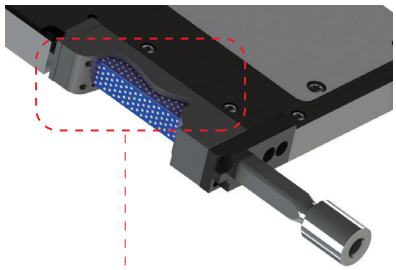
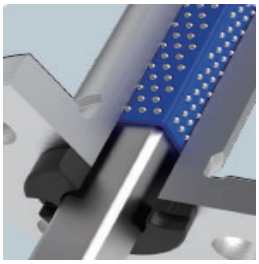
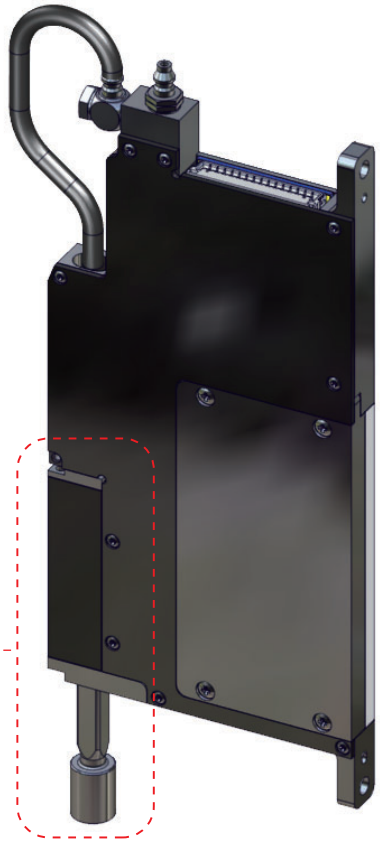
Linear Rotary Picker

└ Pick & Place Solution

https://www.technohands.co.jp/







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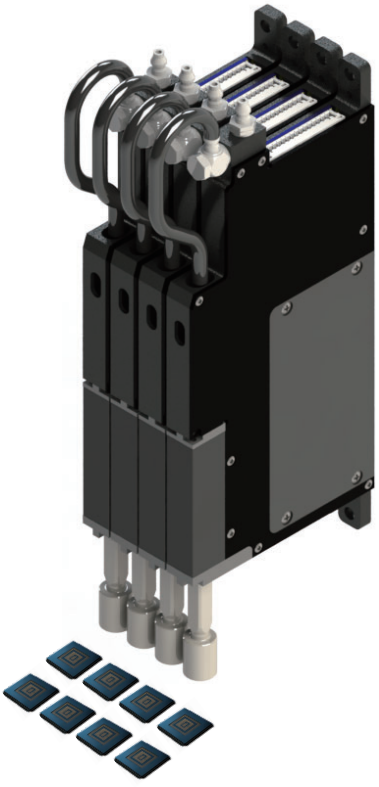
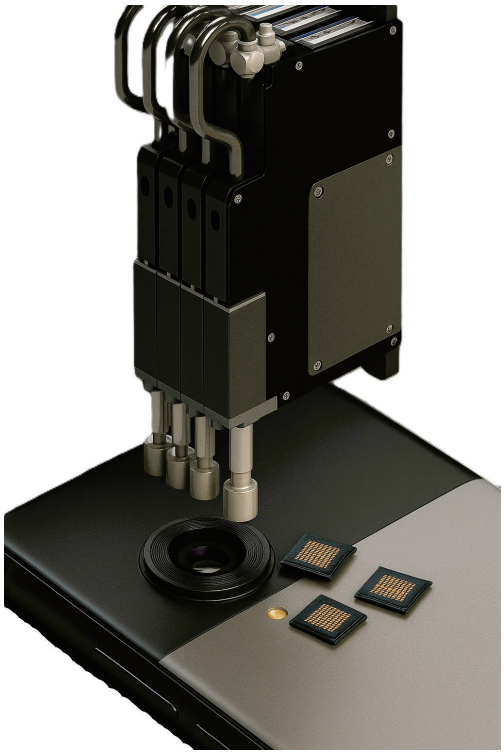
PRODUCT CATALOG





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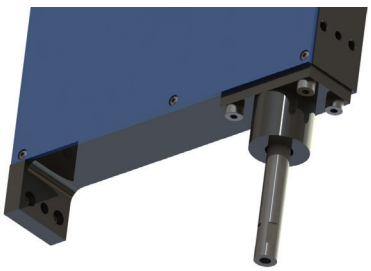
MEMO

Technohands

Pick & Place Solution

Linear Rotary Picker

ZLR25-15


バキューム

e-Pica7.5

e-Pica7.5
4台組立

概要

テクノハンズは2016年よりLinear Rotary Pickerの開発を開始し、
現在では海外の半導体・スマートフォン企業をはじめ、複数の企業に製品を提供しております。
お客様のニーズに応じて何度もアップグレードを重ね、現在の高精度な製品に至っております。
社内にはモノづくりのプロフェッショナルが設計を担当し、実際に製造工程を体験しながら
そのノウハウを深く理解しています。
また、機械加工、EncoderおよびCoilの自社生産に対応しており、
自社保有の5軸加工機を活用することで、高精度かつ迅速なカスタマイズも可能です。

