THK

ELECTRIC ACTUATORS

NEW

Linear Motor series

Multimotion actuator/cluster linear motor/ball spline shaft motor

CCR/CCM/RLT

For details, visit THK at **www.thk.com**

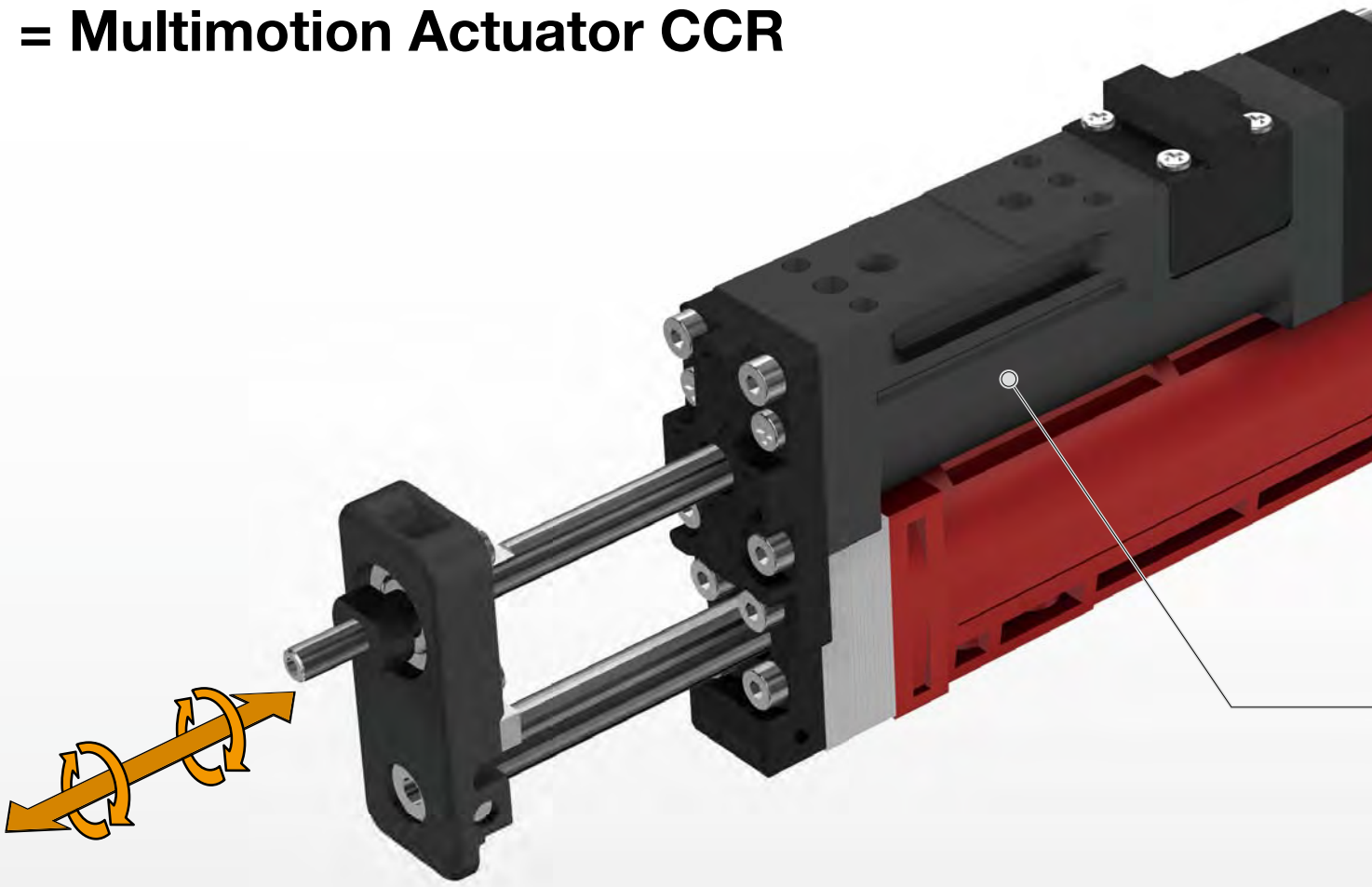
* Product information is updated regularly on the THK website.

THK CO., LTD.
TOKYO. JAPAN

CATALOG No.358-5E

Linear Motion (LM) & Rotation

CCM (LM) + RLT (Rotation)
= Multimotion Actuator CCR



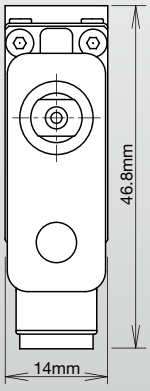
Features

LM & rotation is integrated in one package
Multimotion actuator with independently controllable LM and rotation.

