



Earth-Chain Enterprise was established in 1988, we commit to be the professional magnetic application products manufacturer in past 35 years. We also market all over the world with own brand ECE, our agents /distributors located in more than 40 countries on five continents around the world. With ISO9001 2015 and CE certification, and more than 30 product patents and multiple magnetic application key technologies, we can not only offer products for greatly improving customer's machine operation efficiency and market competitiveness, but also bring different application concepts and magnetic chuck system application technologies for our customers.

In recent years, as the CNC machine tool industry responds to Industry 4.0 intelligent automation, technology is constantly improving with each passing day. Earth-Chain's R&D energy focuses on the field of sustainable development. Based on the market and customer's requirements, as well as own core professional technologies, we continuously improve and bring new application concepts and innovations in the of magnetic clamping system application technology.



In 2022, Earth-Chain expand and completed the intelligent plant with internet of machines & magnetic systems, which integrates CNC machine tools, robotic arms, magnetic clamping systems, monitoring and sensing software systems and other automated peripheral equipment in series. With intelligent process optimization, IoT, and big data collection, the new Earth-Chain plant not only has intelligent functions, such as fault prediction, precision compensation, automatic parameter setting and automatic scheduling, but also has the core key technology of energy saving and carbon reduction by combining permanent magnetic chuck and electronic control system.

Based on the experience while building our intelligent plant, Earth-Chain have the abilities to provide total magnetic solution for machine tool manufacturers and customers, creating a new era of “Automated machine-magnet intelligent manufacturing process” and “Digitization for smart energy saving” is our target.





Magnetic force of EEPM Chucks

The Magnetic forces will changes depending on the thickness, attractive face roughness and quality of material and clearance between the workpiecec with EEPM Chucks.
(See as the graphs as below)

Chart of difference in Magnetic force by thickness

	Thickness		Percentage of Magnetic force			
	mm	inch	EEPM-A	EEPM-B	EEPM-D	EEPM-E
T1	up 50	up 1.97"	100%	100%	100%	100%
T2	45	1.77"				90%
T3	40	1.57"				80%
T4	35	1.38"			90%	70%
T5	30	1.18"			80%	55%
T6	25	0.98"			65%	—
T7	20	0.79"	90%	45%		
T8	15	0.59"	70%	—		
T9	10	0.39"	85%		40%	
T10	5	0.20"	35%		—	

Chart of difference in Magnetic force by attractive face roughness.
For all EEPM Series

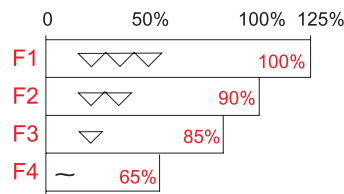
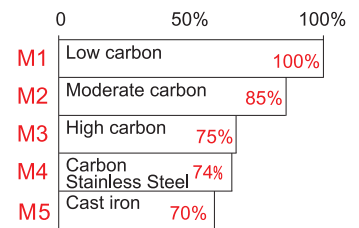


Chart of difference in Magnetic force by material quality.
For all EEPM Series



Calculating Formula for "Magnetic force"

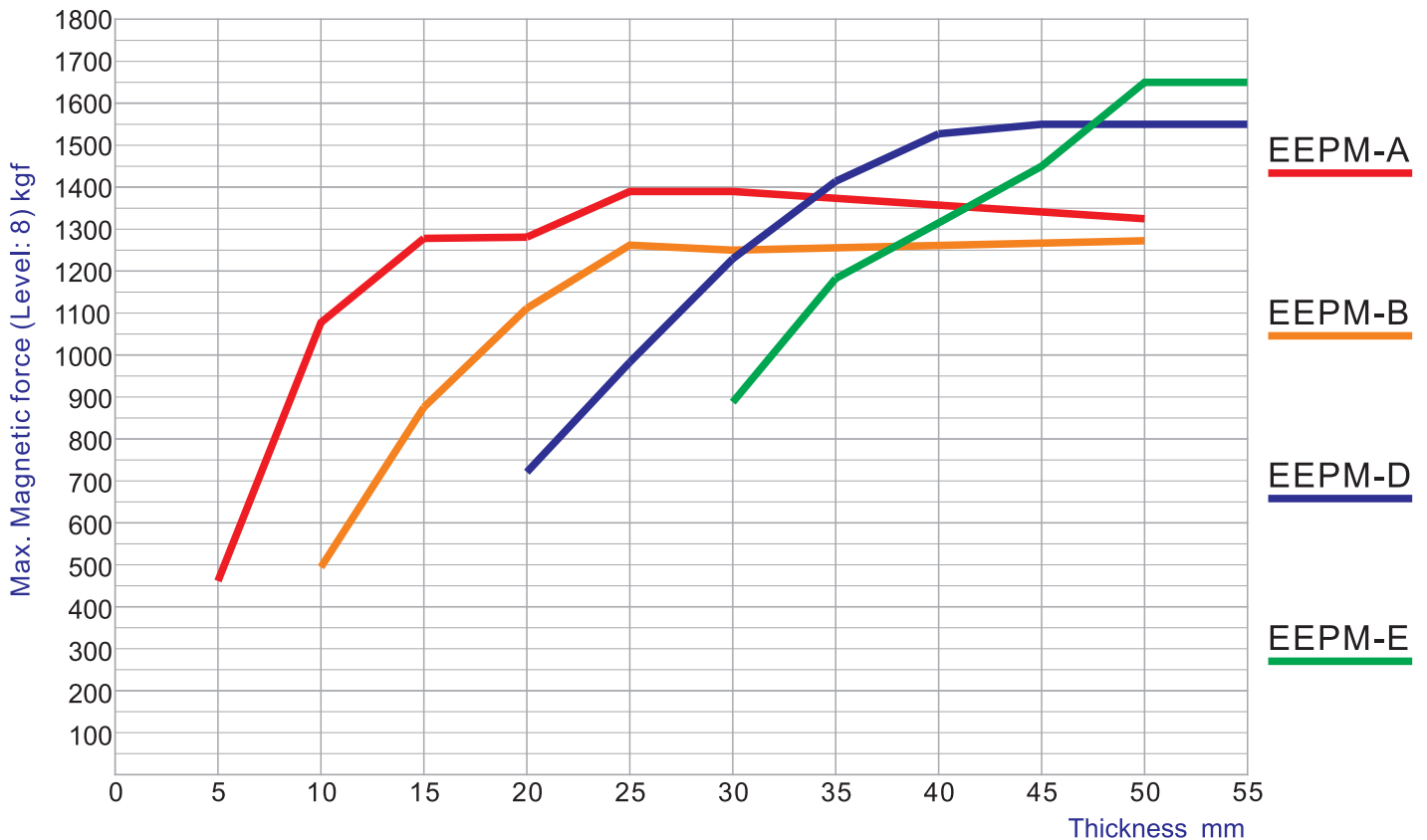
→ (Tx Fx Mx Capacity of Magnetic force)

Example of EEPM-D Series:

Terms of workpiece: T4, F2 and M2

90% x 90% x 85% x 2800±5% kgf/4 Poles = 1928±5% Kg/4 Poles

Comparison chart of Maximum magnetic forces and workpiece thickness



1. Test workpiece: Maximum magnetic force of workpiece of 120X120 mm² area

2. EEPM-A Series: Flux line: 15mm, Workpiece thickness suggestion: 25mm ↓

EEPM-B Series: Flux line: 25mm, Workpiece thickness suggestion: 15~50mm

EEPM-D Series: Flux line: 40mm, Workpiece thickness suggestion: 30mm ↑

EEPM-E Series: Flux line: 50mm, Workpiece thickness suggestion: 40mm ↑



Features:

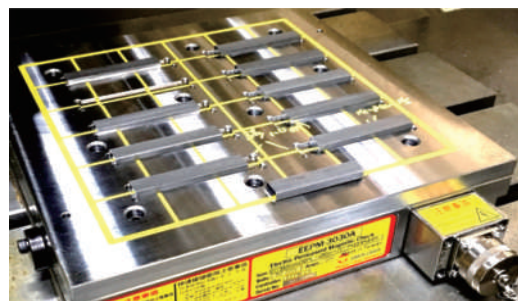
1. 1-2 seconds control for power ON & OFF. No electric power supply required to keep magnetic chuck ON and provides maximized safety in case of power failure. Never get temperatures to affect the accuracy of workpieces.
2. With 8 Magnetic levels for different workpiece size and application to avoid sticking the iron chip.
3. The waterproof level of the EEPM chuck is IP67 (the chuck cable or connector cover need to be locked on the connector correctly)
4. Capable for 5 sides machining and un-obstructed cutter movement during machining. Allow workpiece machining finished in one cycle, while still achieving best machining accuracy and highly increased working efficiency.
5. Easy and convenient to clamp a workpiece, shortens clamping time.
6. Minimum size of workpiece required as 4 alternate magnetic square poles and above contacts is necessary for optimum clamping.
7. More functions for cooperate with Induction Block and Spring Block. (See the detail of Option Accessories)

Specification of poles size & Height of magnetic field (Flux Line):

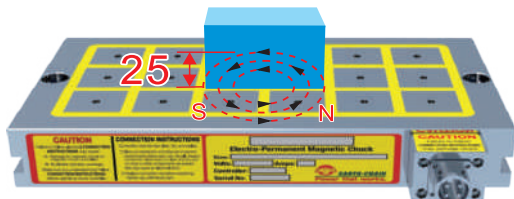
EEPM Chucks are designed for different mold thickness. Specify the mold to be Large, Medium and Small sizes make 4 poles sizes, bigger pole size with higher flux line. Different pole sizes have different magnetic field height (flux line) to ensure mold clamping safety.

