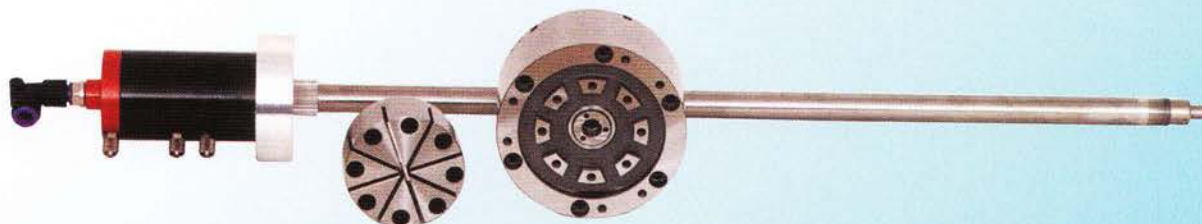
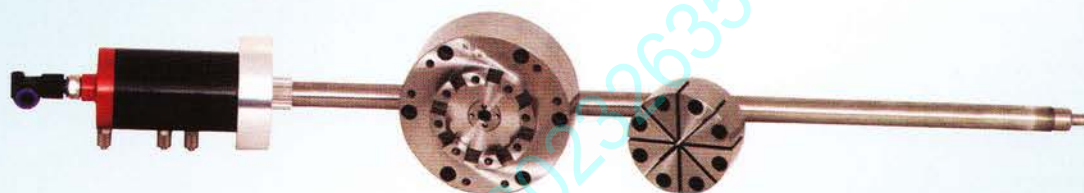


# P.M.L - P.A.L

## PNEUMATIC HIGH PRECISION CHUCKS



*We provide the future technologies today!*



MMO INDUSTRY CO LTD 0769-82288260 lx@kapan.cc



# Diaphragm Chucks

## Main Features

### ✓ Repeatability

Within 0.0005mm of repeatability is guaranteed. Assures super precision machining.

### ✓ Stable Clamping

Even over 8000rpm, thanks to unique design and mechanism, the jaw is very hard to be affected by the centrifugal force. Sub-micron's accuracy and super-fine finish is assured under high-speed machining.

### ✓ Flex. Clamping Power

In case of both, internal and external chucking, the air pressure can be adjusted with great flexibility to the value which suits application by an air-regulator. This feature gives the machinist a possibility to machine parts with "thin walls" without damaging the dimensions of the parts.

### ✓ Maintenance Free

No lubrication is necessary. A unique design prevents ingress of cutting chips, sludge, etc. into chuck body. Thus, this D.C. is ideal for any CNC turning, vertical machining and precise grinding operation.

### ✓ High Durability/Stability

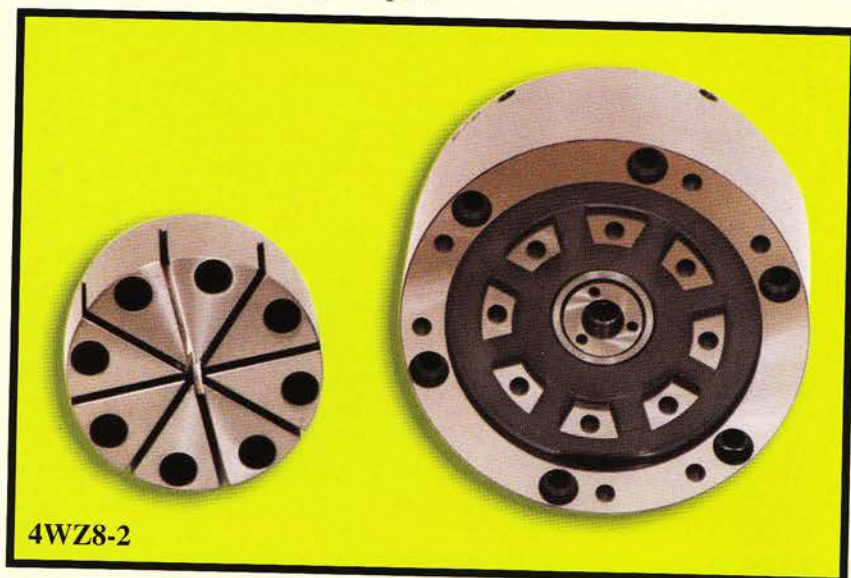
Jaw and front cover are made of special materials which have been heat treated specifically to maintain rigidity and accuracy over a long period.

### ✓ Flex. Application

Both internal and external chucking, is possible with the same chuck. Back stops can be designed not only inside of the work piece, but also outside of it, by utilizing the external flange.

