

## HVR advantages

1

National High-Tech enterprise,  
the number of patterns are far ahead than others

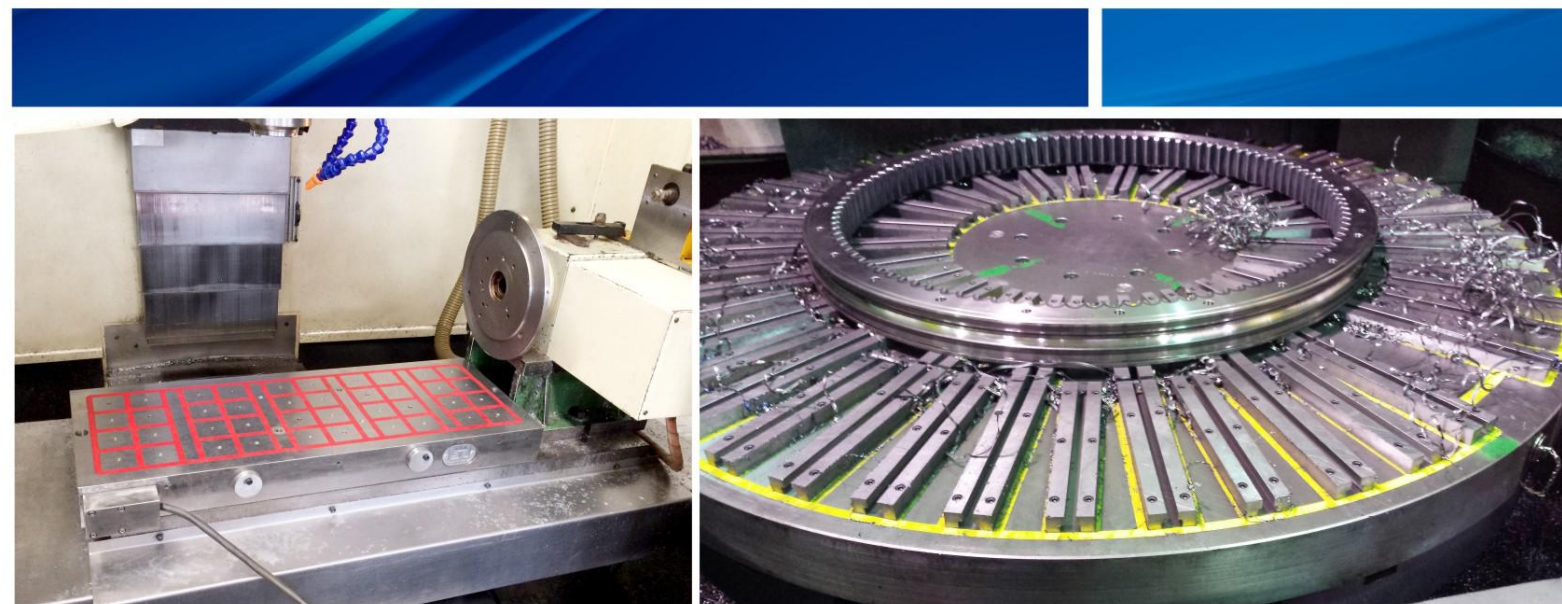
2

Design and production products strictly  
according to the European standard,  
obtain CE certification

3

Reliable product quality ,  
Insured by China Ping An Insurance Company

## Electro Permanent Magnet Chuck



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HVR Magnetics Co., Ltd

**Focusing on the development of electro permanent magnet technology, Quality first, continuous innovation**



## Company profile

HVR Magnetics co.,Ltd,situated in the Liyu Industrial Park,Tianyuan District,Zhuzhou ,Hunan,is a high tech exported oriented company,devoted into research & development and manufacturing of electro permanent lifting magnets,electro permanent magnetic chucks. Magnetic quick die change system, magnetic welding fixture, etc.

HVR Magnetics co.,Ltd has a experienced group of senior engineers with over 10 years experience on designing and manufacturing electro permanent magnets and related products.We able to offer customers ideal solution for various application difficulties.Advanced production and machining equipment and improved quality control system insured the reliability and swiftness of providing high quality product for customers efficiently.Our products have been widely used in metallurgy,machinery,shipbuilding,power supply,automobile manufacturer and rail transport industries and we won customers from Europe,USA,Singapore,Japan,South Korea,Brazil and Russia,etc.

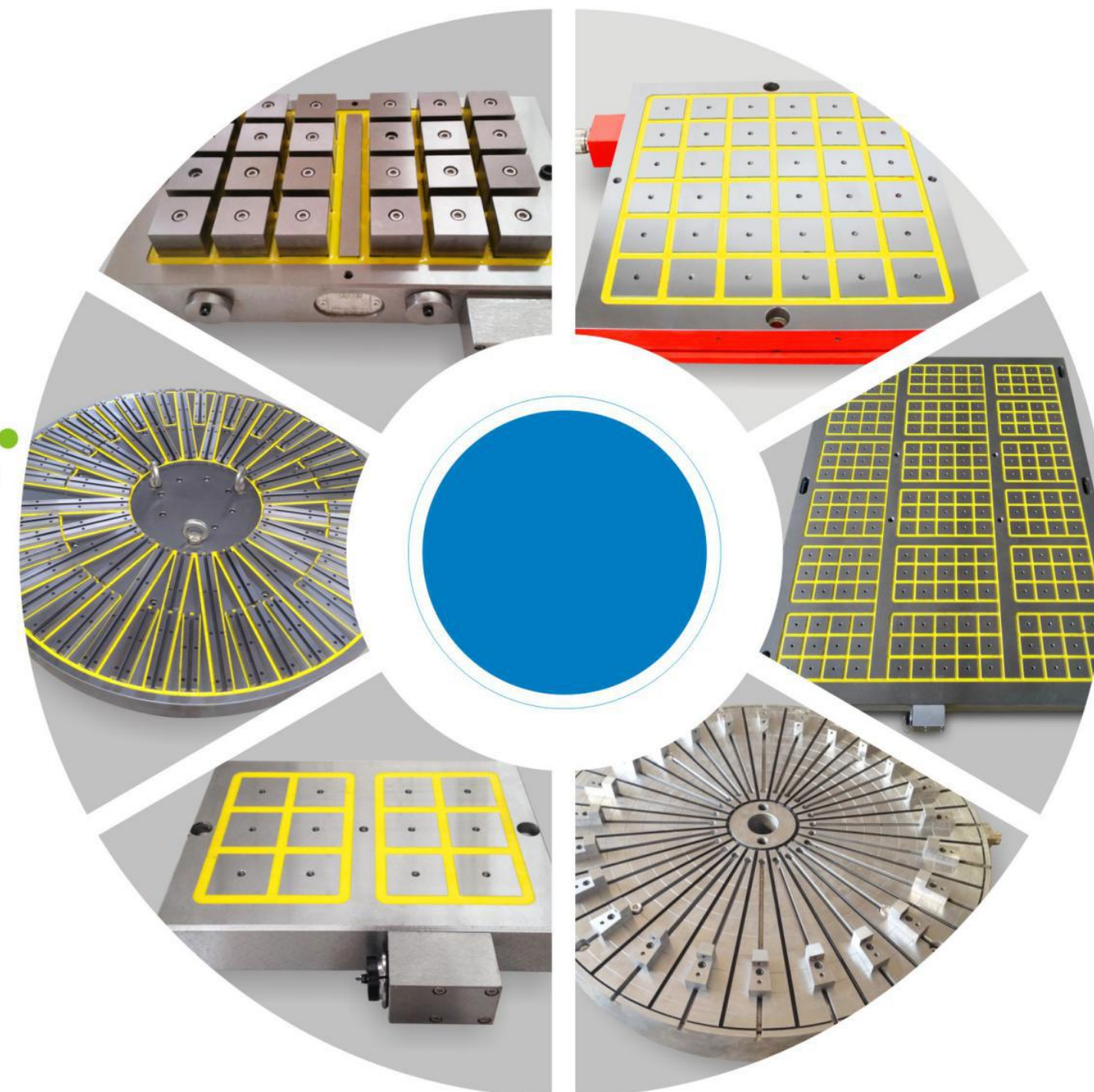
Our product has passed the CE certificate and HVR Magnetics co.,Ltd sticcked to international requirement. Honest,vigorous and reliable is our principle for production,marketing and trade.Based on win-win foundation ,HVR Magnetics co.,Ltd seek cooperations with customers from all over the world and build a better future together.