Notice: The temperature of usage environment and the workpiece to be processed should not exceed 80°C, otherwise the magnetic force will be eternally reduced.

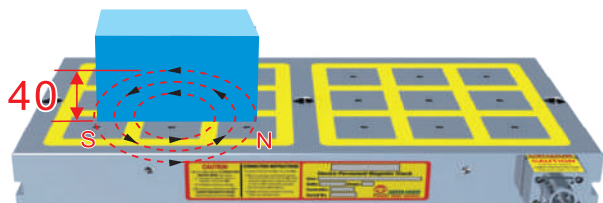
EEPM-A Series Flux Line 15 mm, Pole Size 35x35 mm
Magnetic force: 580 \pm 5% Kg/4 poles



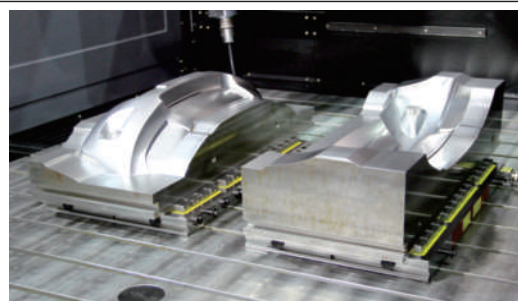
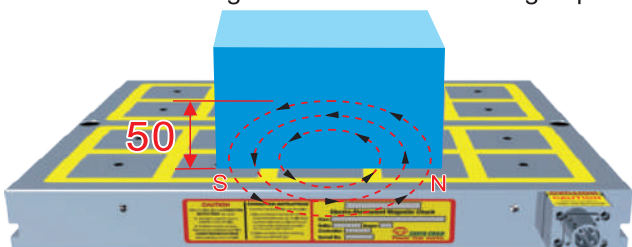
EEPM-B Series Flux Line 25 mm, Pole Size 50x50 mm
Magnetic force: 1250 \pm 5% Kg/4 poles

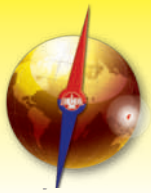


EEPM-D Series Flux Line 40 mm, Pole Size 70x70 mm
Magnetic force: 2800 \pm 5% Kg/4 poles



EEPM-E Series Flux Line 50 mm, Pole Size 92x92 mm
Magnetic force: 4800 \pm 5% Kg/4 poles





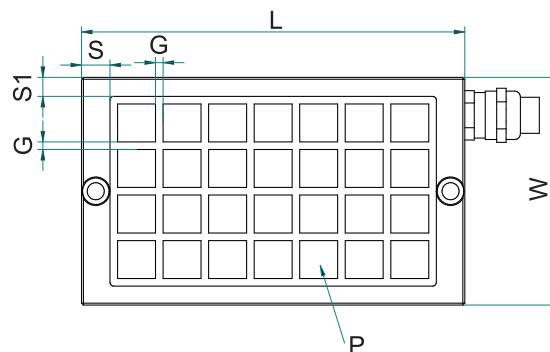
Patent Protected violators will be prosecuted: Patented Taiwan M605144



Pole 20X20 mm, Flux Line 10 mm, Magnetic Force $88 \pm 5\%$ kgf/4 Poles

Applications:

1. Suitable for clamping workpieces which need high precision, ex: Surface Grinding.
2. Minimum size of workpiece required as 4 alternate magnetic square poles and above contacts is necessary for optimum clamping.
3. More functions for cooperate with induction block. (See the detail of Option Accessories)



Unit:mm

MODEL NO.	DIMENSION					PITCH G	POLE P	NO. OF POLE	TOTAL HOLDING POWER kgf $\pm 5\%$	CHUCK N.W.	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)
	W	L	S	S1	M								
EEPMM-1020M	120	202	15	10	35	4	20×20	28	616	7kg	CHUCK DC 220V CONTROLLER AC 220V-480V	12A	C1
EEPMM-1030M	120	298	15	10	35			44	968	10kg		15A	C1
EEPMM-2020M	192	202	15	10	35			49	1078	11kg		13A	C2
EEPMM-2030M	192	298	15	10	35			77	1694	16kg		17A	C4

Customization is available.



Standard accessories (No screws, T-caps)



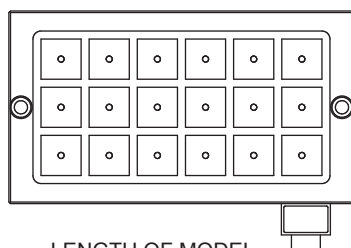
4 pressure plates
Center circle diameter: 17mm
Thickness: 30mm

Pole 35X35 mm, Flux Line 15 mm,
Magnetic Force 580±5% kgf/4 Poles

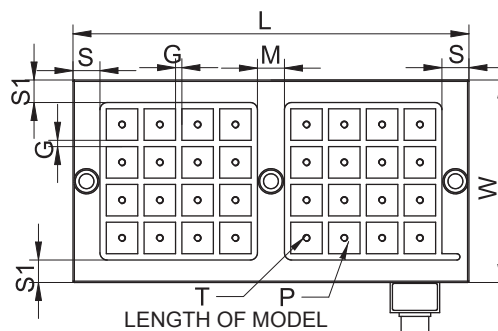


Applications:

1. Suitable for thin, small and medium workpiece on light duty machining.
2. Suitable for thin, small and medium workpiece of the drilling and finishing machining.
3. Minimum size of workpiece required as 4 alternate magnetic square poles and above contacts is necessary for optimum clamping.
4. More functions for cooperate with Induction Block and Spring Block. (See the detail of Option Accessories)



LENGTH OF MODEL
320mm

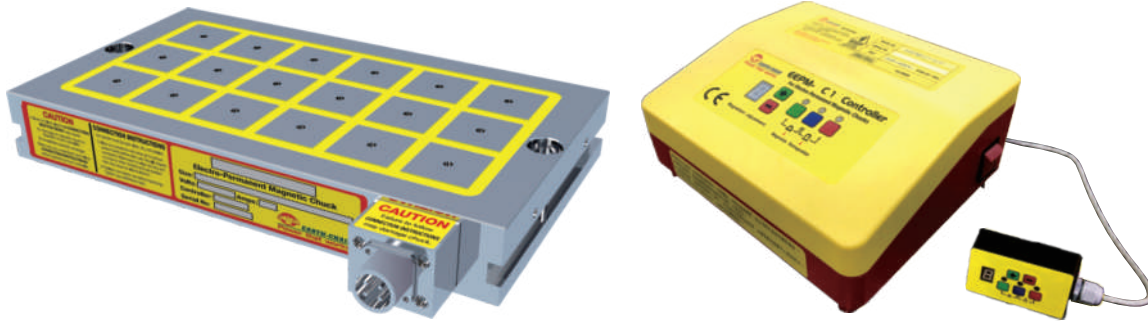


LENGTH OF MODEL
440~610mm

Unit:mm

MODEL NO.	DIMENSION							PITCH G	POLE P	NO. OF POLE	TOTAL HOLDING POWER kgf ±5%	CHUCK N.W.	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)
	W	L	S	S1	M	T	H								
EEPM-1530A	185	320	30.5	26	-					18	2610	23kg	CHUCK DC 220V	18A	C1
EEPM-2540A	225	440	30	25	30					32	4640	39kg		30A	C1
EEPM-2560A	225	610	31	25	30					48	6960	54kg		26A	C2
EEPM-3030A	310	320	30.5	25.5	-					36	5220	39kg		26A	C1
EEPM-3040A	310	440	30	25.5	30	M6	50	7	35×35	48	6960	53kg	CONTROLLER AC 220V 480V	25A	C2
EEPM-3060A	310	610	31	25.5	30					72	10440	74kg		31A	C2
EEPM-4040A	435	440	30	25	30					72	10440	75kg		31A	C2
EEPM-4050A	435	525	30.5	25	30					90	13050	90kg		24A	C4
EEPM-4060A	435	610	31	25	30					108	15660	104kg		26A	C4

Customization is available.

