MAGNETIC HOLDERS

☆NEW-TYPE PERMANENT ELECTRO MAGNETIC HOLDER DEBUT!☆

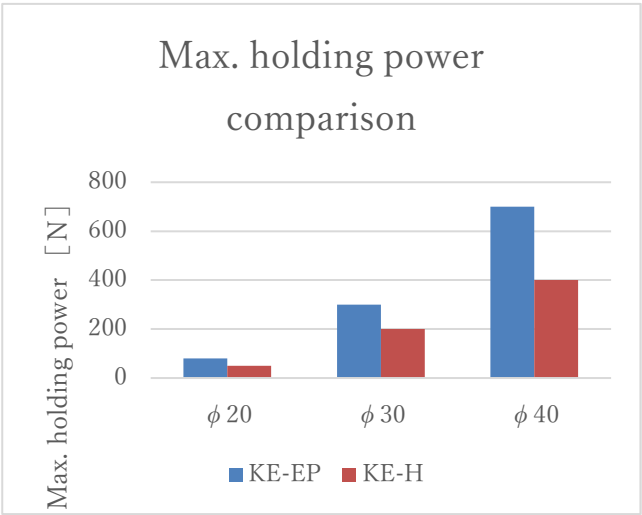
PREMANENT ELECTRO MAGNETIC HOLDER　[Model: KE-EP-S]

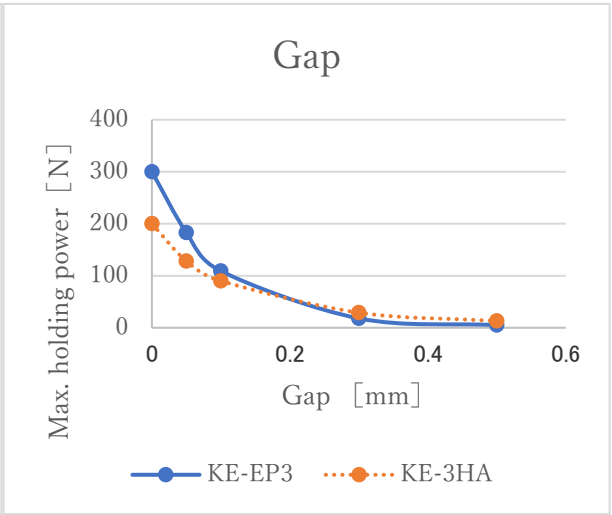
【Features】
- Short time energizing is possible for ON/OFF by using designated rectifier. It takes only 0.4sec.
- Low energy consumption is possible because energizing is not necessary after magnetizing.

Model	Dimension(㎜)	Holding power	Voltage	Current	Working rate	Mass
KE-EP2-S20107	φ20×25	80 N (8kgf)	DC24V	0.3 A	10%ED	0.06 kg
KE-EP3-S20108	φ30×35	300 N (30kgf)		0.8A		0.15 kg
KE-EP4-S20109	φ40×40	700 N (70kgf)		1.1 A		0.31 kg

【Caution for using】
- Set downtime more than nine times as much after energizing because its working rate is 10%. The shortest working cycle is 8sec shown below. [0.4sec ON → 3.6sec downtime → 0.4sec OFF → 3.6sec downtime]
- **Use designated rectifier RH-P105A-S20110. It is not allowed to use general 24VDC power source like switching power supply because holders are not able to magnetize properly.**
- As an inevitable nature of the electro permanent holder,3 to 4% of the holding power remains as residual holding power even when it is released. If mass of the workpiece is lighter than residual holding power, it may not be released. In such a case, the workpiece can be released easily by attaching a thin nonmagnetic film on attractive face. However, the holding power will drop.

■Change in holding power by plate thickness/clearance





The max. holding power is the power that can be obtained under the most favorable conditions including materials, shapes and finishes of workpieces to hold. Therefore, for practical use, choose a suitable model in consideration of a large drop in the holding power depending on situations.

