MagVISE
magnetic workholding

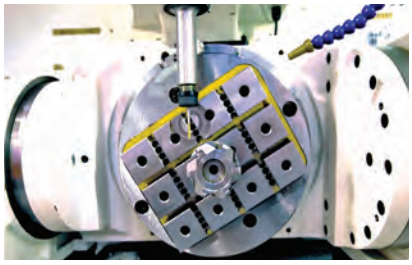
MagVISE
E-C-B
WORKHOLDING
VISES

EZ
LIFT

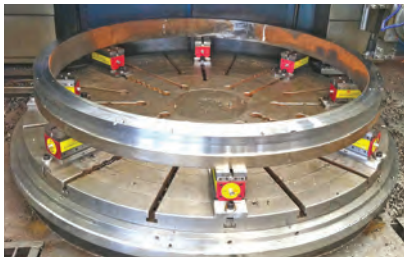
ENGINEERED TURN-KEY MAGNETIC SOLUTIONS FOR ALL TYPES OF APPLICATIONS.

MAGNETIC CHUCKS | MAGNETIC VISES | MAGNETIC LIFTERS

Our MagVISE and EZ-LIFT brands offer the widest selection of magnetic workholding and lifting solutions. Our engineers work with you to provide custom TURN-KEY solutions that integrate easily into your production process in order to improve efficiency and maximize productivity.



EEPM Chucks easily integrate into your CNC centers..



ECB magnetic vises are perfect for modular setups.

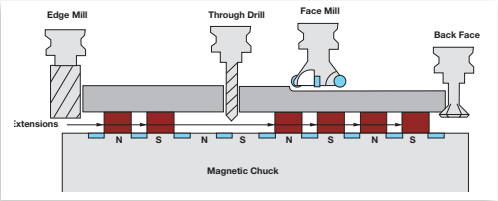
EZ-LIFT ELM magnetic lifters are powerful & compact.

MagVISE
magnetic workholding

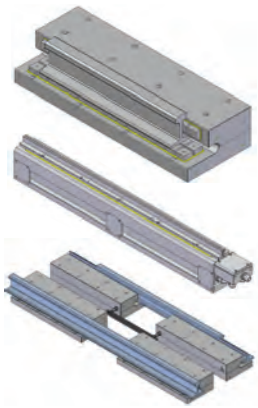
CHOOSE MAGNETIC WORKHOLDING

Compared to traditional fixturing methods, magnetic workholding frees up all five sides of your workpiece so you can machine the entire profile of the part in one set-up.

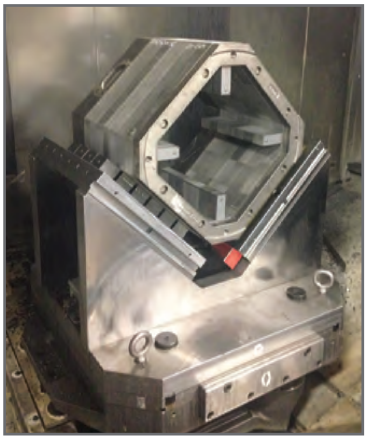
Magnetic workholding greatly reduces set up and part change-over time, giving your spindle more time to make chips.



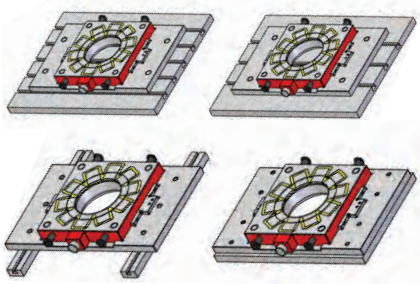
RAIL PRODUCTION

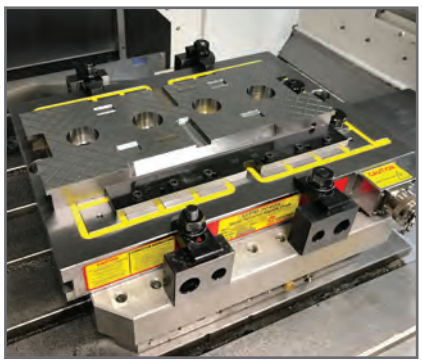


COMPLEX WORKPIECES



AUTOMATED PALLET SYSTEMS





EEPM MAGNETIC WORKHOLDING CHUCKS

Large plate EEPM customized to fit your system

EEPM chucks come with controller, a standard remote, and a touch-screen remote.

MagVISE magnetic workholding

FEATURES:

- **Up to 86,625 lbs holding power**
- **Turn chuck ON/OFF in only a few seconds – chuck will not lose magnetism if a power loss occurs**
- **Induction block and subplates provide additional setup options for small parts or warped stock**

ADVANTAGES:

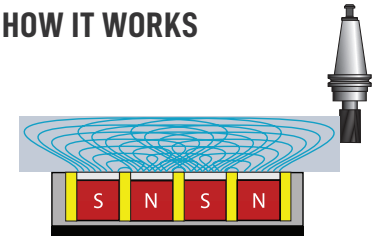
- **Machine freely on 5-sides & top so you can cut the full part profile in only one operation**
- **Reduce setup & change-over time by 50% or more!**
- **Very uniform holding = No workpiece deformation**

Compared to traditional fixturing methods, magnetic workholding frees up all five sides of your workpiece so you can machine an entire profile in one set-up. Magnetic workholding greatly reduces set up and part change-over time, giving your spindle more time to make chips.

Thick or thin, large or small – just about any ferrous material can be held and machined magnetically. Larger parts are easier to hold because there is more material for the magnetic flux to penetrate.

For smaller parts, using work stops and nesting the part are options that work well. Magnetic workholding is used for just about all types of machining operations on horizontal or vertical CNC machines.

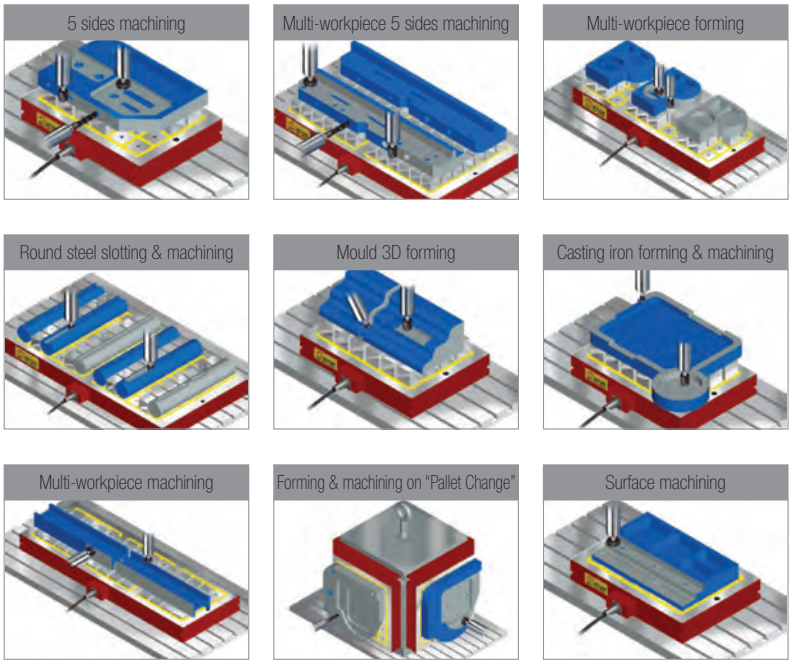
HOW IT WORKS



In the ON state, alnico and rare-earth magnets alternate poles, creating a powerful magnetic attraction. Holding power varies with type of material being held, surface finish, and part thickness.

Minimum recommended part size is 5" x 5" x 3/8" thick, so a minimum of 4 magnetic poles are covered by the part. Workstops, pins or part nesting techniques ensure the ability to hold small, thin parts without movement.

APPLICATION EXAMPLES



EEPM MAGNETIC WORKHOLDING CHUCKS

S = 1.2" S1 = 1" G = 0.4 M = 1.2"

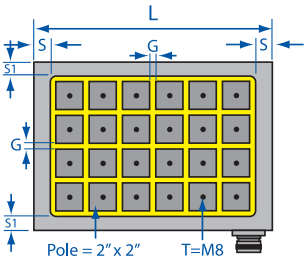


Fig. 1

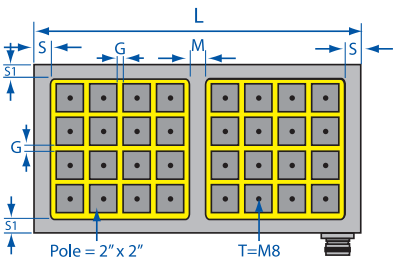


Fig. 2

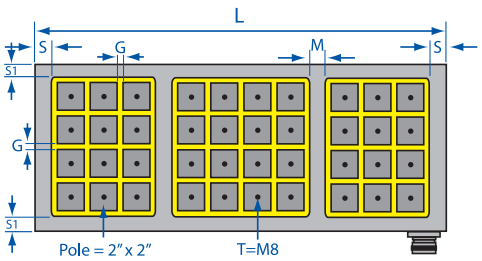


Fig. 3

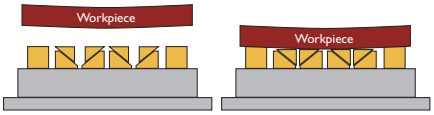
Model	Fig	L x W x H	Poles	Holding Power	Weight	Subplate	Power	Controller
EEPM-2540B	1	16.9" x 9.4" x 2.36"	18	12,375 lbs.	110 lbs.	EEPM-2540ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-2560B	2	23.2" x 9.4" x 2.36"	24	16,500 lbs.	152 lbs.	EEPM-2560ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-2580B	3	31.9" x 9.4" x 2.36"	33	22,687 lbs.	202 lbs.	EEPM-2580ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-2590B	3	34.3" x 9.4" x 2.36"	36	24,750 lbs.	216 lbs.	EEPM-2590ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-25100B	3	39.0" x 9.4" x 2.36"	42	28,875 lbs.	244 lbs.	EEPM-25100ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-3030B	1	12.2" x 11.8" x 2.36"	16	11,000 lbs.	97 lbs.	EEPM-3030ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-3040B	1	16.9" x 11.8" x 2.36"	24	16,500 lbs.	134 lbs.	EEPM-3040ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-3060B	2	23.2" x 11.8" x 2.36"	32	22,000 lbs.	180 lbs.	EEPM-3060ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-3080B	3	31.9" x 11.8" x 2.36"	44	30,250 lbs.	255 lbs.	EEPM-3080ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-3090B	3	34.3" x 11.8" x 2.36"	48	33,000 lbs.	271 lbs.	EEPM-3090ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-30100B	3	39.0" x 11.8" x 2.36"	56	38,500 lbs.	304 lbs.	EEPM-30100ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-4040B	1	16.9" x 16.5" x 2.36"	36	24,750 lbs.	185 lbs.	EEPM-4040ISP	220v- 480v, 1 phase	EEPM-C1
EEPM-4050B	1	18.9" x 16.9" x 2.36"	42	28,875 lbs.	209 lbs.	EEPM-4050ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-4060B	2	23.2" x 16.5" x 2.36"	48	33,000 lbs.	255 lbs.	EEPM-4060ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-4080B	3	31.9" x 16.5" x 2.36"	66	45,375 lbs.	350 lbs.	EEPM-4080ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-4090B	3	34.3" x 16.5" x 2.36"	72	49,500 lbs.	372 lbs.	EEPM-4090ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-40100B	3	39.0" x 16.5" x 2.36"	84	57,750 lbs.	425 lbs.	EEPM-40100ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-5060B	2	23.2" x 18.9" x 2.36"	56	38,500 lbs.	284 lbs.	EEPM-5060ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-5080B	3	31.9" x 18.9" x 2.36"	77	52,937 lbs.	407 lbs.	EEPM-5080ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-5090B	3	34.3" x 18.9" x 2.36"	84	57,750 lbs.	431 lbs.	EEPM-5090ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-50100B	3	39.0" x 18.9" x 2.36"	98	67,375 lbs.	482 lbs.	EEPM-50100ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-6060B	2	23.2" x 23.6" x 2.36"	72	49,500 lbs.	363 lbs.	EEPM-6060ISP	220v- 480v, 1 phase	EEPM-C2
EEPM-6080B	3	31.9" x 23.6" x 2.36"	99	68,062 lbs.	473 lbs.	EEPM-6080ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-6090B	3	34.3" x 23.6" x 2.36"	108	74,250 lbs.	528 lbs.	EEPM-6090ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-60100B	3	39.0" x 23.6" x 2.36"	126	86,625 lbs.	603 lbs.	EEPM-60100ISP	220v- 480v, 1 phase	EEPM-C4
EEPM-8080B	3	31.9" x 29.7" x 2.36"	121	83,187 lbs.	596 lbs.	EEPM-8080ISP	220v- 480v, 1 phase	EEPM-C4

EEPM magnets ship with controller.