### ✓ High Speed Turning Ability

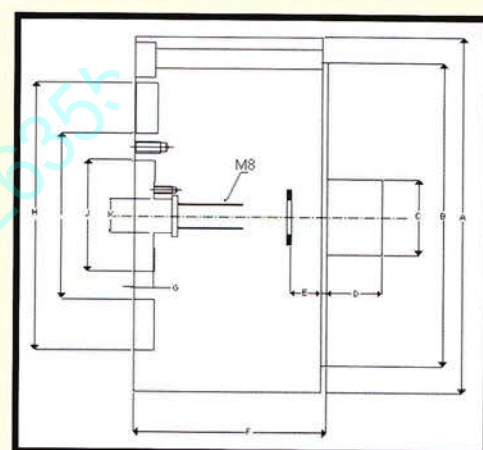
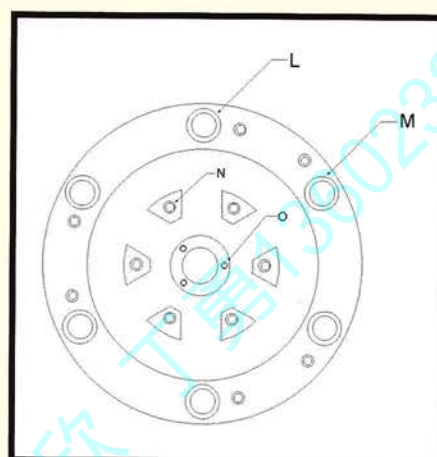
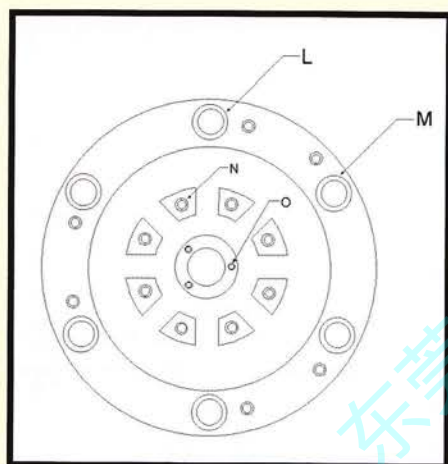
The standard model can be rotated up to 8,000rpm. The special model includes internal weights counter balance system, which allows rotating the chuck more than 11,000rpm!





# Diaphragm Chucks - Specifications and Dimensions

Model	No. splits	A	B	C	D	E	F	G	I	J	K	L,M-PCD	M	N	N-PCD	O	weight-kg
3DCB	8/6	80	50.8	21	17	7.2	45	5	38	25	7	70		M4-8	31.5		1.3
3DCB-Q	8/6	80	50.8				42	5	38	25	7	70		M4-8	31.5		1.25
4DC	8/6	101	82.55	22	14.5	7.2	47.2	8	62	44	10	88.9	M5-6	M5-8	52	3-M3	2
4-DCB	8/6	101	82.55	22	14.5	7.2	50	8	62	44	10	88.9	M5-6	M5-8	52	3-M3	2.3
4-DCB-Q	8/6	101	82.55				50	8	62	44	10	88.9	M5-6	M5-8	52	3-M3	2
4DCR	8/6	100	82.55	21	17	7.5	53	6	48	32	10	88.9	M5-6	M5-8	40	3-M3	2.3
4DCBR	8/6	100	82.55	23	17	8	53	6	48	32	10	88.9	M5-6	M5-8	40	M3-3	2.4
4DCth12	8/6	101	82.55				47.2	8	62	44	10	88.9	5M-6	M5-8	52		2
4DCth13	8/6	101	82.55				47.2	8	62	44	10	88.9	5M-6	M5-8	52		2
5DCth26	8/6	125	101.6				59	9	75	55	26	114.3		M5-8	65		4
6DC	8/6	150	125	22	13.2	8.5	51.5	10	80	60	10.5	135.89		M6-8	70	M3-3	5.2
6DCB	8/6	150	125	22	13.2	8.5	53	10	80	60	10.5	135.89	M5-6	M6-8	70	M3-3	5.5
6DCB-Q	8/6	150	125				53	8	80	60	10.5	135.89	M5-6	M6-8	70	M3-3	5.2
6DCBR	8/6	150	125	22	13.2	8.5	61	8	80	60	10.5	135.89	M5-6	M6-8	70	M3-3	5.8
6DCth40	8/6	150	125				51.5	10	80	60		135.89	M5-6	M6-8	70		5





