

ALL NEW  
2011

# New Products Guide

**Oil Minimum**  
IKO Gentle to The Earth



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ALL NEW  
2011

— Guide of new products —

# IKO products evolving originality in addition are lined up here.

## IKO C-Lube Maintenance-free series

CAT-5510.1  
C-Lube Linear Way ML  
MLL9,12,15

P5-6



- Extra high rigidity long unit debut! (Size 9,12,and15)

## IKO C-Lube Maintenance-free series

CAT-57180  
C-Lube Linear Ball Spline MAG  
MAG(T)4  
MAGL(T)4,5,6,8

P8



- The smallest size among the series is debut! (Size 4)
- High rigidity long external cylinder is lined up! (Size 4, 5, 6, and 8)



## IKO C-Lube Maintenance-free series

CAT-5510.1  
C-Lube Linear Way MH  
MHTG15,MHSG15

P7



- High rigidity long unit is expanded in Flanged type and Compact block type! (Size 15)

## IKO C-Lube Maintenance-free series

CAT-57182  
Precision positioning table  
TE

P13-14



- The smallest size among the series, TE50 is debut!
- Low-weight, low-cross section, and compact precision positioning table made of high-strength aluminum alloy!
- Built-in C-Lube for long-term maintenance free!

## IKO C-Lube Maintenance-free series

CAT-57184  
Super Precision positioning table  
TX...M,CTX...M

P15-16



- Built-in C-Lube for long-term maintenance free!
- Ultimate positioning is available with roller guide!
- Selectable control method fit for use!

## IKO C-Lube Maintenance-free series

CAT-57183  
Cleanroom Precision positioning table  
TC...E

P17-18



- Low-weight positioning table made of high-strength aluminum alloy!
- Cleanliness ISO class3 is achieved!
- Built-in C-Lube for long-term maintenance free!

CAT-57181  
Anti-Creep Cage Crossed Roller Way H  
CRWG...H

P9-10



- High load capacity series are debut! (Size 3 and 4)
- Eliminated cage creeping issue by rack and pinion gear mechanism!

CAT-5510.1  
Special specification  
Vacuum Environment  
Linear Roller Way Super X

P11-12



- Usable from low to high-vacuum regions (vacuum  $10^{-3}$  [Pa])
- Baking temperatures up to 200 degree C!

Oil Minimum  
IKO Gentle to The Earth

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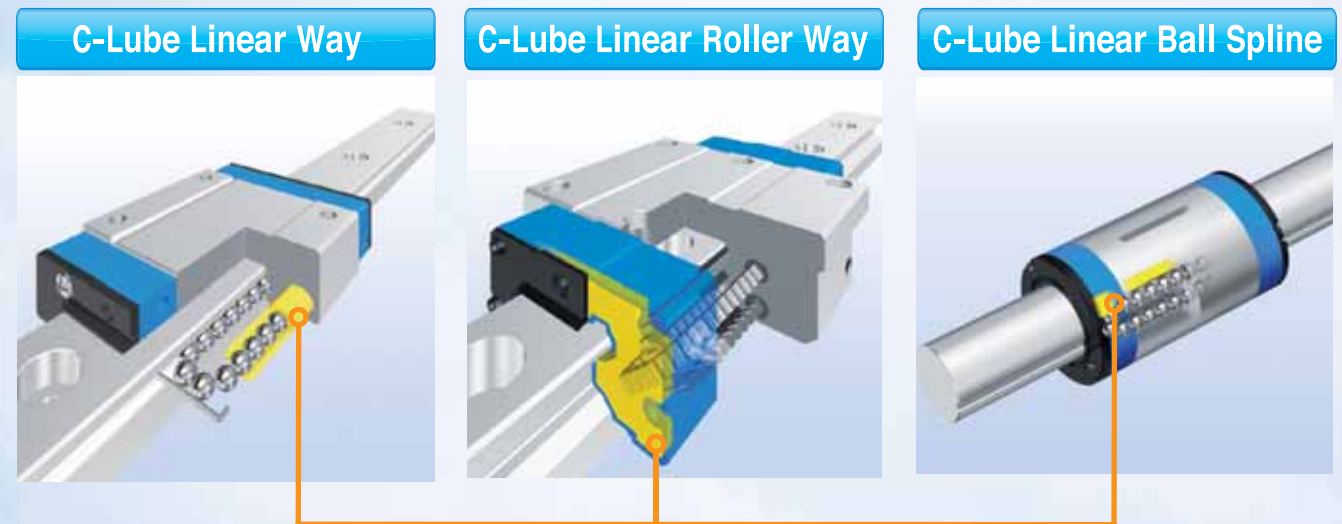


The result of pursuing  
of the minimum oil amount;  
in **IKO** original lubrication part "**C-lube**"



"C-Lube" achieves long-term maintenance free of the product to suppress the quantity consumed of the lubricant to the minimum, and to supply the lubricant of the optimum quantity for a long term, and contributes also to the global environment greatly.

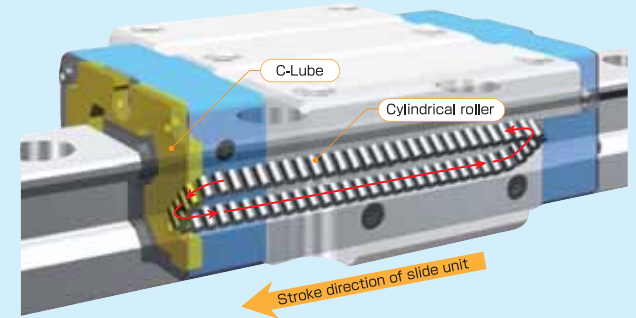
# Environment



## Built in C-Lube

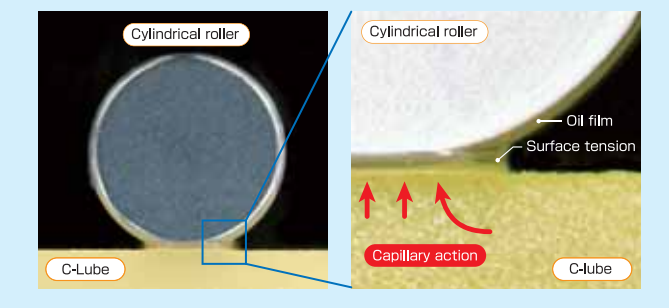
### Lubricant is distributed by the circulation of the rolling elements.

Lubricant is supplied directly to the rolling elements. As the rolling elements circulate, the lubricant is distributed to the loading area along the track rail. This results in adequate lubrication being properly maintained in the loading area for a long time.



