

# FORKARDT

*PSA*

*Independent Chucks*

*“BILSING SYSTEM”*



WORKHOLDING SOLUTIONS WORLDWIDE

# INDEPENDENT CHUCKS

## Independent chucks "Bilsing System"

This brochure contains information on our **Bilsing System independent chucks**.

Bilsing System independent chucks present four independently adjustable jaws for centring and aligning round and irregularly shaped work pieces and are suitable for a large number of machining tasks.

- The spindle bearing and jaws are made of case hardened steel for long service life, precision, and load bearing capacity.
- The Bilsing System variants with quick change jaws allow simple and fast changeover from internal to external fixture.



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

## Contents

	Page
<b>FORKARDT Independent chucks "Bilsing System"</b>	
<b>Dimensions / Performance data</b>	
<b>Quick change system</b>	
<b>Operating principle</b>	3
<b>Independent chucks, main dimensions cast steel design up to <math>\varnothing</math> 1200 mm</b>	4
<b>Jaw dimensions</b>	5
<b>Independent chucks - cast steel design with quick change jaw system</b>	6
<b>Jaws and single parts, Order numbers</b>	7
<b>Machine spindle heads</b>	8
<b>Some other FORKARDT products</b>	9

• For more information visit our website at:

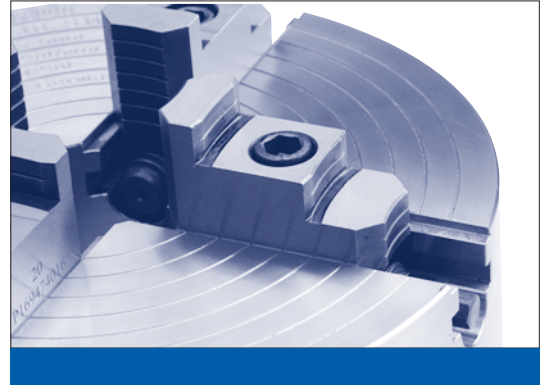
[www.forkardt.com](http://www.forkardt.com)

# Quick change system

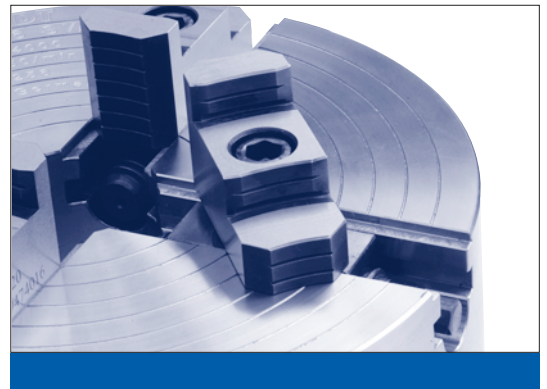
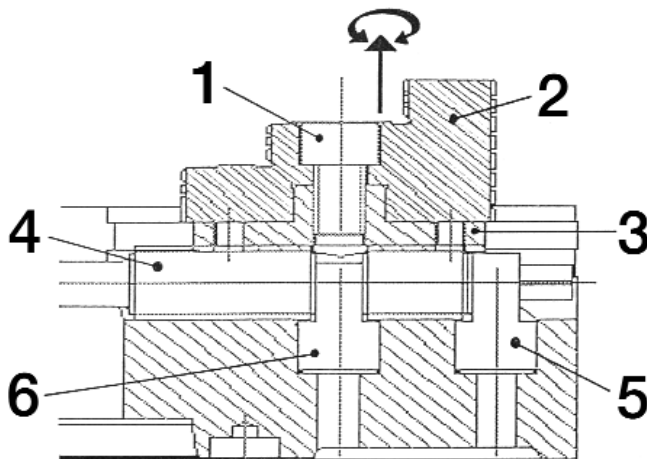
(Operating principle)

## The System

Like on lathe chucks the clamping jaws are set in guide slots. The US type independent chucks are fitted with quick change clamping jaws, i.e. each of them exhibits a split design. Each jaw consists of a master jaw section (3) with cut thread for the adjusting spindle (4) and the three stage top jaw (2).