主な特長

特許出願中のカスタマイズガイド「Polygon Ball Guide」を採用。
4面に配置されたボールで振れをしっかりと抑えます。

イナーシャと摩擦係数を最小限に抑え、精密なトルク制御が可能です。

小型モーターに求められる設計・分析・シミュレーションを通じて製造します。

高性能光学式エンコーダを採用し、リニア0.1μm、ロータリー0.002° の高精度を実現。

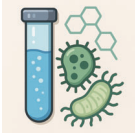
用途

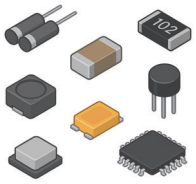
半導体

半導体工程に必要な高精度な位置決め、高速移動、真空吸着などのノウハウを有しています。

カメラレンズ

カメラレンズは数μm単位で整列される必要があり、高い精度が求められます。
リニアおよびロータリーの動作をダイレクト構造によりシンプル化し、効率を向上させて、より精密な制御を実現します。


バイオ関連



そのほか小型部品

プローブピン、ポゴピン組立

ZLR25-15 標準品短納期

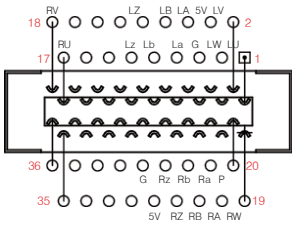
ZLR25-15

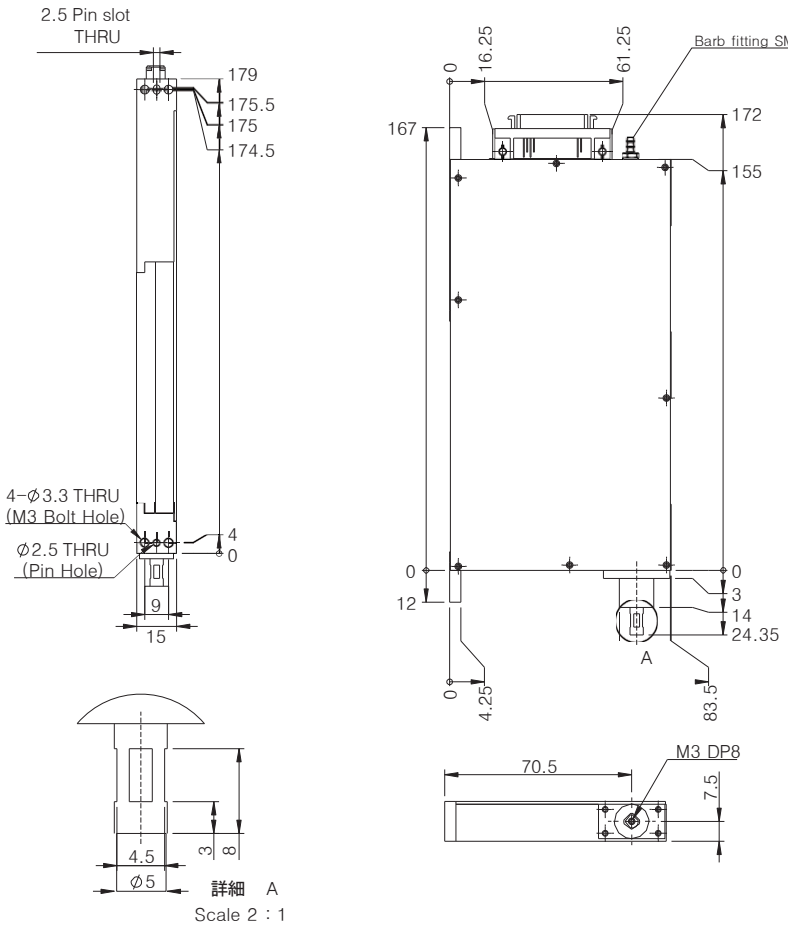
SPECIFICATION

– Rotary	① Encoder : 72,000 COUNTS/REV
	1Pulse 0.005deg
	② Maximum speed : 3,000RPM
	③ Resistance : 2.4Ω
	④ Inductance : 200μH
	⑤ Peak torque : 22mNm
	⑥ Rate torque : 11mNm
	⑦ Pole pairs per revolution : 2
	⑧ Peak current : 2A
	⑨ Continuous current : 1A
– Linear	① Encoder : 0.1μm
	② Linear stroke : 25mm
	③ Peak force : 14N
	④ Force constant : 6.5N/A
	⑤ Resistance : 8.5Ω
	⑥ Inductance : 1.6mH
	⑦ Peak current : 3A
	⑧ Continuous current : 1A
	⑨ Magnetic pitch(N-N) : 24mm

Connector : 3M社 型番: Connector 10136-3000VE

Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	Linear U	10	Linear Z	19	Rotary W	28	Rotary GND
2	Linear V	11	Linear z	20	P(接地)	29	–
3	Linear W	12	–	21	Rotary A	30	–
4	5V	13	–	22	Rotary a	31	–
5	GND	14	–	23	Rotary B	32	–
6	Linear A	15	–	24	Rotary b	33	–
7	Linear a	16	–	25	Rotary Z	34	–
8	Linear B	17	Rotary U	26	Rotary z	35	–
9	Linear b	18	Rotary V	27	Rotary 5V	36	–