EEPM INDUCTION BLOCKS

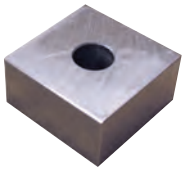
Use induction blocks to elevate the workpiece above the surface of the magnet and permit machining 5 sides and thru-hole drilling. Individual induction blocks provide maximum flexibility for creating custom setups for holding difficult workpieces and warped stock.

We recommend using induction blocks at all times to preserve the precision ground finish and prevent damage to the face of the magnetic chuck.



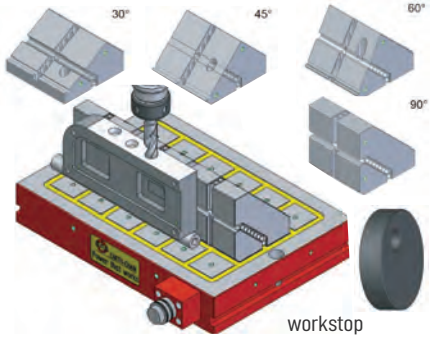
Use EEPM-SPF induction blocks on the corners and EEPM-SP spring loaded blocks everywhere else so the induction blocks adjust to match the warped stock.

Square spring block



Square solid block

Round Solid & Spring-loaded Blocks



workstop

SQUARE SOLID INDUCTION BLOCKS

Part No.	Description	L	W	H
EEPM-SPF	Square Solid Induction Block for 50mm pole	50mm	50mm	32.5mm
EEPM-SPF35	Square Solid Induction Block for 35mm pole	35mm	35mm	23mm
EEPM-SPF70	Square Solid Induction Block for 70mm pole	70mm	70mm	32.5mm

SQUARE SPRING-LOADED INDUCTION BLOCKS

Part No.	Description	L	W	H
EEPM-SP	Square Spring-Loaded Ind. Block for 50mm pole	48mm	48mm	30/35mm
EEPM-SP35	Square Spring-Loaded Ind. Block for 35mm pole	35mm	33mm	21/25mm
EEPM-SP70	Square Spring-Loaded Ind. Block for 70mm pole	68mm	65mm	30/35mm

ROUND SOLID INDUCTION BLOCKS

Part No.	Description	Dia.	H
EEPM-RF50	Round Solid Induction Block for 50mm pole	52mm	32.5mm
EEPM-RF35	Round Solid Induction Block for 35mm pole	37mm	23mm
EEPM-RF70	Round Solid Induction Block for 70mm pole	72mm	32.5mm

ROUND SPRING-LOADED INDUCTION BLOCKS

Part No.	Description	Dia.	H
EEPM-SPR50	Round Spring-Loaded Inductrion Block for 50mm pole	52mm	30/35mm
EEPM-SPR50	Round Spring-Loaded Inductrion Block for 70mm pole	72mm	39/45mm

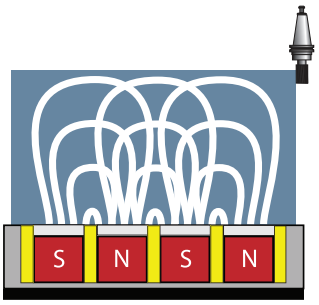
ANGLED INDUCTION BLOCKS & WORKSTOP

Part No.	Desc.
EEPM-IBT30	30˚ angle, 4-pole induction block
EEPM-IBT45	45˚ angle, 4-pole induction block
EEPM-IBT60	60˚ angle, 4-pole induction block
EEPM-IBT90	90˚ angle, 4-pole induction block
EEPM-PS40	round workstop (replacement)

EEPM CHUCKS FOR LARGE WORKPIECES

70MM POLE FEATURES:

- **Up to 98,767 lbs. holding power**
- **Reduce setup time by 50%**
- **Machine freely on 5-sides**



70mm pole chucks provide the most powerful flux lines with the furthest extension into the workpiece. Most effective for large workpieces.

S = 1.2" M = 1.2"
S1 = 1"
G = 0.78"

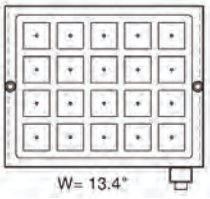


Figure 1

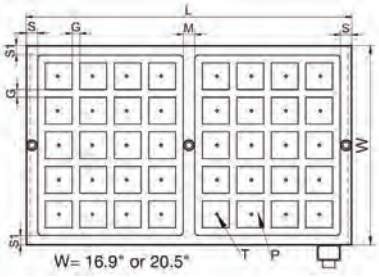


Figure 2

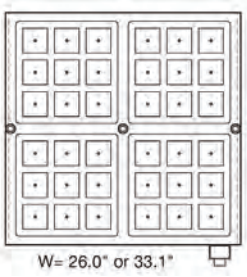


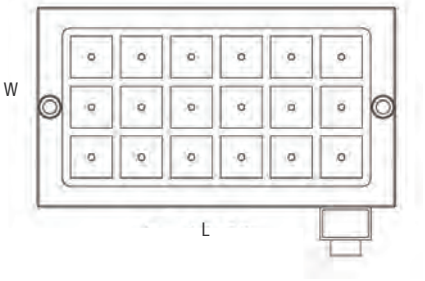
Figure 3

Model	Fig	L x W x H	Poles	Holding Pwr.	Weight	Subplate	Power	Controller
EEPM-3060D-480	1	26.4" x 13.4" x 2.8"	18	27,778 lbs.	278 lbs.	EEPM-3060DISP	480V, 1 phase	EEPM-C1
EEPM-4050D-480	2	20.9" x 16.9" x 2.8"	20	30,864 lbs.	278 lbs.	EEPM-4050DISP	480V, 1 phase	EEPM-C1
EEPM-4060D-480	2	26.4" x 16.9" x 2.8"	24	37,037 lbs.	350 lbs.	EEPM-4060DISP	480V, 1 phase	EEPM-C1
EEPM-4080D-480	2	33.5" x 16.9" x 2.8"	32	49,383 lbs.	445 lbs.	EEPM-4080DISP	480V, 1 phase	EEPM-C2
EEPM-5060D-480	2	26.4" x 20.5" x 2.8"	30	46,297 lbs.	425 lbs.	EEPM-5060DISP	480V, 1 phase	EEPM-C2
EEPM-5080D-480	2	33.5" x 20.5" x 2.8"	40	61,729 lbs.	538 lbs.	EEPM-5080DISP	480V, 1 phase	EEPM-C2
EEPM-6060D-480	3	26.4" x 26.0" x 2.8"	36	55,556 lbs.	540 lbs.	EEPM-6060DISP	480V, 1 phase	EEPM-C2
EEPM-6080D-480	3	33.5" x 26.0" x 2.8"	48	74,075 lbs.	683 lbs.	EEPM-6080DISP	480V, 1 phase	EEPM-C2
EEPM-8080D-480	3	33.5" x 33.1" x 2.8"	64	98,767 lbs.	870 lbs.	EEPM-8080DISP	480V, 1 phase	EEPM-C4

Our 70MM pole chucks provide the increased holding power needed for large workpieces, thick plates, blocks and molds.

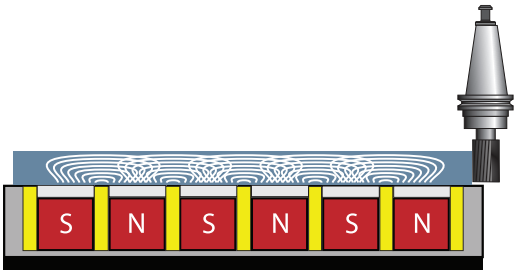
Great choice for drilling, milling, and boring operations on vertical or horizontal mills. They easily integrate with pallet changing and tombstone systems.

EEPM CHUCKS FOR THIN WORKPIECES



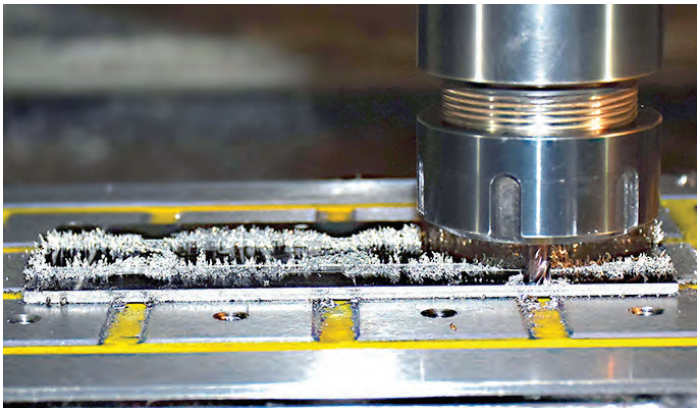
35MM POLE FEATURES:

- **Up to 34,524 lbs. holding power**
- **Designed for thinner material**
- **Reduce setup time by 50%**



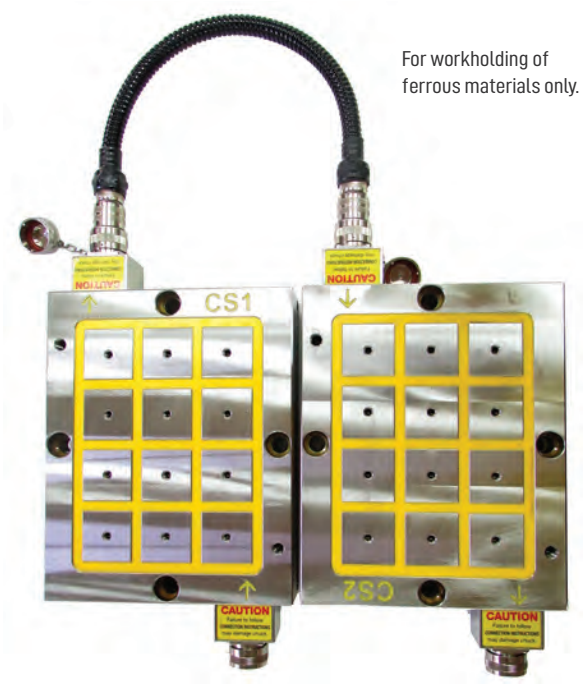
35mm pole chucks feature flux lines concentrated closer to the sufrace, providing more magnetic coverage of thin material.

Model	L x W x H	Poles	Holding Power	Weight	Subplate	Power	Controller
EEPM-1530A	12.6" x 7.3" x 1.9"	18	5,754 lbs.	51 lbs.	EEPM-1530ISPA	220-480V, 1 phase	EEPM-C1
EEPM-2540A	17.3" x 8.9" x 1.9"	32	10,229 lbs.	86 lbs.	EEPM-2540ISPA	220-480V, 1 phase	EEPM-C1
EEPM-2560A	24.0" x 8.9" x 1.9"	48	15,344 lbs.	119 lbs.	EEPM-2560ISPA	220-480V, 1 phase	EEPM-C2
EEPM-3030A	12.6" x 12.2" x 1.9"	36	11,508 lbs.	86 lbs.	EEPM-3030ISPA	220-480V, 1 phase	EEPM-C1
EEPM-3040A	17.3" x 12.2" x 1.9"	48	15,344 lbs.	117 lbs.	EEPM-3040ISPA	220-480V, 1 phase	EEPM-C2
EEPM-3060A	24.0" x 12.2" x 1.9"	72	23,016 lbs.	163 lbs.	EEPM-3060ISPA	220-480V, 1 phase	EEPM-C2
EEPM-4040A	17.3" x 17.1" x 1.9"	72	23,016 lbs.	165 lbs.	EEPM-4040ISPA	220-480V, 1 phase	EEPM-C2
EEPM-4050A	20.7" x 17.1" x 1.9"	90	28,770 lbs.	198 lbs.	EEPM-4050ISPA	220-480V, 1 phase	EEPM-C4
EEPM-4060A	24.0" x 17.1" x 1.9"	108	34,524 lbs.	229 lbs.	EEPM-4060ISPA	220-480V, 1 phase	EEPM-C4



Our 35MM pole chucks are built specifically for the machining of thin workpieces. They are a great choice for machining operations on either vertical or horizontal mills. They easily integrate with pallet changing and tombstone systems.