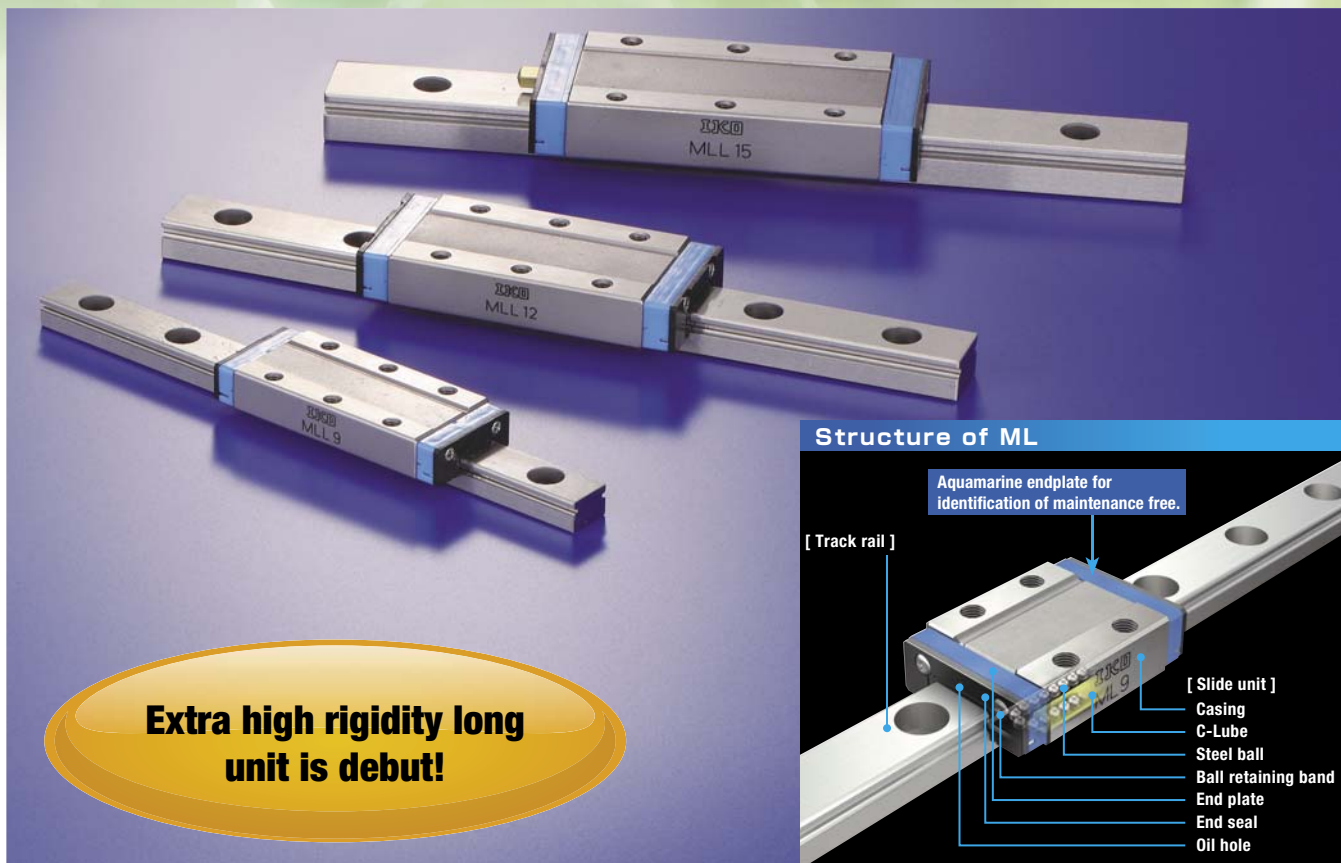
### Lubricant is deposited directly to the surface of the rolling elements.

The surface of C-Lube is always covered with the lubricant. Lubricant is continuously supplied to the surface of rolling elements by surface tension in the contact of C-Lube surface and rolling elements. New oil permeates automatically from the core of C-Lube to the internal surface that comes in contact with rolling elements.





# CAT-5510.1 C-Lube Linear Way ML MLL9, 12, 15



**Extra high rigidity long unit is debut!**

ML series is a linear motion rolling guide of the super-small size invented by an original small sizing technology. Stabilized accuracy and rigidity can be obtained even under the usage in which load that of the direction and the size change and compound load even though it is extremely small because of the structure of the arrangement of the steel ball with four point contacts in two row raceways.

Variation of C-Lube Linear Way ML

Shape	Length of slide unit	Model	Size						
			5	7	9	12	15	20	25
Standard type	Short	MLC	○	○	○	○	○	○	○
	Standard	ML	○	○	○	○	○	○	○
	High rigidity long	MLG	—	○	○	○	○	○	○
<b>New</b>	Extra high rigidity long	MLL	—	—	○	○	○	—	—

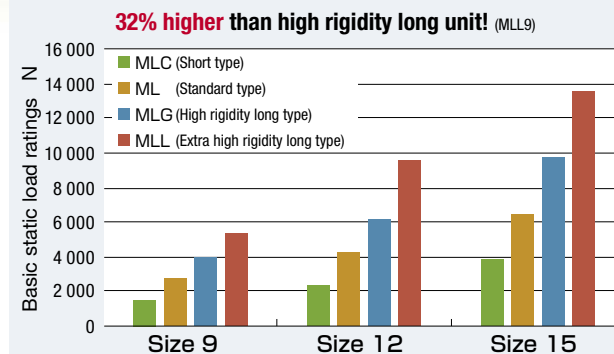
Shape	Length of slide unit	Model	Size					
			10	14	18	24	30	42
Wide type	Short	MLFC	○	○	○	○	○	○
	Standard	MLF	○	○	○	○	○	○
	High rigidity long	MLFG	—	○	○	○	○	○

Remark   Interchangeable specification which enables combination of slide unit and track rail freely is available.

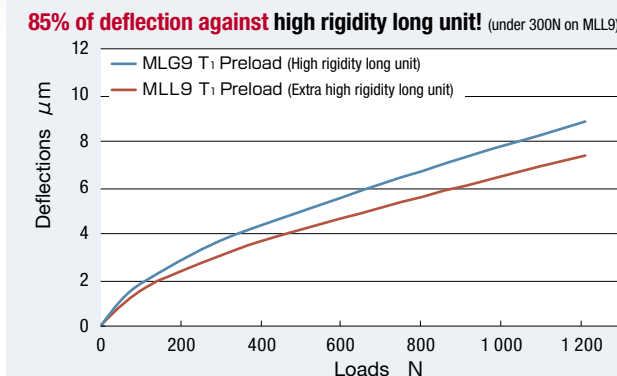
## Features

### 1 Upgrading of load capacity and rigidity on your machine!

Comparison of basic static load ratings



Comparison of elastic deformation under downward load



### 2 Contributing to downsizing of guide mechanism!

Enable downsizing of the machines and devices in same height.

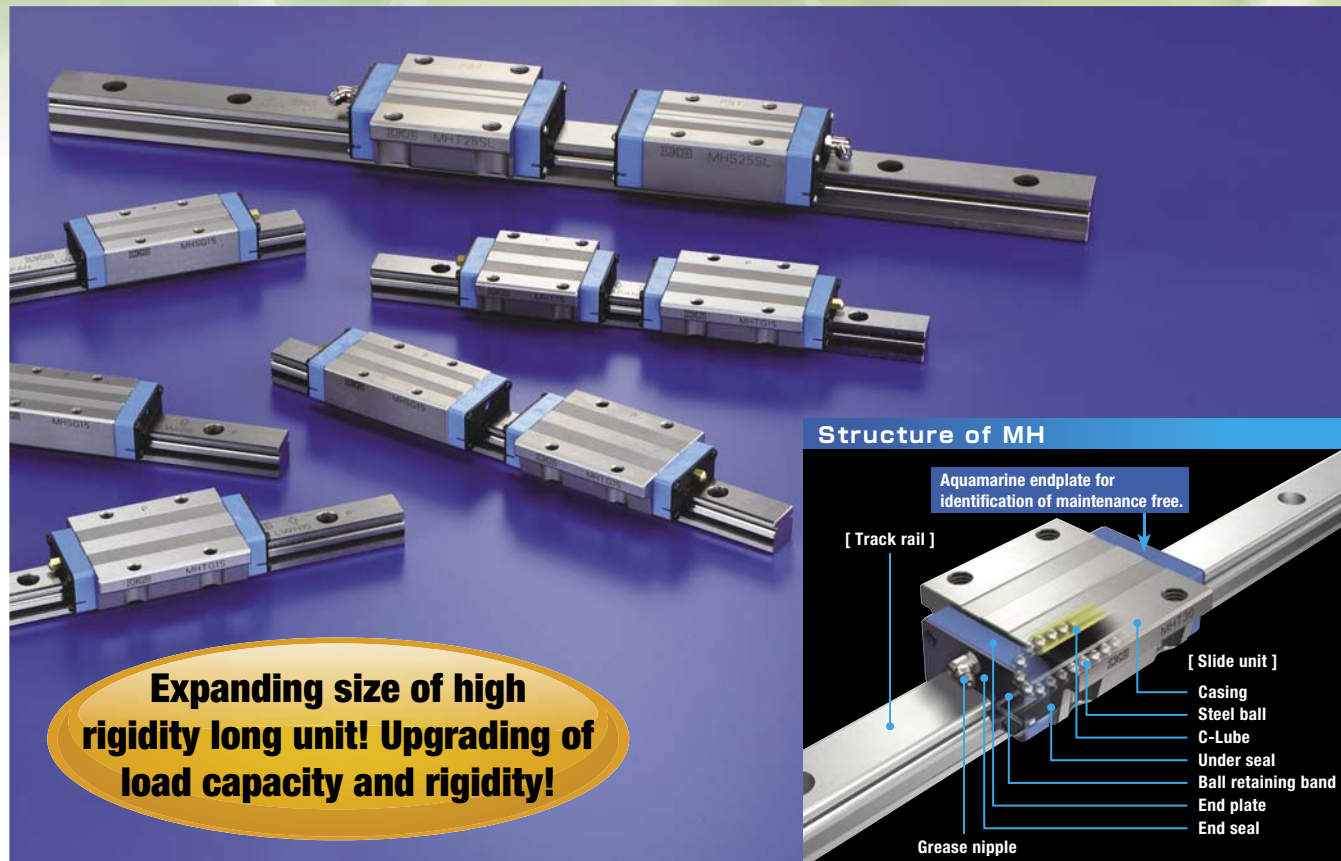
	Comparison of sectional height	Comparison of slide unit length	Comparison of basic static load ratings
Standard unit <b>ML9</b>			<b>11040 N</b> (four units)
Extra high rigidity long unit <b>MLL9</b>			<b>10600 N</b> (two units) <b>Equivalent!</b>