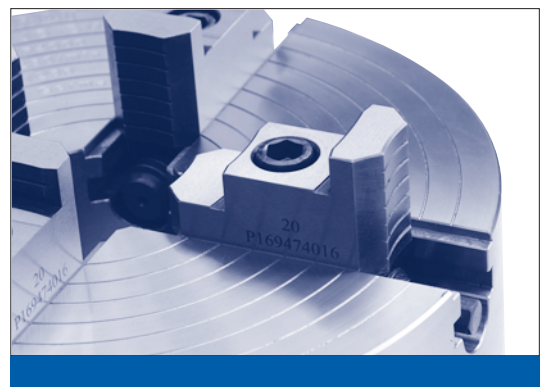


*jaw at starting position*



*jaw being turned*

To turn the top jaw (2) on the master jaw (3) you need only loosen the securing screw (1).

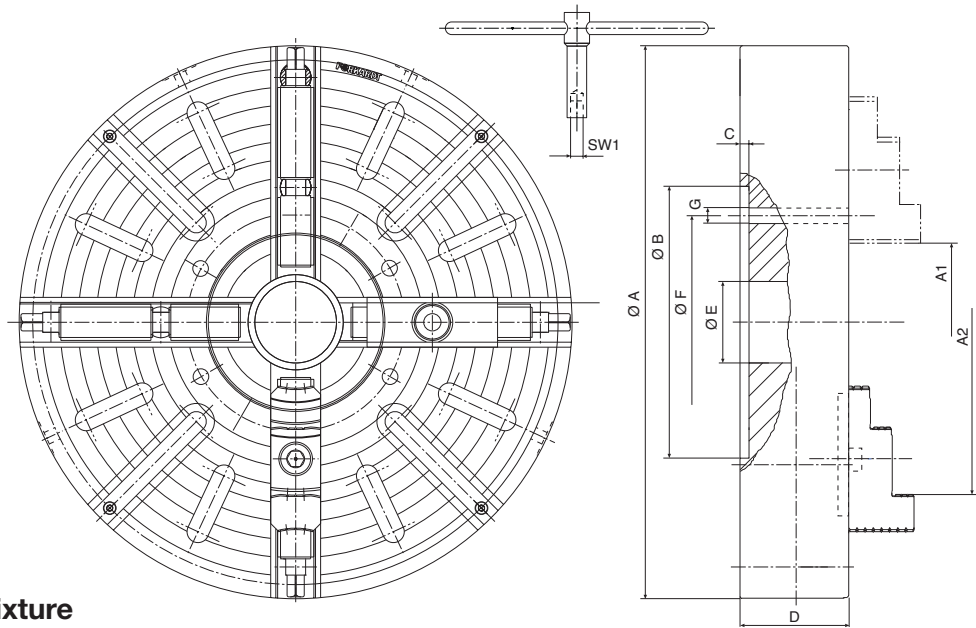


*jaw at new position*

# INDEPENDENT CHUCKS

## Independent chucks, main dimensions

cast steel design  
up to  $\varnothing$  1200 mm



### Cylindrical centring fixture

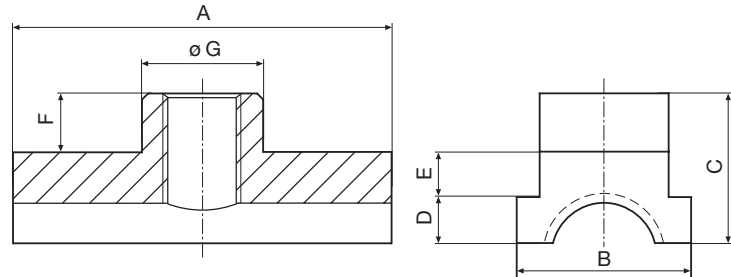
from 355 mm with T and chucking grooves, cast steel design