# Examples

- ◆ VTR Drum
- ◆ Motor parts for OA equipment
- ◆ HDD parts
- ◆ Polygon mirror
- ◆ Parts for space & comm. equipment



## Jaws of D.C

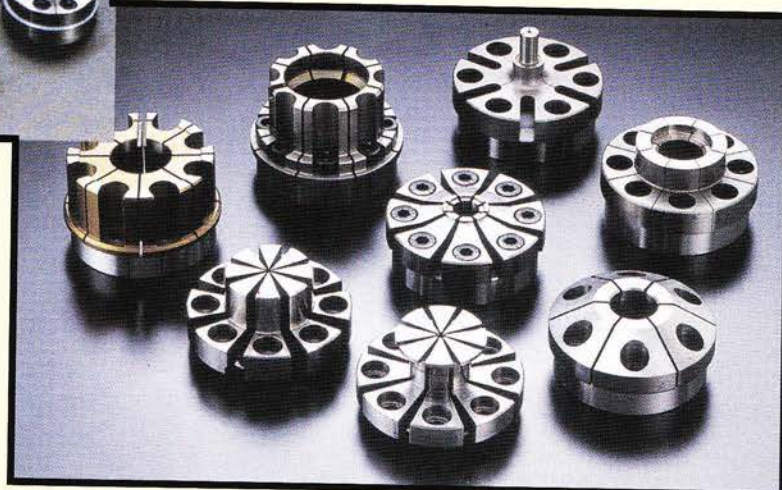
We have 2 standard types of jaws - A & B.

We produce any kind of jaws according to customer demands.

The jaws can be hardened and ground.

You can choose the shape, the dimensions, and the material of the jaws.

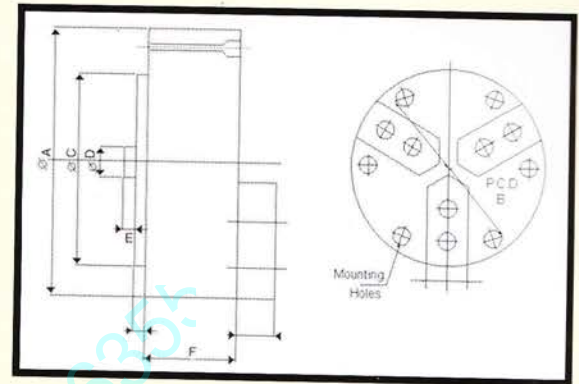
SIZE	TYPE A			TYPE B		
	$\phi A$	$\phi C$	$\ell 1$	$\phi B$	$\phi D$	$\ell 2$
1	62	44	20/25/30	option	44	20/25/30
2	55	35	25	option	35	25
3	52	32	23	option	32	23





# Advantages of pneumatic Sliding Jaws Chucks

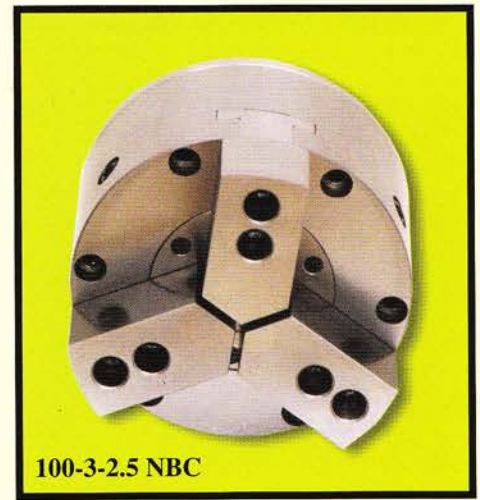
- ✓ Up to 0.0015mm chucking repeatability
- ✓ Accurate thin wall turning and grinding
- ✓ Integral and adjustable pneumatic power
- ✓ Quick-acting operation
- ✓ High speed performance
- ✓ Compact structure
- ✓ Minimum weight and volume
- ✓ Easily mounted
- ✓ Fits to pneumatic and electric systems
- ✓ Foolproof safety
- ✓ 4-ways Air Feed control valve
- ✓ C.N.C adaptable
- ✓ High reliability