RECTIFIER FOR KE-EP　[Model: RH-P305A-S]

【Features】

- It is available to use by various power source. (100-220VAC)
- Functions to detect over current, load fault, abnormal voltage, etc. protect the circuit and activate warning alarms.
- The interlock (magnetization on) signal is output from the terminal by the relay contact.

Power source rating	Single phase 100 to 220 Vac ± 10%　50/60 Hz
Inrush current	Approx. 90A　1m seconds
Power source capacity	Power Source 100 VAC: Approx. 0.8k VA Power Source 200 to 220 VAC: Approx. 1k VA
Power consumption	Approx. 500 W
Output voltage	24 VDC
Output current	5 ADC, max.
Demag time	Approx. 0.4 seconds
Working temperature	-10℃ to 40℃ (No icing)
Working humidity	90% max. (No condensation)
Construction	Non-waterproof
Cooling method	Spontaneously cooling
Mass	Approx. 4kg

【FEATURE OF MAGNETIC HOLDER】

	KE-EP-S	KE-B/-D/-E/-R	KEP-C	KE-HA
Feature	0.4sec is needed to turn power ON and OFF. No electrical power is required to keep power ON.	Magnetic power only flows when the power is turned ON.	KEP-C is a permanent magnet it always has magnetic power. When using the controller the permanent magnetic power turns OFF.	It's a permanent magnet but the magnetic power is「Low」. To make the magnetic power「Hight」or「OFF」it must be connected to the controller. (Power must be turned OFF before picking up and releasing work pieces)
Criteria for Selection (Merits)	The magnet will stay energized during a power failure. (An UPS is not required during a power failure)	・Magnetic power can be controlled. ・Demagnetization adjustment is possible. ・Remaining magnetic power decreased by demagnetization.	The magnet will stay energized during a power failure. (An UPS is not required during a power failure)	・This enables high-speed operation. ・The「Low」of permanent magnet will stay energized during a power failure.
Criteria for Selection (Demerits)	・Working rate 10% [After being energized before using it needs 3.6sec down time] ・After the power is turn OFF it maybe difficult to release light work pieces.	・If the magnet gets too hot magnetic power decreases. ・The power needs to be ON during a power failure the UPS is necessary. ・After demagnetized it needs 0.3 to 6 sec before releasing work pieces.	・Working rate 10% [The power-on time must be 5 sec or less. The power-off time must be 10 times or longer.] ・After the power is turn OFF it maybe difficult to release light work pieces.	・Must be connected to the controller when magnetic power is「High」or「OFF」. ・If the magnet gets too hot magnetic power decreases.

STANDERD MAGNETIC HOLDERS

■ELECTROMAGNETIC HOLDER [Model: KE-B]

[mm(in)]

