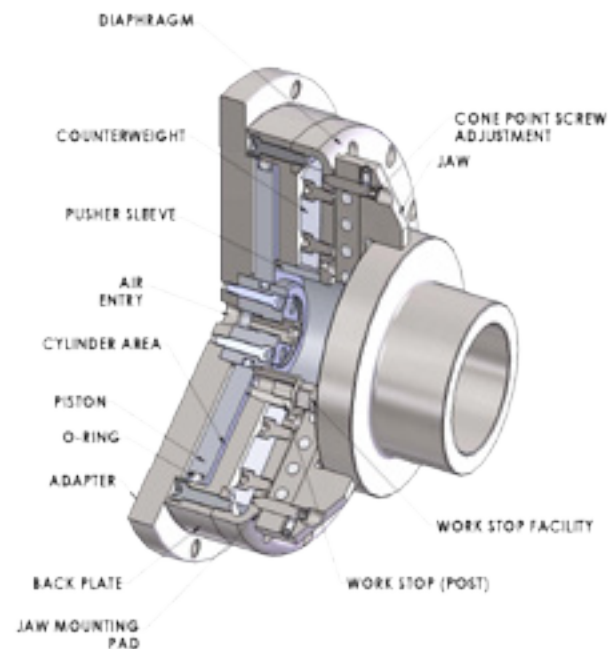
Diaphragm Chuck Principle: Simplicity

The diaphragm principle as applied to chucking utilizes the inherent strength and accuracy of spring steel to achieve chucking pressure on internal or external surfaces. Safe clamping of the workpiece is achieved through positive clamping force of the diaphragm. Drawbar force is only required for declamping.

Diaphragm chucks are primarily for secondary operations such as grinding, boring, facing, and light turning. Locating surfaces should be pre-machined or precision cast surface. Locating grip tolerances should be held to a total of .15" on the smaller chucks to .40" on the larger sizes.

Applications of this principle have been production proven in plain diameter and pitch line chucks in sizes ranging from 2" to 54".

Standardization of components assures interchangeability of parts



Flexing Action Exaggerated

How a Diaphragm Works

Air is introduced through the spindle adapter plate by means of a pipe. When air pressure is applied, the piston moves forward and the movement is transmitted to the diaphragm by a push sleeve. As the diaphragm is flexed the jaws open and the workpiece is loaded. To chuck, the air is turned OFF and the jaws move toward the relaxed position until they contact the part. The part is located on centerline of the chuck.

No Sliding Parts... No Friction... No Wear...Just Consistent, Controlled Concentricity!

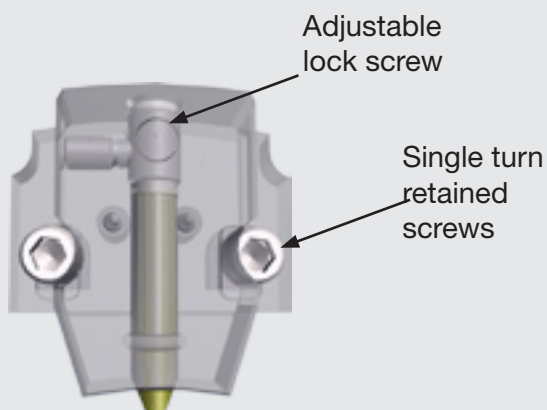


The Forkardt PLD chuck is aimed primarily at gear families. This diaphragm chuck offers solutions in hard turning and grinding operations where repeatability, interchangeability, and roundness are a concern.

The key to the design of the PLD is the simplicity of the quick change system. Two designs are available; the more traditional face access design, and the NEW MIR OD access design.

A coolant-thru provision and workpiece air sensing arrangements can be provided as part of the chuck design at specific request.

Traditional Design- Face Access



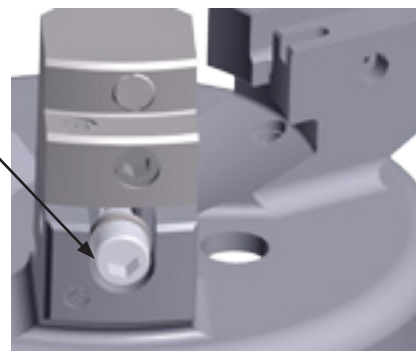
Features & Benefits

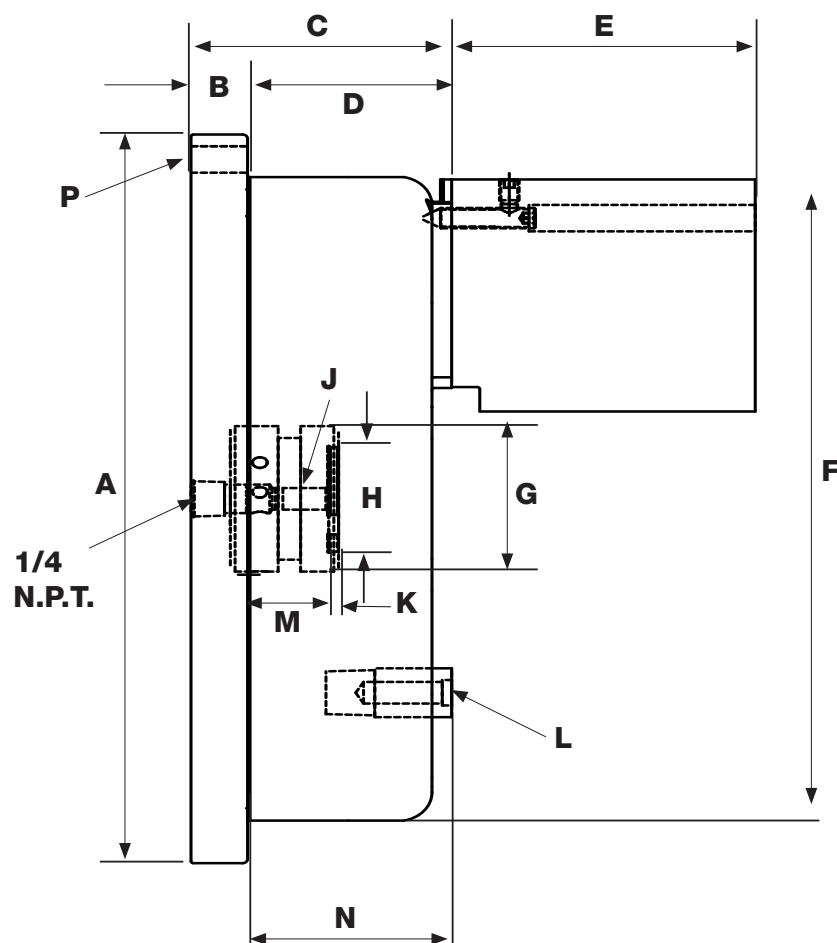
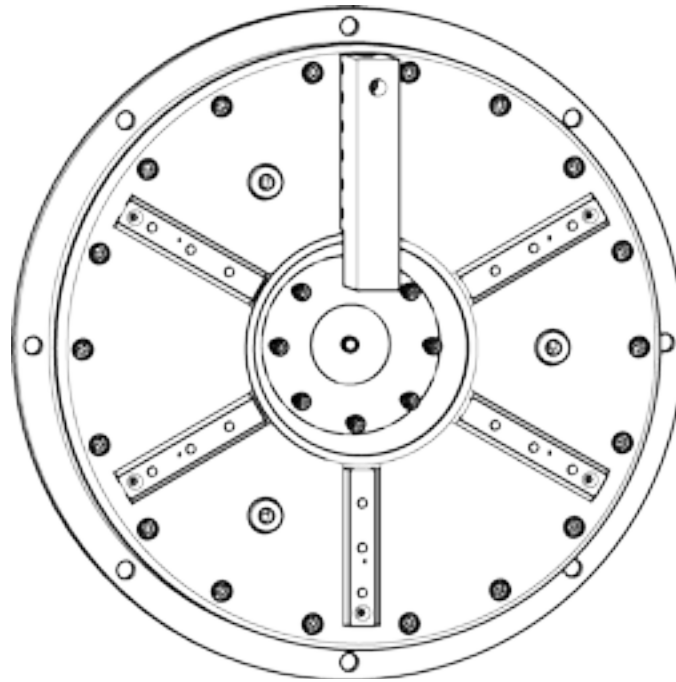
- Jaw change in 60 seconds
- Accommodates any number of gear teeth
- Compliance for tooth space variation
- Standard pull-back action
- Centrifugal force compensation for higher speeds
- Minimal maintenance- no sliding parts



MIR Design- OD Access

Single turn retained screw







Item	Weight (kg)	No. of Jaws	Jaw Stroke (mm)	Gripping Range (mm)	Max Clamping Force (kN)	
					Single	Double
SC401	3	3	0.15	3.18 - 76.20	3.89	7.78
SC500	6	3	0.23	9.53 - 76.20	4.67	9.34
SC501	6	3	0.23	9.53 - 76.20	4.67	9.34
SC700	9	4	0.23	12.70 - 101.60	8.00	16.00
SC701	9	4	0.23	12.70 - 101.60	8.00	16.00
SC708	9	3	0.23	12.70 - 101.60	8.00	16.00
SC801	15	6	0.25	53.98 - 139.70	10.68	21.35
SC100	19	6	0.25	50.80 - 177.80	16.90	33.81
SC101	19	6	0.25	50.80 - 177.80	16.90	33.81
SC1300	36	6	0.36	88.90 - 254.00	30.25	60.50
SC1701	74	6	0.41	127.00 - 355.60	54.71	109.43

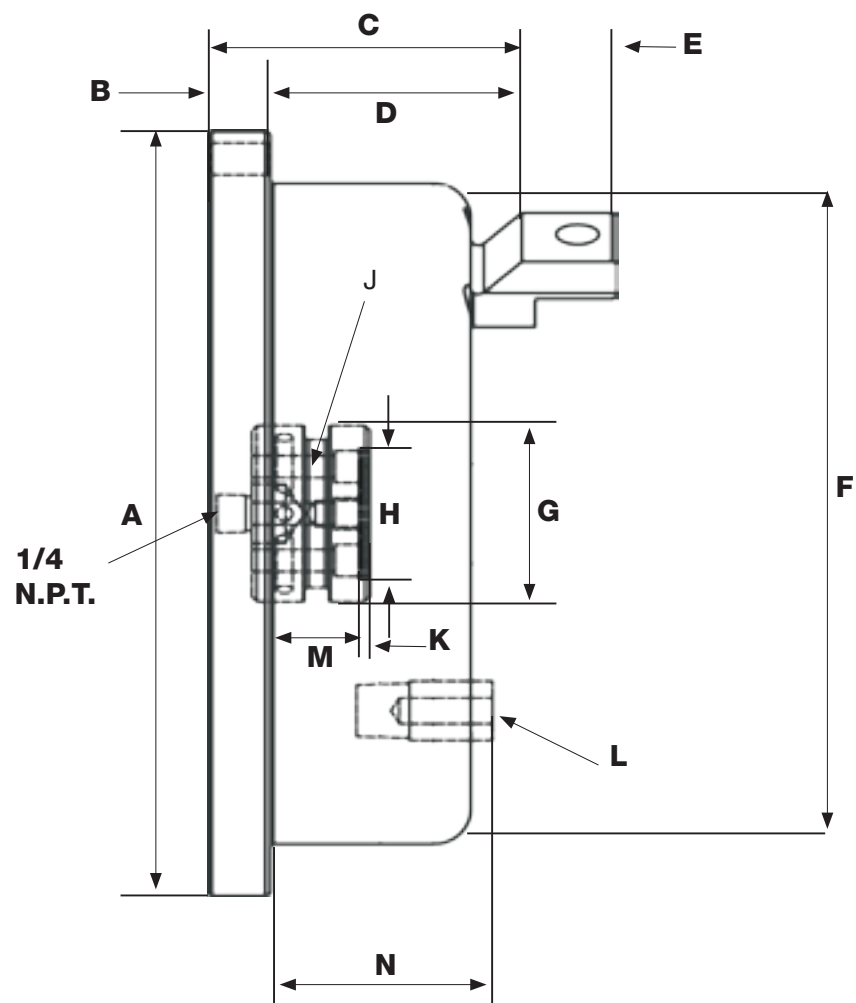
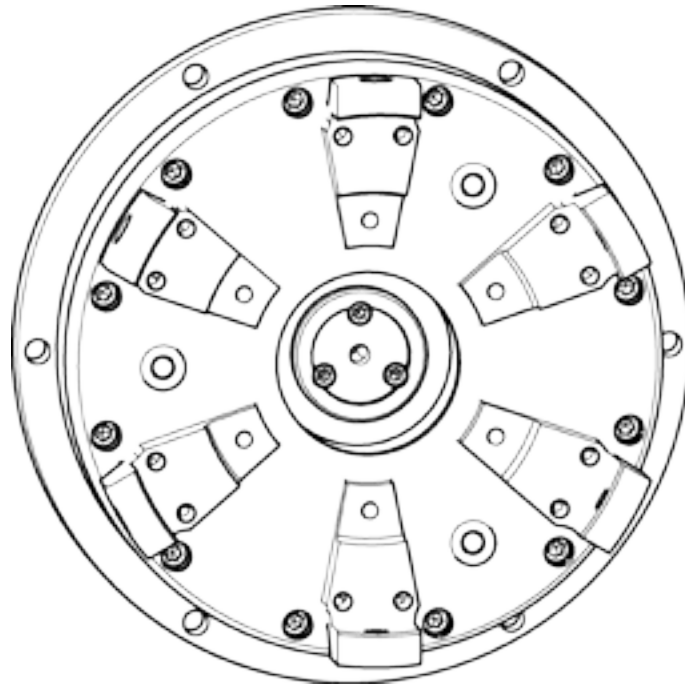
* All "01" series chucks have stop facilities for both center post stops except SC1301 and SC1701, which have post work stops only.

The dovetail design diaphragm chuck features a unitized diaphragm assembly, self-contained air cylinder, face plate adapter, and optional rotary slip coupling. Custom spindle adapters and drawbar operated configurations available.

For applications requiring additional chucking pressure, air is introduced ahead of the cylinder by utilizing a double rotary coupling to increase the clamping pressure.

Item	Dimensions												
	A	B	C	D	F	G	H	J	K	L	M	N	P
SC401	155.49	11.68	50.8	39.62	123.44	21.34	14.29	3/8"-24	3.05	(3) 1/4"-28 on 2.12" BC	26.92	34.04	(4) 13/32 Holes on 5.50" B.C.
SC500	171.45	19.05	79.25	60.45	138.43	22.90	-	-	-	-	-	-	(4) 13/32 Holes on 6.12" B.C.
SC501	171.45	19.05	79.25	60.45	138.43	22.90	14.29	3/8"-24	3.05	(3) 5/16"-28 on 2.62" BC	25.40	55.37	(6) 13/32 Holes on 7.50" BC
SC700	207.77	19.05	79.25	60.45	175.00	26.16	-	-	-	-	-	-	(6) 13/32 Holes on 7.50" BC
SC701	207.77	19.05	79.25	60.45	175.00	26.16	14.29	3/8"-24	3.05	(4) 5/16"-24 on 3.88" BC	25.40	60.45	(6) 13/32 Holes on 7.50" BC
SC708	207.77	19.05	79.25	60.45	175.00	26.16	14.29	3/8"-24	3.05	(3) 5/16"-24 on 3.88" BC	25.40	60.45	(6) 13/32 Holes on 7.50" BC
SC801	245.87	19.05	84.07	65.02	213.11	64.26	41.28	3/8"-24	3.05	(3) 3/8"-24 on 5.00" BC	25.40	65.02	(6) 13/32 Holes on 9.00" BC
SC100	283.97	19.05	87.07	65.02	251.21	76.96	-	-	-	-	-	-	(6) 13/32 Holes on 10.50" BC
SC101	283.97	19.05	87.07	65.02	251.21	76.96	41.28	3/8"-24	3.05	(3) 3/8"-24 on 6.87" BC	25.40	65.02	(6) 13/32 Holes on 10.50" BC
SC1300	275.92	18.29	87.38	68.07	327.41	115.06	-	3/8"-24	-	(3) 7/16"-20 on 8.00" BC	-	68.07	(6) 13/32 Holes on 13.50" BC
SC1701	476.25	22.35	91.95	69.85	429.00	152.40	-	3/8"-24	-	(3) 7/16"-20 on 10.75" BC	-	75.18	(6) 13/32 Holes on 17.75" BC

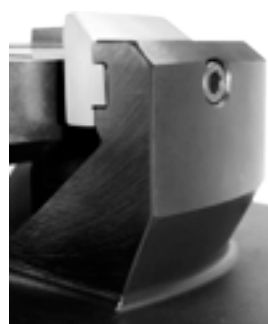
* Measurements in millimeters unless otherwise noted





The master jaw design diaphragm chuck includes a unitized diaphragm assembly, self contained air cylinder, face plate adapter, optional rotary slip coupling and installation instructions. Custom spindle adapters and drawbar operated configurations are available.

All chucks have stop facilities for both center and post stops with the exception of the 13" and 17" sizes, which have post work stops only.



Item	Weight (kg)	No. of Jaws	Jaw Stroke (mm)	Gripping Range (mm)	Max Clamping Force (KN)	
					Single	Double
SC5012	8	3	0.23	6.35 - 76.20	4.67	9.34
SC7012	12	4	0.23	44.45 - 107.95	8.00	16.00
SC8012	21	6	0.25	76.20 - 142.75	10.68	21.35
SC10012	27	6	0.25	114.30 - 180.85	16.90	33.81
SC13012	45	6	0.36	152.40 - 247.65	30.25	60.50
SC17012	90	6	0.41	203.20 - 349.25	54.71	109.43

Master jaw inserts are available as soft blanks or hardened and finished to part requirements. Inserts are easily accessed from the OD of the chuck.

Both N.A. Woodworth flat and Sheffer shell designs are available.

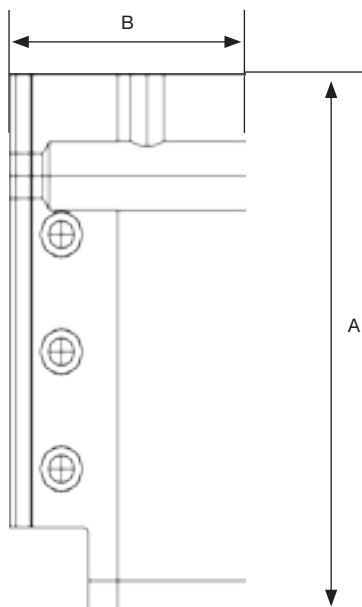
Item	Dimensions												
	A	B	C	D	F	G	H	J	K	L	M	N	P
SC5012	171.45	19.05	90.42	71.37	138.38	22.86	14.29	5/16"-24	3.05	(3) 5/16"-24 on 2.62" BC	25.40	55.37	(4) 13/32 Holes on 6.12" BC
SC7012	207.77	19.05	91.95	72.90	174.88	26.16	14.29	5/16"-24	3.05	(4) 5/16"-24 on 3.88" BC	25.40	60.45	(6) 13/32 Holes on 7.50" BC
SC8012	245.87	19.05	96.77	77.72	212.98	64.26	41.28	3/8"-24	3.05	(3) 3/8"-24 on 5.00" BC	25.40	65.02	(6) 13/32 Holes on 9.00" BC
SC10012	279.91	19.05	96.77	77.72	251.08	76.96	41.28	3/8"-24	3.05	(3) 3/8"-24 on 6.87" BC	25.40	65.02	(6) 13/32 Holes on 10.50" BC
SC13012	360.43	19.05	96.77	77.72	327.41	115.06	-	-	-	(3) 7/16"-20 on 8.00" BC	-	73.91	(6) 13/32 Holes on 13.50" BC
SC17012	476.25	22.35	112.78	90.424	428.88	152.40	-	-	-	(3) 7/16"-20 on 10.75" BC	-	75.44	(6) 17/32 Holes on 17.75" BC

Measurements are in mm unless otherwise noted.

Jaw Blanks Dovetail Design Cone Point Screw Adjustment

All Forkardt Dovetail Jaws with cone point adjustment are made of high quality SAE-1045 steel. Jaws are easily adjusted and easily changed.

Machined Jaws from standard blanks. Engineered and machined to suit specific parts.



For Use On	Item No.	Dimensions	
		A	B
SC500	DC588	62.48	21.84
SC501	DC589	62.48	34.54
SC700	DC781A	80.26	21.84
SC701	DC782A	80.26	34.54
SC708	DC783A	80.26	47.24
SC801	DC784A	80.26	59.94
SC100	DC180A	90.42	47.24
SC101	DC182A	90.42	98.04
SC1301	DC1381	97.74	76.20
SC1301	DC1382	122.17	101.60
SC1301	DC1383	122.17	127.00
SC1301	DC1384	122.17	152.40
SC1701	DC1781	163.58	76.20
SC1701	DC1782	163.58	101.60
SC1701	DC1783	163.58	127.00
SC1701	DC1784	163.58	152.40

Jaw Inserts Master Jaw Design

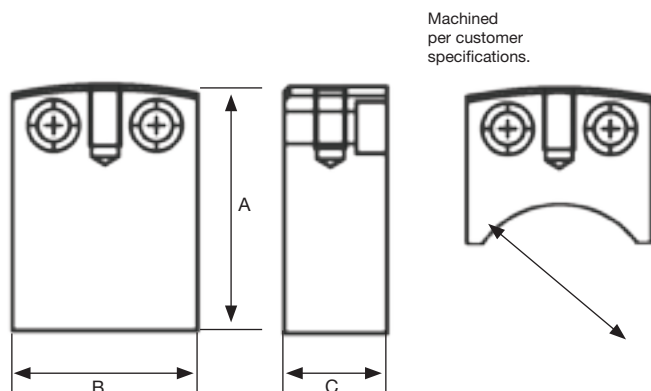
Changing from one set of pre-numbered hard inserts to another when re-running a job is accomplished in minutes. It is not necessary to grind before use as inserts are finished to your design.

Soft Blank Jaws

Soft blanks are provided with locating radius and bottom face finish ground

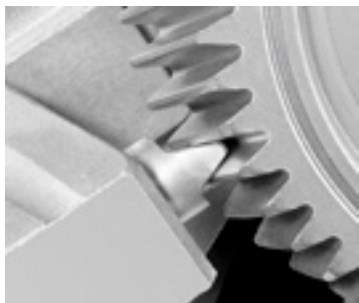
Hard Finished Jaws

For finished inserts send part print showing locating diameter and stop face



For Use On	Item No.	Dimensions		
		A	B	C
SC5012	DC50121	25.40	38.10	53.85
SC5012	DC50122	38.10	38.10	53.85
SC7012	DC70121	25.40	50.80	65.02
SC7012	DC70122	44.45	50.80	65.02
SC8012	DC80121	28.45	50.80	55.37
SC8012	DC80122	50.80	50.80	55.37
SC10012	DC100121	28.45	50.80	58.67
SC10012	DC100122	50.80	50.80	58.67
SC13012	DC130121	31.75	57.15	76.20
SC13012	DC130122	50.80	57.15	76.20
SC17012	DC170121	31.75	57.15	101.60
SC17012	DC170122	63.50	63.50	101.60

Gear Diaphragm Chucks

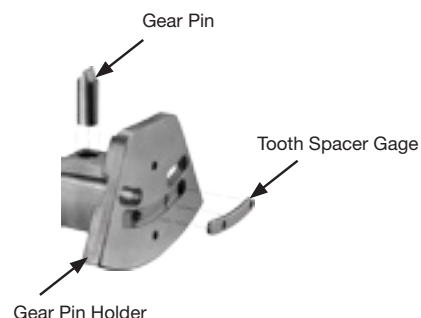


First In Pitch-Line Gear Chucking

Forkardt offers a range of pitch-line chucking products to suit any given gear application.

Universal Gear Chuck (UG)

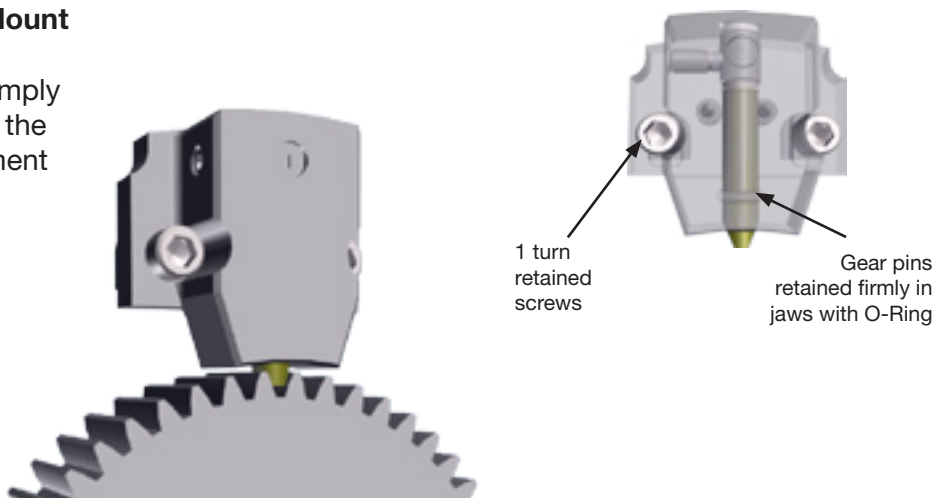
Interchangeable gear pin holders, tooth spacer gage, and gear pins provide fast and simple gear changeover for maximum versatility



Pitch Line Diaphragm Chuck (PLD)

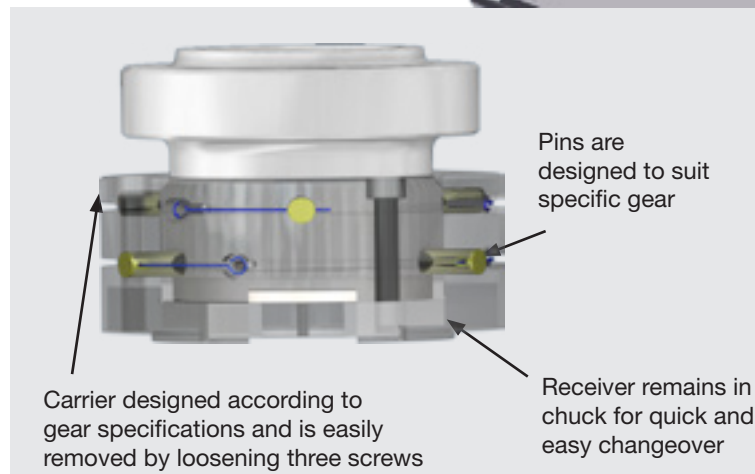
NEW MIRV Quick Change Jaw Mount

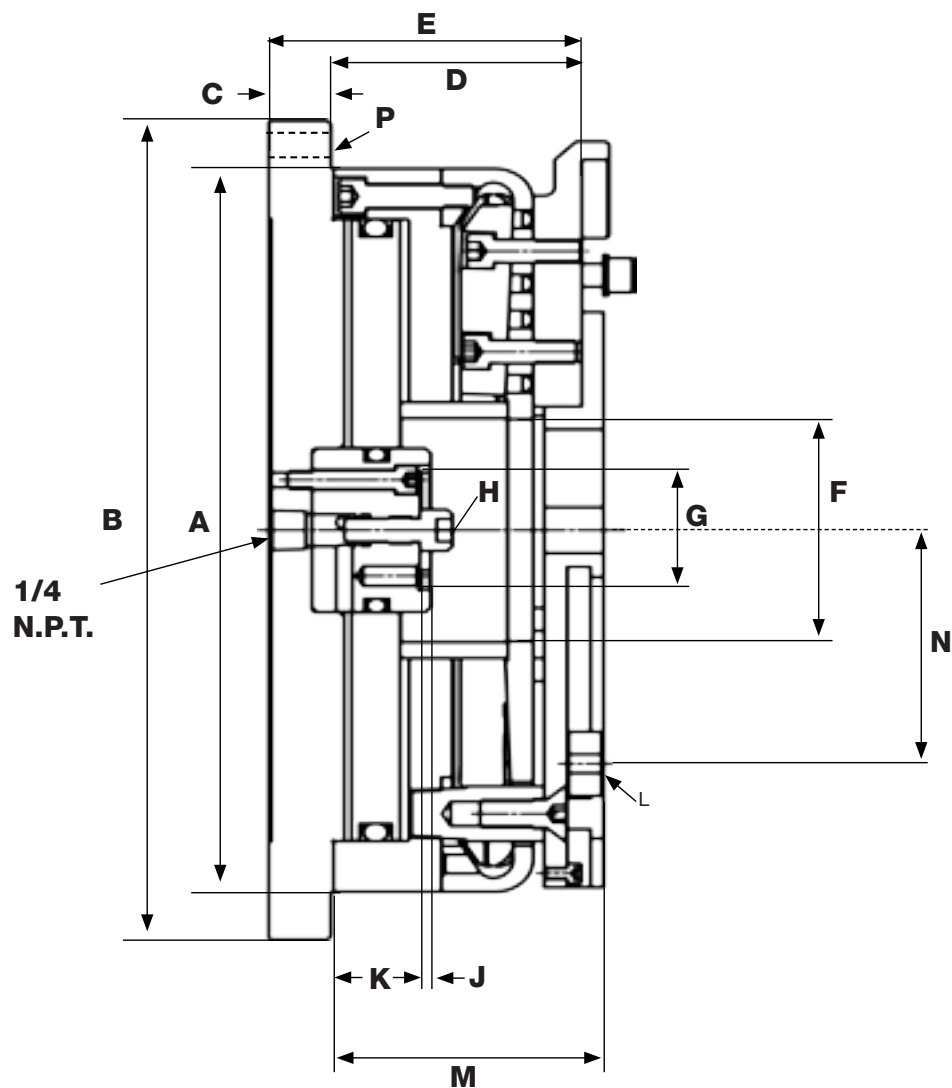
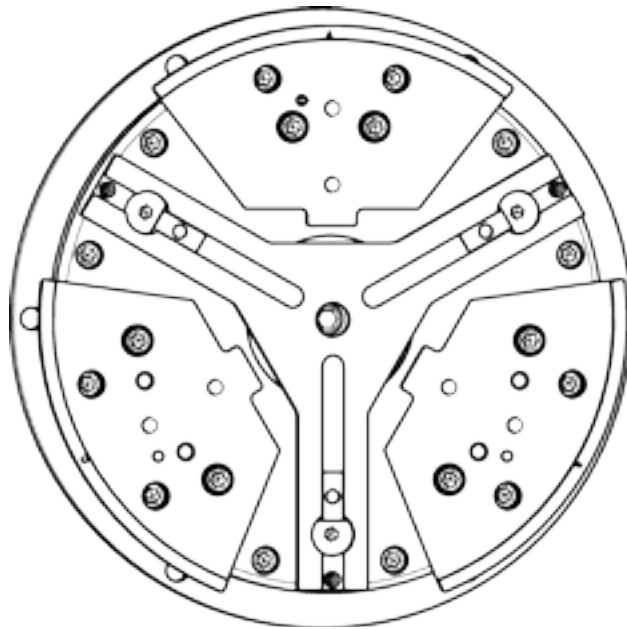
Gear pins are easily replaced by simply pulling the old pins out and sliding the new pins into the jaws. No adjustment is required.



Cage Style Gear Chuck

Cage style gear chucks utilize interchangeable cages for each gear work piece within the range of the chuck. The cages carry three gear pins matching the pitch and helical alignments required for a specific gear. Changeover is fast and simple- loosen three screws, install new cage and start production.





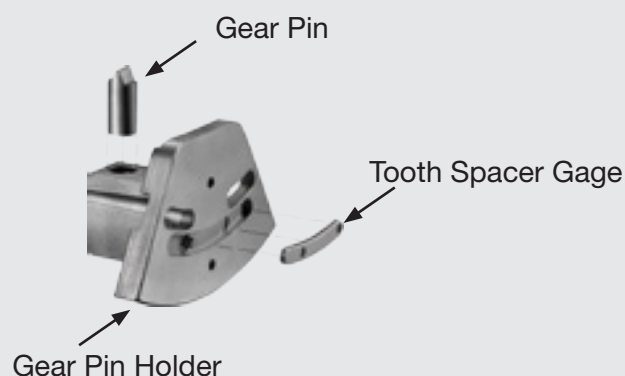
Universal Gear Diaphragm Chuck

UG



The UG chucks are ideal for longer run applications with infrequent changovers. The UG diaphragm chucking system adapts to many different gear configurations, requiring minimal top tooling. Changeover from one gear to another is simple and can be accomplished in minutes.

The UG chuck provides consistent and controlled accuracy on every run and features pull back action against fixed stops for positive location.



Features & Benefits

- No sliding parts reduces maintenance costs and down times
- Pull-back action against fixed stops for positive location
- Simple gear changeover reduces set up time
- Inherent strength of spring steel is used to achieve chucking pressure, ensuring consistently controlled concentricity

Item	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Weight (kg)
UG703	174.75	208.03	19.05	65.02	84.07	26.92	14.22	5/16	78.74	25.40	1/4"-28	74.68	19.00-79.40	3/8	15
UG103	250.95	284.23	19.05	73.00	92.10	77.10	41.40	3/8	78.84	25.40	5/16"-18	79.40	30.18 - 104.39	3/8	28
UG1303	327.15	360.43	50.80	50.80	101.60	116.59	N/A	N/A	N/A	N/A	5/16"-18	56.64	55.63 - 151.64	3/8	32
UG1703	428.75	476.25	50.80	54.10	104.90	153.16	N/A	N/A	N/A	N/A	5/16"-18	62.99	55.88 - 199.64	1/2	82

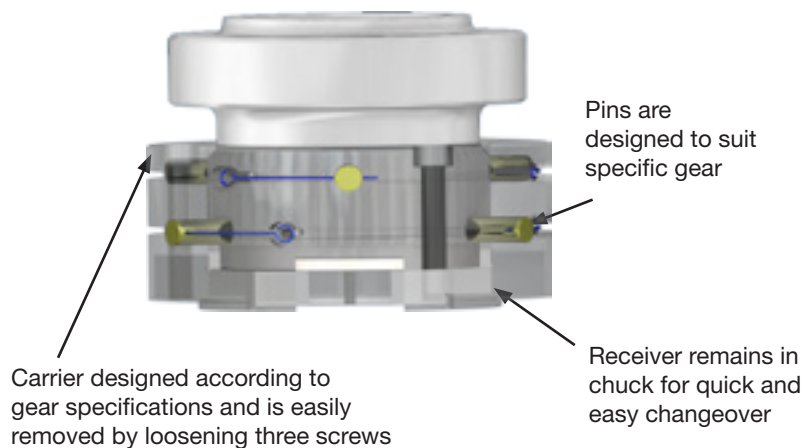
Dimensions in mm unless otherwise noted



Cage style gear chucks utilize interchangeable cages for each gear work piece within the range of the chuck. The cages carry three gear pins matching the pitch and helical alignments required for a specific gear. Changeover is fast and simple- loosen three screws, install new cage and start production.

Interchangeable Gear Cages

It is not uncommon to have a single chuck with 20 to 25 cages for medium size repetitive runs. Standardization of both the chuck and the cage has resulted in an economical fixture which keeps changeover and production costs down while assuring quality.



Gear Pins

The cage style diaphragm chuck uses either wedge type or conical type gear pins. The pins are held in place with a spring clip. Clearance is allowed in the pin hole of the cage for controlled filloat.