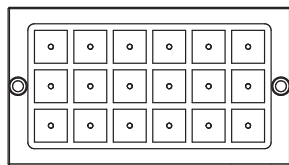
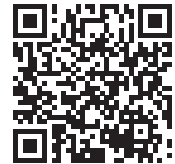


Standard accessories (No screws, T-caps)

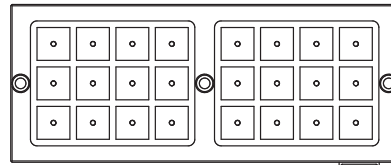


4 pressure plates
Center circle diameter: 17mm
Thickness: 30mm

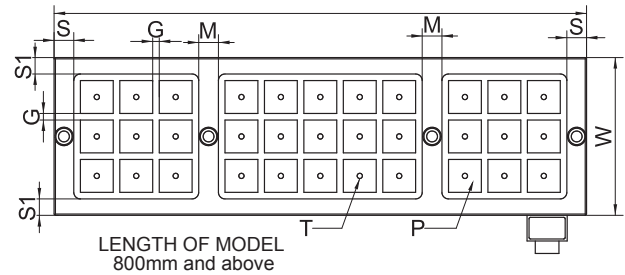
Pole 50X50 mm, Flux Line 25 mm,
Magnetic Force 1250±5% kgf/4 Poles



LENGTH OF MODEL
300~400mm



LENGTH OF MODEL
600mm

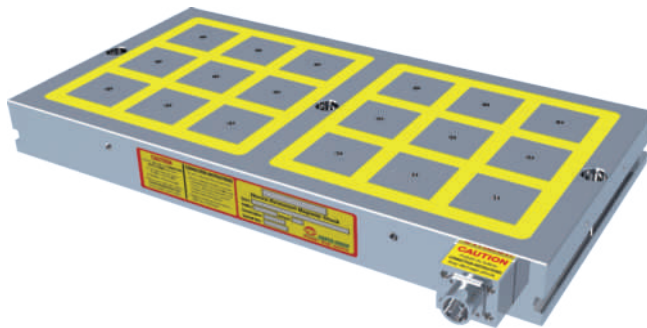


LENGTH OF MODEL
800mm and above

Unit:mm

MODEL NO.	DIMENSION							PITCH G	POLE P	NO. OF POLE	TOTAL HOLDING POWER kgf ±5%	CHUCK N.W.	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)
	W	L	S	S1	M	T	H								
EEPM-2540B	240	430	30	25	--					18	5600	50kg	CHUCK DC 220V CONTROLLER AC 220V 480V	18A	C1
EEPM-2560B	240	590	30	25	30					24	7500	69kg		30A	C1
EEPM-2580B	240	810	30	25	30					33	10300	92kg		30A	C1
EEPM-2590B	240	870	30	25	30					36	11200	98kg		18A	C2
EEPM-25100B	240	990	30	25	30					42	13100	111kg		26A	C2
EEPM-3030B	300	310	30	25	--					16	5000	44kg		20A	C1
EEPM-3040B	300	430	30	25	--					24	7500	61kg		30A	C1
EEPM-3060B	300	590	30	25	30					32	10000	82kg		30A	C1
EEPM-3080B	300	810	30	25	30					44	13700	116kg		25A	C2
EEPM-3090B	300	870	30	25	30					48	15000	123kg		30A	C2
EEPM-30100B	300	990	30	25	30					56	17500	138kg		35A	C2
EEPM-4040B	420	430	30	25	--					36	11200	84kg		18A	C2
EEPM-4050B	420	490	30	25	--					36	11200	95kg		26A	C2
EEPM-4060B	420	590	30	25	30					48	15000	100kg		30A	C2
EEPM-4080B	420	810	30	25	30					66	20600	159kg		30A	C2
EEPM-4090B	420	870	30	25	30					72	22500	169kg		18A	C4
EEPM-40100B	420	990	30	25	30					84	26200	193kg		26A	C4
EEPM-5060B	480	590	30	25	30					56	17500	129kg		35A	C2
EEPM-5080B	480	810	30	25	30					77	24000	185kg		30A	C4
EEPM-5090B	480	870	30	25	30					84	26200	196kg		26A	C4
EEPM-50100B	480	990	30	25	30					98	30600	219kg		30A	C4
EEPM-6060B	600	590	30	25	30					72	22500	165kg		18A	C4
EEPM-6080B	600	810	30	25	30					99	30900	215kg		30A	C4
EEPM-6090B	600	870	30	25	30					108	33700	240kg		27A	C4
EEPM-60100B	600	990	30	25	30					126	39300	274kg		32A	C4
EEPM-8080B	755	810	30	25	30					121	37800	271kg		33A	C4

Customization is available.



Standard accessories (No screws, T-caps)



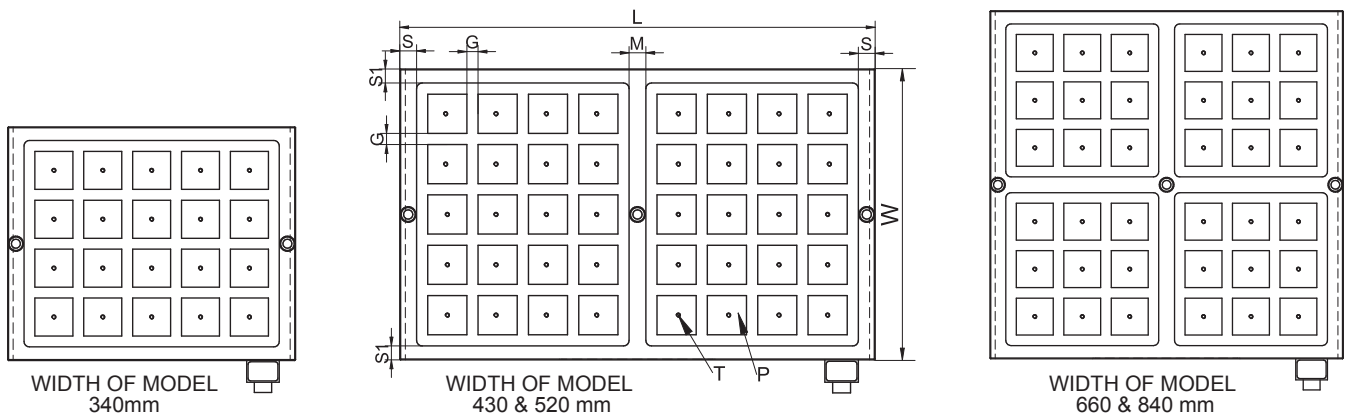
4 pressure plates
Center circle diameter: 17mm
Thickness: 30mm

Pole 70X70 mm, Flux Line 40 mm,
Magnetic Force 2800±5% kgf/4 Poles



Applications:

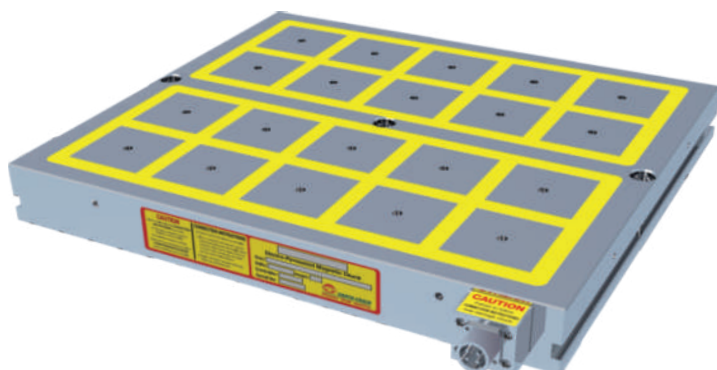
1. Suitable for medium and large workpiece on heavy duty machining.
2. Suitable for medium and double column machining center.
3. Minimum size of workpiece required as 4 alternate magnetic square poles and above contacts is necessary for optimum clamping.
4. More functions for cooperate with Induction Block and Spring Block. (See the detail of Option Accessories)



Unit:mm

MODEL NO.	DIMENSION							PITCH G	POLE P	NO. OF POLE	TOTAL HOLDING POWER kgf ±5%	CHUCK N.W.	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)
	W	L	S	S1	M	T	H											
EEPMD-3060D	340	670	30	25	30					18	12600	126kg	CHUCK DC 220V	24A	C2	CHUCK DC 380V	25A	C1H
EEPMD-4050D	430	530	30	25	--					20	14000	126kg		13A	C2		22A	C1H
EEPMD-4060D	430	670	30	25	30					24	16800	159kg		24A	C2		29A	C1H
EEPMD-4080D	430	850	30	25	30					32	22400	202kg		16A	C4		27A	C2H
EEPMD-5060D	520	670	30	25	30	M10	70	20	70×70	30	21000	193kg	CONTROLLER AC 220V 480V	19A	C2	CONTROLLER AC 380V 440V	17A	C2H
EEPMD-5080D	520	850	30	25	30					40	28000	244kg		13A	C4		22A	C2H
EEPMD-6060D	660	670	30	25	30					36	25200	245kg		15A	C4		25A	C2H
EEPMD-6080D	660	850	30	25	30					48	33600	310kg		24A	C4		29A	C2H
EEPMD-8080D	840	850	30	25	30					64	44800	395kg		32A	C8		27A	C4H

Customization is available.