Model	Nominal Size	Max. Holding Power	Mounting Hole M_1	Mounting Hole M_2	Mounting Hole P_1	Power Cord C	Power Cord P_2	Voltage	Current	Working Rate	Applicable Rectifier	Mass
KE-1B	φ10(0.39)×30(1.18)	8N(0.8kgf)	M4(0.15)×0.7(0.02) Depth 6(0.23)	–	–	–	–	6 VDC	0.18A	100% ED	KR-T101A-6/24 RH-M303A-6/24、-C1、-C2	15g/0.03 lb
KE-1.5B	φ15(0.59)×40(1.57)	18N(1.8kgf)						24 VDC	0.08A		KR-T101A-6/24 RH-M303A-6/24、-C1、-C2 RH-M105B-24	35g/0.07 lb
KE-2B	φ20(0.78)×40(1.57)	28N(2.8kgf)				φ3.5(0.13)	7 (0.27)		0.07A			60g/0.13 lb
KE-3B	φ30(1.18)×40(1.57)	180N(18kgf)	M6(0.23)×1.0(0.03) Depth 12(0.47)	φ4(0.15) Depth 2(0.07)	10(0.39)		8 (0.31)		0.19A			150g/0.33 lb
KE-4B	φ40(1.57)×40(1.57)	400N(40kgf)		φ4(0.15) Depth 3(0.11)	15(0.59)		8.5(0.33)		0.24A			300g/0.66 lb
KE-5B	φ50(1.96)×50(1.96)	590N(60kgf)	M8(0.31)×1.25(0.04) Depth 15(0.59)	φ5(0.19) Depth 4(0.15)	18(0.70)	φ5.9(0.23)	10 (0.39)	90 VDC	0.12A		KR-N101A RH-M210B KR-N103A RH-M102C RH-M105B RH-M205B	560g/1.23 lb
KE-6B	φ60(2.36)×60(2.36)	1080N(110kgf)			20(0.78)		12 (0.47)		0.19A			1.0kg/2.20 lb
KE-7B	φ70(2.75)×60(2.36)	1470N(150kgf)	M10(0.39)×1.5(0.05) Depth 15(0.59)	φ6(0.23) Depth 6(0.23)			15 (0.59)		0.20A			1.4kg/3.08 lb
KE-8B	φ80(3.15)×60(2.36)	1960N(200kgf)							0.26A			1.7kg/3.74 lb
KE-9B	φ90(3.54)×60(2.36)	3230N(330kgf)							0.35A			2.2kg/4.85 lb

※Cord length 0.3 m (0.25 m lead for KE-1B and KE-1.5B only) 1N≒0.1kgf
※The max. holding power of Models KE-1B to 4B is based on a test piece of SS400, 10 mm thick, ground surface held on the whole area, and that of KE-5B to 9B, a test piece of SS400, 20 mm thick, ground surface held on the whole area.
※For KE-3B to 9B, a drip-proof type is also available.

■THIN ELECTROMAGNETIC HOLDER [Model: KE-D/E]

[mm(in)]

Model	Nominal Size	Max.Holding Power	Mounting Hole M_1	Mounting Hole M_2	Mounting Hole P_1	Power Cord C	Power Cord P_2	Voltage	Current	Working Rate	Applicable Rectifier	Mass
KE-2D	φ20(0.78)×25(0.98)	18N(1.8kgf)	M4(0.15)×0.7(0.02) Depth 8(0.31)	φ2.1(0.08) Depth 2.5(0.09)	7.5(0.29)	–	–	24 VDC	0.04A	100% ED	KR-T101-6/24 RH-M303A-6/24、-C1、-C2 RH-M105B-24	30g/0.06 lb
KE-3E	φ30(1.18)×25(0.98)	80N(8kgf)	M6(0.23)×1.0(0.03) Depth12(0.47)	φ4(0.15) Depth 2(0.07)	10(0.39)	φ3.5(0.13)	7.5(0.29)		0.09A			100g/0.22 lb
KE-4E	φ40(1.57)×25(0.98)	220N(22kgf)		φ4(0.15) Depth 2.5(0.09)	15(0.59)		8(0.31)		0.12A			190g/0.42 lb
KE-5E	φ50(1.96)×30(1.18)	490N(50kgf)	M8(0.31)×1.25(0.04) Depth15(0.59)	φ5(0.19) Depth 3(0.11)	18(0.70)		9.5(0.37)	90 VDC	0.05A		KR-N101A RH-M105B KR-N103A RH-M205B RH-M102C RH-M210B	380g/0.83 lb
KE-6E	φ60(2.36)×30(1.18)	880N(90kgf)		φ5(0.19) Depth 4(0.15)	20(0.78)		11(0.43)		0.07A			500g/1.10 lb

※Cord length 0.3 m (0.2 m lead for KE-2D only) ※The max. holding power is based on a test piece of SS400, 10 mm thick, ground surface held on the whole area. 1N≒0.1kgf

■AUTO RELEASE TYPE ELECTROMAGNETIC HOLDER [Model: KE-R]

[mm(in)]

