FUERDA

LATHE CHUCKS

DK & GK

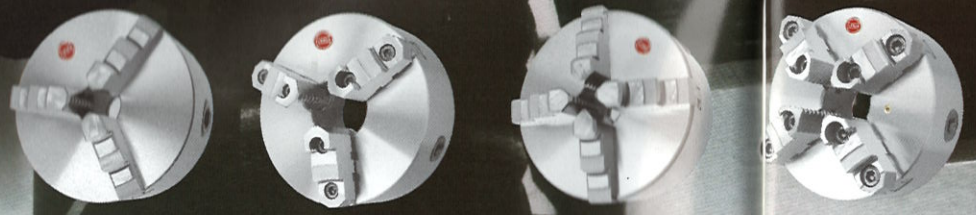
Instruction Manual

Please read and keep this manual for future reference

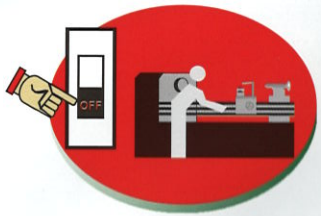
www.fuerda.com

FUERDA
LATHE CHUCKS

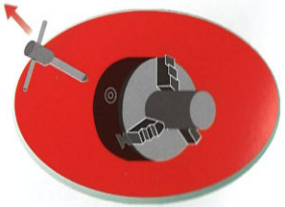
- **DK series**
  Cast iron body,DIN6350,3 Jaw Self-centering Chuck
- **GK series**
  Steel body,DIN6350,3 Jaw Self-centering Chuck



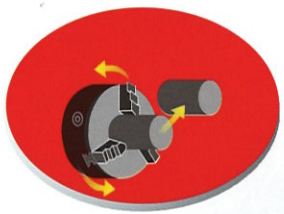
CONTENTS



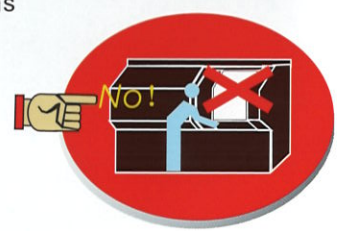
- Always disconnect the machine from power source before install -ation,inspection,lubrication of chuck.



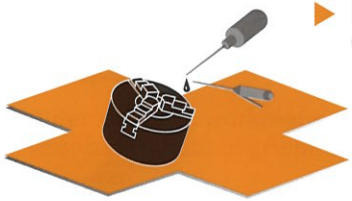
- Remove the chuck key (handle) immediately after tightening with the specified torque.
  Never use chuck key without the safety spring.



- The chuck maximum revolutions of the chuck are restricted.
  Never exceed the maximum speed.

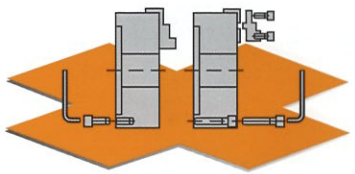


- Do not start the machine with safety door opened.

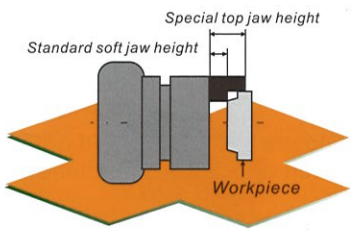


- Be sure to use the chuck wrench correctly (with safety spring only).

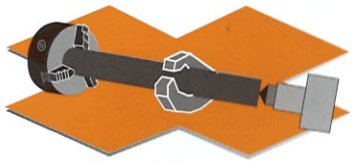
- Clean and lubricate the chuck frequently.
  This will significantlythe extend chuck life .
  Never use compressed air to clean the chuck.



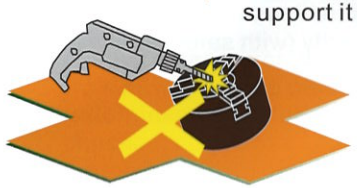
- Secure clamp bolts with specified torque.



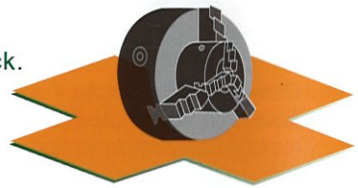
- The height of the jaw should be within the maximum gripping force limits.



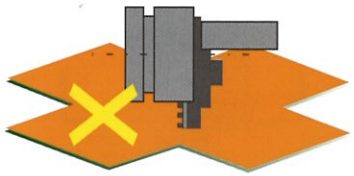
When machining a long work piece, support it with a center,tailstock or steady rest.