Linear Rotary Picker

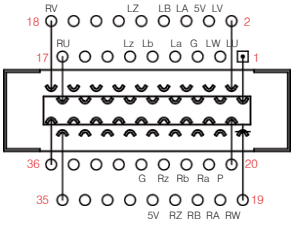
ZLR50-15

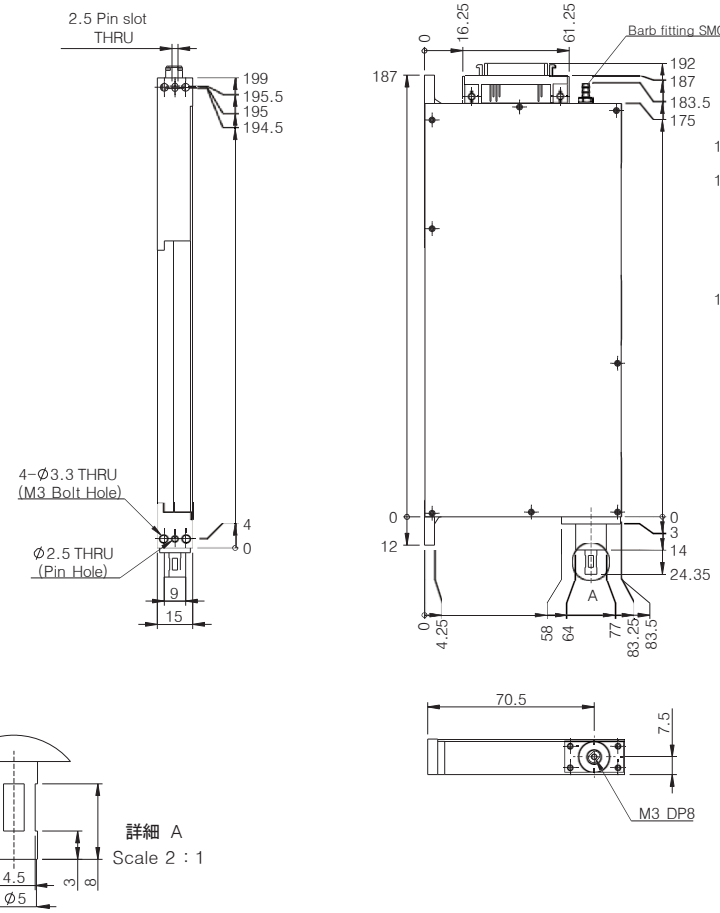
SPECIFICATION

– Rotary	① Encoder : 72,000 COUNTS/REV
	1Pulse 0.005deg
	② Maximum speed : 3,000RPM
	③ Resistance : 2.4Ω
	④ Inductance : 200μH
	⑤ Peak torque : 22mNm
	⑥ Rate torque : 11mNm
	⑦ Pole pairs per revolution : 2
	⑧ Peak current : 2A
	⑨ Continuous current : 1A
– Linear	① Encoder : 0.1μm
	② Linear stroke : 50mm
	③ Peak force : 14N
	④ Force constant : 6.5N/A
	⑤ Resistance : 8.5Ω
	⑥ Inductance : 1.6mH
	⑦ Peak current : 3A
	⑧ Continuous current : 1A
	⑨ Magnetic pitch(N–N) : 24mm

Connector : 3M社 型番: Connector 10136-3000VE

Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	Linear U	10	Linear Z	19	Rotary W	28	Rotary GND
2	Linear V	11	Linear z	20	P(接地)	29	–
3	Linear W	12	–	21	Rotary A	30	–
4	5V	13	–	22	Rotary a	31	–
5	GND	14	–	23	Rotary B	32	–
6	Linear A	15	–	24	Rotary b	33	–
7	Linear a	16	–	25	Rotary Z	34	–
8	Linear B	17	Rotary U	26	Rotary z	35	–
9	Linear b	18	Rotary V	27	Rotary 5V	36	–





ZVR15-15 [Z軸 / VCM]

