

i-ROBO Smart Actuator

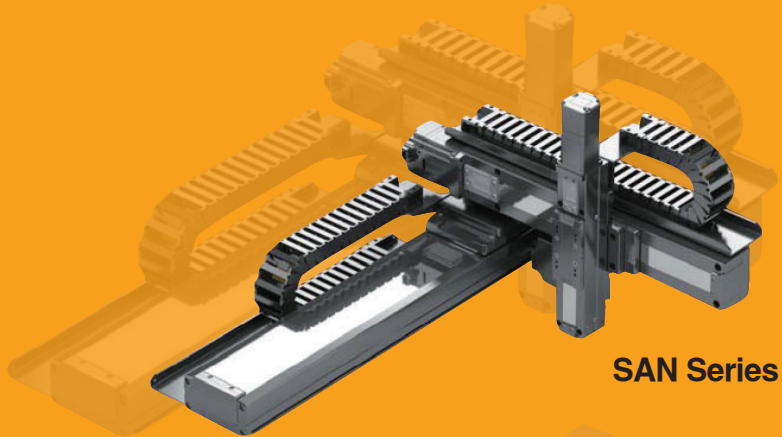
MADE IN KOREA



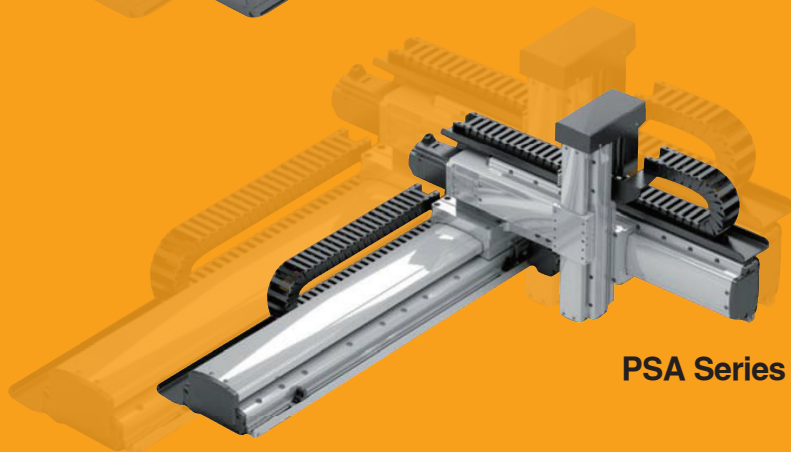
ISO9001 품질경영시스템 인증기업
ISO14001 환경경영시스템 인증기업