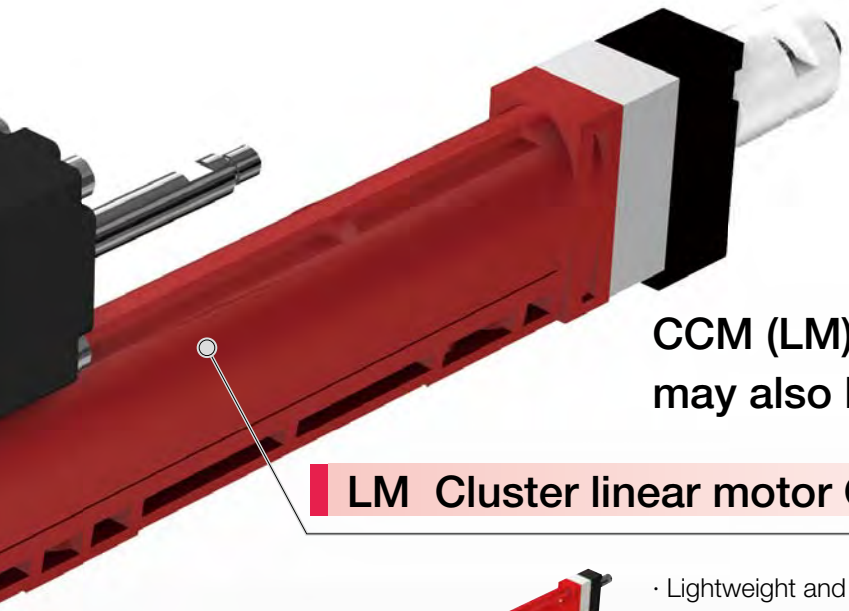
FL mode (force control)
The force can be controlled while easily controlling the speed and position.
* For more information on the FL mode, see P.14.

Lightweight and Compact
Multi-motion Actuator equipped with integrated encoder realizes light weight and compact size allows higher speed for higher productivity.
· Minimum size is 200g
· Width: 14mm or more Height: 46.8mm or more

Hollow shaft employed
This can be used as an air flow path.



CCR05



CCM (LM) and RLT (rotation) may also be used alone

LM Cluster linear motor CCM From P.13

- Lightweight and compact size realized by integral molding
- Forcer part is made of resin with excellent electrical insulation property and thermal conductivity
- Assembly of multiple shafts closely contacted is possible (lamination)

Rotation Ball spline shaft motor RLT From P.23

- Hollow shaft employed
- Ball spline employed for rotation shaft
  Linear guide is possible during rotation
- Compact servo motor with an integral encoder is used

Control device From P.29

MD

High-performance driver compatible with FL mode.
(Optional)

XD

Small driver with converged functions.

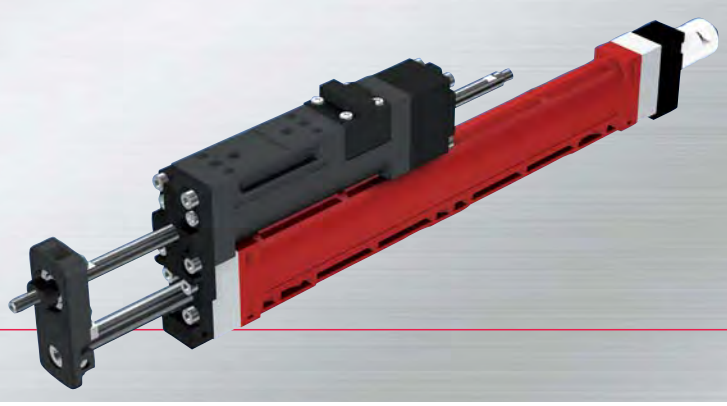
CD

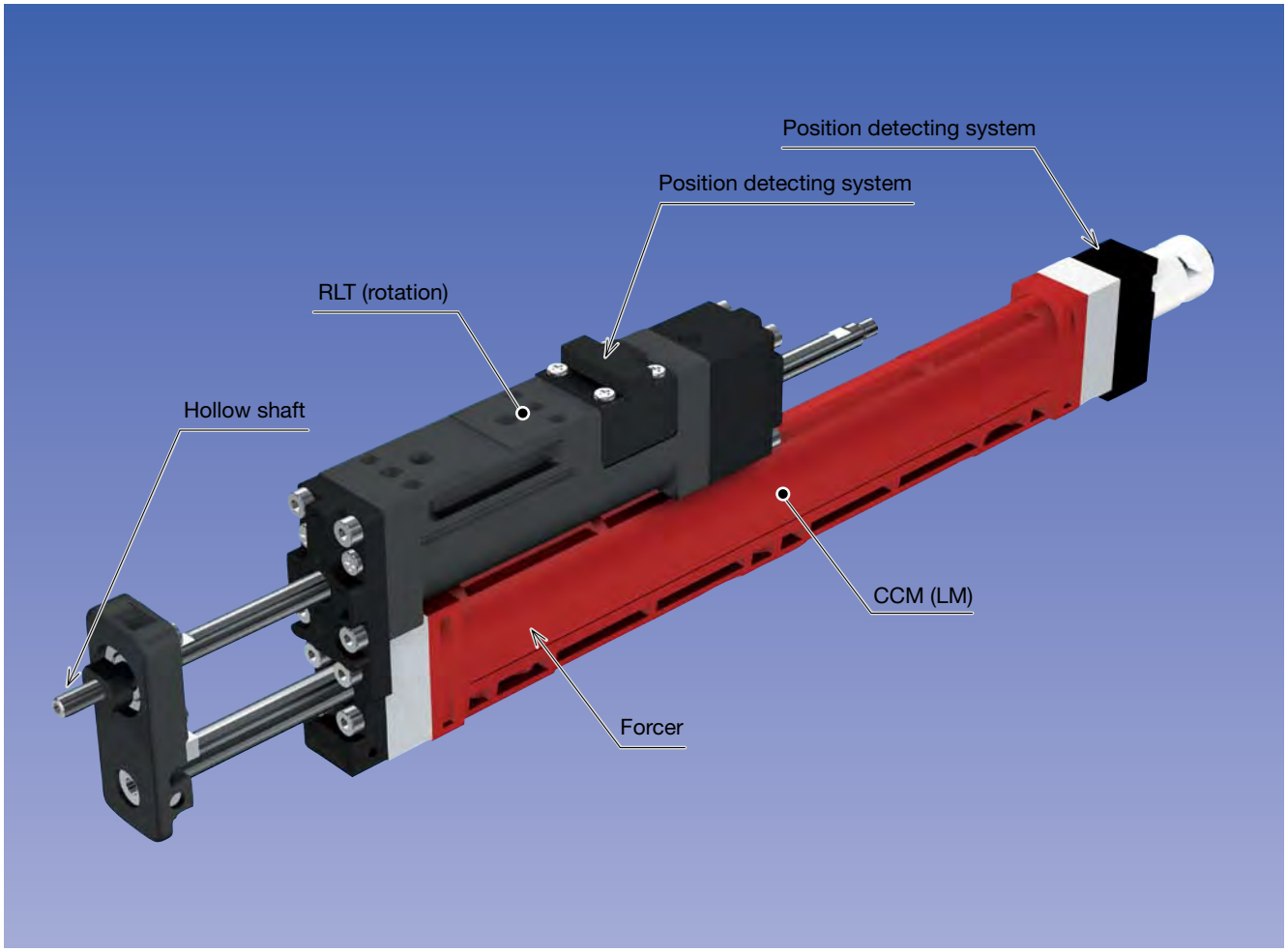
Multiple-shaft driver that can control up to 4 shafts.
(The standard mode is CCM only)