Standard accessories (No screws, T-caps)



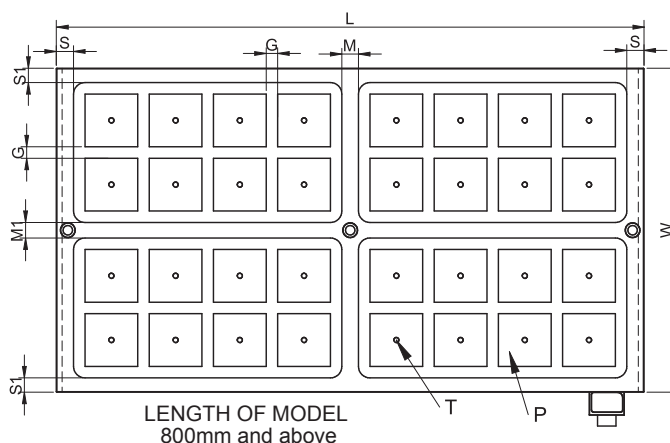
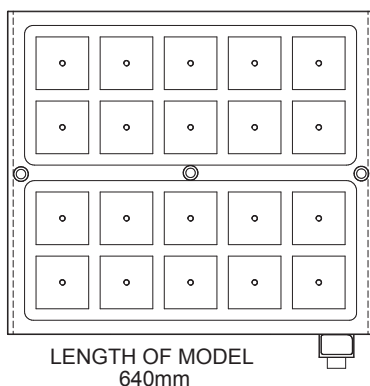
4 pressure plates
Center circle diameter: 17mm
Thickness: 30mm

Pole 92X92 mm, Flux Line 50 mm,
Magnetic Force 4800±5% kgf/4 Poles



Applications:

1. Suitable for large and high-thickness workpiece
2. Minimum size of workpiece required as 4 alternate magnetic square poles and above contacts is necessary for optimum clamping.
3. More functions for cooperate with Induction Block and Spring Block. (See the detail of Option Accessories)



Unit:mm

MODEL NO.	DIMENSION								PITCH G	POLE P	NO. OF POLE	TOTAL HOLDING POWER kgf ±5%	CHUCK N.W.	VOLTAGE (Single Phase)	CURRENT AMP	CONTROLLER (included)
	W	L	S	S1	M	M1	T	H								
EEPM-6060E	565	640	30	25	--	27					20	24000	214kg	CHUCK DC 380V	24A	C2H
EEPM-60100E	565	1025	30	25	29	27					32	38400	343kg		13A	C4H
EEPM-60120E	565	1250	30	25	30	27					40	48000	418kg		24A	C4H
EEPM-8080E	790	800	30	25	28	28	M10	70	20	92×92	36	43200	374kg	CONTROLLER AC 380V~440V	26A	C4H
EEPM-80100E	790	1025	30	25	29	28					48	57600	480kg		19A	C4H
EEPM-80120E	790	1250	30	25	30	28					60	72000	585kg		15A	C8H

Customization is available.



■ Option controller available for control multi-EEPM chuck



Features:

1. SCR1600 volts/ 70 amps more safety and durability.
2. Built-in transformer 220V~480V full voltage is applicable.
3. Intelligent Precision IC Chip Modification Program.
4. Communication Modbus connection function, can be automated with CNC machine and robot arm.
5. Clock rate up to 20Mhz (generally 8 Mhz), sensitive and increased operation reliability.

Magnetism level:

The magnetism is designed with an adjustable function and divided into 8 levels to meet with the client requirements in sizes and applications.

Relative magnetic force strength percentage table

Magnetism level	1	2	3	4	5	6	7	8
%	16	28	40	52	64	76	88	100



- a. The maximum magnetic force of cubic pole 50mm square can reach up to $1,250 \pm 5\%$ kgf/100cm² (4 poles).
- b. Level 8 represents maximum magnetic force.

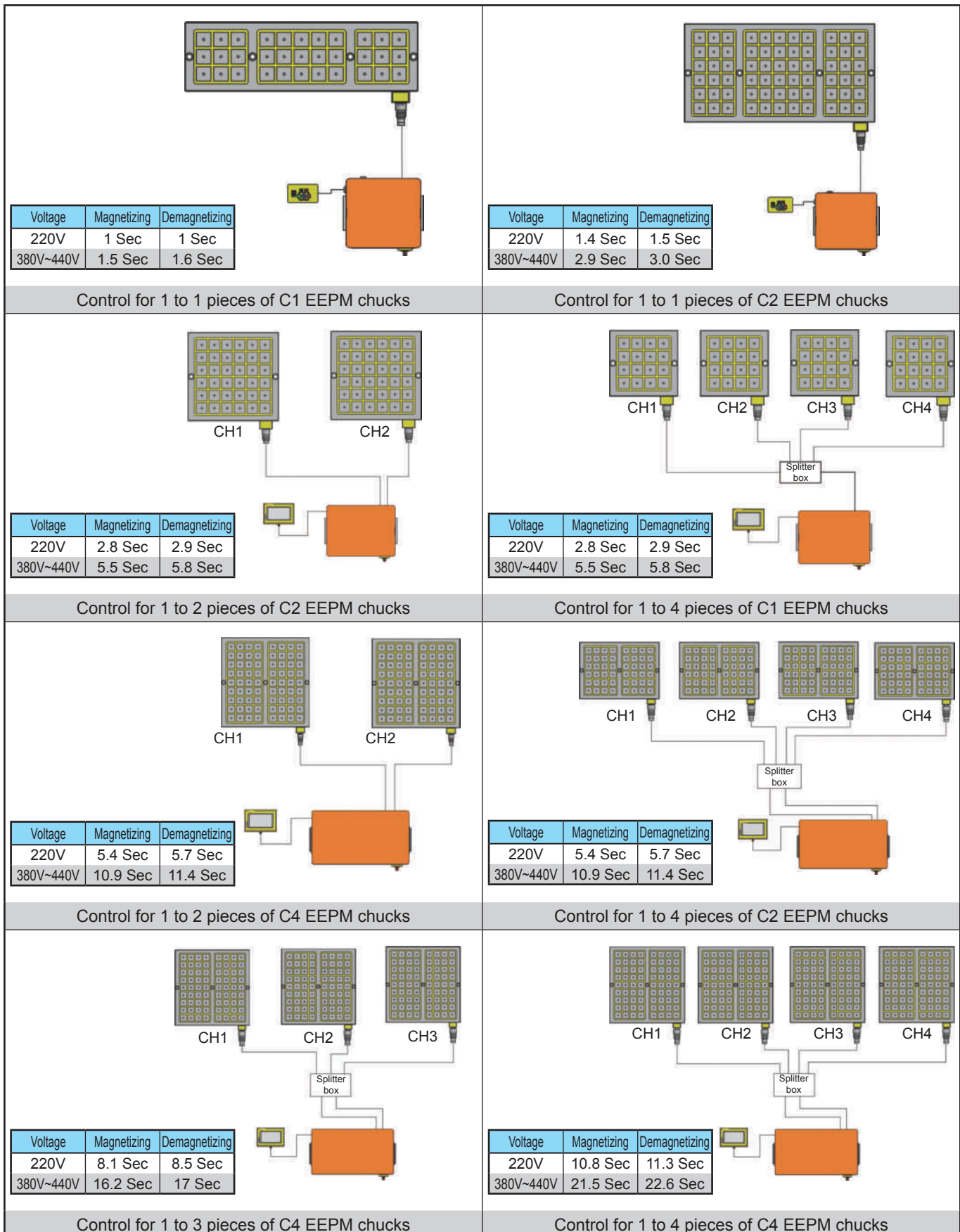
Signal line can be connected with the machine and the robot arm

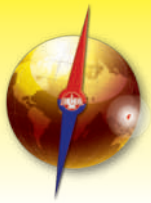




■ Option controller available for control multi-EEPM chuck.

Please advice the voltage of EEPM chucks are AC220V or AC380V~AC440V when purchased. (Depending on the controller specification the junction box is option product.)



