

New *m*otion

2010

15

■ Highlights

New EZ limo at Attractive Prices! Motorized Linear Slides and Cylinders

■ Featured Product ①

High Efficiency ARL Series (Coming Soon!!)
Closed Loop Stepping Motor and Driver Package *αSTEP*

■ Featured Product ②

Stocks Available
Standard AC Motors **World K Series**

■ Services Introduction

New Technical Seminar
Inverter Vs Brushless Motor

■ Teach Me Please! Ms. Ori

What is the advantages of using stepping motors?

■ Information

Come Visit Us!
Our Showroom Location

Introducing high performance and wide variety EZ limo

New Lineup of **EZ limo** provides high accuracy operations such as transporting, pushing or pulling of load. High performance and easy to use driver is employed. This series is available at affordable prices.

Motorized Linear Slides

ELS Series / **ELF** Series / **ELX** Series / **EZS** Series
EZS Series for Clean Room Use

Motorized Cylinders

ELC Series



Reason No.1 Wide Variety At Affordable Prices

Motorized Linear Slides

ELS Series

Compact and Lightweight



A compact and lightweight slide adopting a LM guide with the side and top cover.

- Maximum speed : 600mm/s
- Maximum transportable mass : Horizontal 60kg / Vertical 30kg
- Repetitive positioning accuracy ± 0.02 mm
- Travelling parallelism 0.03mm

ELF Series

Increased Rigidity



The chassis rigidity has been improved by using the aluminium frame structure.

- Maximum speed : 600mm/s
- Maximum transportable mass : Horizontal 60kg / Vertical 30kg
- Repetitive positioning accuracy ± 0.02 mm

ELX Series

Increased Moment



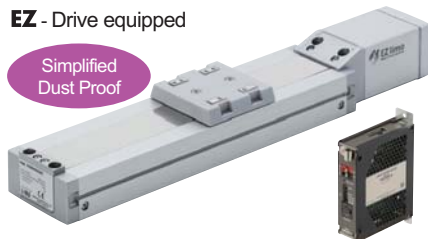
The permissible moment load has been strengthened with double guide structure where two LM guides are used.

- Maximum speed : 600mm/s
- Maximum transportable mass : Horizontal 80kg / Vertical 30kg
- Repetitive positioning accuracy ± 0.02 mm

EZS Series

EZ - Drive equipped

Simplified Dust Proof



Roller structure is used to prevent dust from entering.

- Maximum speed : 600mm/s
- Maximum transportable mass : Horizontal 60kg / Vertical 30kg
- Repetitive positioning accuracy ± 0.02 mm
- Travelling parallelism 0.03mm

EZS Series

EZ - Drive equipped

Clean Room compliant



It can be used for the process such as precision parts assembly which requires the clean environment.

- ISO Standard Class 3 has been achieved
- Clean grease is used.

Motorized cylinder

ELC Series

Compact and lightweight

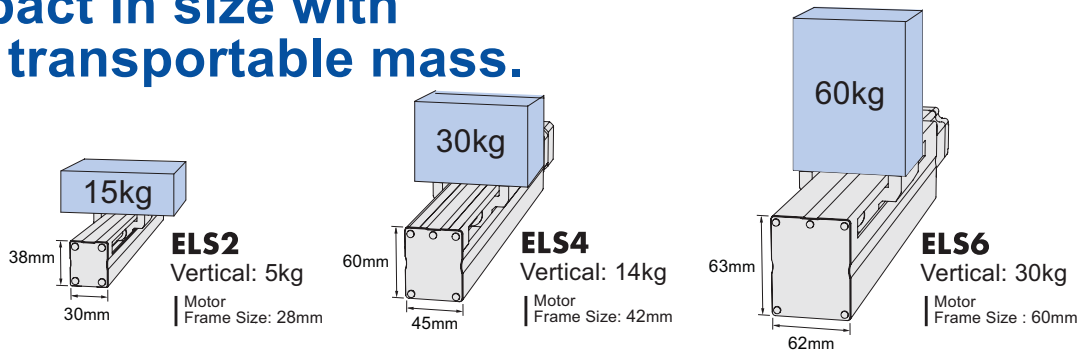


The lightweight, high power motorized cylinder employs the use of aluminium rod. The improved structure is able to achieve high speed positioning movement and better acceleration characteristics.