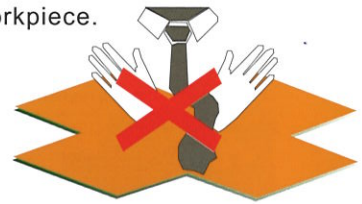
Do not attempt to modify the chuck.



Never grip another chuck with the chuck.

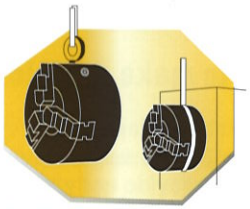


Use the most suitable chuck for workpiece.



Gloves and ties should not be worn when operating a machine.

Do not operate machinery after drinking alcohol.



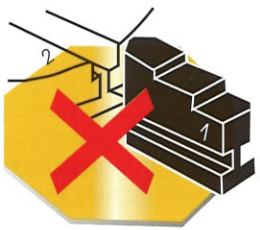
When lifting the chuck, use the eyebolt or lifting belt.

When gripping workpiece, ensure your hand is out of gripping area.

Never hammer the chuck, jaws or gripped workpiece.

Disassemble the chuck for cleaning and lubricate it once every 20,000 times of clamping or every 6 months.

Do not apply extreme start and stop without gripping the workpiece.



Do not mistake the numbers marked on jaws.

How to make decision for lathe chuck selection

The First Decision :
Make sure you select a supplier that produces standard-quality chucks. This will provide early assurances of quality, durability and safety.The most reputable manufacturers of manual lathe chucks produce to the standard, Fuerda being one of them.

1) SCROLL or INDEPENDENT CHUCKS

Once you know the size of the chuck you are looking for. and you have settled on a standard producer.You need to decide on a SCROLL or INDEPENDENT chuck.This decision will be based upon the material to be machined,tolerance requirements and convenience.
SCROLL Chucks -The chuck jaws are engaged to a scroll and the scroll to a pinion. As the pinion is turned all of the jaws move simultaneously and will self -center around the workpiece. A scroll chuck offers accuracy and convenience for jobs involving round bar stock and frequent changeovers.
INDEPENDENT Chucks are different. The chuck jaws are individually engaged to an operating screw.The jaws are moved individually and typically independent chucks are in applications where the workpiece is irregular in shape.

2) BODY MATERIAL

After you have selected the type of manual chuck you want/need it is time to determine what chuck body material type you need.You typically have 3 choices.
Semi-Steel (Cast Iron) - A semi-steel body is selected when the application is medium or maintenance duty and for some production applications.Semi-Steel is also selected when cost is a factor as it is typically 30%- 40% less expensive than an equivalent forged steel body chuck. Semi-Steel bodied chucks are less durable than cast or forged steel and will lose accuracy more quickly than cast or forged steel over time.
Cast Steel-A cast steel body chuck is selected when the application is for medi -um duty and some production applications. Cast steel chucks are typically available in the independent series only. Cast-Steel bodied chucks are more durable than semi-steel and not as durable as forged steel bodied chucks.
Forged Steel - Forged steel is selected when the application is medium to heavy duty and production based.Forged steel chucks are more durable and will hold their accuracy longer than Semi-steel chucks.

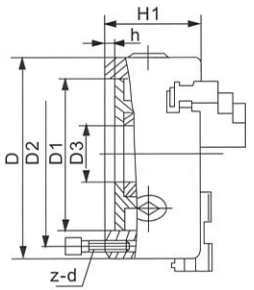
3) JAW TYPE

You have two choices,Two-Piece Reversible or Hard Solid.
Two-piece reversible jaws offer more versatility and convenience.Changing from ID to OD application is as simple as unbolting the top jaws from the ma -ster jaws, inverting them and reapplying the bolts.Two-piece jaws also pro -vide more versatility allowing you to use a variety of soft or specially jaws. Be sure to purchase a chuck produced with ANSI standard tongue and groo -ve jaws.
Hard Solid Jaws are just that, they are solid and one piece and require a se -cond set of jaws to convert from ID to OD.Converting from ID to OD requires that you remove the jaws completely and insert OD jaws.Hard solid jaws pro -vide more rigidity and thus more accuracy.