기업부설연구소

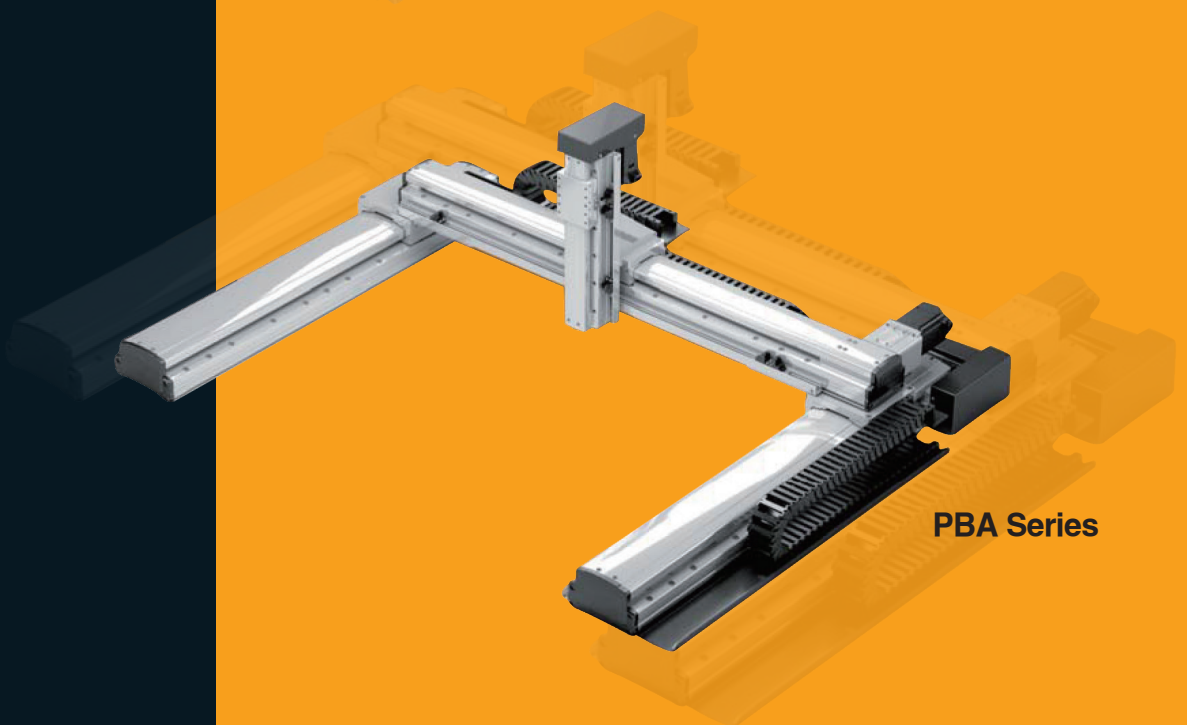
기술혁신형중소기업



SAN Series



PSA Series



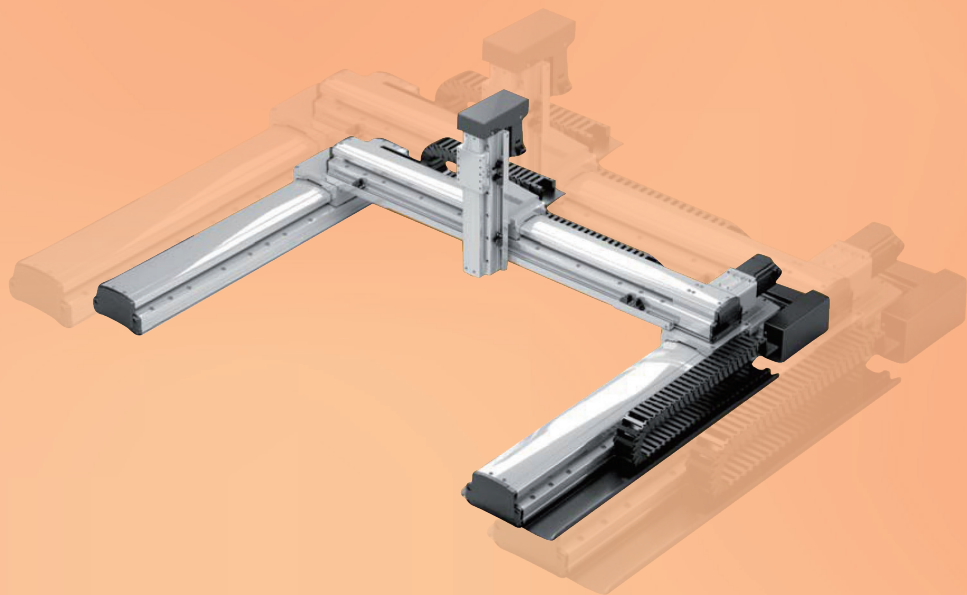
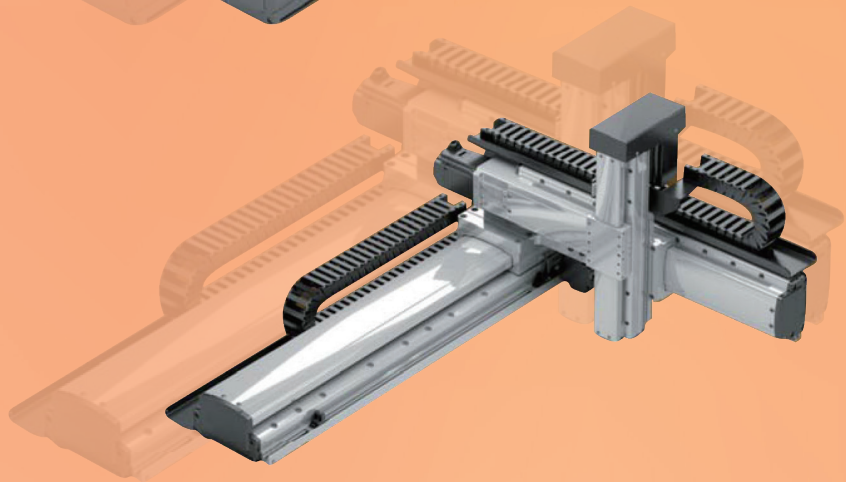
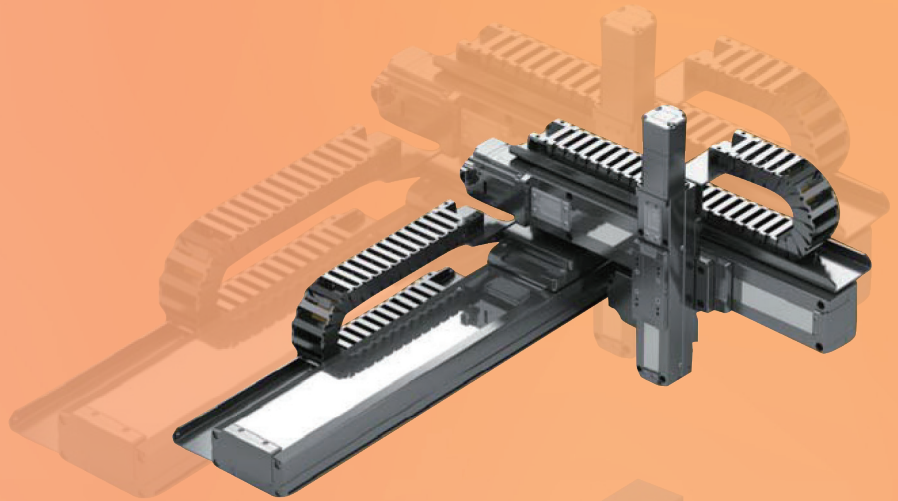
PBA Series

www.i-robo.kr

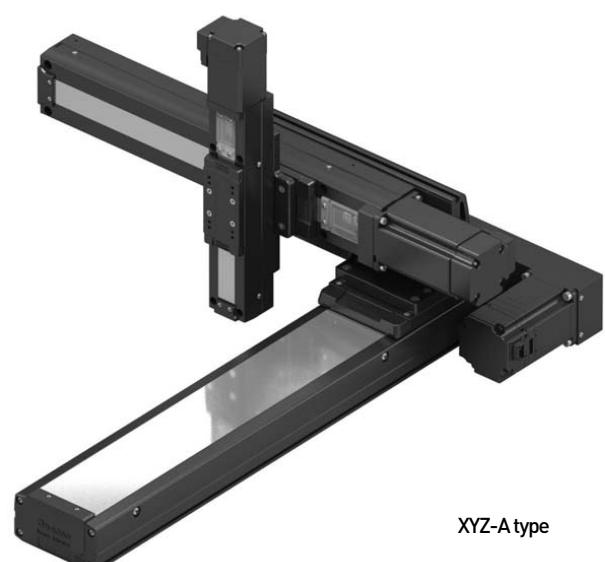
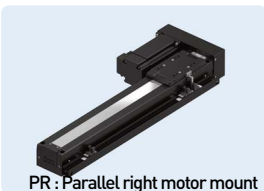
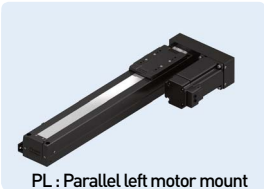
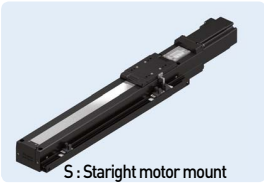
i-ROBO Smart Actuator

i-ROBO

Smart Actuator



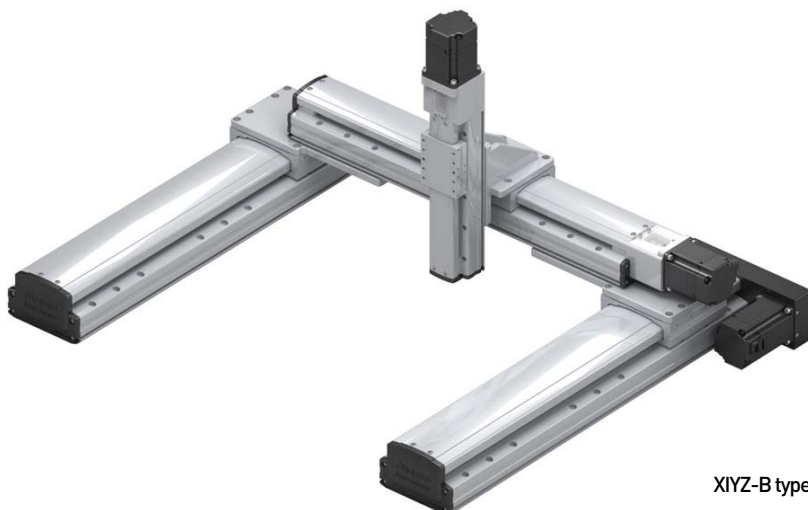
SAN SERIES (BALL SCREW TYPE)