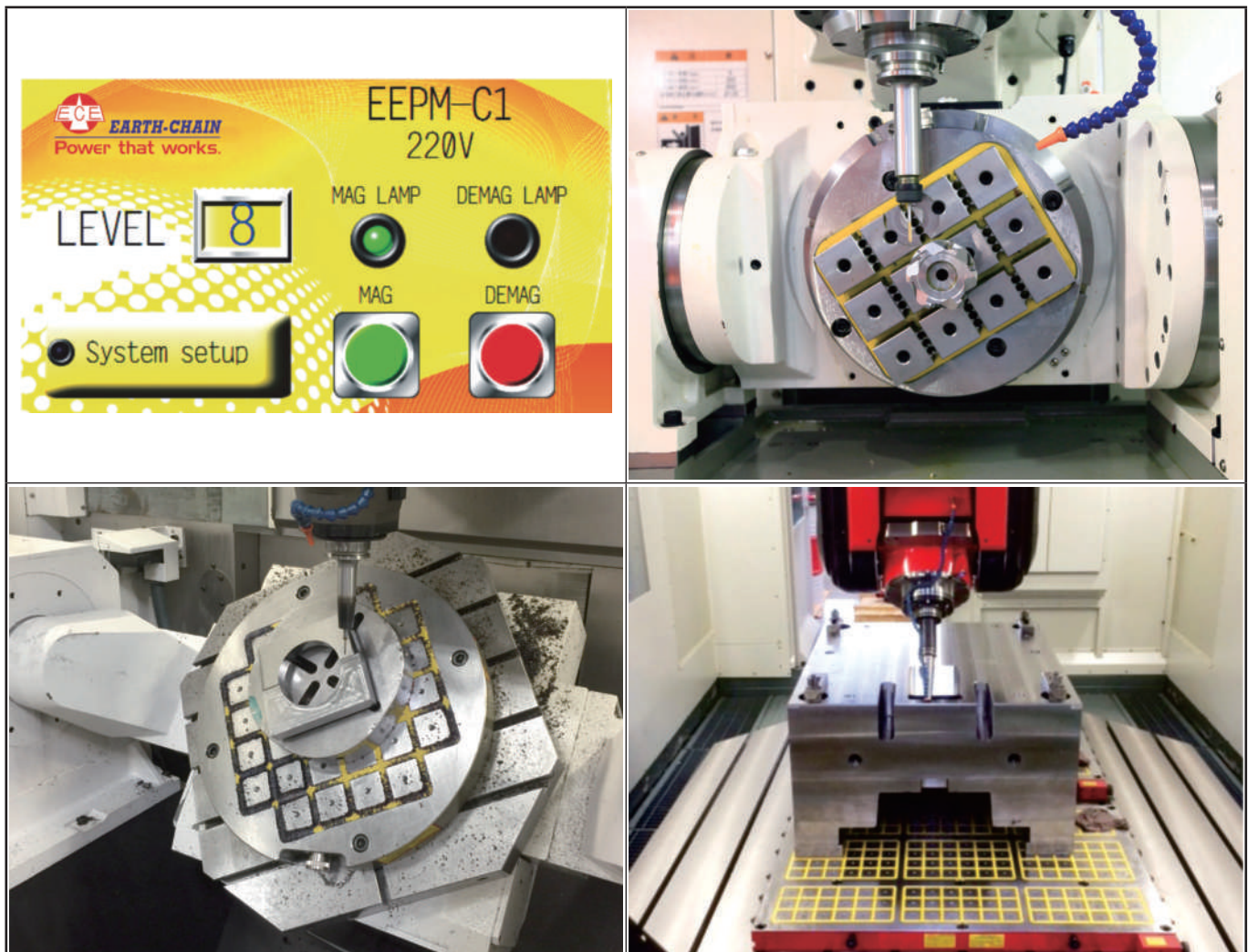


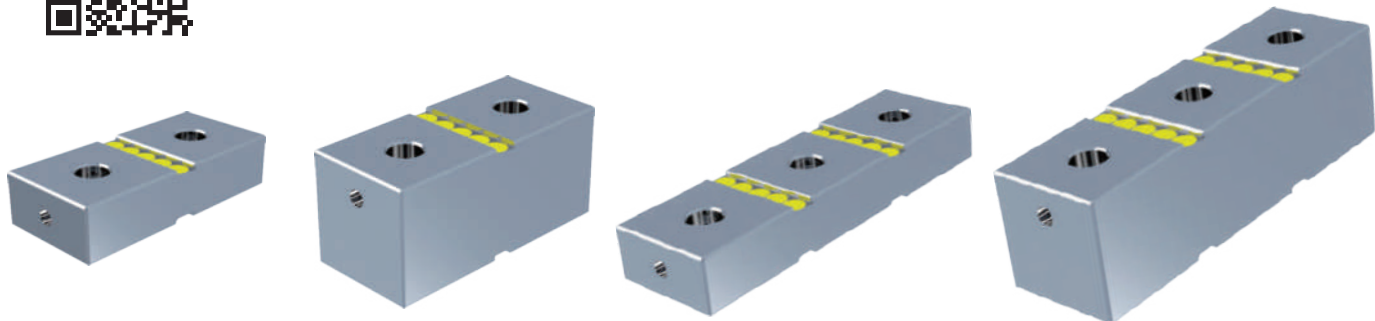
Features:

- 1.HMI touch screen - can be set the screen brightness, key sound, language...etc.
- 2.Display the abnormal status, such as the chuck cable disconnected, and instruction the troubleshooting.
3. Can detect low voltage abnormal situation, to avoid the insufficient magnetic force situation.

Example description:

Develop Human Machine Interface touch screen system, feedback operation status from screen page, and the devices could be drive by pre-set program and parameter.





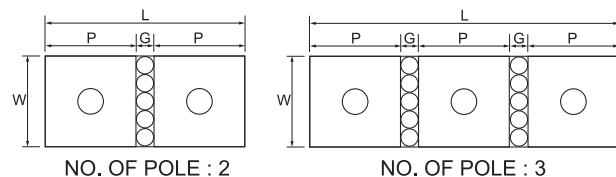
Features:

1. Induction Block EEPM-IB series are use with EEPM chucks, can be increased to more functions on workholding.
2. Increased using life of magnetic chuck: We suggest always use induction block to clamp workpieces, due to workpiece will not touch to the surface of chucks it can be keep chucks always be new.
3. Convenience and Accuracy: Induction Block are interchanging & consuming accessories, you can machining surface or forming induction blocks for the workpiece required by the machine directly, so the parallelism of induction block will always 100% match to the machine.

■ EEPM-IBM Suitable for use on EEPM-M Series Chucks.

Unit:mm

MODEL NO.	NO. OF POLE	W	L	HEIGHT	P	G
EEP-IB210M	2	20	44	10	20	4
EEP-IB310M	3	20	68	10	20	4



■ EEPM-IBA Suitable for use on EEPM-A Series Chucks.

Unit:mm

MODEL NO.	NO. OF POLE	W	L	HEIGHT	P	G
EEP-IB215A	2	35	77	15	35	7
EEP-IB315A	3	35	119	15	35	7

Relative magnetic force to height of EEPM-IB :

MODEL NO.	Height	Holding Power (Kgf)
EEP-IB215A	15 mm	80 %
EEP-IB315A	15 mm	64 %

■ EEPM-IBB Suitable for use on EEPM-B Series Chucks.

Unit:mm

MODEL NO.	NO. OF POLE	W	L	HEIGHT	P	G
EEP-IB225B	2	50	110	25	50	10
EEP-IB325B	3	50	170	25	50	10

MODEL NO.	Height	Holding Power (Kgf)
EEP-IB225B	25 mm	82 %
EEP-IB325B	25 mm	68 %

MODEL NO.	Height	Holding Power (Kgf)
EEP-IB250B	50 mm	72 %
EEP-IB350B	50 mm	58 %

*50mm height induction block with lower holding power that suitable for stopping block only.

■ EEPM-IBD Suitable for use on EEPM-D Series Chucks.

Unit:mm

MODEL NO.	NO. OF POLE	W	L	HEIGHT	P	G
EEP-IB225D	2	70	160	25	70	20
EEP-IB325D	3	70	250	25	70	20

MODEL NO.	Height	Holding Power (Kgf)
EEP-IB225D	25 mm	86 %
EEP-IB325D	25 mm	70 %

MODEL NO.	Height	Holding Power (Kgf)
EEP-IB225E	25 mm	86 %
EEP-IB325E	25 mm	70 %

■ EEPM-IBE Suitable for use on EEPM-E Series Chucks.