EEPM-C MODULAR WORKHOLDING CHUCKS



For workholding of ferrous materials only.

FEATURES:

- **Modular connectivity capable of conforming multiple chucks to your unique part and set up**
- **Operate as many as 16 chucks with 1 controller**
- **8,250 lbs. holding power (each chuck)***

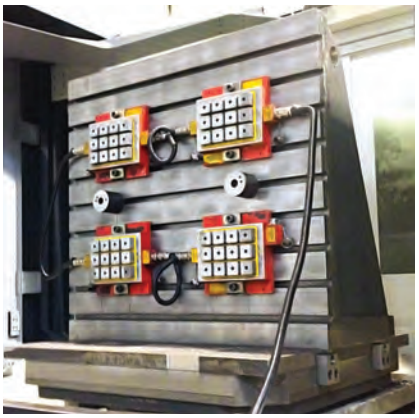
ADVANTAGES:

- **Easy to setup and adjust for large or irregular parts**
- **Reduced investment vs. larger, single magnetic chuck setup**
- **Easy to move and setup from machine to machine**

EEPM-C chucks provide almost unlimited flexibility to hold workpieces of varying sizes. Use clamps or bolts to position EEPM-C magnets anywhere on your machine bed or pallet to fit your workpiece.

*Holding power varies with material type, surface finish, and part thickness.

Use for fast setups on plate stock

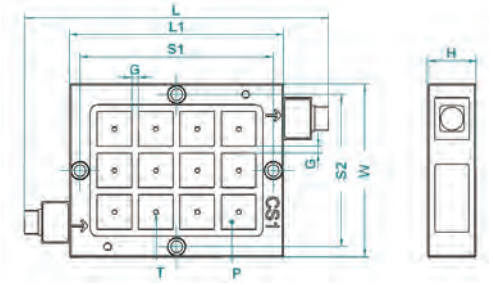


Configure multiple chucks to a variety of setups

Large tooth sprocket being machined

Modular setups adjust easily to part

EEPM-C MODULAR WORKHOLDING CHUCKS



Part No.	W	L	L1	S1	S2	H	T	Pole	No. of Poles	Holding Power	Weight
EEPM-2030C	190mm	440mm	310mm	280mm	160mm	70mm	M8	50mm x 50mm	8	5,500 lbs.	73.7 lbs.
EEPM-2525C	250mm	380mm	250mm	220mm	220mm	70mm	M8	50mm x 50mm	9	6,160 lbs.	77 lbs.
EEPM-2530C	250mm	440mm	310mm	280mm	220mm	70mm	M8	50mm x 50mm	12	8,250 lbs.	96.8lbs.

*Holding power varies with type of material being held, surface finish, and part thickness.

Controller requires a dedicated 480V single phase, 30A power supply. C4 control features 4 channels to control up to 16 chucks. Control each channel independently.

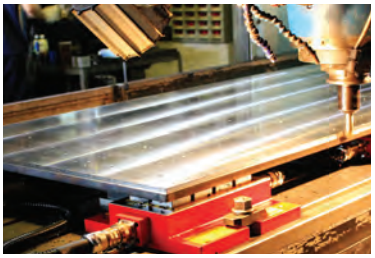
Part No.	Description	L x W x H	Channels	Qty. Chucks
EEPM-C4C	Controller for 1-16 EEPM-C magnetic chucks	10.6" x 7" x 5"	4	1-16

Connection Cables	Length
EEPM-CC05	19.6"
EEPM-CC10	39.37"
EEPM-CC15	59"

Position the chucks on the machine bed

Connect the control cables to chucks and control

Lock them in position using bolts provided



Position workpiece and start machining

EEPM-V CHUCKS FOR HORIZONTAL MACHINING

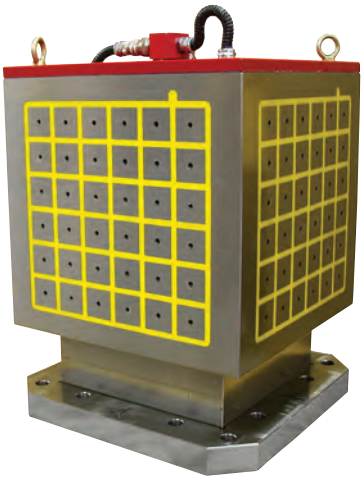
FEATURES:

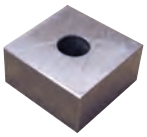
- **Up to 68,640 lbs. holding power***
- **Choose from 2 or 4 sided chucks**
- **36, 42, or 100 pole chucks, 16.9" to 29.9"**

ADVANTAGES:

- **Reduce setup & change-over time by 50% or more!**
- **Machine freely on all 5-sides to reduce operations**
- **Very uniform holding = No workpiece deformation**

*4 sizes available
For workholding of ferrous materials only.

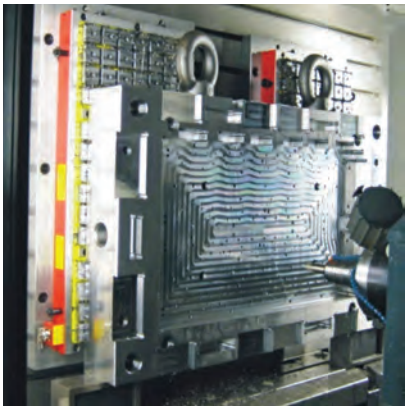




Induction Blocks
see page 247.

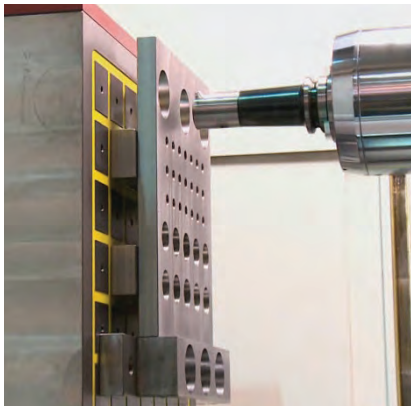
INDUCTION BLOCKS & SUB-PLATES

We recommend using induction blocks or subplates at all times to preserve the precision ground finish and prevent damage to the face of the magnetic chuck.

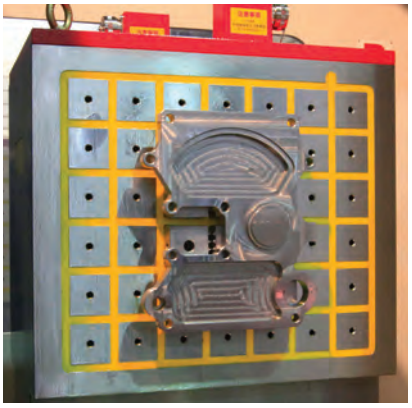


Mold making application

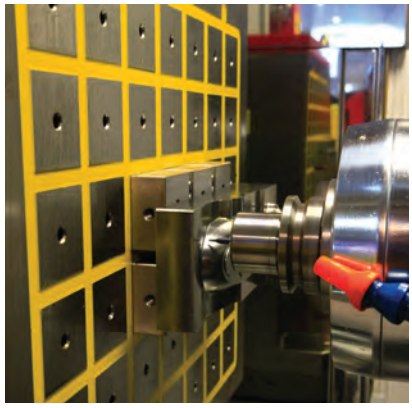
2-sided EEPM on palletized system



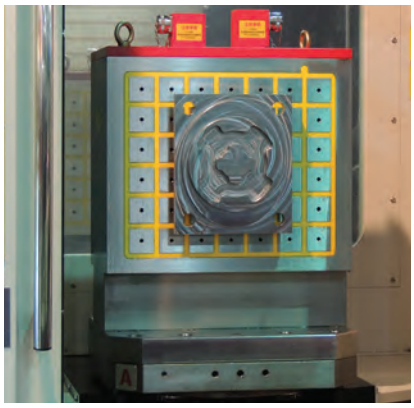
Hole-making applications are no problem



Complex part shapes - 5 sides machining



Finish pass using small tools



Palletized horizontal workholding chuck

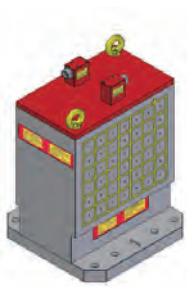
ORDERING EEPM-V CHUCKS

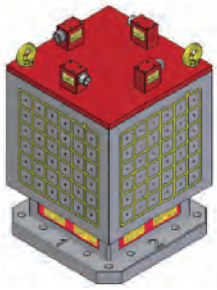
- Select the number of faces and chucks required
- Controller is included with chuck
- Order induction blocks from page 247

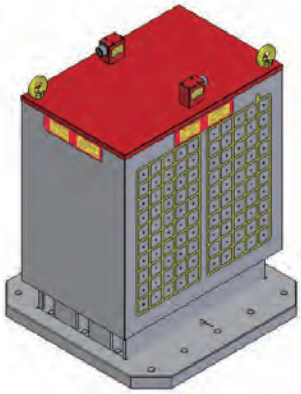
WE MANUFACTURE CUSTOM TOMBSTONES

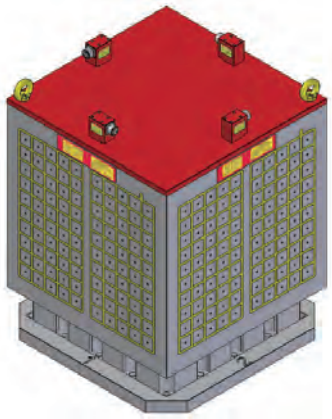
- Built to your specifications.
  Call us to discuss your needs.
- (800) 597-3921 or local (317) 803-8000

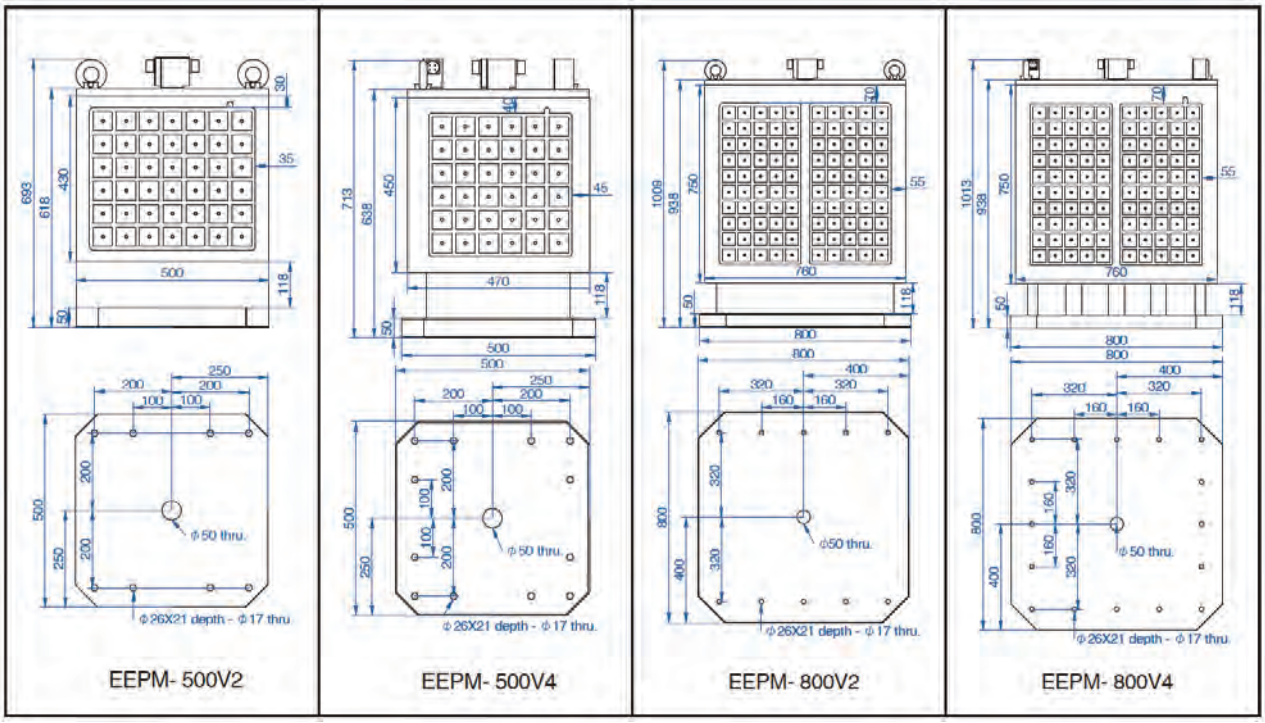
EEPM chucks includes controller and remote.
Control requires a dedicated 480V single phase, 30A power supply