Face Clamping Diaphragm Chuck

FCD

The Forkardt face clamping diaphragm chuck is designed as a diaphragm chuck with face clamping fingers.



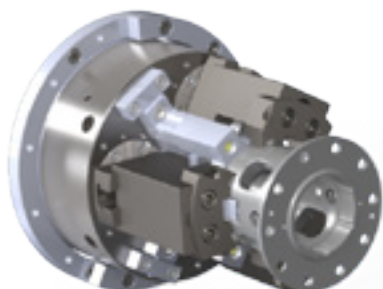
In this example, a PLD style diaphragm chuck is used to center the gear. The face clamps are used to hold the part so that the diaphragm pins do not need to exert as much grip force on the part, preventing deformation.



In this example, a master jaw style diaphragm chuck with inserts is used to center the bearing housing. The face clamps allow less grip force to be used, preventing deformation of the part.

To solve high levels of technical problems that cannot be handled with single chucking method, Forkardt offers various combination designs, which allow multiple functions to be integrated in to one chuck.

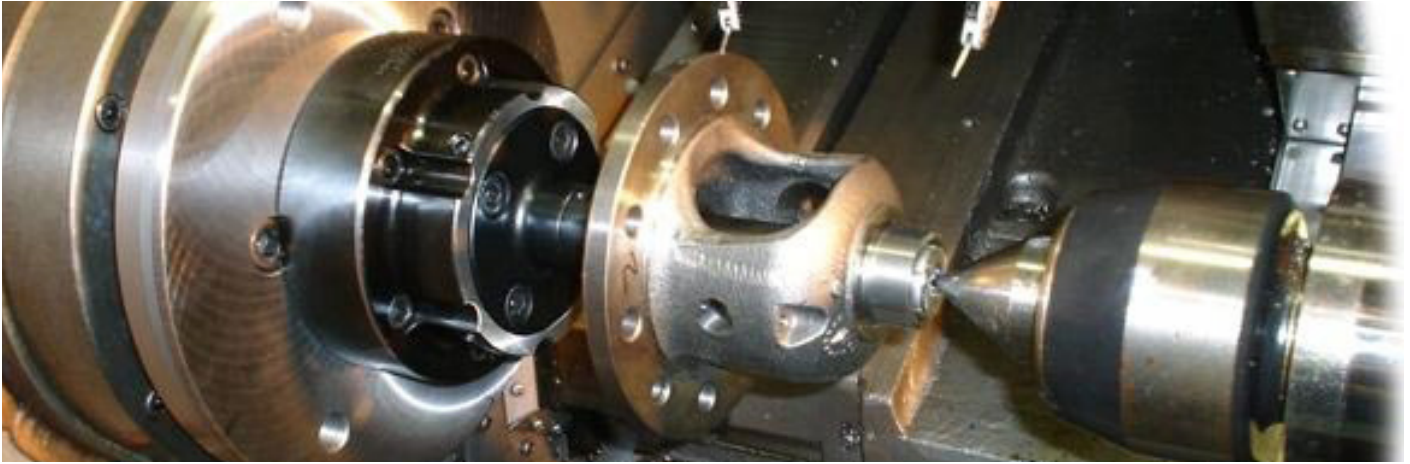
Various Combination chuck designs like UBL chuck with collet location , Special Diaphragm chuck with face clamping, Special Collet chuck with face clamping, Pin Arbor chuck with fingers & etc. are available , these are designed to meet the specific application requirements.



UBL Chuck with Collet Location

Collet Chucks

FOR**KARDT**TM



When to Use A Collet Chuck

The collet chuck is a workholding device that uses mechanical force to hold the part being turned. A collet chuck offers advantages related to speed, accuracy and productivity. Several factors determine which type of chuck is needed for a given application.

Spindle Load Capacity

In applications where there is a danger of exceeding the maximum allowable weight for a spindle, a collet chuck may be a more appropriate choice as the overall weight is generally less than a jaw chuck.

Spindle Speed

For applications where high spindle RPM is needed, a collet chuck may be the best choice for two reasons:

1. Overall Mass - a collet chuck will accelerate up to speed faster than the jaw chuck, reducing cycle time and increasing productivity
2. Centrifugal Force - clamping force is not affected by centrifugal force, allowing for a more constant force across the speed range

Workpiece Length and Diameter

Collet chucks are ideal for workpieces smaller than 3" in diameter. Also, due to the inherent design of a collet, the length of the workpiece is limited, so a long workpiece that requires most of the available travel of the machine would not be recommended for a collet chuck. However, special workholding designs using unique or dual collets have successfully held larger, longer, and odd shaped workpieces.

Lot Size

Collet changeover is typically less than 1 minute, making a collet chuck ideal for small lot sizes. The collet chuck is also ideal for large lot sizes as faster open/close operation reduces cycle time between parts.

Advantages of Collet Chucks

- Accelerates up to speed quickly, reducing cycle times and increasing productivity
- Effect of centrifugal force is not significant, allowing for more constant clamping force across range of speed
- 360° support of the part, tightening concentricity and reducing chance of part slippage
- Bar stock remains on centerline for concentric re-gripping as it is advanced by the bar feeder
- Reduction in vibration
- Faster clamping and unclamping times

Practical Applications

Automotive

Large Diff Case

This OD Grip Collet Chuck is used for second operation turning of the diameters and the face. Part orientation was required. The chuck is designed with pull back to allow the part to positively locate against fixed stops. Because the part is not symmetrically shaped, it was necessary for the design to account for balance issues presented by the part.



Automotive CG Joint

ID grip collet chuck in second operation turning application in vertical arrangement.



Aerospace

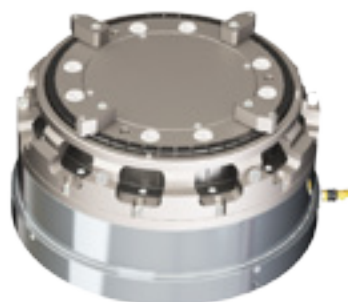
Aircraft Rotor

This double collet ID grip chuck is used for second operation machining. In order to meet the stringent quality requirements necessary for the aircraft industry, the chuck also utilizes manual clamps for pull down.



Special Aerospace Vertical Turning Operation

This ID grip collet chuck was designed with internal finger clamps. The collet was designed with no pull back, allowing the finger clamps to pull the part down onto a fixed locator providing for minimal distortion.





Rim-Lok ID and OD Grip Collet Chucks

Ideal for:

- Applications with increased side cutting forces
- Heavy turning or grooving on OD
- Roughing and gridning

Key Features:

- 360° support of the part
- Helps reduce deformation
- Sealed design

Available in grip ranges from 20 to 220mm. Larger sizes available

Tork-Lok ID Grip Arbors and Collets

Ideal for:

- Milling, boring or gear cutting

Key Features:

- Precision ground flats
- Locates on true center
- Modular design for interchangeability



Available in grip ranges from 11 to 113mm.



FlexC® OD Grip Quick Change Collet System

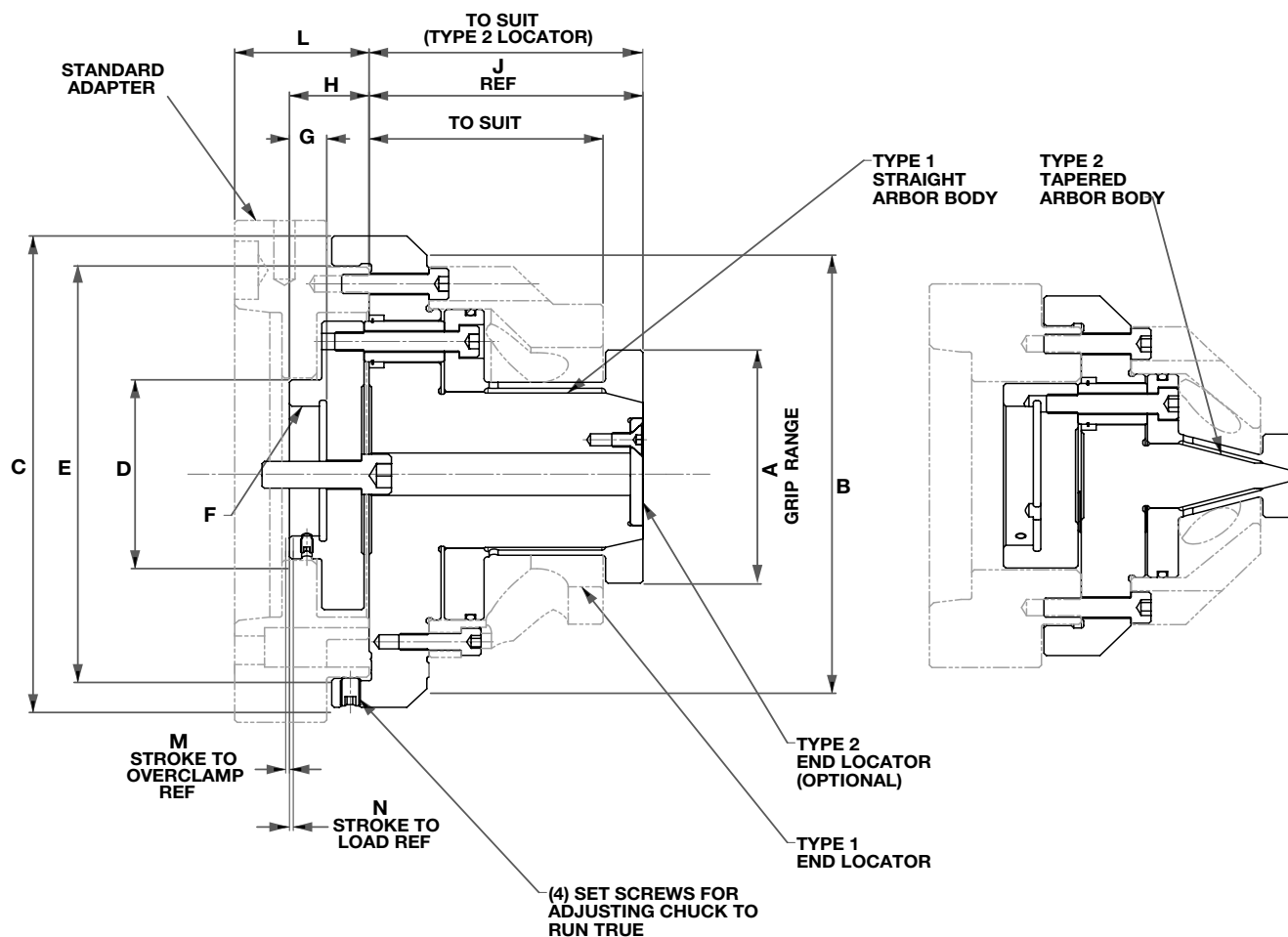
Ideal for:

- Machining bar stock
- Small or large batch machining

Key Features:

- True parallel gripping
- Quick changeover
- Modular design for interchangeability

Available in grip ranges from 5 to 80mm.



Rim-Lok ID Grip Collet Chuck

IRL



ID grip collet chucks are recommended for applications where increased side cutting forces are encountered, such as heavy turning or grooving on the OD of the part. Forkardt's ID grip collet chuck features positive pull back action and adapts very well to high speed turning applications.



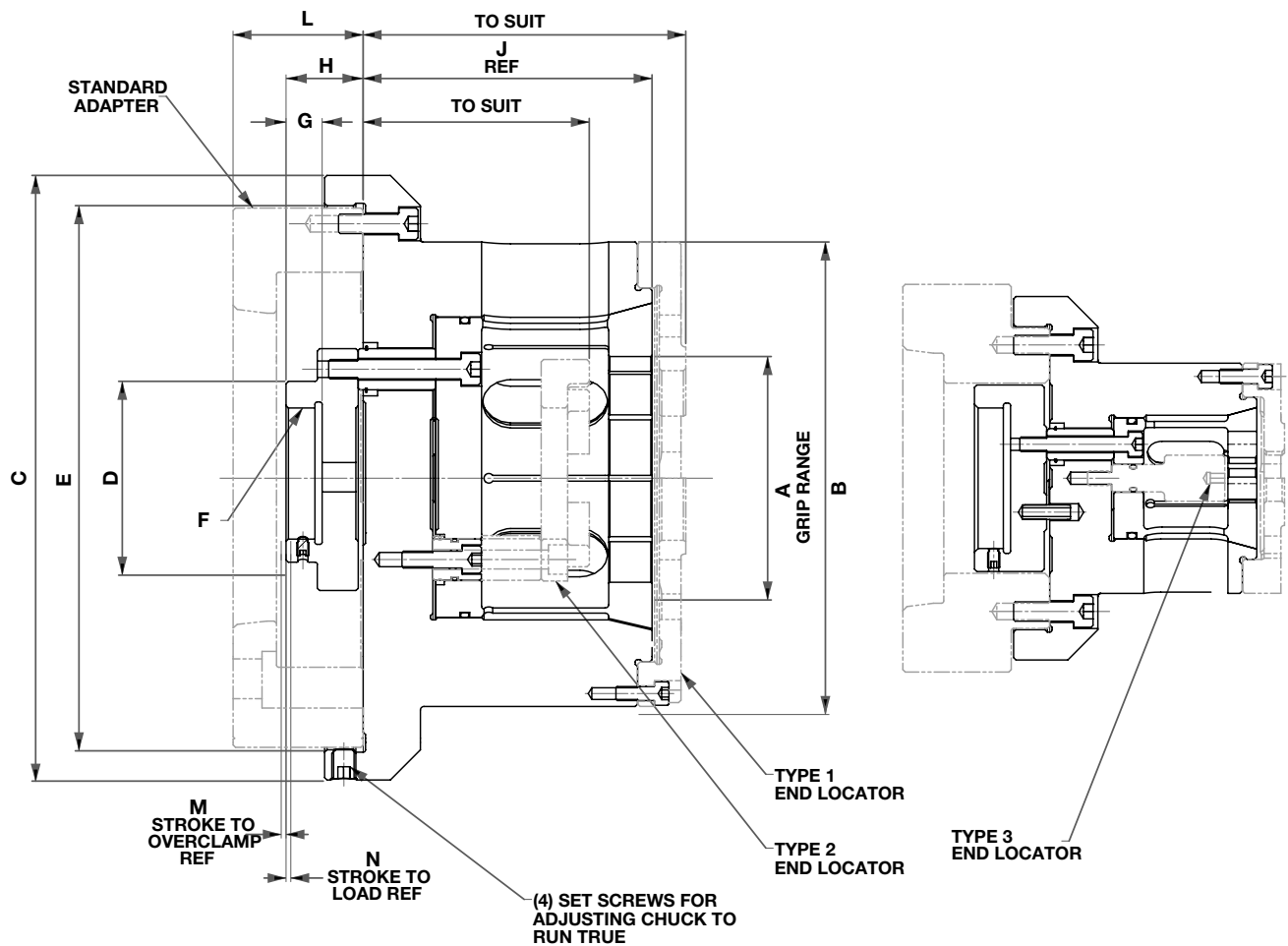
Rim-Lok Leaf Style ID Grip Collets

Forkardt collets are manufactured to high quality standards using a proprietary process from the material used to the heat treat process. The result is high quality product with a long life, reducing collet changeover and downtime. Forkardt collets repeat within 0.0005" TIR or better, assuring that the collet will hold the part consistently throughout the machining operation.

Item	End Locator Style	Arbor Body Type
IRL020A	1 ONLY	2
IRL030A	1 ONLY	2
IRL040A	1 ONLY	2
IRL055A	1 ONLY	1
IRL070A	1 OR 2	1
IRL085A	1 OR 2	1
IRL100A	1 OR 2	1
IRL115A	1 OR 2	1
IRL135A	1 OR 2	1
IRL155A	1 OR 2	1
IRL175A	1 OR 2	1
IRL195A	1 OR 2	1

Item	A Grip Range	B	C	D	E	F	G	H	J	M	N	Max Drawbar Force (kN)
IRL020A	20.00 - 35.50	125	150	77	125	M60x2.0P	15	31.40	85.00	1.40	0.85	22.24
IRL030A	30.00 - 45.00	125	150	77	125	M60x2.0P	15	31.25	96.00	1.25	0.85	22.24
IRL040A	40.00 - 61.00	125	150	77	125	M60x2.0P	15	32.00	96.00	2.00	1.20	26.69
IRL055A	55.00 - 75.25	125	150	77	125	M60x2.0P	15	32.00	96.00	2.00	1.20	40.03
IRL070A	70.00 - 90.25	150	175	80	150	M60x2.0P	15	32.00	101.00	2.00	1.20	53.38
IRL085A	85.00 - 105.25	175	200	80	175	M60x2.0P	15	32.00	110.00	2.00	1.20	53.38
IRL100A	100.00 - 120.25	175	200	80	175	M60x2.0P	15	32.00	120.00	2.00	1.20	53.38
IRL115A	115.00 - 140.50	225	250	80	225	M60x2.0P	15	32.00	127.00	2.00	1.20	66.72
IRL135A	135.00 - 160.50	225	250	80	225	M60x2.0P	15	32.00	132.00	2.00	1.20	66.72
IRL155A	155.00 - 180.50	250	275	80	250	M60x2.0P	15	30.00	142.00	2.00	1.20	66.72
IRL175A	175.00 - 200.50	275	300	116	275	M60x2.0P	15	30.00	157.00	2.00	1.20	66.72
IRL195A	195.00 - 220.50	275	300	116	275	M60x2.0P	15	30.00	162.00	2.00	1.20	97.86

Collets are available sizes from the minimum to maximum diameter within the grip range A. Please specify IRL assembly no., part grip diameter with tolerance and required load clearance when ordering.





OD GRIP COLLET CHUCK MODEL ERL

OD grip collet chucks are the most universally used of all rotating workholding devices. Forkardt can furnish collets for a nearly limitless range of machining operations from roughing to grinding. OD grip collet chucks adapt very well to high speed turning applications.



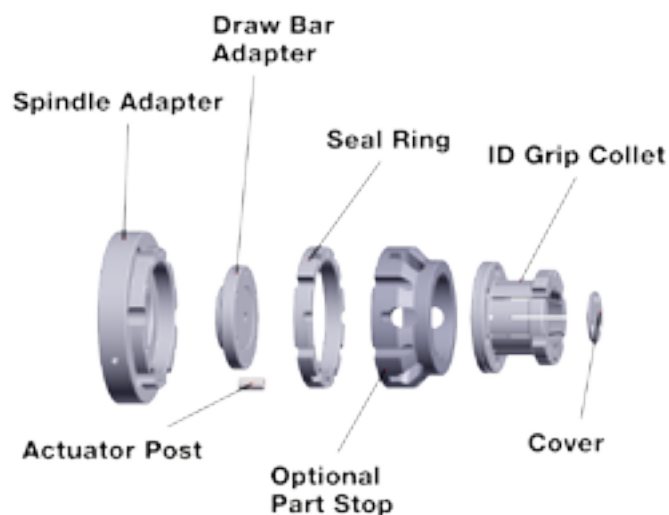
Rim-Lok Leaf Style OD Grip Collets

Forkardt collets are manufactured to high quality standards using a proprietary process from the material used to the heat treat process. The result is high quality product with a long life, reducing collet changeover and downtime. Forkardt collets repeat within 0.0005" TIR or better, assuring that the collet will hold the part consistently throughout the machining operation.

Item	End Locator Style	Arbor Body Type
ERL020A	1 OR 3	2
ERL030A	1 OR 3	2
ERL040A	1 OR 3	2
ERL055A	1 OR 2	1
ERL070A	1 OR 2	1
ERL085A	1 OR 2	1
ERL100A	1 OR 2	1
ERL115A	1 OR 2	1
ERL135A	1 OR 2	1
ERL155A	1 OR 2	1

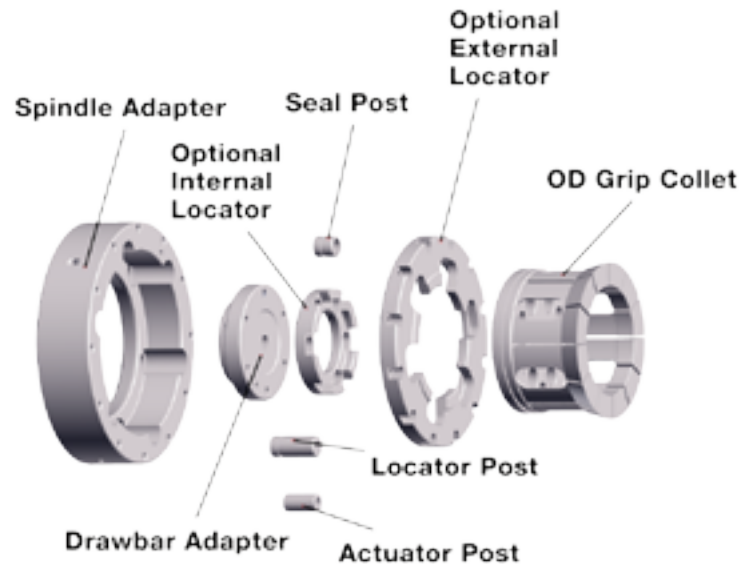
Item	A Grip Range	B	C	D	E	F	G	H	J	M	N	Max Drawbar Force (kN)
ERL020A	20.00 - 35.50	95	150	77	125	M60x2.0P	15	31.25	86	1.25	0.85	22.40
ERL030A	30.00 - 45.50	120	175	80	150	M60x2.0P	15	31.25	93	1.25	0.85	22.40
ERL040A	40.00 - 61.00	120	175	80	150	M60x2.0P	15	32.00	96	2.00	1.20	26.69
ERL055A	55.00 - 76.00	145	200	77	175	M60x2.0P	15	32.00	98	2.00	1.20	40.03
ERL070A	70.00 - 90.00	170	225	82	200	M60x2.0P	15	32.00	102	2.00	1.20	53.38
ERL085A	85.00 - 105.00	170	225	82	200	M60x2.0P	15	32.00	106	2.00	1.20	53.38
ERL100A	100.00 - 120.00	195	250	80	225	M60x2.0P	15	32.00	120	2.00	1.20	53.38
ERL115A	115.00 - 140.00	220	275	80	250	M60x2.0P	15	32.00	125	2.00	1.20	66.72
ERL135A	135.00 - 160.00	220	275	80	250	M60x2.0P	15	32.00	132	2.00	1.20	66.72
ERL155A	155.00 - 180.00	245	300	80	275	M60x2.0P	15	32.00	137	2.00	1.20	66.72

Collets are available sizes from the minimum to maximum diameter within the grip range A. Please specify ERL assembly no., part grip diameter with tolerance and required load clearance when ordering.



Chuck No.	Spindle Adapters	Collet	Drawbar Adapter	Actuator Post	Cover	Seal Ring
IRL020A	IRL020-A4	IRL020-(101-130)	IRL020-21	IRL020-32	NONE	IRL020-65
	IRL020-A5					
	IRL020-A6					
IRL030A	IRL020-A4	IRL030-(101-130)	IRL020-21	IRL020-32	NONE	IRL030-65
	IRL020-A5					
	IRL020-A6					
IRL040A	IRL020-A4	IRL040-(101-127)	IRL020-21	IRL040-32	NONE	IRL030-65
	IRL020-A5					
	IRL020-A6					
IRL055A	IRL020-A4	IRL055-(101-127)	IRL055-21	IRL040-32	NONE	IRL030-65
	IRL020-A5					
	IRL020-A6					
	IRL055-A8					
IRL070A	IRL070-A5	IRL070-(101-127)	IRL070-21	IRL040-32	IRL070-54	IRL070-65
	IRL070-A6					
	IRL070-A8					
IRL085A	IRL085-A6	IRL085-(101-127)	IRL085-21	IRL085-32	IRL085-54	IRL085-65
	IRL085-A8					
IRL100A	IRL085-A6	IRL100-(101-127)	IRL085-21	IRL085-32	IRL100-54	IRL085-65
	IRL085-A8					
IRL115A	IRL115-A6	IRL115-(101-134)	IRL115-21	IRL085-32	IRL115-54	IRL115-65
	IRL115-A8					
	IRL115-A11					
IRL135A	IRL115-A6	IRL135-(101-134)	IRL115-21	IRL085-32	IRL135-54	IRL115-65
	IRL115-A8					
	IRL115-A11					
IRL155A	IRL155-A6	IRL155-(101-134)	IRL155-21	IRL155-32	IRL135-54	IRL155-65
	IRL155-A8					
	IRL155-A11					
IRL175A	IRL175-A6	IRL175-(101-134)	IRL175-21	IRL155-32	IRL175-54	IRL175-65
	IRL175-A8					
	IRL175-A11					
IRL195A	IRL175-A6	IRL195-(101-134)	IRL175-21	IRL155-32	IRL175-54	IRL175-65
	IRL175-A8					
	IRL175-A11					

Components and Spare Parts for Rim-Lok Collet Chucks Model ERL



Chuck No.	Spindle Adapters	Collet	Drawbar Adapter	Actuator Post	Seal Post	Locator Post
ERL020A	IRL020-A4	ERL020 - (101-130)	ERL020-21	ERL020-32	ERL020-65	NONE
	IRL020-A5					
	IRL020-A6					
ERL030A	IRL070-A5	ERL030 - (101-130)	ERL020-21	ERL020-32	ERL030-65	ERL030-(651-655)
	IRL070-A6					
	IRL070-A8					
ERL040A	IRL070-A5	ERL040 - (101-127)	ERL030-21	ERL020-32	ERL030-65	ERL030-(651-655)
	IRL070-A6					
	IRL070-A8					
ERL055A	IRL085-A6	ERL055 - (101-127)	IRL055-21	IRL040-32	ERL055-65	ERL055-(651-655)
	IRL085-A8					
ERL070A	ERL070-A6	ERL070 - (101-127)	ERL070-21	IRL040-32	ERL055-65	ERL055-(651-655)
	ERL070-A8					
	ERL070-A11					
ERL085A	ERL070-A6	ERL085 - (101-127)	ERL070-21	IRL040-32	ERL055-65	ERL055-(651-655)
	ERL070-A8					
	ERL070-A11					
ERL100A	IRL115-A6	ERL100 - (101-127)	IRL70-21	IRL085-32	ERL100-65	ERL100-(651-655)
	IRL115-A8					
	IRL115-A11					
ERL115A	IRL155-A6	ERL115 - (101-134)	IRL70-21	IRL085-32	ERL100-65	ERL100-(651-655)
	IRL155-A8					
	IRL155-A11					
ERL135A	IRL155-A6	ERL135 - (101-134)	IRL70-21	IRL085-32	ERL100-65	ERL100-(651-655)
	IRL155-A8					
	IRL155-A11					
ERL155A	IRL175-A6	ERL155 - (101-134)	IRL70-21	IRL085-32	ERL100-65	ERL100-(651-655)
	IRL175-A8					
	IRL175-A11					

The Tork-Lok arbor design answers the need for a completely versatile workholding device. Precision ground flats on collets and arbors prevents slippage on the contact surface even during high-torque machining. Standardization of components allows for interchangeability. Arbors are easily exchanged between drawbar, cylinder and fixture mounts with a simple connector change.



Drawbar Mounted

The drawbar type of arbor available in long and short series and the arbor bases are available in English or Metric design. Most standard collets are in stock, and application specific designs can be created by our engineering department.



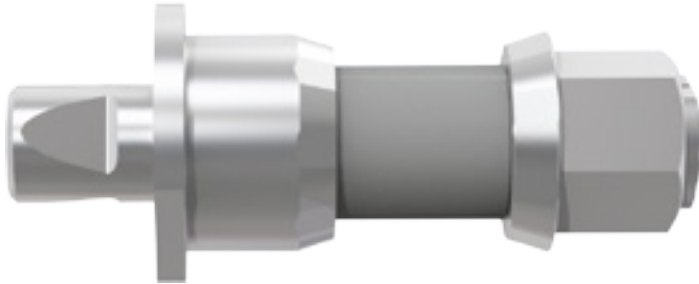
Air Operated Cylinder

The combination of Forkardt's compact and lightweight air cylinder assembly with Tork-Lok drawbar type arbors answers the need for a quick load/unload chucking device for many operations.



Manual Fixture

The manual fixture combines the standard drawbar model arbors with a powerful locking mechanism that answers many machining needs such as milling, drilling, gear cutting, reaming.



Between Centers Arbors

The between center arbor is designed to hold the workpiece through the hole-referenced ID chucking and then to be supported between centers of the machine tool for grinding operations and inspection.

Accuracy- the preload feature of the design ensures the flats remain in constant contact from part load to the end of the clamping range

High Torque- the need for keying the collet to the arbor is eliminated due to the transmission of the drive through the precision mated flats

Higher Operating Pressure- inclined flats allow for increased operating pressure

Long Collet Life- safety stops control the expansion and contraction of the collet, reducing breakage

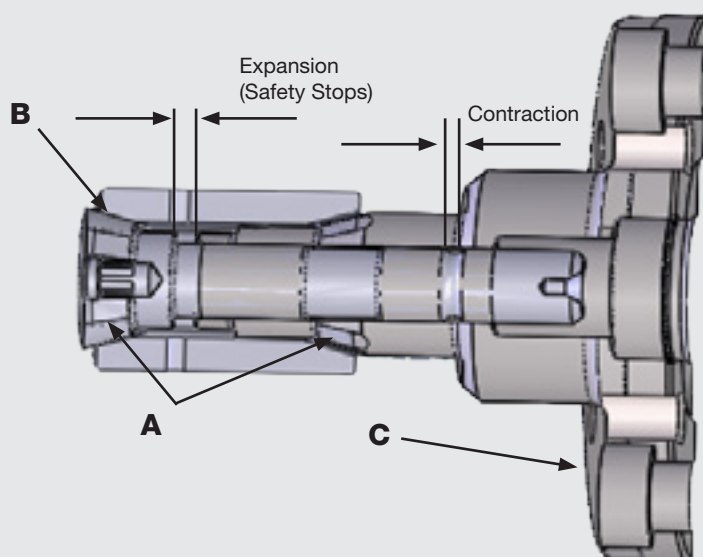
Quick Release- collet preloads allow for fast and easy part removal

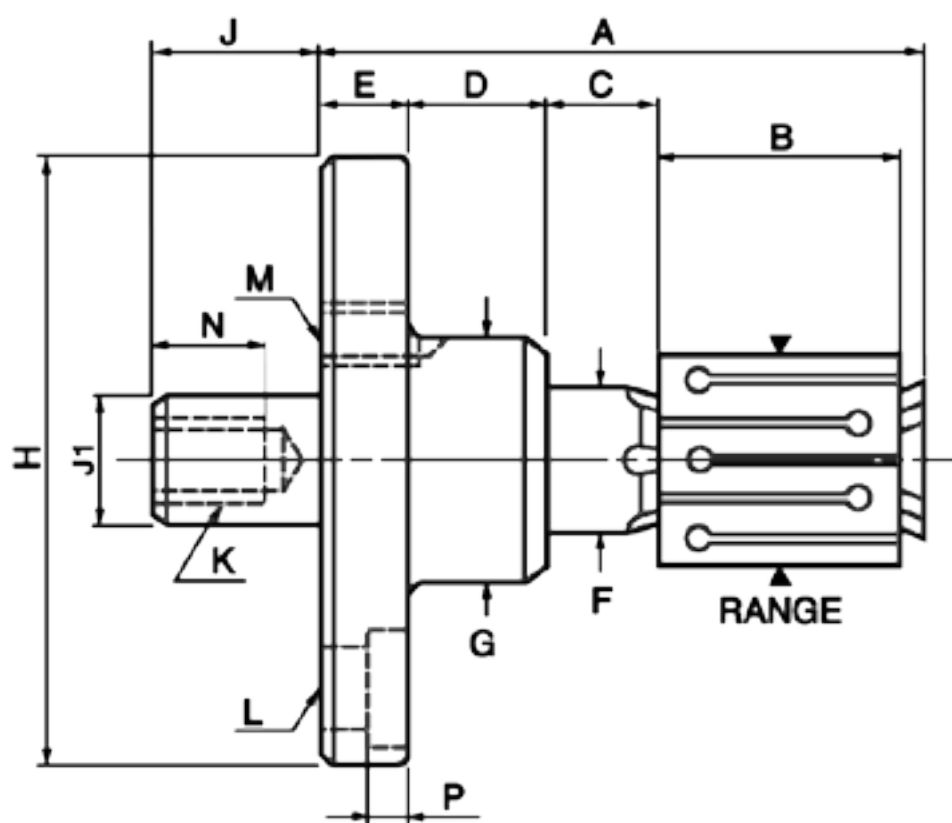
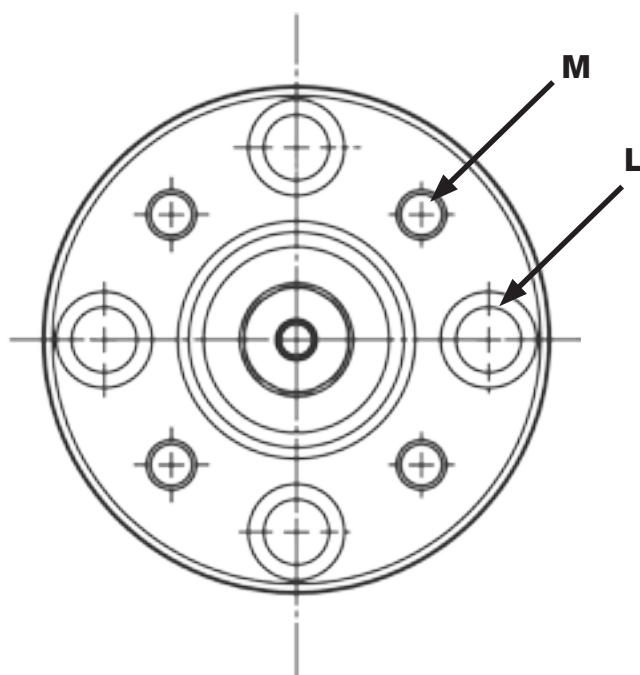
Draw Bar Operated

Precision ground flats on collets, arbor bodies and expanders can improve long-term accuracy and torque transmission.