4) MOUNTING

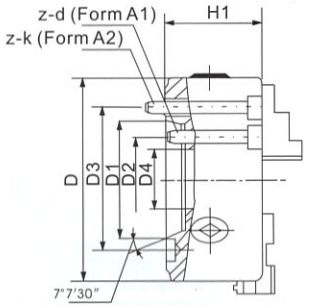
Last but not least,you need to determine your lathe spindle type so you can mount the chuck on your machine. Consult your lathe manual for this information.The most popular spindle types are A /DIN55026 (short tapered),C/DIN55027(DIN),D/DIN 55029 (camlock). Here you do not have many options;your machine will make the decision for you.Once you determine your spindle type you now need to determine if you will use a Plain Back chuck with Adapter(back plate) or go with a Direct Mount chuck option.
Plain Back- A plain back chuck provides some flexibility and in certain instances may allow you to use the same chuck on a number of mach -ines by unbolting the chuck from the adapter and mounting it on a diff -erent machine.In most cases, the adapter for plain back chucks must be machined to match the counterbore on the back of the chuck and in some cases you will have to drill and thread the mounting holes. Adjust -able body chucks are the exception. Adjustable chucks utilize Fully Finished adapters and the chuck and adapters can be pulled from the box and mounted directly on the machine.
Direct Mount- Direct mount chucks provide convenience as the adapter is integrated into the chuck and can be mounted directly on the machine requiring NO additional machining. You may run into some limitations on the spindle types available for direct mount. Most producers will offer popular spindle types available for direct mount but may not offer some of the less popular types.

PLAIN BACK
Self-Centering Chucks
DIN6350



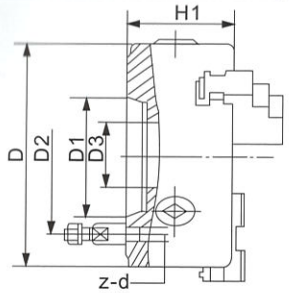
Dia. D	D1	D2	D3	H1	h	z-d	
						Back mounting	Front mounting
80	56	67	16	50	4	3-M6	3-M6
100	70	83	22	55	3	3-M8	3-M8
125	95	108	30	58	4	3-M8	3-M8
160	125	140	45	65	5	6-M10	3-M10
200	160	176	65	75	5	6-M10	3-M10
250	200	224	80	80	5	6-M12	3-M12
315	260	286	100	90	6	6-M16	3-M16
400	330	362	130	100	6	6-M16	3-M16
500	420	458	210	115	6	6-M16	-
630	545	586	260	131	7	6-M16	-

DIRECT MOUNTING
Form A Mounting from Front
Self-Centering Chucks
DIN55026



Dia. D	Short Taper	D1	D2	D3	D4	H1	z-d Form A1	z-k Form A2
160	5	82.563	61.9	-	40	73	3-M10	-
200	4	63.513	-	82.6	50	90	-	3-M10
	5	82.563	61.9	-	50	90	3-M10	-
	6	106.375	82.6	-	50	90	3-M12	-
250	5	82.563	-	104.8	80	96.5	-	3-M10
	6	106.375	82.6	-	55	96.5	6-M12	-
	8	139.719	111.1	-	80	96.5	6-M16	-
315	6	106.375	-	133.4	100	113	-	6-M12
	8	139.719	111.1	-	80	113	6-M16	-
400	6	106.375	-	133.4	103	126	-	6-M12
	8	139.719	-	171.4	136	126	-	6-M16
	11	196.869	165.1	-	130	126	6-M20	-
500	8	139.719	-	171.4	136	144	-	6-M16
	11	196.869	-	235	190	144	-	6-M20
630	11	196.869	-	235	190	165	-	6-M20
	15	285.772	-	330.2	260	165	-	6-M24

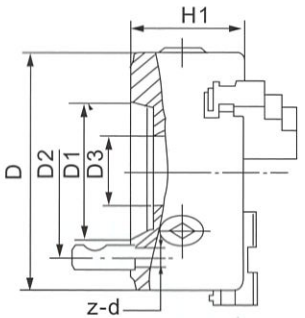
DIN55027 Self-Centering Chucks



DIRECT MOUNTING(Bayonet)
Form C Mounting
With studs and locknuts
Self-Centering Chucks
DIN55027