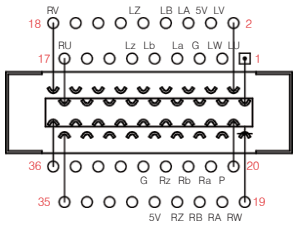
ZVR15-15

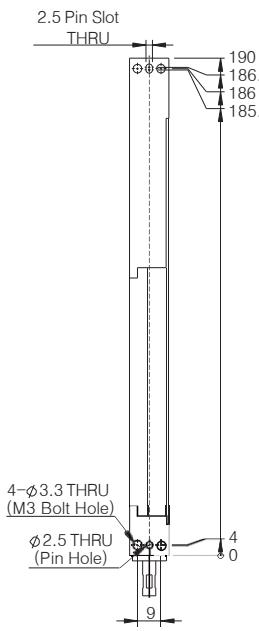
SPECIFICATION

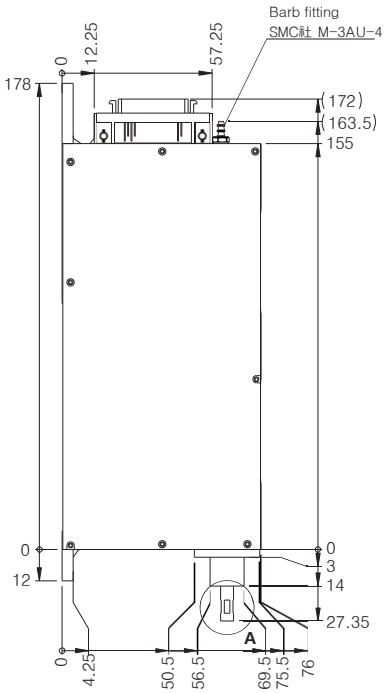
– Rotary	① Encoder : 180,000 COUNTS/REV
	1Pulse 0.002deg
	② Maximum speed : 3,000RPM
	③ Resistance : 2.4Ω
	④ Inductance : 200μH
	⑤ Peak torque : 22mNm
	⑥ Rate torque : 11mNm
	⑦ Pole pairs per revolution : 2
	⑧ Peak current : 2A
	⑨ Continuous current : 1A
– Linear	① Encoder : 0.1μm
	② Linear stroke : 15mm
	③ Peak force : 14N
	④ Force constant : 7.5N/A
	⑤ Resistance : 14.4Ω
	⑥ Inductance : 4.2mH
	⑦ Peak current : 2A
	⑧ Continuous current : 1A

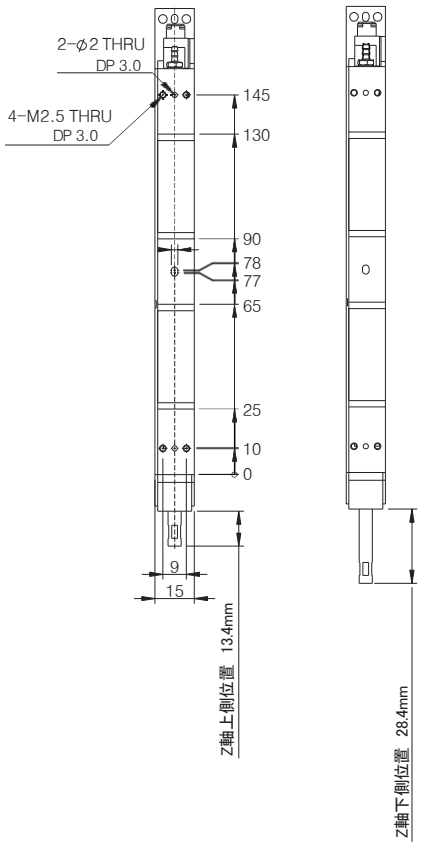
Connector : 3M社 型番: Connector 10136-3000VE

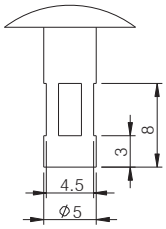
Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1		10	Linear Z	19	Rotary W	28	Rotary GND
2	VCM A	11	Linear z	20	P(接地)	29	–
3	VCM B	12	–	21	Rotary A	30	–
4	5V	13	–	22	Rotary a	31	–
5	GND	14	–	23	Rotary B	32	–
6	Linear A	15	–	24	Rotary b	33	–
7	Linear a	16	–	25	Rotary Z	34	–
8	Linear B	17	Rotary U	26	Rotary z	35	–
9	Linear b	18	Rotary V	27	Rotary 5V	36	–



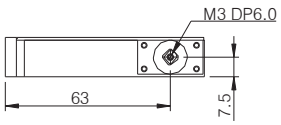






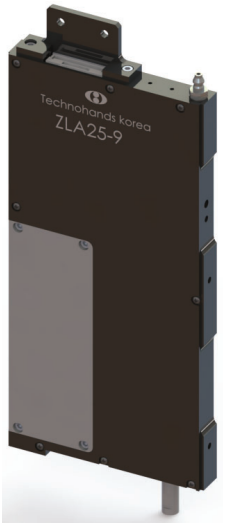


詳細 A
Scale 2 : 1



Linear Picker

ZLA25-9 [Z軸]



ZLA25-9

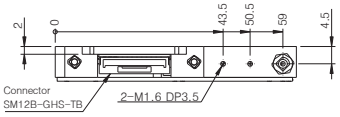
最大加速：7G

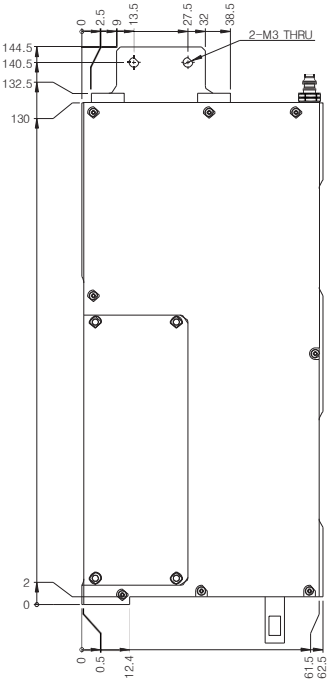
SPECIFICATION

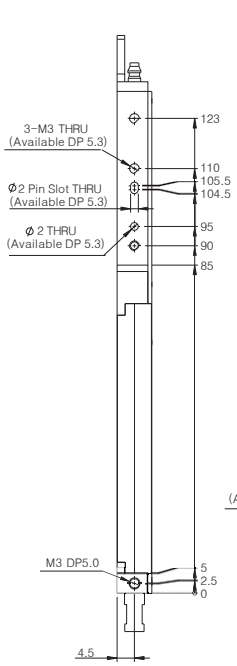
- ① Encoder : 0.1μm
- ② Linear stroke : 25mm
- ③ Peak force : 3.2N
- ④ Force constant : 2.6N/A
- ⑤ Resistance : 10.2Ω
- ⑥ Inductance : 0.2mH
- ⑦ Peak current : 1.2A
- ⑧ Continuous current : 0.6A
- ⑨ Magnetic pitch(N-N) : 14mm