Structure and Function

- A. Precision mated flats on both expander and arbor body
- B. Precision mated flats on collet
- C. Metric arbor body has provisions for air sensing and tighter tolerance on size and parallelism for locater mounting







Collet not included

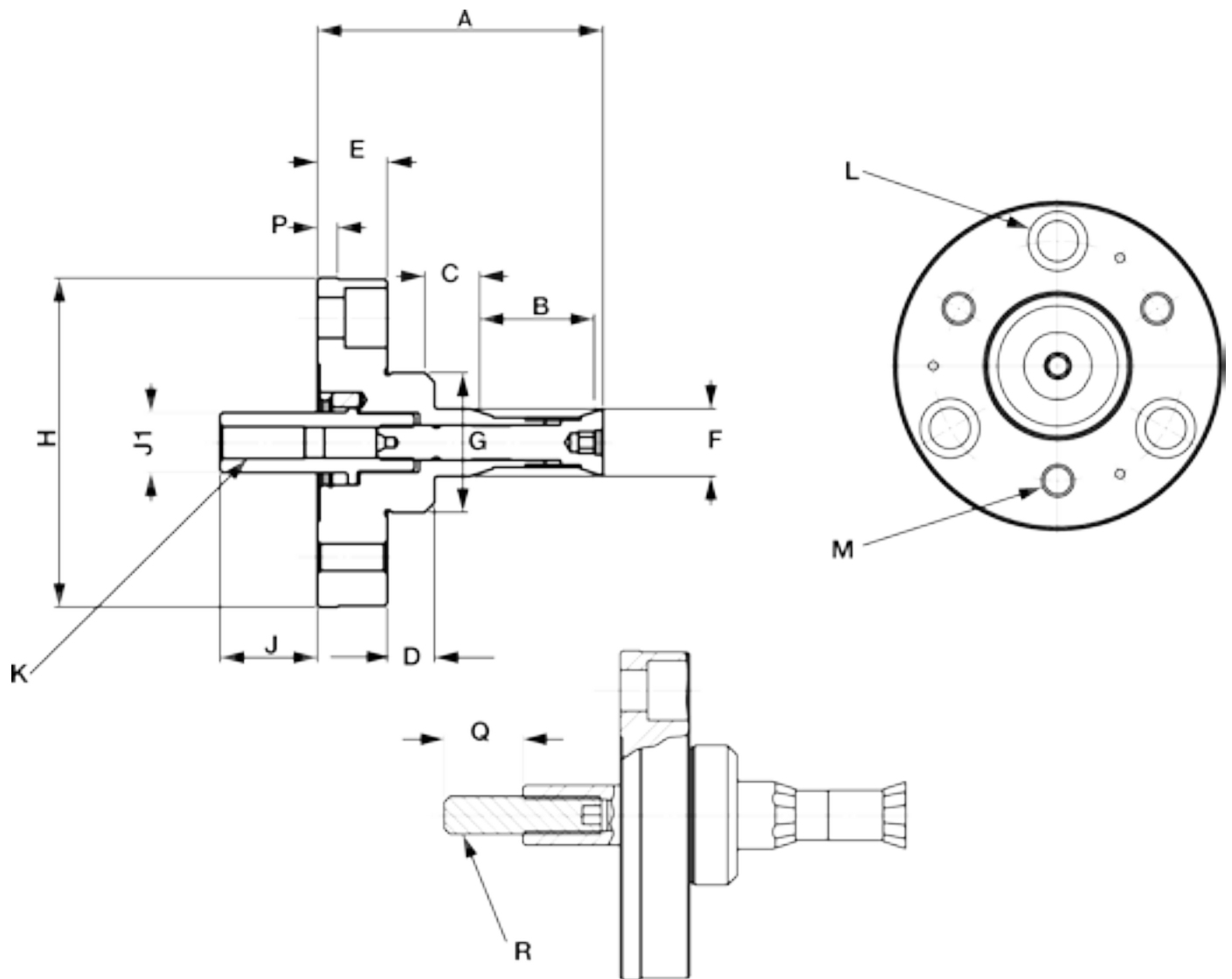
Features & Benefits

- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005" TIR

Item No.	Clamping Range	No. of Collets Available	A	B	C	D	E	F	G	H
AC2110	12.70-16.64	10	63.2	22.4	9.9	16.8	12.7	11.94-11.92	31.8	85.74-85.73
AC2210	15.06-19.81	12	68.3	26.9	10.4	16.8	12.7	14.72-14.70	31.8	85.74-85.73
AC2310	18.24-25.37	18	75.2	31.7	12.4	16.8	12.7	17.90-17.88	31.8	85.74-85.73
AC2410	22.23-31.72	12	90.9	36.6	14.2	22.9	14.2	21.47-21.44	44.5	104.79-104.78
AC2510	28.58-41.25	16	98.8	41.1	17.5	22.9	14.2	27.42-27.40	44.5	104.79-104.78
AC2610	37.29-53.14	20	105.1	46.0	20.8	18.3	17.3	35.76-35.73	63.5	123.84-123.83
AC2710	49.02-72.21	29	113.2	50.8	25.4	16.8	17.3	46.87-46.84	63.5	123.84-123.83
AC2810	65.07-91.26	33	122.7	57.2	28.4	16.8	17.3	61.95-61.94	76.2	139.71-139.70
AC2910	84.12-113.46	37	126.2	63.5	28.2	14.2	17.3	80.99-80.98	91.9	139.71-139.70

Item No.	J (Stroke)		J1	K	L 4 Holes Eq. Spaced	M 4 Holes Eq. Spaced	N	P
	Max	Min						
AC2110	23.02	18.38	14.3	3/8"-24	3/8" on 63.5 PCD	5-16" on 60.3 PCD	15.8	6.3
AC2210	23.02	18.38	14.3	3/8"-24	3/8" on 63.5 PCD	5/16" on 60.3 PCD	15.8	6.3
AC2310	23.02	18.38	14.3	3/8"-24	3/8" on 63.5 PCD	5/16" on 60.3 PCD	14.2	6.3
AC2410	35.67	30.24	19.1	1/2"-20	1/2" on 79.2 PCD	3/8" on 73.0 PCD	19.0	7.9
AC2510	35.67	30.24	19.1	1/2"-20	1/2" on 79.2 PCD	3/8" on 73.0 PCD	19.0	7.9
AC2610	45.25	39.82	24.6	3/4"-16	1/2" on 95.3 PCD	3/8" on 92.1 PCD	19.8	9.5
AC2710	45.25	39.82	24.6	3/4"-16	1/2" on 95.3 PCD	3/8" on 92.1 PCD	19.8	9.5
AC2810	45.25	39.82	24.6	3/4"-16	1/2" on 114.3 PCD	3/8" on 92.1 PCD	31.7	9.5
AC2910	45.25	39.82	24.6	3/4"-16	1/2" on 114.3 PCD	3/8" on 92.1 PCD	31.7	9.5

Measurements in millimeters unless otherwise indicated.



OPTIONAL ASS'Y WITH MALE THREAD



Collet not included

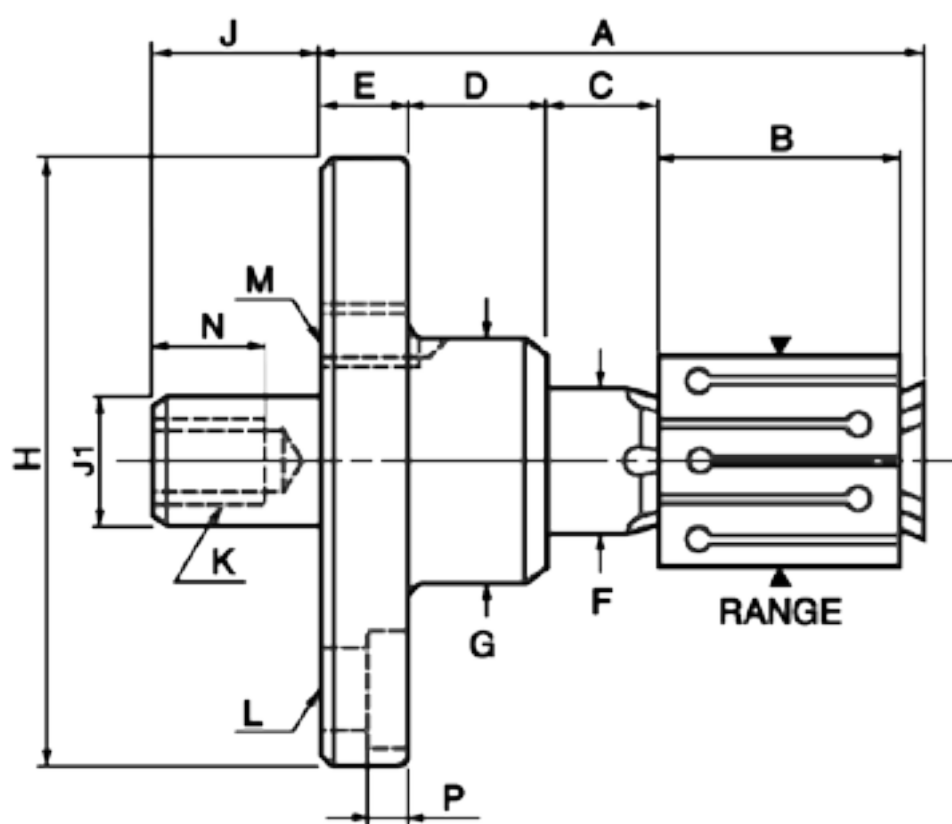
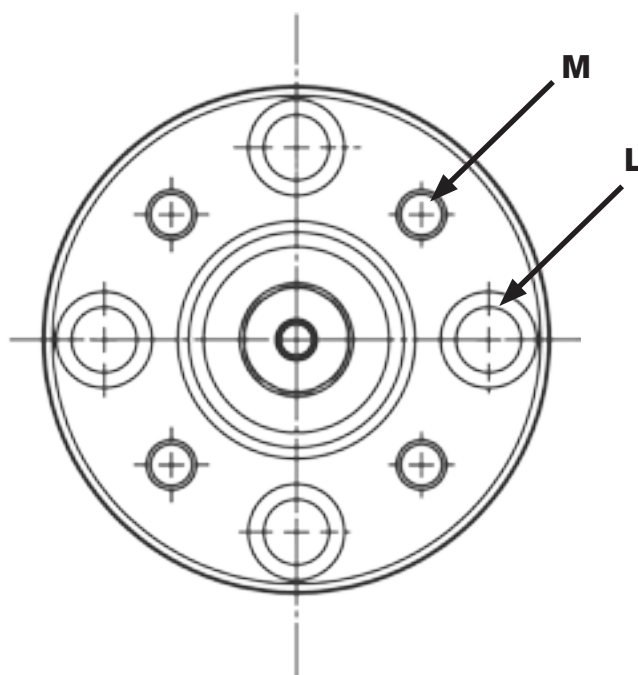
Features & Benefits

- Versatile three bolt circle pattern
- Tighter tolerance on size and parallelism for locator mounting
- Provisions for air sensing
- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005" TIR

Item No.	Clamping Range	No. of Collets Available	A	B	C	D	E	F	G	H
AC2110M	12.70-16.64	10	63.2	22.4	9.9	10.3	19.1	11.9	31.8	85.74-85.73
AC2210M	15.06-19.81	12	68.3	26.9	10.4	10.3	19.1	15.5	31.8	85.74-85.73
AC2310M	18.24-25.37	18	75.2	31.7	12.4	10.3	19.1	18.3	31.8	85.74-85.73
AC2410M	22.23-31.72	12	90.9	36.6	14.2	15.1	22.2	21.4	44.5	104.79-104.78
AC2510M	28.58-41.25	16	98.8	41.1	17.5	15.1	22.2	27.8	44.5	104.79-104.78
AC2610M	37.29-53.14	20	105.1	46.0	20.8	13.5	22.2	36.1	63.5	123.84-123.83
AC2710M	49.02-72.21	29	113.2	50.8	25.4	11.9	22.2	47.2	63.5	123.84-123.83
AC2810M	65.07-91.26	33	122.7	57.2	28.4	11.9	22.2	62.3	76.2	139.71-139.70
AC2910M	84.12-113.46	37	126.2	63.5	28.2	9.5	22.2	81.0	91.9	139.71-139.70

Item No.	J (Stroke)		J1	K	L 3 Holes Eq. Spaced	M 3 Holes Eq. Spaced	P
	Max	Min					
AC2110M	23.02	18.38	14.3	M10x1.5P	M10 on 63.50 PCD	M8 on 60.33 BC	12.68
AC2210M	23.02	18.38	14.3	M10x1.5P	M10 on 63.50 PCD	M8 on 60.33 BC	12.68
AC2310M	23.02	18.38	14.3	M10x1.5P	M10 on 63.50 PCD	M8 on 60.33 BC	12.68
AC2410M	35.67	30.24	19.1	M12x1.75P	M12 on 79.38 BC	M10 on 73.03 BC	15.83
AC2510M	35.67	30.24	19.1	M12x1.75P	M12 on 79.38 BC	M10 on 73.03 BC	15.83
AC2610M	45.25	39.82	24.6	M16x2.0P	M12 on 79.38 BC	M10 on 73.03 BC	15.83
AC2710M	45.25	39.82	24.6	M16x2.0P	M12 on 95.25 BC	M10 on 92.08 BC	15.83
AC2810M	45.25	39.82	24.6	M16x2.0P	M12 on 95.25 BC	M10 on 92.08 BC	15.83
AC2910M	45.25	39.82	24.6	M16x2.0P	M12 on 95.25 BC	M10 on 92.08 BC	15.83

Measurements in millimeters unless otherwise indicated.



Short Series Standard Design

TL



Collet not included

Features & Benefits

- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005" TIR

Item No.	Clamping Range	No. of Collets Available	A	B	C	D	E	F	G	H
AC8100	12.70-16.64	15	46.0	15.0	10.7	6.4	12.7	11.94-11.92	22.4	85.74-85.73
AC8200	15.06-20.24	20	50.0	18.3	11.4	6.4	12.7	14.72-14.70	25.4	85.74-85.73
AC8300	18.24-25.40	28	54.6	21.3	13.0	6.4	12.7	17.90-17.87	28.4	85.74-85.73
AC8400	22.23-33.00	20	59.7	23.9	15.0	4.6	14.2	21.47-21.44	35.1	104.79-104.78
AC8500	28.58-41.70	24	65.8	28.6	16.5	4.6	14.2	27.42-27.40	39.6	104.79-104.78
AC8600	37.28-53.44	30	74.4	31.0	21.1	3.0	17.3	35.76-35.73	47.8	123.84-123.83
AC8700	49.20-71.65	42	75.7	33.3	20.1	3.0	17.3	46.87-46.64	60.5	123.84-123.83

Item No.	J (Stroke)		J1	K	L 4 Holes Eq. Spaced	M 4 Holes Eq. Spaced
	Max	Min				
AC8100	23.8	19.2	14.3	3/8"-24	3/8" on 63.5 PCD	5/16" on 60.3 PCD
AC8200	23.8	19.2	14.3	3/8"-24	3/8" on 63.5 PCD	5/16" on 60.3 PCD
AC8300	23.8	19.2	14.3	3/8"-24	3/8" on 63.5 PCD	5/16" on 60.3 PCD
AC8400	36.5	31.1	19.1	1/2"-20	1/2" on 79.2 PCD	3/8" on 73.0 PCD
AC8500	36.5	31.1	19.1	1/2"-20	1/2" on 79.2 PCD	3/8" on 73.0 PCD
AC8600	46.0	40.6	24.6	3/4"-16	1/2" on 95.3 PCD	3/8" on 92.1 PCD
AC8700	46.0	40.6	24.6	3/4"-16	1/2" on 95.3 PCD	3/8" on 92.1 PCD

Measurements in millimeters unless otherwise indicated.



Collet not included

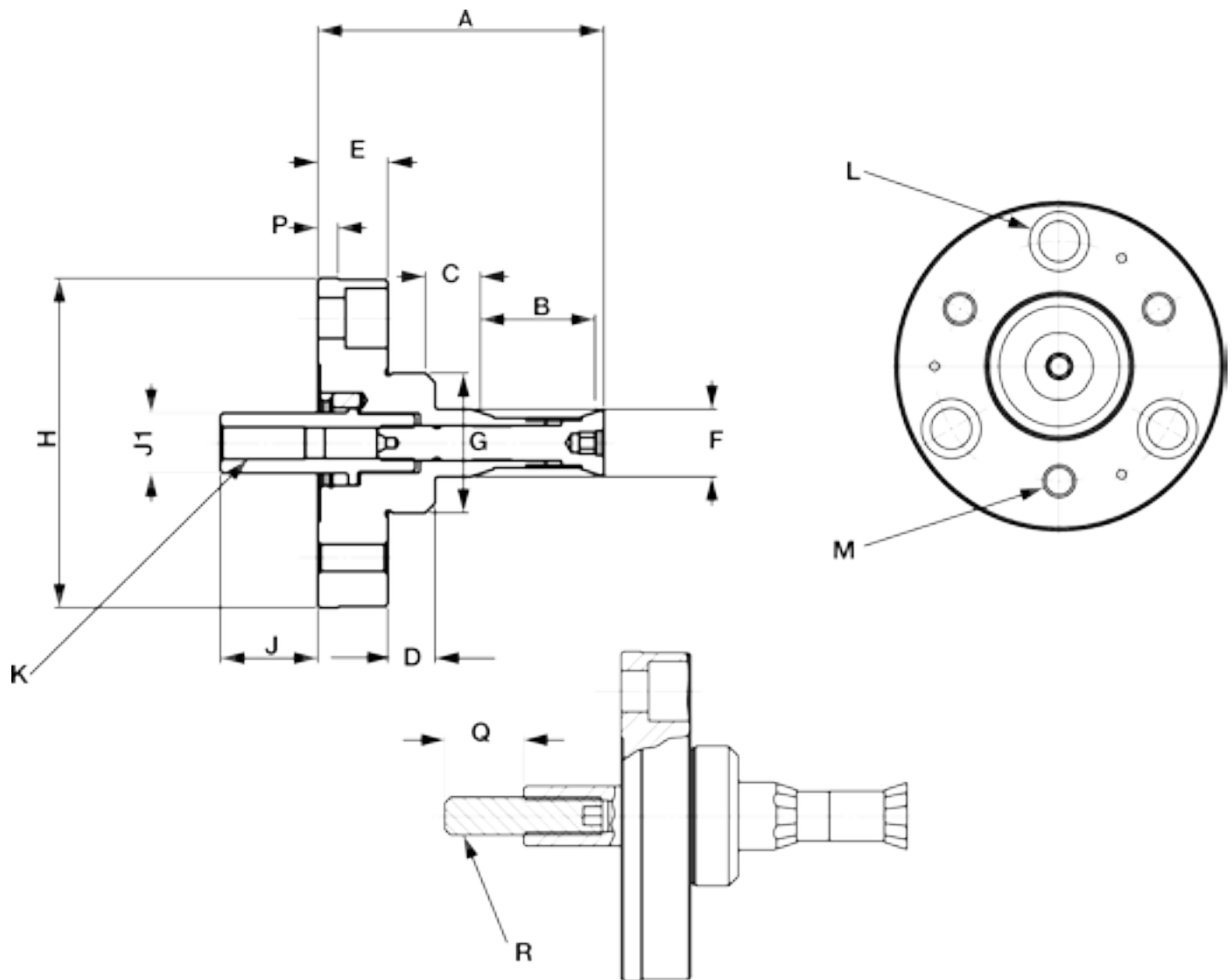
Features & Benefits

- Versatile three bolt circle pattern
- Tighter tolerance on size and parallelism for locator mounting
- Provisions for air sensing
- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005" TIR

Item No.	Clamping Range	No. of Collets Available	A	B	C	E	F	H
AC8100M	12.70-16.64	15	46.0	15.0	10.7	19.08	11.94-11.92	85.74-85.73
AC8200M	15.06-20.24	20	50.0	18.3	11.4	19.08	14.72-14.70	85.74-85.73
AC8300M	18.24-25.40	28	54.6	21.3	13.0	19.08	17.90-17.87	85.74-85.73
AC8400M	22.23-33.00	20	59.7	23.9	15.0	19.08	21.47-21.44	104.79-104.78
AC8500M	28.58-41.70	24	65.8	28.6	16.5	19.08	27.42-27.40	104.79-104.78
AC8600M	37.28-53.44	30	74.4	31.0	21.1	19.08	35.76-35.73	123.84-123.83
AC8700M	49.20-71.65	42	75.7	33.3	20.1	19.08	46.87-46.64	123.84-123.83

Item No.	J (Stroke)		J1	K	L 3 Holes Eq. Spaced	M 3 Holes Eq. Spaced	P
	Max	Min					
AC8100M	23.8	19.2	14.3	M10x1.50P	M10 on 63.50 PCD	M8 on 60.33 BC	13.04
AC8200M	23.8	19.2	14.3	M10x1.50P	M10 on 63.50 PCD	M8 on 60.33 BC	13.04
AC8300M	23.8	19.2	14.3	M10x1.50p	M10 on 63.50 PCD	M8 on 60.33 BC	13.04
AC8400M	36.5	31.1	19.1	M12x1.75P	M12 on 79.38 BC	M10 on 73.03 BC	13.04
AC8500M	36.5	31.1	19.1	M12x1.75P	M12 on 79.38 BC	M10 on 73.03 BC	13.04
AC8600M	46.0	40.6	24.6	M16x2.0P	M12 on 95.25 BC	M10 on 92.08 BC	13.04
AC8700M	46.0	40.6	24.6	M16x2.0P	M12 on 95.25 BC	M10 on 92.08 BC	13.04

Measurements in millimeters unless otherwise indicated.



OPTIONAL ASS'Y WITH MALE THREAD

Features and Benefits

- Precision ground flats
- Collets interchangeable on all arbors within specified range
- Accuracy of arbor not affected by indexing of collet shaft
- High-grade steels, precisely heat treated
- Silicone sealing of collet slots for special jobs is available on request for additional charge
- Collets in oversize (overlap) ranges are available



For use on AC1100 2110M, 2110, 5110				For use on AC1400, 2410M, 2410,5410				For use on AC1700, 2710M, 2710,5710				For use on AC1800, 2810M, 2810				
Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	
AC101	12.70-13.08	.500-.515	.88 in 22.35mm	AC401	22.23-22.99	.875-.905	1.44 in 36.57 mm	AC701	49.20-49.96	1.937-1.967	2.00 in 50.80 mm	AC822	81.76-82.53	3.219-3.249	2.25 in 57.15 mm	
AC102	13.11-13.46	.516-.530		AC402	23.01-23.77	.906-.936		AC702	49.99-50.78	1.968-1.999		AC823	82.55-83.31	3.250-3.280		
AC103	13.49-13.87	.531-.546		AC403	23.80-24.56	.937-.967		AC703	50.80-51.56	2.000-2.030		AC824	83.34-84.10	3.281-3.311		
AC104	13.89-14.25	.547-.561		AC404	24.59-25.38	.968-.999		AC704	51.59-52.35	2.031-2.061		AC825	84.13-84.91	3.312-3.343		
AC105	14.28-14.66	.562-.577		AC405	25.40-26.16	1.000-1.030		AC705	52.38-53.14	2.062-2.092		AC826	84.94-85.70	3.344-3.374		
AC106	14.68-15.03	.578-.592		AC406	26.19-26.95	1.031-1.061		AC706	53.16-53.95	2.093-2.124		AC827	85.73-86.49	3.375-3.405		
AC107	15.06-15.44	.593-.608		AC407	26.98-27.73	1.062-1.092		AC707	53.98-54.74	2.125-2.155		AC828	86.51-87.27	3.406-3.436		
AC108	15.47-15.82	.609-.623		AC408	27.76-28.55	1.093-1.124		AC708	54.76-55.52	2.156-2.186		AC829	87.30-88.09	3.437-3.468		
AC109	15.85-16.23	.624-.639		AC409	28.57-29.34	1.125-1.155		AC709	55.55-56.31	2.187-2.217		AC830	88.11-88.88	3.469-3.499		
AC110	16.26-16.64	.640-.655		AC410	29.36-30.12	1.156-1.186		AC710	56.34-57.13	2.218-2.249		AC831	88.90-89.66	3.500-3.530		
For use on AC1200, 2210M, 2210,5210				For use on AC1500, 2510M, 2510,5510				For use on AC1800, 2810M, 2810				For use on AC1900, 2910M, 2910				
Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	Collet #	Range (mm)	Range (in)	Length	
AC201	15.06-15.44	.593-.608	1.06 in 26.92 mm	AC501	28.58-29.34	1.125-1.155	1.62 in 41.14 mm	AC711	57.15-57.91	2.250-2.280	2.00 in 50.80 mm	AC901	84.13-84.91	3.312-3.343	2.50 in 63.50 mm	
AC202	15.47-15.85	.609-.624		AC502	29.36-30.12	1.156-1.186		AC712	57.94-58.70	2.281-2.311		AC902	84.94-85.70	3.344-3.374		
AC203	15.88-16.23	.625-.639		AC503	30.15-30.91	1.187-1.217		AC713	58.73-59.49	2.312-2.342		AC903	85.73-86.49	3.375-3.405		
AC204	16.26-16.64	.640-.655		AC504	30.94-31.73	1.218-1.249		AC714	59.51-60.30	2.343-2.374		AC904	86.51-87.27	3.406-3.436		
AC205	16.66-17.02	.656-.670		AC505	31.75-32.51	1.250-1.280		AC715	60.33-61.09	2.375-2.405		AC905	87.30-88.09	3.437-3.468		
AC206	17.04-17.42	.671-.686		AC506	32.54-33.30	1.281-1.311		AC716	61.11-61.87	2.406-2.436		AC906	88.11-88.88	3.469-3.499		
AC207	17.45-17.83	.687-.702		AC507	33.33-34.09	1.312-1.342		AC717	61.90-62.66	2.437-2.467		AC907	88.90-89.66	3.500-3.530		
AC208	17.85-18.21	.703-.717		AC508	34.11-34.90	1.343-1.374		AC718	62.69-63.48	2.468-2.499		AC908	89.69-90.45	3.531-3.561		
AC209	18.24-19.62	.718-.733		AC509	34.93-35.69	1.375-1.405		AC719	63.50-64.26	2.500-2.530		AC909	90.48-91.26	3.562-3.593		
AC210	18.64-19.03	.734-.749		AC510	35.71-36.47	1.406-1.436		AC720	64.29-65.08	2.531-2.562		AC910	91.29-92.05	3.594-3.624		
AC211	19.05-19.41	.750-.764	31.75 mm	AC511	36.50-37.26	1.437-1.467	46.22 mm	AC721	65.10-65.86	2.563-2.593	2.25 in 57.15 mm	AC911	92.08-92.84	3.625-3.655	2.50 in 63.50 mm	
AC212	19.43-19.81	.765-.780		AC512	37.29-38.08	1.468-1.499		AC722	65.89-66.65	2.594-2.624		AC912	92.86-93.62	3.656-3.686		
AC301	18.24-18.62	.718-.733		AC513	38.10-38.86	1.500-1.530		AC723	66.68-67.44	2.625-2.655		AC913	93.65-94.44	3.687-3.718		
AC302	18.64-19.03	.734-.749		AC514	38.89-39.65	1.531-1.561		AC724	67.46-68.22	2.656-2.686		AC914	94.46-95.23	3.719-3.749		
AC303	19.05-19.41	.750-.764		AC515	39.68-40.44	1.562-1.592		AC725	68.25-69.04	2.687-2.718		AC915	95.25-96.01	3.750-3.780		
AC304	19.43-19.81	.765-.780		AC516	40.46-41.25	1.593-1.624		AC726	69.06-69.83	2.719-2.749		AC916	96.04-96.80	3.781-3.811		
AC305	20.24-20.22	.781-.796		For use on AC1600, 2610M, 2610,5610				AC727	69.85-70.61	2.750-2.780		AC917	96.83-97.61	3.812-3.843		
AC306	20.24-20.63	.797-.812		Collet #	Range (mm)	Range (in)		Length	AC728	70.64-71.40		2.781-2.811	AC918	97.64-98.40		3.844-3.874
AC307	20.65-21.01	.813-.827		AC601	37.29-38.08	1.468-1.499		1.82 in 46.22 mm	AC729	71.43-72.21		2.812-2.843	AC919	98.43-99.19		3.875-3.905
AC308	21.03-21.41	.828-.843		AC602	38.10-38.86	1.500-1.530			AC801	65.08-65.86		2.562-2.593	AC920	99.21-99.97		3.906-3.936
AC309	21.44-21.79	.844-.858	AC603	38.89-39.65	1.531-1.561	AC802	65.89-66.65		2.594-2.624	AC921	100.00-100.79	3.937-3.968				
AC310	21.82-22.20	.859-.874	AC604	39.68-40.44	1.562-1.592	AC803	66.68-67.44		2.625-2.655	AC922	100.81-101.58	3.969-3.999				
AC311	22.23-22.61	.875-.890	AC605	40.46-41.25	1.593-1.624	AC804	67.46-68.22		2.656-2.686	AC923	101.60-102.36	4.000-4.030				
AC312	22.63-22.99	.891-.905	AC606	41.28-42.04	1.625-1.655	AC805	68.25-69.04		2.687-2.718	AC924	102.39-103.15	4.031-4.061				
AC313	23.01-23.39	.906-.921	AC607	42.06-42.82	1.656-1.686	AC806	69.06-69.83		2.719-2.749	AC925	103.18-103.96	4.062-4.093				
AC314	23.41-23.77	.922-.936	AC608	42.85-43.61	1.687-1.717	AC807	69.85-70.61		2.750-2.780	AC926	103.99-104.75	4.094-4.124				
AC315	23.80-24.18	.937-.952	AC609	43.64-44.43	1.718-1.749	AC808	70.63-71.40		2.781-2.811	AC927	104.78-105.54	4.125-4.155				
AC316	24.21-24.56	.953-.967	AC610	44.45-45.21	1.750-1.780	AC809	71.43-72.21		2.812-2.843	AC928	105.56-106.32	4.156-4.186				
AC317	24.59-24.97	.968-.983	AC611	45.24-46.00	1.781-1.811	AC810	72.24-73.00	2.844-2.874	AC929	106.35-107.11	4.187-4.217					
AC318	25.00-25.38	.984-.999	AC612	46.03-46.78	1.812-1.842	AC811	73.03-73.79	2.875-2.905	AC930	107.14-107.93	4.218-4.249					
				AC613	46.79-47.60	1.843-1.874	AC812	73.81-74.57	2.906-2.936	AC931	107.95-108.71	4.250-4.280				
				AC614	47.63-48.39	1.875-1.905	AC813	74.60-75.39	2.937-2.968	AC932	108.74-109.50	4.281-4.311				
				AC615	48.41-49.17	1.906-1.936	AC814	75.41-76.18	2.969-2.999	AC933	109.53-110.29	4.312-4.342				
				AC616	49.20-49.96	1.937-1.967	AC815	76.20-76.96	3.000-3.030	AC934	110.31-111.10	4.343-4.374				
				AC617	49.98-50.77	1.968-1.999	AC816	76.99-77.75	3.031-3.061	AC935	111.13-111.89	4.375-4.405				
				AC618	50.80-51.56	2.000-2.030	AC817	77.78-78.56	3.062-3.093	AC936	111.91-112.67	4.406-4.436				
				AC619	51.59-52.35	2.031-2.061	AC818	78.59-79.35	3.094-3.124	AC937	112.70-113.46	4.437-4.467				
				AC620	52.38-53.14	2.062-2.092	AC819	79.38-80.14	3.125-3.155							
								AC820	80.16-80.92	3.156-3.186						
								AC821	80.95-81.74	3.187-3.218						

Oversize collets AC107-110; 209-212 and 311-318 should be used only in light turning or grinding operations.

Oversize collets AC107-110; 209-212 and 311-318 should be used only in light turning or grinding operations.

Short Series Collets

TL

Features and Benefits

- Precision ground flats
- Collets interchangeable on all arbors within specified range
- Accuracy of arbor not affected by indexing of collet shaft
- High-grade steels, precisely heat treated
- Silicone sealing of collet slots for special jobs is available on request for additional charge
- Collets in oversize (overlap) ranges are available



For use on AC7100A, 8100M, 8100, 12100			
Collet #	Range (mm)	Range (in)	Length
AC7101	12.70-12.95	.500-.510	.59 in 14.986 mm
AC7102	12.98-13.21	.511-.520	
AC7103	13.23-13.48	.521-.531	
AC7104	13.51-13.74	.532-.541	
AC7105	13.77-14.02	.542-.552	
AC7106	14.05-14.28	.553-.562	
AC7107	14.30-14.26	.563-.572	
AC7108	14.55-14.78	.573-.582	
AC7109	14.81-15.04	.583-.592	
AC7110	15.06-15.32	.593-.603	
AC7111	15.34-15.57	.604-.613	
AC7112	15.60-15.85	.614-.624	
AC7113	15.88-16.10	.625-.634	
AC7114	16.13-16.38	.635-.645	
AC7115	16.41-16.64	.646-.655	

For use on AC7200A, 8200M, 8200, 12200			
Collet #	Range (mm)	Range (in)	Length
AC7201	15.06-15.31	.593-.603	.72 in 18.29 mm
AC7202	15.34-15.57	.604-.613	
AC7203	15.60-15.85	.614-.624	
AC7204	15.88-16.10	.625-.634	
AC7205	16.13-16.38	.635-.645	
AC7206	16.41-16.64	.646-.655	
AC7207	16.66-16.92	.656-.666	
AC7208	16.94-17.17	.667-.676	
AC7209	17.20-17.45	.677-.687	
AC7210	17.48-17.70	.688-.697	
AC7211	17.73-17.96	.698-.707	
AC7212	17.98-18.21	.708-.717	
AC7213	18.24-18.47	.718-.727	
AC7214	18.49-18.72	.728-.737	
AC7215	18.75-18.97	.738-.747	

For use on AC7300A, 8300M, 8300, 12300			
Collet #	Range (mm)	Range (in)	Length
AC7301	18.24-18.47	.718-.727	.84 in 21.34 mm
AC7302	18.49-18.72	.728-.737	
AC7303	18.75-18.97	.738-.747	
AC7304	19.00-19.23	.748-.757	
AC7305	19.25-19.48	.758-.767	
AC7306	19.51-19.74	.768-.777	
AC7307	19.76-19.99	.778-.787	
AC7308	20.02-20.24	.788-.797	
AC7309	20.27-20.50	.798-.807	
AC7310	20.52-20.75	.808-.817	
AC7311	20.78-21.01	.818-.827	

For use on AC7300A, 8300, 8300M, 12300			
Collet #	Range (mm)	Range (in)	Length
AC7312	21.03-21.26	.828-.837	.84 in 21.34 mm
AC7313	21.29-21.51	.838-.847	
AC7314	21.54-21.74	.848-.856	
AC7315	21.77-22.00	.857-.866	
AC7316	22.02-22.12	.867-.874	
AC7317	22.23-22.25	.875-.884	
AC7318	22.48-22.73	.885-.895	
AC7319	22.76-22.99	.896-.905	
AC7320	23.01-23.27	.906-.916	
AC7321	23.29-23.52	.917-.926	
AC7322	23.55-23.80	.927-.937	
AC7323	23.83-24.05	.938-.947	
AC7324	24.08-24.33	.948-.958	
AC7325	24.36-24.59	.959-.968	
AC7326	24.61-24.87	.969-.979	

For use on AC7400A, 8400, 8400M, 12400			
Collet #	Range (mm)	Range (in)	Length
AC7401	22.26-22.59	.875-.895	.94 in 23.88 mm
AC7402	22.76-23.27	.896-.916	
AC7403	23.29-23.80	.917-.937	
AC7404	23.83-24.33	.938-.958	
AC7405	24.36-24.87	.959-.979	
AC7406	24.89-25.40	.980-1.000	
AC7407	25.43-25.93	1.001-1.021	
AC7408	25.96-26.47	1.022-1.042	
AC7409	26.49-27.00	1.043-1.063	
AC7410	27.02-27.53	1.064-1.084	
AC7411	27.56-28.04	1.105-1.124	
AC7413	28.58-29.11	1.125-1.146	
AC7414	29.13-29.67	1.147-1.168	
AC7415	29.69-30.27	1.169-1.190	
AC7416	30.25-30.79	1.191-1.212	

Oversize collets AC7110-7115; 7213-7220 and 7317-7328 should be used only in light turning or grinding operations.