Unit:mm

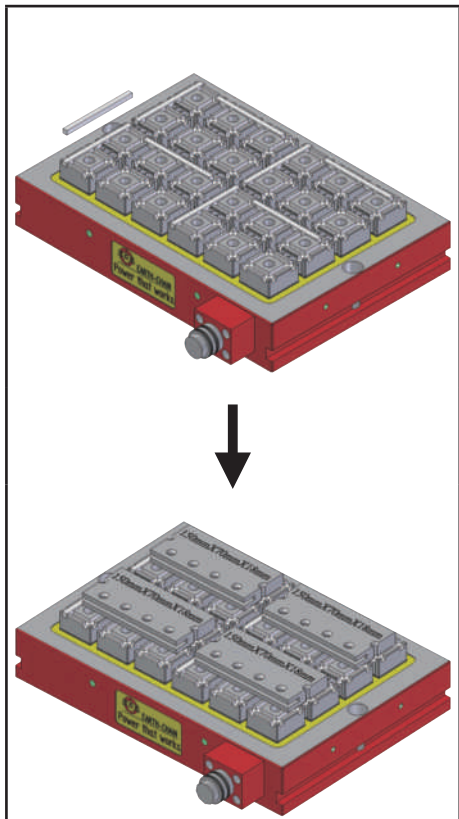
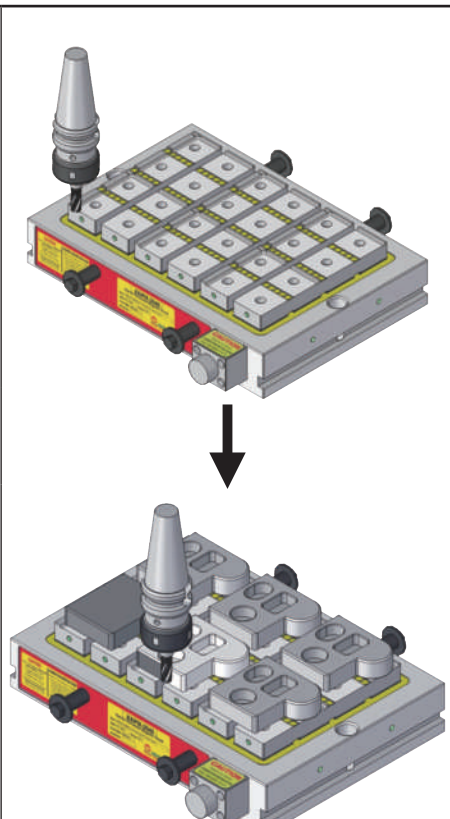
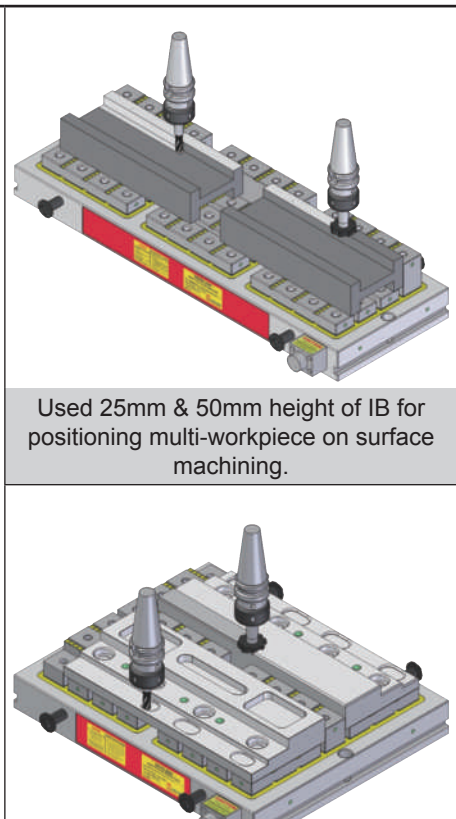
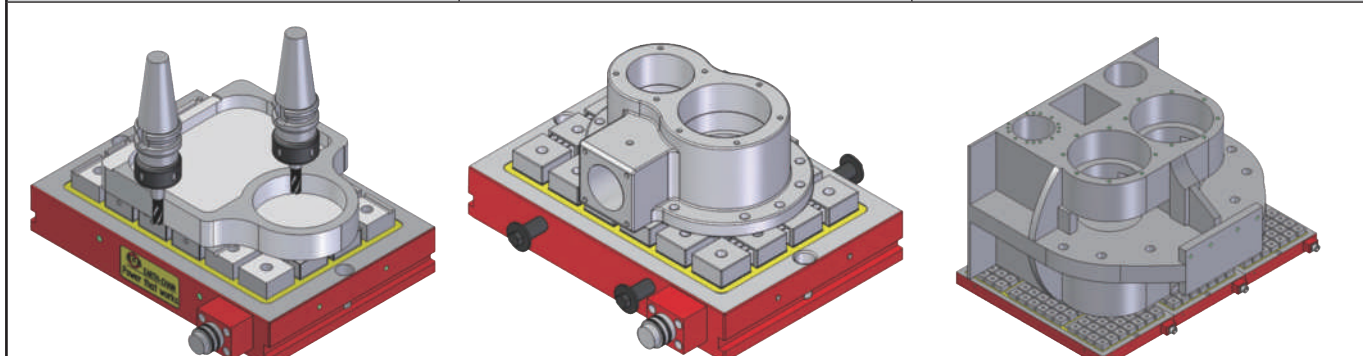
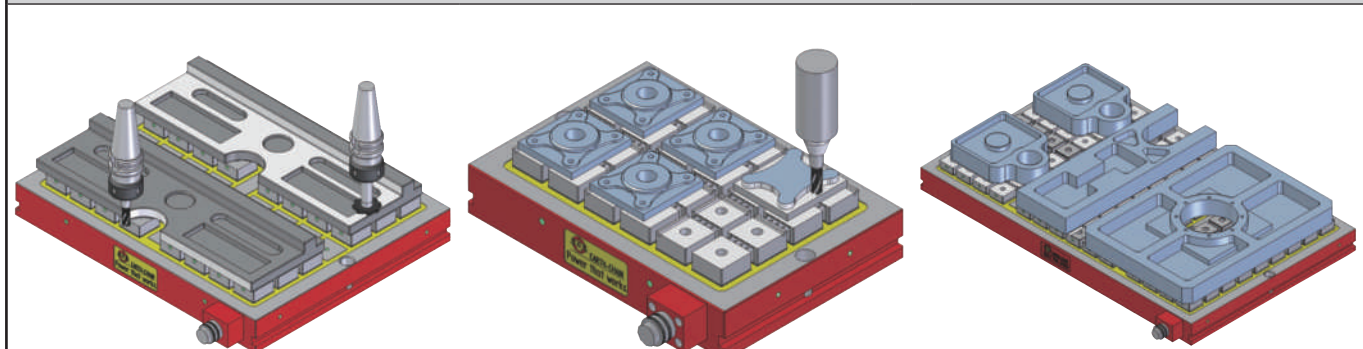
MODEL NO.	NO. OF POLE	W	L	HEIGHT	P	G
EEP-IB225E	2	92	204	25	92	20
EEP-IB325E	3	92	316	25	92	20

Example:

EEP-IB chuck	Induction Block	Total Holding Power
EEP-2560B	None	7,500±5% kgf
EEP-2560B	IB225B x 24pcs	6,150±5% kgf (7,500x82%)