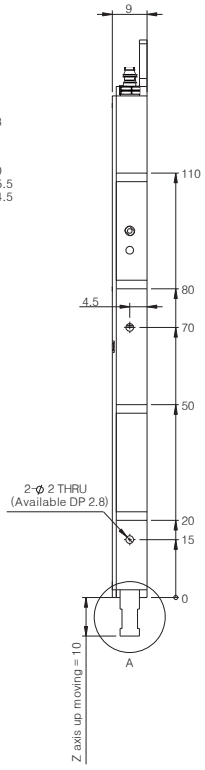
Connector Pin Map

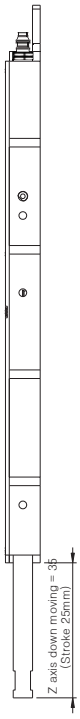
1	GND
2	5V
3	A+
4	A−
5	B+
6	B−
7	Z+
8	Z−
9	W
10	V
11	U
12	P(grounding)

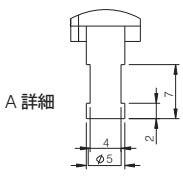


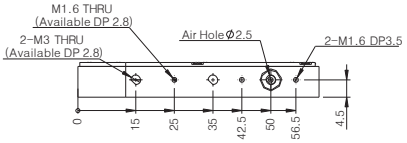












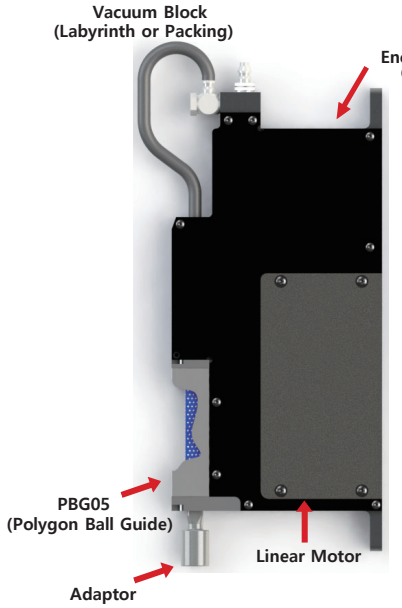
e-Pica7.5 ［Z軸］

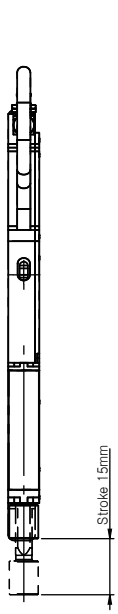
SPECIFICATION

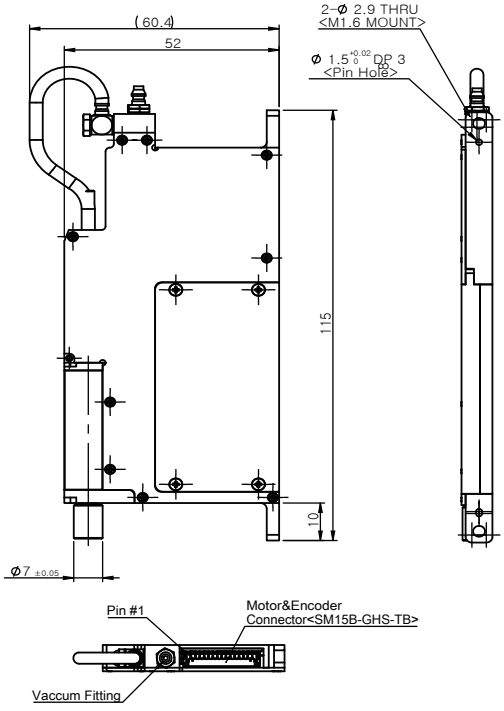
- ① Encoder : 0.1μm/Option 0.05μm
- ② Linear stroke : 15mm
- ③ Peak force : 6.6N
- ④ Force constant : 2.2N/A
- ⑤ Resistance : 2.6Ω
- ⑥ Inductance : 0.22mH
- ⑦ Peak current : 1.2A
- ⑧ Continuous current : 0.8A
- ⑨ Magnetic pitch(N-N) : 14mm
- ⑩ Acceleration : 10G
- ⑪ Speed : 1000mm/ s

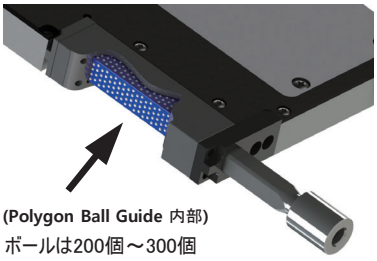
Motor&Encoder Pin Map
<SM15B-GHS-TB JST Connector>

1	Encoder GND	Black
2	Encoder 5V	Brown
3	Encoder A+	Orange
4	Encoder A-	Blue
5	Encoder B+	Red
6	Encoder B-	White
7	Encoder Z+	Yellow
8	Encoder Z-	Green
9	Motor W	Orange
10		Blue
11	Motor V	Red
12		White
13	Motor U	Yellow
14		Green
15	FG	Gray