For use on AC7500A, 8500, 8500M, 12500			
Collet #	Range (mm)	Range (in)	Length
AC7501	28.58-29.11	1.125-1.146	1.125 in 28.58 mm
AC7502	29.13-29.67	1.147-1.168	
AC7503	29.69-30.23	1.169-1.190	
AC7504	30.25-30.79	1.191-1.212	
AC7505	30.81-31.34	1.213-1.234	
AC7506	31.37-31.90	1.235-1.256	
AC7507	31.93-32.46	1.257-1.278	
AC7508	32.49-33.00	1.279-1.299	
AC7509	33.02-33.53	1.300-1.320	
AC7510	33.55-34.06	1.321-1.341	
AC7511	34.09-34.60	1.342-1.362	
AC7512	34.62-35.13	1.363-1.383	
AC7513	35.15-35.66	1.384-1.404	
AC7514	35.69-36.20	1.405-1.425	
AC7515	36.22-36.73	1.426-1.446	

For use on AC7600A, 8600, 8600M, 12600			
Collet #	Range (mm)	Range (in)	Length
AC7601	37.29-37.82	1.468-1.489	1.22 in 30.99 mm
AC7602	37.85-38.38	1.490-1.511	
AC7603	38.41-38.94	1.512-1.533	
AC7604	38.96-39.50	1.534-1.555	
AC7605	39.52-40.06	1.556-1.577	
AC7606	40.08-40.61	1.578-1.599	
AC7607	40.64-41.17	1.600-1.621	
AC7608	41.20-41.71	1.622-1.642	
AC7609	41.73-42.24	1.643-1.663	
AC7610	42.27-42.77	1.664-1.684	
AC7611	42.80-43.31	1.685-1.705	
AC7612	43.33-43.84	1.706-1.726	
AC7613	43.87-44.37	1.727-1.747	
AC7614	44.40-44.91	1.748-1.768	
AC7615	44.93-45.44	1.769-1.789	

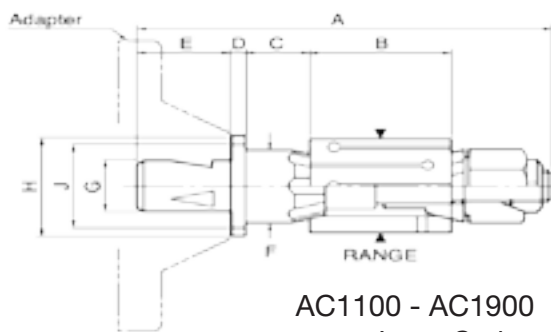
For use on AC7600A, 8600, 8600M, 12600			
Collet #	Range (mm)	Range (in)	Length
AC7623	49.20-49.71	1.937-1.957	1.22 in 30.99 mm
AC7624	49.73-50.24	1.958-1.978	
AC7625	50.27-50.78	1.979-1.999	
AC7626	50.80-51.31	2.000-2.020	
AC7627	51.33-51.84	2.021-2.041	
AC7628	51.87-52.38	2.042-2.062	
AC7629	52.40-52.91	2.063-2.083	
AC7630	52.93-53.44	2.084-2.104	

For use on AC7700A, 8700, 8700M, 12700			
Collet #	Range (mm)	Range (in)	Length
AC7701	49.20-49.71	1.937-1.957	1.31 in 33.27 mm
AC7702	49.73-50.24	1.958-1.978	
AC7703	50.27-50.77	1.979-1.999	
AC7704	50.80-51.31	2.000-2.020	
AC7705	51.33-51.84	2.021-2.041	
AC7706	51.87-52.38	2.042-2.062	
AC7707	52.40-52.91	2.063-2.083	
AC7708	52.93-53.44	2.084-2.104	
AC7709	53.47-53.98	2.105-2.125	
AC7710	54.00-54.51	2.126-2.146	
AC7711	54.53-55.04	2.147-2.167	
AC7712	55.07-55.58	2.168-2.188	
AC7713	55.60-56.11	2.189-2.209	
AC7714	56.13-56.64	2.210-2.230	
AC7715	56.67-57.18	2.231-2.251	

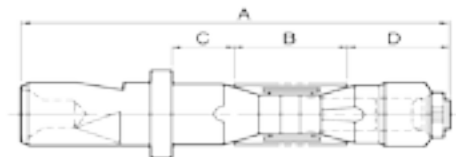


Features & Benefits

- Concentricity guaranteed to 0.0005" TIR
- Collets interchangeable within given arbor size
- Can be combined with adapter for face plate application
- Series provides gripping range from 0.500"-4.467"



AC1100 - AC1900
Long Series



AC7100 - AC7700
Short Series

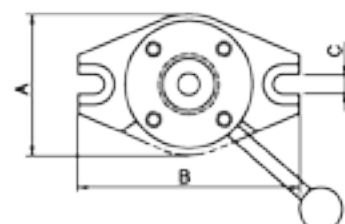
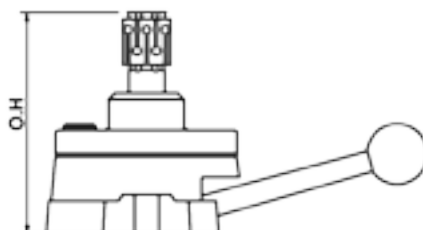
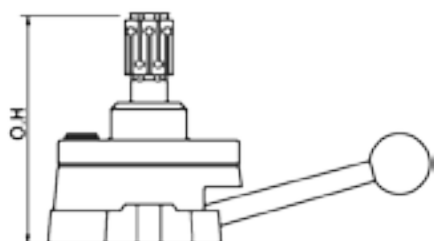
Item No.	Clamping range	No. of Collets Available	A	B	C	D	E	F	G	H	J	K
AC1100	12.70- 16.64	(10)	66.6	22.4	9.9	3.1	19.1	11.95	12.72	20.9	17.3	11.2
AC1200	15.06- 19.81	(12)	73.7	26.9	10.7	3.1	19.1	14.73	12.72	22.4	19.1	11.2
AC1300	18.24- 25.37	(18)	80.8	31.7	12.7	3.1	19.1	17.90	12.72	25.4	22.4	14.3
AC1400	22.23- 31.72	(12)	100.6	36.6	14.3	4.1	25.4	21.47	19.07	31.8	25.4	19.1
AC1500	28.58- 41.25	(16)	113.6	41.1	17.3	4.6	25.4	27.43	19.07	38.1	31.8	22.4
AC1600	37.29- 53.14	(20)	133.4	46.0	20.9	5.6	31.8	35.76	25.42	47.8	41.2	28.5
AC1700	49.20- 72.21	(29)	147.9	50.8	25.4	6.4	31.8	46.87	25.42	60.5	52.4	35.1
AC1800	65.07- 91.26	(33)	180.0	57.2	28.0	7.9	47.8	61.95	41.29	73.2	66.6	50.8
AC1900	84.12-113.46	(37)	185.7	63.5	28.0	7.9	47.8	81.00	41.29	95.3	85.9	50.8
AC7100A	12.70 - 16.64	(15)	64.0	15.0	10.2	16.5	-	-	-	-	-	-
AC7200A	15.06 -20.24	(20)	67.6	18.3	11.2	16.0	-	-	-	-	-	-
AC7300A	18.24 -25.40	(28)	73.9	21.3	13.2	17.3	-	-	-	-	-	-
AC7400A	22.23 -33.00	(20)	90.4	23.9	14.2	23.1	-	-	-	-	-	-
AC7500A	28.58 -41.70	(24)	100.8	28.6	17.3	24.6	-	-	-	-	-	-
AC7600A	37.28 -53.44	(30)	122.2	31.0	20.6	33.3	-	-	-	-	-	-
AC7700A	42.20 -71.65	(42)	133.4	33.3	25.4	36.6	-	-	-	-	-	-

Measurements in millimeters unless otherwise indicated.

Manual Fixture

The Tork-Lok Manual Fixture is a combines the drawbar models of Tork-Lok Arbors with a powerful locking mechanism that requires little maintenance.

The fixture assembly is ideal for milling, drilling, gear cutting and many other operations.



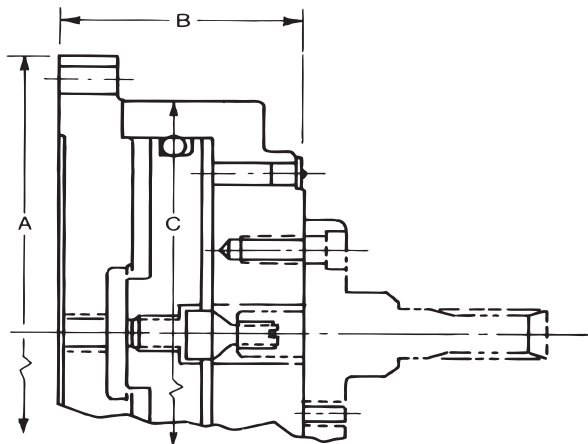
LONG SERIES FIXTURE ASSEMBLY			
Item No.	Overall Height (OH)	Arbor Assy No.	Connector
AC5110	109.3	AC2110	AC172A
AC5210	114.3	AC2210	AC172A
AC5310	121.2	AC2310	AC174A
AC5410	136.9	AC2410	AC472A
AC5510	144.8	AC2510	AC473A
AC5610	151.2	AC2610	AC672A
AC5710	159.3	AC2710	AC672A

SHORT SERIES FIXTURE ASSEMBLY			
Item No.	Overall Height (OH)	Arbor Assy No.	Connector
AC12100	91.9	AC8100	AC12272
AC12200	96.0	AC8200	AC12272
AC12300	100.6	AC8300	AC12372
AC12400	105.7	AC8400	AC12472
AC12500	111.8	AC8500	AC12572
AC12600	120.4	AC8600	AC12672
AC12700	121.7	AC8700	AC12672

FIXTURE BASE			
Item No.	A	B	C
AC-6100	95.3	162.1	14.3
AC-6400	114.3	174.8	14.3
AC-6600	133.4	196.9	14.3

Pneumatic Fixture

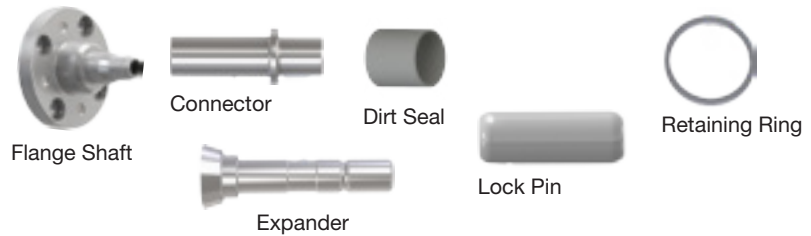
The combination of Forkardt's compact and lightweight air cylinder assembly with Tork-Lok drawbar type arbors answers the need for a quick load/unload chucking device for many operations.



LONG SERIES FIXTURE ASSEMBLY					
Item No.	A	B	C	Connector	For Use With
AC3007	207.77	73.91	174.88	AC135	AC2110, 2210, 2310, 8100, 8200, 8300
				AC136	AC2410, 2510, 8400, 8500
AC3010	383.97	76.92	251.07	AC137	AC2110, 2210, 2310, 8100, 8200, 8300
				AC138	AC2410, 2510, 8400, 8500
				AC139	AC2610, 2710, 8600, 8700
AC3013	360.17	78.49	327.28	AC138	AC2410, 2510, 8400, 8500
				AC139	AC2610, 2710, 2910, 8600, 8700

Draw Bar Style Arbors

Component Kit No.	Flange Shaft No. (Sold Separately)	For Use With
AC2110K	AC159	AC2110
AC2210K	AC259	AC2210
AC2310K	AC359	AC2310
AC2410K	AC459	AC2410
AC2510K	AC559	AC2510
AC2610K	AC659	AC2610
AC2710K	AC759	AC2710
AC2810K	AC859	AC2810
AC2910K	AC959	AC2910
AC2110MK	AC159M	AC2110M
AC2210MK	AC259M	AC2210M
AC2310MK	AC359M	AC2310M
AC2410MK	AC459M	AC2410M
AC2510MK	AC559M	AC2510M
AC2610MK	AC659M	AC2610M
AC2710MK	AC759M	AC2710M
AC2810MK	AC859M	AC2810M
AC2910MK	AC959M	AC2910M



Components kits contain one of each piece; flange shaft sold separately.

Spindle Adapters		
Item No.	Spindle Mount	For Use With
AC8157	A2-5	AC2110, 2210, 2310, 8100, 8200, 8300
AC8155	A2-6	AC2110, 2210, 2310, 8100, 8200, 8300
AC8158	D1-5	AC2110, 2210, 2310, 8100, 8200, 8300
AC8156	D1-6	AC2110, 2210, 2310, 8100, 8200, 8300
AC8457	A2-5	AC2410, 2510, 8400, 8500
AC8455	A2-6	AC2410, 2510, 8400, 8500
AC8458	D1-5	AC2410, 2510, 8400, 8500
AC8456	D1-6	AC2410, 2510, 8400, 8500
AC8657	A2-5	AC2610, 2710, 8600, A8700
AC8655	A2-6	AC2610, 2710, 8600, A8700
AC8658	D1-5	AC2610, 2710, 8600, A8700

Between Center Arbors

Kit No.	Shaft No. (Sold Separately)	For Use With
AC1100K	AC150	AC1100
AC1200K	AC250	AC1200
AC1300K	AC350	AC1300
AC1400K	AC450	AC1400
AC1500K	AC550	AC1500
AC1600K	AC650	AC1600
AC1700K	AC750	AC1700
AC1800K	AC850	AC1800
AC1900K	AC950	AC1900
AC7100K	AC7151	AC7100A
AC7200K	AC7251	AC7200A
AC7300K	AC7351	AC7300A
AC7400K	AC7451	AC7400A
AC7500K	AC7551	AC7500A
AC7600K	AC7651	AC7600A
AC7700K	AC7751	AC7700A



Components kits contain one of each piece; shaft sold separately.

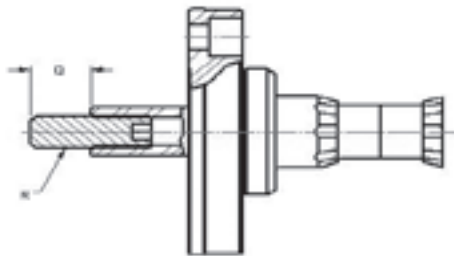
Face Plate Adapters	
Item No.	For Use With
AC155	AC1200, 1300, 7100A, 7200A, 7300A
AC455	AC1400, 1500, 7400A, 7500A
AC655	AC1600, 1700, 7600A, 7700A

Pneumatic Fixtures					
Model No.	Adapter	Cylinder	Piston	Piston Seal	Valve
AC3007	DC740A	AC745	AC730	DC790	AD713
AC3010	DC140A	AC145	AC130	DC190	AD713
AC3013	UBG1342	AC1345	AC1330	DC1390	AD713



Optional Connection Options Metric Drawbar Style

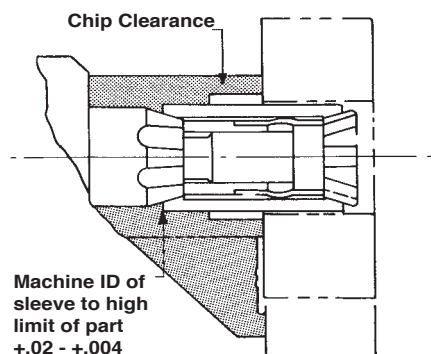
The Tork-Lok Metric drawbar assemblies can be adapted to connect with a male thread. See critical dimensions in table to the left



Work Stops

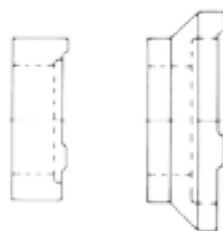
All Tork-Lok arbor applications require one of the work stop styles below. Our engineering team will design for you based on your part.

Model No.	Q	R
AC2110M	15.00	M10 X 1.5P X 30.0 LG
AC2210M	15.00	M10 X 1.5P X 30.0 LG
AC2310M	15.00	M10 X 1.5P X 30.0 LG
AC2410M	25.00	M12 X 1.75P X 50.0 LG
AC2510M	25.00	M12 X 1.75P X 50.0 LG
AC2610M	25.00	M16 X 2.0P X 50.0 LG
AC2710M	25.00	M16 X 2.0P X 50.0 LG
AC2810M	25.00	M16 X 2.0P X 50.0 LG
AC2910M	25.00	M16 X 2.0P X 50.0 LG
AC8100M	15.00	M10 X 1.5P X 30.0 LG
AC8200M	15.00	M10 X 1.5P X 40.0 LG
AC8300M	15.00	M10 X 1.5P X 30.0 LG
AC8400M	21.00	M12 X 1.75P X 40.0 LG
AC8500M	21.00	M12 X 1.75P X 40.0 LG
AC8600M	25.00	M16 X 2.0P X 50.0 LG
AC8700M	25.00	M16 X 2.0P X 50.0 LG



Restrictor Type

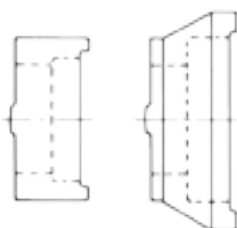
Combination work stop and retaining sleeve. Necessary for parts with locating lengths shorter than the collet. A restrictor expander is used to reduce the expansion safety stop, preventing collet breakage.



Fixed Type

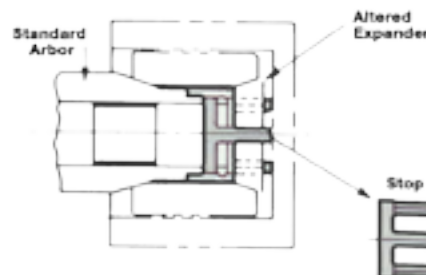
Parts having a surface square with the locating diameter.

Restrictor Expanders	
Model No.	Expander
AC2110, 2110M	AC167M
AC2210, 2210M	AC267M
AC2310, 2310M	AC367M
AC2410, 2410M	AC467M
AC2510, 2510M	AC567M
AC2610, 2610M	AC667M
AC2710, 2710M	AC767M
AC2810, 2810M	AC867M
AC2910, 2910M	AC967M
AC8100, 8100M	AC8167M
AC8200, 8200M	AC8267M
AC8300, 8300M	AC8367M
AC8400, 8400M	AC8467M
AC8500, 8500M	AC8567M
AC8600, 8600M	AC8667M
AC8700, 8700M	AC8767M



Rocker Type

Parts having out of square faces.



Fixed Internal Type

Internal face location of pre-machined parts.



Collet changeover in less than 10 seconds

Compare to your current changeover:

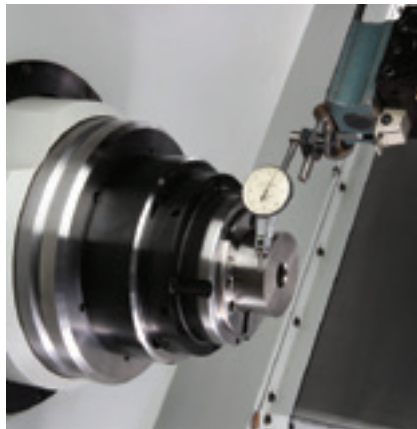
- Standard Collet Chuck: 79 seconds
- Chuck Jaws (3): 191 seconds

Gripping Range $\pm.020$ "

A typical FlexC® collet head has a gripping range of $\pm.020$ " (.5mm) above and below its nominal size to allow variation in bar stock without having to change out the collet.

Productivity Replacement for 3-jaw Chucks

When compared to a jaw chuck, the reduction in weight and the efficient design of the FlexC® Collet System allow you to increase the spindle rpm without concern for centrifugal forces. Advanced cutting tools, along with faster speeds and feeds, can now be used to boost your productivity. The interferences associated with jaw chucks are nonexistent with the clean contours of the FlexC® Collet System.



Accuracy up to .0004" TIR

Hardinge guarantees accuracy within .0004" (.010mm) TIR for the collet system models A and D and .0008" (.020mm) TIR for style DL.

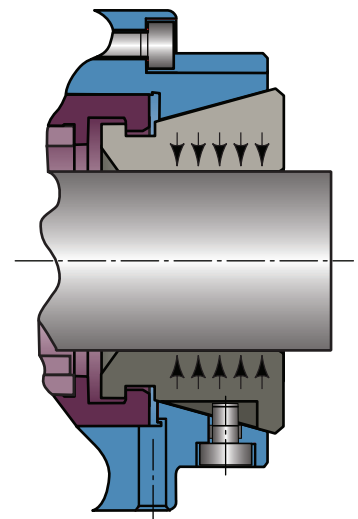
The FlexC® system offers quick-change flexibility without compromise.

Machine Compatibility and Flexibility

The precision-engineered Hardinge FlexC® Collet Systems mount to A2-5, A2-6, A2-8 and select flat-back spindle noses. Pull-back thru-hole, pull-back dead-length® and push-to-close dead-length® styles are available for single and dual-spindle CNC lathes.

One spindle mount... a multitude of part diameters. Purchase one spindle mount and interchange vulcanized collet heads from job to job. Hardinge collet heads are fully interchangeable with competitor's models.

Out performs standard collet chucks and jaw chucks with faster job changeover.

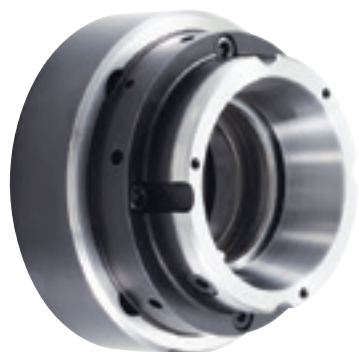


True Parallel Gripping

There is no collet shank. The collet segments remain parallel to the stock even when there are variations in the stock size minimizing "push back".

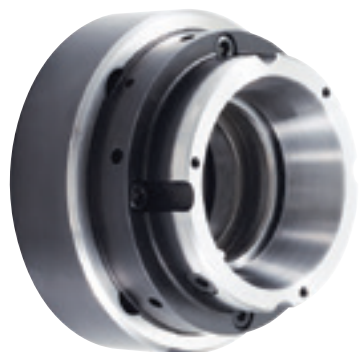
Style D – Pull Back with Thru Hole

Style D is a pull-back design with a thru hole for bar work. Since there is no work stop in this design, this style is not recommended for chucking parts. Spindle mount, collet and wrench each sold separately. A drawbar linkup must be machined to fit the drawbar of the lathe.



42Mm* Style D Spindle Mount: Pull-Back Style With Thru-Hole					
Spindle Style	Part Number	D' - Diameter	D - Diameter	L' - Length	L - Length
A2-5	V42 5D00300	4.016" (102)	5.512" (140)	.846" (21.5)	3.543" (90)
A2-6	V42 6D00400	4.016" (102)	6.496" (165)	.846" (21.5)	3.543" (90)
140mm	V42 140D01700	4.016" (102)	5.906" (150)	.846" (21.5)	3.543" (90)

* Limited to machine capacity. (millimeters in parentheses)

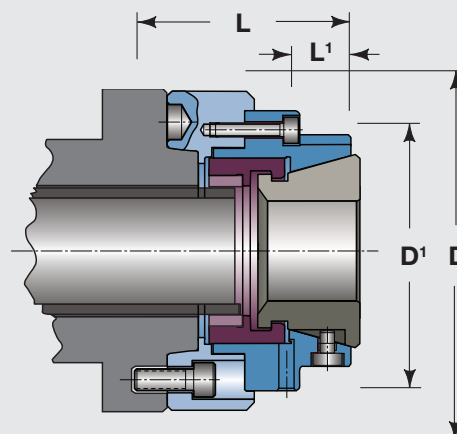


65Mm* Style D Spindle Mount: Pull-Back Style With Thru-Hole					
Spindle Style	Part Number	D' - Diameter	D - Diameter	L' - Length	L - Length
A2-5	V65 5D00500	4.736" (120.3)	6.102" (155)	1.043" (26.5)	3.740" (95)
A2-6	V65 6D00600	4.736" (120.3)	6.496" (165)	1.043" (26.5)	3.740" (95)
A2-8	V65 8D00700	4.736" (120.3)	8.268" (210)	1.043" (26.5)	3.858" (98)
140mm	V65 140D01900	4.736" (120.3)	6.299" (160)	1.043" (26.5)	3.937" (100)

* Limited to machine capacity. (millimeters in parentheses)

Manufacturing process control for Hardinge FlexC Systems — made in the U.S.A.

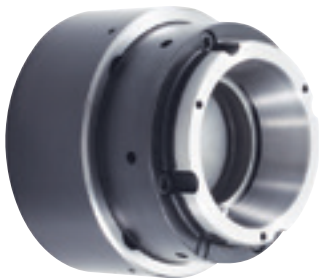
Hardinge spindle mounts are turned on a rugged Hardinge GS 200 turning center while the ODs and IDs are finish-ground on a high-precision Kellenberger grinding machine. A time-proven heat treat process guarantees hardness and tempering for a long life without breakage.



Style A – Pull Back Design

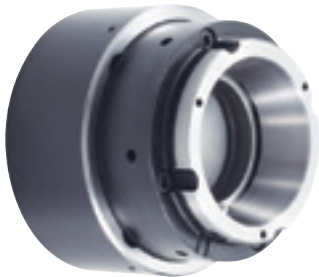
Style A is a pull-back design with a Dead-length® workstop.

The collet draws in the part against a stationary workstop for part length control. You can easily “short grip” parts by machining a special work stop to the desired length. The Hardinge work stop is removable for bar work.



42Mm* Style A Spindle Mount: Pull-Back Style With Removable Dead-Length Work Stop					
Spindle Style	Part Number	D ¹ - Diameter	D - Diameter	L ¹ - Length	L - Length
A2-5	V42 5A01000	4.016" (102)	5.512" (140)	.610" (15.5)	4.764" (121)
A2-6	V42 6A01100	4.016" (102)	6.496" (165)	.610" (15.5)	4.764" (121)
140mm	V42 140A01600	4.016" (102)	5.906" (150)	.610" (15.5)	4.961" (126)

* Limited to machine capacity (millimeters in parentheses)



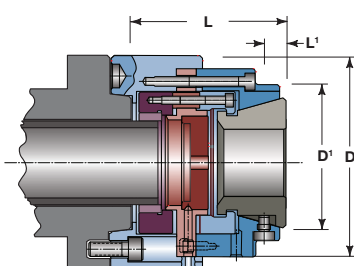
65mm* Style A Spindle Mount: Pull-back style with removable dead-length work stop					
Spindle Style	Part Number	D ¹ - Diameter	D - Diameter	L ¹ - Length	L - Length
A2-5	V65 5A01200	4.736" (120.3)	6.102" (155)	.728" (18.5)	5.118" (130)
A2-6	V65 6A01300	4.736" (120.3)	6.496" (165)	.728" (18.5)	5.118" (130)
A2-8	V65 8A01400	4.736" (120.3)	8.268" (210)	.728" (18.5)	5.315" (135)
140mm	V65 140A02300	4.736" (120.3)	6.299" (160)	.728" (18.5)	5.248" (133)
170mm	V65 170A01800	4.736" (120.3)	6.299" (160)	.728" (18.5)	5.118" (130)

* Limited to machine capacity. (millimeters in parentheses)

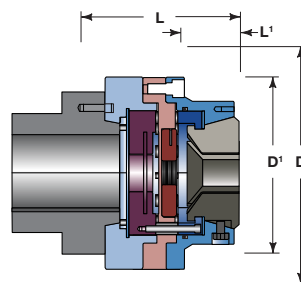


80mm* Style A Spindle Mount: Pull-back style with removable dead-length work stop					
Spindle Style	Part Number	D ¹ - Diameter	D - Diameter	L ¹ - Length	L - Length
A2-6	V80 6A06400	5.750" (146.1)	7.700" (195.6)	2.000" (50.8)	5.174" (131.4)
A2-8	V80 8A06500	5.750" (146.1)	8.000" (203.2)	2.000" (50.8)	5.174" (131.4)

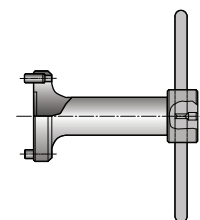
* Limited to machine capacity. (millimeters in parentheses)



42 and 65mm systems



80mm systems



Work stop wrench V65-6DL05810 (65mm) is included with the 80mm spindle mount assembly to remove or install the work stop.

Style DL – Push-to-Close Design

Style DL is a push-to-close design with a Dead-length® workstop.

The collet and work stop are both stationary in the style DL Dead-Length spindle mount design to provide precise length control of the workpiece. This feature makes it possible to accurately transfer parts from one spindle to the other within .0005" (.0127mm), eliminating problems such as drive default or drag marks on the part. **Workstop is available but not included with the 80mm spindle mount.



42mm* Style DL Spindle Mount: Push-to-Close with work stop					
Spindle Style	Part Number	D' - Dia.	D - Dia.	L' - Length	L - Length
A2-5 (1)	V42 5DL05400	—	5.315" (135)	—	4.724" (120)
A2-6 (2)	V42 6DL05500	5.315" (135)	6.299" (160)	2.953" (75)	4.724" (120)
140mm (2)	V42 140DL04400	5.315" (135)	5.906" (150)	3.944" (100)	4.724" (120)

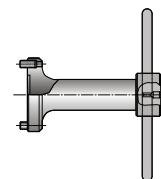
* Limited to machine capacity. (millimeters in parentheses)



65mm* Style DL Spindle Mount: Push-to-Close with work stop					
Spindle Style	Part Number	D' - Dia.	D - Dia.	L' - Length	L - Length
A2-5 (1)	V65 5DL05700	—	6.299" (160)	—	4.921" (125)
A2-6 (1)	V65 6DL05900	—	6.299" (160)	—	4.724" (120)
A2-8 (2)	V65 8DL06000	6.299" (160)	8.268" (210)	2.402" (61)	4.921" (125)
140mm (1)	V65 140DL02400	—	6.299" (160)	—	5.157" (131)

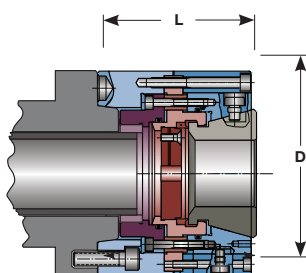
* Limited to machine capacity (millimeters in parentheses)

Work stop wrench V65-6DL05810 (65mm) or V42-5DL05410 (42mm) is included with the spindle mount assembly to remove or install the work stop.

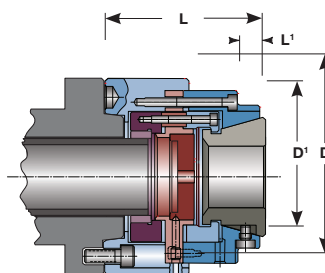


80mm* Style DL Spindle Mount: Push-to-Close					
Spindle Style	Part Number	D' - Dia.	D - Dia.	L' - Length	L - Length
A2-6	V80 6DL06200	5.950" (151.2)	7.700" (195.6)	1.354" (34.4)	4.957" (125.9)
A2-8	V80 8DL06300	5.950" (151.2)	8.250" (209.6)	1.354" (34.4)	5.207" (132.3)

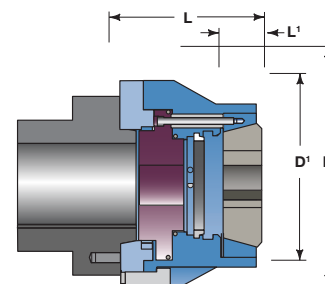
* Limited to machine capacity. (millimeters in parentheses)



Spindle Style 1



Spindle Style 2



80mm systems

Manufacturing process control in a dedicated work cell environment

Hardinge has invested in the latest vulcanizing machines made by DESMA, a world leader in injection molding technology. The vulcanization process joins the collet segments together as a one-piece unit. Vulcanized rubber has elasticity for repeated opening and closing over the life of the collet that makes it ideal for a quick-change product. It will not become brittle and is resistant to coolant. It also prevents chips from entering the collet system. Hardinge test results from repeated cycles of collet actuation assure long life of the Hardinge vulcanization process.

Hardinge guarantees a collet head concentricity of .0002" (.005mm) TIR for round sizes after the segments are joined in the vulcanization process. Collets change in just seconds!

- Round smooth
- Round serrated
- Hexagon serrated
- Square smooth
- Emergency style
- Masters
- Industry Compatible

FlexC Collets	Round Smooth ●	Round Serrated ●	Hexagon Serrated ●	Square Smooth ■	Manual Wrench
42mm Inch Part Numbers	C0-4200-19	C0-4200-59	C0-4200-69	C0-4200-39	C 4200000-WREN
1/16" increments *	7/32 to 1 5/8"	7/32 to 1 5/8"	5/16 to 1 3/8"	5/16 to 1 9/16"	—
42mm Metric Part Numbers	C0-4200-17	C0-4200-57	C0-4200-67	C0-4200-37	C 4200000-WREN
1mm increments *	5 to 42	5 to 42	8 to 36	8 to 29	—
65mm Inch Part Numbers	C0-6500-19	C0-6500-59	C0-6500-69	C0-6500-39	C 65000-00-WREN
1/16" increments*	1/4 to 2 9/16"	1/4 to 2 9/16"	5/16 to 2 1/8"	5/16 to 1 13/16"	—
65mm Metric Part Numbers	C0-6500-17	C0-6500-57	C0-6500-67	C0-6500-37	C 65000-00-WREN
1mm increments *	5 to 65	5 to 65	8 to 56	8 to 46	—
80mm Inch Part Numbers	C0-8000-19	C0-8000-59	C0-8000-69	C0-8000-39	C 80000-00-WREN
1/16" increments*	15/32 to 3 1/4"	3/4 to 3 1/4"	15/32 to 2 3/4"	15/32 to 2 1/4"	—
80mm Metric Part Numbers	C0-8000-17	C0-8000-57	C0-8000-67	C0-8000-37	C 80000-00-WREN
1mm increments *	12 to 82.5	19 to 82.5	12 to 69.9	12 to 57.2	—

* limited to maximum bar capacity of your machine for thru-hole bar work

FlexC Style-S Master Collets	S16	S20	S22	S26	S30
65mm	C0650S16MASTER	C0650S20MASTER	C0650S22MASTER	—	—
80mm	—	—	—	C0800S26MASTER	C0800S30MASTER



Emergency Collets Size / Pilot Hole	Emergency Collet Part Number	Manual Wrench Part Number	Boring Ring Part Number
42mm / 5mm Pilot	C0420000000005	C 4200000 WREN	C042000000RING
42mm / 15mm Pilot	C0420000000015	C 4200000 WREN	C042000000RING
42mm / 30mm Pilot	C0420000000030	C 4200000 WREN	C042000000RING
65mm / 8mm Pilot	C0650000000008	C 6500000 WREN	C065000000RING
65mm / 20mm Pilot	C0650000000020	C 6500000 WREN	C065000000RING
65mm / 40mm Pilot	C0650000000040	C 6500000 WREN	C065000000RING
80mm / 12mm Pilot	C0800000000012	C 8000000 WREN	C080000000RING
80mm / 25mm Pilot	C0800000000025	C 8000000 WREN	C080000000RING
80mm / 40mm Pilot	C0800000000040	C 8000000 WREN	C080000000RING

Custom Manufacturing

Standard collets are stocked in round smooth, round serrated and hex shape. Square sizes are made to order. Anything between the size increments shown below can be custom manufactured. Other special applications include stepped holes, special shapes, off-center, etc. that can be made from stock blanks.