Type PSA	Size mm	250	300	355	400	450	500	560	610	630
Ø A	mm	250	300	355	400	450	500	560	610	630
Ø A	Zoll	10	12	14	16	18	20	22	24	25
B <sup>H8</sup>		145	160	160	200	200	260	260	260	260
C		6	6	6	10	10	13	13	13	13
D		65	80	90	100	100	110	110	120	120
E		50	60	90	90	90	90	90	90	90
F		120	133.36	133.36	172	172	220	220	220	220
G		M12	M16	M16	M16	M16	M20	M20	M20	M20
O.D. clamping	A1 min.	30	35	35	40	40	40	40	45	45
I.D. clamping	A2 max.	250	300	355	400	450	500	560	610	630
Max swing- $\varnothing$		285	335	415	465	515	580	540	695	715
Max torque M <sub>dmax</sub> / spindle		95	95	150	180	180	250	250	350	350
Max clamping force F <sub>spmax</sub> total		7,500	7,500	11,700	12,600	12,600	16,000	16,000	19,600	19,600
Max speed n max	rpm	2,450	2,040	1,750	1,530	1,360	1,220	1,100	1,020	980
Weight	approx kg	19	25	42	58	71	106	111	140	155
Ident-No. FORKARDT		DP169990000	DP170001000	DP170010000	DP169250000	DP169250000	DP169254000	DP169920000	DP169930000	DP169937000
Ident-No. BILSING		DP252572120	DP253073120	DP253573120	DP254074120	DP254574120	DP255074120	DP255675120	DP256175120	DP256375120

Type PSA	Size mm	710	710	800	800	900	900	1000	1000	1200
Ø A	mm	710	710	800	800	900	900	1000	1000	1200
Ø A	Zoll	28	28	31	31	35	35	39	39	48
B <sup>H8</sup>		260	370	260	370	260	370	260	370	370
C		13	13	13	13	13	13	13	13	13
D		135	135	135	145	150	150	150	150	160
E		110	110	120	120	120	120	120	120	120
F		220	330	220	330	220	330	220	330	330
G		M20	M20	M20	M20	M20	M20	M20	M20	M20
O.D. clamping	A1 min.	50	50	60	60	60	60	60	60	100
I.D. clamping	A2 max.	710	710	800	800	900	900	1000	1000	1200
Max swing- $\varnothing$		800	800	910	910	1010	1010	1130	1130	1330
Max torque M <sub>dmax</sub> / spindle		350	350	550	550	550	550	550	550	550
Max clamping force F <sub>spmax</sub> total		19,600	19,600	28,600	28,600	28,600	28,600	28,600	28,600	28,600
Max speed n max	rpm	875	875	765	765	680	680	610	610	510
Weight	approx kg	187	187	298	298	380	380	475	475	715
Ident-No. FORKARDT		DP169944000	DP169945000	DP169955000	DP169956000	DP169966000	DP169967000	DP169974000	DP169975000	DP169982000
Ident-No. BILSING		DP257175120	DP257176120	DP258075120	DP258076120	DP259075120	DP259076120	DP250075120	DP250076120	DP250275120

Special measurements available on request.

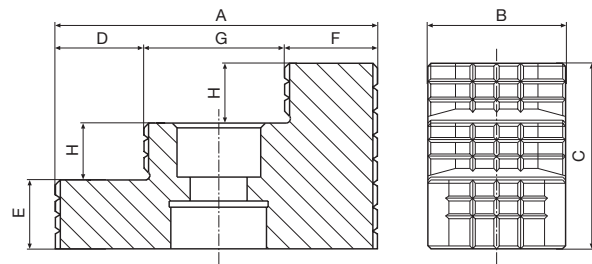
US type



## Master jaws

Size	mm	250	300	355	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
A		60	72	80	100	100	120	120	144	144	165	165	204	204	210	210	210
B		35	38	42	46	46	50	50	55	55	60	60	70	70	75	75	75
C		25.5	31	34	39.5	39.5	45	45	47.5	47.5	51	51	60	60	62	62	62
D		8	10	12	12	12	14	14	16	16	16	16	16	16	18	18	18
E		8	10	10	12	12	14	14	14	14	16	16	20	20	20	20	20
F		9.5	11	12	15.5	15.5	17	17	17.5	17.5	19	19	24	24	24	24	24
G		24	26	28	32	32	37	37	40	40	44	44	54	54	54	54	54