Linear motor series

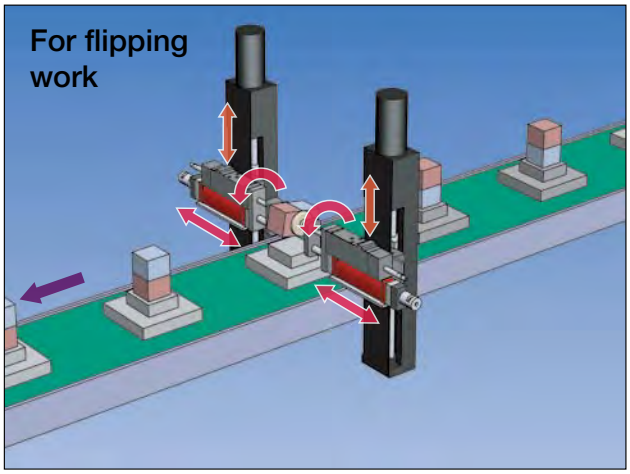
CCR

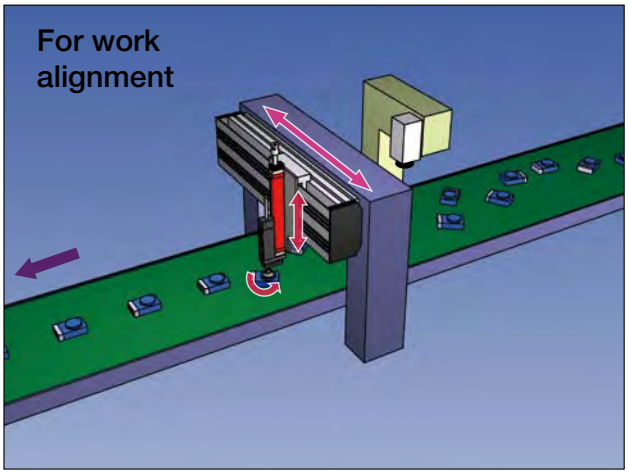
Multimotion actuator





Example applications

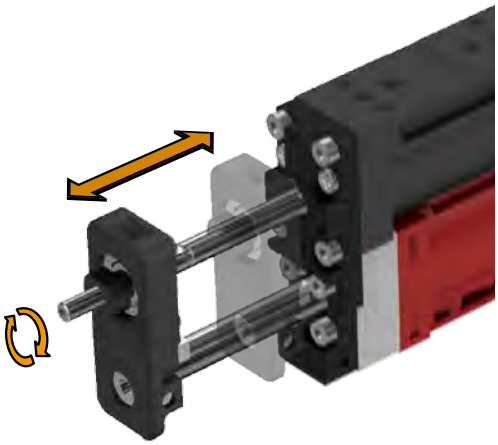




Features

1 LM and Rotation

Multimotion actuator with independently controllable LM and rotation.
The compact design with the integral position detecting system realizes compact size and process time reduction.



2 Hollow shaft

As the movable shaft is a hollow, it can be used as an air flow path.

3 FL mode (force control)

While controlling force, the speed and postilion can also be controlled with simple programming.
As driving is possible only with I/O contact input, a system can be built with simple configuration.

* FL mode is optional. Only compatible with driver MD.

Compatible drivers

This unit is compatible with the following drivers. For more information on each driver, see P.29.

Driver MD

High-performance driver compatible with FL mode.
(Optional)

Driver XD

Small driver with converged functions.