Large Diameter Workholding



Forkardt has many products available to handle large diameter workholding. We have supplied solutions for holding many parts used in the oilfield and large machinery sectors. Many of our existing product designs can be built in large sizes in order to accommodate large parts. We have also designed products specifically for holding large diameter parts in harsh working conditions.



Roughneck Spring Chuck

Ideal for:

- Machining large oilfield tubular goods

Key Features:

- Extra long jaw stroke
- Counter centrifugal compensation

ZS Series Index Chuck

Ideal for:

- Machining large oilfield couplings

Key Features:

- 180° indexing
- Up to 18 clamping points



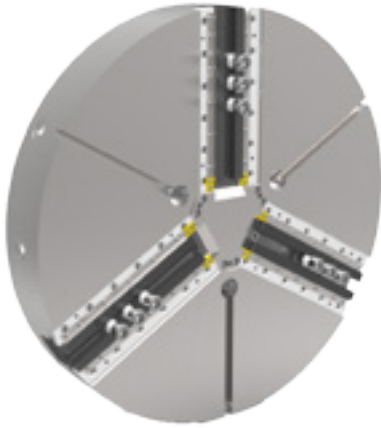
UVE Thru Hole Air Clamp Chuck

Ideal for:

- Machining large oilfield tubular goods

Key Features

- Friction free air intake ring
- Standard 4 way valve
- Regulated clamping force



KS Series Power Chuck

Ideal for:

- Heavy machining operations
- Oil & energy fluid components and valves

Key Features:

- Sealed against contamination
- Optional centrifugal force compensation

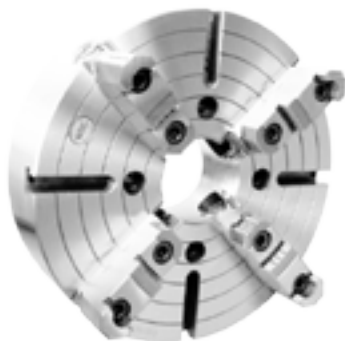
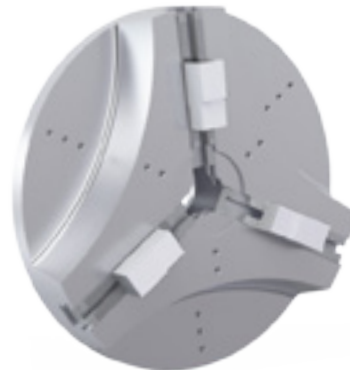
KSL Light Weight Power Chuck

Ideal for:

- High speed heavy machining

Key Features:

- Lightweight design
- Optional centrifugal force compensation



Buck Manual Heavy Duty Large Diameter Chucks

Ideal for:

- Machining of large diameter parts

Key Features:

- Flat back and direct mount available
- American standard and solid jaws available

Application Examples

Below are some examples of how Forkardt was able to take a standard chuck model, such as a UBL, Rim Lok, or ECC and build it to handle large diameter parts.

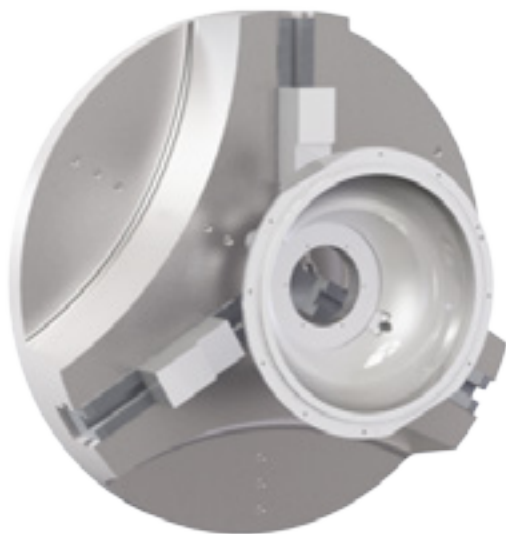
24" Hi-LO PC Chuck for Holding Locomotive Cylinder Liners



OD Grip Rim-Lok Collet Chuck for holding 14" Diameter Drum



1000mm 3-Jaw Sliding Jaw Power Chuck with Scallops to reduce weight for holding housing



24" PC Chuck used for holding semi-truck brake drums.



Air Operated Universal Front End Chuck Model UVE

The Forkardt UVE power chuck offers a rugged and easy to use solution for machining pipes.

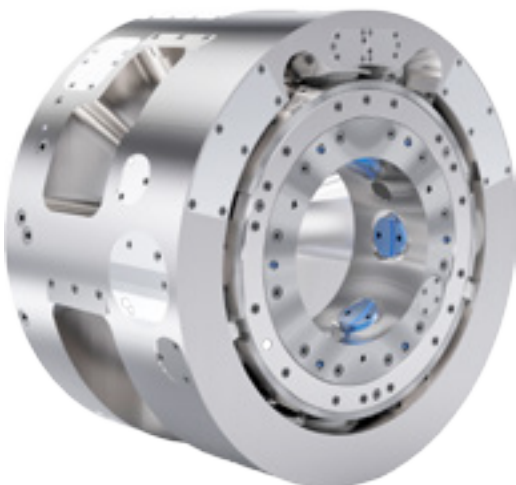


Features & Benefits

- Standard 3/32 X 90° jaw mounts making the purchase of top tooling simple and economical
- The friction free air intake ring with diaphragm seals allows for continuous operation at high speed without noticeable heat generation
- Integrated seals allows for easy monitoring of clamping pressure using a pressure gage on the face of the chuck
- A standard 4 way valve with a neutral center position can be used to control the chuck
- The narrow air intake ring is located in an ideal position for working with the integrated air piston allowing for maximum jaw pressure
- Large air passages built into the chuck allow for rapid clamping
- The compressed air fed to the cylinder when the chuck is idle or in clamp/unclamp phase is trapped by an axially controlled non-return valve

Centralizing Clamping Indexing Chuck Model ZS

The ZS index chuck is designed for machining of tubing and casing couplings on traditional lathes. Three jaws centralize the coupling while the other three jaws clamp in compensating mode for secure grip.



Features & Benefits

- The chuck consists of a mounted clamping ring which can be indexed 180 degrees. The 7 tube oil feed bundle is mounted to the rear spindle face
- Clamping is achieved with 6 jaws; 3 jaws centralize and 3 jaws compensate
- Clamping inserts can be designed to reach up to 18 clamping points when part deformation is a concern

Roughneck Oilfield Spring Chuck Model RSC

As the original creator of the Woodworth THC Spring Actuated Chuck, renowned for its longevity, reliability and strength, Forkardt is proud to introduce a new spring chuck design that will set the mark by which all other chucks for Oil, Transportation & Gas manufacturing will follow.



More Control of the Manufacturing Process

The unique design of the Roughneck spring chuck allows for a choice of spring pack types and operating force. The features are interchangeable and can be field retrofitted without removing the chuck from the machine spindle.

- Nitrogen Gas Springs- offer high performance for increased forces and a flatter spring curve rate throughout its stroke
- Optional Disk Spring Cartridge allows for medium spring force
- Pressure adjustment is achieved without disassembly through the ports provided on the front of the chuck

Features & Benefits

- Ruggedly designed jaw actuation mechanism provides a smooth transition between rapid and clamp stroke.
- Extra long jaw stroke allows tooling to easily clear upset pipe ends or weld on ends of drill pipe
- Longer wear life due to the advanced jaw guide system
- Counter centrifugal compensation provides uniform gripping pressure at higher speeds for higher production rates and better part finishes
- Reduced body mass decreases spindle wear
- Large thru hole allows full use of machine spindle bore
- Standard air ring allows for easy interchangeability with competitors chucks
- Decreased cycle times due to both ports on the air ring feeding and exhausting air from the piston chamber
- Positive clamp confirmation via proximity sensor and a robust sensor ring, allowing clamp confirmation throughout the machining cycle.

Multiple Profile Jaw Guide System

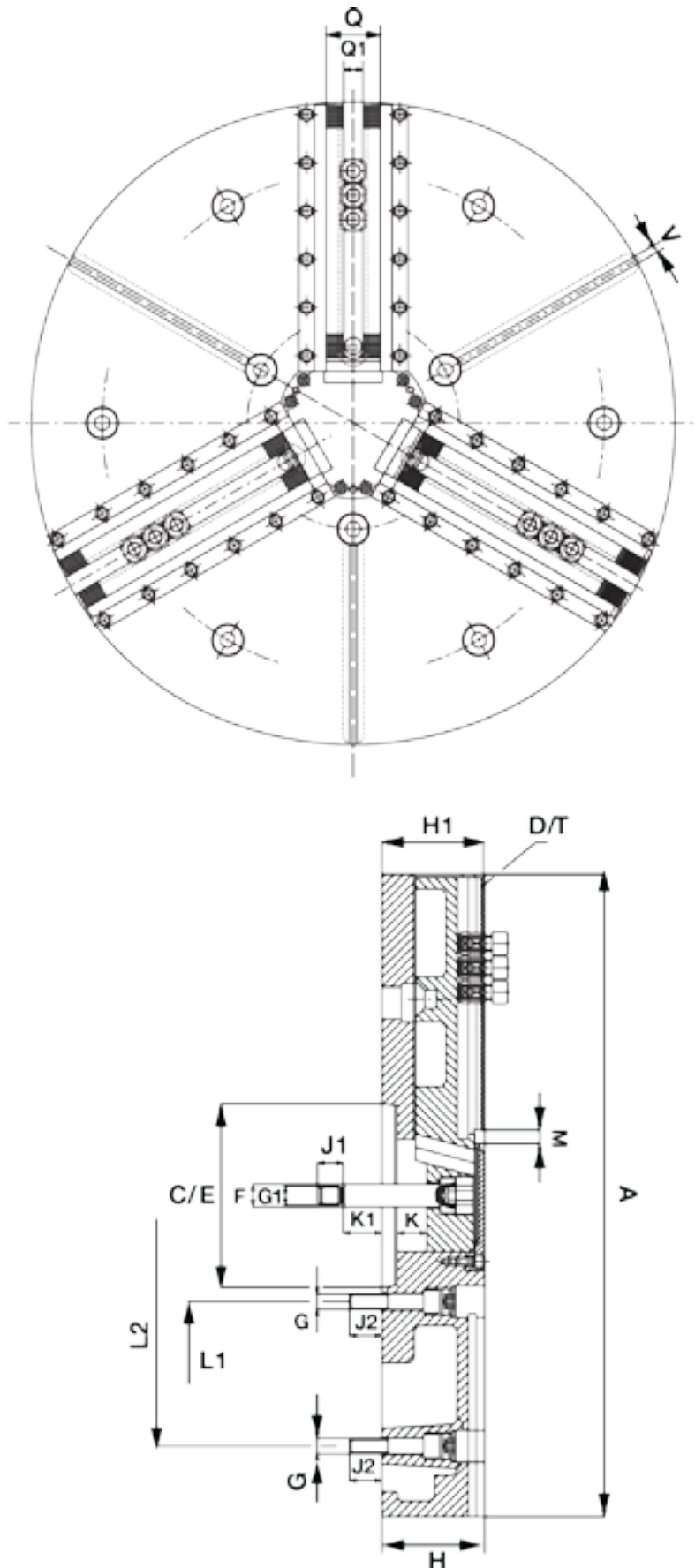
The RSC series chuck uses Forkardt's patented QLC multiple profile jaw guide system. This advanced jaw guide system has been proven in high production environments to provide prolonged life when compared to traditional square guide systems. This system allows the RSC to excel in harsh environments by working to keep coolant out of the chuck.

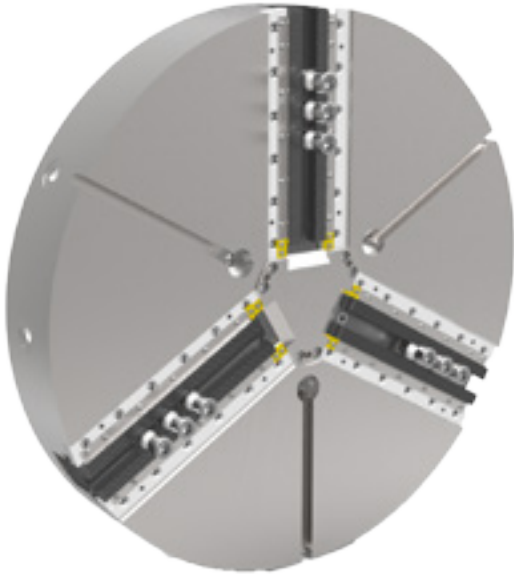


Positive Clamp Confirmation

A robust proximity sensing mechanism is used to provide confirmation that the chuck has reached full clamp position on the workpiece







Large Diameter Power Chuck Model KS

The Forkardt KS series of large diameter power chucks is universally adaptable. The patented wedge hook mechanism leads to enormous clamping forces and enables the chuck to be utilized in the most demanding of cutting applications while still maintaining a consistently high repeatability.

			800	1000	1250	1400
Outer Diameter	A	mm	800	1000	1250	1400
Chuck Mounting Recess	C / E	mm	A15 / 285.8	A15 / 285.8	A15 / 285.8	A15 / 285.8
Jaw Mounting	D / T	mm	T230 / 6.28	T230 / 6.28	T230 / 6.28	T230 / 6.28
Drawbar Bolt	F	mm	35	35	35	35
Mounting Bolts	G		M24	M24	M24	M24
Draw Tube Thread	G1		M30	M30	M30	M30
Chuck Width	H	mm	160	160	160	160
Chuck Width w/ Base Jaw	H1	mm	158	158	158	158
Thread Length	J1	mm	40	40	40	40
Thread Length	J2	mm	35	35	35	35
Actuator Stroke	K	mm	50	50	50	50
Drawbar Bolt Length	K1	mm	Option			
Pitch Circle Of Mounting Bolts	L1	mm	330.2	330.2	330.2	330.2
Additional Mounting Bolts P. C. D.	L2	mm	Option			
Jaw Stroke	M	mm	13	13	13	13
Jaw Width	Q	mm	80	80	80	80
Slot Width	Q1 ^{H7}	mm	30	30	30	30
Performance Data						
Max. Actuating Force	F max	daN	12,000	12,000	12,000	12,000
Max. Gripping Force	Fsp max	daN	27,500	28,000	28,500	31,000
Max. Speed	min ⁻¹	RPM	750	600	500	400
Weight		kg	475	700	950	1,250
Moment Of Inertia		kgm ²	38.5	80	230	361
Part No.			D47447000	D1042936000	D42934000	D1042933000

Index Chuck



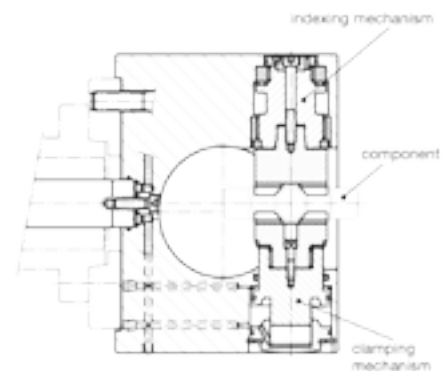
The Forkardt indexing chuck is intended for the manufacture of workpieces with multiple machining axes. Due to short chucking and indexing times the Forkardt indexing chuck line is an ideal choice for both large and small batch production.

When clamped with conventional chucking equipment, each of these axes require repositioning and re-gripping, which drastically increases turnover rates and more easily allows the introduction of significant errors. The Forkardt index chuck allows one operator to handle several machines to complete parts in one single chucking operation. The index chuck does not require special machines or transfer lines and can be used with a multi-spindle machine or standard CNC lathes.

Assembly and Function

Clamping, indexing, locking and unclamping of the jaws are performed by integral hydraulic cylinders. The oil is fed to the different cylinders via a multiple oil supply system mounted on the spindle end and a pipe bundle running through the spindle bore.

The rough component is automatically centered by the jaws, prisms and concentric clamping pressure. The successive machining cycle produces pieces with minimum out of balance and high dimensional accuracy.



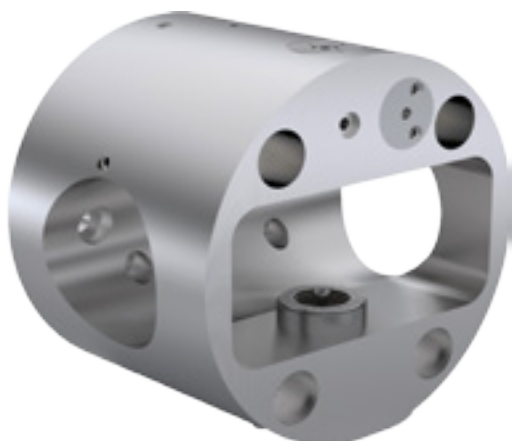
The chuck clamps unilaterally via the clamping position of the lower jaw. Two hydraulically operated opposed flanges work in sequence to index and lock the fulcrum pin.



The angular position of the jaws is matched to the number of component axes and maintained with a high degree of accuracy. In addition, the electrical circuit includes an adjustable time lag relay to incorporate a short time lag between the indexing and locking cycles. The completed indexing cycle is acknowledged via an additional oil channel, operating a control cylinder to actuate.

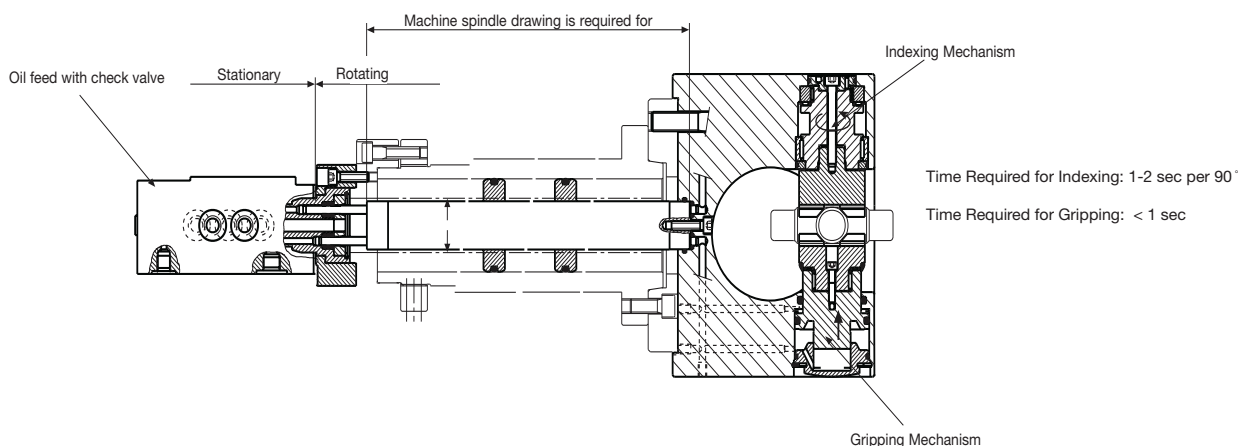
The HSR is Forkardt's standard indexing chuck model. Other styles and special designs are available.

Hydraulic Indexing Chuck Model HSR



Features & Benefits

- For machining of workpieces with multiple machining axes
- Hydraulically controlled via two four way solenoid valves
- Ideal for both large and small batch production
- Up to six different indexing positions while spindle is turning
- Optional hydraulic control unit and power supply available



The chuck speed at which an indexing of the part during the rotation of the machine spindle can be carried out corresponds to 2/3 of the indicated speed.

The maximum practical machining and indexing speeds are best determined at the machine on the basis of operating smoothness, the degree of precision with which the workpiece is machined, the work finish and the correct indexing.

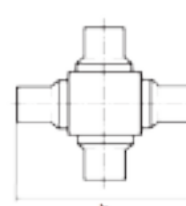
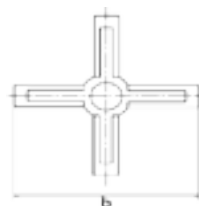
If required the indexing operations during the full speed of the machine spindle can be controlled through the built in indexing control unit. The index position feedback signal is provided by a system of pneumatic switches.

The following sizes are recommended for spiders and differential gears:

Model	Total Width b mm	Jaw Stroke mm
HSR 200	50	12
HSR 225	75	12
HSR 230	115	15
HSR 250	180	17
HSR 275	215	17
HSR 315	268	20

Differential Gear

Spider



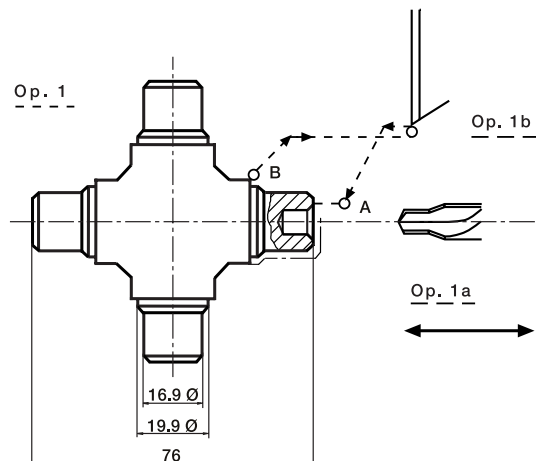
Spider Machining with Forkardt Indexing Chuck Model HSR

Universal joint shaft spiders, with their symmetrical shape and location of bearing surfaces are typically finish processed on machines with stationary tools. Index chucking is a more economical way to achieve the finish machining of these parts as bearing surfaces can be performed on a standard CNC lathe.



Component

Universal joint spider, forged, stock allowance approximately 2 mm, Material 15 CR 3



Sequence of Operations	Time (min)
(1) Spindle idle, remove finished component from chuck, load chuck with rough component and clamp (1a) Component pin centering	0.12
Drilling speed: 2350 RPM Cutting speed: 14 min-1ute Feed: 0.15 mm/rev.	
(1b) Copy turn path A -B	
Drilling speed: 1800 RPM Cutting speed: 14 min-1ute Feed: 0.25 mm/rev.	
(1a) and (1b) change after every 90° Indexing cycle of the component at running spindle. After machining the fourth bearing surface, the spindle is stopped and the chuck positioned for operation (1)	0.94
Total Time	1.06

Indexing Accuracy

For machining journal crosses in small and medium lot sizes, the accuracy of rough machining is normally adequate. For very large journals such as differential spiders with a total length of 300 mm and longer, the indexing accuracy can be improved by finish machining.

- **Rough-Machining Accuracy**

About 0.1 mm at a distance of 100 mm to the indexing center

- **Fine-Machining Accuracy**

About 0.03-0.05 mm at a distance of 100 mm to the indexing center. All journals are initially rough machined and then finish machined in the second indexing cycle.

The accuracy of the machined component is not determined by the chuck mechanism, but by the secure seating of the component in the clamping jaws.

Methods of Holding

The best and most reliable method of holding in any indexing chuck is crossing prisms. For this reason, the clamping inserts are designed as two crossing prism axes and with every clamping insert only one prism axis contacts the component during gripping. They are 90° offset at the installed clamping inserts.

The second prism of every clamping insert has only to exert one locating effect and is not in contact after completed gripping operation.

Chucking Operation



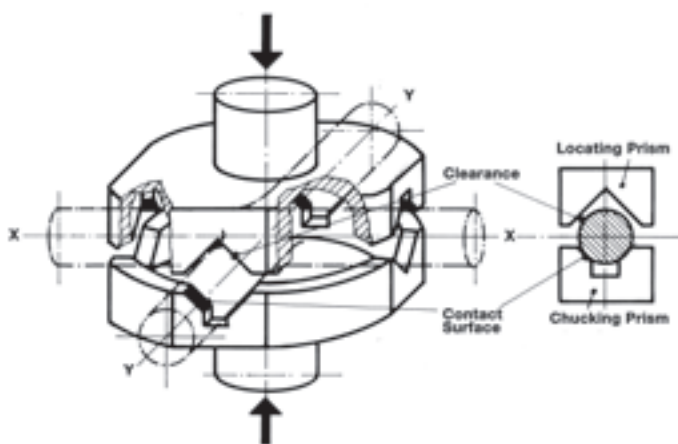
The component is held in the X axis by two clamping Vees in the upper jaw and in the Y axis by two clamping Vees in the lower jaw. The component is automatically set to the accurate position.

The opposed free prisms are used for locating. For distinguishing purposes, the gripping prisms are provided with a groove, whereas the locating prisms are not provided with a groove. (Fig. B and Fig. C)

The operator must pay attention that every position on a prism with a groove stands opposite one without a groove (see Fig. A and Fig. B).



C



Machining of Fittings

The combination of reduced setup and machining cycle times allows for a more effective utilization of the machine's capabilities. This in turn makes the Forkardt indexing chuck ideal for the manufacturing of valves and fittings greater than 25 mm in size.

Hydraulic Unit and Control Stand

Forkardt has designed a control stand and hydraulic control unit to work with the HSR indexing chuck.

The control stand is designed for the control of the HSR chuck. The chuck functions are switched via two solenoid valves and four pressure switches are provided for monitoring the clamping/releasing function and indexing positions.

The hydraulic unit is fully equipped with tank, oil pump, electric drive and all hydraulic control stand components.

Actuating Cylinders

FORKARDTTM



Hydraulic Cylinder
Model HWC



Solid Hydraulic
Cylinder Model BLR



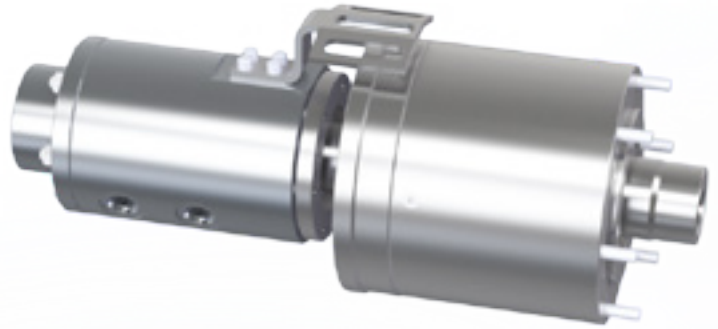
Hydraulic Thru-Hole
Cylinder Model BC



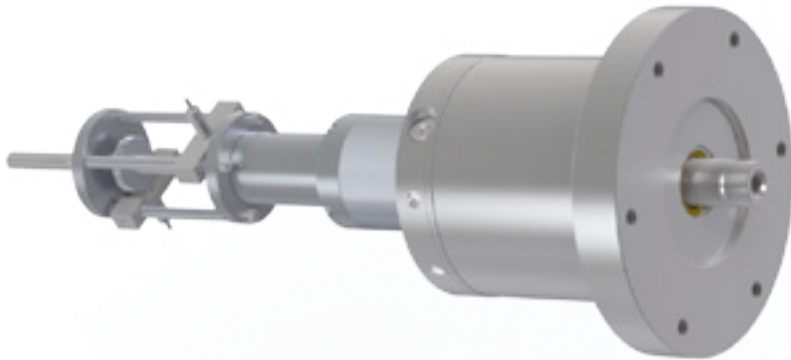
Pneumatic Cylinder
Model ARC

Application Specific Designs

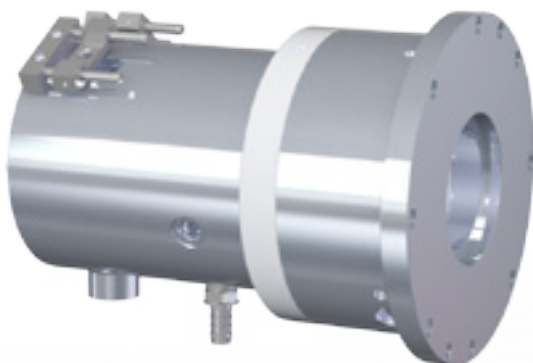
Forkardt designs and builds rotating cylinders for any application. We offer a wide range of standard cylinder models, and our engineers can custom design specific performance characteristics to match the application. Below are some examples of designs created.



Hydraulic thru hole cylinder with triple passage rotary air coupling mounted for air sensing, anti-vibration arms and work support units



Hydraulic cylinder with flange type mounting, third port for 500 PSI oil thru, and 3.62" stroke



Hydraulic thru-hole cylinder with 3.5" thru hole, special mounting to suit customer machine and 1" stroke

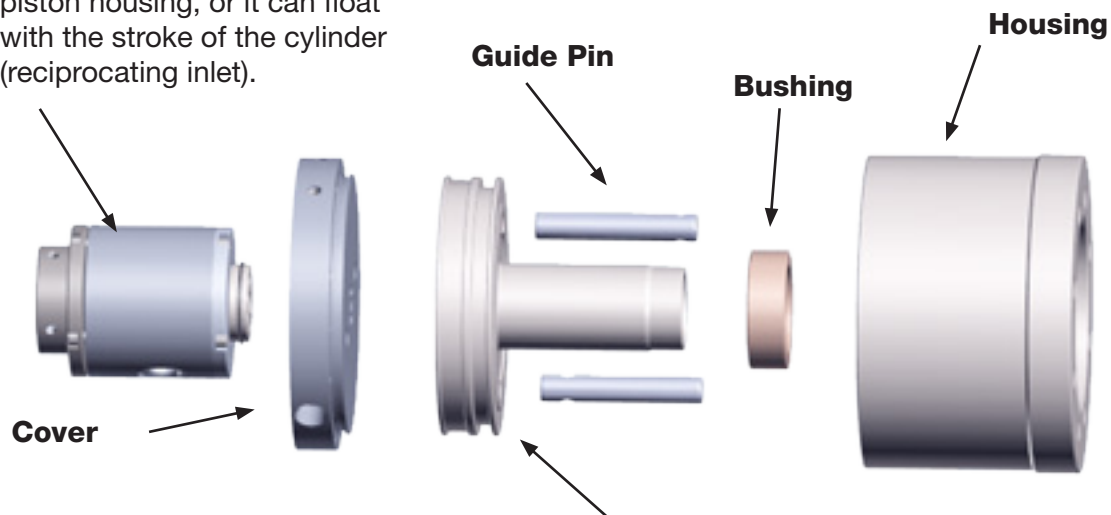
Seal kits are available to keep your cylinder running safely and efficiently. Please contact our sales office to purchase the correct seal kit for your Forkardt, Logansport or SP rotating cylinder.

Product Overview

Rotating Cylinders have basic components which dictate the function and design of the cylinder

Inlet Assembly- The inlet assembly, sometimes called the distributor, can be designed in two ways. It can have a fixed position in relation to the piston housing, or it can float with the stroke of the cylinder (reciprocating inlet).

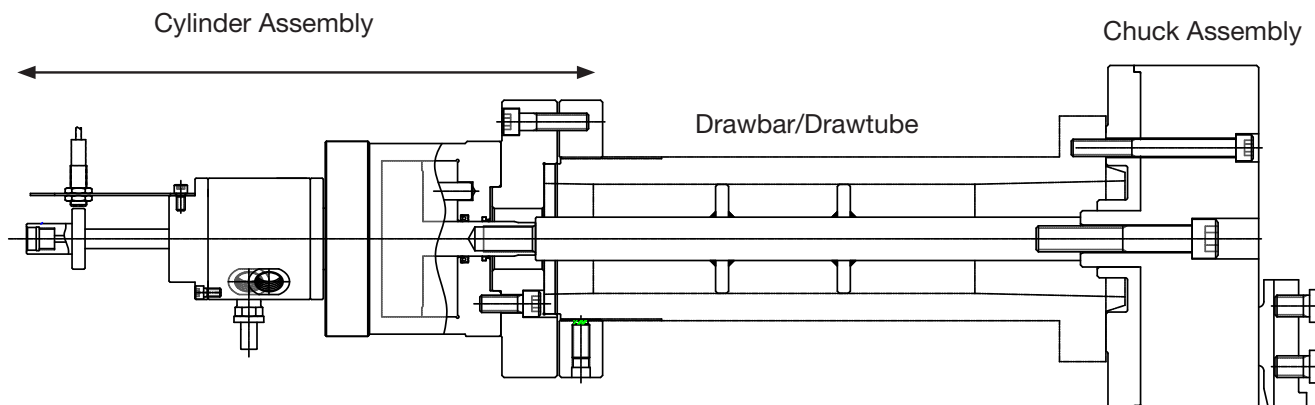
Trapping- This safety feature allows the cylinder to remain pressurized, and the chuck to maintain clamping pressure, in the event of a power loss.



Seals- The seals keep compressed air or hydraulic fluid captured within the cylinder. The seals are designed to allow movement and support between internal components.

Piston- Cylinders can be designed with a single piston, two pistons connected in one housing (tandem), an open center piston, or with two different size pistons in separate housings which can be energized independently (duplex).

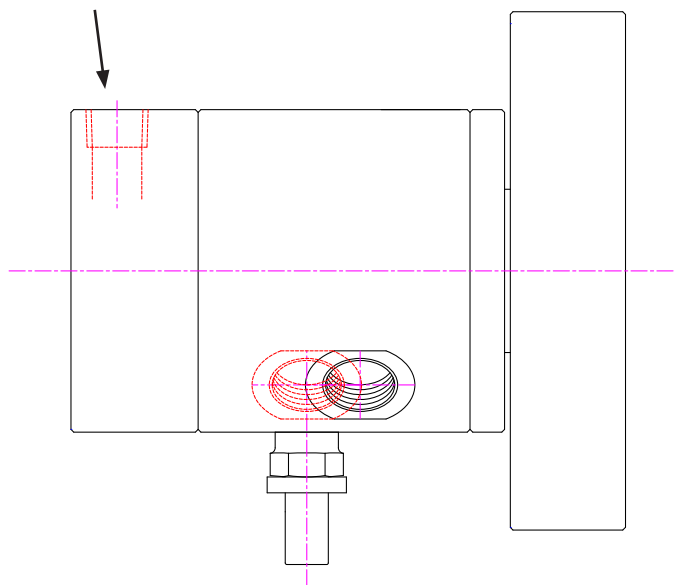
Forkardt supplies the complete chuck and actuation package to fit your CNC lathe or turning center. Our engineers will design and specify the power chuck, drawbar and adapters needed to integrate with your machine spindle and processing requirements.



Options

Forkardt cylinders can be built or modified to allow the following features

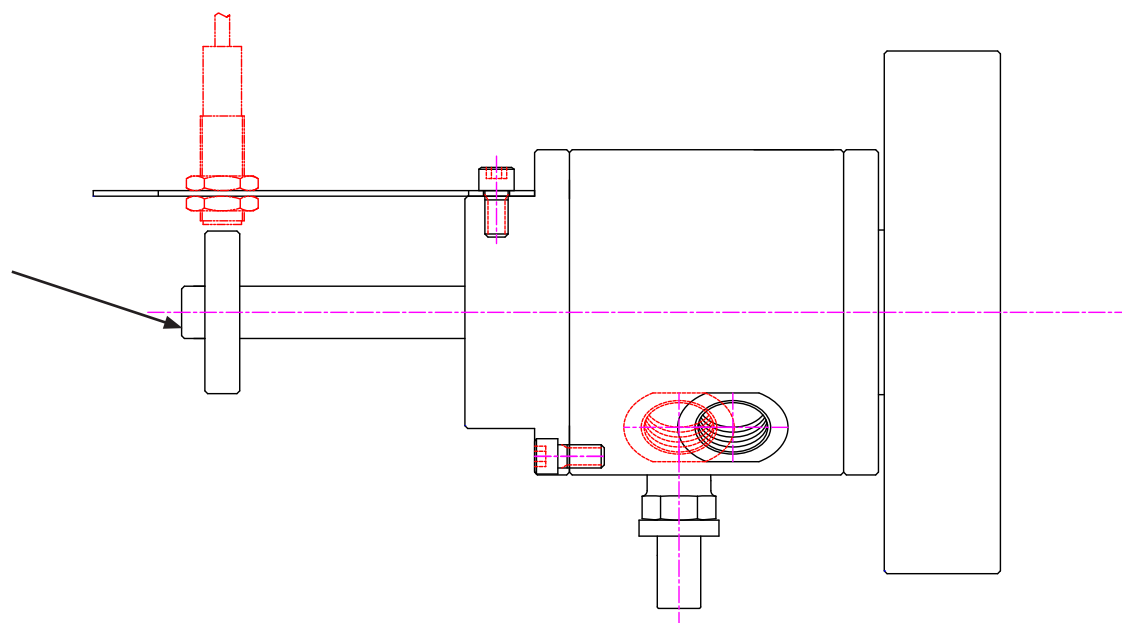
Third Port- Additional port added to the inlet assembly to allow for coolant and air access through the piston rod.