- Maximum speed : 600mm/s
- Maximum transportable mass : Horizontal 60kg / Vertical 30kg
- Repetitive positioning accuracy ± 0.02 mm

Reason No.2 High Performance

Compact in size with large transportable mass.



Energy saving

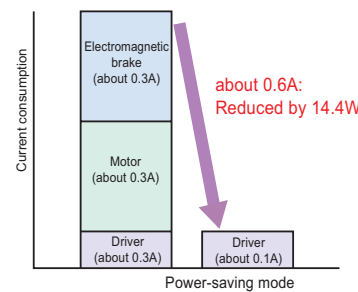
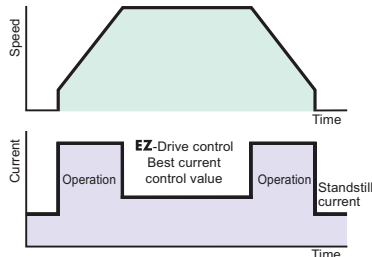
Low power consumption

EZ-Drive controls the motor current in real time corresponding to a load by the closed-loop control. In this way, low power consumption is achieved.

Power-saving mode

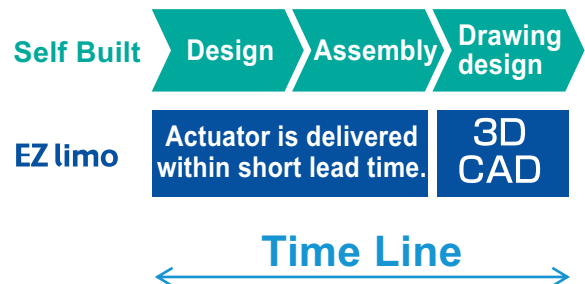
When power-saving mode of the positioning driver is achieved, the motor excitation is turned off and the electromagnetic brake is engaged while stopping. In this way, the standby power requirement is reduced. (Only applicable for electromagnetic brake type)

● Current consumption during standstill (ELS6/ELF6/ELX6/ELC6)



Reason No.3 Short Lead Time

Short production time and the improved quality are achieved by using EZ limo



It is delivered within short lead time.

Standard strokes in increments of 50mm or Custom-Design strokes in increments of 10mm are also available with the same short lead time.

3D CAD data is available.

Please contact us for more information.

NEW PRODUCTS

Coming Soon

RoHS RoHS-Compliant
Closed Loop Stepping Motor and Driver α STEP
High-Efficiency ARL Series

ARL Series is cost effective and its reliability is further achieved by incorporating α STEP technology!

Lower heat generation, energy saving and high response operation can be achieved by using **ARL** Series.

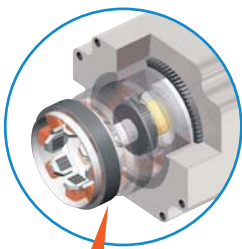
The wide network variation is available at an affordable price.



Features

Adopting Oriental Motor's Original Closed Loop Control

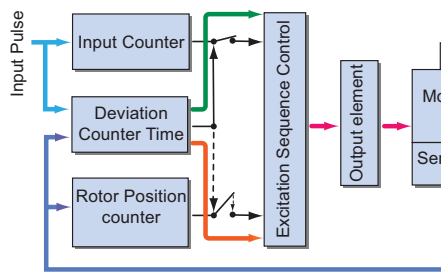
● Rotor Position Detection Sensor



Sensor detects rotor position.

The rotor position detection sensor uses the change in inductance caused by change in distance between the stator teeth on the sensor rotor to detect rotor position.

● Control Diagram



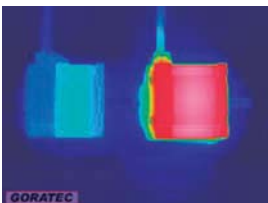
Normal (Positioning deviation is less than $\pm 1.8^\circ$)
 Motor runs in open loop like stepping motor.

If Motor Missteps (Position deviation is $\pm 1.8^\circ$ or more)
 Motor runs in open loop like stepping motor.

Lower Heat Generation

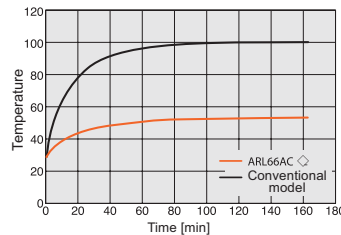
A high-efficiency technology was adopted to achieve a significant reduction in the amount of heat generation from the motor.