Dia.D	short taper	D1	D2	D3	H1	z-d
100	3	53.975	75	20	60	3-M10
125	3	53.975	75	25	63.5	3-M10
	4	63.513	85	25	63.5	3-M10
160	3	53.975	75	40	76	3-M10
	4	63.513	85	40	70	3-M10
	5	82.563	104.8	40	70	4-M10
	6	106.375	133.4	40	70	4-M12
200	3	53.975	75	50	90	3-M10
	4	63.513	85	50	90	3-M10
	5	82.563	104.8	50	90	4-M10
	6	106.375	133.4	50	90	4-M12
250	5	82.563	104.8	70	96.5	4-M10
	6	106.375	133.4	70	96.5	4-M12
	8	139.719	171.4	80	96.5	4-M16
315	6	106.375	133.4	100	113	4-M12
	8	139.719	171.4	100	113	4-M16
	11	196.869	235	100	113	6-M20
400	6	106.375	133.4	100	126	4-M12
	8	139.719	171.4	130	126	4-M16
	11	196.869	235	135	126	6-M20
500	8	139.719	171.4	135	144	4-M16
	11	196.869	235	190	144	6-M20
630	8	139.719	-	135	165	4-M16
	11	196.869	235	190	165	6-M20
	15	285.775	330.2	260	165	6-M24

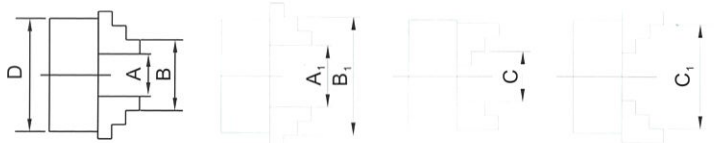
DIN55029 Self-Centering Chucks



DIRECT MOUNTING(Camlock)
Form D Mounting
With studs and camlocks
Self-Centering Chucks
DIN55029

Dia. D	short taper	D1	D2	D3	H1	z-d
100	3	53.975	70.6	20	60	3-M10x1
125	3	53.975	70.6	25	63.5	3-M10x1
	4	63.513	82.6	25	63.5	3-M10x1
160	3	53.975	70.6	40	76	3-M10x1
	4	63.513	82.6	40	70	3-M10x1
	5	82.563	104.8	40	70	6-M12x1
	6	106.375	133.4	40	70	6-M16x1.5
200	3	53.975	70.6	50	90	3-M10x1
	4	63.513	82.6	50	90	3-M10x1
	5	82.563	104.8	50	90	6-M12x1
	6	106.375	133.4	50	90	6-M16x1.5
250	5	82.563	104.8	70	96.5	6-M12x1
	6	106.375	133.4	70	96.5	6-M16x1.5
	8	139.719	171.4	80	96.5	6-M20x1.5
315	6	106.375	133.4	100	113	6-M16x1.5
	8	139.719	171.4	100	113	6-M20x1.5
	11	196.869	235	100	113	6-M22x1.5
400	6	106.375	133.4	100	126	6-M16x1.5
	8	139.719	171.4	130	126	6-M20x1.5
	11	196.869	235	135	126	6-M22x1.5
500	8	139.719	171.4	135	144	6-M20x1.5
	11	196.869	235	190	144	6-M22x1.5
630	8	139.719	171.4	135	165	6-M20x1.5
	11	196.869	235	190	165	6-M22x1.5
	15	285.775	330.2	260	165	6-M24x1.5

Clamping Range

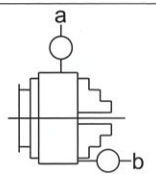
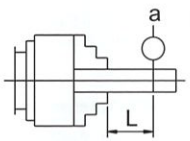
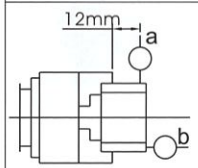
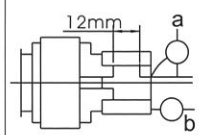


Unit:mm

Dia.	Outside jaw		Inside jaw
	$A\text{-}A_1$	$B\text{-}B_1$	$C\text{-}C_1$
80	2-22	25-70	22-63
100	2-30	30-90	30-80
125	2.5-40	38-125	38-110
160	3-55	50-160	55-145
200	4-85	65-200	65-200
250	6-110	80-250	90-250
315	10-140	95-315	100-315
400	15-210	120-400	120-400
500	25-280	150-500	150-500
630	50-350	170-630	170-630