Fast Acting- Allows for increased volume flow through the cylinder decreasing overall stroke cycle time. Cycles of less than one second are possible on two inches of stroke.

Variable Pressure Feature- Allows clamping forces to be reduced from high to low during the cycle time. A pilot port in the inlet triggers “on the fly” pressure changes transferred to the part through chuck jaw relaxation. The reduction in part distortion allows for better roundness control.

Solid or Hollow Trip Rod- Works with customer supplied proximity switch to sense the position of the cylinder. Hollow rod allows air or coolant through.

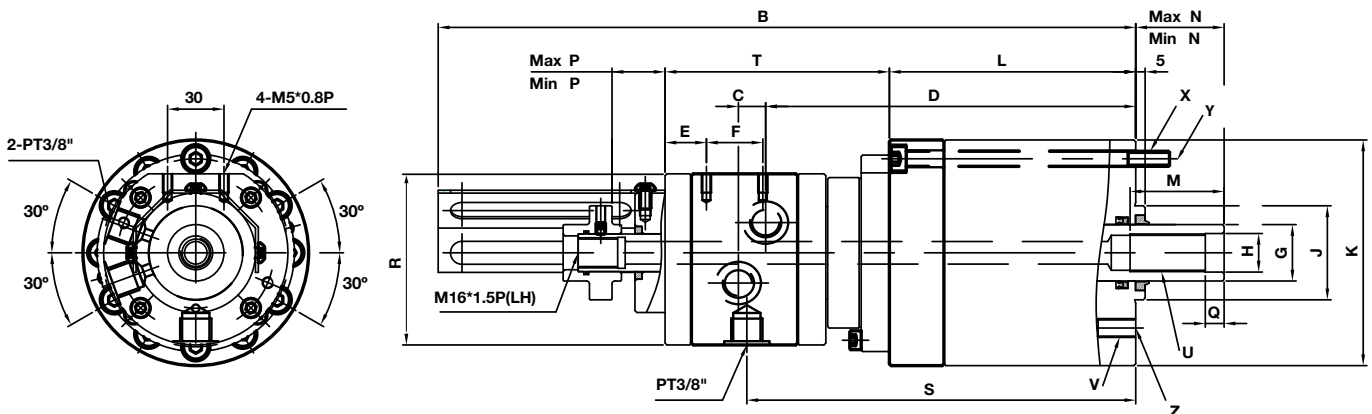




Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure

Features & Benefits

- Designed to directly replace most competitors models
- Simple inlet design
- Constant hydraulic flow
- Thru-hole for coolant, oil or air with rotating union
- Proximity switch or linear system stroke control
- Up to 8,000 RPM capability
- Standard built in trapping



Model	B	C	D	E	F	G	H	J	K	L	M
HWC085	371.0	14.5	196.8	22.0	30.0	30.0	20.5	50.0	120.0	131.0	50.0
HWC125	373.25	15.0	205.5	6.0	30.0	50.0	31.0	95.0	170.0	137.0	55.0

Model	N		P		Q	R	S	T	U	V	X	Y	Z
	min	max	min	max									
HWC085	15.0	47.0	60.2	28.2	10.0	98.0	206.8	119.3	M20x1.5P	M10x1.5P	M8x1.25P	100.0	80.0
HWC125	30.0	70.0	28.4	68.4	10.0	120.0	212.5	115.6	M30x3.5P	M16x2.0P	M12x1.75P	145.0	145.0

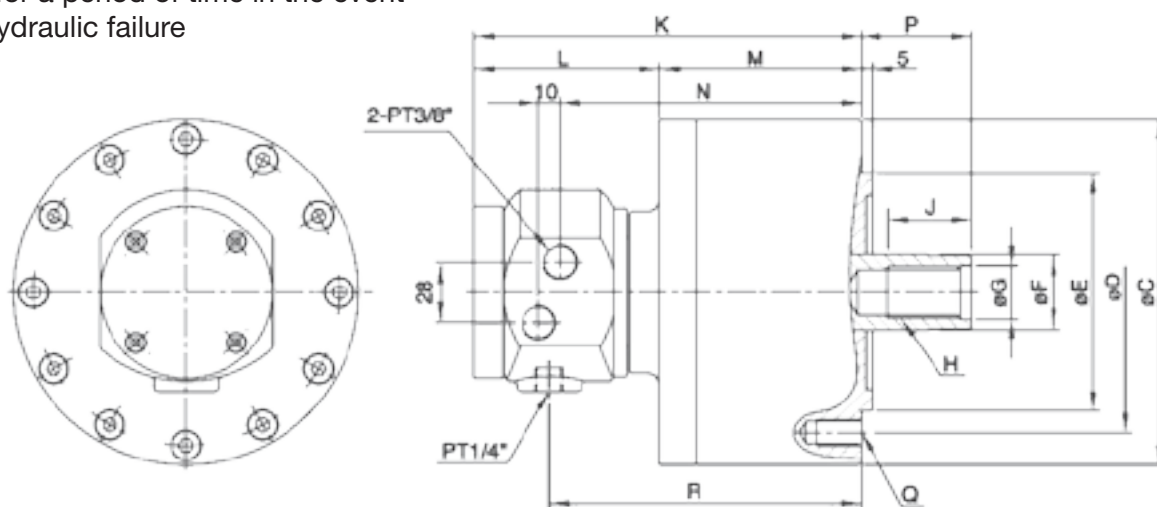
Model	Oil Leakage Rate (l/min)	Max. Pressure (Mpa)	Piston Area(cm ²)		Max Operating Force kN	Weight (kg)
			Push Side	Pull Side		
HWC085	0.8	8.0	51	47	37.8	9
HWC125	0.8	8.0	115	99	79.2	16



Features & Benefits

- Super thin design reduces interference with machines and reduces weight
- Up to 6,000 RPM capability
- Standard built in trapping

Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure



Model	A	B	C	D	E (h7)	F (h8)	G	H	J	K	L
BL1020R	105	20	135	100	80	30	21	M20x2.5P	35	172	86
BL1225R	125	25	160	130	110	35	25	M24x3P	45	180	86
BL1530R	150	30	190	130	110	45	31	M30x3.5P	45	189	84
BL2035R	200	35	245	145	120	55	37	M36x4P	60	206.5	83

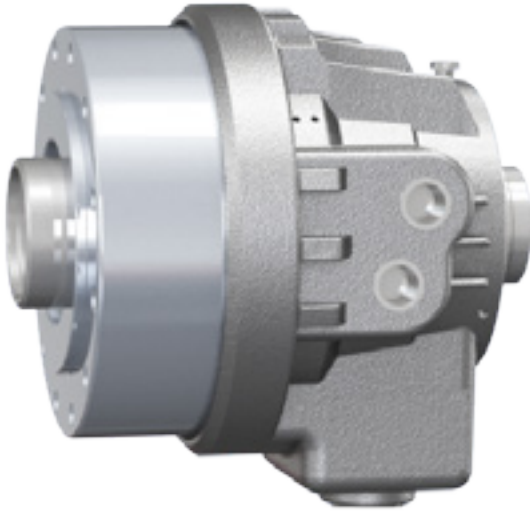
Model	M	N	P		Q	R	Piston Stroke (mm)	Max. Speed RPM	Moment of Inertia (kgf-m ²)
			max.	min.					
BL1020R	86	132	45	25	M10 x 1.5P	137	20	6000	0.013
BL1225R	94	140	51	26	M12 x 1.75P	145	25	6000	0.023
BL1530R	105	149	56	26	M12 x 1.75P	154	30	5500	0.048
BL2035R	123.5	166.5	69	34	M16 x 2P	171.5	35	5500	0.098

Model	Oil Leakage Rate (l/min)	Max. Pressure (Mpa)	Piston Area(cm ²)		Max. Operating Force (kN)		Weight (kg)
			Push Side	Pull Side	Push Side	Pull Side	
BL1020R	0.8	3.9	86	79	31.4	28.4	6.6
BL1225R	0.8	3.9	122	113	45.1	41.2	8.8
BL1530R	0.8	3.9	176	160	63.7	58.8	12.8
BL2035R	0.8	3.9	314	290	115.6	105.9	22.5



Hydraulic Thru-Hole Cylinder

BC



Features & Benefits

- Compact & Lightweight
- Large Thru-Hole Diameter
- Built-In Check-Valve
- Speeds up to 8,000 RPM

Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure

Model	A1	B1	C	C1	D	E	E1	F	F1	G	G1	H	H1	J	J1	K	K1	L1
BC1036	11	102.5	135	25	115	100	M5x0.8	65	M10x1.5	48	98	M42x1.5	88	36	73	30	47	15
BC1246	11.5	126.5	155	30	130	100	M6x1.0	80	M10x1.5	65	135	M55x2.0	98	46	76	36	47	15
BC1552	12	136	190	30	170	130	M6x1.0	85	M10x1.5	70	145	M60x2.0	110	52	86	36	47	15
BC1875	17.5	153.5	215	35	190	160	M6x1.0	120	M10x1.5	95	166.5	M85x2.0	155	75	101	36	47	15
BC2091	21	168	240	35	215	180	M6x1.0	140	M12x1.75	110	183	M100x2.0	165	91	110	36	47	15
BC2511	23	176.5	305	45	275	230	M6x1.0	–	M16x2.0	140	193	M130x2.0	215	118	–	40	–	15

Model	M	M1	N	N1	P	P1	Q	Q1	R1	S	S1	T	T1	U	U1	V Max.	V Max.	W Max.	W1	W Max.	X1	Z
BC1036	44.6	38	55	64	73	4	45	M5x0.8	5	104	PT3/8	115	6	161	150	10	-5	40	M44x1.5	25	42	5
BC1246	52.9	50	64	76	85	4	90	M5x0.8	6	118	PT1/2	115	6	184	170	10	-5	40	M52x1.5	25	50	5
BC1552	59.6	55	73	85	96	4	102	M6x1.0	7	137	PT1/2	130	6	196	210	17	-5	47	M58x1.5	25	56	5
BC1875	84.6	80	98	108	121	4	131	M6x1.0	7	166	PT1/2	160	6	230	235	20	-5	50	M84x2.0	25	81	5
BC2091	99.6	95	108	120	138	4	148	M6x1.0	7	182	PT1/2	185	6	253	260	25	-5	55	M99x2.0	25	96	5
BC2511	133.6	–	148	195	–	5	–	M6x1.0	–	230	PT1/2	210	–	275	315	25	-5	52	–	–	–	–

Model	Thru-Hole Dia. (mm)	Piston Stroke (mm)	Max. Speed (rpm)	Gross Weight (kg)	GD ² (kfg-m ²)	Piston Dia. (mm)	Oil Leakage Rate (O/ min)	Max. Speed (kfg/ cm ²)	Piston Area (cm ²)		Operating Force Max. (psi)	
									Push Side	Pull Side	Push Side	Pull Side
BC1036	36	15	8000	8.8	0.044	105	3.0	40	67	64.5	2500	2400
BC1246	46	15	7000	13.8	0.078	125	3.0	40	100	89	3700	3200
BC1552	52	22	6200	19.3	0.21	155	3.9	40	161	150	5900	5500
BC1875	75	25	4700	28.5	0.38	180	4.2	40	198	183	7200	6700
BC2091	91	30	3800	36.1	0.61	205	4.5	40	252	234	9200	8600
BC2511	118	30	2800	54	1.5	250	7.0	40	345	335	–	–

Note: Specifications subject to change without notice. *12" Bore - 6 additional holes on a 9.50 B.C.
Dimensions denoted in millimeters unless otherwise specified.

Pneumatic Cylinder Model ARC

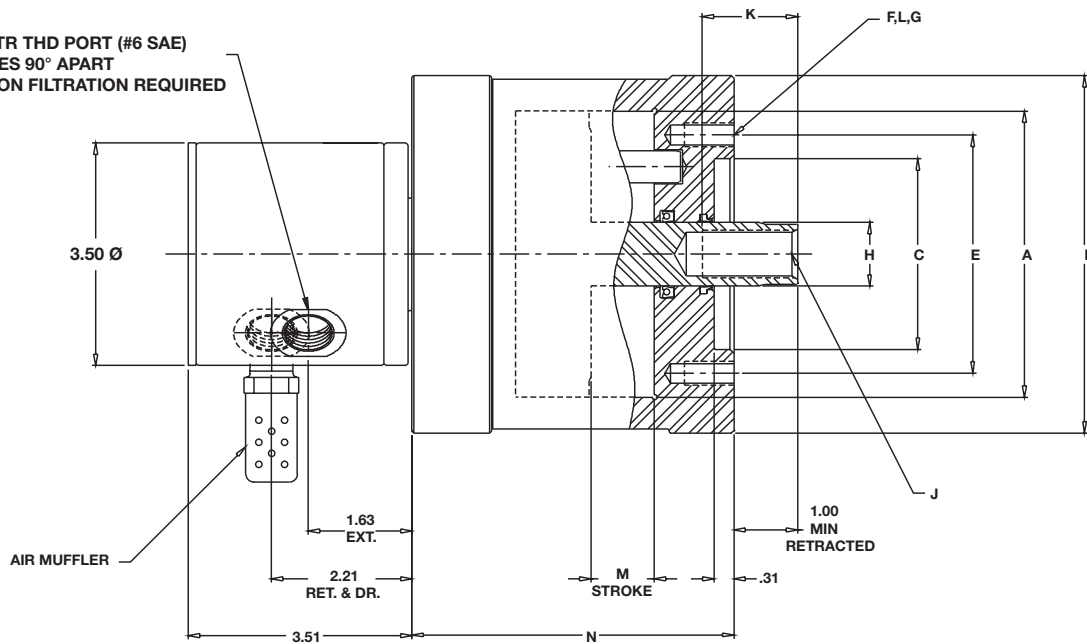


Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a pneumatic failure

Features & Benefits

- Simple inlet design
- Constant air flow
- Up to 6000 RPM
- Standard built-in trapping
- Optional trip rod and thru port
- Ideal for horizontal or vertical applications

3/4-16 STR THD PORT (#6 SAE)
(2) PLACES 90° APART
10 MICRON FILTRATION REQUIRED



Model	A Bore	C +.001 -.000	E B.C.	F Thread	G No.	H	J Thread	K Depth	L Depth	M Stroke	N	P
ARC045	114.30	76.20	95.25	.375"-16	4	25.40	.75"-16	41.40	22.35	25.4	128.52	143.00
ARC060	152.40	114.30	139.70	.50"-13	4	31.75	.75"-16	41.40	25.40	38.10	139.70	182.63
ARC080	203.20	114.30	139.70	.50"-13	4	31.75	.75"-16	41.40	25.40	38.10	141.73	231.65
ARC100	254.00	152.40	177.80	.625"-11	6	31.75	1"-14	41.40	28.70	38.10	155.70	289.05
ARC120	304.80	152.40	177.80	.625"-11	6	31.75	1"-14	41.40	28.70	38.10	158.75	345.95

Specifications subject to change without notice. 12" Bore - 6 additional holes on a 9.50 B.C. Dimensions in mm unless otherwise noted

DRAWBAR FORCES AT AIR PRESSURE GAUGE PSIG							
Model	Bore Size	50	60	70	80	90	100
ARC045	114.30	745	890	1,040	1,190	1,340	1,490
ARC060	152.40	1,040	1,300	1,560	1,820	2,080	2,340
ARC080	203.20	1,920	2,400	2,880	3,360	3,840	4,320
ARC100	254.00	3,000	3,750	4,500	5,250	6,000	6,750
ARC120	304.80	4,400	5,500	6,600	7,700	8,800	9,900

Note: Values shown are minimum. Allowances have already been made for losses due to piston rod area, guide pin areas, and friction

Steady Rests

Forkardt Steady Rests are made of high grade alloy steel and all parts are fully hardened to 60 HRC and nitrided to be 100% corrosion free.

By mounting accordingly these steady rests can be used for turning outside diameters, inside diameters, facing, drilling, grinding and induction hardening.



Available in grip ranges from 4 to 800mm

Model SRF

Ideal for:

- All standard applications

Key Features:

- Can be mounted to flat bed and slant bed CNC

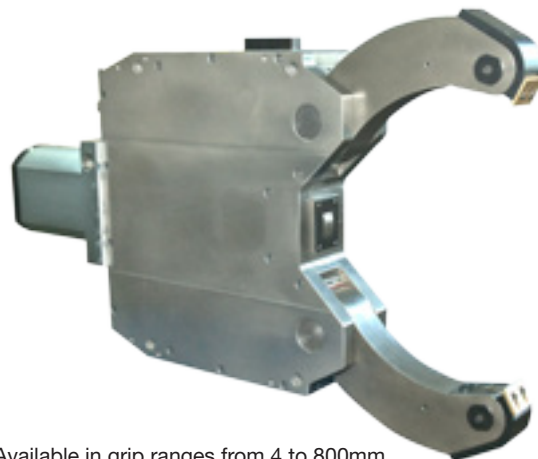
Model SRFA

Ideal for:

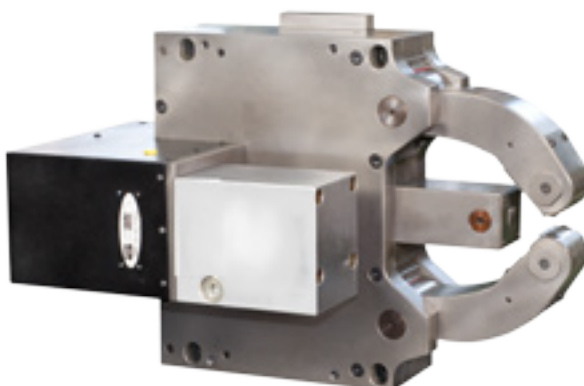
- Vertical loading applications

Key Features:

- Rear mounted actuating cylinder
- Top arm extra mounting



Available in grip ranges from 4 to 800mm



Available in grip ranges from 8 to 630mm

Model SRFB

Ideal for:

- Mounting to machines with sheet metal enclosures

Key Features:

- Side mounted actuating cylinder



Available in grip ranges from 20 to 630mm

Model SRFAB

Ideal for:

- Vertical loading applications

Key Features:

- Side mounted actuating cylinder
- Top arm extra mounting

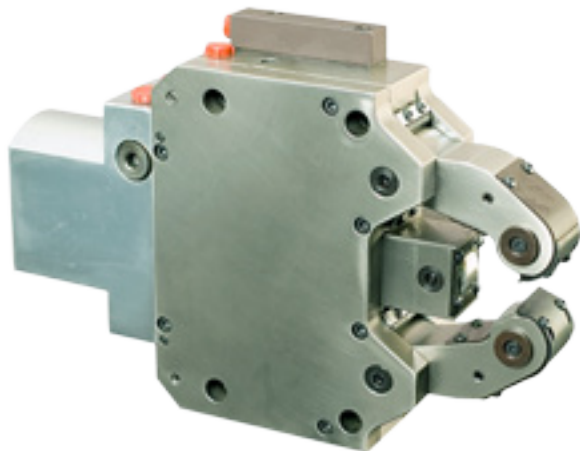
Model SRF-C

Ideal for:

- Applications where space is an issue

Key Features:

- Compact size



Available in grip ranges from 65 to 510mm



Available in grip ranges from 600 to 1300mm. Weight up to 30,000 kg.

Model SRF-H

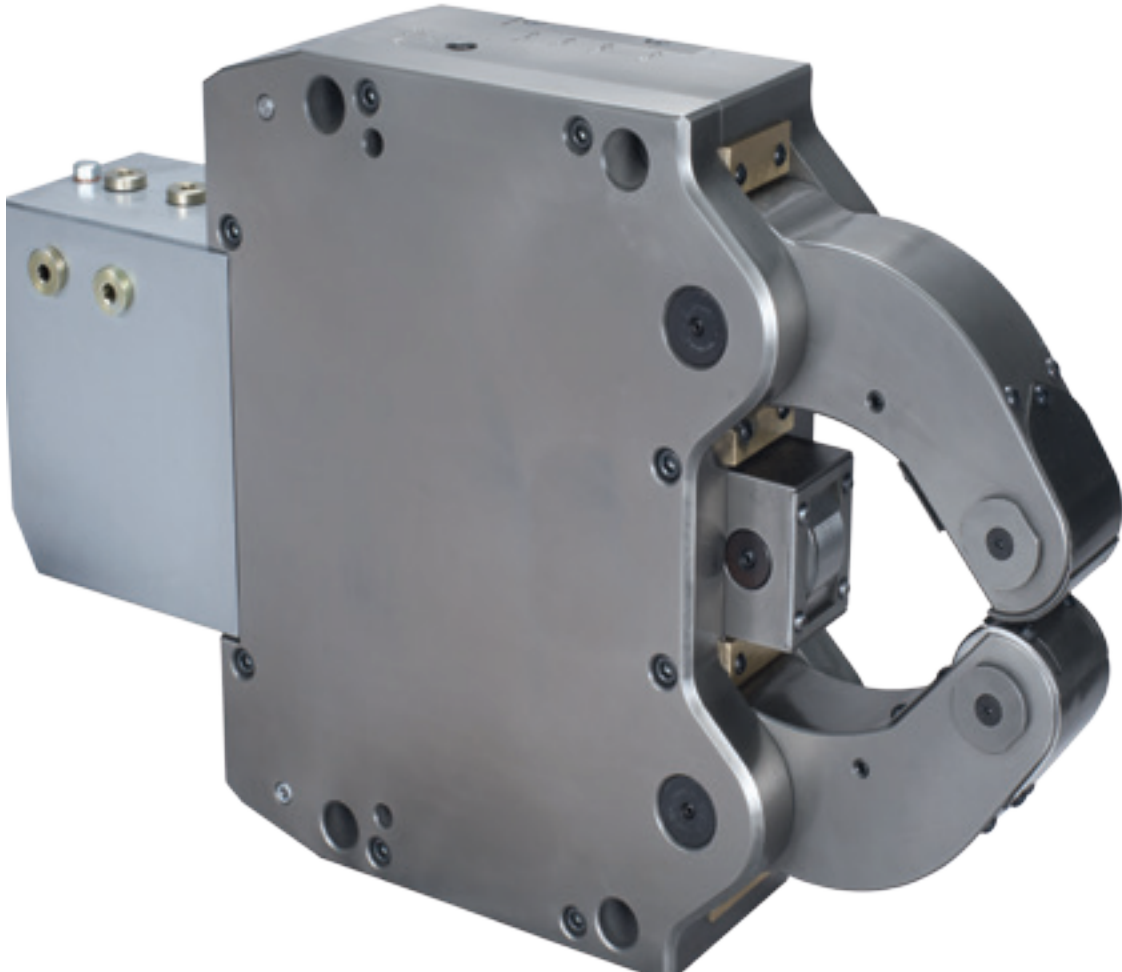
Ideal for:

- Heavy duty machining applications
- Turbine shaft, windmill shaft, and marine crank shafts

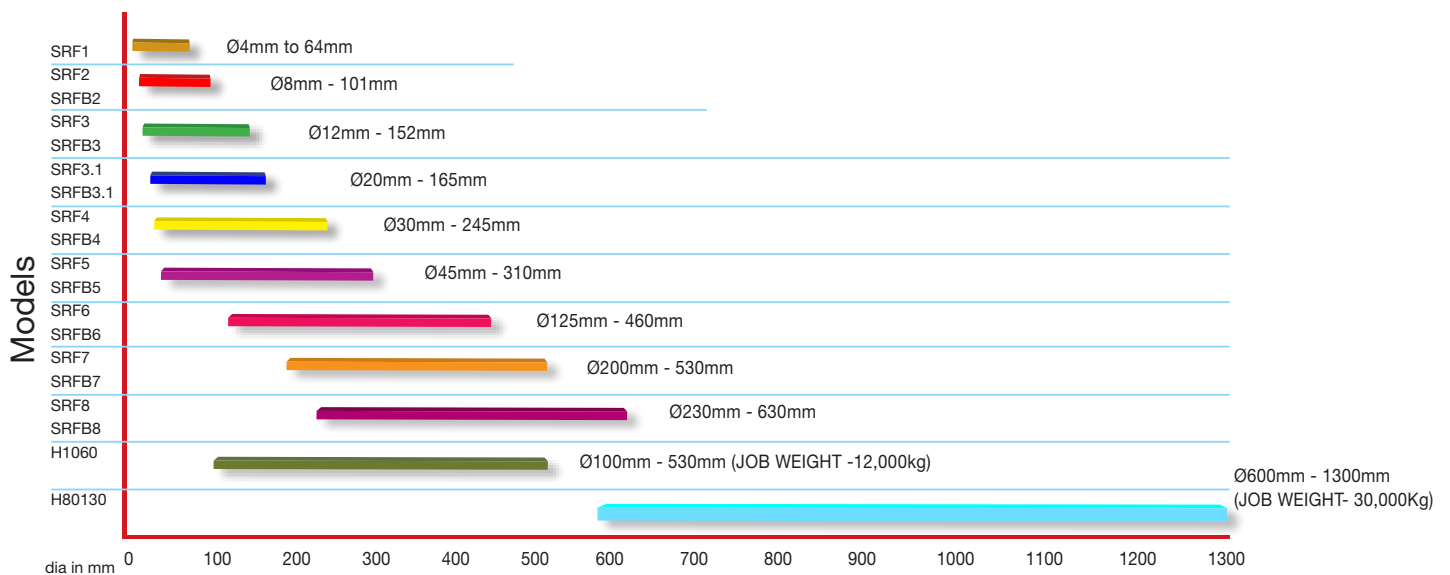
Key Features:

- Heavy duty construction
- Large rollers to handle weight up to 30,000 kg

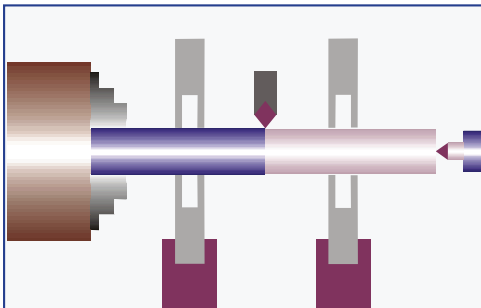
Steady Rests - Turning Steady Rests



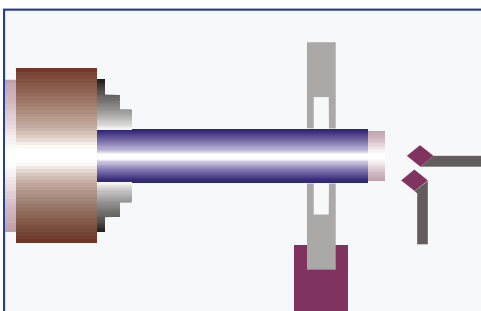
Quick Range Selector



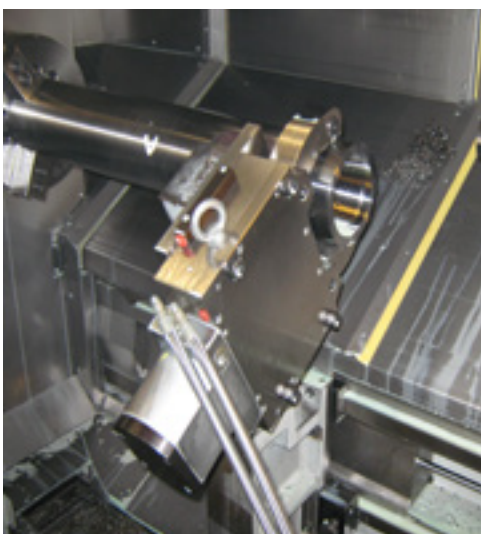
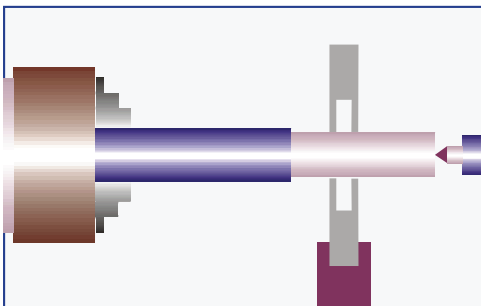
Tandem Steady Rest Fixed



Steady Rest Fixed for end machining



Steady Rest Traveling



Steady Rests

Steady rests are normally used for efficient machining of long slender shafts. On conventional steady rests three screw 120° apart are adjusted manually. This type of centering process is not reliable and depends on operator's skill.

Forkardt's self centering steady rests work on an entirely different principle. Three rollers hold the work piece at points Approx 120° apart. These rollers move such that they always inscribe concentric circles between them. This feature along with the internal compensating system prevents the dislocation of work piece center under changing clamping pressures. This results in high centering accuracy.

Forkardt Steady Rests are made of high grade alloy steel and all parts are fully hardened to 60 HRC, and nitrided to be 100% corrosion free. By mounting accordingly these steady rests can be used for turning outside diameters, inside diameters, facing, drilling, grinding , induction hardening etc.

Steady rests can be operated either hydraulically or pneumatically with the only difference being the clamping cylinder bore. In the SRF series the clamping cylinder is fixed as axial extension at the rear end. With the SRFB series the cylinder is fixed to the side of the steady rest to save mounting space.

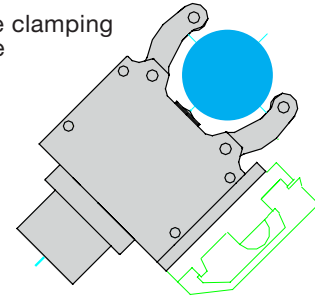
Below are the models available for your clamping needs!

- SRF Standard steady rest with rear mounted cylinder and diameter range from 4mm to 800mm
- SRFA Steady rest with rear mounted cylinder and extra opening for top arm. Diameter range from 4mm to 800mm
- SRFB Steady rest with side mounted cylinder and diameter range from 8mm to 630mm
- SRFAB Steady rest with side mounted cylinder and extra opening for top arm. Diameter range from 20 mm to 630mm
- SRF-C Compact size steady rests Clamping diameter 65mm to 510mm.
- SRF-H Heavy duty steady rests with maximum clamping diameter of 1300mm and weight carrying capacity 30,000 kg.

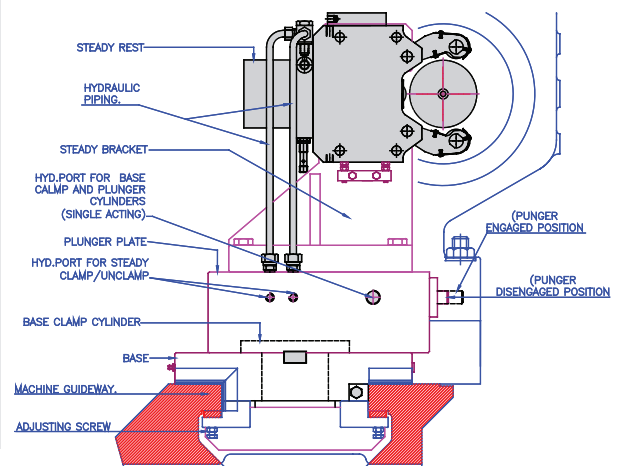
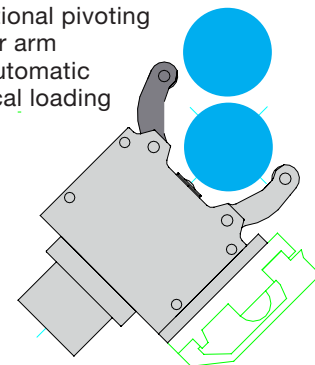
Features & Benefits

- Automatic centering to reduce cycle time and increase productivity.
- High centering accuracy.
- Replaceable sealing strips and provision for compressed air connection prevents the entry of coolant and dirt to the body of the unit.
- All standard steady rests have provision for centralized lubrication systems.
- Actuating cylinder is provided with integral safety valve to ensure support of the work piece under sudden pressure drops.
- These are based on a special cam design, which is proven in the field.
- Adjustable 3 piece chip guard for outer rollers with minimum reduction of clamping range.
- Positive opening of the steady rest is ensured by precisely engineered opening mechanism
- Compact and robust designs allow the machine tool to be used under optimum conditions.
- Special rollers, featuring multiple sealing disks, are used to prevent contamination.
- Actuating cylinder can be operated either hydraulically or pneumatically.
- These steady rests can be mounted either on slant or flat bed lathes. Rigid and precisely made brackets ensure centering accuracy.
- All internal and outside parts are case hardened and ground to ensure highest precision and reliability.
- Middle roller and roller pocket is protected against dirt by a roller stripper.
- These are suitable for fixed as well as traveling applications.
- Optional provision for manual lubrication can be provided.

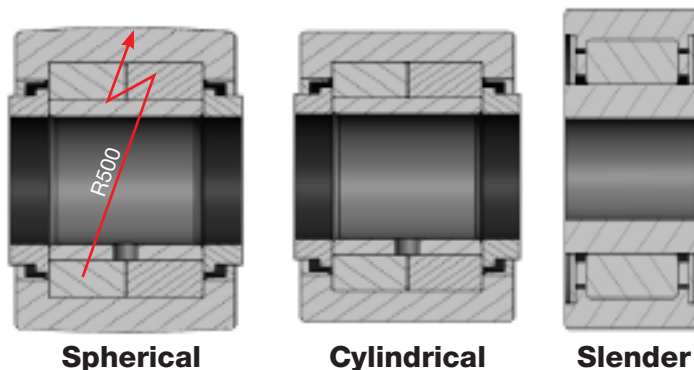
Large clamping range



Additional pivoting upper arm for automatic vertical loading



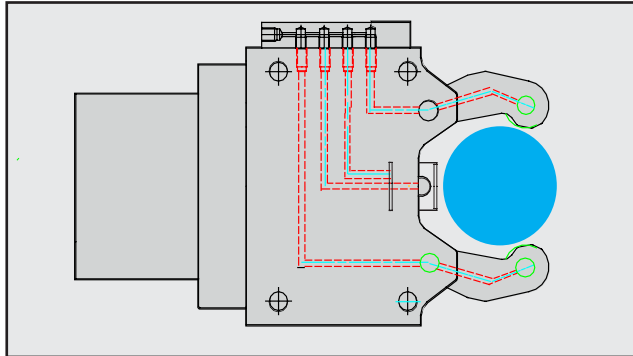
Option of Rollers



Forkardt steady rollers with special sealing ensure high precision and service life.