Model	Nominal Size	Max. Holding Power	Center Tapped Hole on Back	Voltage	Current	Working Rate	Applicable Rectifier	Mass
KE-2R	φ20(0.78)×25(0.98)	5N(0.5kgf)	M5(0.19)×0.8(0.03) Depth 5(0.19)	24 VDC	0.04A	100% ED	KR-T101A-6/24 RH-M303A-6/24、-C1、-C2 RH-M105B-24	50g/0.11 lb
KE-3RA	φ30(1.18)×25(0.98)	40N(4kgf)	M6(0.23)×1.0(0.03) Depth 6(0.23)		0.09A			100g/0.22 lb
KE-4RA	φ40(1.57)×25(0.98)	100N(10kgf)	M6(0.23)×1.0(0.03) Depth 7.5(0.29)		0.12A			200g/0.44 lb

※The projection is provided in the center of the attractive face; φ2 φ max. length 1mm for KE-2R and φ2.5 φ max. length 1 mm for KE-3RA and 4RA.
※Cord length 0.3 m (0.2 m lead for KE-2R only) ※The max. holding power is based on a test piece of SS400, 10 mm thick, ground surface held on the whole area.

■PERMANENT ELECTROMAGNETIC HOLDER [Model: KEP-C]

[mm(in)]

Model	Dimensions φD	H	P	A	B	C	Max. Holding Power	Voltage	Current	Working Rate	Applicable Rectifier	Mass
KEP-3C	30(1.18)	40(1.57)	10(0.39)	22(0.86)	M6(0.23) Depth 10(0.39)	φ4(0.15) Depth 3(0.11)	150N(15kgf)	24 VDC	0.45A	10% ED	RH-M303A-6/24 RH-M303A-6/24-C1 RH-M303A-6/24-C2 KR-T101A-6/24	0.17kg/0.37 lb
KEP-4C	40(1.57)		15(0.59)				250N(25kgf)		0.54A			0.31kg/0.68 lb
KEP-5C	50(1.96)	50(1.96)	18(0.70)	25(0.98)	M8(0.31) Depth 13(0.51)	φ5(0.19) Depth 4(0.15)	340N(35kgf)		0.58A			0.6 kg/1.32 lb
KEP-7C	70(2.75)	60(2.36)	20(0.78)	35(1.37)	M10(0.39) Depth 16(0.62)	φ6(0.23) Depth 6(0.23)	880N(90kgf)		0.50A			1.5 kg/3.30 lb
KEP-9C	90(3.54)						1470N(150kgf)		0.45A			2.4 kg/5.29 lb
KEP-K5	50(1.96)×50(1.96)×50(1.96)				M8(0.31) Depth13(0.51)	—	250N(25kgf)		0.43A	50% ED		0.75kg/1.65 lb

※The max. holding power is based on a test piece of SS400, 20 mm thick, ground surface held on the whole area. Therefore, the lifting capacity is normally a third or less of the max. holding power. ※Cord length 0.3 m.

KE-5B

KE-4B

■HYBRID HOLDER [Model: KE-HA]

KE-2B

KE-1.5B

KE-1B

KE-3RA

[mm(in)]

Model	Size	Max. Holding Power	Center Tapped Hole on Back	Voltage	Current	Working Rate	Applicable Rectifier	Mass
KE-2HA	φ20(0.78)×25(0.98)	50N(5kgf)	M4(0.15)×0.7(0.02) Depth 6(0.23)	24 VDC	0.07A	100% ED	RH-H303A RH-H303A-C2	60g/0.13 lb
KE-3HA	φ30(1.18)×40(1.57)	200N(20kgf)	M6(0.23)×1.0(0.03) Depth 6(0.23)		0.11A			140g/0.31 lb
KE-4HA	φ40(1.57)×40(1.57)	400N(40kgf)			0.15A			280g/0.61 lb
KE-5HA	φ50(1.96)×50(1.96)	700N(70kgf)	M8(0.31)×1.25(0.04) Depth 10(0.39)		0.2 A			530g/1.17 lb
KE-6HA	φ60(2.36)×60(2.36)	1000N(100kgf)			0.22A			960g/2.11 lb
KE-8HA	φ80(3.15)×60(2.36)	1800N(180kgf)	M10(0.39)×1.5(0.05) Depth 12(0.47)		0.28A			1.6kg/3.52 lb