- 고강성 컴팩트한 구조
High rigidity and compact design.
- 최대속도 1000mm/s 로 고속화 실현
Realization of high speed by 1000mm/s of Maximum speed.
- 표준 Stroke 최대 2000mm
2000mm maximum standard stroke.
- 반복위치정밀도 $\pm 5\mu\text{m}$ 이내의 고정밀
High positioning repeatability $\pm 5\mu\text{m}$
- 스테인레스 커버 구조 적용
Stainless steel cover design.
- 저발진, 방진, 저소음으로 친환경 시스템 적용
Environment-friendly system with low lint, dust-proof, low noise.
- 상/하 양방향에서 조합 가능한 구조
Possible to combine actuator at both the top and the bottom direction.
- 2~4축의 다양한 조합이 가능
Multi-axis Actuator (2~4 axis)
- 다양한 모터의 간편한 적용
Easy-various motors attachment
- 정밀 전조, 연삭 축 적용으로 고정밀 실현
High precision by precision Rolled & Grinded Screw

PSA SERIES (BALL SCREW TYPE)

- 고강성 컴팩트한 구조
High rigidity and compact design.
- 최대속도 1000mm/s 로 고속화 실현
Realization of high speed by 1000mm/s of Maximum speed.
- 표준 Stroke 최대 2000mm
2000mm maximum standard stroke.
- 반복위치정밀도 $\pm 5\mu\text{m}$ 이내의 고정밀
High positioning repeatability $\pm 5\mu\text{m}$
- 리테이너 타입 LM guide
Retainer type applied LM guide
- 유지 보수가 간편한 구조, 높은 신뢰성 실현
Easy maintenance and high reliability.
- 상/하 양방향에서 조합 가능한 구조
Possible to combine actuator at both the top and the bottom direction.
- 2~4축의 다양한 조합이 가능
Multi-axis Actuator (2~4 axis)
- 다양한 모터의 간편한 적용
Easy-various motors attachment
- 정밀 전조, 연삭 축 적용으로 고정밀 실현
High precision by precision Rolled & Grinded Screw



PBA SERIES (BELT TYPE)



SL : Straight left motor mount



SR : Straight right motor mount



PLU : Parallel left upper motor mount



PRU : Parallel right upper motor mount



PLB : Parallel left bottom motor mount



PRB : Parallel right bottom motor mount

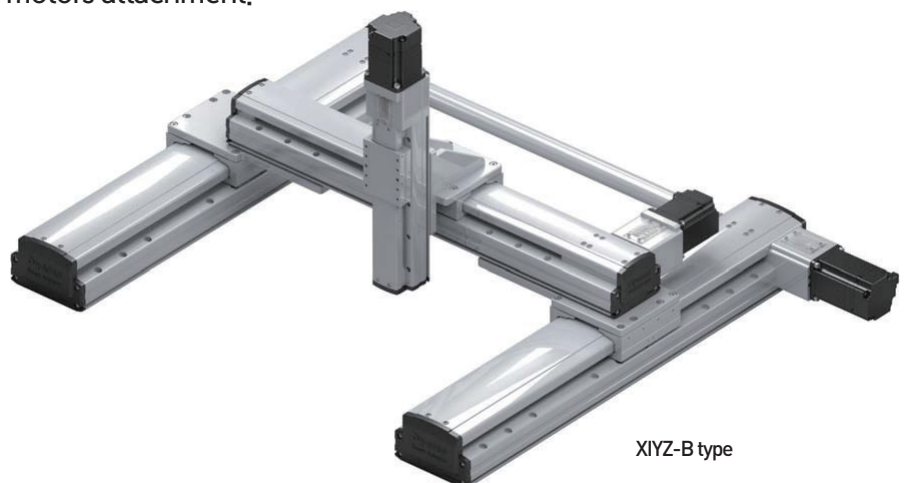


PLF : Parallel left front motor mount



PRF : Parallel right front motor mount

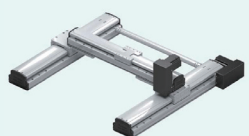
- 고강성 컴팩트한 구조
High rigidity and compact design.
- 최대속도 2400mm/s 로 고속화 실현
Realization of high speed by 2400mm/s of Maximum speed.
- 표준 Stroke 최대 3000mm
3000mm maximum standard stroke.
- Long Stroke에 고속도 대응 가능
Applicable to high speed operation with long Stroke.
- 반복위치정밀도 $\pm 0.05\text{mm}$ 이내의 고정밀
High positioning repeatability $\pm 0.05\text{mm}$
- 리테이너 타입 LM guide
Retainer type applied LM guide
- 유지 보수가 간편한 구조, 높은 신뢰성 실현
Easy maintenance and high reliability.
- 상/하 양방향에서 조합 가능한 구조
Possible to combine actuator at both the top and the bottom direction.
- 2~4축의 다양한 조합이 가능
Multi-axis Actuator (2~4 axis)
- 다양한 모터의 간편한 적용
Easy-various motors attachment.