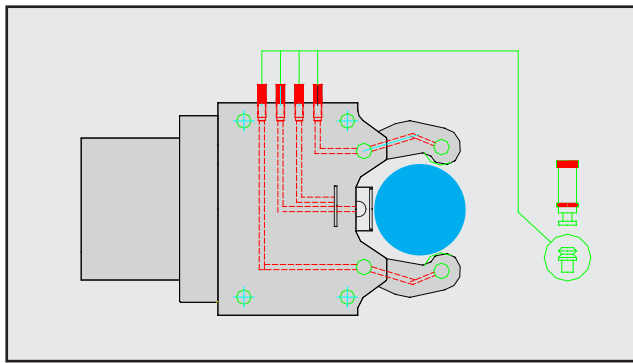
Forkardt provides several different types of rollers to fit your component and process.

Steady Rest Lubrication



Central Lubrication

This lubrication system is used in heavy working conditions and high build of swarf as well as travelling steady rest applications. The steady rest is provided with a lubricating connection to supply the oil to the lubricating points and rollers through metering cartridges. The pressure required for the lubricating pump is 10-30 bar.



Manual Lubrication

This lubrication system is used for light duty working conditions and low building of swarf. The lubrication points and rollers are supplied with grease through grease nipple and grease gun.

Lubrication schedule depends on the working conditions. A typical maintenance schedule is every 4-8 operating hours with DIN 51402 grease.

Coolant / Air Supply - Option



To avoid interference of chips with rollers and work piece an optional built-in channel on the steady rest feeds coolant or air from a central connecting port to the arms of steady rest.

3-Piece Swarf Guard

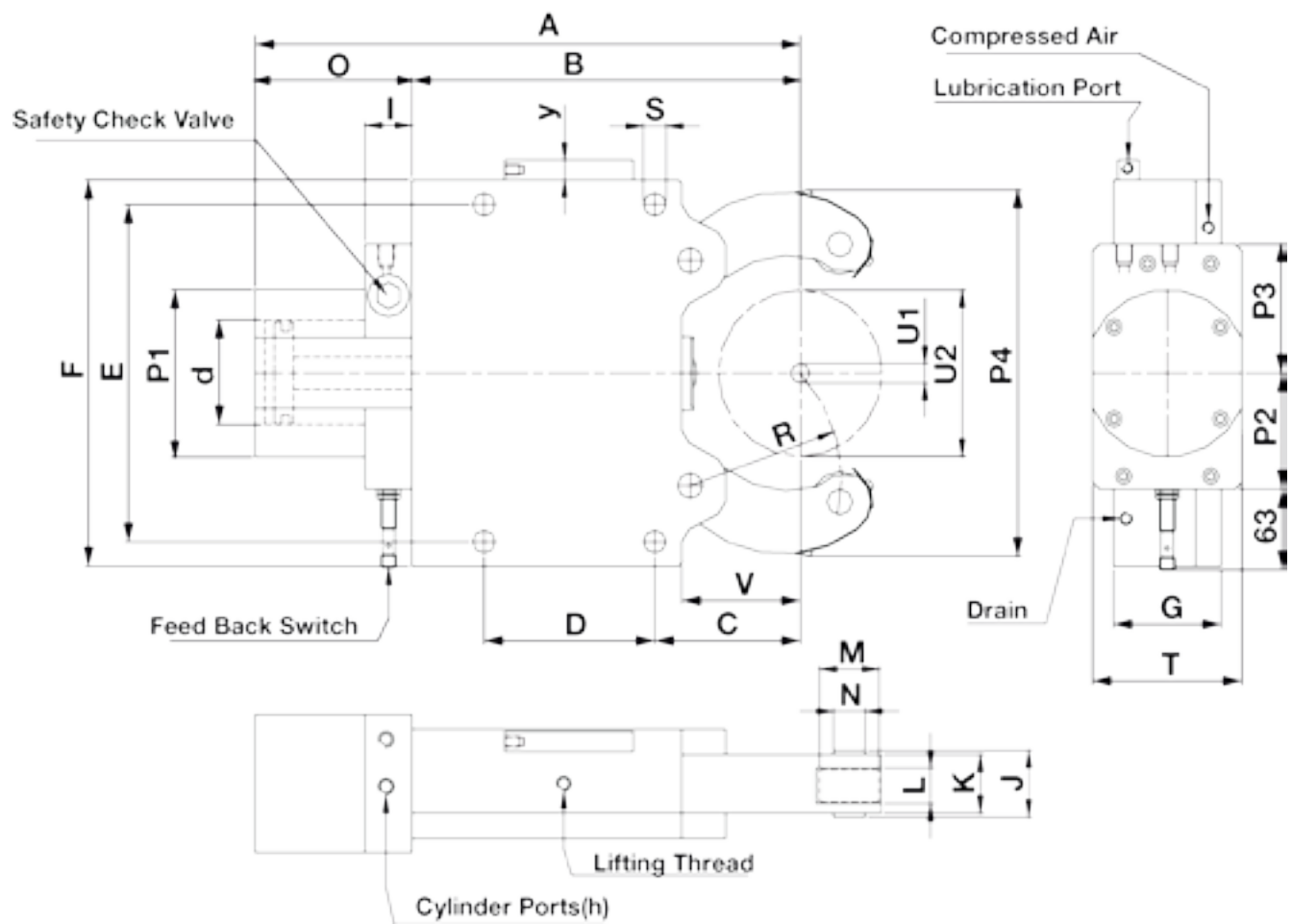


3 piece replaceable swarf guards made from special material protects the rollers and other internal parts from the dirt and swarf during the machining.

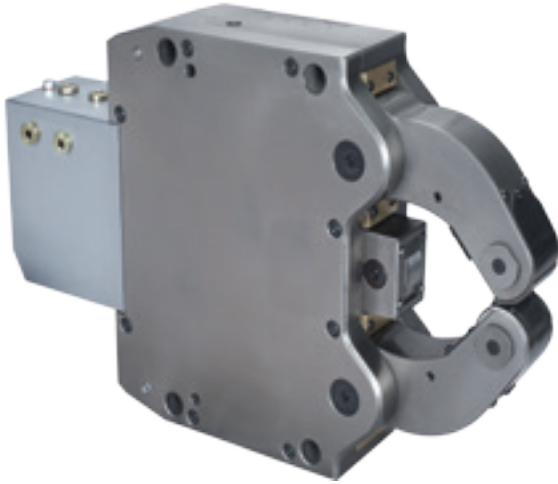


Eccentric Fine Adjustment - Option

Eccentric roller pins on the two arms of the steady rest allow quick, fine adjustment of centre line. This provision helps to avoid unlocking of the steady rest on the bracket for small adjustments.

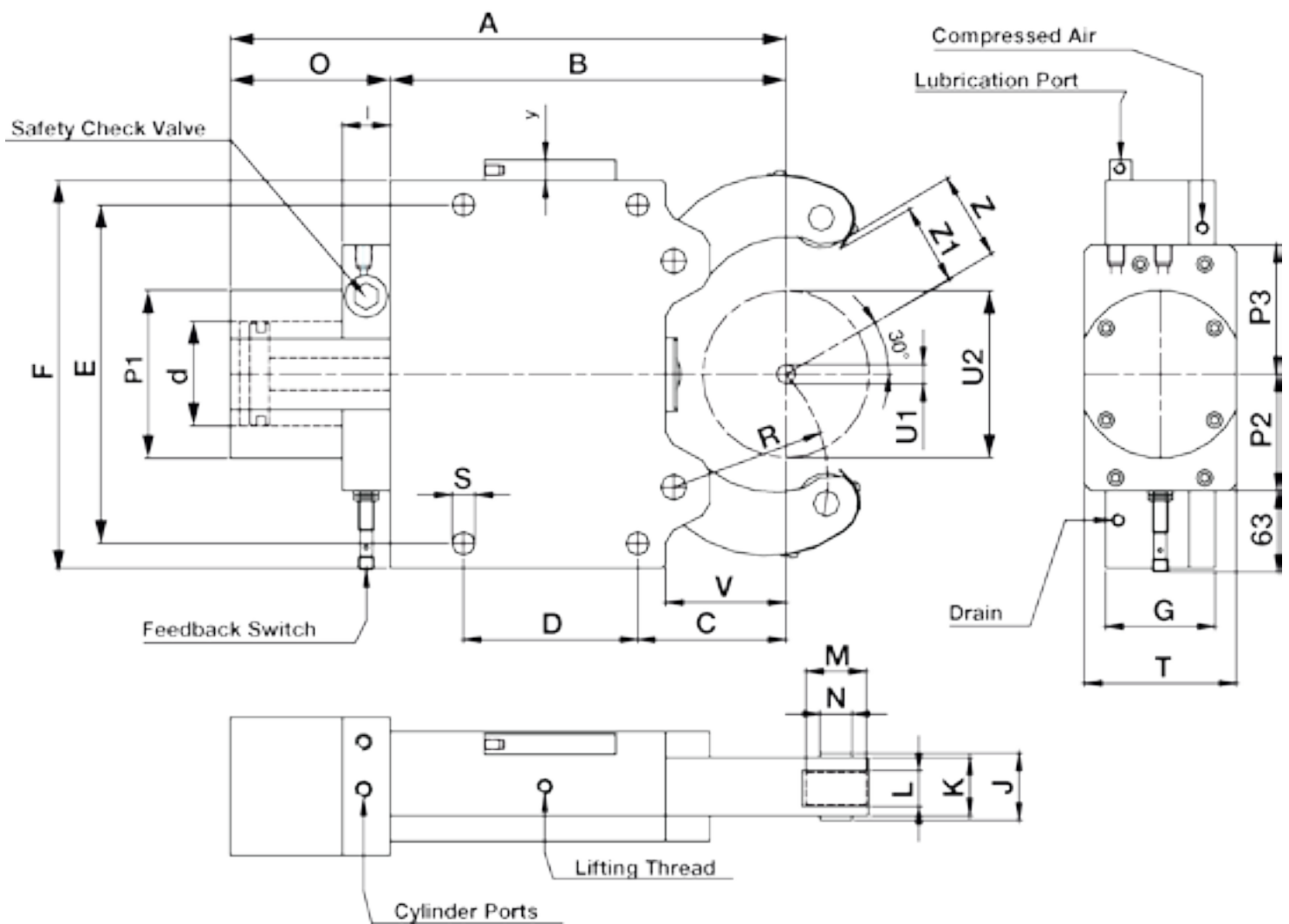


Steady Rest For Standard Turning Applications



This series is for all standard applications. Available in a range of diameters from 4mm to 800mm. These steady rests work on both flat bed as well as slant bed CNC lathes. We supply brackets for mounting according to the customers requirements

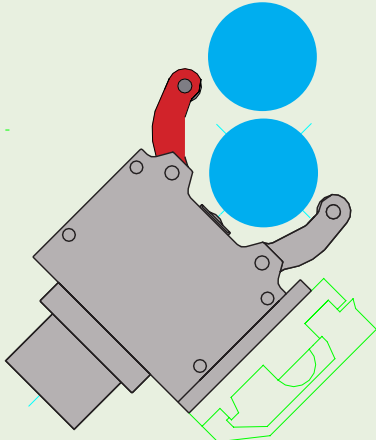
STEADY REST TYPE		SRF1	SRF2	SRF3	SRF3.1	SRF3.2	SRF4	SRF5	SRF5.1	SRF6	SRF7	SRF8
Standard Features: • Safety Valve • Provision for max. opening feedback • (1) 3 piece set of swarf guard • Provision for compressed air connection • Provision for centralized lubrication	A	212	298.5	462	470	486	624	706	731.5	980	1235.5	1404
	B	137	195	308	316	332	437	500	520	709	898	1000
	C	51	70	115	123	138	146	178	198	215	320	375
	D	64	85	135	135	135	240	270	270	330	440	500
	E	118	170	262	262	262	365	400	400	610/640	650	855
	F	132	205	290	290	290	400	450	450	680	720	930
	G	55	70	85	85	85	110	145	145	145	162	190
	I	-	33	37	37	37	37	37	37	46	60	60
	J	33	42	52	52	52	67	83	83	83	96	110
	K	25	35	45	45	45	60	75	75	75	82	100
	L	12	19	25	25	25	25	29	29	29	32	32
	M	19	35	47	47	47	52	62	62	80	100	100
	N	10	21	25	25	25	32	40	40	43	55	60
	O	75	103.5	154	154	154	187	206.5	211.5	271	337.5	385.5
	P1	82.5	105	137	137	137	165	165	165	190	238	238
	P2	27.5	66	92	90	90	102	102	102	115	143	143
	P3	55	75	92	94	94	110	110	110	130	158	158
	P4	118.5	188	279	279	323	415	473	509.5	732	869.5	976
	R	50.5	75	117.3	124	139	172	209	236	290	390	402
	S	11	14	18	18	18	23	23	23	27	27	35
	T	55	68	102	102	102	126	144	144	158	190	190
	V	37	60	91.5	99.5	109.5	128	160	180	182	292.5	295.5
	Y	-	19	19	19	19	19	20	20	27	27	27
Centering range without chip guard.	U1	4	8	12	20	50	30	45	85	125	200	230
	U2	64	101	152	165	200	245	310	350	460	530	630
Centering range with 3 piece chip guard.	U1	4	16	16	20	50	30	45	85	125	191	230
	U2	64	101	152	165	200	245	310	350	460	530	630
Cylinder Bore.	d	30	50	80	80	80	100	100	100	130	150	150
Hyd. Connection. (Bsp)	h	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Operating Pressure. Min/Max	bar	6/50	8/60	8/60	8/60	8/60	8/60	8/80	8/80	8/70	6/70	6/70
Max. Clamp Force/Roller	daN	100	350	1000	1000	1000	1500	2000	2000	3000	4000	4000
Clamping Press/Roller At 15 Bar	daN	35	100	250	250	500	500	500	500	670	900	900
Centering Accuracy Entire Clamping Range	mm	0.02	0.02	0.04	0.04	0.04	0.05	0.06	0.06	0.06	0.08	0.08
Repeatability.	mm	0.005	0.005	0.007	0.007	0.007	0.007	0.01	0.01	0.01	0.02	0.02
Max. Peripheral Speed.	min ⁻¹	850	950	800	800	725	725	670	670	525	570	570
Weight	kg	7	18.5	48	48	50	104	155	430	430	520	580



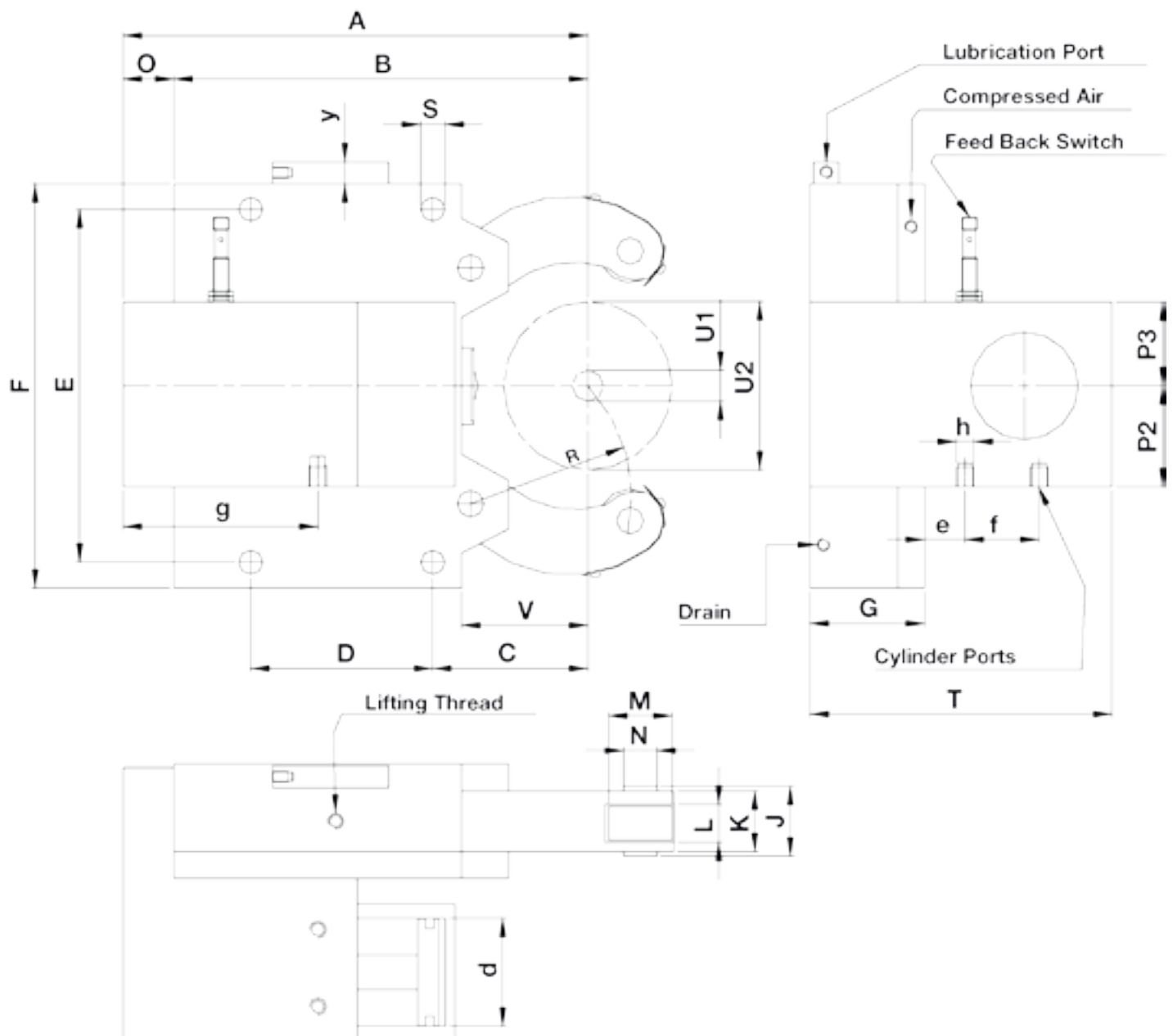


Steady Rest With Rear Mounted Actuating Cylinder And Top Arm Extra Opening

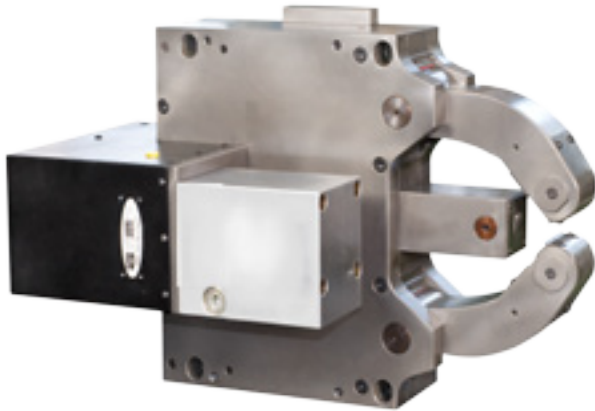
This series of steady rests are made for applications where vertical loading is required e.g. using a gantry loader. Forkardt has a standard range of these steady rests.

STEADY REST TYPE		SRFA 2	SRFA 3	SRFA 3.1	SRFA 4	SRFA 5	SRFA 6
 Standard Features: • Safety Valve • Provision for max. opening feedback • (1) 3 piece set of swarf guard • Provision for compressed air connection • Provision for centralized lubrication	A	295	463		609	686	980
	B	195	308	316	437	500	709
	C	70	115	123	146	178	215
	D	85	135	135	240	270	330
	E	170	262	262	365	400	610/640
	F	205	290	290	400	450	705
	G	70	85	85	110	145	145
	I	33	37	37	38	37	37
	J	42	53.5	52	67	78.5	83
	K	35	45	45	60	75	75
	L	19	25	25	25	29	29
	M	35	47	47	52	62	80
	N	21	20	25	32	40	42
	O	100	155	149	172	186	271
	P1	102	137	137	165	168	200
	P2	66	92	90	102	94	120
	P3	75	92	94	110	118	135
	R	75	119	124	172	209	290
	S	14	18	18	23	23	27
	T	68	102	102	126	144	158
	V	60	91.5	99.5	128	160	175
Centering Range Without Chip Guard.	Y	19	19	19	19	20	19
	U1	8	12	20	30	48	160
Centering Range With 3 Piece Chip Guard.	U2	80	130	150	220	268	460
	U1	16	20	20	30	48	160
	U2	80	130	150	220	268	460
	Z	41	55	76	111	135	230
	Z1	34	54	74	106	130	225
Cylinder Bore.	d	50	80	80	100	100	130
Hyd. Connection. (Bsp)	h	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"
Operating Pressure. Min./Max.	bar	8/60	8/60	8/60	8/60	8/60	8-70
Max. Clamp Force/Roller.	daN	350	1000	1000	1500	2000	3000
Clamping Press./Roller At 15 Bar	daN	100	250	250	500	500	670
Centering Accuracy Entire Clamping Range.	mm	0.02	0.04	0.04	0.05	0.06	0.06
Repeatability.	mm	0.005	0.007	0.007	0.007	0.01	0.01
Max. Peripheral Speed.	min ⁻¹	950	800	800	725	670	525
Weight	Kg	18.5	48	48	104	160	430

** Angle of inclination is 19 degree instead of 30 degree.

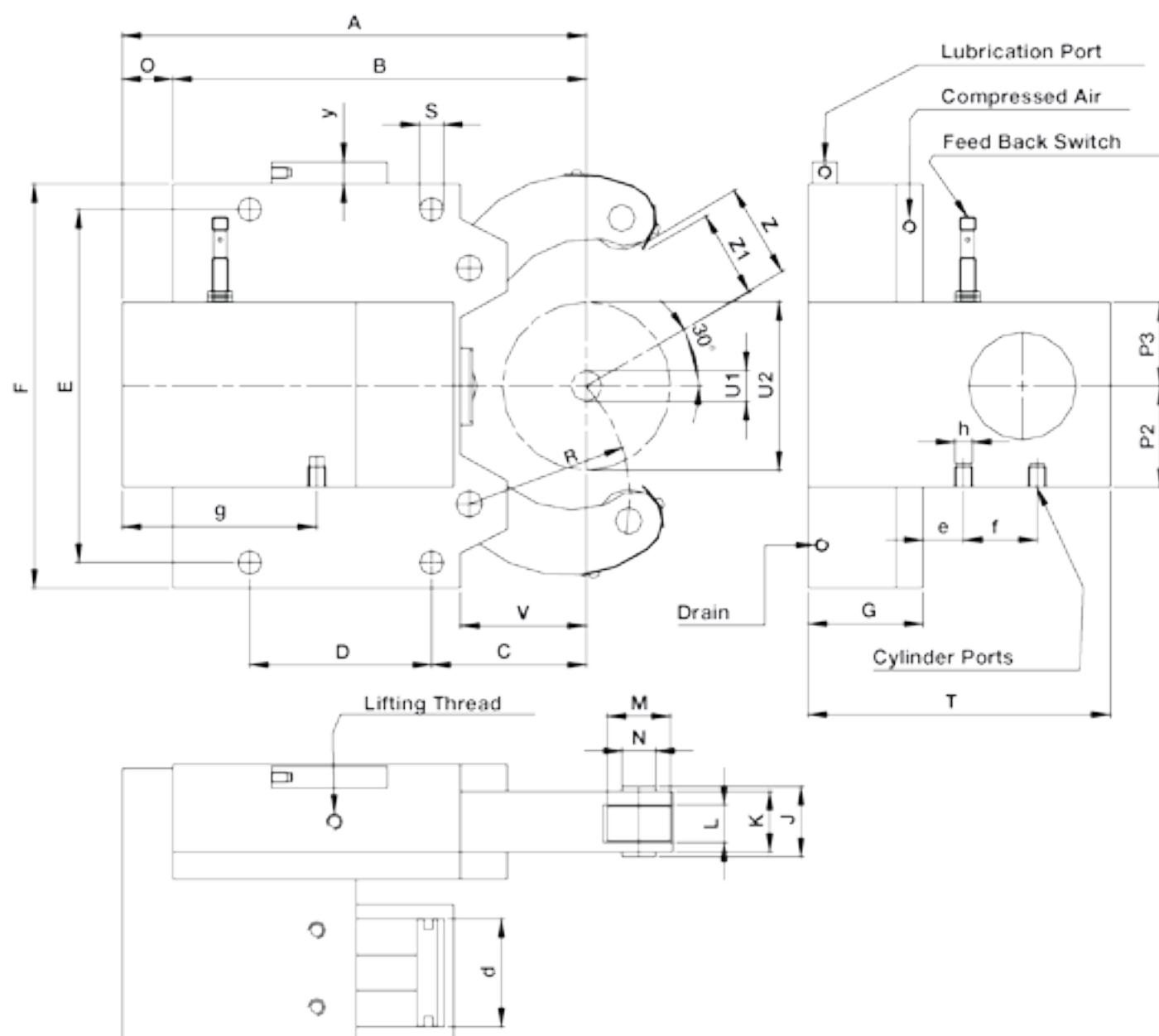


Standard Steady Rest With Side Mounted Cylinder



This series is made for machines where the rear mounted cylinder may foul with the sheet metal enclosures or other machine enclosures. To achieve this the actuating cylinder of the steady rest is mounted on the side of the steady rest.

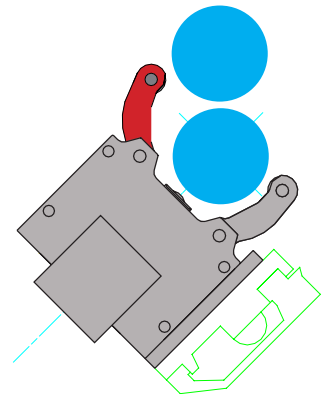
STEADY REST TYPE		SRF-B 3	SRF-B 3.1	SRF-B 4	SRF-B 5	SRF-B 6	SRF-B 7	SRF-B 8
Standard Features: • Safety Valve • Provision for max. opening feedback • (1) 3 piece set of swarf guard • Provision for compressed air connection • Provision for centralized lubrication	A	348	356	480	612.5	823	1001	1130
	B	308	316	437	500	709	897.5	1019
	C	115	123	146	178	215	320	375
	D	135	135	240	270	330	440	500
	E	262	262	365	400	610/640	650	855
	F	290	290	400	450	680	710	930
	G	85	85	110	145	145	180	190
	J	52	52	67	80	83	112	110
	K	45	45	60	75	75	100	100
	L	25	25	25	29	29	32	32
	M	47	47	52	62	80	100	100
	N	25	25	32	36	43	55	60
	O	40	40	43	112.5	114	103.5	111
	P2	74	74	85	85	125.8	130	130
	P3	57	57	68	85	89.2	130	130
	R	117.5	124	172	209	290	398	402
	S	18	18	23	23	27	27	35
	T	199	198	246	325	383	405	487
	V	91.5	99.5	128	160	182	283.5	290
	Y	19	19	19	20	27	27	27
Centering Range Without Chip Guard.	U1	12	20	30	50	125	200	230
	U2	152	165	245	310	460	530	630
Centering Range With 3 Piece Chip Guard.	U1	21	20	30	50	125	200	230
	U2	152	165	245	310	460	530	630
Cylinder Bore	d	80	80	100	100	130	150	150
	e	58	58	68	85	55	191	191
	f	27	27	39	40	50	50	50
	g	180	180	220	270	430	450	450
Hyd. Connection. (Bsp)	h	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"
Operating Pressure. Min/Max	bar	8/60	8/60	8/60	8/80	8/70	8/70	8/70
Max. Clamp Force/Roller.	daN	1000	1000	1500	2000	3000	4000	4000
Clamping Press./Roller At 15 Bar	daN	250	250	400	400	600	880	880
Centering Accuracy Entire Clamping Range	mm	0.04	0.04	0.05	0.06	0.06	0.08	0.08
Repeatability	mm	0.007	0.007	0.007	0.01	0.01	0.02	0.02
Max. Peripheral Speed.	min ⁻¹	800	800	720	650	525	570	570
Weight	kg	53	53	115	190	500	580	650



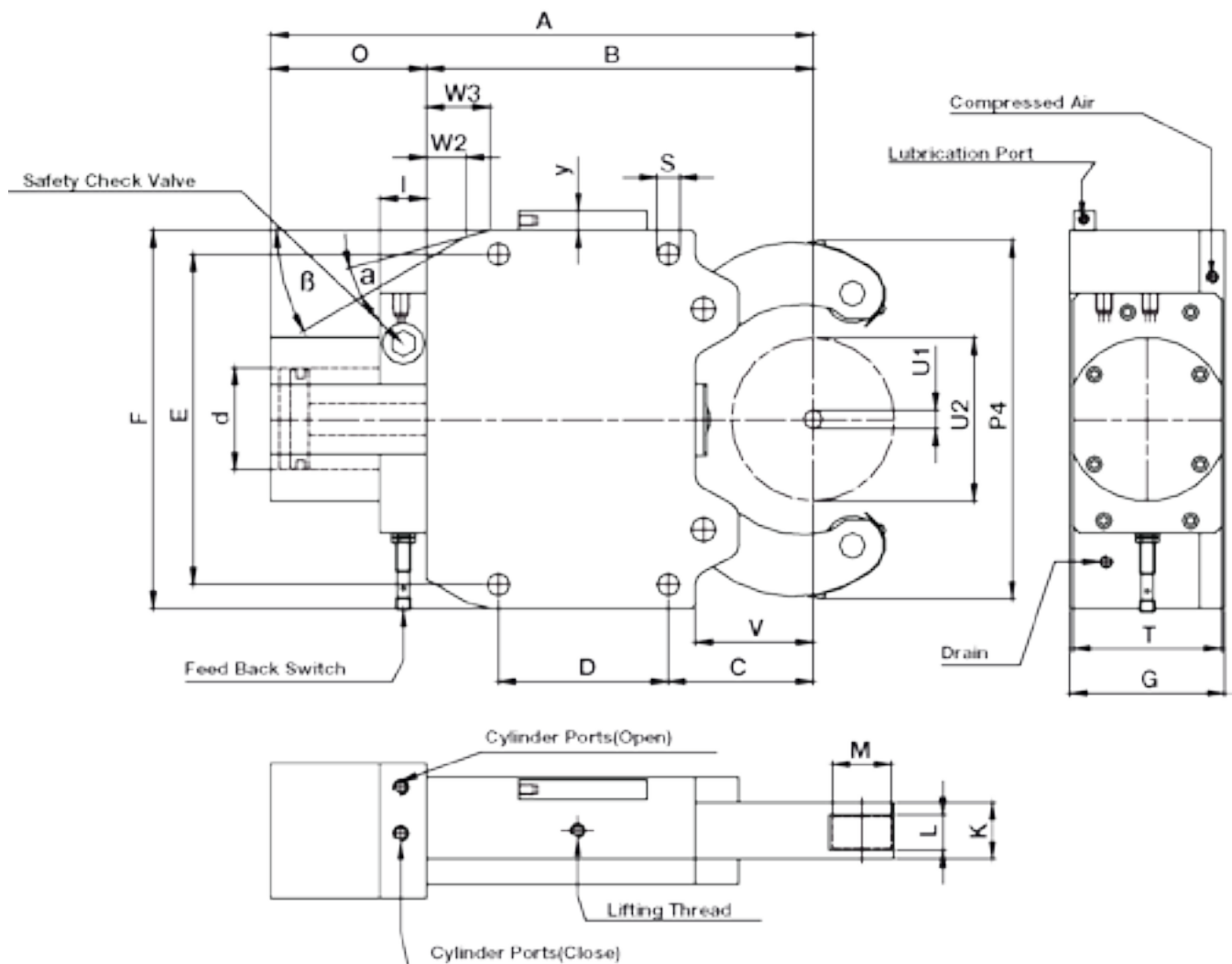
Steady Rest With Side Mounted Actuating Cylinder And Extra Opening For The Top Arm



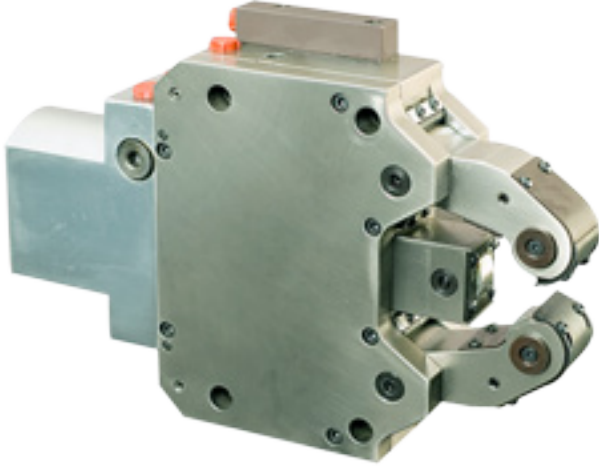
This series of steady rests are made with side mounted actuating cylinder for applications where vertical loading is required



STEADY REST TYPE		SRFA-B 3	SRFA-B 3.1	SRFA-B 4	SRFA-B5
Standard Features: • Safety Valve • Provision for max. opening feedback • (1) 3 piece set of swarf guard • Provision for compressed air connection • Provision for centralized lubrication	A	348	356	480	614
	B	308	316	437	500
	C	115	123	146	178
	D	135	135	240	270
	E	262	262	365	400
	F	290	290	400	450
	G	85	85	110	145
	J	52	52	69.5	83
	K	45	45	60	75
	L	25	25	25	29
	M	47	47	52	62
	N	25	25	32	36
	O	40	40	43	124
	P2	74	74	85	85
	P3	57	57	68	85
	R	117.5	124	172	209
	S	18	18	23	23
	T	199	198	245	325
	V	91.5	99.5	128	160
	Y	19	19	19	20
Centering range without chip guard.	U1	12	20	30	48
	U2	130	150	220	268
Centering range with 3 piece chip guard.	U1	21	20	30	48
	U2	130	150	220	268
	Z	66	76	111	135
	Z1	62	72	106.5	130
Cylinder bore.	d	80	80	100	100
	e	58	58	68	85
	f	27	27	39	40
	g	180	180	220	270
Hyd. Connection. (Bsp)	h	¼"	¼"	3/8"	3/8"
Operating Press. Min/Max	bar	8/60	8/60	8/60	8/80
Max. Clamp Pressure/Roller.	daN	1000	1000	1500	2000
Clamping Press./Roller At 15 Bar	daN	250	250	400	400
Centering Accuracy Entire Clamping Range.	mm	0.04	0.04	0.05	0.06
Repeatability.	mm	0.007	0.007	0.007	0.01
Max. Peripheral Speed	min ⁻¹	800	800	720	650
Weight	kg	55	55	115	190

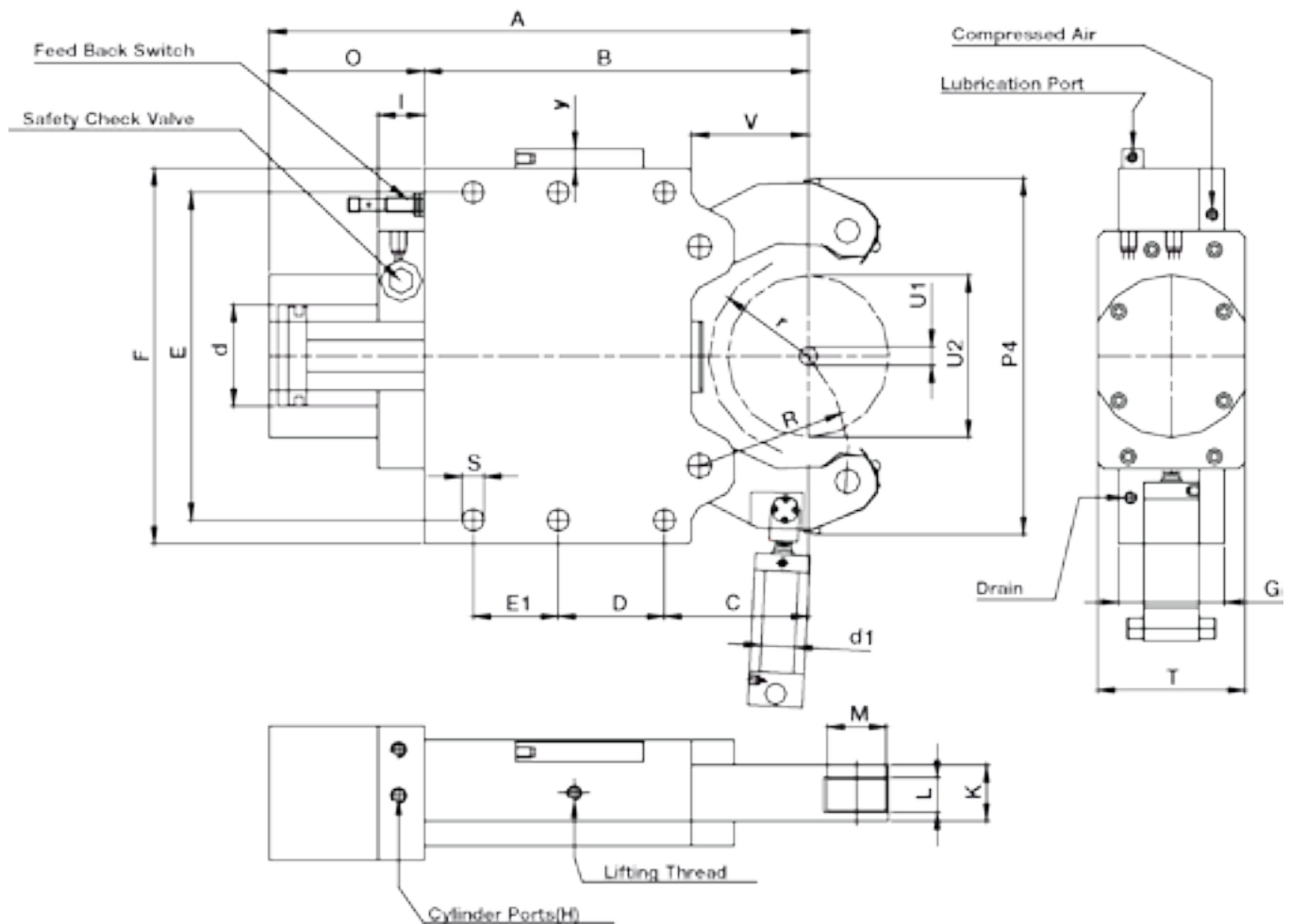


Steady Rest With Centering Accuracy For Entire Clamping Range

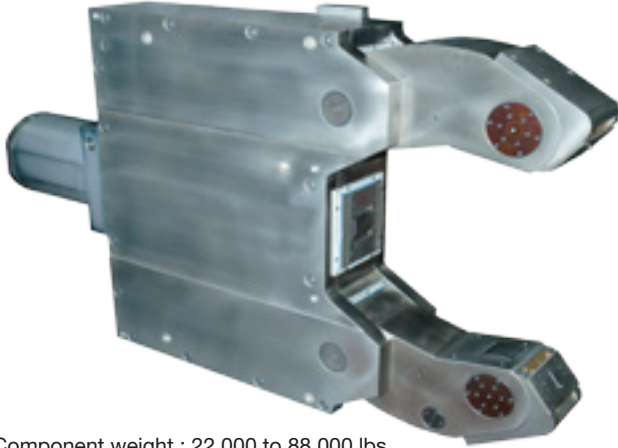


This series of steady rests are made with centering capabilities to maintain accuracy.