### 3 Achieving of precision transferring mechanism!

Enable to achieve ultra-high precision transferring mechanism due to about a half of running accuracy comparing with High rigidity long unit.

Test conditions		Sample	Preload	Running deviation (µm)	
Sample	Extra high rigidity long unit MLL9				80mm
Sample	High rigidity long unit MLG9	91mm	180mm	80mm	~1.16 µm

CAT-5510.1 C-Lube Linear Way MH  
MHTG15, MHSG15



Expanding size of high rigidity long unit! Upgrading of load capacity and rigidity!

MH series is a high rigidity linear motion rolling guide with the greatest load capacity by assembling of large diameter balls in. Stabilized accuracy and rigidity can be obtained even under the usage in which load that of the direction and the size change and compound load.

Variation of C-Lube Linear Way MH

Shape	Length of slide unit	Model	Size								
			8	10	12	15	20	25	30	35	45
Flanged type mounting from bottom	Standard	MH	—	—	—	○	○	○	○	○	○
	High rigidity long	MHG	—	—	—	—	○	○	○	○	○
Flanged type mounting from top	Standard	MHT	—*	—*	○*	○*	○*	○*	○*	○	○
	High rigidity long	MHTG	—	—	—	○	○	○	○	○	○
	Extra high rigidity long	MHTL	—	—	—	—	—	—	○	○	○
Block type mounting from top	Short	MHDC	—*	—*	—*	—	—	—	—	—	—
	Standard	MHD	—*	—*	○*	○	—	○	○	○	○
	High rigidity long	MHDG	—*	—*	—*	—	—	○	○	○	○
	Extra high rigidity long	MHDL	—	—	—	—	—	—	○	○	○
Compact block type mounting from top	Standard	MHS	—	—	—	○*	○*	○*	—	—	
	High rigidity long	MHSG	—	—	—	○	○	○	—	—	

Remarks 1. Stainless steel type is also lined up in the model marked on\*.

2. Interchangeable specification which enables combination of slide unit and track rail freely is available.

CAT-57180 C-Lube Linear Ball Spline MAG  
MAG(T)4, MAGL(T)4,5,6,8



The smallest size among the series is debut! High rigidity long external cylinder is lined up!

MAG series is a linear motion rolling guide which achieves endless linear motion of an external cylinder along a spline shaft. As steel balls make rolling contact with the spline grooves, radial loads as well as rotating torque can be received. This product is most suitable for mechanisms that perform linear motion while transmitting rotating torque.

Variation of C-Lube Linear Ball Spline MAG

Shape	Length of external cylinder	Model	Size					
			4	5	6	8	10	12
Standard type solid shaft	Standard	MAG	○	○	○	○	○	○
	High rigidity long	MAGL	○	○	○	○	—	—
Standard type hollow shaft	Standard	MAGT	○	○	○	○	○	○
	High rigidity long	MAGLT	○	○	○	○	—	—
Flanged type solid shaft	Standard	MAGF	—	○	○	○	○	○
Flanged type hollow shaft	Standard	MAGFT	—	○	○	○	○	○

Remark Interchangeable specification which enables combination of external cylinder and spline shaft freely is available.



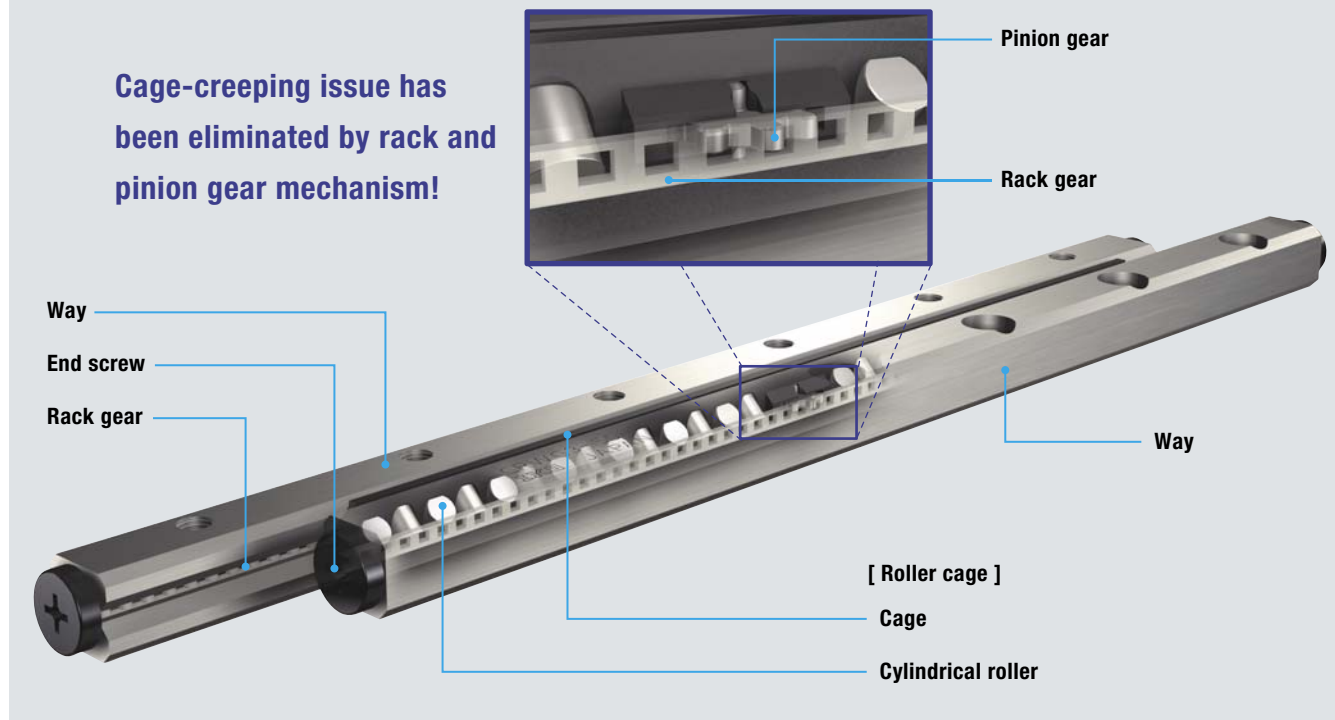
CAT-57181 Anti-Creep Cage Crossed Roller Way H  
**CRWG...H** (Size 3 and 4)



**High load capacity type is debut!**

CRWG...H series is a linear motion rolling guide structures that cylinder rollers are built between two ways with V-shaped raceway grooves, which are two planes. Due to rack and pinion gear mechanism, cage-creep cannot be occurred. Also, extremely highly accurate and smooth linear motion can be performed while receiving all directions load. Moreover, great load ratings have been achieved by thoroughly reviewing of specification of the contacting area in raceways comparing with the former type.