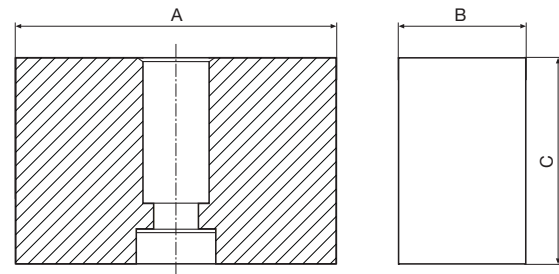
## Quick change top jaws



Size mm	250	300	355	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
A	67	86	98	107.5	107.5	142	142	161	161	180	180	214	214	224	224	224
B	35	38	42	46	46	50	50	55	55	60	60	70	70	75	75	75
C	43	49	56	62	62	70	70	78	78	84	84	95	95	113	113	113
D	16	26	29	29.5	29.5	42	42	45	45	so	50	60	60	64	64	64
E	17	19	22	24	24	26	26	30	30	32	32	35	35	43	43	43
F	17	18	29	31	31	40	40	41	41	44	44	54	54	59	59	59
G	34	42	40	47	47	60	60	75	75	86	86	100	100	101	101	101
H	13	15	17	19	19	22	22	24	24	26	26	30	30	35	35	35

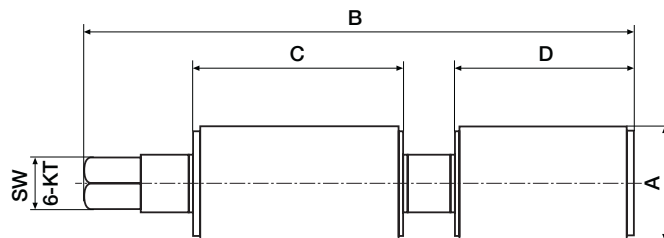
## Unstepped top jaws

Material 16 MnCr 5



Size	mm	300	355	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
= ø ca.	Zoll	12	14	16	18	20	22	24	25	28	30	31	35	39	43	48
A		86	98	107	107	142	142	161	161	180	180	215	215	224	224	224
B		38	42	46	46	50	50	55	55	60	60	70	70	75	75	75
C		49	56	62	62	70	70	78	78	84	84	95	95	113	113	113

## Adjusting spindle



Size	250	275	300	355	400	450	500	560	610	630	710	770	800	900	1000	1100	1200
A	24	24	24	28	32	32	36	36	40	40	40	40	42	42	44	44	44
B	90	106.5	119	130	152	168	192	222	242	242	283	304.7	327	375	427	480	516
C	17	29	29	48.8	38	38	40.4	97.8	103.3	103.3	137.1	162.2	177.3	221.2	203.3	203.3	203.3
D	39	43.5	53	41.7	64	80	95.62	68.22	78.72	78.7	85.9	82.5	85.7	89.8	159.7	212.7	248.7
SW	12	12	12	14	15	15	17	17	19	19	19	19	22	22	22	22	22

Up to ø 770 trapezoid thread, from size 800 ø flat thread

# INDEPENDENT CHUCKS

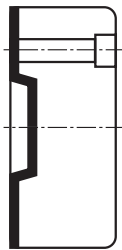
## Universal-independent chucks

(US type, independent four jaw chuck)

### Fixture as per DIN 55026

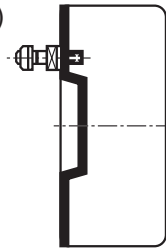
front fastening  
(earlier ASA  
and DIN 55021)  
B 5.9 design  
A1 - A2)

outer  
pitch circle



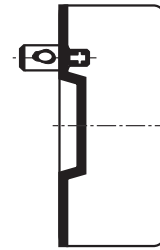
### Fixture as per DIN 55027 Bayonet plate fastening

(earlier DIN 55022)



### Fixture as per DIN 55029 Camlock fastening

(earlier ASA B 5.9  
design D 1)



In precision design, master and top jaws individually adjustable via threaded spindle

From 355 mm diameter with T and chucking grooves (see exceptions\*)

Diameters over 1200 mm and special fixtures on request

Grey cast iron, one part, US standard on request

## Cast steel design with quick change jaws

Fixture as per DIN 55026			Fixture as per DIN 55027			Fixture as per DIN 55029		
Design	Quick change jaws	Ident-No.	Design	Quick change jaws	Ident-No.	Design	Quick change jaws	Ident-No.
ø	Size		ø	Size		ø	Size	
250	5	DP 252532120	250	5	DP 252522120	250	5	DP 252512120
250	6	DP 252533120	250	6	DP 252523120	250	6	DP 252513120
300	5	DP 253032120	300	5	DP 253022120	300	5	DP 253012120
300	6	DP 253033120	300	6	DP 253023120	300	6	DP 253013120
300	8	DP 253034120	300	8	DP 253024120	300	8	DP 253014120
355	5	DP 253532120	355	5	DP 253522120	355	5	DP 253512120
355	6	DP 253533120	355	6	DP 253523120	355	6	DP 253513120
355	8	DP 253534120	355	8	DP 253524120	355	8	DP 253514120
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