STEADY REST TYPE.		SRF-C3	SRF-C4	SRF-C4.1	SRF-C5	SRF-C5.1	SRF-C6	SRF-C6.1
Standard Features: • Safety Valve • Provision for max. opening feedback • (1) 3 piece set of swarf guard • Provision for compressed air connection • Provision for centralized lubrication	A	443	578	612	753	763	816	816
	B	335	450	490	607	622	670	680
	C	150	168	198	230	240	215	245
	D	140	180	180	240	240	330	300
	E	312	360	360	445	445	610	610
	F	345	400	400	485	485	680	680
	G	105	125	125	150	150	150	150
	K	45	60	60	75	75	75	75
	L	25	25	25	29	29	29	29
	M	47	52	52	62	62	80	80
	O	88	159	122	146	190	135	135
	P4	392.5	476.5	503	574	632.5	752	752
	S	18	23	23	23	23	27	27
	T	105	111	124	146	121	150	150
	V	115	146	171	195	195	185	215
	W2	10	100	110	130	135	155	155
	W3	50	62	60	51	55.5	87	87
	b	30	30	30	30	30	30	30
	α	15	15	15	15	15	20	20
Centering Range With Chip Guard	U1	65	60	90	80	100	135	215
	U2	235	280	330	390	410	460	510
Cylinder Bore.	d	70	90	90	100	100	120	120
Hyd. Connection.(Bsp)	h	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Operating Pressure.(Min/Max)	bar	8-70	08-70	8-70	8-80	08-80	8-80	8-80
Max. Clamp Force /Roller.	daN.	1000	1500	1500	2000	2000	3000	3000
Centering Accuracy Over Entire Clamping Range.	mm	0.04	0.05	0.05	0.06	0.06	0.06	0.06
Repeatability	mm	0.007	0.007	0.007	0.01	0.01	0.01	0.01
Max. Peripheral Roller Speed.	min ⁻¹	700	700	700	725	660	700	700
Weight	kg	40	90	90	170	180	385	385



Steady Rest For Heavy Duty Applications



This series of steady rests is made for heavy duty applications.

Component weight : 22,000 to 88,000 lbs

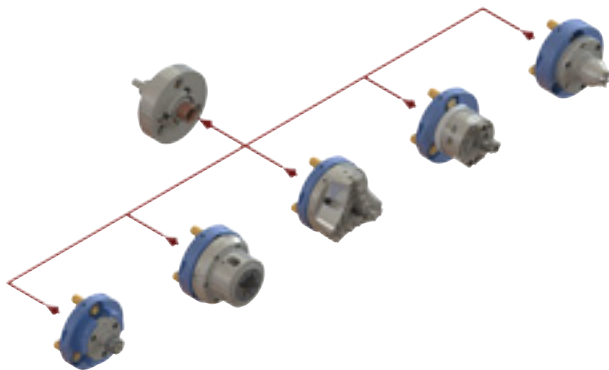
STEADY REST TYPE		SRF-H80130	SRF-H1060	SRF-H1540
Highlights: • Very Heavy duty construction. • Large rollers to handle very heavy loads (10 - 40 Tons) • Hydraulic support to Bottom arm for using on large flat bed lathes. • For turbine shaft, windmill shaft, marine crank shafts	A	2266	1564	1504.5
	B	1760	1110	1176.5
	C	680	358	462.5
	D	310	525	365
	E	1440	970	760
	F	1500	1110	840
	G	306	296	150
	I	80	80	40
	K	186	186	75
	L	116	96	32
	M	270	200	110
	O	506	454	328
	P4	1729	1069	1122
	R	805	420	497
	s	39	34	27
	T	276	276	131
Centering Range With Chip Guard	V	620	283	425.5
	U1	600	100	150
Cylinder Bore.	U2	1050	520	400
	d	200	200	100
Max. Load Capacity	d1	200	80	80
	daN	30000	12000	4000
Cylinder Support Of Bottom Arm	daN	20000	7000	1500
Min/Max. Pressure For Bottom Arm Cylinder	daN	25/80	20/75	15/40
Hyd. Connection.(Bsp)	h	1/2"	1/2"	3/8"
Operating Pressure.(Min/Max)	bar	15/80	10/60	08/115
Max. Clamp Force /Roller.	daN	8300	6500	8300
Clamp. Press./Roller At 15 Bar	daN	1200	1200	500
Centering Accuracy Over Entire Clamping Range.	mm	0.08	0.06	0.04
Repeatability	mm	0.01	0.01	0.01
Max. Peripheral Roller Speed.	min ⁻¹	200	200	550
Weight	kg	3000	2200	750

Accessories



Forkardt is able to provide the entire package with the workholding, actuation, adapters and accessories such as jaws, inserts, grip force meters, quick change devices and grease.

ForChange Quick Change System



Tru-Change Precision Coupling Rings



Quick Change Jaw System MIR



Replaceable Solid Carbide Inserts



Grip Force Meter SKM



ForChange Quick Change System



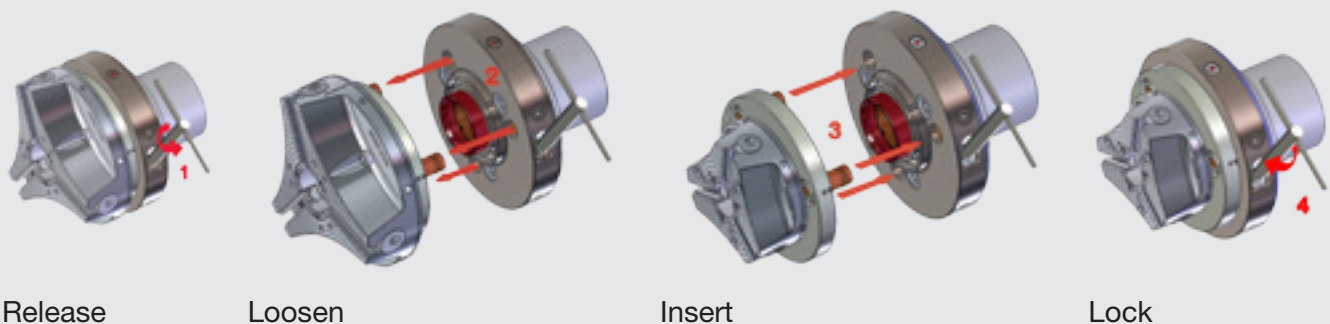
The Forkardt ForChange system is ideal for small series production where fast and easy changeover is important. The modular design allows the system to be easily retrofitted to existing machines, and once set, the interchangeable flanges can be used on different machines without loss of precision.

Features & Benefits

- High precision at changeover on chucks up to 630mm in diameter
- Quick chuck changeover
- Can be automated
- Modular design allows retrofitting to existing machines
- Compact design
- 1 central locking screw for quick chuck changeover
- Ideal for small series or single part production where setups are frequent

Function

The ForChange system consists of a basic flange which is mounted on the spindle, and an interchangeable flange that is attached to the chuck. Connection takes place by linearly inserting the locking pins into the basic flange. The locking mechanism ensures even distribution of tensile forces for maximum exchange accuracy. At the same time, the components are coupled for transmission of actuation forces.



Tru-Change Precision Coupling Rings

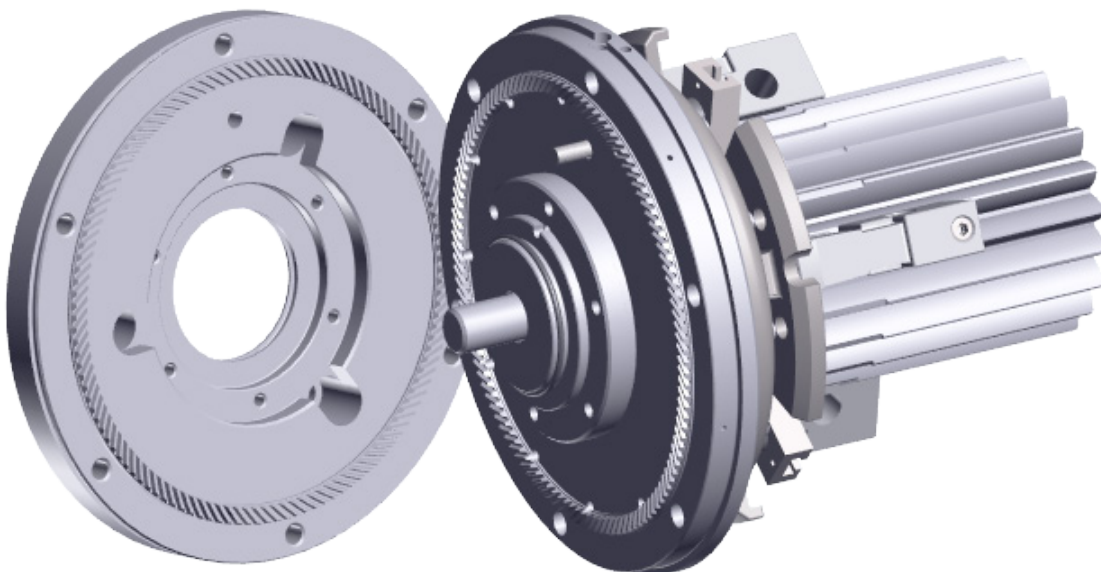
The innovative Tru-Change coupling rings are the optimum coupling device for indexing or power transmission applications. The patented curved tooth design provides full flank tooth interface between two coupling halves. The result is an exceptionally high torsional load capability with self centering and zero backlash as added benefits.

Tru-Change is the perfect tool for jobs that require high torque loads, positive engagement between members, concentricity between mating components, quick changeover and minimal space and weight.

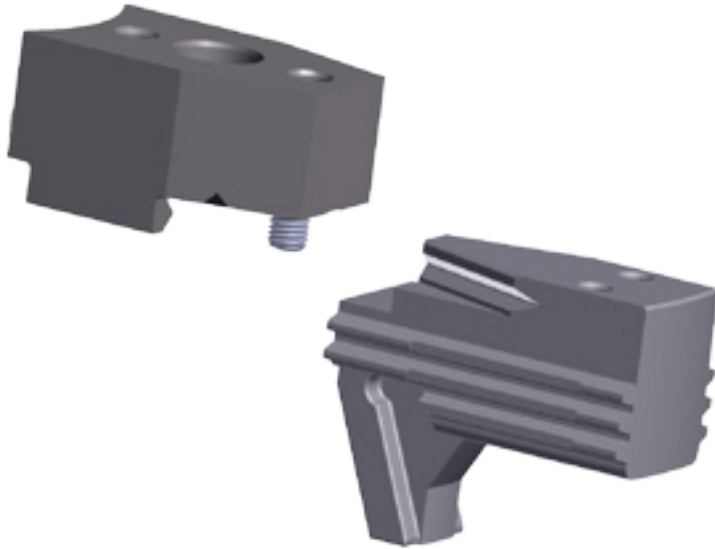


Features & Benefits

-
- 2 micron repeatability
- Self improving repeatability through continuous seating of coupling halves
- Full radius tooth tips provide quick and assured coupling engagement
- Hub extensions on tooth side of coupling halves offer an alternative to radial tooth face couplings
- High number of teeth allow angular indexes of less than one degree with ± 3 second true position

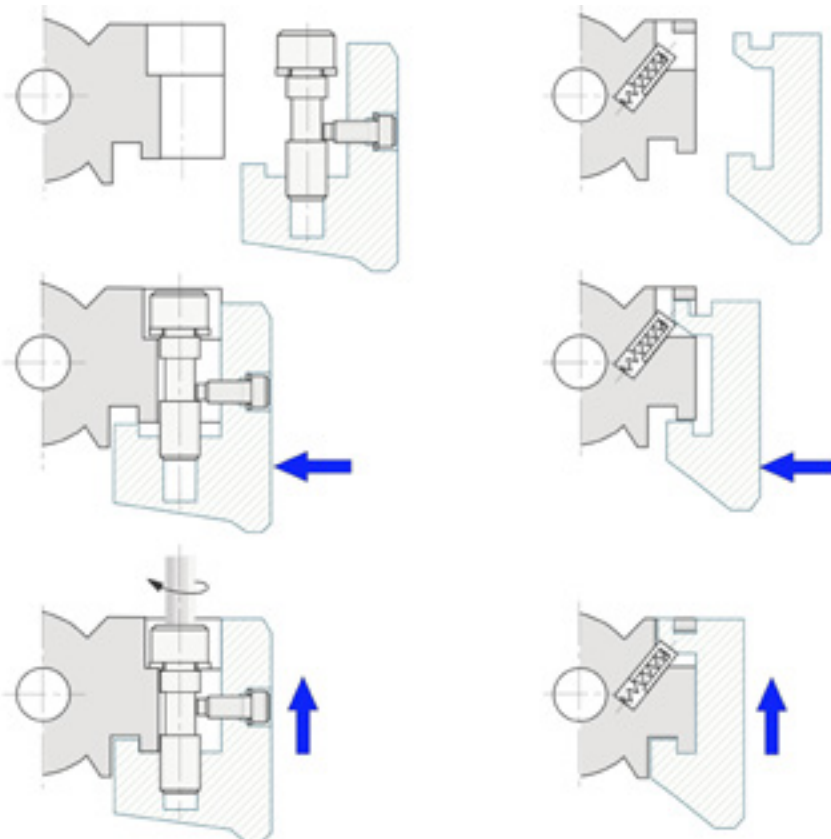


Quick Change Jaw System MIR



Features & Benefits

- Jaw changeover in 5 seconds
- 0.01 mm TIR repeatability
- High rotational accuracy
- Jaw changeover requires one turn with wrench or no tools at all depending on model
- Designed to fit individual applications



With Bolt



No Bolt



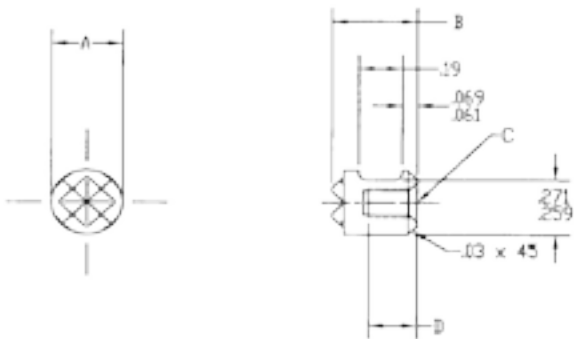
Replaceable Solid Carbide Inserts



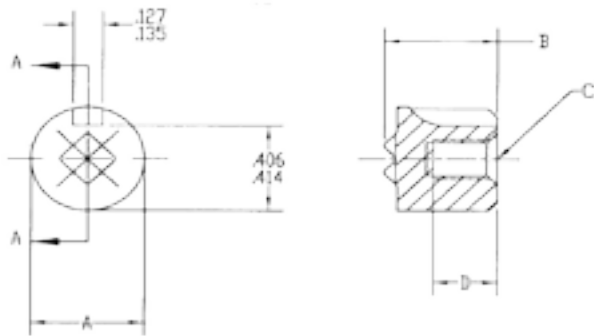
Forkardt's solid carbide inserts are available in various diameters, heights, and tooth patterns. Sold in kits of 10, with hardware included.



Multipurpose Round Style



PC-045-4SC



PC-070-4SC & 12SC

Kit Number	A	B	C	D
PC0454SCK	.312" dia.	0.375	#10-32	0.19
PC0704SCK	.500" dia.	0.500	#10-32	0.19
PC07012SCK	.500" dia.	0.500	#10-32	0.25

PC-045-4SC

4 Points / .312" Wide



- Light Duty
- Nonadjustable

PC-070-4SC

4 Points / .500" Wide



- 4 points
- Heavy duty
- Adjustable and nonadjustable

PC-070-12SC

4 Points / .500" Wide



- 8 points
- Medium duty
- Adjustable and nonadjustable

Angle Lok Style

General Use Angle Lok

PC-127-4SC

4 Points / .561" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-127-4SCS

4 Points / .391" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-128-4SC

4 Points / .750" Wide



- 4 points
- Heavy duty
- Maximum tooth penetration

PC-127-10SC

10 Points / .561" Wide



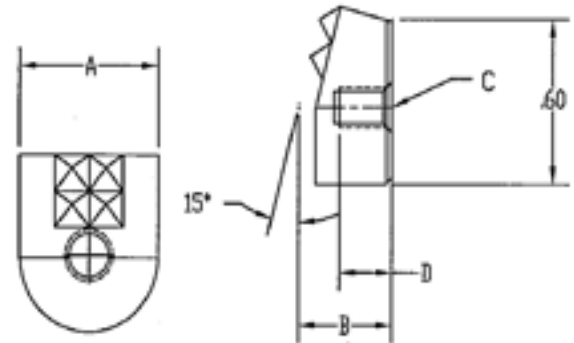
- 10 points
- Medium duty
- Medium tooth penetration

PC-127-8SC

8 Points / .561" Wide



- 8 points
- Medium duty
- Medium tooth penetration



- Resistant to high abrasion
- Non-adjustable
- Gripping points at top of jaw
- Ideal for castings, forgings, draft angles to 7" and bar stock

Kit Number	A	B	C	D
PC1274SCK	.561" wide	0.375	#10-32	0.22
PC1274SCSK	.391" wide	0.375	#10-32	0.25
PC12710SCK	.561" wide	0.375	#10-32	0.25
PC1278SCK	.561" wide	0.375	#10-32	0.25
PC1284SCK	.750" wide	0.500	1/4-28	0.25
PC1302SCSK	.396" wide	0.375	#10-32	0.25
PC1304SCK	.561" wide	0.375	#10-32	0.25
PC1322SCSK	.396" wide	0.375	#10-32	0.25
PC1324SCK	.561" wide	0.375	#10-32	0.25
PC1455SCK	.561" wide	0.375	#10-32	0.25

*Measurements in millimeters unless otherwise noted

Application Specific Angle Lok

PC-130-2SCS

2 teeth / .396" Wide



- 2 straight tooth
- Medium duty
- Medium tooth penetration

PC-132-2SCS

2 teeth / .396" Wide



- 2 spherical tooth
- Medium duty
- Medium tooth penetration

PC-130-4SC

4 teeth / .561" Wide



- 4 straight tooth
- Medium duty
- Medium tooth penetration

PC-132-4SC

4 teeth / .561" Wide



- 4 spherical tooth
- Medium duty
- Medium tooth penetration

PC-145-5SC

5 teeth / .561" Wide



- 45 ° angle tooth
- Medium duty
- Medium tooth penetration

PC-110

Spherical / .561" Wide

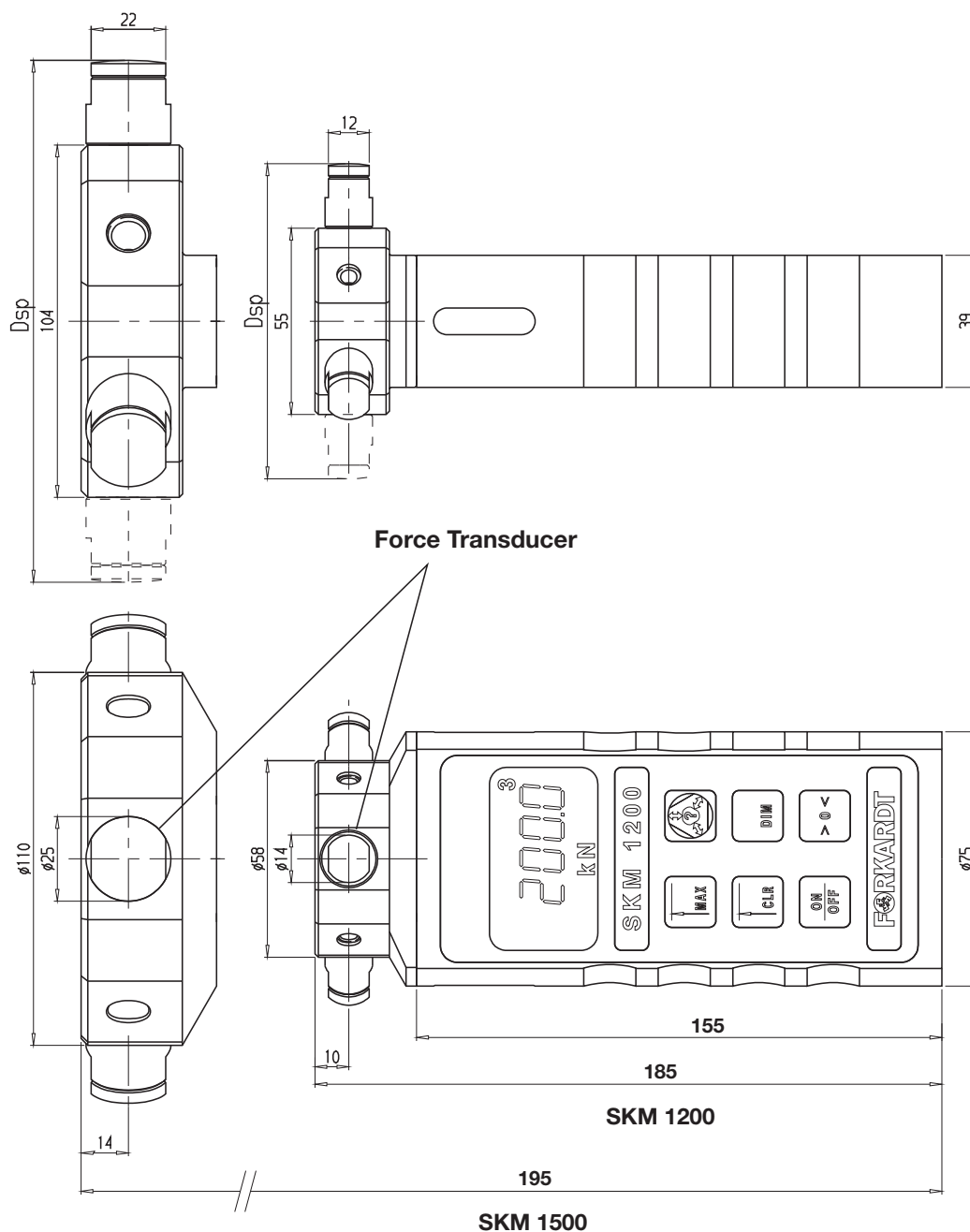


- Spherical
- No tooth penetration

Electronic Grip Force Meter SKM



Forkardt SKM grip force meters are electronic units with a compact design. The devices are ready for static testing of 2, 3, and 6 jaw chucks. They are equipped with high precision force pick-up heads. The electronics, C-MOS technology, is housed in an ergonomically designed aluminum casing. A microprocessor and program routine ensure the testing operation is consistent and highly accurate.



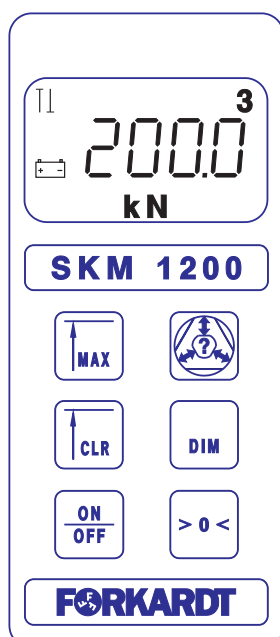
	SKM12000	SKM1500
Measuring Range	0 ... 200.0 Kn	0 ... 500.0 Kn
Lowest Unit of Measurement	0.1 Kn	
Permitted Overload	100 ... 120% Of max. Range value and display flash	
Excess Overload	> 120% Of max. Range value, flashes, display blank	
Display Range	0 ... 20,000 Digit's	
Measuring Tolerance	< +/- 0.5 % Of of max. Range value	
Measuring Frequency	1000 Hz	
Display Frequency	4 Hz (average value from 250 readings)	
Maximum Value Record	Maximum value memory	
Unit Scales	T, kn, k lbs	
Number of Jaws	2, 3, 6	
Battery	Rechargeable with mains adapter 230 vac / 50 hz	
Operating Time	10 Hours from a full charge	
Recharging Time	8 Hours with unit switched off	
Casing Dimensions	155 X 75 x 39 mm	
Insulation	To ip 65 standards	
Dimensions Measuring Head	55 Mm Ø	104 Mm Ø
Chuckling Diameter (Dsp)	63 ... 293 Mm Ø	114 ... 544 Mm Ø
Weight	Approx 1.3 Kg	Approx 2.9 Kg

Display

Number Of Jaws
↑/↑↓
Gripping Force

Battery
Unit Scale

2, 3, 6
Record Maximum Overload
0-200 kN (SKM 1200)
0-500 kN (SKM 1500)
Needs Charging
t, kN, klbs



Key Functions



Record Maximum Value

The maximum value recorded is stored and displayed. Maximum value mode allows to take a reading in chucking situations when the display cannot be viewed. The maximum value remains displayed after unclamping the meter. The memory can be cleared before a new maximum value reading is taken by pressing the CLR button. If the memory isn't cleared manually it will be cleared automatically whenever the next reading is taken and the new result will be displayed. In order to avoid misinterpreted readings, the maximum recorded value is automatically deleted, whenever the meter is switched off.



Changing Number of Jaws

The number of jaws changes each time this key is pressed. The chosen number of jaws is shown in the top right corner of the display. Possible values are 2, 3 and 6 jaws. The reading eventually displayed is the actual measurement multiplied by the number of jaws selected, and the maximum value is cleared.



Clear Maximum Value

The recorded maximum value is cleared, but the unit remains in maximum value mode.



Changing the Unit Scale

On pressing this button the unit scale is changed. Available unit scales are t, kN and klbs. The value read is recalculated and displayed when the unit scale is changed.

1 kN = 1000 N, 1 t = 9807 N,
1 k lbs = 1000 lbs = 4448 N



Switching On / Off

Current settings remain stored when the meter is switched off. Upon switching it back on, measuring operations can be started immediately.



Adjusting the Zero-Point

The zero-point on the meter is adjusted by pressing this button. This function should only be used when the meter is not clamped or loaded.

SKM Accessories

Extension pieces can be mounted to the head of the FORKARDT SKM meters using combinations of tension and compression bolts. Chucking diameters of 63 to 293 mm (SKM 1200) and 114 to 544 mm (SKM 1500) can be accommodated (in 10 mm intervals). One of the tension or compression bolts must always be screwed into the matching hole on top of the measuring head (when viewed with display side up). The measuring sensor is located at this position in the measuring (the joint is recognizable). The remaining tension or compression bolts should be positioned appropriately according to the number of jaws.

SKM 1200			SKM 1500		
"System M6 3 Pieces Each"	Length 1 [mm]	Part No.	System M12 3 Pieces Each	Length 1 [mm]	Part No.
Tension Bolt	4	D164809020	Tension Bolt	5	D164814020
Tension Bolt	9	D164809021	Tension Bolt	10	D164814021
Tension Bolt	14	D164809022	Tension Bolt	15	D164814022
			Tension Bolt	20	D164814023
Compression Bolt	15	D164809025	Compression Bolt	20	D164814025
Compression Bolt	30	D164809026	Compression Bolt	40	D164814026
Compression Bolt	60	D164809027	Compression Bolt	80	D164814027
			Compression Bolt	160	D164814028
2 Spanners (Gauge 12)			2 Spanners (Gauge 22)		
Carry-Case, Mains Adapter			Carry-Case, Mains Adapter		



OEM Serviceable Chucks & Actuators

- Forkardt
- Buck Chuck
- SP
- Tork Lok
- NA Woodworth
- Logansport
- Sheffer
- Teikoku

Paid Repair

The Forkardt service department assesses and repairs all brands currently produced by Forkardt. Customers can send their workholding to the Forkardt plant to receive an assessment for the repairs needed to bring it within original working condition. Any new improvements or revisions to that model will be incorporated into the repair, as if you are receiving a new chuck at a discounted price.

Most estimates are sent within one week of the item arriving at the Forkardt facility. A non-refundable assessment fee may be charged if there are extra ordinary efforts required.

Paid Service

Forkardt service technicians can help install or troubleshoot existing workholding set ups. This allows the customer to be trained and also allows the customer to reallocate resources by letting the experts take care of the product.

Technicians can perform on site training for preventative maintenance, disassembly and repair. This leads to improved and safer performance of the product.

Service technicians can also perform balancing on most brands of chucks in the field. This leads to improved performance of the machine, tooling and product.

Limited Warranty

Forkardt's products are warranted for a period of (1) year from date of delivery to be free from defects in material and workmanship.

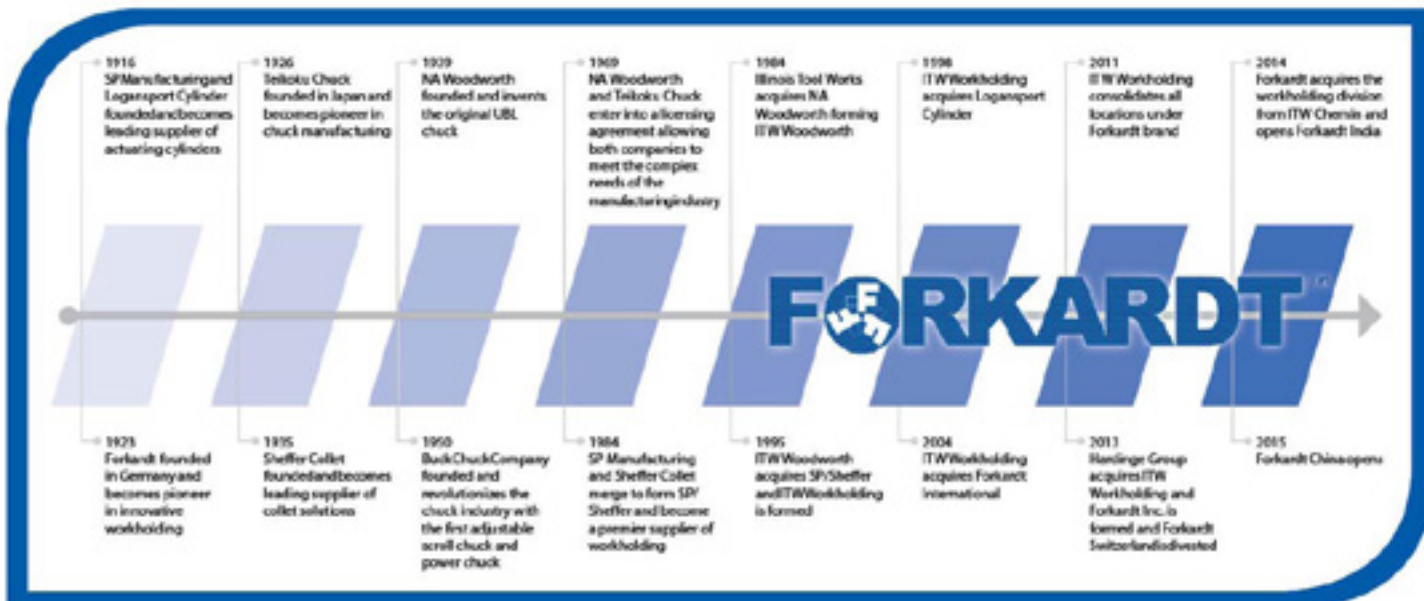
This warranty does not include, nor does Forkardt assume responsibility for, defects or damage caused by misuse or abuse, alterations, service or repair by others, wear parts or failure to properly maintain the product.

BEFORE & AFTER



7" 3 Jaw Diaphragm Chuck Assembly with Special Tooling





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