※Cord length 0.3 m. (KE-2HA: 0.2 m)
※The max. holding power is based on a test piece of SS400, ground surface held on the whole area. Therefore, the lifting capacity is normally a third or less of the max. holding power.
Test piece thickness: KE-2HA to 4HA ··· 10 mm, KE-5HA to 8HA ··· 20 mm

CONTROLLER FOR MAGNETIC HOLDER

■ELECTROMAGNETIC HOLDER HIGH-SPEED CONTROLLER [RH-M]

RH-M102C

RH-M303A-6/24
[Type installed inside panel]
A simple construction of PWB and chassis suitable for installation inside the machine power source panel.

RH-M303A-6/24-C1
[Cover type]
A type having a dedicated cover added to the type installed inside panel. A power indicator lamp is provided on the panel.

RH-M303A-6/24-C2
[Type housed in case]
The base construction is the type installed inside panel. This is placed in a dedicated case to enable installation on the side face of a machine. This type is equipped with a power indicator lamp, voltmeter, magnetic force adjust variable resistor and demagnetizing variable resistor.

[mm (in)]

Model	Input	Output		Dimensions			Demag. Function	Applicable Holder	Mass
	Voltage	Voltage	Current	Width	Depth	Height			
RH-M303A-6/24	Single-phase 100 VAC – 220 VAC, 50/60 Hz	0–24 VDC/ 0–6 VDC	3A	55 (2.17)	160 (6.30)	175 (6.89)	Provided	6V KE-1B	0.8kg/ 1.76 lb
RH-M303A-6/24-C1				70 (2.76)	180 (7.09)	205 (8.07)		24V KE-2B–4B, KE-2D–4E, KE-2R–4RA, KE-KA, KE-V306–312, KEP-3C–9C,K5	1.7kg/ 3.75 lb
RH-M303A-6/24-C2				175 (6.89)	100 (3.94)	190 (7.48)			2.5kg /5.51 lb
RH-M102C	Single-phase 100 VAC 50/60Hz	0–90 VDC	2A	145 (5.70)	175 (6.88)	260 (10.2)		90V KE-5B–9B, KE-5E,6E, KE-V510–830, KE-M	4.3kg/ 9.48 lb
RH-M105B-24		0–24 VDC	5A	170 (6.69)				24V KE-2B–4B, KE-2D–4E, KE-KA, KE-V306–312, KE-2R–4RA	4.5kg/ 9.92 lb
RH-M105B		0–90 VDC						90V KE-5B–9B, KE-5E,6E, KE-V510–830, KE-M	
RH-M205B	Single-phase 200 VAC 50/60Hz	0–90 VDC							
RH-M210B			10A	282 (11.1)		290 (11.4)			6.0kg/ 13.2 lb

※For ON/OFF control, external control is required. Input signals are to be provided by the customer.

■RECTIFIER FOR HYBRID HOLDER [RH-H]

RH-H303A-C2

[mm (in)]

Model	Type	Input	Output	Dimensions	Applicable Holder	Mass
RH-H303A	Type installed inside panel	Single-phase 100 VAC – 220 VAC, 50/60 Hz	0VDC – 24VDC 3A	W55 (2.16) ×D160 (6.29) ×H175 (6.88)	KE-2HA-8HA	0.8kg/ 1.76 lb
RH-H303A-C2	Type housed in case			W175 (6.88) ×D100 (3.93) ×H190 (7.48)		2.4kg/ 5.29 lb

※For ON/OFF control, external control is required. Input signals are to be provided by the customer.

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2020.12