● Temperature distribution by thermography



Comparison under the same conditions

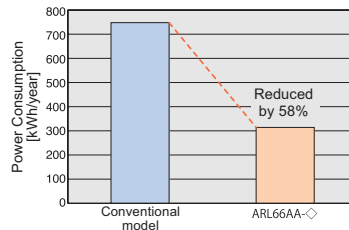
● Motor Case Temperature under the Same Conditions



Energy Saving

Power consumption amount was reduced by 58%, compared to the conventional model \times (Also by Oriental Motor).

● Power Consumption



CO2 emission Reduced by 58%
 \times Operating condition
 Speed: 1000r/min
 Load factor: 50%
 Time Usage: 24-hour operation (70% for operation, 25% for standby time, and 5% for stop), 365 days/year

Lineup

Package includes motor, driver, and a motor cable(1~3m).

Pulse Input Type



The motor control can be controlled through pulse generating device.

Built-in Controller Type



It builds in the pulse oscillator function, and can configure an operation system by being directly connected with the programmable controller.

CC-Link Compliant



It corresponds to the field network system CC-Link.

MECHATROLINK-II Compliant



It corresponds to the motion field network system MECHATROLINK-II.

Various geared types are also available. ● TH geared type ● PS geared type ● PN geared type ● Harmonic geared type

RoHS RoHS-Compliant
World K Series



Standard AC Motors and Gearheads



Product Catalogue available upon request.



In order to meet the needs of our valuable customers we have improved on our lead time system. From February 2010 onwards, AC motors will be inventory items for Singapore Oriental Motor Pte Ltd

Longer Lifespan

Rated lifespan of 10,000 hours for bearings, twice of conventional type
 Lesser machine downtime and replacement parts, contributing to cost effectiveness

Low Noise Design

Improved gear design to reduce audible noise, creating a more pleasant working environment.