Chucks Accuracy

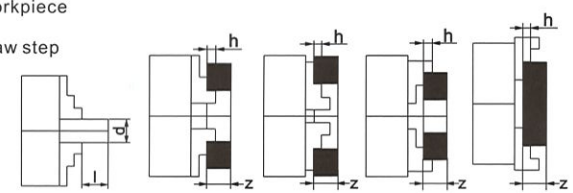
Unit:mm

Inspection Item		Chuck Dia.			
		80 100 125 160	200 250	315 400	500 630
	a	0.030	0.040	0.060	0.080
	b	0.030	0.040	0.065	0.080
	a	0.060 L=50	0.080 L=50(200mm) L=75(250mm)	0.100 L=75	0.120 L=100
	a	0.060	0.075	0.100	0.120
	b	0.020	0.030	0.050	0.060
	a	0.060	0.075	0.100	0.120
	b	0.020	0.050	0.050	0.060

Safe Operating Parameters

Conditions:

- l&z=maximum length of workpiece
- d=workpiece diameter
- h=height of the clamping jaw step
- workpiece is clamped into the chuck jaws with out additional support.



Chuck Diameter	80	100	125	160	200	250	315	400	500	630	800
l	1.2 x d						1.5 x d			1 x d	
z	4 x h										

Total Gripping Force Of All Self-Centering Chucks (daN)

Chuck Diameter	80	100	125	160	200	250	315	400	500	630	800
Steel & Cast Iron Body Chucks	800	1300	1900	2400	3000	3700	4400	5200	5800	6500	8000

Recommended Maximum Speeds for Self-Centering Chucks(RPM)

Chuck Diameter	80	100	125	160	200	250	315	400	500	630	800
Cast Iron body	4000	3500	3000	2500	2000	1600	1200	1000	800	800	300
Steel body	5500	4700	4300	4000	3500	3000	2300	1800	1200	1200	450

Value of Balancing For Steel Body Self-Centering Chucks Only.

Chuck Diameter	80	100	125	160	200	250	315	400	500	630
Balancing (gcm)	11	16	23	32	45	63	90	140	300	640

Lathe Chuck Safety Conditions

Due to chuck rotating speeds and cutting forces during machining, care should be taken to insure the proper after safe use of your chuck.

Cleaning should be done often for safety purposes as well as to provide a long work life for your chuck. Proper maintenance will insure your satisfaction.

PRIOR TO OPERATING YOUR LATHE CHUCK, PLEASE:

Read the chuck manual.

Do not start the lathe until all is clear. A collision between the chuck and lathe will cause damage to both.

Do not use the chuck on heavy work where the chuck jaws project appreciably from the chuck body.

Select the correct size chuck for the application.

Do not clamp long work pieces in the chuck without additional support, this can cause heavy damage to the lathe and work environment .Refer to the table on this page for safety parameters.

Always remove the chuck wrench before starting the machine.

Do not remove the safety spring from the chuck wrench.

Never operate the chuck if any parts are damaged ,missing or cracked.

Do not tamper with the chuck. If an inaccuracy is found, check the spindle nose or adapter plate for true-running and make sure there is no dirt or foreign matter between the mounting faces.

Never exceed maximum speed (RPM) of the chuck. The MAX RPM is stamped on the chuck face.

Periodically inspect and service chucks for wear to avoid inadequate workholding conditions.

Be sure top jaws are securely bolted to the master jaws.

Never do any unauthorized chuck modifications.

Always keep your chuck clean and lubricated.

Spare Part Listing


■ Hard Outside Jaw


■ Hard Inside Jaw


■ Soft solid Jaw


■ Hard Master Jaw


■ Hard Top Jaw


■ Soft Top Jaw


■ Soft Two-Piece Jaw


■ Hard Two-Piece Jaw


■ Scroll Plate


■ Pinion


■ Wrench


■ Stud and Locknut


■ Stud for camlock


■ Pinion holder

Adapter for Chuck

We supply Fully machined adapter and Semi-machined adapter.
Fully Machined Adapter - do not require any addtional machining.
Semi-machined adapter- face for spindle be ready,and face for chuckneed to drill holes accordingly.

The most popular spindle types are A /DIN55026 (short tapered), C/DIN55027(DIN),D/DIN 55029 (camlock).

- **DIN55026,Spindle Type A1&A2**

Type A1 has tapped holes on both inner nd outer bolt circles.

Type A2 does not have holes in the inner bolt circles.

- **DIN55027,Spindle Type C**

- **DIN55029,Camlock Spindle Type D1**

Packing list for Self-centering Chucks

No	Description	QTY.	Note
1	Chuck	1 piece	
2	Inside jaws-set	1 set	For Solid jaws
3	Chuck wrench	1 piece	With spring
4	Mounting Screw	3pcs(≤400) 6pcs (≥500)	
5	Hex Wrench	1 piece	
6	Instruction Manual	1	