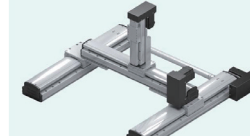
XYZ-B type



XI type



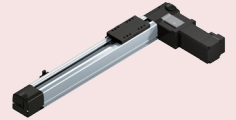
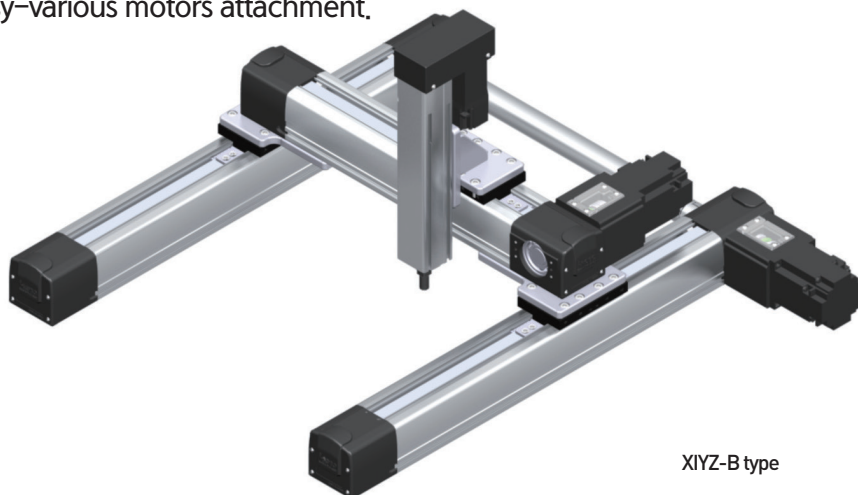
XIY-B type



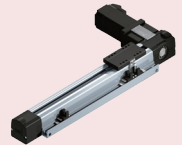
XIYZ-F type

EBA SERIES (BELT TYPE)

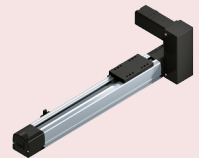
- 고강성 컴팩트한 구조
High rigidity and compact design.
- 최대속도 3250mm/s로 고속화 실현
Realization of high speed by 1250mm/s of Maximum speed.
- 표준 Stroke 최대 2500mm
2500mm maximum standard stroke.
- Long stroke에 고속도 대응 가능
Applicable to high speed operation with long stroke.
- 리테이너 타입 LM Guide
Retainer type applied LM guide
- 유지 보수가 간편한 구조, 높은 신뢰성 실현
Easy maintenance and high reliability.
- Base에 T-slot 고정방식을 사용하여 장비와 맞춤 고정 용이
T-slot fixation method is used in base for convenient customized fixation with equipment.
- Base 구조 저소음 타입
Base structure low-noise type.
- 2~4축의 다양한 조합이 가능
Multi-axis Actuator (2~4 axis)
- 다양한 모터의 간편한 적용
Easy-various motors attachment.



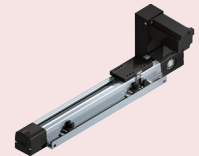
SL : Straight left motor mount



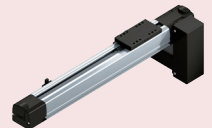
SR : Straight right motor mount



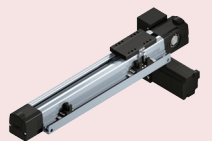
PLU : Parallel left upper motor mount



PRU : Parallel right upper motor mount



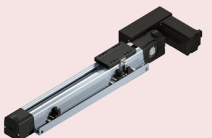
PLB : Parallel left bottom motor mount



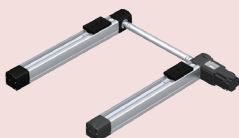
PRB : Parallel right bottom motor mount



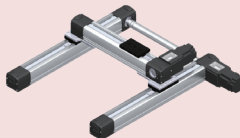
PLF : Parallel left front motor mount



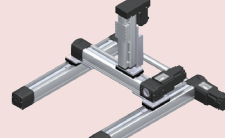
PRF : Parallel right front motor mount



XI type

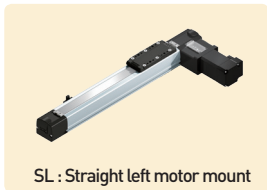


XIY-B type

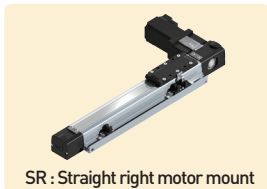


XIYZ-F type

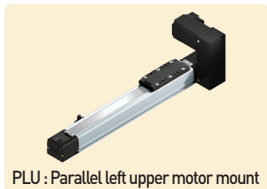
SEBA SERIES (BELT TYPE)