## Qualification certificate



## Some customers





### Electro Permanent Magnetic Chuck

Magnet chuck serve as machining processing special fixture, always playing important role, experienced three generations technical update from electromagnet chuck, permanent magnet chuck and electro permanent magnet chuck. From about 1980, With high performance NdFeB magnet material turn up, using NdFeB magnet material developing magnet tools becoming tendency, greatly promoted electro permanent magnet chuck development and application.



## HVR electro permanent magnet chuck unique advantages

### Uniform clamping force over the entire contact area

1. The clamping force can arrive to 16kg/cm<sup>2</sup>, it will not decrease with time . .
2. The depth of the magnet force is controlled under 16mm ,it will not influent the workholding machining and surface cleaning
3. Full contact the work piece area, no deformation

### Safety and energy saving

1. Having magnetic force on the working after activated by electricity at 0.6-3 second start ,the work piece will not fall down without electricity .
2. It can saving 95% energy than traditional chuck .
3. Magnetic force keeps on even power failure or cable broken

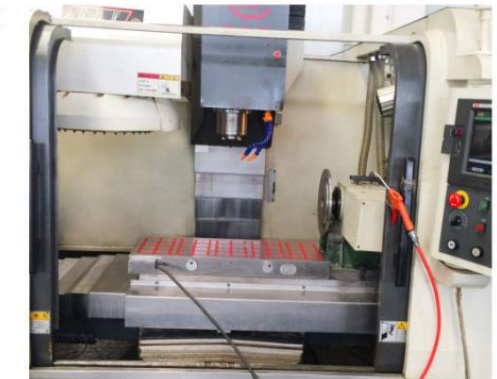
### Simple and quick operating

1. It can be finished working at 0.6-3 seconds by pressing one control button .
2. With one step, 5 sides of work piece could be clamped
3. Only needs press bottom, MAG and DEMAG could be achieved



### High accuracy

1. It can connecting work piece uniformly ,and fix work piece well on the working to extend the life of cutting tools .
2. It suitable high speed cutting ,and with high accuracy cutting .
3. Suit for high precision machining operation, no hurt of machining tool
4. Will no magnetization machining tool



### Space saving and maintenance-free

1. It will not occupied the machining working space ,and work piece size can be larger than machining work platform .
2. The chucks surface are corrosion-resistant and impact-resistant, without wearing parts inside ,it can be arrived maintenance-free .
3. No needs electric energy during the working process  
Long working life, no maintenance cost



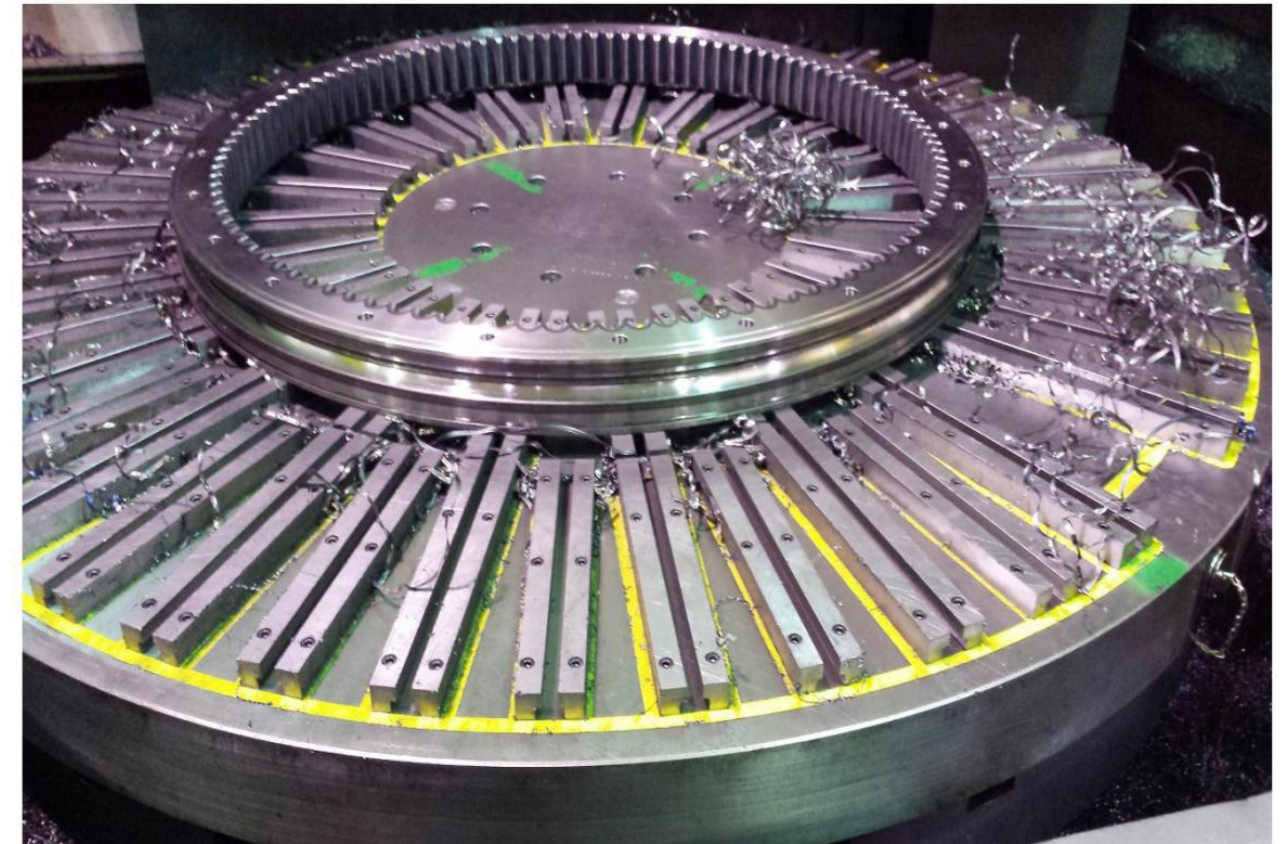
## Advantages of all-steel surface electro permanent magnet chuck

1. Cooling water and oil will not enter into the magnet chuck body
2. With no epoxy resin sealing, guarantee the most complex machining requirement
3. longer working life and no maintenance cost