\* of solid steel without chucking grooves

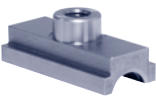

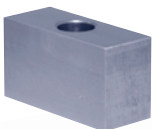
# SPARE PARTS

## Jaws and single parts,





Order numbers



# JAWS AND

			
	Master jaw hardened and tempered	Hard quick change top jaw	Unstepped top jaw
	Hardened and tempered		Unhardened
Pcs.	4	4	4
Size	Ident-No.	Ident-No.	Ident-No.
250	DP 169990015	DP 169990016	DP 225170000
300	DP 169474015	DP 169474016	DP 230170000
355	DP 170010015	DP 170010016	DP 235170000
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



					
	Hexagonal adjusting spindle with outer hexagon	Spindle pin	Spindle pin	T key with hexagon socket	
	Hardened and tempered		Open	Closed	
Pcs.	4	4	4	1	
Size	Ident-No.	Ident-No.	Ident-No.	SW	Ident-No.
250	DP 169990002	DP 169474004	DP 169474003	12	DP 225500000
300	DP 169474002	DP 169474004	DP 169474003	12	DP 225500000
355	DP 170010002	DP 170010004	DP 170010003	14	DP 225500000
400	DP 169247002	DP 169247004	DP 169247003	15	DP 240500000
450	DP 169247002	DP 169247004	DP 169247003	15	DP 240500000
500	DP 169586002	DP 169586004	DP 169247003	17	DP 240500000
560	DP 169586002	DP 169586004	DP 169586003	17	DP 240500000
610	DP 169930002	DP 169930004	DP 169586003	19	DP 240500000
630	DP 169930002	DP 169930004	DP 169930003	19	DP 261500000
710	DP 169944002	DP 169930004	DP 169930003	19	DP 261500000
800	DP 169955002	DP 169955004	DP 169930003	22	DP 280500000
900	DP 169955002	DP 169955004	DP 169955003	22	DP 280500000
1000	DP 169974002	DP 169974004	DP 169974003	22	DP 280500000
1200	DP 169974002	DP 169974004	DP 169974003	22	DP 280500000

Special dimensions and other variants available on request.

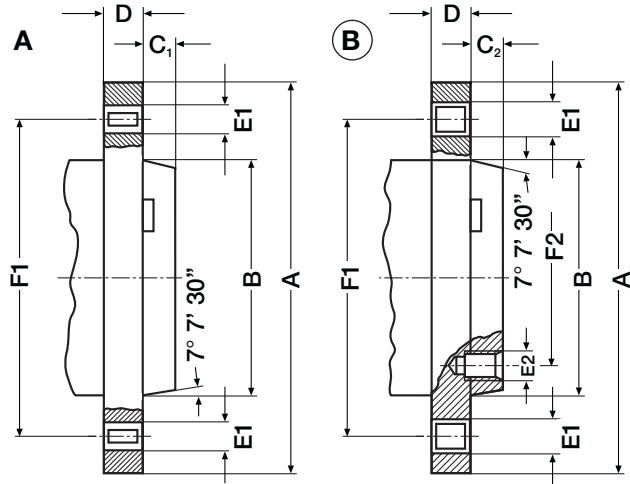
# MACHINE SPINDLE HEADS

## Machine spindle heads

as per DIN

### DIN 55026

from shank length 4 mm with dog



Spindle head size	A	B	C1	C2 -0.025	D	No. of holes on outer pitch circle (F1) E1	F1 (outer pitch circle)	No. of holes inner pitch circle (F2) E2	F2 (inner pitch circle)
3	92	53.983	11	-	16	3 x M10	70.6	-	-
4	108	63.521	11	-	20	11 x M10	82.6	-	-
5	133	82.573	13	14.288	22	11 x M10	104.8	8 x M10	61.9
6	165	106.385	14	15.875	25	11 x M12	133.4	8 x M12	82.6
8	210	139.731	16	17.462	28	11 x M16	171.4	8 x M16	111.1
11	280	196.883	18	19.050	35	11 x M20	235.0	8 x M20	165.1
15	380	285.791	19	20.638	42	12 x M24	330.2	11 x M24	247.6
20	520	412.795	21	22.225	48	12 x M24	463.6	11 x M24	368.3