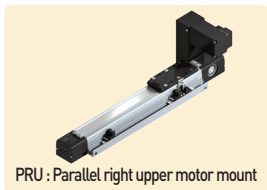
SL : Straight left motor mount



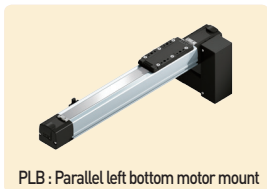
SR : Straight right motor mount



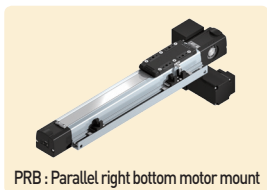
PLU : Parallel left upper motor mount



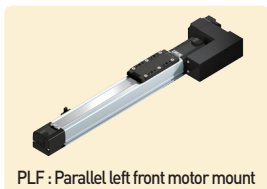
PRU : Parallel right upper motor mount



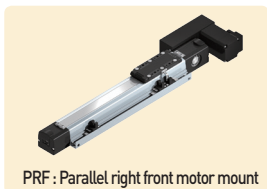
PLB : Parallel left bottom motor mount



PRB : Parallel right bottom motor mount

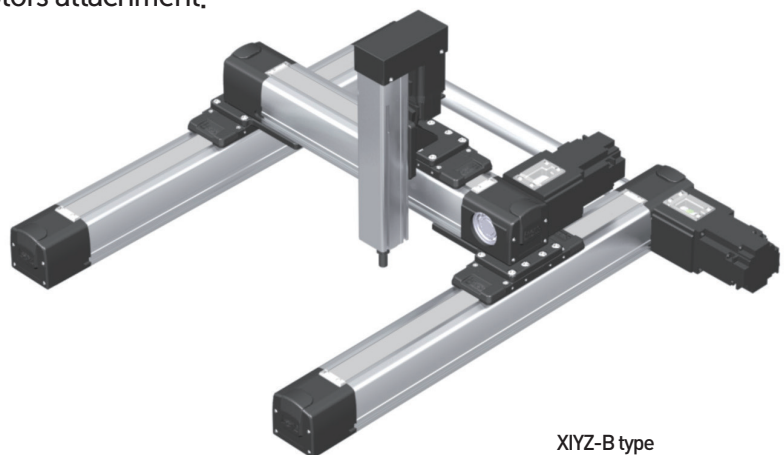


PLF : Parallel left front motor mount

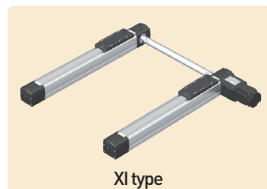


PRF : Parallel right front motor mount

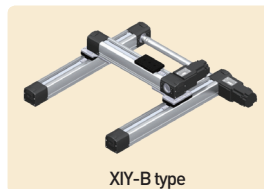
- 고강성 컴팩트한 구조
High rigidity and compact design.
- 최대속도 3250mm/s로 고속화 실현
Realization of high speed by 1250mm/s of Maximum speed.
- 표준 Stroke 최대 2500mm
2500mm maximum standard stroke.
- Long stroke에 고속도 대응 가능
Applicable to high speed operation with long stroke.
- 리테이너 타입 LM Guide
Retainer type applied LM guide
- 방진 SUS Cover 채용으로 이물질이 본체 내부로 유입 되는 것을 방지
Prevents inflow of foreign substances in body due to adoption of SUS protection cover.
- Base에 T-slot 고정방식을 사용하여 장비와 맞춤 고정 용이
T-slot fixation method is used in base for convenient customized fixation with equipment.
- 반복위치정밀도 $\pm 0.1\text{mm}$ 이내의 고정밀
High positioning repeatability $\pm 0.1\text{mm}$.
- 2~4축의 다양한 조합이 가능
Multi-axis Actuator (2~4 axis)
- 다양한 모터의 간편한 적용
Easy-various motors attachment.



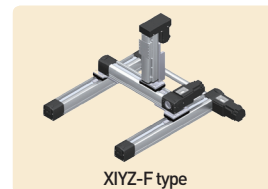
XYZ-B type



XI type

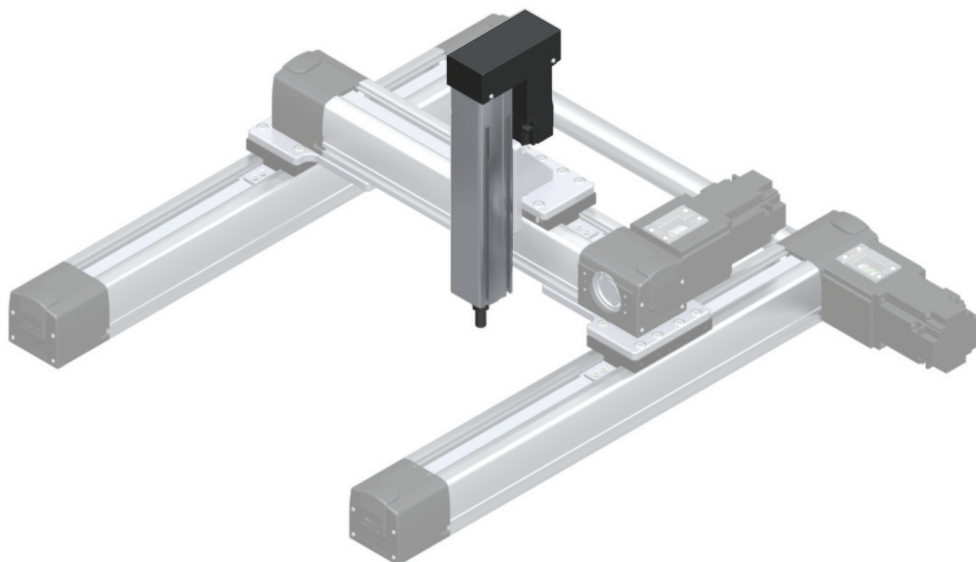


XIY-B type

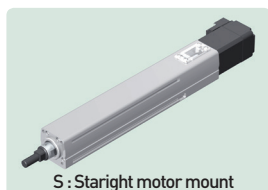


XIYZ-F type

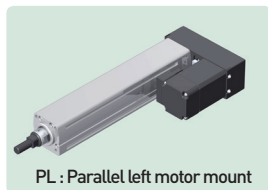
ERA SERIES (BALL SCREW TYPE)



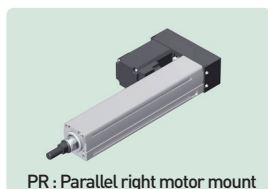
PB type



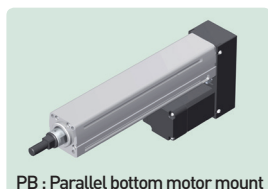
S : Straight motor mount



PL : Parallel left motor mount



PR : Parallel right motor mount

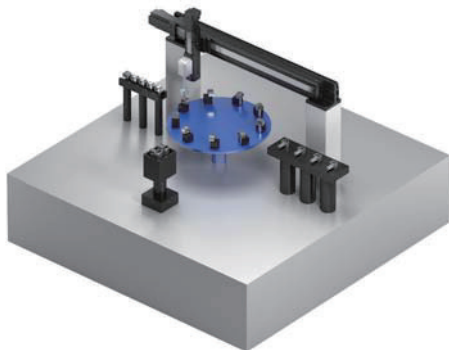


PB : Parallel bottom motor mount

- 고강성 컴팩트한 구조
High rigidity and compact design.
- 표준 Stroke 최대 300mm
300mm maximum standard stroke.
- 반복위치정밀도 $\pm 8\mu\text{m}$ 이내의 고정밀
High positioning repeatability $\pm 8\mu\text{m}$.
- 유지 보수가 간편한 구조, 높은 신뢰성 실현
Easy maintenance and high reliability.
- Base에 T-slot고정방식을 사용하여 장비와 맞춤 고정 용이
T-slot fixation method is used in base for convenient customized fixation with equipment.
- Base 구조 저소음 타입
Base structure low-noise type.
- 다양한 모터의 간편한 적용
Easy-various motors attachment.
- 마그네틱 센서 부착 가능
Magnetic sensor can be attached.