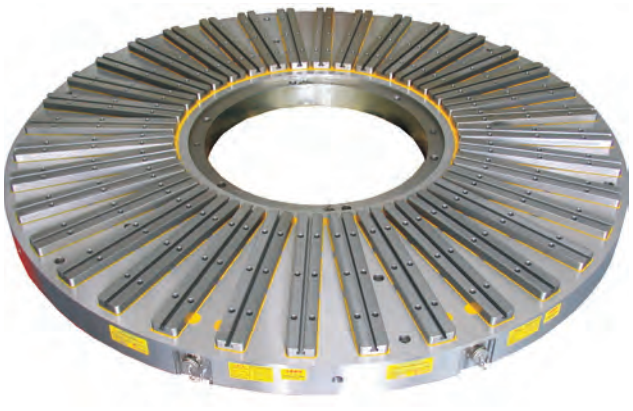






Model	Face (L x W)	No. Faces	No. Poles	Holding Power / Face	Weight	Controller
EEPM-500V2	16.9" x 19.68"	2	42	28,820 lbs.	1,058 lbs.	EEPM-C2
EEPM-500V4	17.7" x 18.5"	4	36	24,640 lbs.	1,124 lbs.	EEPM-C2
EEPM-800V2	29.5" x 29.9"	2	100	68,640 lbs.	1,675 lbs.	EEPM-C2
EEPM-800V4	29.5" x 29.9"	4	100	68,640 lbs.	1,786 lbs.	EEPM-C2

EEPM-CIR FOR VERTICAL TURNING & 5-AXIS

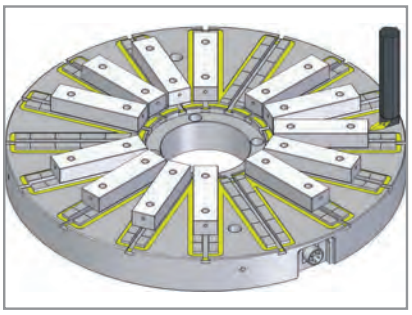


For workholding of ferrous materials only.
9 sizes to choose from. Custom sizes available. includes controller and remote

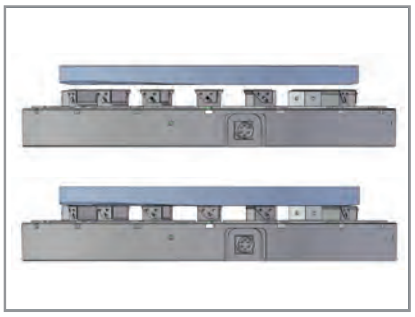
ADVANTAGES:

- **Reduce setup & change-over time by 50% or more!**
- **Machine freely on all 4-sides & top so you can cut the full part profile in only 1 operation**
- **Very uniform holding = No workpiece deformation**

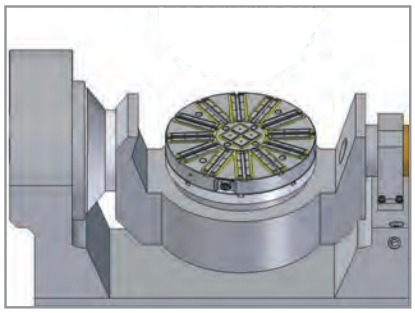
EEPM-CIR chucks are a powerful and fast workholding solution optimized for horizontal or vertical turning centers and 5-axis machining. Using magnetic workholding you can clamp/un-clamp the part in only seconds. Reduce setup down-time to increase machine up-time. Controller is included with chuck.



Machine induction blocks for easy part positioning



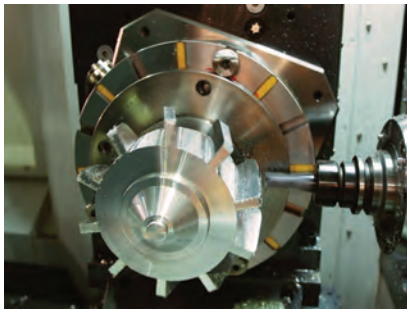
Use with EEPM-SP blocks to hold warped stock



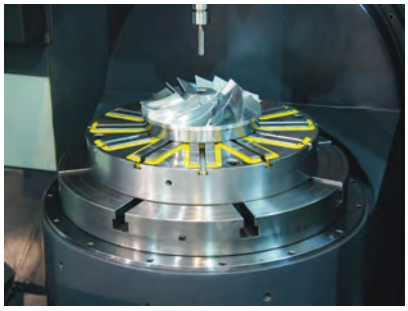
Speed up setups for 5-axis tables

3, 4, and 5-axis applications

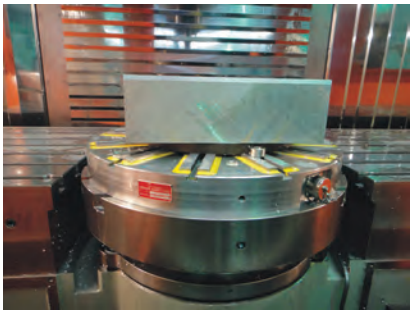
Even workholding – no part distortion



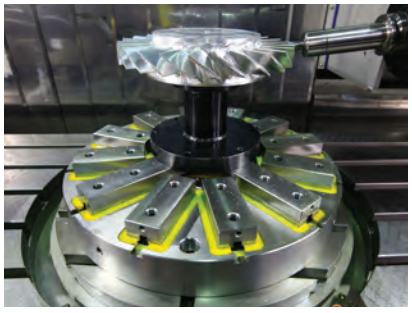
Off-axis rotation on horizontal mill



Holds very small or very large parts

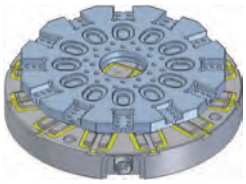


Custom chucks available to suit your machine

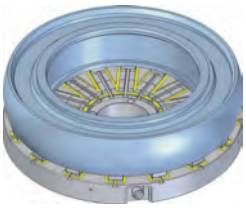


Hold complex parts without complicated setups!


circular chuck setup for gear cutting


pocket milling and face milling


5-axis turbine blade machining


round part turning O.D. and I.D.

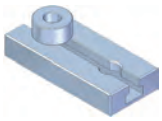
Model	Dim. (O.D. x I.D. x H)	No. Poles	Holding Power	Weight	Control
EEPM-CIR500	19.7" x 0" x 2.75"	12 + 4	12,345 lbs.	229 lbs.	C1
EEPM-CIR600	23.6" x 0" x 2.75"	12 + 4	17,636 lbs.	326 lbs.	C2
EEPM-CIR800	31.5" x 9.84" x 3.34"	16	28,219 lbs.	665 lbs.	C2
EEPM-CIR1000	39.4" x 9.84" x 3.34"	16	42,328 lbs.	1,038 lbs.	C4
EEPM-CIR1250	49.6" x 19.68" x 4.33"	24	52,910 lbs.	1,825 lbs.	C4
EEPM-CIR1500	59.0" x 19.68" x 4.72"	24	74,075 lbs.	2,921 lbs.	C8
EEPM-CIR1600	64.2" x 19.68" x 4.72"	24	84,657 lbs.	3,322 lbs.	C8
EEPM-CIR1800	71.6" x 31.49" x 4.72"	36	111,112 lbs.	5,048 lbs.	C8
EEPM-CIR2000	80.7" x 39.37" x 5.11"	36	111,112 lbs.	5,489 lbs.	C8

INDUCTION BLOCKS & T-SLOT SLIDING BLOCKS FOR EEPM CIR CHUCKS

Use induction blocks to preserve the precision ground finish and prevent damage to the face of the chuck. Induction blocks elevate the workpiece above the surface of the magnet and permit machining 5 sides and thru-hole drilling. Use T-Slot Sliding Blocks as adjustable workstops for part alignment.


EEPM-SP


EEPM-SPF


Sliding T-Slot

EEPM-CIRIB120

EEPM-CIRIB170

EEPM-CIRIB245

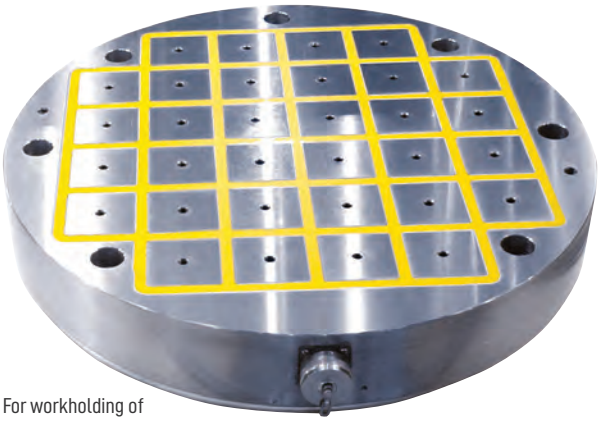
EEPM-CIRIB335

EEPM-CIRIB220

EEPM-CIRIB270

Part No.	Description	L	W	H
EEPM-SP	spring loaded (2 piece set, 8mm screw)	1.89"	1.89"	1.41"
EEPM-SPF	solid, machinable (8mm screw)	1.97"	1.97"	1.23"
EEPM-20T	sliding T-slot for use with EEPM-SPF	4.72"	1.97"	.78"
EEPM-30T	sliding T-slot for use with EEPM-SP blocks	4.72"	1.97"	1.18"
EEPM-CIRIB120	induction block for CIR500 chuck	4.72"	1.97"	.78"
EEPM-CIRIB170	induction block for CIR600 chuck	6.69"	1.97"	.78"
EEPM-CIRIB245	induction block for CIR800 chuck	9.64"	1.97"	.78"
EEPM-CIRIB335	induction block for CIR1000 chuck	13.18"	1.97"	.78"
EEPM-CIRIB220	induction block for CIR500 chuck	8.66"	1.97"	.78"
EEPM-CIRIB270	induction block for CIR600 chuck	10.62"	1.97"	.78"

EEPM-CIRS FOR MACHINING & GRINDING



For workholding of ferrous materials only.

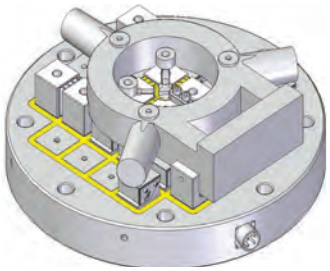
ADVANTAGES:

- **Versatile round chucks to fit a variety of applications**
- **Reduce setup & change-over time by 50% or more!**
- **Machine freely on 5-sides so you can cut the full part profile in only one operation**

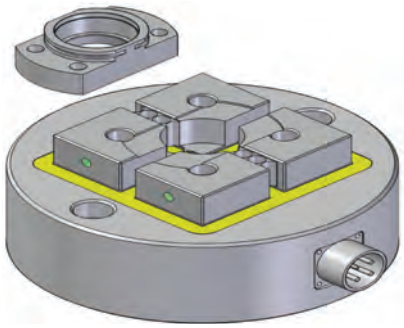
There are 9 stock sizes of EEPM-CIRS chucks to choose from (see table below). We also can build custom chucks for your machine.