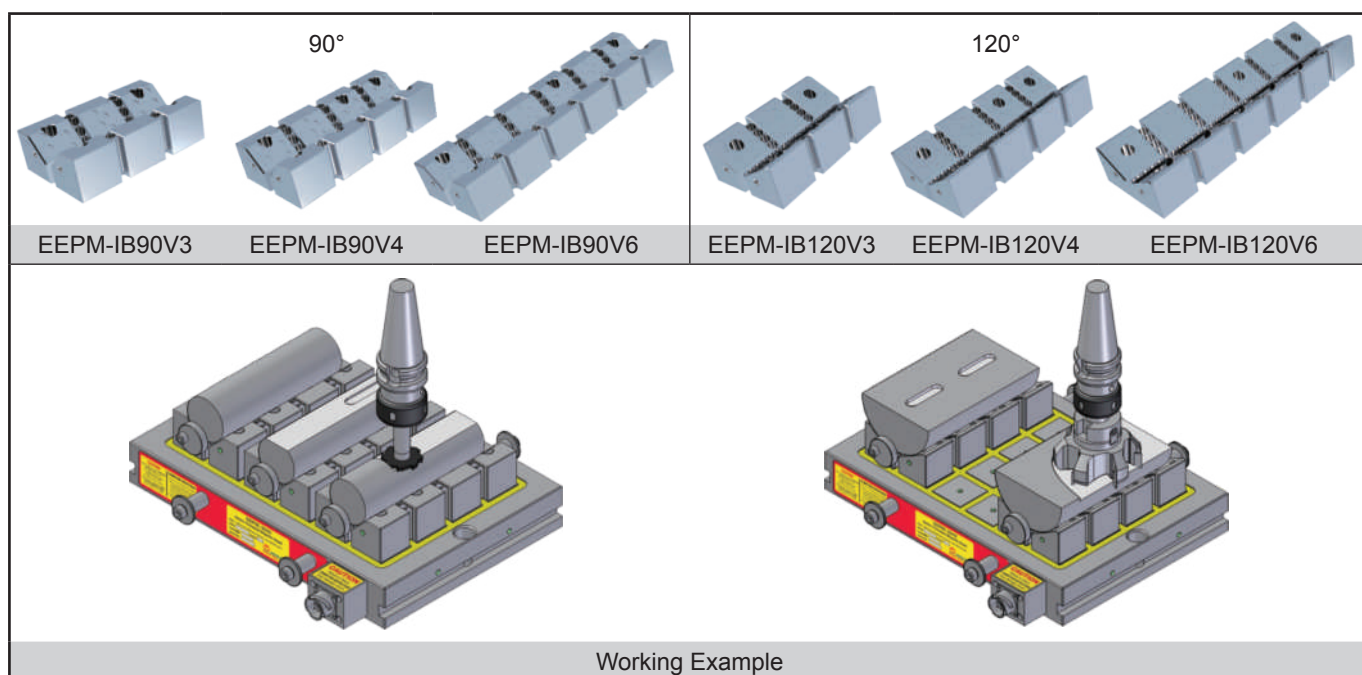
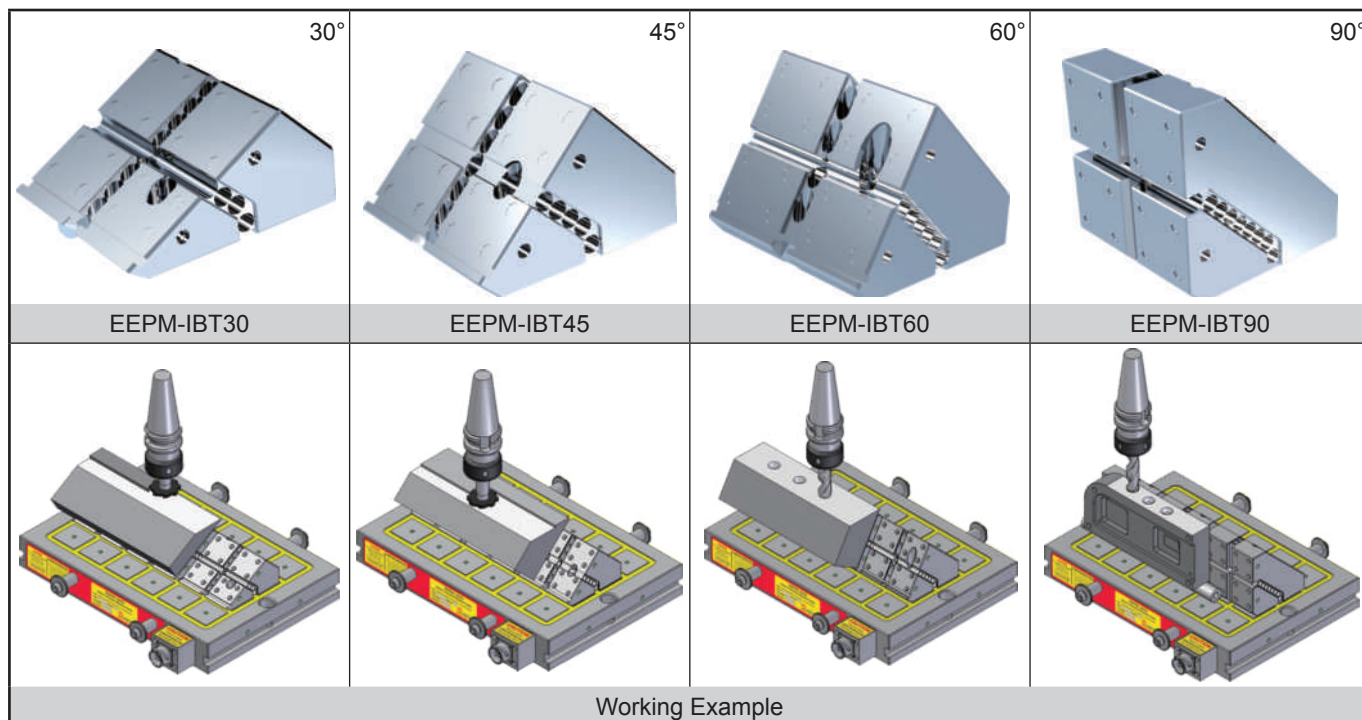
Working Example

 <p>Directly processing the grooves on induction block and placing the bars in demand for multi-workpiece on 5 sides machining.</p>	 <p>Machining slots and steps on IB for positioning multi- workpiece on 5 sides machining.</p>	 <p>Used 25mm & 50mm height of IB for positioning multi-workpiece on surface machining.</p>
 <p>Using height 25mm induction block for irregular workpiece on 5 sides machining.</p>		
 <p>Using height 25mm Induction block for multi-workpiece on 5 sides machining.</p>		

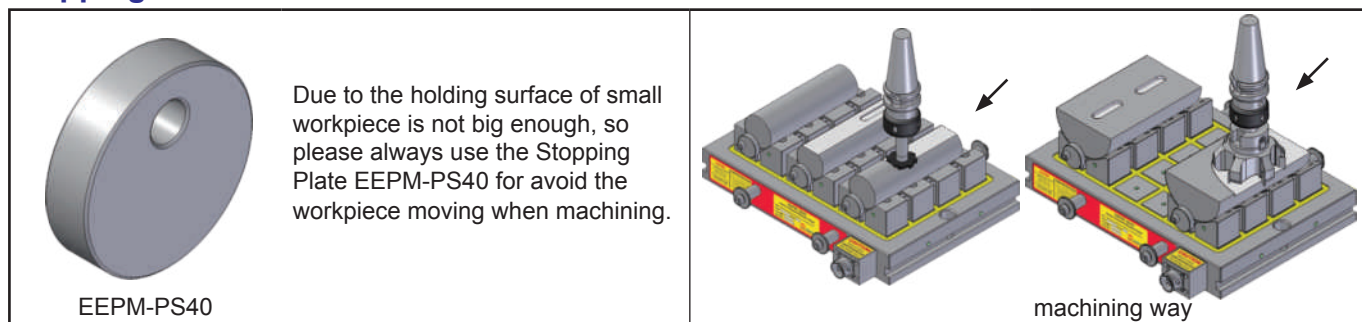


Option Accessories

Induction Block EEPM-IBT Series



Stopping Plate EEPM-PS40

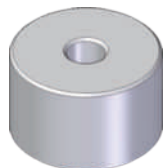




■ Suitable for use on EEPM Series of Electro-Permanent Magnetic Chuck.

Spring Block EEPM-SP Series Patent Protected violators will be prosecuted: Patented Taiwan M605141

■ Suitable for clamping on iron cast, irregular form and flexuous workpieces, it will not be out of shape the workpiece after machining.



Fixed Block
EEPM-SPF Series



Spring Block
EEPM-SP Series

Features:

1. Suitable for clamping on iron cast, irregular form and flexuous workpieces, it will not be out of shape of the workpiece after machining.
2. 3 Fixed Blocks is necessary for each workpiece clamping, it could be makes a basic surface for the workpiece touch to the Spring Blocks.

Relative magnetic force to
Fixed block and Spring block:

	Spring Block
Holding Power (Kgf)	43%

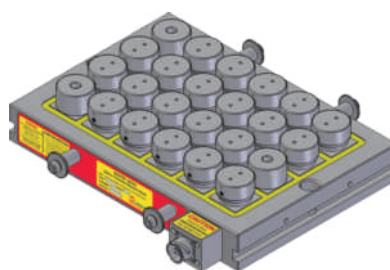
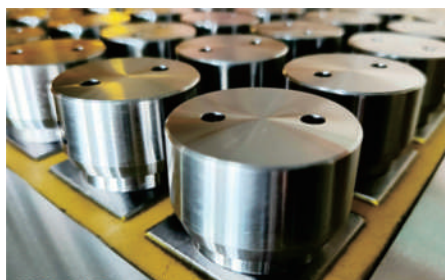


Unit:mm

MODEL NO.	OD	H	SUITABLE
EEPM-SPR35	Ø37	21~25	EEPM-A Series
EEPM-SPRF35	Ø37	23	

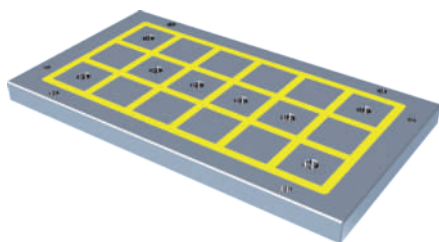
MODEL NO.	OD	H	SUITABLE
EEPM-SPR50	Ø52	30~35	EEPM-B Series
EEPM-SPRF50	Ø52	32.5	