Applications Examples Multi Axis

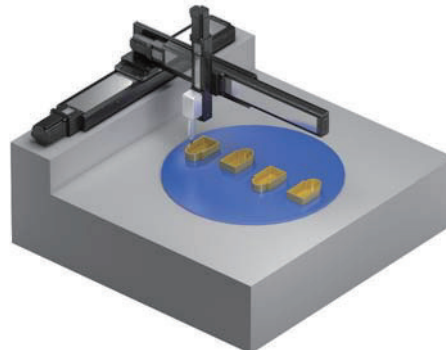
Assembling Device on Disc Machine



Use specifications

SAN65	SAN45
P.46~49	P.38~41

Coating Device for Various Small Components



Use specifications

SAN120	SAN100	SAN65
P.70~73	P.62~65	P.46~49

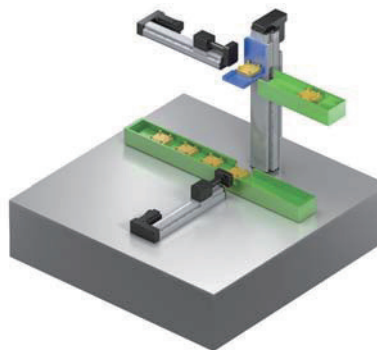
Spray Printing Device for PCB Substrate Boards



Use specifications

PSA165	PSA125	PSA95
P.144~147	P.136~139	P.128~131

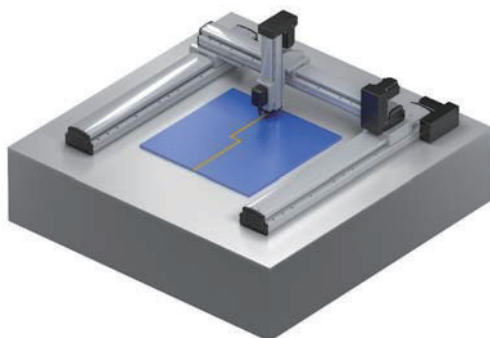
Conveyance Device for Assembly Lines



Use specifications

PSA125	PSA65	PSA65
P.136~139	P.120~123	P.120~123

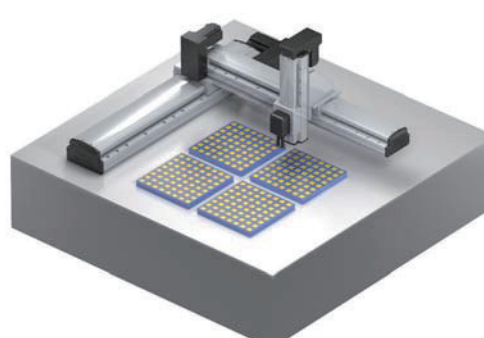
Cutting for Glass Substrate Boards



Use specifications

PBA125	PBA125	PBA95	PSA65
P.222~229	P.222~229	P.206~213	P.120~123

Pick and Place Device for Small Components

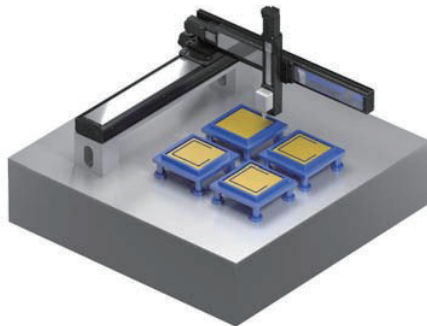


Use specifications

PBA165	PBA125	PSA95
P.238~245	P.222~229	P.128~131

Applications Examples Multi Axis

Mobile Device for Spray Coating



Use specifications

SAN150	SAN100	SAN65
P.78~81	P.62~65	P.46~49

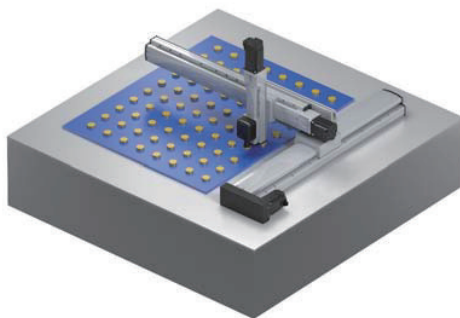
Surface Check Machine



Use specifications

SAN120	SAN100	SAN65H
P.70~73	P.62~65	P.50~53

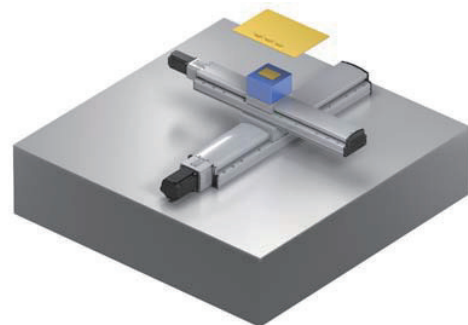
Assembling Device for Small Components



Use specifications

PSA125	PSA95	PSA65
P.136~139	P.128~131	P.120~123

IC Printer Device



Use specifications

PSA165	PSA125
P.144~147	P.136~139

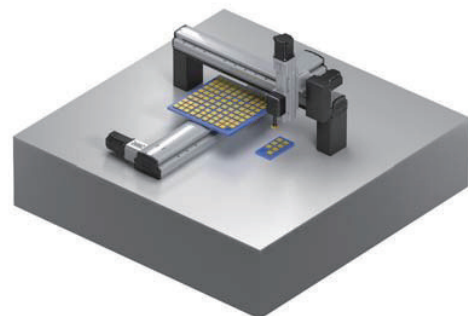
Surface Cleaning Device for Circuit Boards



Use specifications

PBA165	PBA165	PBA125
P.238~245	P.238~245	P.222~229

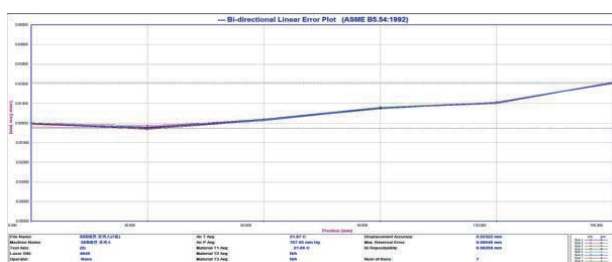
Aligning Device for Pick and Place of IC Boards



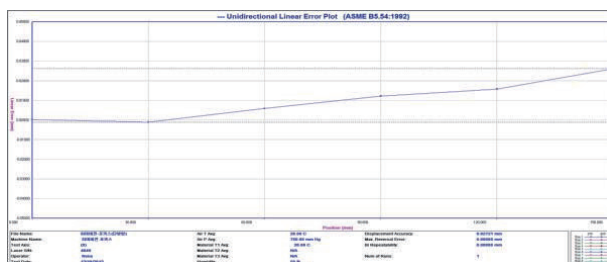
Use specifications

PBA95	PBA65	PSA65
P.206~213	P.190~197	P.120~123

Accuracy Standards



<DATE 1> Positioning Repeatability



<DATE 2> Positioning Accuracy

[Positioning Repeatability – Laser Interferometer]

임의의 한 점에 같은 방향으로 위치결정을 7회 반복하고 정지위치를 측정하여 얻은 최대치의 1/2을 구합니다.