Structure of CRWG...H

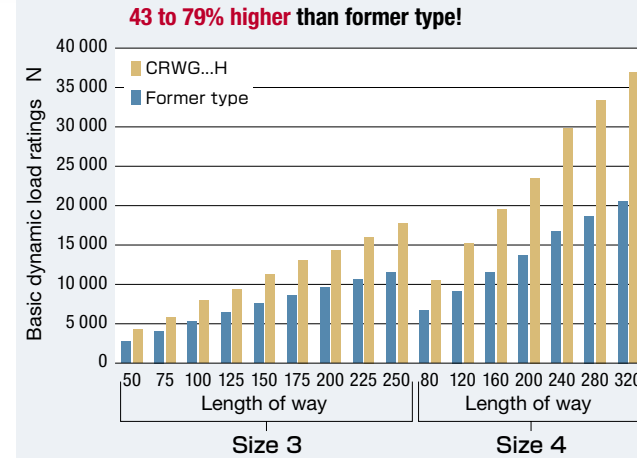


Features

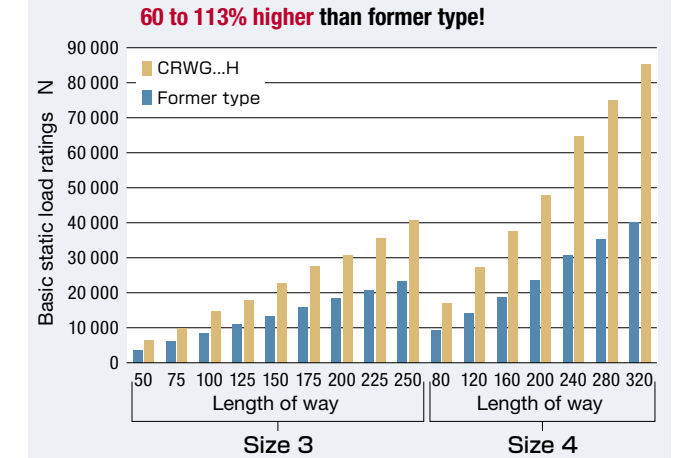
**1 Upgrading of load capacity and rigidity on your machine!**

Great load ratings have been achieved by thoroughly reviewing of specification of the contacting area in raceways against the former type.

Comparison of basic dynamic load ratings



Comparison of basic static load ratings



**2 Cage-creeping issue terminated perfectly!**

Original structure of built-in rack and pinion gear mechanism has terminated cage-creeping issue.

**Freedom in mounting**

Usable safely even for applications such as a vertical axis that a former type was hard to be adopted.

**High-speed and high-tact operation**

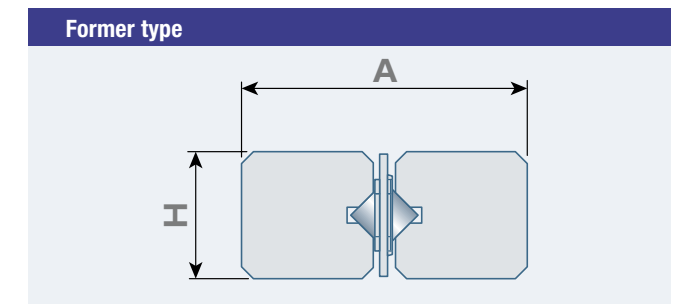
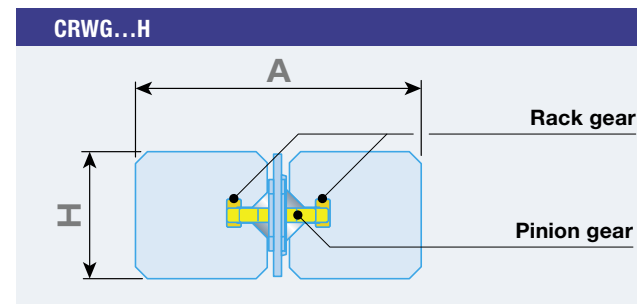
Cage creeping issue cannot be occurred even in increasing operating speed.

**Operation saving energy**

Any corrective operation for cage creep is not necessary even for a long time operation.

**3 Interchangeable in dimensions!**

The same external dimensions as on former type make easier to be replaced without any modification.



**4 Smooth and accurate operation!**

Combination of precisely finished raceways and non-recirculating cages with super high precision rollers provides superbly smooth motion with very high accuracy.

**Improved running accuracy**

Extremely high running accuracy can be achieved without run-out by recirculating of rolling element.

**Suitable for step positioning**

Improvement of precision positioning accuracy and superior corresponding feature to step positioning command can be expected because of the linear motion without stick-slip by extremely small frictional resistance.

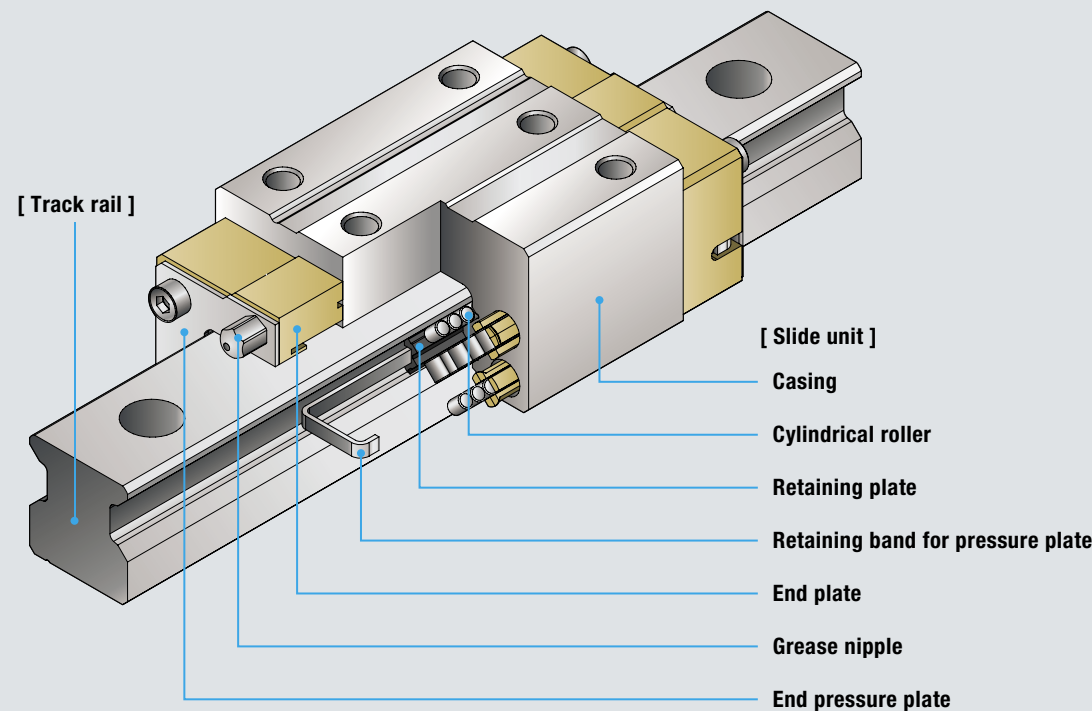
# Vacuum Environment Linear Roller Way Super X



**Linear Roller Way enables to be used in vacuum environment is debut!**

New Vacuum Environment Linear Roller Way Super X is a series of roller-type linear motion rolling guides that combine a corrosion-resistant stainless-steel casing with resin parts, such as a super-engineering plastic (PEEK resin) end plate, to solve this problem, thereby achieving excellent low out-gassing characteristics. It consistently exhibits the superb characteristics of a roller-type linear motion rolling guides, such as high load-carrying capacity, high rigidity and smooth and low-friction running performance, in a vacuum environment.