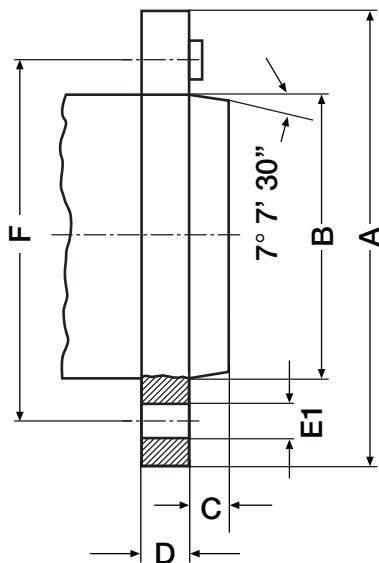
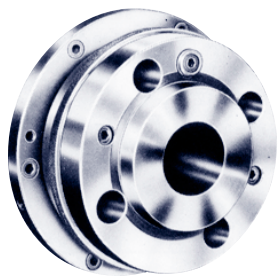
**Form A:** thread in flange (without inner pitch circle)

**Form B:** threaded holes in flange (outer pitch circle) and in shank (inner pitch circle)



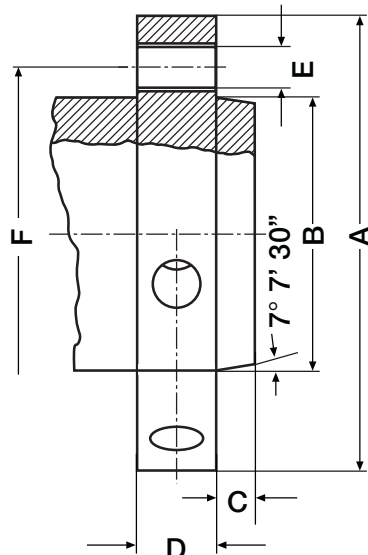
### DIN 55027 bayonet plate fastening (earlier DIN 55022)

from shank length 4 mm with dog



Spindle head size	A	B	C	D	No. of holes x E	F
3	102	53.985	11	16	3 x 21	75.0
4	112	63.525	11	20	3 x 21	85.0
5	135	82.575	13	22	4 x 21	104.8
6	170	106.390	14	25	4 x 23	133.4
8	220	139.735	16	28	4 x 29	171.4
11	290	196.885	18	35	6 x 36	235.0
15	400	285.800	19	42	6 x 43	330.2
20	540	412.800	21	48	6 x 43	463.6

### DIN 55029 camlock fastening (earlier ASA B 5.9 design D1)

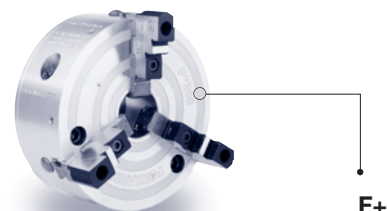


Spindle head size	A	B	C	D	No. of holes x E	F
3	92.1	53.985	11.1	31.8	3 x 15.1	70.66
4	117.5	63.525	11.1	33.3	3 x 16.7	82.55
5	146.0	82.575	12.7	38.1	6 x 19.8	104.80
6	181.0	106.390	14.3	44.5	6 x 23.0	133.40
8	225.4	139.735	15.9	50.8	6 x 26.2	171.40
11	298.5	196.885	17.5	60.3	6 x 31.0	235.00
15	403.0	285.800	19.0	69.9	6 x 35.7	330.20

# Some other FORKARDT products

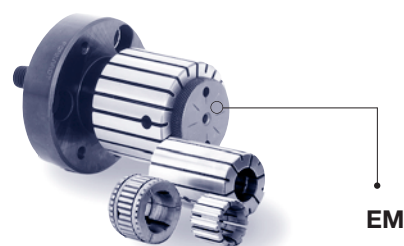
## Manual chucks

- Universal chucks (scroll and wedge block) for conventional and CNC machine tools
- Ideal for production in small to medium batch sizes