CCR

Basic Specifications

CCM (LM)

Item		Motor type	CCR05-S	CCR05-M	CCR07-S	CCR07-M
Compatible drivers	MD, XD	Capacity	10W			
		Power supply voltage of main circuit	24V DC			
		Power supply voltage of control circuit	24V DC			
Maximum thrust *1*2 [N]			5.1	10.4	9.4	19.3
Rated thrust *1*2 [N]			2.3	4.7	5.4	11.4
Encoder resolution [µm]			1.64		2.20	
Maximum speed [m/s]			1			

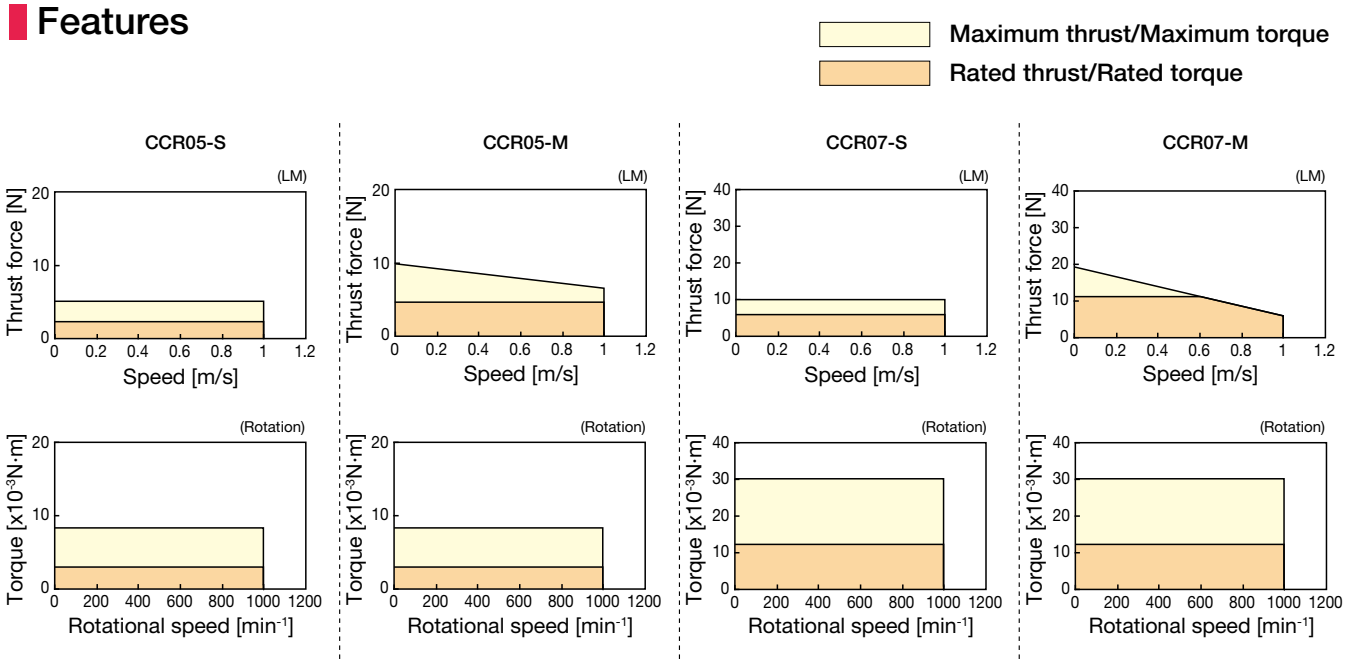
*1 Values with the average temperature of armature winding at 100°C in ambient temperature of 20°C.
*2 Values when the unit is used individually. If you want to use laminated motors, contact THK.
Note) If CCR is mounted vertically, the moving elements fall by their own weight in the event of power shutdown or any alarm. Please consider using a brake to prevent this.

RLT (rotation)

Item		Motor type	CCR05-S	CCR05-M	CCR07-S	CCR07-M
Compatible drivers	MD, XD	Capacity	10W			
		Power supply voltage of main circuit	24V DC			
		Power supply voltage of control circuit	24V DC			
Maximum torque * [N·m]			8.0×10^{-3}		29.9×10^{-3}	
Rated torque * [N·m]			3.5×10^{-3}		12.0×10^{-3}	
Encoder resolution [deg]			0.011 (32768 divisions)			
Maximum rotational speed [min^{-1}]			1000			

* Values with the average temperature of armature winding at 100°C in ambient temperature of 20°C.