## Structure of Vacuum Environment Linear Roller Way Super X



## Features

**1 Usable from low to high-vacuum regions! (vacuum  $10^{-3}$ [Pa])**

**2 Excellent low outgassing characteristics!**

**3 Baking temperatures up to 200°C!**

Temperature in a static state.  
At baking temperatures above 150 degree C, multiply the basic load rating by a temperature coefficient.

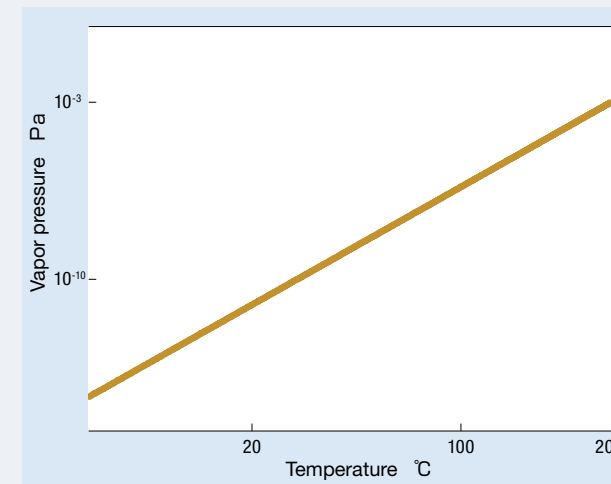
**4 Superb corrosion resistance!**

Corrosion-resistant stainless steel is used on all steel parts.

## Lubricant selection

Fluorine-based grease is recommended. Please pay attention to the relation also between vapor pressure and temperature of fluorine-based as shown in following graph when selection of grease. For detail information, please refer to catalog of grease manufacture.

### Relationship example between vapor pressure and temperature of fluorine-based grease



### Typical brands of fluorine greases

Name of lubricant	Manufacturer
BARRIERTA SUPER IS/V	NOK Kluber Co., Ltd.
DEMNUM™ GREASE L-200	Daikin Industries, Ltd.
FLUOTRIBO VAC	KYODO YUSHI CO., LTD.
FOMBLIN® VAC3	Solvay Solexis
KRYTOX® LVP	DuPont

Remarks 1. FOMBLIN® is a registered trademark of Solvay Solexis.  
2. KRYTOX® is a registered trademark of DuPont.

## Specifications

Please contact to IKO for a choice of optimal specifications customised for your using conditions.

Customization	
Series	Linear Roller Way Super X
Applicable type	LRXD20...SL

Material of main component	
Casing	Martensitic stainless steel
Track rail	Martensitic stainless steel
Cylindrical roller	Martensitic stainless steel
End plate	Super-engineering plastic (PEEK resin)



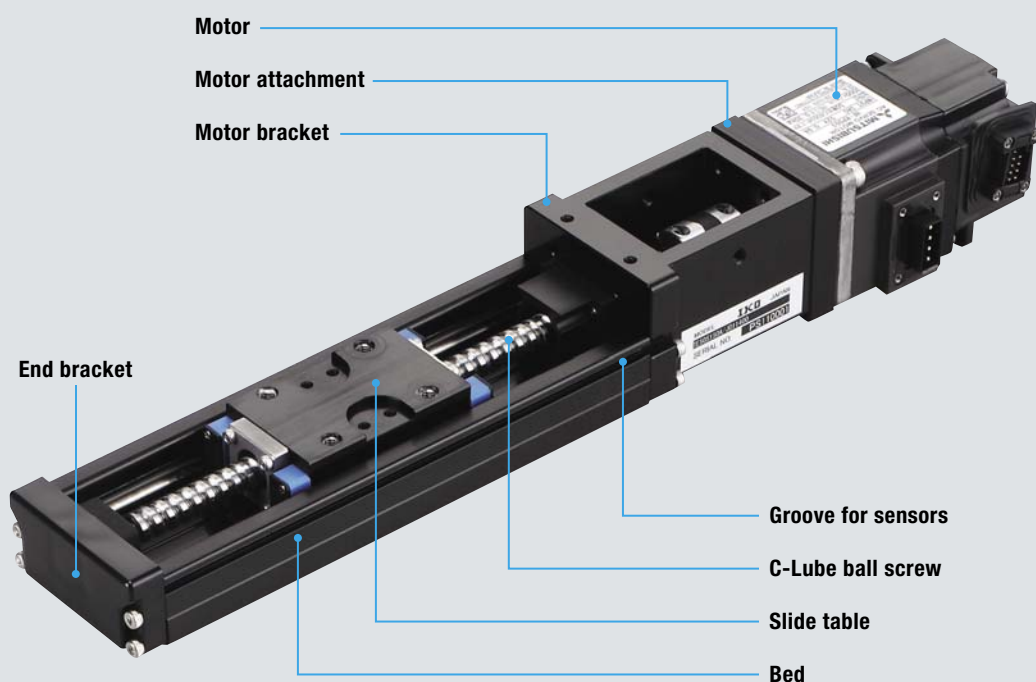
CAT-57182 Precision Positioning Table TE  
**TE50**



**The smallest size among the series, TE50 is debut!**

Precision Positioning Table TE is a light-weight compact positioning table featuring that its main components are made of high-strength aluminum alloy and the slide table is placed inside a U-shaped bed. Its driving mechanism adopts a precision-ground ball screw to assure high reliability high-precision positioning. A C-Lube lubrication part built in the linear motion rolling guide and the ball screw enables long-term maintenance-free operation. This can reduce your time-consuming for lubrication.

**Structure of TE**



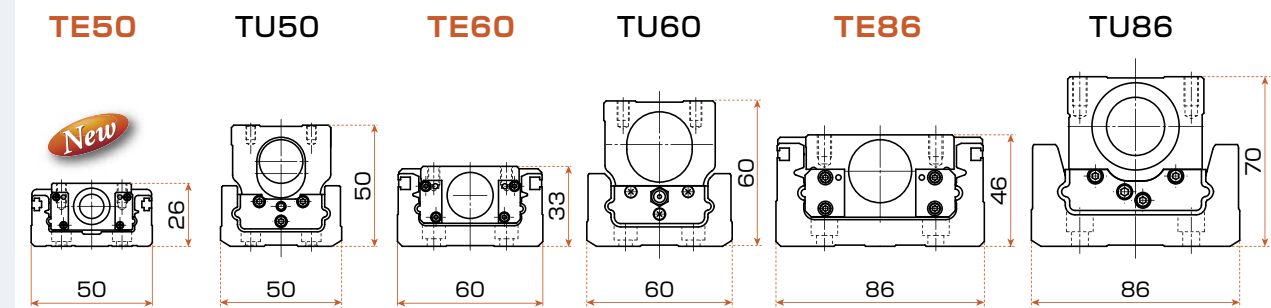
**Features**

**1 Light-weight, Low-cross section, and Compact!**

Light-weight and compact positioning table using high-strength aluminum alloy for its main components. Low cross-section (26 mm high for TE50, 33 mm high for TE60 and 46 mm high for TE86) due to optimum designing of linear guides and ball screws. No sensor rail for mounting sensors, which contributes to space saving.