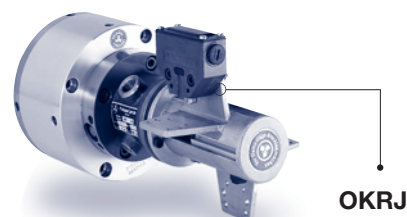
## Expanding mandrels / collet chucks

- Clamping range between 12.5 – 178.0 mm
- Double cone clamping system with slotted sleeves
- Variable program for the development of optimal clamping systems
- Available ground to customer's requirements



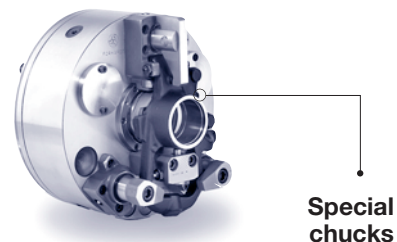
## Actuating cylinders

- Compact module-building technology
- Short building attachment on all centre lathes
- Advanced bearing and seals design
- Highly precise oil feed system
- Balanced to class Q = 2.5
- Alternate controlled safety of non-return valves
- Clamping stroke monitoring included as standard
- Continuous clamping stroke monitoring optional
- Developed and produced in accordance with the requirements of ISO 9001 - 2000



## Special clamping systems

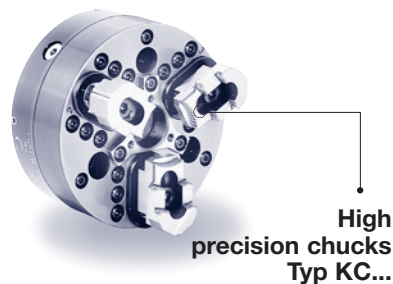
- Special workholding systems designed and manufactured to customer requirements
- Combined centering and clamping function for precise and secure gripping
- Hermetically sealed oil filled solution for minimum maintenance applications
- Example: Steering knuckle chuck for car landing gear parts



## Precision power chucks

### for fine / hard turning and grinding

- Hermetically sealed, with permanent lubrication for minimum maintenance and wear-free operation
- Clamping repetition accuracy < 0,0025 mm
- Jaw changing without loss of accuracy



**WORKHOLDING SOLUTIONS  
WORLDWIDE**



**L O C A T I O N S      W O R L D W I D E**

**FORKARDT DEUTSCHLAND GMBH**  
Heinrich-Hertz-Str. 7  
D-40699 Erkrath  
Tel: (+49) 211-25 06-0  
Fax: (+49) 211-25 06-221  
E-Mail: info@forkardt.com

**FORKARDT SCHWEIZ GMBH**  
Industriestrasse 3  
CH-8307 Effretikon  
Tel: (+41) 52-3 553131  
Fax: (+41) 52-3 435240  
E-Mail: info-ch@forkardt.com

**FORKARDT FRANCE S.A.R.L.**  
28 Avenue de Bobigny  
F-93135 Noisy le Sec Cédex  
Tel: (+33) 1-4183 1240  
Fax: (+33) 1-4840 4759  
E-Mail: forkardt.france@forkardt.com

**BUCK CHUCK**  
2155 Traversefield Drive  
Traverse City, MI 49686, USA  
Tel: (+1) 800-228-2825  
(+1) 231-995-8312  
Fax: (+1) 231-995-8362  
E-Mail: sales@itwworkholding.com  
Website: www.buckchuckusa.com

**ITW WORKHOLDING**  
2155 Traversefield Drive  
Traverse City, MI 49686, USA  
Tel: (+1) 800-544-3823  
(+1) 231-947-5755  
Fax: (+1) 231-995-8361  
E-Mail: sales@itwworkholding.com  
Website: www.itwworkholding.com

**FORKARDT NORTH AMERICA**  
2155 Traversefield Drive  
Traverse City, MI 49686, USA  
Tel: (+1) 800-794-6190  
(+1) 231-947-5755  
Fax: (+1) 231-995-8361  
E-Mail: sales@itwworkholding.com  
Website: www.itwworkholding.com

[www.forkardt.com](http://www.forkardt.com)

[www.itwworkholding.com](http://www.itwworkholding.com)