## Sliding Jaws Chucks

Model	No. of jaws	Stroke	Max r.p.m	Gripping force per jaw - 6 bars	A	B	C	D	E	F
<b>Turning chucks</b>										
64-3-2 BC	3/2	2mm	6000	100	64	52	50	20.7	8.5	42
80-3-2.5 BC	3/2	2.5/1.2mm	5800	120	80	70	60	20.7	18	55.3
83-3-2.5 NBC	3/2	2.5/1.2mm	6000	140	83	70	60	20.7	18	55.45
80/115-3-2.5 NBC	3/2	2.5/1.2mm	6000	320	115	104	93.5	20.7	18	62.6
100-3-2.5 BC	3/2	2.5/1.2mm	5000	210	100	88.9	82.55	20.7	18	55.45
100-3-2.5 NBC	3/2	2.5/1.2mm	5500	220	100	88.9	82.55	20.7	18	55.45
105/125-3-2.5 NBC	3/2	2.5/1.2mm	4300	700	125	114.3	101.6	20.7	18	73.8
125-3-2.5 BC	3/2	2.5/1.2mm	4300	330	125	114.3	101.6	20.7	18	55.45
125-3-2.5 NBC	3/2	2.5/1.2mm	4300	330	125	114.3	101.6	20.7	18	55.45
150-3-2.5 BC	3/2	2.5/1.2mm	4000	350	150	135.8	125	20.7	18	55.45
150-3-2.5 NBC	3/2	2.5/1.2mm	4000	350	150	135.8	125	20.7	18	55.45
200-3-2.5 BC	3/2	2.5/1.2mm	3500	900	200	183	167.6	20.7	6	80.45
250-3-2.5 BC	3/2	2.5/1.2mm	2500	900	250	233.7	215.8	20.7	6	80.45
<b>Grinding Chucks</b>										
87-3-2.5 BCG	3	2.5mm	5000	120	87	70	60	20.7	18	56.45
107-3-2.5 BCG	3/2	2.5mm	4500	210	107	88.9	82.55	20.7	18	56.45
135-3-2.5 BCG	3	2.5mm	4300	350	135	110	101.6	20.7	18	60
157-3-2.5 BCG	3/2	2.5mm	4000	350	157	135.8	125	20.7	18	55.45
214-3-2.5 BCG	3	2.5mm	3500	900	214	183	167.6	20.7	6	80.45
270-3-2.5 BCG	3	2.5mm	2500	900	270	233.7	215.8	20.7	6	80.45
<b>Milling (Stationary) Chuck</b>										
64-3-2 ST	3/2	2mm			64	52				42
80-3-2.5 ST	3/2	2.5/1.2mm		120	80	70				55.45
100-3-2.5 ST	3/2	2.5/1.2mm		210	100	88.9				55.45
125-3-2.5 ST	3/2	2.5/1.2mm		330	125	114.3				55.45
150-3-2.5 ST	3/2	2.5/1.2mm		350	150	135.8				55.45
200-3-2.5 ST	3/2	2.5/1.2mm		900	200	183				80.45
250-3-2.5 ST	3/2	2.5/1.2mm		900	250	233.7				80.45
150/200-3-2.5 BMC	3/2	2.5/1.2mm		350	200					
200/250-3-2.5 BMC	3/2	2.5/1.2mm		900	250					

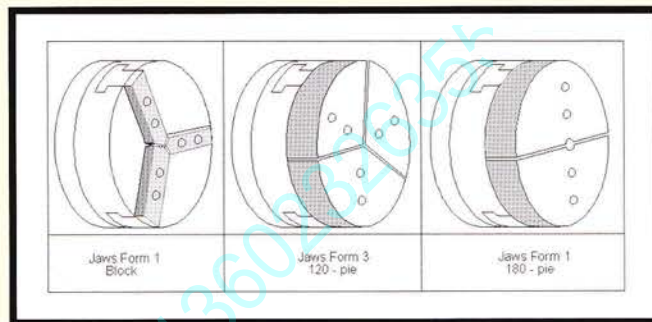




## The Jaws

Our standard jaws are of three types:

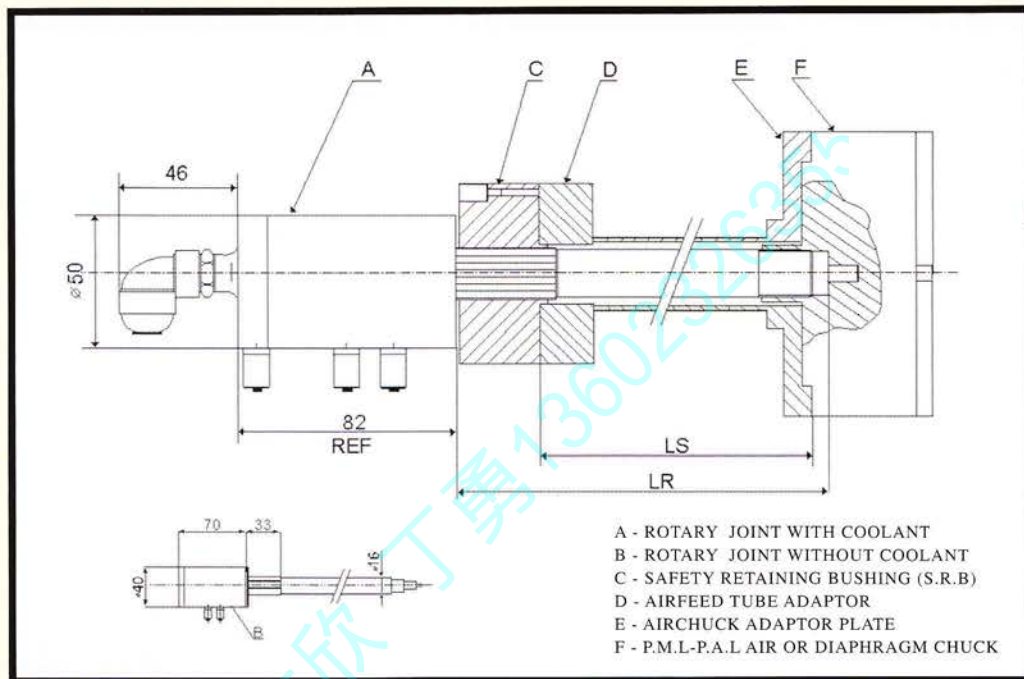
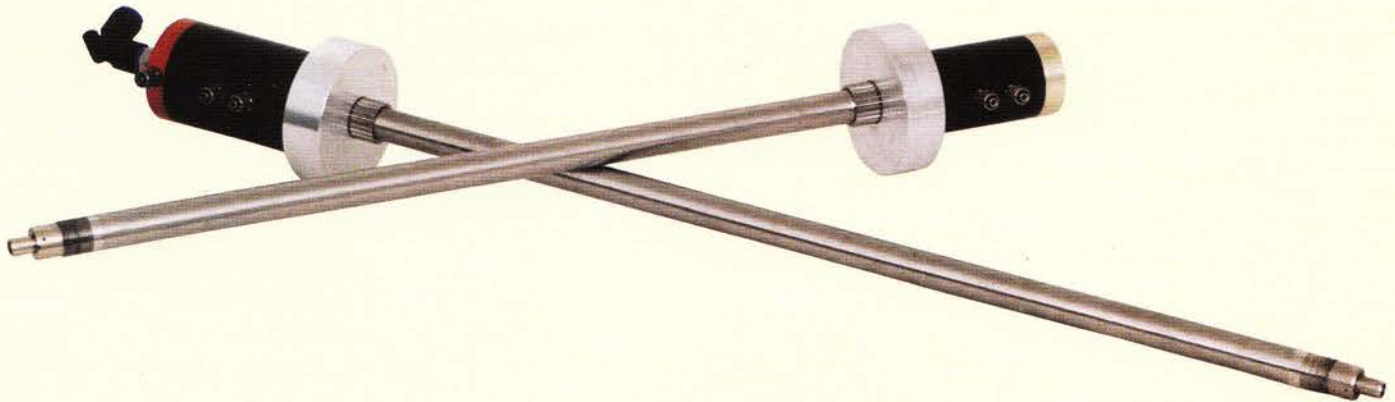
1. Block type
2. Pie type
3. Half circle type



- ◆ The jaws can be manufactured from most materials - Aluminum, Steel, Plastic, etc.
- ◆ The jaws can be hardened and ground to specific sizes, dimensions and shapes.
- ◆ Every model of chuck can be manufactured with 2 or 3 jaws. Its' stroke can be changed from 0.7 mm up to 5 mm.
- ◆ The heights of the standard jaws are in inch-dimensions (i.e. 1"-25mm, 1.5"-38.1mm, etc.).



## P.M.L - P.A.L AIR FEED TUBE ASSEMBLY



## BC/2 TYPE:

### A.F.T without through-hole coolant application.

## NBC/3 TYPE:

### A.F.T with through-hole coolant application.

## \* IMPORTANT

When ordering an A.F.T. you specify the LR-length of A.F.T.  
 $LR = LS \text{ (spindle length)} + (7 \sim 11 \text{ mm}) * + E \text{ (chuck adaptor)}$   
 $+ D \text{ (AFT adaptor)} + C \text{ (S.R Bushing)} + S \text{ (Max. 5mm)}.$

\*Dimension differs according to the type of chuck: 7mm for types up to 5", and 11mm for types 6" and above.



We produce special chucks according to customers' demands & quantity

**ON TIME**