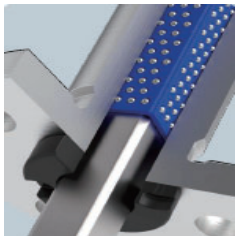




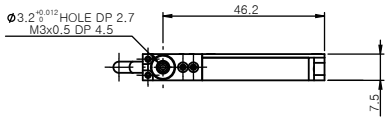


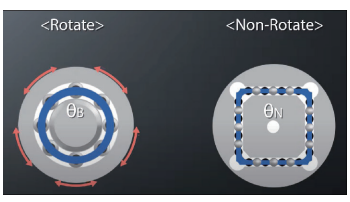


(Polygon Ball Guide 内部)
ボールは200個～300個



[Polygon Ball Guideを採用]





高精度·高剛性　最小の抵抗実現　安定した高速性能

PBGは、ポスト、ボールケージ、外筒で構成されています。
これらの構成部品は用途に応じて多様に組み合わせることができ、
ポストおよび外筒の内側が多角形構造となっており、回転方向の拘束が可能なガイドです。
また、多角形面に多数のボールが配列されており、高剛性の実現と予圧の最小化によって、
非常に滑らかな動きが可能です。

高精度 Linear Picker

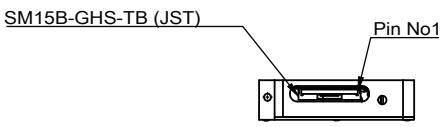
e-Pica14-15 ［Z軸］

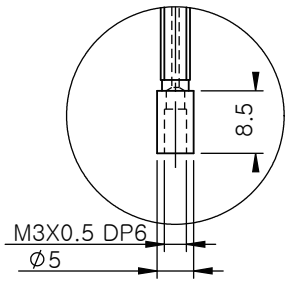
SPECIFICATION

- ① Encoder : 0.1μm/Option 0.05μm
- ② Linear stroke : 15mm
- ③ Peak force : 12N
- ④ Force constant : 6N/A
- ⑤ Resistance : 6.2Ω
- ⑥ Inductance : 1.2mH
- ⑦ Peak current : 2A
- ⑧ Continuous current : 1A
- ⑨ Magnetic pitch(N-N) : 23mm
- ⑩ Acceleration : 10G
- ⑪ Speed : 1000mm/ s

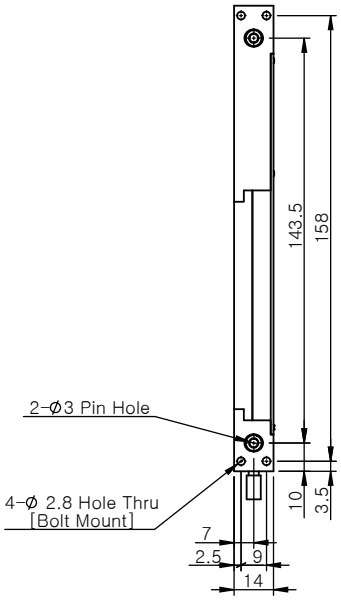
Motor&Encoder Pin Map
<SM15B-GHS-TB JST Connector>

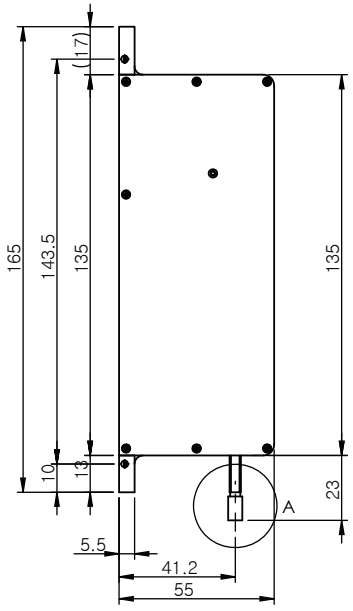
1	V OUT	
2	24V	
3	24V GND	
4	Encoder Z-	
5	Encoder Z+	
6	Encoder B-	
7	Encoder B+	
8	Encoder A-	
9	Encoder A+	
10	Encoder 5V	
11	Encoder 5V GND	
12	FG	
13	Motor W	
14	Motor V	
15	Motor U	