## HVR Magnetic Chuck **VS** Traditional Clamping

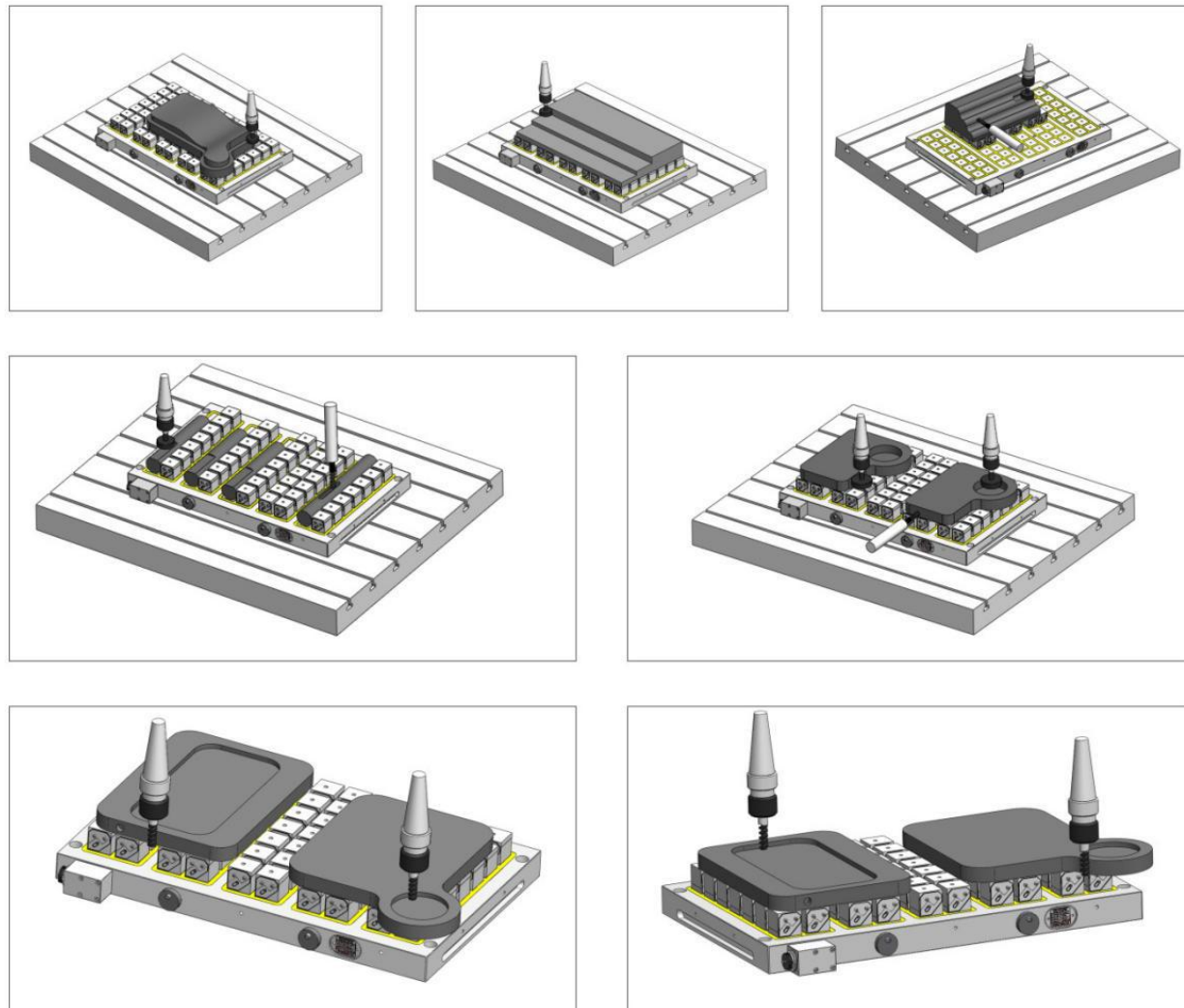
Compare content	Traditional clamping		Electro permanent magnet chuck
	Electro magnet chuck	Permanent magnet chuck	
<b>Magnet source</b>	Magnetic force generated by current through coil	From one permanent magnet material NdFeB	From two permanent magnet materials: NdFeB and AlNiCo
<b>Magnetization working condition</b>	Using electromagnetic field generated by current to clamp work piece	From one permanent magnet material NdFeB	Magnetic field generated by two kinds of permanent magnet material working on work piece
<b>Demagnetization working condition</b>	Magnet force disappeared when power failure	One type of permanent magnet material neutralize magnet field, magnet field do not applied in the work piece	Two types of permanent magnet materials neutralize magnet field, magnet field do not applied in the work piece
<b>Magnet field switching method</b>	Using power supply to switch magnet force on and off	Mechanical switch the magnet force	Using electrical current to switch magnet force
<b>Safety</b>	Magnet force disappeared when power failure	Not suitable for clamp large work piece	No power supply is request during the working process, permanent safety.
<b>Magnetic circuit structure</b>	Deep magnetic field, very hard to do magnet force regulation.	Magnet force cannot regulate, only suit for small type requirement.	Square magnet pole, medium magnet field, magnet force could be regulate.
<b>Maintainability</b>	Magnet coil needs replace frequently, high maintenance cost.	Existed the mechanical parts, high maintenance cost.	Magnet force without decrease, magnet mold no maintenance cost
<b>Running cost</b>	High electrical power consumption, high running cost.	Needs manual operation to switch the magnet field.	Only needs electricity during the magnet field switch period, low running cost.
<b>MAG and DEMAG cycle</b>	More than 15 seconds	8-12 seconds	small type less than 1 second, large type less than 4 seconds



### Suitable for medium and small parts

**Feature:**

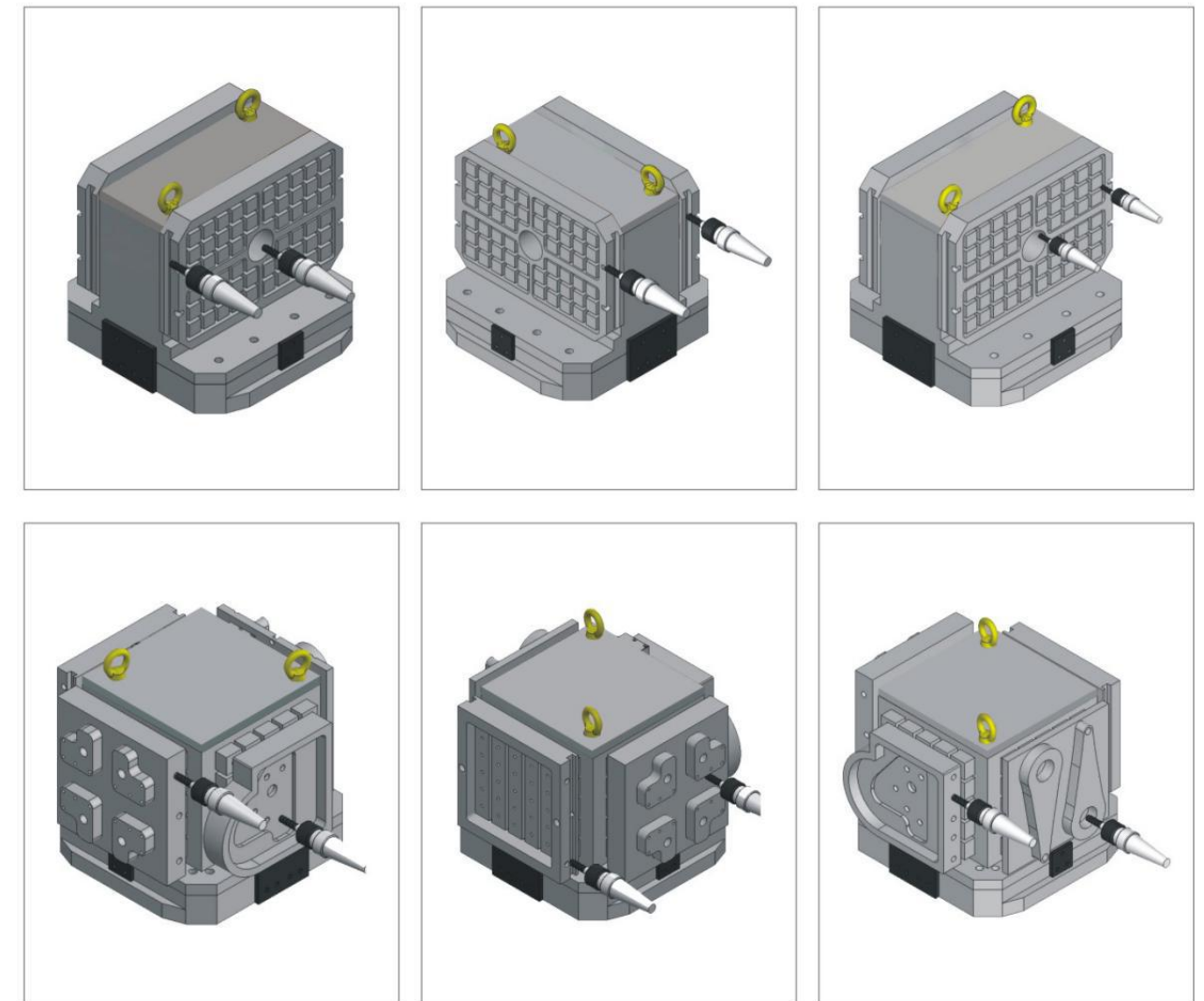
- 1 Super magnet clamping force 16KG/cm<sup>2</sup>
- 2 within 3 seconds controller operation for magnet clamping force ON and OFF, No electrical power supply required to keep the magnet chuck force on
- 3 No power supply to keep magnetic chuck On, it could be used for long time and never get temperature to affect the accuracy of work piece.
4. Can do 5 sides machining, no obstacle movement of cutters during machining, and one cycle to finish a work piece. Helps in achieving best accuracy and increase efficiency a lot
5. Easy and convenient to clamp a work piece, shorten clamping time.