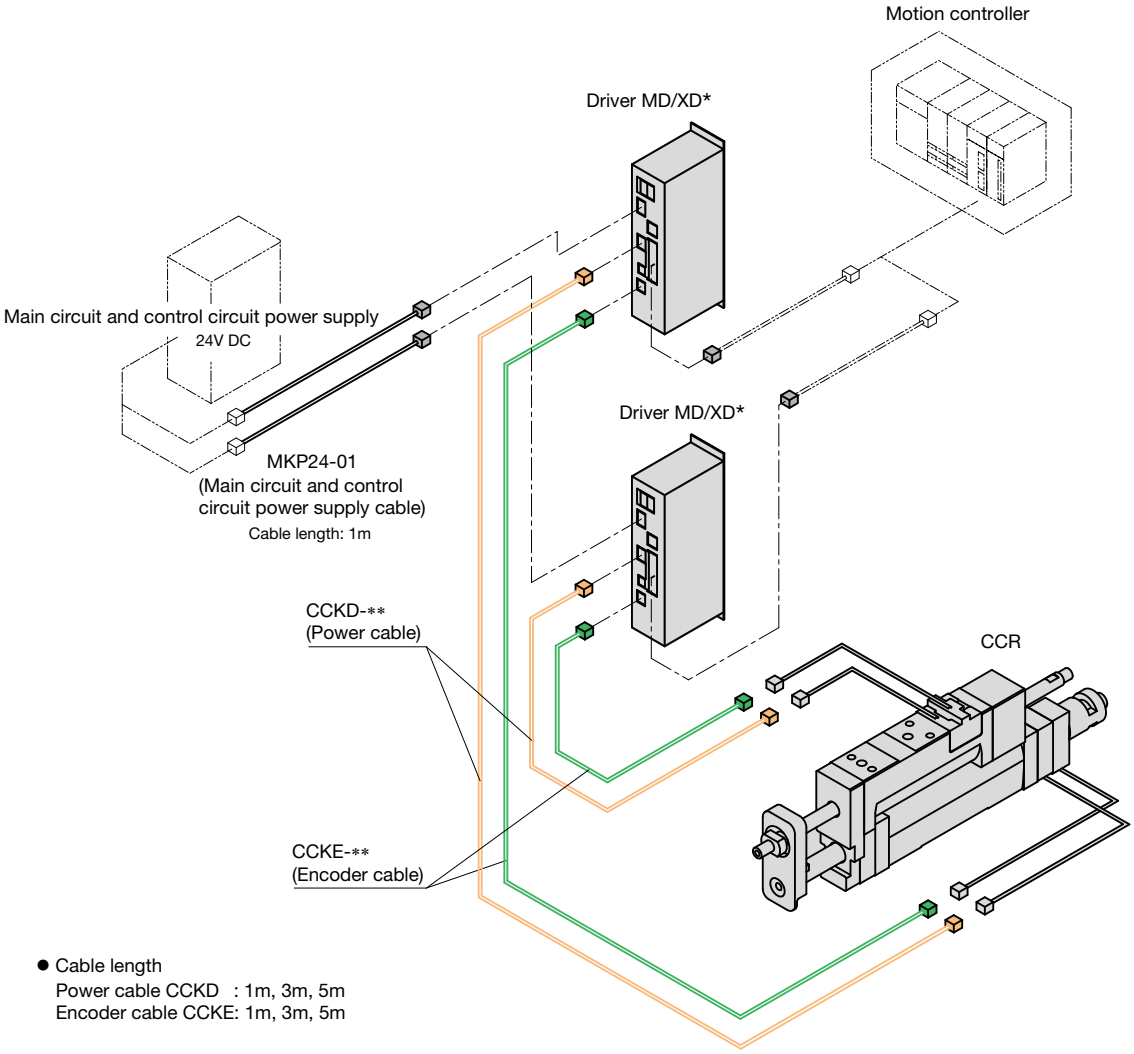
Features



* When making selections, contact THK.

System Configuration

● Driver MD/Driver XD specifications



* For driver combination and cables, refer to the model configuration page (P.7).

Note) A motion controller, connection cable between a motion controller and driver, DC power supply and its peripherals to be provided by customer.

CCR

Model Configuration

Model	Motor type	Stroke	Encoder	Driver: For CCM (LM)	Driver: For RLT (Rotation)
CCR05 –	S –	015 –	EN –	MD24F	/ MD24
(1)	(2)	(3)	(4)	(5)	(6)
CCR05 CCR07	S: Type S M: Type M	010: 10mm to 027: 27.5mm	EN: With position detecting system	MD24 : Driver MD MD24F: Driver MD FL mode specifications XD24 : Driver XD	MD24: Driver MD XD24: Driver XD

See Table 1. Stroke list.
*For more information, see CCR dimensions (P.9 to 12).

See Table 2. Driver list.
(5) and (6) drivers and input power supply voltage
Example: MD 24 F
MD : Driver MD
24 : 24V DC specifications
F : FL mode*
* FL mode is optional only for CCM (LM).

Table 1. Stroke list

(3) Stroke symbol					
	CCR05	010: 10.0mm	015: 15.0mm	020: 20.0mm	025: 25.0mm
	CCR07	012: 12.5mm	017: 17.5mm	022: 22.5mm	027: 27.5mm

Table 2. Driver list

Driver symbol	(5) CCM (LM) driver	(6) RLT (rotation) driver
MD24	MD-001-024DC- Ⓐ -CPS	MD-001-024DC- Ⓑ -CPS
MD24F	MD-001-024DC- Ⓐ -CPS-FL	-
XD24	XD-001-024DC- Ⓐ -CPS	XD-001-024DC- Ⓑ -CPS

Driver symbols Ⓐ and Ⓑ are to be replaced with corresponding symbols. For details, see the following table.

Actuator	CCM driver symbol Ⓐ	RLT driver symbol Ⓑ
CCR05 Type S	C05S	RLT4
CCR05 Type M	C05M	
CCR07 Type S	C07S	RLT6
CCR07 Type M	C07M	

Table 3. Cable list

Driver	Power cable	Encoder cable	Power supply cable
MD	CCKD-**	CCKE-**	MKP24-01
XD			XKP24-01

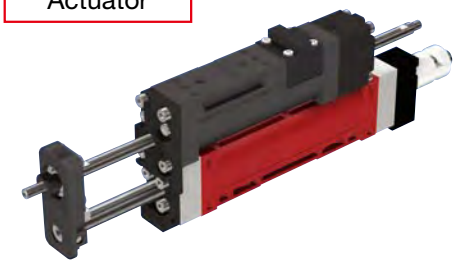
**is to be replaced with a symbol corresponding to cable length (See (10) Cable length).
The same power cable and encoder cable are used for CCM (LM) and RLT (rotation).

Cover	Sensors	Standard	Cable length
– N	– N	– CE	– 03
(7)	(8)	(9)	(10)
N: No cover	Q: Proximity sensor for rotation [N.O. contact] x 1 N: No sensor	CE: CE marking compliant product	01: 1m 03: 3m 05: 5m
	(8)Q: GX-F8A x 1 (Panasonic Industrial Devices SUNX Co., Ltd.) * If you select no proximity sensor, please provide a proximity sensor. Note) Connect the proximity sensor with a controller provided by customer.		See Table 3. Cable list. * Power cable and encoder cable of the same length are used for CCM (LM) and RLT (rotation).