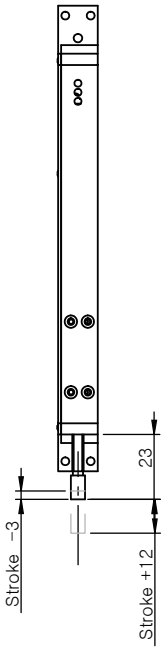


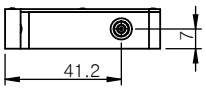


Detail A

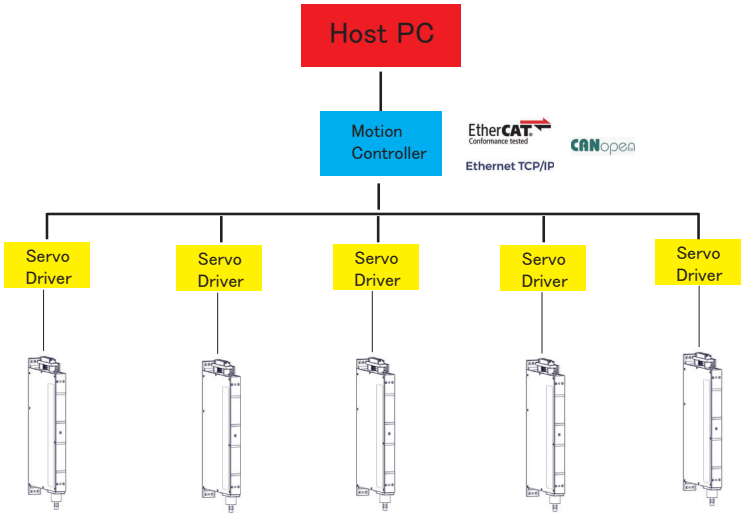




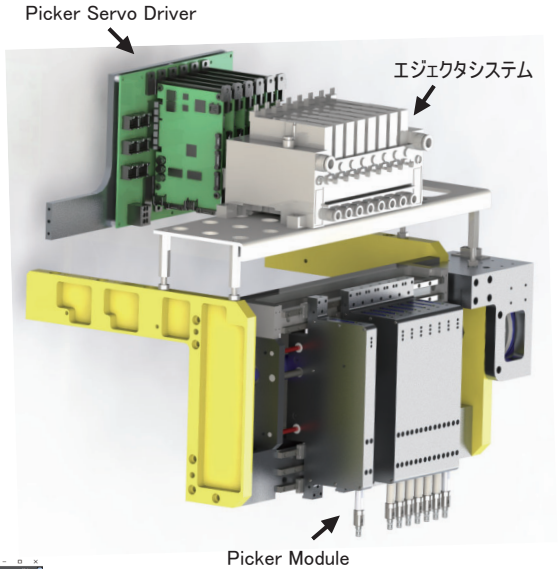




LINEAR ROTARY PICKER SOLUTION

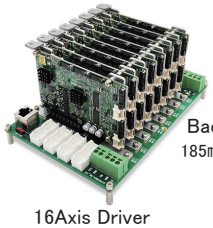


Picker Servo Driver



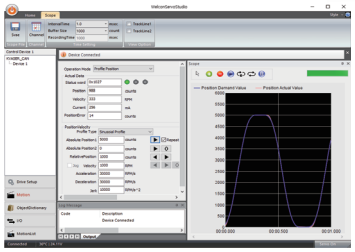
Picker Servo Driver

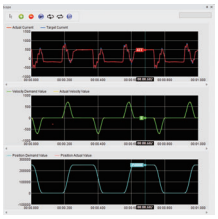
2Axis Driver



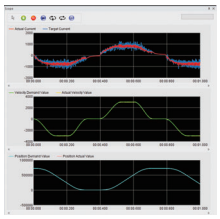
16Axis Driver

Backboard Size
185mm X 125mm



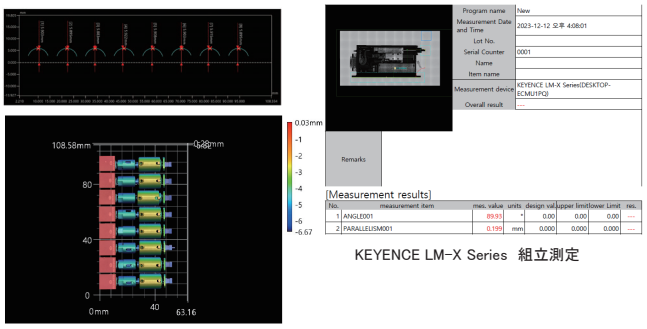


Linear



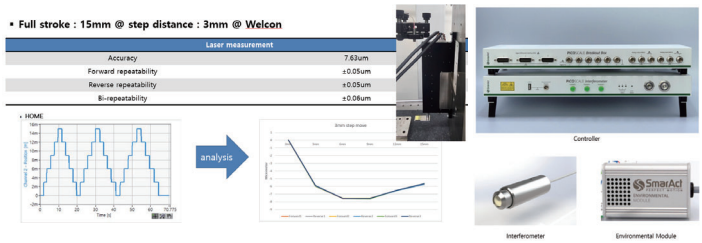
Rotary

検査＆製造

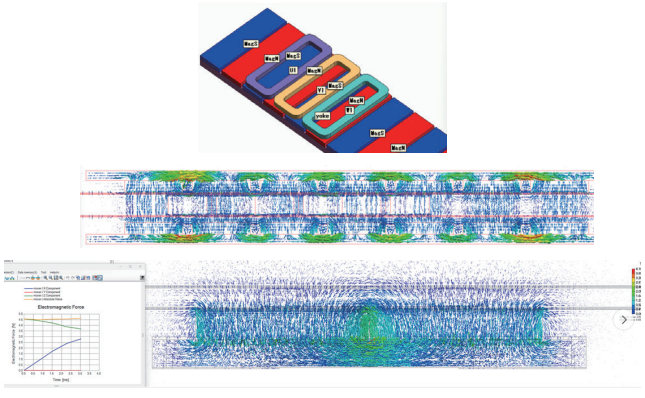


KEYENCE LM-X Series 組立測定

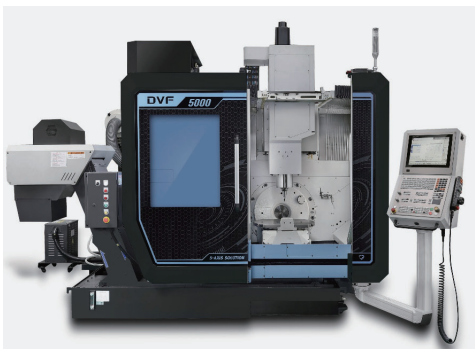
KEYENCE VR-6000 Series Picker 高さ測定



Laser Pico interferometer
繰り返し制度測定



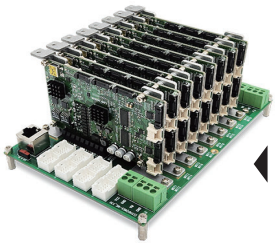
電磁カシミュレーション



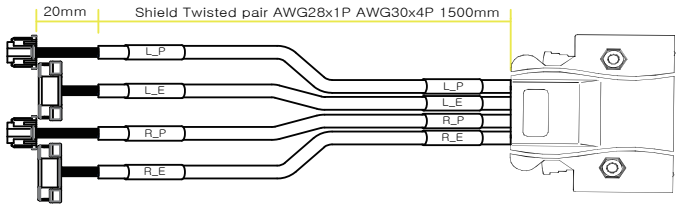
Piker加工専用5軸加工機

Linear Rotary Picker

Driver & Cable SOLUTION



16軸 Driver

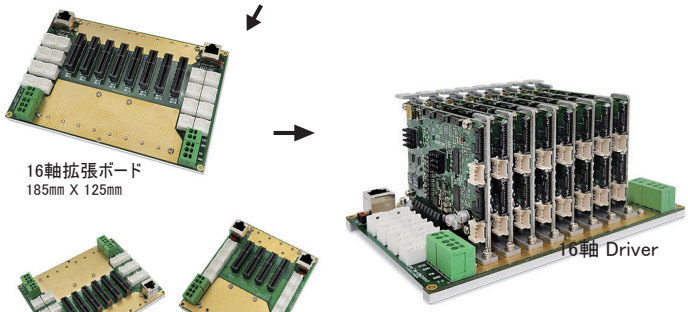


● Cable長さ指定可能

1軸 Mini Driver
72mm X 44.3mm X 29.8mm / 90g

2軸 Driver
106.5mm X 78mm X 25mm / 200g

2軸 Slot Type Driver
116.5mm X 77.5mm X 13.5mm / 99g (with heatsink)



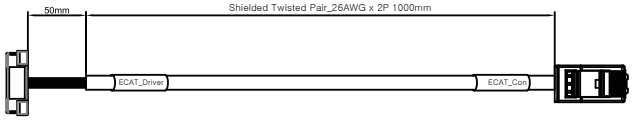
16軸拡張ボード
185mm X 125mm

12軸拡張ボード
155mm X 125mm

8軸拡張ボード