We recommend using induction blocks to preserve the precision ground finish and prevent damage to the face of the chuck. You can easily modify induction blocks to your part requirements. Use EEPM-SP induction blocks for holding warped stock.

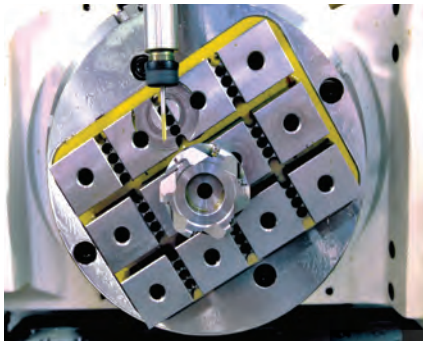
EEPM chucks includes controller and remote. Control requires a dedicated 480V single phase, 30A power supply

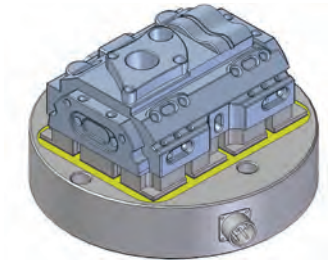


Use induction blocks as workstops to hold hard parts

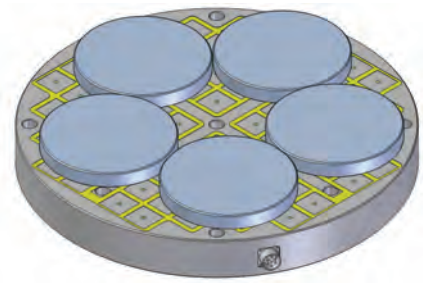


Machine nests to hold smaller parts

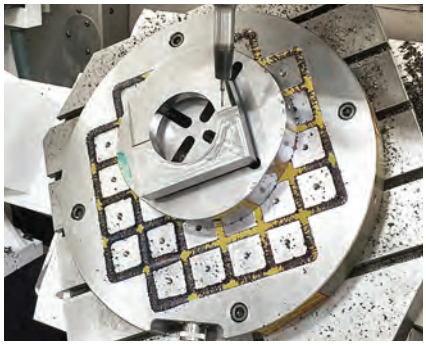




Machine full 5 sides using induction blocks



Gang parts together on larger chucks for efficiency



Model	Dim. (O.D. x H)	No. Poles	Holding Power	Weight	Controller
EEPM-CIRS200	7.99" x 2.75"	4	2,204 lbs.	35 lbs.	C1
EEPM-CIRS300	12.0" x 2.75"	12	6,612 lbs.	77 lbs.	C1
EEPM-CIRS500	19.68" x 2.75"	32	17,632 lbs.	214 lbs.	C1
EEPM-CIRS600	24.4" x 2.75"	52	28,652 lbs.	330 lbs.	C2
EEPM-CIRS700	27.55" x 2.75"	76	41,876 lbs.	421 lbs.	C4
EEPM-CIRS800	32.28" x 2.75"	96	52,896 lbs.	578 lbs.	C4
EEPM-CIRS900	35.82" x 3.14"	120	66,120 lbs.	798 lbs.	C4
EEPM-CIRS1000	40.15" x 3.14"	164	90,364 lbs.	1,022 lbs.	C8
EEPM-CIRS1100	45.54" x 3.14"	204	112,404 lbs.	1,203 lbs.	C8

EEPM-IT INDEX TABLE

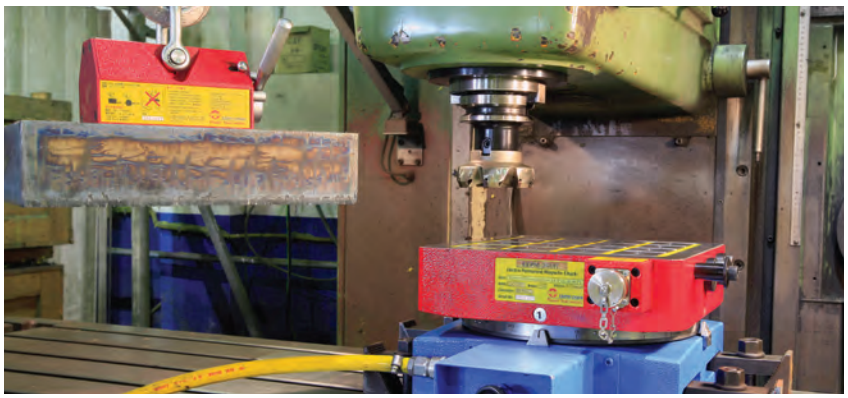
includes C4 control and remote

FEATURES:

- Pneumatic table makes rotation easy
- Indexed in 5 degree increments
- Full 360˚ rotation either left or right

ADVANTAGES:

- Add indexing capability to your horizontal mill
- Machine 5-sides freely and reduce setup time 50%
- Very uniform holding = No workpiece deformation

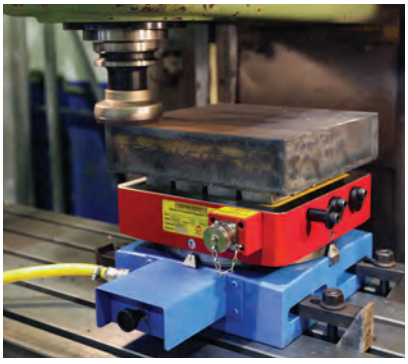


Use EZ-Lift lifting magnet to quickly load your workpiece

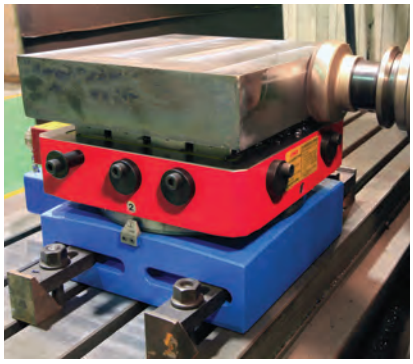
Pull the black knob out to un-clamp table and rotate part. Push knob in to clamp. Index table requires 90 psi shop air for rotation.

We recommend using induction blocks or subplates at all times to preserve the precision ground finish and prevent damage to the face of the magnetic chuck.

Pull knob to rotate part up to 360 degrees
Use induction blocks to machine full 5 sides freely



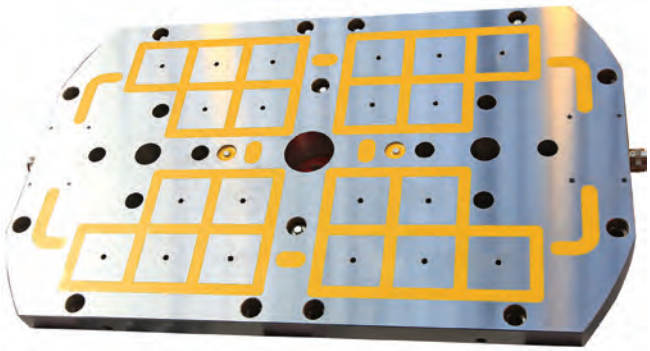
Add indexing capability to your mill



For workholding of ferrous materials only

Model	Face (L x W x H)	Max. Load	No. Poles	Holding Power	Squareness	Repeatability	Weight
EEPM-300IT	11.81" x 11.81" x 7.59"	1,100 lbs.	16	11,023 lbs.	.0004"	.0004"	229 lbs.
EEPM-470IT	18.5" x 18.5" x 7.36"	2,200 lbs.	49	33,730 lbs.	.0005"	.0004"	490 lbs.
EEPM-600IT	23.6" x 23.6" x 8.89"	4,400 lbs.	72	49,604 lbs.	.0007"	.0005"	996.5 lbs.
EEPM-800IT	31.5" x 31.5" x 11.88"	6,600 lbs.	144	99,208 lbs.	.0007"	.0005"	2,162.5 lbs.

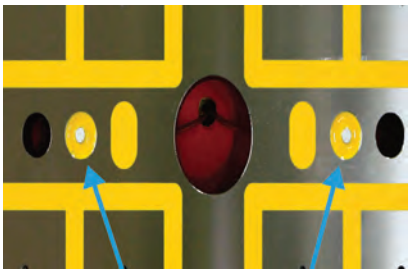
EEPM-PIM PLASTIC IINJECTION MOLD CLAMPING MAGNETS



FEATURES

- Reduce setup & change-over time
- Increase machine capacity
- Greatly improve overall productivity
- Easily integrates into your current PIM system

MagVISE PIM magnetic chucks are the perfect solution for quick mold and die change for plastic injection, metal stamping, die casting and rubber molding. The overall effectiveness of the magnetic mold clamping surpasses traditional clamping methods, increasing productivity and quality with faster and safer mold changes.

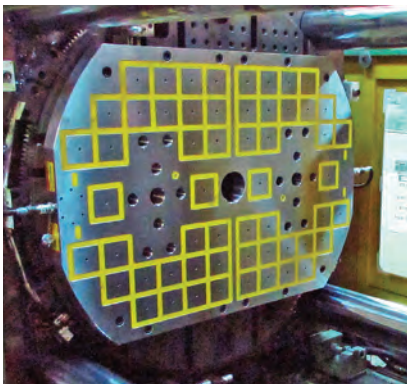


Proximity sensors ensure correct positioning

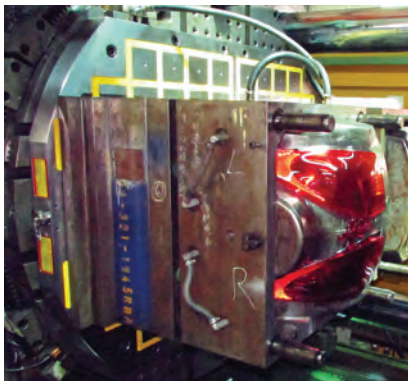
Safety	Control requires simultaneous turn–key/button press activation.
Reliability	No moving or wearable parts, maintenance–free.
Uniform clamping force	Magnetic force is applied to entire surface area of mold.
Quality	Aboslute uniformity increases rigidity for better quality parts.
Flexibility	We design custom chucks for any application.
Increased mold life	No deformation, extends the longevity of molds.
Green technology	No electrial power needed once energized.

Controls require operator to use both hands

Load and install PIM magnet with bolts



PIM & controls integrate with your machine



Mold is held perfectly, & change-over is fast

Model	Face (L x W x H)	Max Temp (F)	Holding Power	Pole Size (mm)	Power Supply
EEPM-1200PIM	59" x 59" x 2.75"	248 °	185,188 lbs.	92 x 92	35A, 480V single phase
EEPM-950PIM	57" x 41.3" x 2.75"	248 °	148,150 lbs.	92 x 92	30A, 480V single phase
EEPM-400PIM	41.3" x 25.6" x 2.75"	248 °	52,910 lbs.	92 x 92	40A, 480V single phase

MagVISE E-C-B WORKHOLDING VISES

4 sizes available.
For workholding of ferrous materials only.
Each ECB vise includes everything required to setup and begin workholding.

FEATURES

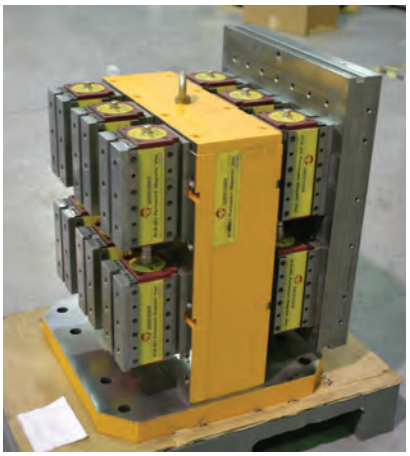
- Powerful rare-earth magnets deliver up to 4,620 lbs. holding power (per vise)
- Gang multiple vises together and increase holding power as needed
- Quickly & easily adjust size of setup and number of chucks as needed

BENEFITS

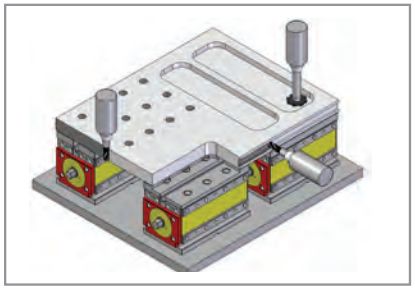
- Reduce setup & change-over time by 50% or more!
- Freely machine on all 5-sides to reduce operations
- No workpiece deformation

POWERFUL, COMPACT WORKHOLDING FOR ALL TYPES OF FERROUS MATERIALS

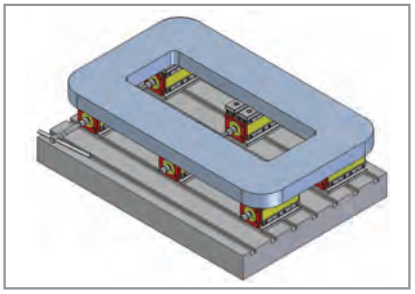
ECB Magnetic Vises provide fast, efficient workholding for all types of CNC machining applications. They are easy to install and move from machine to machine, ormake changes to existing setups.