### Suitable for horizontal CNC cutting machine application

**Feature:**

1. Super power magnetic force 16kg/cm<sup>2</sup> .
2. Control each working face for ON and OFF, so it can be load and unload the work piece on each working face. 3~10 seconds control for power ON and OFF.
3. Each type can be clamp multi-work piece machining, reduce unnecessary investment.
4. Can do 5 sides machining, un-obstructed movement of cutters during machining. One cycle to finish a work piece. helps in achieving best machining accuracy and increases efficiency a lot.



### Electro permanent magnetic chuck for milling machine

#### 50X50 Square magnet pole magnet chuck

Model	Data	Magnet pole no.	Overall dimension(mm)				Weight(kg)	
			L	W	H(Standard)	H(Strong)	M1(Standard)	M2(Strong)
DYCX-1818P50		4	180	180	56	71	14	18
DYCX-1833P50		8	180	330	56	71	26	33
DYCX-1848P50		12	180	480	56	71	38	48
DYCX-1863P50		16	180	630	56	71	50	64
DYCX-1878P50		20	180	780	56	71	62	79
DYCX-1893P50		24	180	930	56	71	74	94
DYCX-18108P0		28	180	1080	56	71	86	109
DYCX-2418P50		6	240	180	56	71	19	24
DYCX-2433P50		12	240	330	56	71	35	44
DYCX-2448P50		18	240	480	56	71	51	65
DYCX-2463P50		24	240	630	56	71	67	85
DYCX-2478P50		30	240	780	56	71	83	105
DYCX-2493P50		36	240	930	56	71	99	125
DYCX-24108P0		42	240	1080	56	71	115	145
DYCX-3018P50		8	300	180	56	71	24	30
DYCX-3033P50		16	300	330	56	71	44	56
DYCX-3048P50		24	300	480	56	71	64	81
DYCX-3063P50		32	300	630	56	71	84	106
DYCX-3078P50		40	300	780	56	71	104	131
DYCX-3093P50		48	300	930	56	71	123	156
DYCX-30108P50		56	300	1080	56	71	143	182
DYCX-3618P50		10	360	180	56	71	29	36
DYCX-3633P50		20	360	330	56	71	53	67
DYCX-3648P50		30	360	480	56	71	76	97
DYCX-3663P50		40	360	630	56	71	100	127
DYCX-3678P50		50	360	780	56	71	124	158
DYCX-3693P50		60	360	930	56	71	148	188
DYCX-36108P50		70	360	1080	56	71	172	218
DYCX-4218P50		12	420	180	56	71	33	42
DYCX-4233P50		24	420	330	56	71	61	78
DYCX-4248P50		36	420	480	56	71	89	113
DYCX-4263P50		48	420	630	56	71	117	148
DYCX-4278P50		60	420	780	56	71	145	184
DYCX-4293P50		72	420	930	56	71	173	219
DYCX-42108P50		84	420	1080	56	71	201	254
DYCX-4818P50		14	480	180	56	71	38	48
DYCX-4833P50		28	480	330	56	71	70	89
DYCX-4848P50		42	480	480	56	71	102	129
DYCX-4863P50		56	480	630	56	71	134	170
DYCX-4878P50		70	480	780	56	71	166	210
DYCX-4893P50		84	480	930	56	71	197	250
DYCX-48108P50		98	480	1080	56	71	229	291
DYCX-5418P50		16	540	180	56	71	43	55
DYCX-5433P50		32	540	330	56	71	79	100
DYCX-5448P50		48	540	480	56	71	115	145
DYCX-5463P50		64	540	630	56	71	151	191
DYCX-5478P50		80	540	780	56	71	186	236
DYCX-5493P50		96	540	930	56	71	222	282
DYCX-54108P50		112	540	1080	56	71	258	327

#### 70X70 Square magnet pole magnet chuck

Model	Data	Magnet pole no.	Overall dimension(mm)				Weight(kg)	
			L	W	H(Standard)	H(Strong)	M1(Standard)	M2(Strong)
DYCX-2222P70		4	220	220	56	71	21	27
DYCX-2242P70		8	220	420	56	71	41	52
DYCX-2262P70		12	220	620	56	71	60	77
DYCX-2281P70		16	220	810	56	71	79	100
DYCX-22100P70		20	220	1000	56	71	97	123
DYCX-22120P70		24	220	1200	56	71	117	148
DYCX-3022P70		6	300	220	56	71	29	37
DYCX-3042P70		12	300	420	56	71	56	71
DYCX-3062P70		18	300	620	56	71	82	104
DYCX-30281P70		24	300	810	56	71	108	136
DYCX-30100P70		30	300	1000	56	71	133	168
DYCX-30120P70		36	300	1200	56	71	159	202
DYCX-3822P70		8	380	220	56	71	37	47
DYCX-3842P70		16	380	420	56	71	71	90
DYCX-3862P70		24	380	620	56	71	104	132
DYCX-3881P70		32	380	810	56	71	136	173
DYCX-38100P70		40	380	1000	56	71	168	213
DYCX-38120P70		48	380	1200	56	71	202	256
DYCX-4622P70		10	460	220	56	71	45	57
DYCX-4642P70		20	460	420	56	71	85	108
DYCX-4662P70		30	460	620	56	71	126	160
DYCX-4681P70		40	460	810	56	71	165	209
DYCX-46100P70		50	460	1000	56	71	204	258
DYCX-46120P70		60	460	1200	56	71	244	310
DYCX-5422P70		12	540	220	56	71	53	67
DYCX-5442P70		24	540	420	56	71	100	127
DYCX-5462P70		36	540	620	56	71	148	188
DYCX-5481P70		48	540	810	56	71	194	245
DYCX-54100P70		60	540	1000	56	71	239	303
DYCX-54120P70		72	540	1200	56	71	287	363
DYCX-6222P70		14	620	220	56	71	60	77
DYCX-6242P70		28	620	420	56	71	115	146
DYCX-6262P70		42	620	620	56	71	170	216
DYCX-6281P70		56	620	810	56	71	222	282
DYCX-62100P70		70	620	1000	56	71	274	348
DYCX-62120P70		84	620	1200	56	71	329	417
DYCX-7022P70		16	700	220	56	71	68	86
DYCX-7042P70		32	700	420	56	71	130	165
DYCX-7062P70		48	700	620	56	71	192	243
DYCX-7081P70		64	700	810	56	71	251	318
DYCX-70100P70		80	700	1000	56	71	310	393
DYCX-70120P70		96	700	1200	56	71	372	471
DYCX-7822P70		18	780	220	56	71	76	96
DYCX-7842P70		36	780	420	56	71	145	184
DYCX-7862P70		54	780	620	56	71	214	271
DYCX-7881P70		72	780	810	56	71	280	354
DYCX-78100P70		90	780	1000	56	71	345	438
DYCX-78120P70		108	780	1200	56	71	414	525



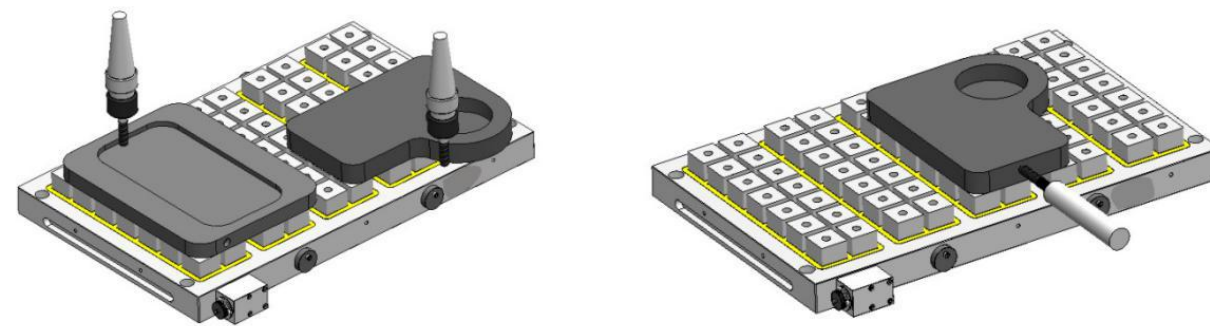
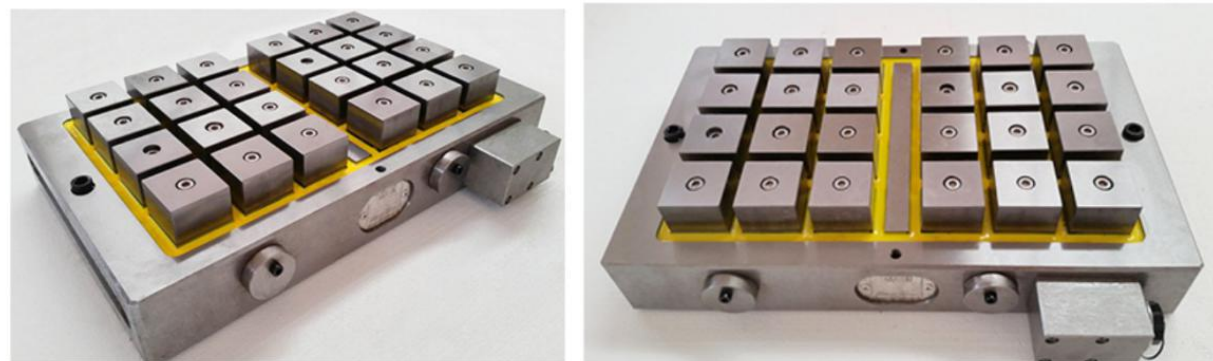
### Special accessory – fixed pole extension