Safe, reliable operation

Overheat protection to reduces the possibility damage to motor

Wide range of accessories available



Couplings and Mounting Brackets



Brake Packs for instant stopping

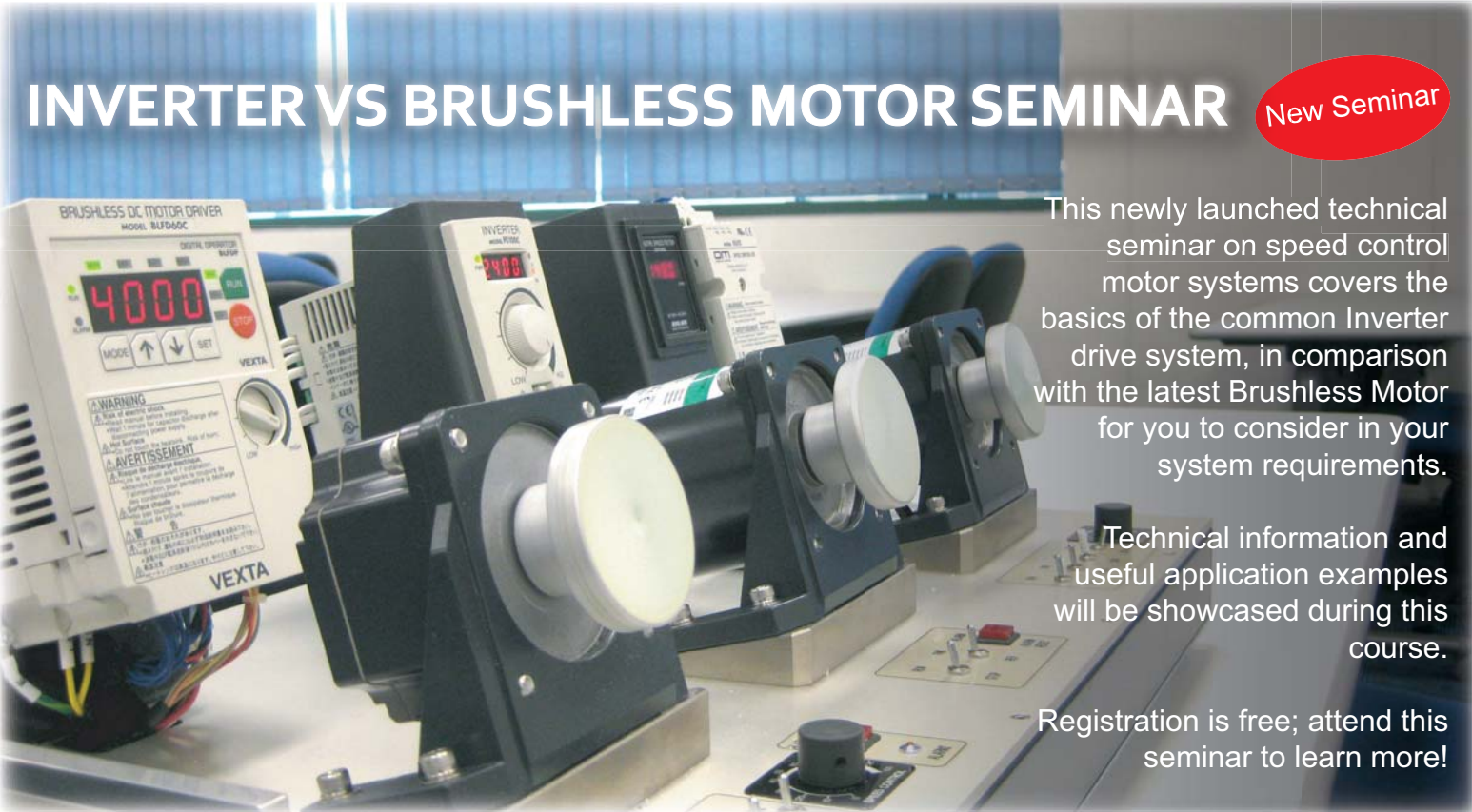


Linear Heads for instant linear motion



Inverters for 3 phase AC motor speed control

Oriental Motor provides continuous training for our customers through free Technical Seminars, which enriches the user of the technical information in using and selecting electric motors. In this issue, we shall be introducing our new technical seminar course for Year 2010.



INVERTER VS BRUSHLESS MOTOR SEMINAR

New Seminar

This newly launched technical seminar on speed control motor systems covers the basics of the common Inverter drive system, in comparison with the latest Brushless Motor for you to consider in your system requirements.

Technical information and useful application examples will be showcased during this course.

Registration is free; attend this seminar to learn more!

Register online for seminars conducted in Singapore or Malaysia at

<http://www.orientalmotor.com.sg>

<http://www.orientalmotor.com.my>

Full Seminar schedule and courses for May ~ August 2010

Classification	Seminar Topics	Dates
Standard AC Motors	Standard AC Motor Introduction course to various AC motor usage and selection.	7 May (1.00pm – 5.00pm) 2 July (9.00am – 1.00pm)
Speed Control Motors	Inverter Vs Brushless Motor Information of the speed control systems	14 May (1.00pm – 5.00pm) 9 July (9.00am – 1.00pm)
Positioning Control Motors	Stepping Motor I Fundamentals of using Stepping Motor	20 May (1.00pm – 5.00pm) 16 July (9.00am – 1.00pm)
	Stepping Motor II How to improve the performance	4 June (1.00pm – 5.00pm) 23 July (9.00am – 1.00pm)
Various	Showroom Fair 2010 An annual event held in the Singapore sales office, where we welcome all customers to attend. Details of this fair will be announced at a later date.	6 August (Morning and Afternoon session, timing to be advised)
Motorized Actuators	Motorized Actuators Introduction to Oriental Motor Motorized Actuators	11 June (1.00pm – 5.00pm) 13 August (9.00am – 1.00pm)
Thermal Management	Fan Motors How to achieve good thermal management	18 June (1.00pm – 5.00pm) 20 August (9.00am – 1.00pm)
Skill Training	Troubleshooting How to rectify common motor problems	25 June (1.00pm – 5.00pm) 27 August (9.00am – 1.00pm)

All seminars will be conducted in Singapore otherwise stated

Teach Me Please! Ms. Ori



Ms. Ori
(Manager)

What are the advantages of using stepping motors?



Mr. Vex
(3rd Year in
Oriental Motor)

Mr. Vex: ...

Ms. Ori: Vex, what happened? You look serious?

Mr. Vex: I will be giving product training for the new recruits this time.

Ms. Ori: That's great! What will you be training?

Mr. Vex: I will be explaining the advantages of using stepping motors. However, I was thinking about what points should be covered.