**Comparison with IKQ Precision Positioning Table TU**

**Sectional height**



**Mass**

Model and size	Stroke length mm	Overall length mm	Mass (1) kg	Mass/100mm kg
<b>New</b> TE50	60	218	0.52	0.24
TU50	60	226	1.8	0.80
TE60	100	269	1.0	0.37
TU60	100	298	3.3	1.11
TE86	300	523	3.7	0.71
TU86	250	498	10.9	2.19

Note (1) The mass of whole table with single slide table is shown. The mass of motor is not included.

**2 High positioning accuracy!**

Higher precision positioning by one rank due to a combination of IKQ unique linear motion rolling guide technology and precision-ground ball screws.

**3 Maintenance free!**

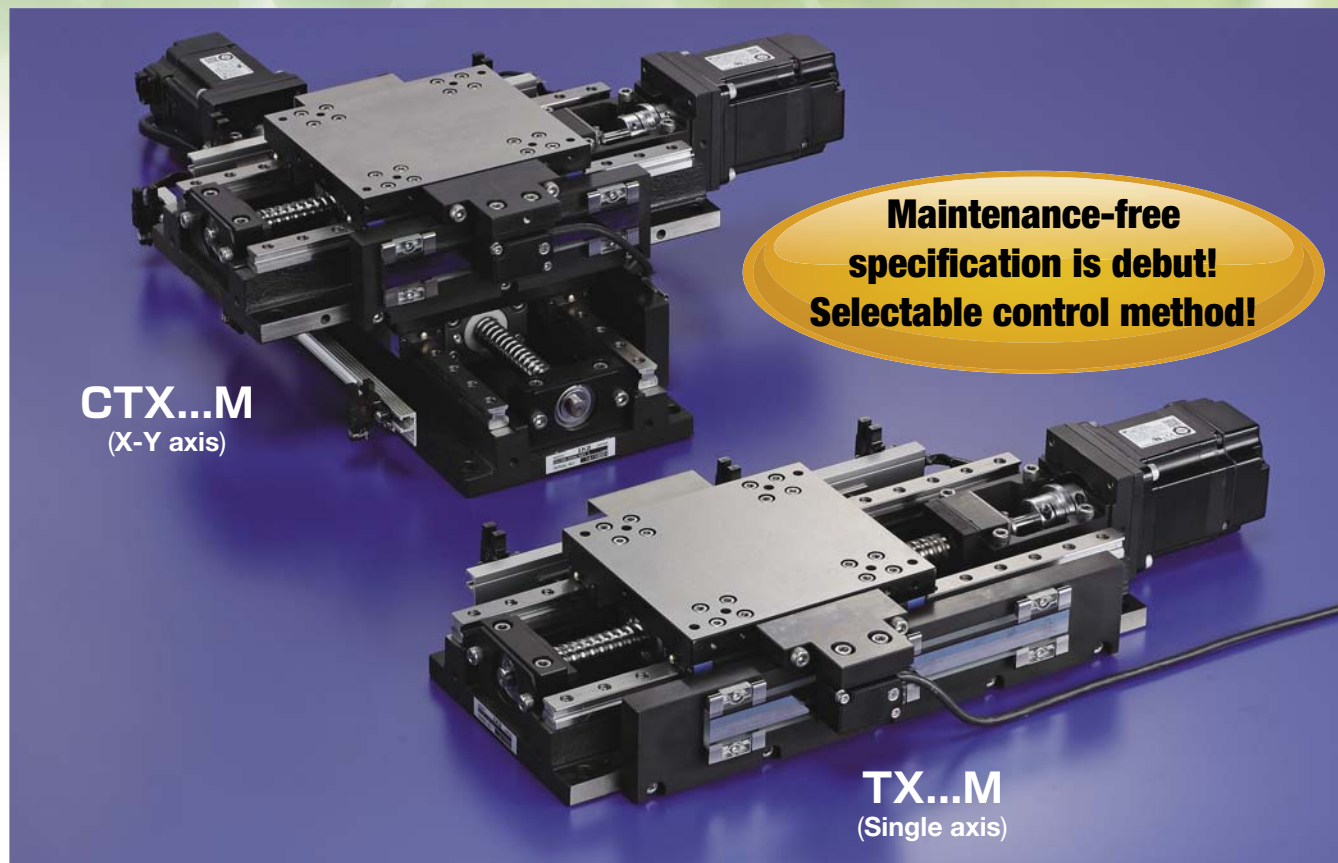
Long-term maintenance free operation due to IKQ unique C-Lube lubrication part built in the linear motion rolling guide and the ball screw. This can reduce labor time for lubrication and increase the reliability of the equipment.

**4 Amazing low prices!**

Excellent cost performance thanks to adoption of less components and improvement in parts shapes.

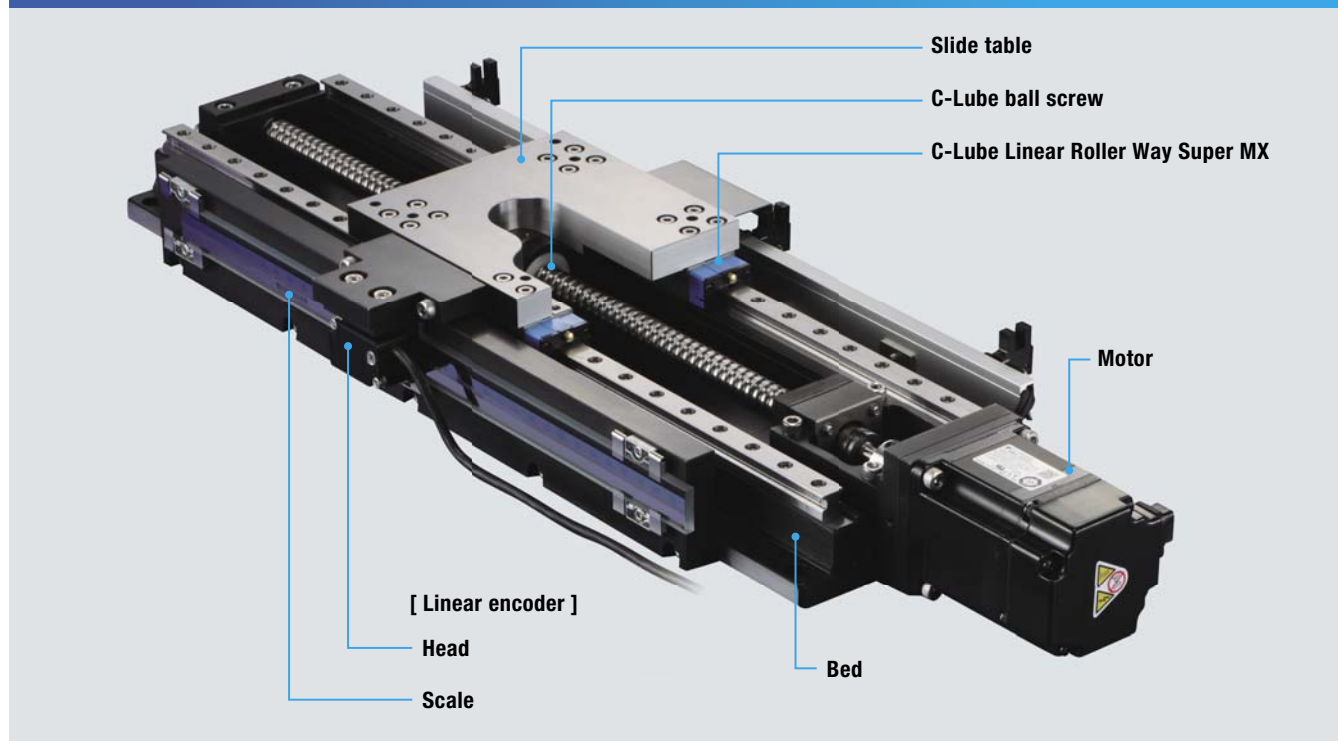


# Super Precision Positioning Table TX TX...M, CTX...M



High Precision Positioning Table TX has realized almost as high positioning performance as the air stage by incorporated the ultimate rolling guide IKO Liner Roller Way Super X in IKO Precision Positioning Table LH which is well-known for high accuracy and high rigidity as the base.