**Feature:**

Cooperate with the electro permanent magnetic chuck series to enhance more functions on work holding. For example, it can be used for the clamping and processing of round shaped objects and irregular shaped objects. The induction blocks may be also used for positioning during the process, and angle processing etc.

Can increase the usage life of the magnetic chuck: The induction blocks are suggested to be used as possible for processing. Since the object does not need to directly contact the magnetic chuck surface, the magnetic chuck surface can always remain brand new.

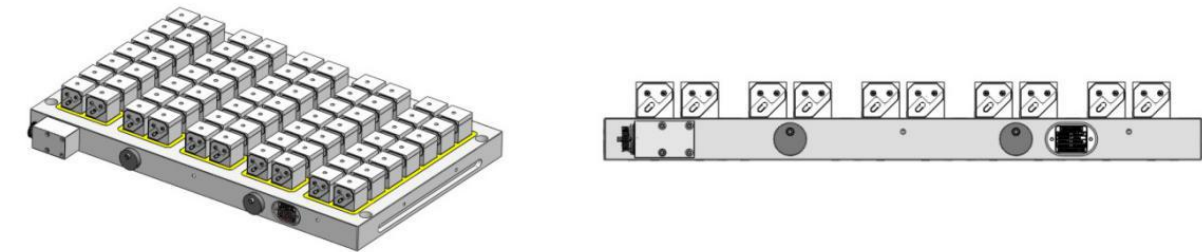
Convenience and accuracy: The induction blocks screwed on the magnetic chuck are replaceable and consumable accessories. You can fine grinding the surface or forming induction blocks according to requirements of work piece by the machine directly that the parallelism of induction blocks can be 100% with the machine and the 5-sided machining can be easily conducted.



### Special accessory - spring pole extension

**Feature:**

1. Suitable for objects of casting iron, irregular shapes and curved surfaces, which ensures the object not to deform after machining.
2. Each object requires 3 fixed blocks (EEM-SPF) for basic level of clamping (shown below).
3. The elastic range of each spring block set is  $\pm 2.5\text{mm}$ .



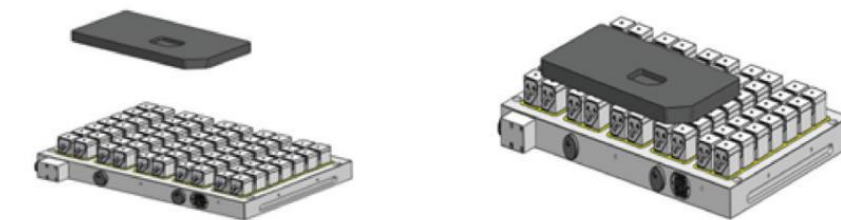
**Unloading method of special steel materials**

Since the carbon content amount is high for high-carbon materials, the object might be unable to be instantly released after machining cycle is completed due to residual magnetism. To deal with this situation:

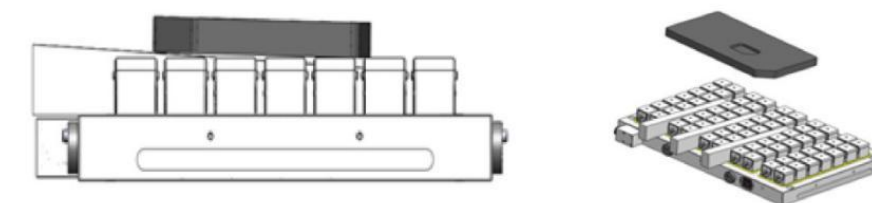
1. Use a lifting magnet to attract the corner of the object, slightly pull to remove the object.
2. Install induction blocks to unload the object by applying the lever principle.

**Note:**

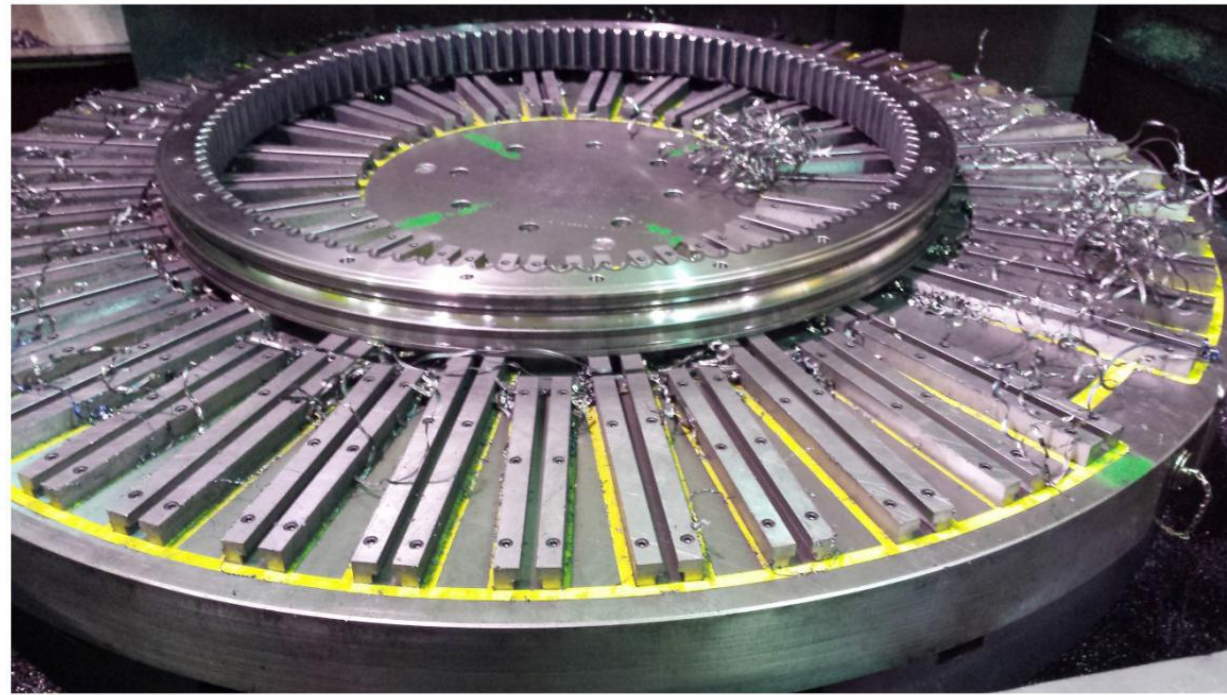
1. All carbon-containing materials will become magnetic (with residual magnetism) after clamping with the Magnetic Work holding (clamping system) based on the principles of magnets. However once they leave the Magnetic Work holding (Clamping system), their magnetic properties will eventually reduce to a minimum after a period of time.
2. In order to avoid this situation happen, please reduce the magnetism level. This can weaken the magnetizing magnitude of the object.