Model configuration coding

CCR05 – S – 015 – EN – MD24F / MD24 – N – N – CE – 03

Actuator



· CCR05 Type S
· Stroke 15mm
· With position detecting system

Cable

Cable image

· 3m length × 2 sets

Driver

· MD (for LM) FL mode specifications

· MD (for rotation)

Note) The above model configuration includes an actuator, a driver and cables.
If you want an actuator only, contact THK.
Motion controller and connection cable between motion controller and driver to be provided by customer.

Pages for detailed description

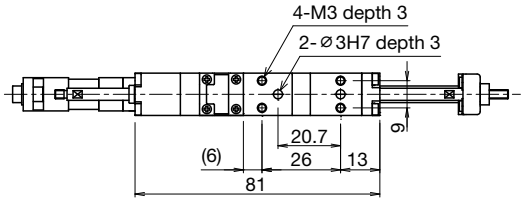
(2) Motor type	Basic specifications and features	P.5
(3) Stroke	Dimensions	P.9 to 12
(4) Encoder	Basic specifications and features	P.5
(5) and (6) Drivers	Specifications and dimensions	P.29 to 31
(10) Cable length	System configuration and options	P.6, P.32 to 33

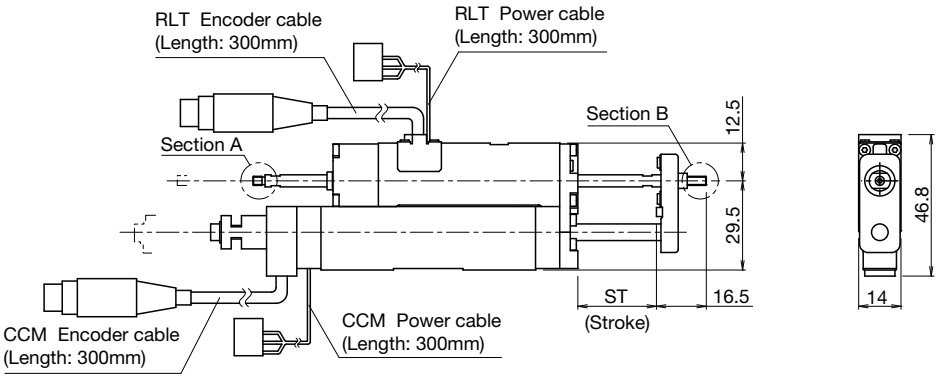
CCR05

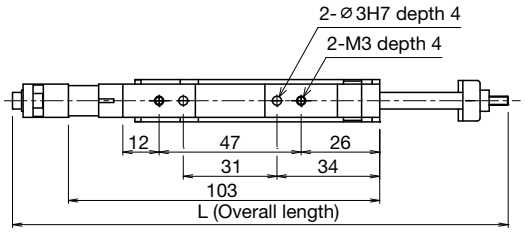
Type S

Stroke: 10 to 25mm

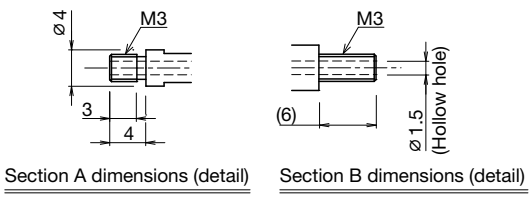
Dimensions

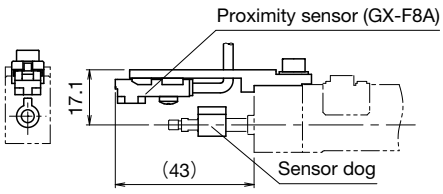






● With proximity sensor specifications





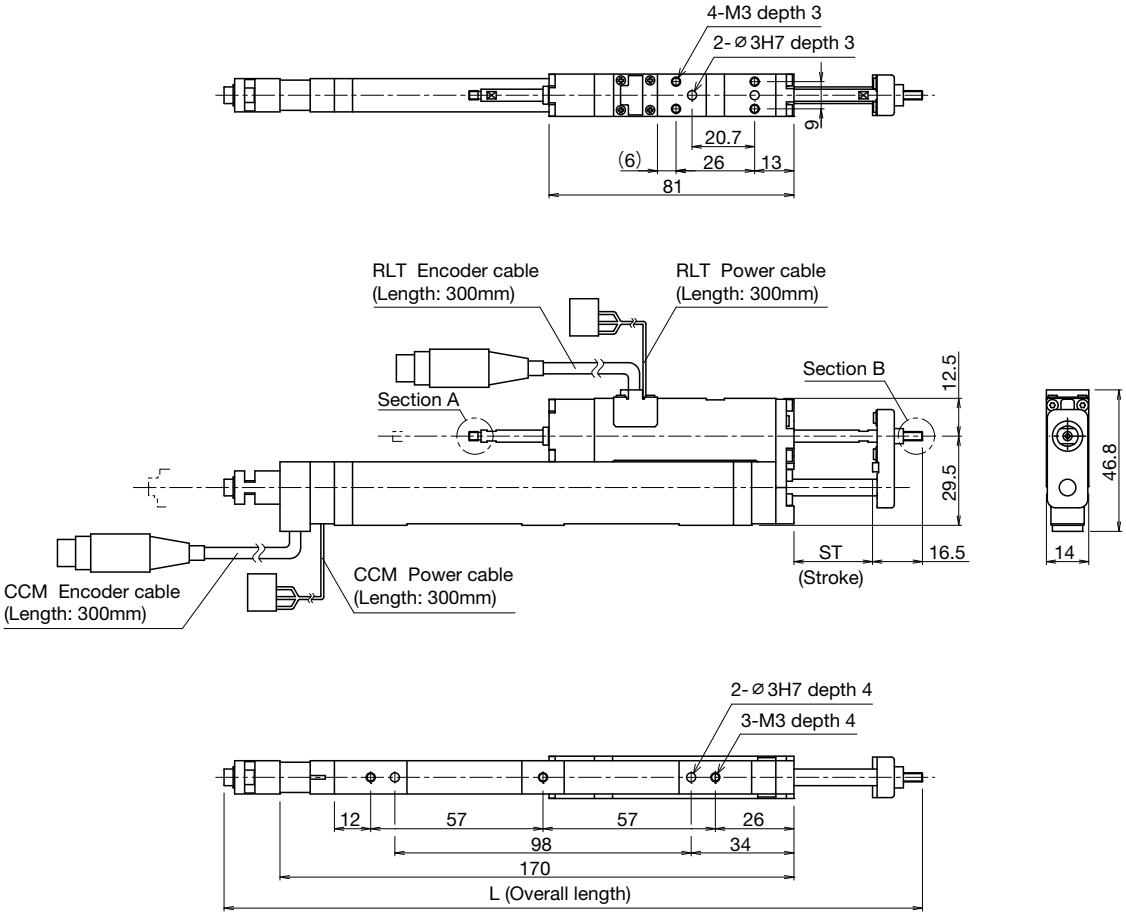
Motor type	Stroke symbol	ST Stroke [mm]	L Overall length [mm]	Main unit weight [kg]
CCR05-S	010	10.0	149	0.2
	015	15.0	154	
	020	20.0	159	
	025	25.0	164	