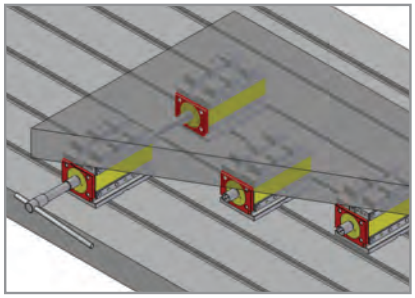
ECB vises easily integrate with pallet changing and tombstone systems used in production cells



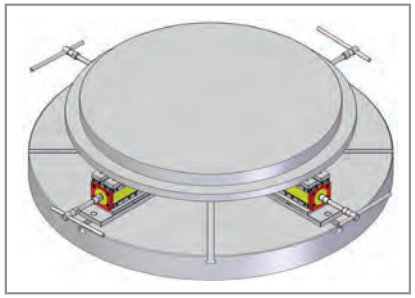
Machine freely on 5-sides using induction blocks



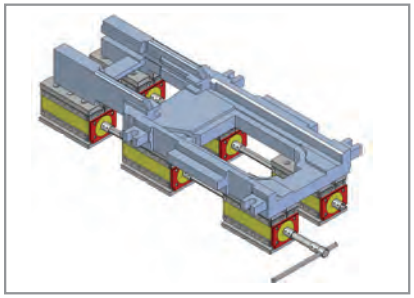
Switch-connect to turn ON/OFF multiple vises



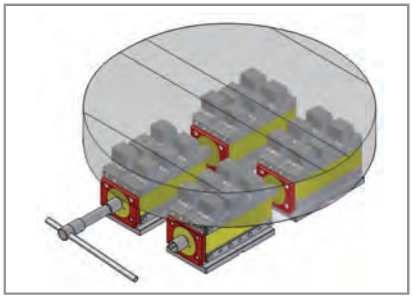
Position ECB vises just where you need them



Vertical turning setups are faster with ECB vises



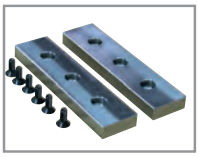
Cut complex part shapes O.D. and I.D.

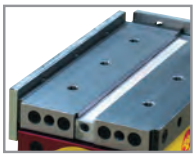


Hold large and small parts of all shapes

ECB VISES AND ACCESSORIES

MagVISE E-C-B WORKHOLDING VISES



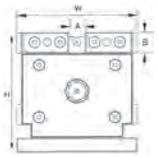


Induction soft blocks and work stops are included.

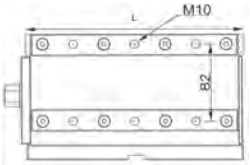
Switch-connect vises to turn them ON/OFF in unison.

Our ECB series magnetic vise blocks are our most modular workdholding solutions for all types of applications.

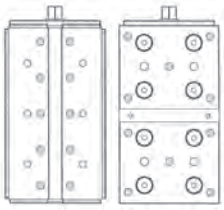
Each ECB vise includes: two induction soft blocks, wrench, extension and socket, switch-connect socket assembly, 2 stop plates and 4 toe clamps.



end view



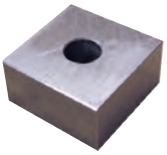
side view



top and bottom view

ECB MAGNETIC VISES

Part No.	L x W x H	A	B	Min. Stock Thickness	Holding Power	Weight
ECB-050	5" x 3" x 3"	.47"	.47"	0.4"	1,100 lbs.	15 lbs.
ECB-075	6.8" x 3" x 3"	.47"	.47"	0.4"	1,650 lbs.	19 lbs.
ECB-120	7.3" x 4.2" x 4.2"	.62"	.59"	0.6"	2,640 lbs.	40 lbs.
ECB-210	9.2" x 5.2" x 5.3"	.65"	.84"	0.8"	4,620 lbs.	80 lbs.



EEPM-SPF
solid type

EEPM-SP
spring type

Use EEPM-SP spring-loaded induction blocks and EEPM-SPF blocks together to hold warped stock. Use induction blocks at all times to prevent damage to the face of the magnetic vise. You can easily modify induction blocks to adapt your setup to part requirements.

After installing your ECB vise we recommend milling the surface of your induction blocks before loading your workpiece to ensure that the surface height is uniform & parallel to the spindle.

Please note: Spring loaded blocks are NOT machineable. Solid blocks ARE able to be drilled and machined as required.

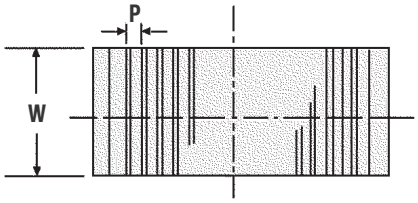
REPLACEMENT INDUCTION SOFT BLOCKS FOR ECB VICES

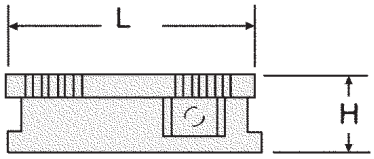
Part No.	Description
ECB-05024	Induction Soft Block Set for ECB-050 (2 pcs)
ECB-07524	Induction Soft Block Set for ECB-075 (2 pcs)
ECB-12024	Induction Soft Block Set for ECB-120 (2 pcs)
ECB-21024	Induction Soft Block Set for ECB-210 (2 pcs)

ECB INDUCTION BLOCKS

Part No.	Description
EEPM-SPF	Square Solid Induction Block for ECB-120
EEPM-SPF	Square Spring-Loaded Induction Block for ECB-120
ECB-SPF	Square Solid Induction Block for ECB-210
ECB-SP	Square Sping-Loaded Induction Block for ECB-210

For induction blocks see page 247.



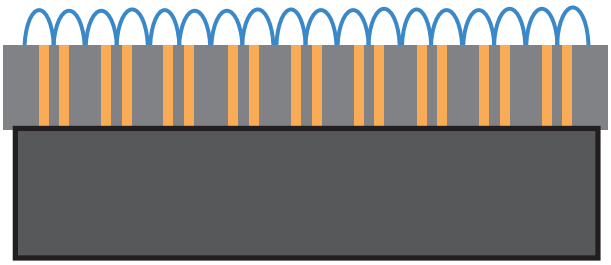


EDMT (ALL-PURPOSE VARIABLE POLE DESIGN)

Alternating thick/thin magnetic poles provides best holding power for both thick and thin workpieces.

- **EDM-READY: fully submersible, brass welded faceplate which can be machined if needed, and protects the magnetic system from penetration of coolant.**
- **Needs no electricity. Provides a constant source of workholding power.**
- **Low-profile design increases Z-axis stroke**
- **Housing and bottom plate are free of magnetism —will not magnetize machine bed or bearings.**

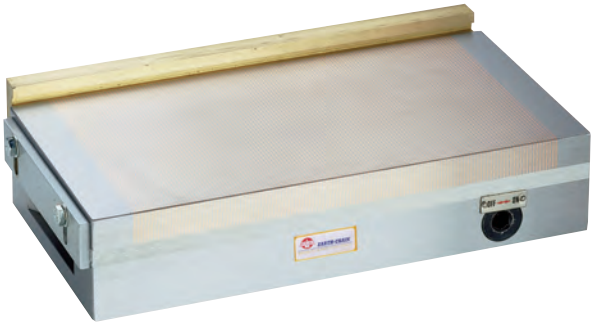
VARIABLE POLE



*New variable pole design creates magnetic fields that hold both thin and thick workpieces equally well.

Model	Pole Pitch (P) (mm)	L x W x H	Weight
EDMT-1018	11.2 (1.6+2+1.6+6)	7" x 4" x 2.5"	16 lbs.
EDMT-1325	11.2 (1.6+2+1.6+6)	10" x 5" x 2.5"	23 lbs.
EDMT-1530	11.2 (1.6+2+1.6+6)	12" x 6" x 2.5"	33 lbs.
EDMT-1535	11.2 (1.6+2+1.6+6)	14" x 6" x 2.5"	38 lbs.
EDMT-1545	11.2 (1.6+2+1.6+6)	18" x 6" x 2.5"	44 lbs.
EDMT-2040	11.2 (1.6+2+1.6+6)	16" x 8" x 2.5"	57 lbs.
EDMT-2045	11.2 (1.6+2+1.6+6)	18" x 8" x 2.5"	66 lbs.
EDMT-2050	11.2 (1.6+2+1.6+6)	20" x 8" x 2.5"	79 lbs.
EDMT-2550	4 + 12	20" x 10" x 2.5"	130 lbs.
EDMT-3060	3 + 15	24" x 12" x 2.5"	198 lbs.

EDTW FINE POLE SURFACE GRINDING CHUCKS

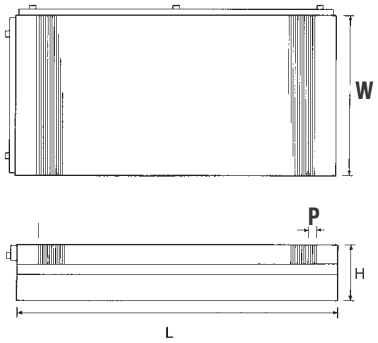


For induction blocks see page 247.

EDTW (MICROPITCH FINE POLE DESIGN)

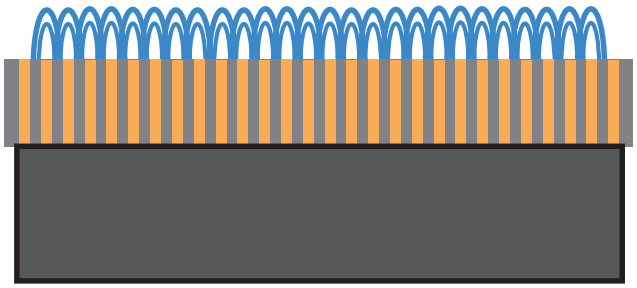
Fine pole design provides best holding power for surface grinding of small or thin workpieces.

- **Brass welded faceplate can be machined if needed, and protects the magnetic system from penetration of coolant.**
- **Needs no electricity. Provides a constant source of workholding power.**
- **Low-profile design increases Z-axis stroke**
- **Housing and bottom plate are free of magnetism —will not magnetize machine bed or bearings**



EDTW chucks have up to 15 tons of holding force. (150 lbs./inch^2)

FINE POLE



Fine pole magnets creates strongest magnetic field close to surface for holding thin workpieces.

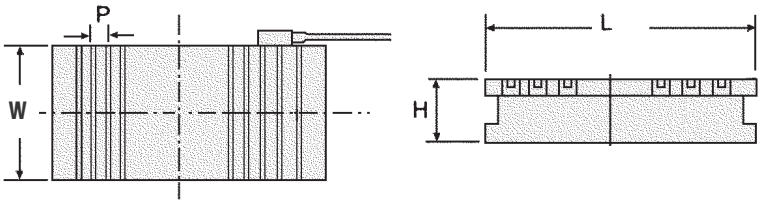
Model	Pole Pitch (P) (mm)	L x W x H	Weight
EDTW-1018	2 (1+1)	7" x 4" x 2"	15 lbs.
EDTW-1325	2 (1+1)	10" x 5" x 2.25"	29 lbs.
EDTW-1515	2 (1+1)	6" x 6" x 2.25"	20 lbs.
EDTW-1530	2 (1+1)	12" x 6" x 2.5"	49 lbs.
EDTW-1535	2 (1+1)	14" x 6" x 2.5"	53 lbs.
EDTW-1545	2 (1+1)	18" x 6" x 2.5"	68 lbs.
EDTW-2040	2 (1+1)	16" x 8" x 2.5"	82 lbs.
EDTW-2045	2 (1+1)	18" x 8" x 2.5"	90 lbs.
EDTW-2050	2 (1+1)	20" x 8" x 2.5"	99 lbs.
EDTW-2550	2 (1+1)	20" x 10" x 2.5"	132 lbs.