## Structure of TX...M and CTX...M



## Features

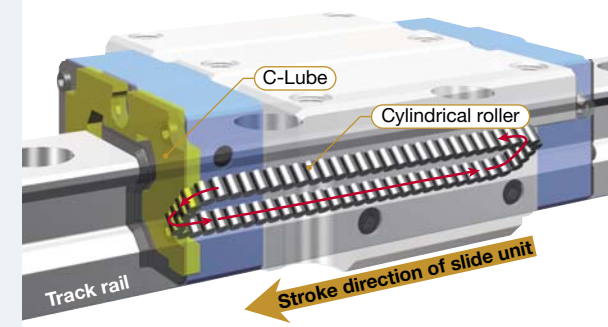
### 1 Long-term maintenance free!

Long-term maintenance-free feature is achieved by lubricating part, C-Lube built-in linear motion rolling guide and ball screw. Not only reduction of the cost of lubrication management and system, reliability of machine is improved.

Long-term maintenance-free feature is achieved by lubricating part, C-Lube built-in

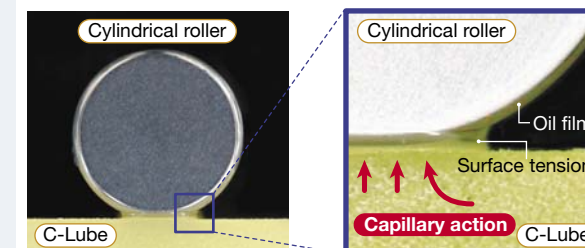
#### Lubricant is distributed by the circulation of the steel balls

Lubricant is supplied directly to the steel balls. As the steel balls circulate, the lubricant is distributed to the loading area along the track rail. This results in adequate lubrication being properly maintained in the loading area for a long time.



#### Lubricant is deposited directly to the surface of the steel balls

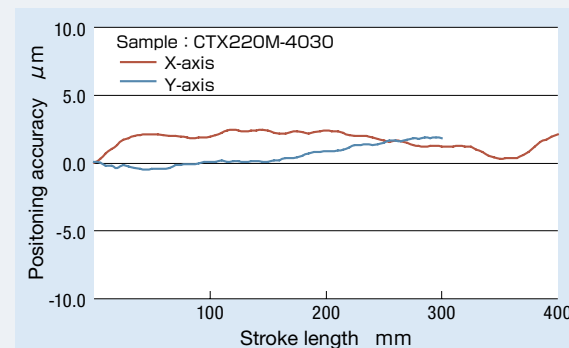
The surface of C-Lube is always covered with the lubricant. Lubricant is continuously supplied to the surface of steel ball by surface tension in the contact of C-Lube surface and steel balls. New oil permeates automatically from the core of C-Lube to the internal surface that comes in contact with steel balls.



### 2 Ultimate positioning performance!

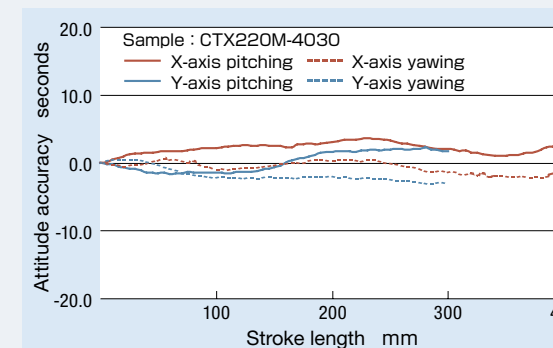
#### High positioning accuracy and resolution due to super-high accuracy linear encoder

By directly feeding back positional information from the super-high accuracy linear encoder of a resolution of 0.016  $\mu\text{m}$ , a full-closed-loop control system is established. This control system assures high positioning accuracy in the whole stroke length.



#### Ultimate running accuracy by adopting Linear Roller Way Super X

Rolling guide type of ultimate running accuracy thanks to good combination of components that are machined and assembled very accurately and IKO Linear Roller Way Super X that demonstrates the best running accuracy.



### 3 Selectable control method to fit for use!

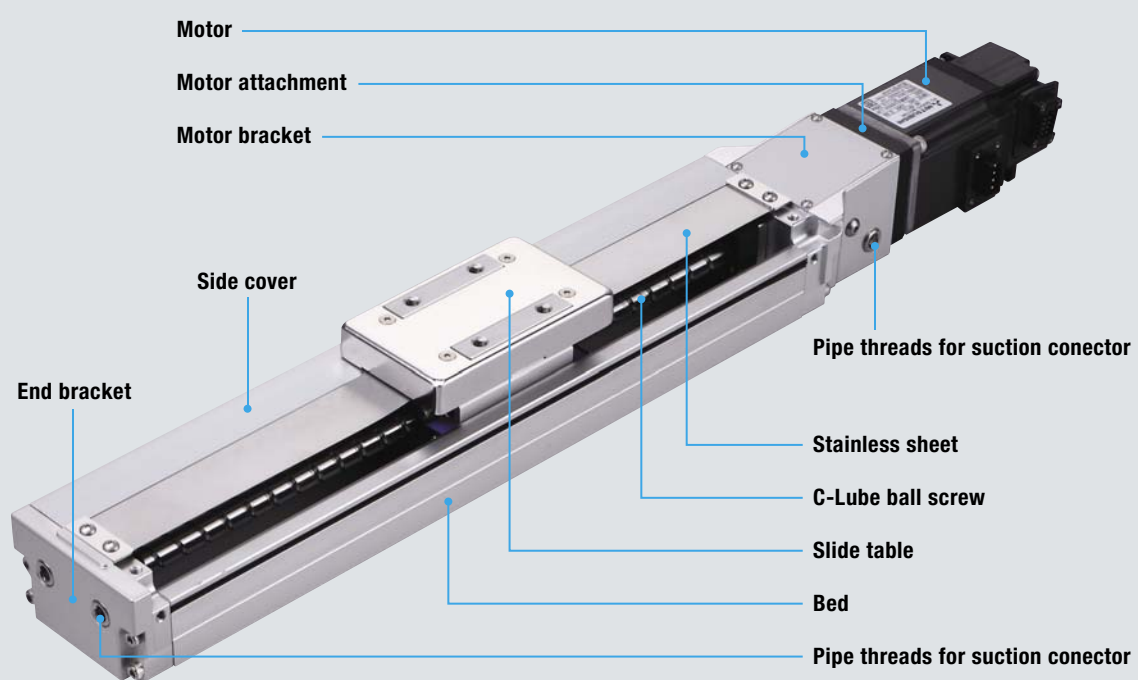
Suitable control method can be selected because AC servomotor and stepper motor are prepared with optional linear encoder.

**Cleanliness ISO Class 3**  
(Federal Standard 209D class 1)  
**is achieved!**



Cleanroom Precision Positioning Table TC...E is light-weight, low-cross section, and compact precision positioning table, which is TE table with tight-sealing structure with stainless sheet and side covers that prevent dust generating from the table to the surrounding environment to correspond to cleanliness ISO Class 3 (Federal Standard 209D class1). C-Lube lubrication parts are built-in the linear motion rolling guide integrated in the slide table and the ball screw, achieve long-term maintenance-free feature.