이 측정을 원칙으로 이동거리의 중앙 및 양단의 각자 위치에서 실시하여 구한 값 중의 최대의 값을 측정치로 하고, 최대치의 1/2에 "±" 부호를 붙여서 나타냅니다.

(After repeating positioning to a given point in the same direction seven times, measure the halting point and obtain the value of half the maximum difference. Perform this measurement in the center and both ends of the travel distance; use the maximum difference as the measurement value and express the value of half the maximum difference with a "±" sign prefixed to the value.)

[Running of Parallelism (Vertical direction) – Laser Interferometer]

임의의 한 점에 같은 방향으로 위치결정을 7회 반복하고 정지위치를 측정합니다. 이 측정을 원칙으로 이동거리의 중앙 및 양단의 각자 위치에서 실시하여 구한 값으로 한다.

(After repeating positioning to a given point in the same direction seven times, measure the halting point. Perform this measurement in the center and both ends of the travel distance.)

[Backlash – Laser Interferometer]

테이블을 이송하여 정지시킨 후 레이저 측정기를 축 방향으로 기준 값을 Zero setting한다. 그 상태로 [Servo on상태] 이송장치에 의하지 않고 테이블에 축 방향으로 일정량의 하중을 가한 후 제거한다. 하중을 제거했을 때의 측정값과 기준 값과의 차이를 측정값으로 한다. 이 측정을 원칙으로 하여 이동거리 [Stroke]의 중앙 및 양단의 위치에서 측정을 행하여 측정치 중 최대치를 측정값으로 한다.

(Move and stop a slide table and set up a standard value as a zero setting of laser interferometer on the direction of axis. On the condition of servo on, give a certain amount of load on the slide table on the direction of axis. After remove of load, the difference between measured value and standard value is a measurement value. Based on the measurement method, measure the value of middle and both ends of an appointed stroke of slide table and set up a maximum value as measurement value.)

Accuracy Standards

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
SAN 45 (H)	~400	±0.005	0.025
	~600		0.035
SAN 65 (H) / 70 (H)	~400	±0.005	0.025
	~600		0.035
SAN 100 (H)	~400	±0.005	0.025
	~800		0.035
	~1000		0.045
SAN 120 (H)	~400	±0.005	0.025
	~800		0.035
	~1200		0.045
SAN 150 (H)	~400	±0.008	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
SAN 210 (H)	~400	±0.008	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
	~2000		0.065

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
PSA 45 (H)	~400	±0.005	0.025
	~600		0.032
PSA 65 (H)	~400	±0.005	0.025
	~600		0.035
PSA 95 (H)	~400	±0.005	0.025
	~800		0.035
	~1000		0.045
PSA 125 (H)	~400	±0.005	0.025
	~800		0.035
	~1200		0.045
PSA 165 (H)	~400	±0.008	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
PSA 210 (H)	~400	±0.008	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
	~2000		0.065

Note 1) 정도 기준의 평가 기준은 i-ROBO 표준을 준수합니다.

(The evaluation criteria complies with i-ROBO standards.)

Note 2) 측정은 검사용 모터를 사용해서 측정합니다. 모터 병렬타입의 경우, 모터 병렬 완성 상태에서의 측정은 하지 않습니다.

(The measurement is done by using the motor for inspection.

Types of motors in parallel, it does not measure the motor completed in parallel.)

Note 3) 표준 길이보다 긴 제품의 정도에 대해서는 i-ROBO로 문의바랍니다.

(Contact i-ROBO for information on the accuracy for standard or longer stroke)

Accuracy Standards

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
PBA 45 (H)	~400	± 0.05	0.025
	~600		0.035
PBA 65 (H)	~400	± 0.05	0.025
	~600		0.035
PBA 95 (H)	~400	± 0.05	0.025
	~800		0.035
	~1000		0.045
PBA 125 (H)	~400	± 0.05	0.025
	~800		0.035
	~1200		0.045
PBA 165 (H)	~400	± 0.05	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
PBA 210 (H)	~400	± 0.05	0.025
	~800		0.035
	~1200		0.045
	~1600		0.055
	~2000		0.065

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
EBA 45	~1500	± 0.1	-
EBA 65	~2500	± 0.1	-

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
SEBA 45	~1500	± 0.1	-
SEBA 65	~2500	± 0.1	-

Model	Stroke(mm)	Positioning	Running of Parallelism
		Repeatability	(Vertical direction)
ERA 45	~200	± 0.008	-
ERA 65	~300	± 0.008	-
ERA 65(H)	~300	± 0.008	-

Note 1) 정도 기준의 평가 기준은 i-ROBO 표준을 준수합니다.

(The evaluation criteria complies with i-ROBO standards.)

Note 2) 측정은 검사용 모터를 사용해서 측정합니다. 모터 병렬타입의 경우, 모터 병렬 완성 상태에서의 측정은 하지 않습니다.

(The measurement is done by using the motor for inspection.

Types of motors in parallel, it does not measure the motor completed in parallel.)

Note 3) 표준 길이보다 긴 제품의 정도에 대해서는 i-ROBO로 문의바랍니다.

(Contact i-ROBO for information on the accuracy for standard or longer stroke)

Mounting



(A)



(B)



(C)

	Actuator-Plate (A)	Actuator-Plate (B)	Actuator-Plate (C)
SAN 45 (H)	M4-45L	M5-18L	M4-15L
SAN 65 (H)	M5-50L	M5-18L	M5-18L
SAN 70 (H)		M4-15L	M5-20L
SAN 100 (H)	M6-12L	M6-20L	M6-20L
SAN 120 (H)	M6-15L	M6-20L	M6-25L
SAN 150 (H)	M8-18L	M8-25L	M8-25L
SAN 210 (H)	M8-70L	M8-25L	M8-25L



(A)



(B)