1. Structure of workholding clamping



2. Structure of workholding releasing



## HVR Electro Permanent Magnetic Chuck for Lathe Machine

### FULL USE OF MACHINE TABLE AREA

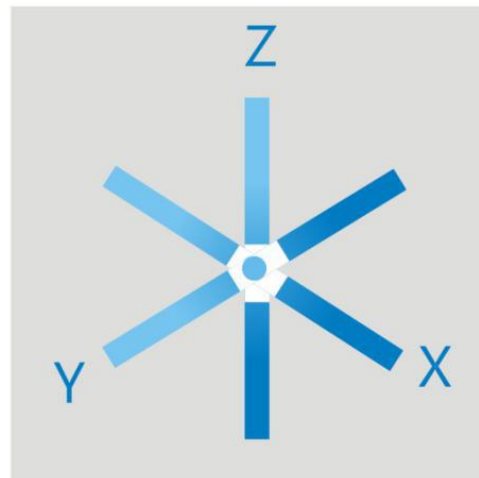
The absence of mechanical devices allows to fully using the machine table area, eventually loading pieces even larger than the machine table itself. This means that you can use the existing machine to work on pieces bigger than machine table size.

### MACHINE CAPACITY EXPLOITED

DYCC electro permanent magnet chuck exploits the machine capacity, All the strokes are optimized.  
 X - Y: the magnet surface available for pieces is 100%, or more than the table size.  
 Z: the reduced thickness magnet system of allows to save daylight for machining.

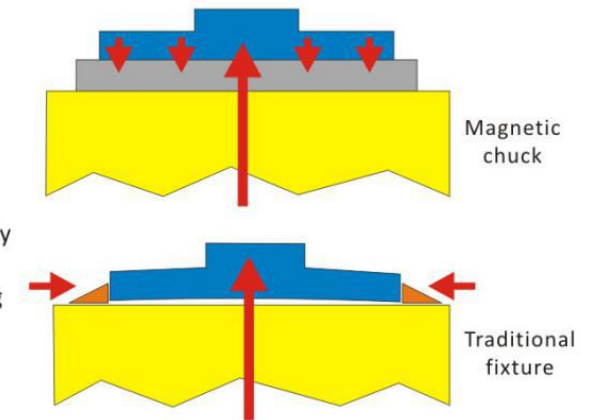
### SOLID BLOCK STRUCTURE

The Radial pole chucks are cut from solid blocks, increasing the rigidity and allowing compact dimensions of the clamping system.  
 The absence of internal parts moving and heat guarantee the reliability and long life of our chucks.



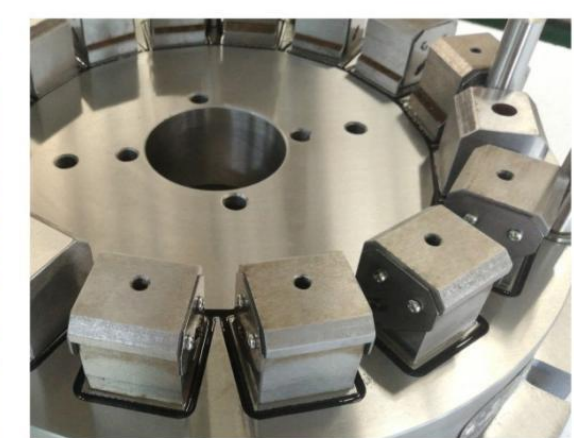
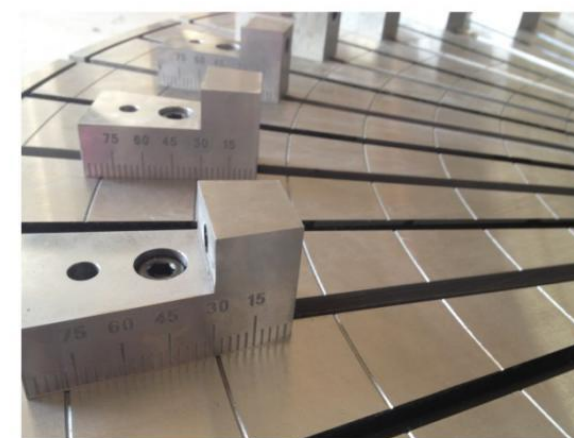
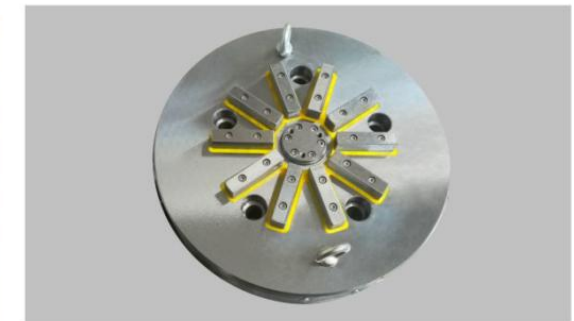
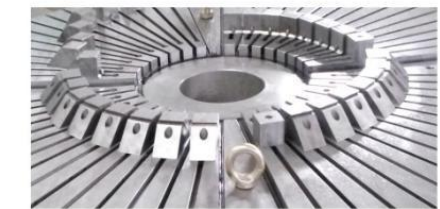
### QUICK CLAMPING WITHOUT DISTORSIONS

As well as limiting access to the work piece, conventional mechanical clamping always causes some distortions. Internal/external work holding generates radial warping, while face plate clamping causes axial distortions. The RADIAL-POLE system completely avoids mechanical deformations and automatically compensates any peculiarity of the work piece shape. The uniform clamping along the contact surface eliminates all problems related to machining vibrations with tremendous advantages in terms of machining tolerances, tool life, stock removal and machine productivity.



### POLE EXTENSIONS

When pole extensions are used to raise the work piece from the chuck surface, both internal and external diameters are accessible for all machining operations in a single set-up. Furthermore, rough surface work pieces can be machined without deformations.



### DYCC1 series small horizontal type electro permanent magnet chuck

This type is for small horizontal electro permanent magnet chuck, especially suit for clamping small disc shapes work piece, using modular design method, with strong magnet force, easy clamp technical feature. Premag operation function could realize the initial position operation, low magnet field type (DYCC1-B series) could easy clamp the thin work piece with up to 4mm thickness. Bring new experience of disc parts clamping, do action as soon as possible. Select the proper lathe machine technical specification and model,



**Note:**

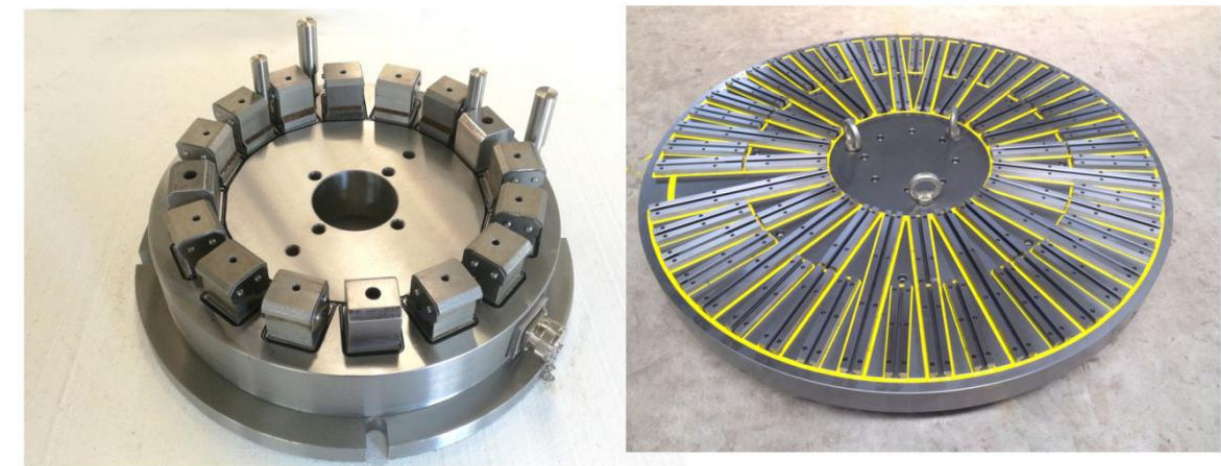
1. It can machining flat and circle angle workholding after put the magnetic blocks.
2.  $\Phi d$  is the minimum outer diameter demand of machining the workholding with thin ring shape .

parameter Model	Magnet pole number	Min thickness (mm)	Overall dimension(mm)			Weight (kg)
			D	d	H	
DYCC1-300	12(P50)	12	300	230	58	28
DYCC1-360	21(P50)	12	360	300	58	42
DYCC1-400	24(P50)	12	400	350	58	50
DYCC1-310	28(P60*18)	12	310	240	53	28
DYCC1-375B	46(P60*18)	12	375	320	53	40
DYCC1-410B	56(P60*18)	12	410	365	53	48

This series chucks have two kinds way of installing .The first way is installed to the lathe chuck directly . The second way is connected lathe main shaft through lathe transition plate .