105mm X 125mm

16軸 Driver

ECAT__Cable

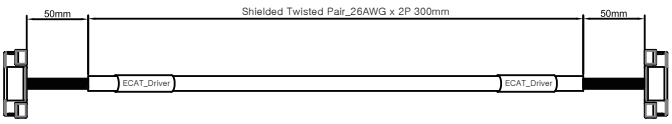


Color	Pin	Signal
Orange/White	1	EtherCAT_TX+
Orange	2	EtherCAT_TX-
Green/White	3	EtherCAT_RX+
Green	4	EtherCAT_RX-
	5	Shield

Signal	Pin	Color
EtherCAT_TX+	1	Orange/White
EtherCAT_TX-	2	Orange
EtherCAT_RX+	3	Green/White
EtherCAT_RX-	6	Green
Shield	Case	

Molex : 505565-0501
Molex : 505431-1100

RJ45



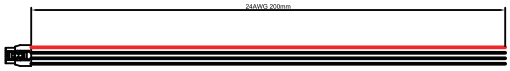
Color	Pin	Signal
Orange/White	1	EtherCAT_TX+
Orange	2	EtherCAT_TX-
Green/White	3	EtherCAT_RX+
Green	4	EtherCAT_RX-
	5	Shield

Signal	Pin	Color
EtherCAT_TX+	1	Orange/White
EtherCAT_TX-	2	Orange
EtherCAT_RX+	3	Green/White
EtherCAT_RX-	6	Green
Shield	Case	

Molex : 505565-0501
Molex : 505431-1100

Molex : 505565-0501
Molex : 505431-1100

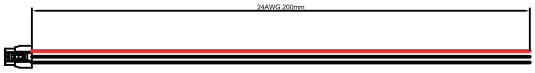
Motor__Cable



Molex : 105307-1204
Molex : 105300-2100

Signal	Pin	Color
U(VCM+)	1	Red
V(VCM-)	2	Black
W	3	Black
FG	4	Black

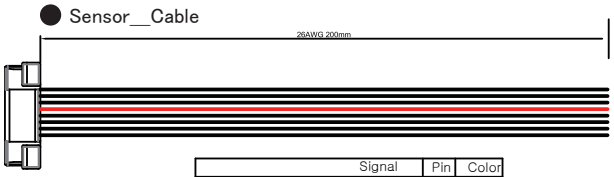
Power__Cable



Molex : 105307-1203
Molex : 105300-2100

Signal	Pin	Color
VCC	1	Red
GND	2	Black
FG	3	Black

Sensor__Cable



Molex : 505565-0801
Molex : 505431-1100

Signal	Pin	Color
Data+	1	Black
Data-	2	Black
CLK+	3	Black
CLK-	4	Black
5Vdc	5	Red
GND	6	Black
RS485_RTX+	7	Black
RS485_RTX-	8	Black