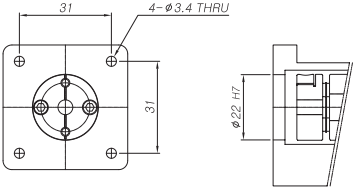
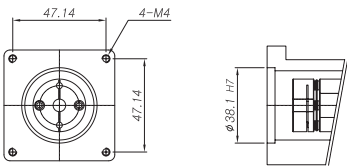
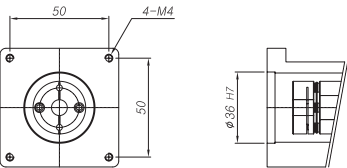
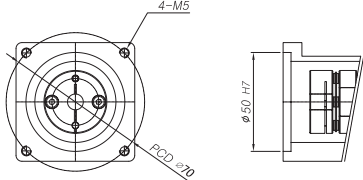
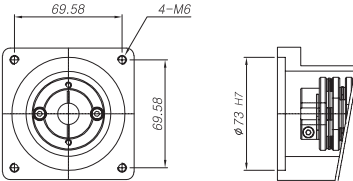
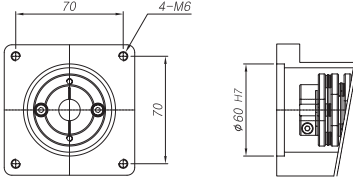
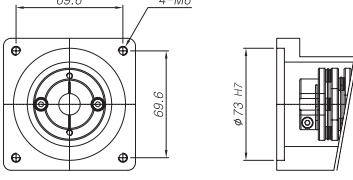


(C)

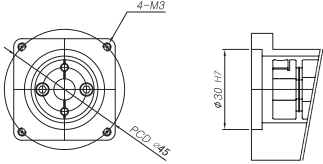
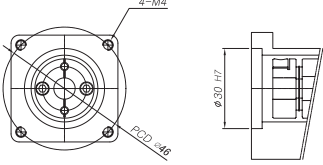
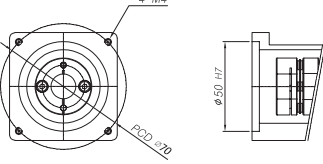
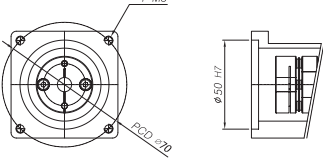
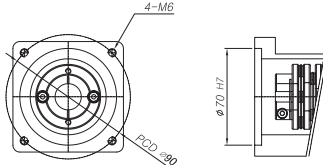
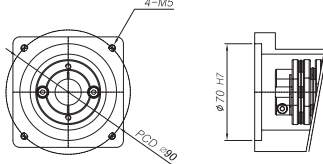
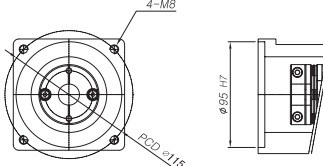
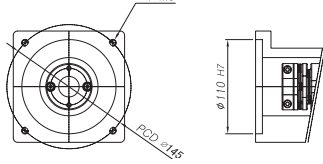
	Actuator-Plate(A)	Actuator-Plate(B)	Actuator-Plate(C)
PSA / PBA 45 (H)		M4-15L	M4-18L
PSA / PBA 65 (H)	M4-40L	M4-15L	M5-18L
PSA / PBA 95 (H)	M5-45L	M6-20L	M6-20L
PSA / PBA 125 (H)	M6-50L	M6-20L	M6-20L
PSA / PBA 165 (H)	M8-55L	M8-25L	M8-20L
PSA / PBA 210 (H)	M8-70L	M8-25L	M8-25L

Note 1) Plate 10mm 일 때 체결 볼트 길이입니다.
(Plate 10mm mounting bolt length)

Motor Size (STEP)

Motor DWG.	Motor Size	Motor Shaft	Mark	Model	Motor Power(W)
	42	Ø 5	Fastech Autonics Cool muscle Oriental	EzM-42 AK-42 CM1-17S30A / CM1-17L30A PK-24 , PK-54	
	56	Ø 6.35	Fastech Cool muscle Oriental	EzM-56 CM1-23S30A / CM1-23L20A PK-26	
		Ø 8	Cool muscle	CM2-56BS10A / CM2-56B20A	
	60	Ø 8	Fastech Autonics Oriental	EzM-60 AK60 PK-56	
	60	Ø 8	Cool muscle	CM2-60A10A	
		Ø 14	Cool muscle	CM2-60A40A	
	85	Ø 14	Oriental	PK-29	
	85	Ø 14	Autonics Oriental	AK-85 PK-59	
	86	Ø 14	Fastech	EzM-86	

Motor Size (SERVO)

Motor DWG.	Motor Size	Motor Shaft	Mark	Model	Motor Power(W)
	38	ø 8	Panasonic	MSMD-5A/MSMD-01	50W / 100W
	40	ø 8	Misubishi Yaskawa RS auomation Ls mecapiion OMRON FUJI SANYO SANKYO DELTA Schneider	HG-KR 053 / HG-KR 13 SGMJV-A5 / SGMJV-01 CSMT-A5 / CSMT-01 APM-SAR5A / APM-SA01A R88M-1M10030 GYS500D / GYS101D R2AA04005 / R2AA04010 MM500 / MM101 ECMA-C□0401 BCH2MBA53 / BCH2MB013	50W / 100W
	60	ø 11	Panaonic OMRON	MSMD-02 R88M-1M20030	200W
		ø 14	Panaonic OMRON	MSMD-04 R88M-1M40030	400W
	60	ø 12	RS auomation	CSMT-02 / CSMT-04	200W/400W
		ø 14	Misubishi Yaskawa Ls mecapiion FUJI SANYO SANKYO DELTA Schneider	HG-KR 23 / HG-KR 43 SGMJV-02 / SGMJV-04 APM-SB02A / APM-SB04A GYS201D / GYS401D R2AA06020 / R2AA06040 MA201 / MA401 ECMA-C□0602 / ECMA-C□0604 BCH2LD023 / BCH2LD043	200W / 400W
	80	ø 16	RS auomation FUJI SANYO	CSMT-08 GYS751D R2AA08075	800W 750W 750W
		ø 19	Misubishi Yaskawa Ls mecapiion SANKYO DELTA Schneider	HG-KR 73 SGMJV-08 APM-SC08A MA751 ECMA-C□0807 BCH2LF073	750W
	80	ø 19	Panaonic OMRON	MSMD-08 R88M-1M75030	750W
	100	ø 19	Panaonic OMRON	MSME-102 R88M-1L1K030	1 KW
	130	ø 19	Ls mecapiion	APM-SE11D	1.1KW
		ø 22	Panaonic OMRON Schneider	MDME-102 R88M-1M1K020 BCH2MM102	1 KW
		ø 24	Misubishi FUJI	HG-SR102 GYC102D	1 KW