### DYCC2 series large type vertical lathe machine electro permanent magnet chuck(uniform magnet force type)

This series suit for vertical lathe machine, CNC five-axis precision indexing equipment,CNC five-axis machining center, etc. using radioactivity magnet pole structure, suitable for clamp any kinds of shape work piece. Work piece could contact the entire magnet pole, generate max magnet clamping force energy, magnet force can be regulate according to the specific requirement. No power supply is required during the working period with no heat generation and high machining precision feature.



Parameter Model	Magnet pole number	Min thickness (mm)	Overall dimension(mm)			Weight (kg)
			D	d	H	
DYCC2 -500	12	12	500	--	70	100
DYCC2 -600	12	12	600	--	70	140
DYCC2 -800	16	12	800	250	80	270
DYCC2 -1000	16	12	1010	250	80	440
DYCC2 -1250	24	12	1260	500	90	710
DYCC2 -1500	24	12	1520	500	100	1220
DYCC2 -1600	40	12	1620	800	125	1530
DYCC2 -1800	40	12	1820	800	125	2020

### DYCC3 series large type vertical lathe machine electro permanent magnet chuck (magnet force increasing type)

This series suit for vertical lathe machine, CNC five-axis precision indexing equipment, CNC five-axis machining center, etc. using unique magnet pole structure, guarantee magnet force increase along with external diameter. Also double magnet field design, T-slot are available. Easy realize various clamping requirement.

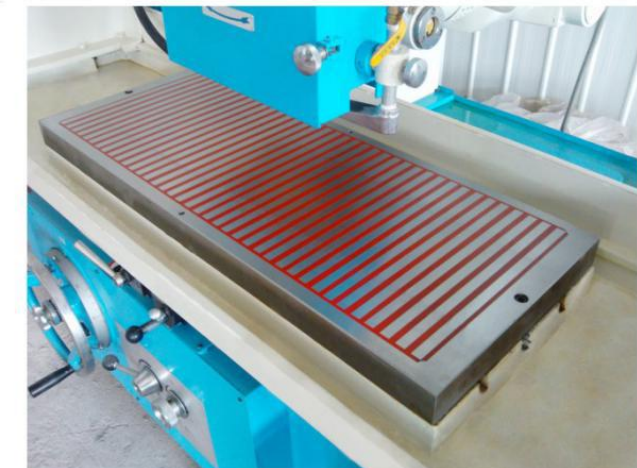
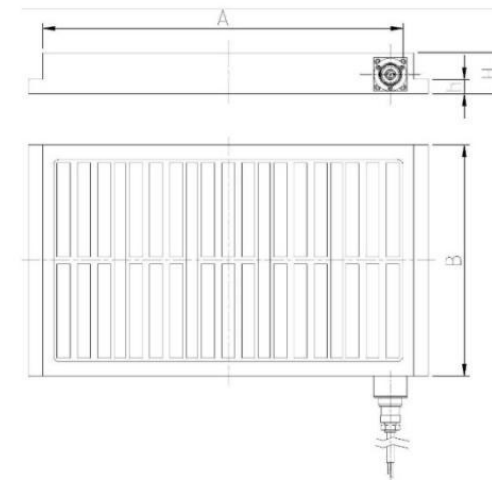


Model	Parameter	Magnet pole number	Min thickness (mm)	Overall dimension(mm)			Weight (kg)
				D	d	H	
DYCC3-500		12	12	500	60	70	95
DYCC3-600		12	12	600	60	70	135
DYCC3-800		16	12	800	150	80	290
DYCC3-1000		16	12	1010	200	80	460
DYCC3-1300		20	12	1260	300	90	680
DYCC2-1500		24	12	1520	500	100	1240
DYCC3-1600		40	12	1620	800	125	1560
DYCC3-1800		40	12	1820	800	125	2050

### HVR electro permanent magnet chuck for grinding machine

DYCM series electro permanent magnetic Chuck is used to machining magnetic workholding of plane grinding, tool grinding and EDM . With uniform suction ,high accuracy and used to small and thin workholding .

Suggestions: Customers can choose vertical intensive magnetic chuck and horizontal intensive magnetic chuck



Model	parameter	overall dimension(mm)				weight (kg)
		A	B	H	h	
DYCM-3015		300	150	57	20	20
DYCM-3515		350	150	57	20	24
DYCM-4015		400	150	57	20	28
DYCM-4515		450	150	57	20	32
DYCM-4020		400	200	57	20	38
DYCM-4520		450	200	57	20	44
DYCM-4525		450	250	57	20	50
DYCM-5025		500	250	57	20	58
DYCM-6025		600	250	57	20	68
DYCM-8030		800	300	57	20	98
DYCM-10030		1000	300	57	20	115
DYCM-10032		1000	320	57	20	125
DYCM-8040		800	400	57	20	128

Note: more specifications can be produced according to customer requirements.

## HVR electro permanent magnet controller

### HEPC11-30

Overall dimensions: 163mm (Length) X 112mm (Width) X 60.5mm (Thickness)

#### Main features:

- ▶ Regulate AC power from 220V to 380V freely
- ▶ Related parameters could be set by control panel
- ▶ Automatic clamp and release the work piece could be achieved by using PLC interface.
- ▶ Multiple over current protection, over voltage protection.



### HEPC13-30

Overall dimensions: 163mm (Length) X 112mm (Width) X 60.5mm (Thickness)

#### Unique technical advantage:

- ▶ Work piece detection
- ▶ Magnet flux detection
- ▶ Work piece dislocation protection
- ▶ Short circuit advance protection



### HEPC12-100

Overall dimension: 163mm(Length) X 112mm(Width) X 60.5mm(Thickness)

#### Main feature:

- ▶ Regulate AC power from 220V to 380V freely
- ▶ Output current up to 100A
- ▶ PLC control become available
- ▶ Multiple over current protection, over voltage protection



## ? Frequently Asked Questions(FAQ)

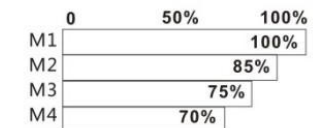
### Q What are the reasons of the permanent magnet force ?

#### A 1. Different materials cause different magnetic forces

The magnetism will be different according to the carbon content of work piece. In other words, the higher carbon amount, the less magnetic force. On the contrary, the less carbon amount, the stronger the magnetic force. The carbon content amount can be determined by the hardness of the material. The hardness is higher with higher carbon content, while softer when the carbon content is lower.

**Method :** Please adjust the most suitable magnetic level according to the illustration.

Please use the stopping plate for assistance.  
Change the feeding rate of machining

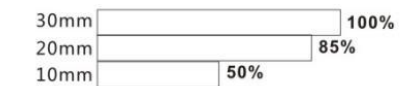


#### 2. Work piece thickness

Due to the properties of the magnetic tools, the object thickness shall directly affect the magnetic force. The minimum thickness requirement is 30mm, whereas the magnetic force reduces as the thickness becomes thinner.

Thus, when the object is too thin, the magnetic force decreases due to the thinness.

**Method :** Install induction blocks, and machining an approximately 1mm groove according to the work piece shape for stopping. This can improve work piece clamping issues



#### 3. Flatness

The attractive surface roughness shall directly affect the fitting between the magnetic chuck and the object. Whereas the fitting shall directly affect the magnetic force, i.e. a rougher surface provides a weaker force, where a finer surface provides a stronger force.

**Method :** 1. If the object surface is rough, use a portable grinder to grind the surface first.

2. Increase the magnetism level, i.e. for a rougher surface, adjust the magnetism to a larger level



#### 4. work piece size

The work piece size shall directly affect the contact area of the magnetic poles. the larger the contact area, the larger the magnetic force. Thus, place the object at the poles crossing locations as possible.

**Method :** 1. For fewer magnetic poles contact with the work piece, adjust the magnetism to maximum level

2. When work piece contact with many magnetic poles, adjust the magnetism according to the material

## Q The problem of work-holding and magnetic chuck surface connecting

**A** **1.The surface of the magnetic chuck becomes uneven after using a period of time**  
As the outside material of the magnetic chucks are mild steel ,and the texture of the mild steel are soft ,it will be easy uplift on the surface by machining roughly .