Ms. Ori: Don't worry. It is a very a good chance for you to review on your understanding of stepping motors. First of all, it is compact in size and high torque.

Mr. Vex: Yeah.

Ms. Ori: For example, the torque is 23 times higher as compared to induction motor with the same frame size of □42mm.

Stepping motor	RK545AA	Approx 0.22 [N·m]
Induction motor	OIK1A-AW2J	0.0095 [N·m]
(Speed : 1000r/min)		

Mr. Vex: When the stepping motor is being compared, it is really compact in size and high-torque.

Ms. Ori: Additionally, there will be a holding torque when the motor stop. Will the position be shifted if there is no braking mechanism is provided?

Mr. Vex: Why didn't I think of that? It takes time and money to equip a braking mechanism.

Ms. Ori: Stepping motor is synchronized with the amount of given pulses to move its required position. Therefore, no sensor is necessary to be installed at the stop position.

Mr. Vex: That's right. Stepping motor is a excellent motor for accurate positioning.

Ms. Ori: Vex, don't you recall anything when you hear the phrase "Rotating synchronously"?

Mr. Vex: Let me think...Oh, I know! The response is good.

Ms. Ori: That's right! During the study for the usage of stepping motor and servo motor, I mentioned that the stepping motor has a good response and it is suitable for short positioning. There is a delay response for servo motor.

Mr. Vex: Servo motor can be used with gain tuning adjustment. However, the stepping motor does not require at all. Stepping motor is much easier to use than servo motor.

Ms. Ori: Vex, how about α STEP?

Mr. Vex: It is our original closed loop control, isn't it? The reliability is the same as servo motor.

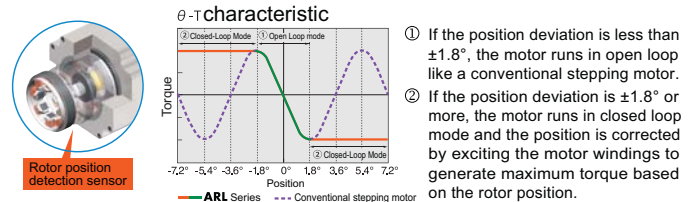
Ms. Ori: What is the differences between stepping motor and servo motor?

Mr. Vex: α STEP uses the rotor position detection sensor while the servo motor uses the position detection encoder.

Ms. Ori: Yeah, that's true, but it is not enough to pass. The optical encoder used for a general servo motor is very delicate as a lot of electronic parts are used. It is not able to withstand heat and vibration. However, the structure for α STEP utilizes the characteristic of the coil rather than electronic parts.

Mr. Vex: I see. Then, is it able to withstand heat and vibration?

Ms. Ori: Yes. Also, α STEP runs in open-loop mode when position deviation is less than $\pm 1.8^\circ$, and runs in closed-loop mode when it becomes $\pm 1.8^\circ$ or more. That's a great advantage.



Mr. Vex: What do you mean ?

Ms. Ori: What is the position deviation of servo motor ?

Mr. Vex: Well... it's ± 1 pulse.

Ms. Ori: Right. The servomotor will stop within ± 1 pulse. Then, what is the open-loop mode when the position deviation is less than $\pm 1.8^\circ$ mean?

Mr. Vex: It stops completely. There is no hunting!

Ms. Ori: That's right! For instance, it is suitable for the usage where no hunting is allowed when stopping, such as image processing. Our new product **ARL Series** (Details can be found on page 4) is launching soon. It has high-efficiency with affordable price and a new member of α STEP.

Mr. Vex: Yeah! I could list out the advantages of the stepping motor. Thank you for your advice.

Showroom



To provide the best services and support to our valued customers, Singapore Oriental Motor had established a new and spacious showroom, showcasing our wide range of products and demo sets, creating an excellent conducive environment for free technical support and consultation. Feel free to visit us.



Operating hours:
9.00am to 5.30pm, Monday ~ Friday
(Excluding Weekends and Public Holidays)



About our front cover

A Cherry blossom is the name for the flower of cherry trees known as **Sakura**. It is an omen of good fortune and is also an emblem of love, affection and represents spring. Cherry blossoms are an enduring metaphor for the fleeting nature of life, and as such are frequently depicted in art.

Orientalmotor

SALES NETWORK

Oriental Motor Provides You with Full Support



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