CCR05

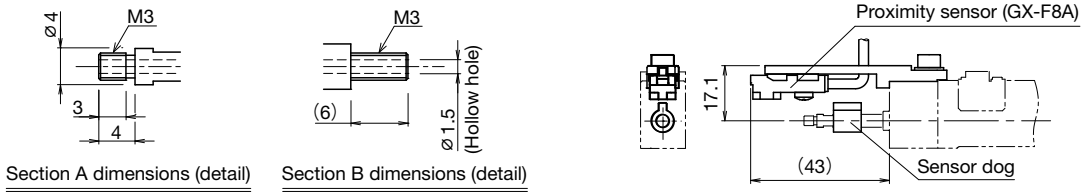
Type M

Stroke: 10 to 25mm

Dimensions



● With proximity sensor specifications



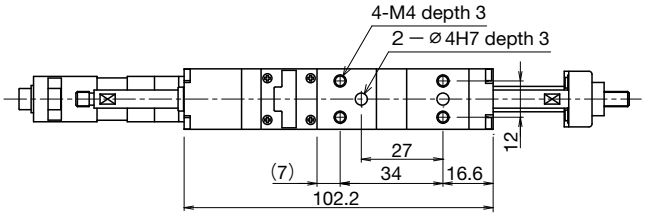
Motor type	Stroke symbol	ST Stroke [mm]	L Overall length [mm]	Main unit weight [kg]
CCR05-M	010	10.0	216	0.3
	015	15.0	221	
	020	20.0	226	
	025	25.0	231	