### Method:

- 1): If the surface is slightly uneven, gently grind it to flatness with ceramic stone.
- 2) : For a more serious situation, please grind the surface again to get better magnetic force.

## **2 . The contacting surface between magnetic blocks and the magnetic chuck is not well (poor fitting) (didn't clean contacting surface before installation)**

In order to obtain the best fitting surface between the magnetic blocks and magnetic chuck, all contact surfaces are grinding surfaces, and it need be clean while installing.

### Method:

- 1).Use an blower gun for cleaning while installing the magnetic chuck.
- 2). Screw tightly with a hexagon wrench to obtain the best fitting surface.

## **3. First assembling induction blocks requires fine grinding**

While machining the work-holding, need to pay attention to the magnetic surface is smooth, and magnetic lock block for the first time, planes will be a little rough, and not enough lead to force Method:  
Directly fine grind the induction blocks when installing them onto the magnetic chuck to obtain a 100% flat surface.

4. The edge of chuck forum uplift is caused by impact highlights  
During the work-holding loading/unloading of the processing, improper operating might cause collisions toward the magnetic chuck and cause its surface to be uneven

### Method:

- 1).If the surface is slightly uneven, grind it to flatness with grasp and ceramic stone.
- 2). Grind the magnetic chuck surface again

## **5. Rough surface of work-holding lead to fitting contact bad**

The surface of the materials is rough and contains many impurities. This causes poor fitting with the attractive surface to the magnetic chuck

### Method:

- Grind the original materials with a portable grinder before machining.
6. Dust, impurities, iron chips  
The fitting at the surface shall directly affect the magnetic force. Any without cleaned impurities or iron chips can easily cause air gaps at the attractive surface, and affecting magnetic force.
  - 1).Execute the demagnetizing process to prevent iron chips attached to the attractive surface.
  - 2).Thoroughly clean the contact surface between the object and magnetic chuck with an air gun.

## Q Reasons for object shifting when using the same processing conditions

**A** 1. Cutters become blunt after long period of uses and increase the receiving force. When the cutters are used for a period of time, the cutters are worn and reduce the cutting force. It increases the receiving force of the magnetic chuck and causes possible shifting of the work piece.

### Method:

When processing to a general amount of work-holding, please examine if the cutters are worn. Replace the cutters if they become blunt.

2. Increase the machining speed and increases the receiving force. When the cutters are in motion, the rotary speed of the spindle and feeding rate are not coordinated appropriately. This causes the cutters to overly worn out and become damaged and causing possible shifting of an work-holding.

### Method:

- 1).Coordinate the rotary speed and feeding rate appropriately with the cutters.
- 2).Adjust the rotary speed and feeding rate according to the material, thickness, and size of the work-holding.
- 3).Pay attention to the wearing status of the cutters.
- 3 .Depth of cutting. Decreasing the feeding rate can reduce the wearing of the cutter, and increase the usage life of the spindle. And, relatively increases the cutting rotary speed and line progressing speed, which will not increase the processing time.
- 1).Reduce the depth of cutting.
- 2).Increase the cutting rotary speed.
- 3). Increase the line speed.
- 4). Use the stopping plate and processing direction for assistance.
- 5). Install in duction blocks.
4. Unclean surface, causing uneven thickness. The fitting is poor with air gaps and decrease the magnetic force accordingly. Work-holdings are usually magnetic material, where each work-holding may attach iron chips if not cleaned. This causes poor fitting with the magnetic chuck, and reduction in the magnetic clamping force.

### Method:

- 1). Use a portable grinder to fine grind the original material before each processing.
- 2).Thoroughly clean the contact surface when work piece is placed on the magnetic chuck

### Conclusion:

- (1) During the machining, the shifting of the work-holding is not the quality issue of magnetic chuck, but rather the physical principle. By adjusting the magnetic force, the cutters speeds, replacing the cutters during the process, reducing the feeding rate, and further accelerate the rotary speed and line processing speed enables to increase the efficiency and accuracy, and can extend the usage life of the machine's spindle.
- (2) From the above descriptions, it is realized that the magnetic force of the Electro-Permanent Magnetic Chuck will not defuse due to time passing. The processing method can be changed by selecting thicker, larger, and soft work-holding to perform heavy cutting, while selecting thinner, smaller, and hard objects for light cutting.

**Q Newly installed machine unable operation of reason**

**A 1. Incorrect voltage**

- 1) Make sure the voltage is correct ?
- 2) Take the blue line and brown line connects the main power supply to any two contacts, and locking

**2. Insufficient current**

- 1) Disks instantaneous charging power, a large current is required, therefore, the current need at least 60% or more, to be able to supply sufficient disk operation.
- 2) Please testing if the current from the master power supply is sufficient (refer to the current date of the specification )

**3. Quick connector connection is not completed**

- 1) Between the disk interface and quick connectors require very close contact, in order to supply a strong current moment, if the link is incomplete, unable to supply current through the disk will not start.
- 2) please connect again

**4. Mistake operation**

- 1) .When sufficient current supply, controller magnetizing process takes only a few seconds, a few minutes if the pressing force, the protection circuit will open, and can not action.
- 2). When the yellow light of the safety button shows up, release the button. The green Light shall appear, and indicating that the magnetization is completed

**5. Insufficient magnetism**

1. Adjust the magnetism according to the material, size and thickness of the work piece. For thin and small work pieces, please adjust the magnetism to the maximum level 8, and so on.
2. The magnetism adjusting method and ratio are given in the operating instruction

**Q Unable to normally operate after using for a period of time**

**A 1. Unstable voltage**

- 1).Instability voltages and currents can easily cause an instant excess current, and causing the fuse to burn.
- 2).Two fuses are enclosed inside the controller. When the machine cannot activate, please check if the fuse is burned. Replace the fuse

**2. Controller was in contact with moisture, causing a short circuit**

- 1) .Controller is a precise electronic component. Although the product was designed to be protected from moisture, place the controller at a place where it cannot easily be splashed by the cutting liquid or cooling water when use
- 2).keeping cleanness and dryness of the controller at all times.

**3. The quick connector was not truly cleaned, resulting of a short circuit by dust or water**

- 1).Whe quick connector and connector of the magnetic chuck require a large current supply passing through, where dust and moisture can easily cause a short circuit
- 2).Truly clean any contaminants such as iron chips or water vapors before each connecting the quick connector.
- 3).When the magnetic chuck connector and quick connector are not connected, please replace the connection cover and tighten it until it locks tight

**Conclusion:**

This product does not require power supply once it is magnetized, and its magnetism can remain for a half year. Therefore, you don't need to worry of an electric power failure during the machining operation. Do not continuously perform magnetize/demagnetize within a short period of time to prevent overheat of the coils, and causing the circuit to burn. Do not exceed 80°C for normal use of the magnetic chuck



### Magnetic quick mold change system

- ▶ Safety: Unique EPM technique using double magnet system. Magnetic clamping force up to 160N/cm<sup>2</sup> and keep on even power failure. No need to worry about misoperation.
- ▶ Energy Saving: Electric power is only used for magnetizing and demagnetizing operation with few seconds. Over 95%power saving.
- ▶ Quick: A single operator can operate the mold change .No need to loosen and tighten bolts one by one. More than 90% time is saved.



### Electro permanent lifting magnet

- ▶ Unique EPM technique using double magnet system, two permanent magnets used as magnetic source;
- ▶ Magnetic clamping force up to 160N/cm<sup>2</sup> and keep on even power failure. Electric power is only used for magnetizing and demagnetizing operation with few seconds. Over 95%power saving.
- ▶ Use simple and quick, no moving parts, reliable and durable, no need to maintain, and good practical;
- ▶ No residual magnetic, penetration depth can be adjusted, it's safety and energy saving.



### Electro permanent magnet for smart phone

- ▶ Magnet system is composed by mounting base, magnet units, former bar, cover plate.
- ▶ Unlike air cylinder, this product has strong clamping force, stable, uniform, simple operation technical feature.
- ▶ Especially suit for metal frame and mobile phone glass screen, machining, more than 30% qualified rate compare with air cylinder.
- ▶ Friendly for various kinds of products, long term running cost much lower than traditional method.