MODEL NO.	OD	H	SUITABLE
EEPM-SPR70	Ø72	39~45	EEPM-D Series
EEPM-SPRF70	Ø72	42	



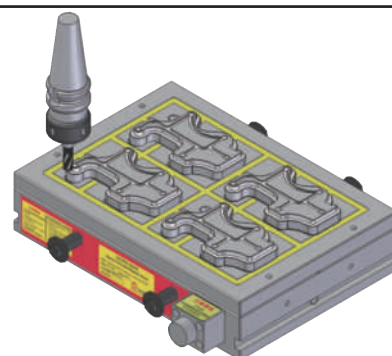
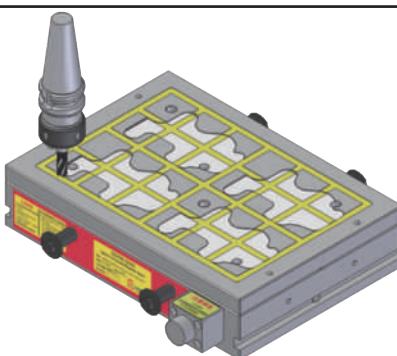
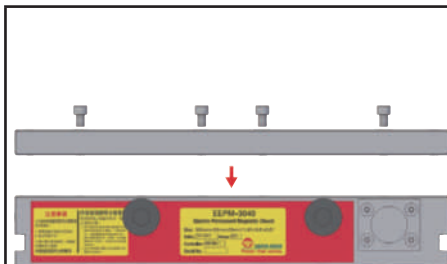
Induction Sub Plate EEPM-ISP Series

■ Suitable for quantity of irregular and smaller workpiece. It can be machining multi-workpiece at same time easily.



Features:

1. Suitable for quantity of irregular and smaller workpiece. It can be machining multi-workpiece at same time easily.
2. One EEPM chuck can be use several Induction Sub Plate exchangeability for machining different kind of workpiece.
3. Operation: Set up the Induction Sub Plates to the EEPM chucks first, then machining forms (Around 1-2mm depth) on ISP to match the workpiece by the machine directly. Start to clamp workpieces for machining.
4. Please advise the model No. of EEPM chuck which you want to combine for, when purchased.





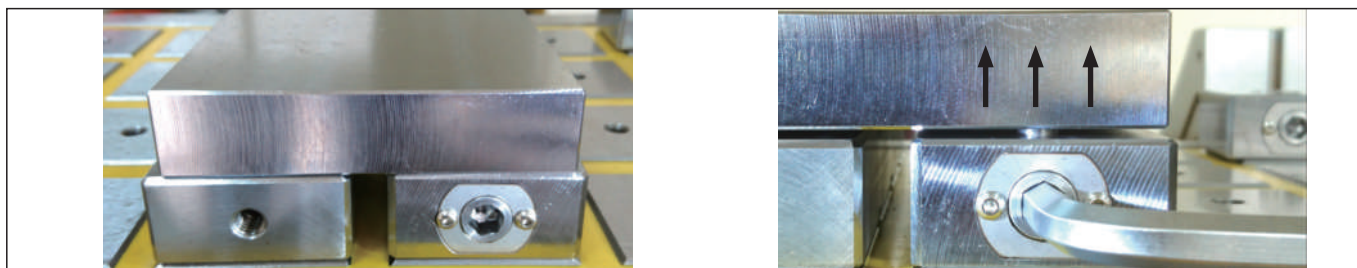
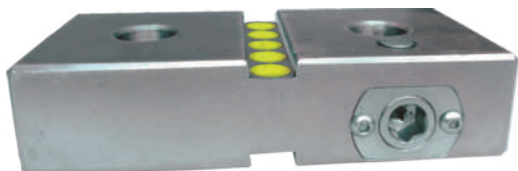
■ Suitable for use on EEPM Series of Electro-Permanent Magnetic Chuck.

Induction block with raise pin structure EEPM-IB225BT

■ Suitable for high-carbon steel workpiece

Features:

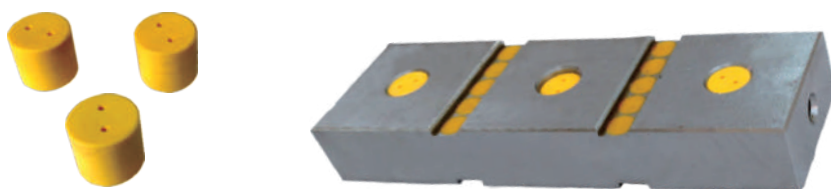
1. Since the high-carbon materials, the workpiece might be unable to be instantly released after machining cycle is completed due to residual magnetism.
2. The high-carbon steel parts are difficult to remove after the magnetization using induction block with raise pin structure can easily remove the workpiece.



Tap of Induction block screw hole EEPM-IBC50

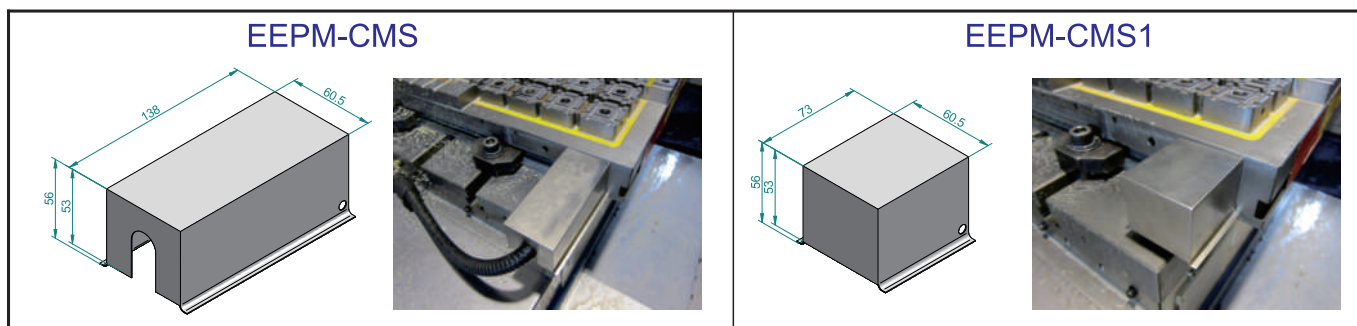
Features:

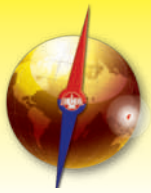
1. Put the EEPM-IBC50 into Induction block screw hole, to avoid the iron chip fall in the induction block screw holes when machining, can be save the time for chips clear.
2. Maximum temperature is 200 degrees, if without cooling device the surface of EEPM-IBC50 will be damage by high temperature of iron chips.



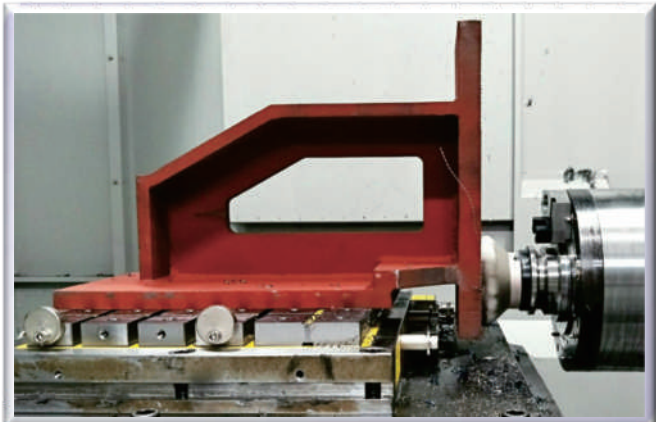
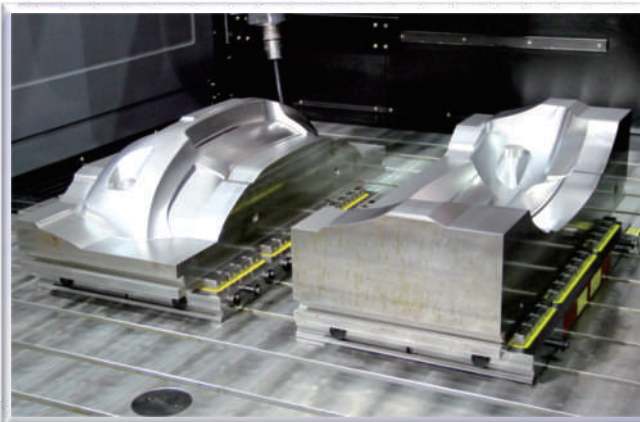
Cover of Connector Base EEPM-CMS & EEPM-CMS1

■ Effectively avoid short circuit cause by liquid or objects enter into the wires.





Working Example



Mag Vise Magnetic Workholding



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