#### Structure of TC...E



## Features

### 1 Cleanliness level equivalent to ISO class 3! (Federal Standard 209D class 1)

The driving part and slide table guide part inside of table are sealed tightly with stainless sheet and side covers, which are excellent for corrosion resistance.

#### Cleanliness measurement

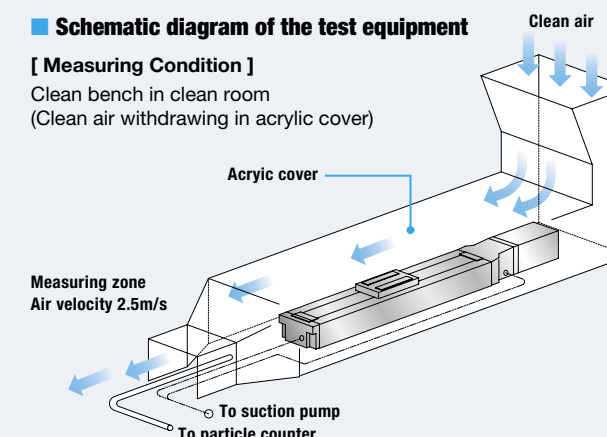
##### Measuring condition

Item	Condition
Measuring device	Particle counter
Air velocity in measuring zone	2.5 m/s
Measuring air amount	28.3 L (1cf)
Measuring time	48 hours (10 min./time, 1 time/hour)

##### Schematic diagram of the test equipment

###### [ Measuring Condition ]

Clean bench in clean room  
(Clean air withdrawing in acrylic cover)

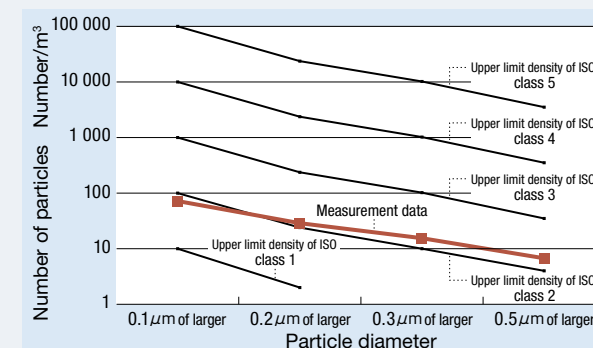


#### Example of measurement data [cleanliness evaluation result with upper limit density of cleanliness]

##### TC60E300

(Lead of ball screw: 10mm)

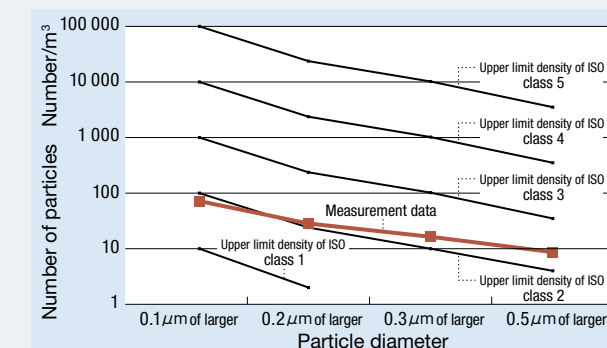
Stroke length ..... 200mm  
Moving speed ..... 500mm/s  
Internal suction amount ..... 30L/min



##### TC86E940

(Lead of ball screw: 20mm)

Stroke length ..... 800mm  
Moving speed ..... 560mm/s  
Internal suction amount ..... 40L/min



### 2 Light-weight, Low-cross section, and Compact!

Light-weight and compact positioning table using high-strength aluminum alloy for its main components.  
Low cross-section (54 mm high for TC60E and 67 mm high for TC86E) due to optimum designing of linear guides and ball screws.

### 3 High positioning accuracy!

Higher precision positioning by one rank due to a combination of IKO unique linear motion rolling guide technology and precision-ground ball screws.

### 4 High corrosion resistance!

The main composition parts, which are made from high strength aluminum alloy coated with alumite treatment and stainless sheet, are excellent in corrosion resistance.

### 5 Long-term maintenance free!

Long-term maintenance free operation due to IKO original C-Lube lubrication part built in the linear motion rolling guide and the ball screw. This can reduce labor time for lubrication and increase the reliability of the equipment.



# Environment-friendly **IKO** C-Lube Bearings Minimizing Lubricant Requirement

## What is your trouble?

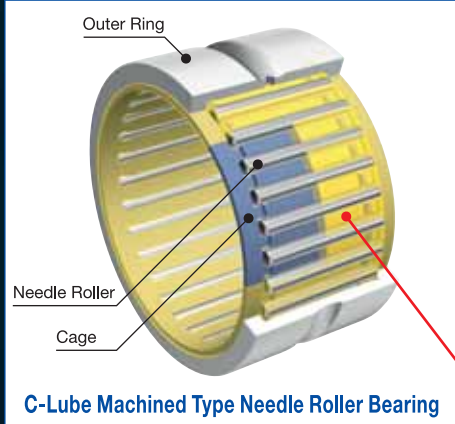
- 1 *Hard access to lubricating?*
- 2 *Machines and work places are dirty with lubricant?*
- 3 *Lubricating tools and instruments occupy the working places?*
- 4 *Having problems keeping up with lubrication maintenance schedule?*

## Find solutions with **IKO**

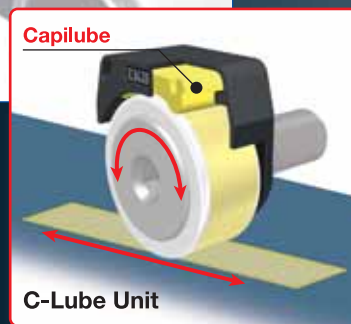
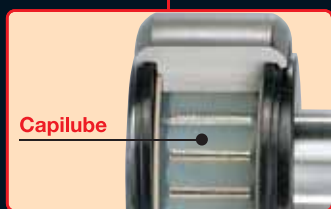
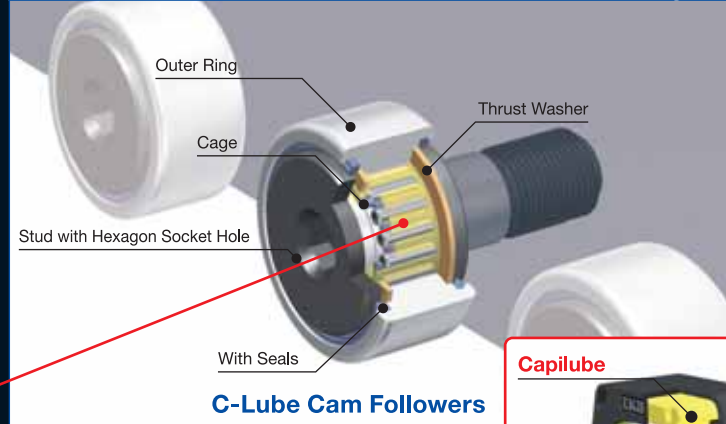
"C-Lube bearings" are **IKO**'s unique maintenance free bearing products with thermosetting solid lubricant (Capilube) pre-packed in the bearing space. As the bearing rotates, the lubricating oil oozes out onto needle rollers and raceways in proper quantity keeping the lubrication performance for a long period of time.



### For shaft support



### For cam mechanisms and follower bearings



## **IKO** Maintenance Free C-Lube Bearing

CAT-57165

**Maintenance work can be reduced greatly**

*Requires no periodical lubrication and increases the productivity.*

**Minimizes the amount of lubricant and contributes to the earth environment**

*Contributes to the earth environment and reduces the running cost.*

**Suppresses machine designing and device costs**

*Working spaces can be utilized.*



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