For induction blocks see page 247.

EET (WIDE SPACED POLE DESIGN)

Wider spacing magnetic poles for general surface grinding of both thick and thin workpieces.

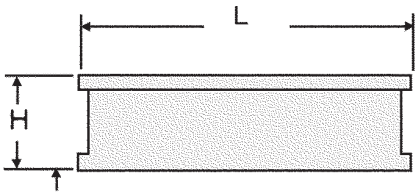
- **Brass welded faceplate can be machined if needed, and protects the magnetic system from penetration of coolant.**
- **More than 1,000 OHMs resistance**
- **Low-profile design increases Z-axis stroke**
- **Housing and bottom plate are free of magnetism —will not magnetize machine bed or bearings**

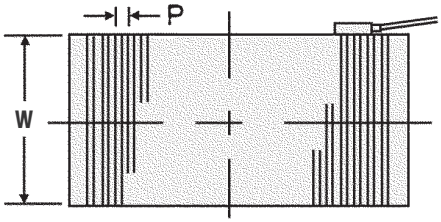


Model	Pole Pitch (P)	L x W x H	Volts	Amps	Weight
EET-1530	15 (3+12)	12" x 6" x 3"	DC90V	0.18	44 lbs.
EET-1535	15 (3+12)	14" x 6" x 3"	DC90V	0.19	53 lbs.
EET-1545	15 (3+12)	18" x 6" x 3"	DC90V	0.19	66 lbs.
EET-2040	15 (3+12)	16" x 8" x 3"	DC90V	0.28	84 lbs.
EET-2045	15 (3+12)	18" x 8" x 3"	DC90V	0.28	90 lbs.
EET-2050	15 (3+12)	20" x 8" x 3"	DC90V	0.36	99 lbs.
EET-2550	15 (3+12)	20" x 10" x 3"	DC90V	0.46	143 lbs.
EET-3060	15 (3+12)	24" x 12" x 3"	DC90V	0.86	179 lbs.
EET-3070	15 (3+12)	28" x 12" x 3"	DC90V	0.81	205 lbs.
EET-3090	15 (3+12)	35" x 12" x 3"	DC90V	1.05	276 lbs.
EET-4060	19 (3+16)	24" x 16" x 3.5"	DC90V	0.95	287 lbs.
EET-4070	19 (3+16)	28" x 16" x 3.5"	DC90V	1.21	333 lbs.
EET-4080	19 (3+16)	32" x 16" x 3.5"	DC90V	1.31	384 lbs.
EET-40100	19 (3+16)	40" x 16" x 3.5"	DC90V	1.33	487 lbs.
EET-50100	19 (3+16)	40" x 20" x 3.5"	DC90V	1.46	595 lbs.
EET-50150	19 (3+16)	60" x 20" x 3.5"	DC90V	3.37	893 lbs.
EET-60100	19 (3+16)	40" x 24" x 3.5"	DC90V	2.80	728 lbs.
EET-60150	19 (3+16)	60" x 24" x 3.5"	DC90V	2.85	1091 lbs.
EET-80100	19 (3+16)	40" x 32" x 3.5"	DC90V	3.80	970 lbs.

EET-W FINE POLE SURFACE GRINDING CHUCKS

For induction blocks see page 247.



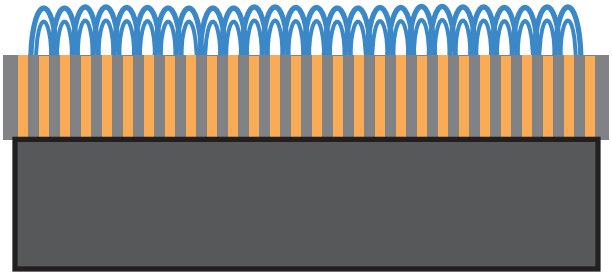


EET-W (FINE POLE DESIGN)

Fine pole design optimized for maximum holding power for surface grinding of thin workpieces.

- **Brass welded faceplate which can be machined if needed, protects the magnetic system from penetration of coolant**
- **More than 1,000 OHMs resistance**
- **Low-profile design increases Z-axis stroke**
- **Housing and bottom plate are free of magnetism —will not magnetize machine bed or bearings**

Fine Pole



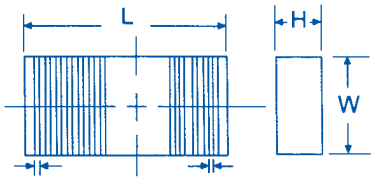
Fine pole magnets create strongest magnetic field close to surface for holding thin workpieces.

Model	Pole Pitch (P) (mm)	L x W x H	Voltage	Amps	Weight
EET-1530W	4(1+3)	12" x 6" x 4.5"	DC90V	0.73	73 lbs.
EET-1535W	4(1+3)	14" x 6" x 4.5"	DC90V	0.61	88 lbs.
EET-1545W	4(1+3)	18" x 6" x 4.5"	DC90V	0.98	110 lbs.
EET-2040W	4(1+3)	16" x 8" x 4.5"	DC90V	1.10	139 lbs.
EET-2045W	4(1+3)	18" x 8" x 4.5"	DC90V	1.20	157 lbs.
EET-2050W	4(1+3)	20" x 8" x 4.5"	DC90V	1.40	176 lbs.
EET-2550W	4(1+3)	20" x 10" x 4.5"	DC90V	1.00	247 lbs.
EET-3060W	4(1+3)	24" x 12" x 4.5"	DC90V	1.50	331 lbs.

EHT INDUCTION BLOCKS:

- **Extends magnetic force to hold bar, round, or irregular shapes**
- **EDM-READY: fully submersible, brass sealed**
- **For fine-pole and standard pole applications**

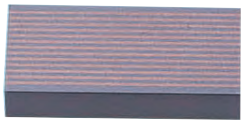
Choose from lengthwise (L) or width-wise (W) pole direction



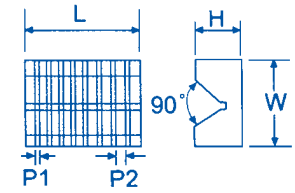
EHT-100
(set of 2)

EHT-150W

EHT-72
(set of 2)



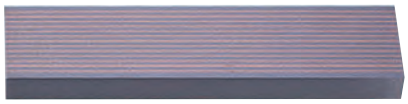
EHT-150L



EHT-65V
(set of 2)

EHT-150

EHT-300W (fine pole)



EHT-300L (lengthwise pole)

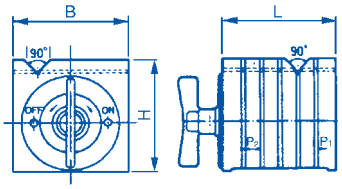
EHT-300 (width-wise pole)

Model	Qty.	L x W x H	Pole Pitch P1 (mm)	Pole Pitch P2 (mm)	Weight
EHT-65V	2	2.5" x 2.5" x 1.5"	2	3	4 lbs. (x2)
EHT-72	2	3" x 2" x 1"	2	3	7 lbs. (x2)
EHT-100	2	4" x 3" x 1.5"	2	3	10 lbs. (x2)
EHT-150	1	6" x 3" x 1"	2	3	5 lbs.
EHT-300	1	12" x 3" x 1"	2	3	10 lbs.
EHT-150L	1	6" x 3" x 1"	2	3	5 lbs.
EHT-300L	1	12" x 3" x 1"	2	3	10 lbs.
EHT-150W	1	6" x 3" x 1"	1+1	1+1	5 lbs.
EHT-300W	1	12" x 3" x 1"	1+1	1+1	10 lbs.

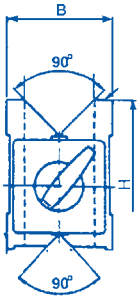
MAGNETIC V-BLOCKS

ECE MAGNETIC BLOCKS

- Dozens of uses around the shop
- Fast setups of bar stock or round steel
- Powerful magnetic base, ON-OFF switch

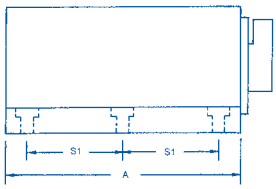


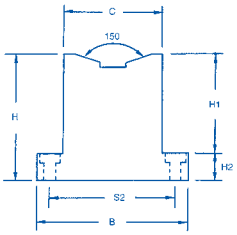
ECE-100 / ECE-150



ECE-208 / ECE-212

ECE-612

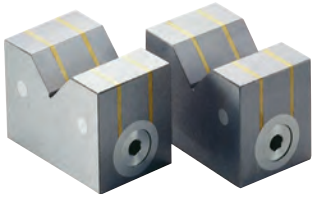




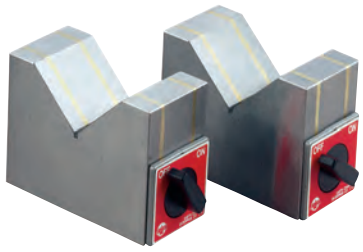
Model	Holding Power V-Face	Holding Power Surface	B	L	H	Dimensions (mm) C	H1	H2	S1	S2	Weight
ECE-100	61 lbs.	88 lbs.	100	100	100	–	–	–	–	–	14.5 lbs.
ECE-150	110 lbs.	308 lbs.	150	150	150	–	–	–	–	–	53 lbs.
ECE-208	121 lbs.	154 lbs.	56	80	72	–	–	–	–	–	6.5 lbs.
ECE-212	198 lbs.	242 lbs.	75	115	100	–	–	–	–	–	11 lbs.
ECE-612	242 lbs.	350 lbs.	76	118	62	50	50	12	48	62	5.5 lbs.

ECE MAGNETIC V-BLOCK SETS

- For grinding, marking, measuring and other light machining operations
- Each pair made to identical dimensions
- Sold in pairs only

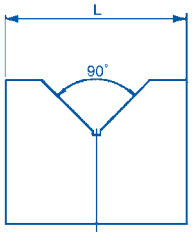


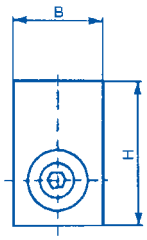
ECE-507



ECE-510

Model	Holding Power	Applicable Diameter (mm)	Dimension mm B	L	H	Weight
ECE-507	33 lbs.	50mm	40mm	72mm	50mm	2.2 lbs. x 2
ECE-510	44 lbs.	80mm	50mm	100mm	80mm	6.6 lbs. x 2





ERD-505, 510, 515 FEATURES:

- Work with any electromagnetic chucks
- Demagnetizing time is 6-15 seconds
- Precisely regulates the magnetic force

ERD-520 FEATURES:

- For larger, more powerful electromagnetic chucks
- Can operate two chucks at the same time
- Demagnetizing time is 8-15 seconds

ERD-505

ERD-510, ERD-515

ERD-520

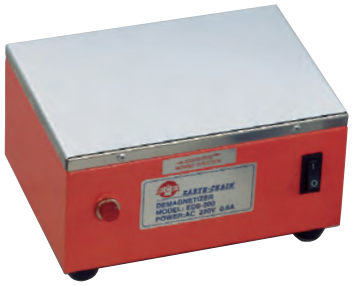
Model	Input Voltage/Single Phase	Output Volts	Output Amps	Dim. L x W x H	Wt.
ERD-505-110	AC 110/220V	DC 0-100V	5A	8" x 5.5" x 5"	8 lbs.
ERD-510-220	AC110/220V	DC 0-120V	10A	6" x 13" x 10"	33 lbs.
ERD-515-220	AC 220V	DC 0-120V	15A	6" x 13" x 10"	44 lbs.
ERD-520-220	AC 220V	DC 0-120V	20A	7" x 15" x 12"	71 lbs.

Please specify voltage when ordering.

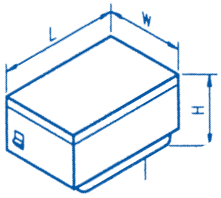
EDH DEMAGNETIZERS

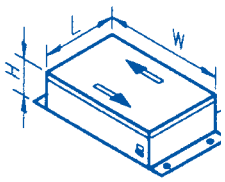
EDH-123

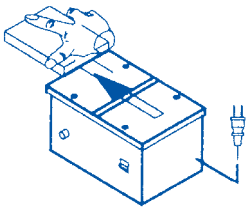
EDH-180

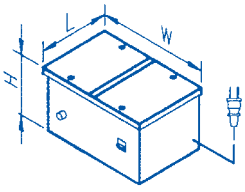


EDH-200



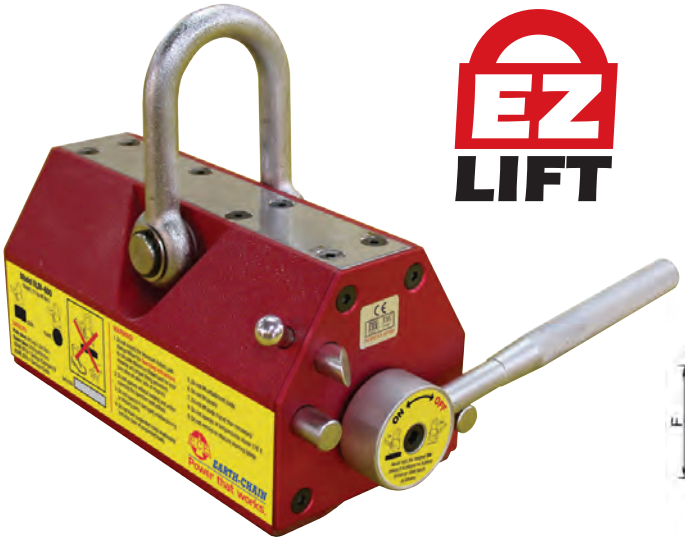






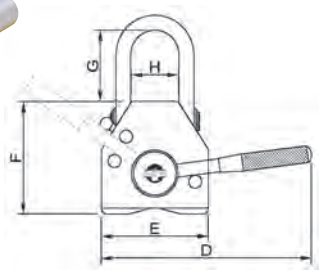
Model	Description	Power	Capacity	Duty Cycle	Dim. L x W x H	Wt.
EDH-123-110	Portable, light weight, for big machines	AC 110V	110V	90%	123 x 83 x 83mm	4 lbs.
EDB-180-110	Up to 20 minutes continuous operation	AC 110/220V	220V	50%	127 x 180 x 90mm	9 lbs.
EDS-200-110	Continuous operation, double-coil design	AC 110V	220V	100%	150 x 200 x 100mm	19 lbs.

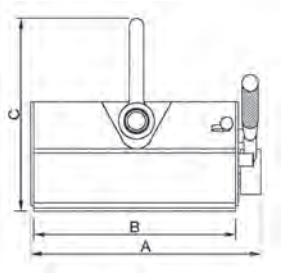
EZ-LIFT ELM MAGNETIC LIFTERS



FEATURES

- **Powerful rare-earth magnets deliver up to 6,600 lbs. of holding power - no electricity required**
- **Faster setup and transport option than traditional material handling methods**
- **Will not wear out like straps or slings**



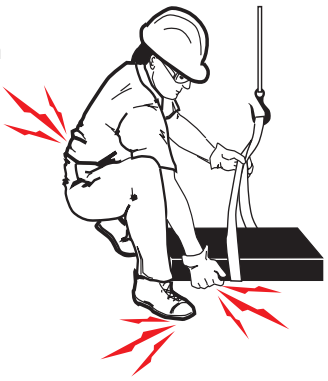


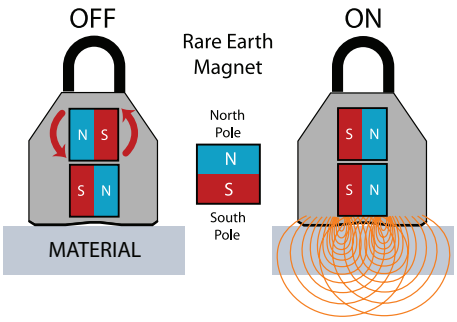
WHY SWITCH TO EZ-LIFT?

Risk of Injury
Risk of injury to back, fingers, or toes when moving material in order to position slings or chains.

Slings & Chains Wear Out
Lifting equipment needs to be recertified and replaced periodically.

Lost Productivity
It takes time to properly setup slings or chains to safely move materials.



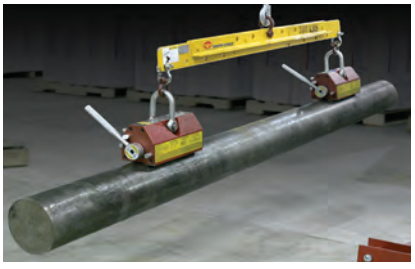


Each ELM lifting magnet contains super powerful rare earth magnets arranged in three rows. Turning the lever to the ON position rotates the center row of magnets 180° so the poles alternate, creating a powerful magnetic field.

Part No.	Plate	Round	A	B	C	D	E	F	G	H	Weight
ELM-100	220 lbs.	132 lbs.	4.2"	3.3"	4.7"	4.9"	2.4"	2.8"	1.6"	1.2"	5.5 lbs.
ELM-300	660 lbs.	400 lbs.	7.1"	6.1"	6.1"	7.3"	3.6"	3.7"	2.0"	1.6"	18.9 lbs.
ELM-600	1,320 lbs.	800 lbs.	10.0"	8.8"	8.3"	10.2"	4.5"	4.7"	3.0"	2.0"	46 lbs.
ELM-1000	2,200 lbs.	1,320 lbs.	11.0"	9.6"	11.3"	14.6"	6.5"	6.7"	3.8"	3.4"	101 lbs.
ELM-2000	4,400 lbs.	2,640 lbs.	16.6"	15.0"	13.7"	20.2"	8.5"	8.5"	4.1"	4.8"	259 lbs.
ELM-3000	6,600 lbs.	3,960 lbs.	22.3"	20.9"	15.7"	30.3"	8.5"	8.7"	5.8"	3.2"	399 lbs.

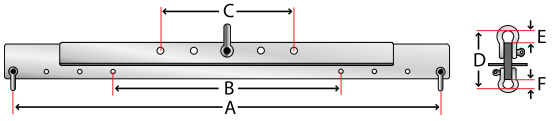

Workpiece transport is faster with EZ-Lift

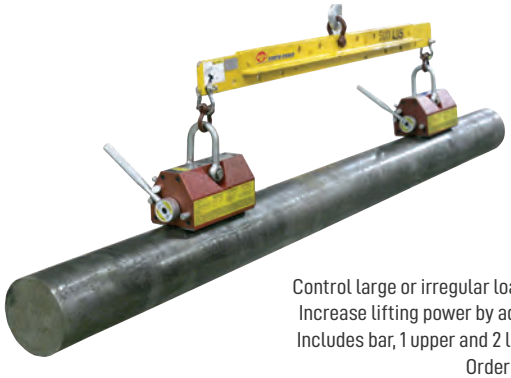

Eliminate dangers of other handling methods


Use spreader bar for improved versatility

EZ-LIFT SPREADER BARS

- Keeps large or unbalancecd materials balanced for safer transport
- Use with multiple magnetic lifters
- Lifter span adjustable





Control large or irregular loads during transport. Increase lifting power by adding more magnets. Includes bar, 1 upper and 2 lower S.P.A. shackles. Order magnets separately.

Part No.	Capacity	A	B	C	D	E	F	Weight
ELM-SB500	500 lbs.	46"	22"	16"	5.7"	1.35"	1.34"	25 lbs.
ELM-SB1000	1,000 lbs.	72"	36"	24"	6.9"	1.35"	1.34"	65 lbs.
ELM-SB2000	2,000 lbs.	72"	36"	24"	7.3"	2.02"	1.35"	115 lbs.
ELM-SB4000	4,000 lbs.	77"	41"	24"	10.5"	2.43"	1.63"	195 lbs.
ELM-SB8000	8,000 lbs.	96"	48"	24"	12.3"	2.94"	1.78"	300 lbs.
ELM-SB10000	10,000 lbs.	116"	56"	24"	14.7"	3.5"	1.65"	600 lbs.
ELM-SB13500	13,500 lbs.	140"	68"	36"	17.1"	4.0"	2.02"	880 lbs.

EZ-LIFT VERTICAL LIFTERS

- Fast loading for vertical transport
- One person can load and unload
- No dangerous straps & slings

Position lifter on stock and turn the lever to the on position. Hoist into vertical position for transport. Always follow operating instructions included. Used for vertical transport of plate stock. Includes ELM lifting magnet.

				Plate Size L x W x H (min/max)		
Part No.	Size L x W x H	Capacity	Weight	L	W	H
ELM-300V	37.5" x 8.5" x 10"	660 lbs.	57 lbs.	8"/60"	11.8"/31.5"	0.25"/5.9"
ELM-600V	46" x 11" x 10"	1,320 lbs.	86 lbs.	12"/72"	11.8"/39.4"	0.31"/9.8"
ELM-1000V	48" x 14" x 12"	2,200 lbs.	128 lbs.	12.5"/79"	11.8"/39.4"	0.39"/11.8"

Vertical Lifters can be operated by one person

Move round or rectangular stock vertically

Spreader bars are used for long or very heavy loads

INSTRUCTIONS FOR CALCULATING MAXIMUM LOAD BY MATERIAL TYPE

T (thickness) x **F** (finish) x **M** (material) x Capacity = ML

Example: (ELM-600/plate steel) 2" (T=100%) x F2(100%) x M2 (85%) x 1,320 lbs. = **1,122 lbs.**

CALCULATING MAXIMUM LOADS

Calculate that the magnet will safely lift your material. Maximum Load (ML) is different for plate or round materials, and depends upon stock thickness, carbon content, and surface finish. Use the tables to calculate ML for your material type.

M Lifting Power by Material

Carbon Content	0%	50%	100%
M1	Low Carbon		100%
M2	Moderate Carbon		85%
M3	High Carbon		75%
M4	Cast Iron		70%

F Effect of Surface Finish

Surface Finish	0%	50%	100%	150%
F1	Ground Surface			125%
F2	Rough Machined		100%	
F3	Foundry Finish		90%	
F4	~ Rough Cast		65%	

RATED CAPACITY

Part No.	Plate Steel*
ELM-100	220 lbs.
ELM-300	660 lbs.
ELM-600	1,320 lbs.
ELM-1000	2,200 lbs.
ELM-2000	4,400 lbs.
ELM-3000	6,600 lbs.

Part No.	Round Steel*
ELM-100	132 lbs.
ELM-300	400 lbs.
ELM-600	800 lbs.
ELM-1000	1,320 lbs.
ELM-2000	2,640 lbs.
ELM-3000	3,960 lbs.

T EQUALS PERCENT OF LIFTING POWER BY T (THICKNESS)

T	ELM-100	ELM-300	ELM-600	ELM-1000	ELM-2000	ELM-3000
2 3/8" (60mm)	100%	100%	100%	100%	100%	100%
2 1/8" (55mm)	100%	100%	100%	100%	100%	95%
2.0" (50mm)	100%	100%	100%	100%	95%	90%
1 3/4" (45mm)	100%	100%	100%	100%	90%	85%
1 1/2" (40mm)	100%	100%	100%	100%	85%	80%
1 3/8" (35mm)	100%	100%	100%	90%	75%	70%
1 1/8" (30mm)	100%	100%	100%	80%	65%	60%
1.0" (25mm)	100%	100%	90%	70%	55%	50%
3/4" (20mm)	100%	90%	75%	60%	45%	40%
1/2" (15mm)	100%	70%	60%	50%	35%	30%
3/8" (10mm)	70%	50%	45%	35%	25%	20%
1/4" (5mm)	40%	30%	25%	20%	15%	10%

*Follow all directions in the Operating Instructions that comes with your magnet.

CUSTOM LIFTING SOLUTIONS

Engineered to meet your requirements.
Call (800) 597-3921 for a fast quote.