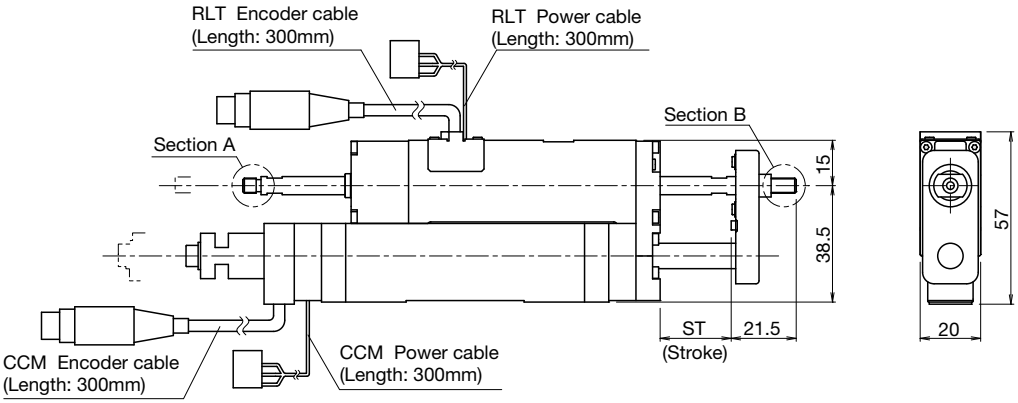
CCR07

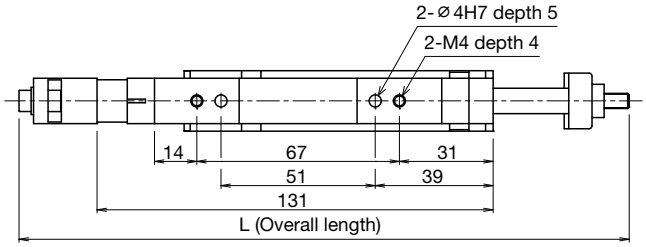
Type S

Stroke: 12.5 to 27.5mm

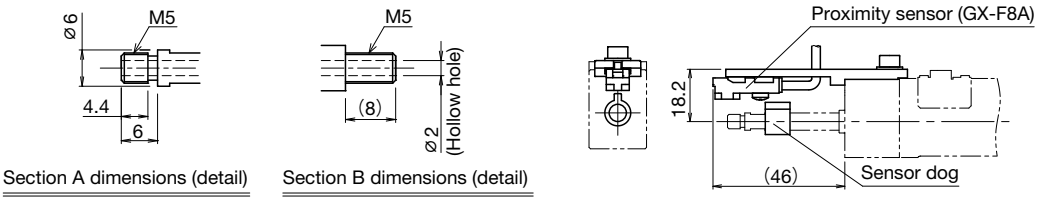
Dimensions







● With proximity sensor specifications



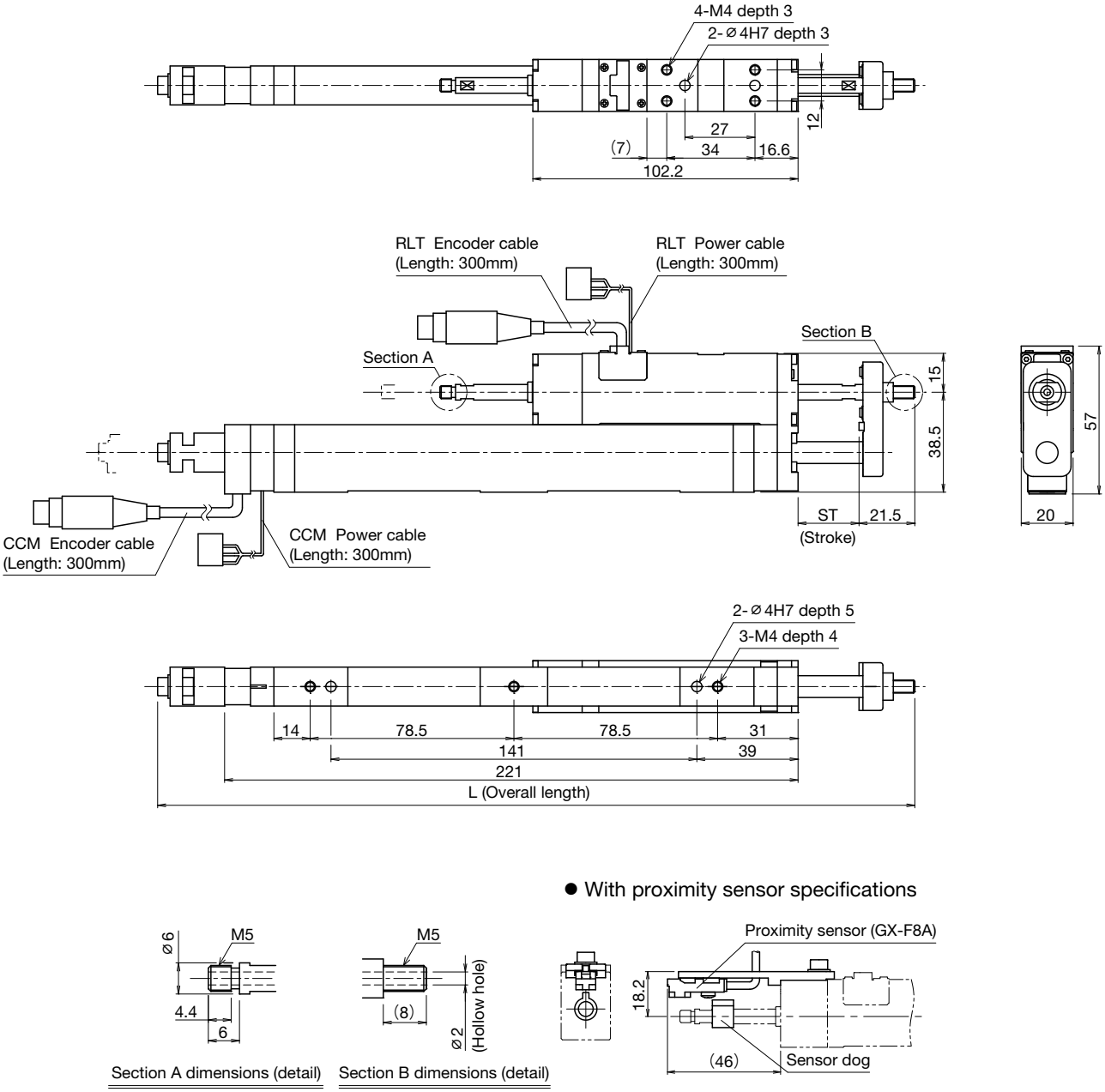
Motor type	Stroke symbol	ST Stroke [mm]	L Overall length [mm]	Main unit weight [kg]
CCR07-S	012	12.5	192	0.4
	017	17.5	197	
	022	22.5	202	
	027	27.5	207	

CCR07

Type M

Stroke: 12.5 to 27.5mm

Dimensions



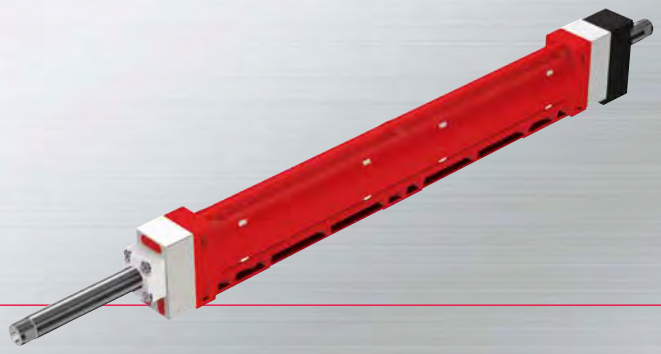
● With proximity sensor specifications

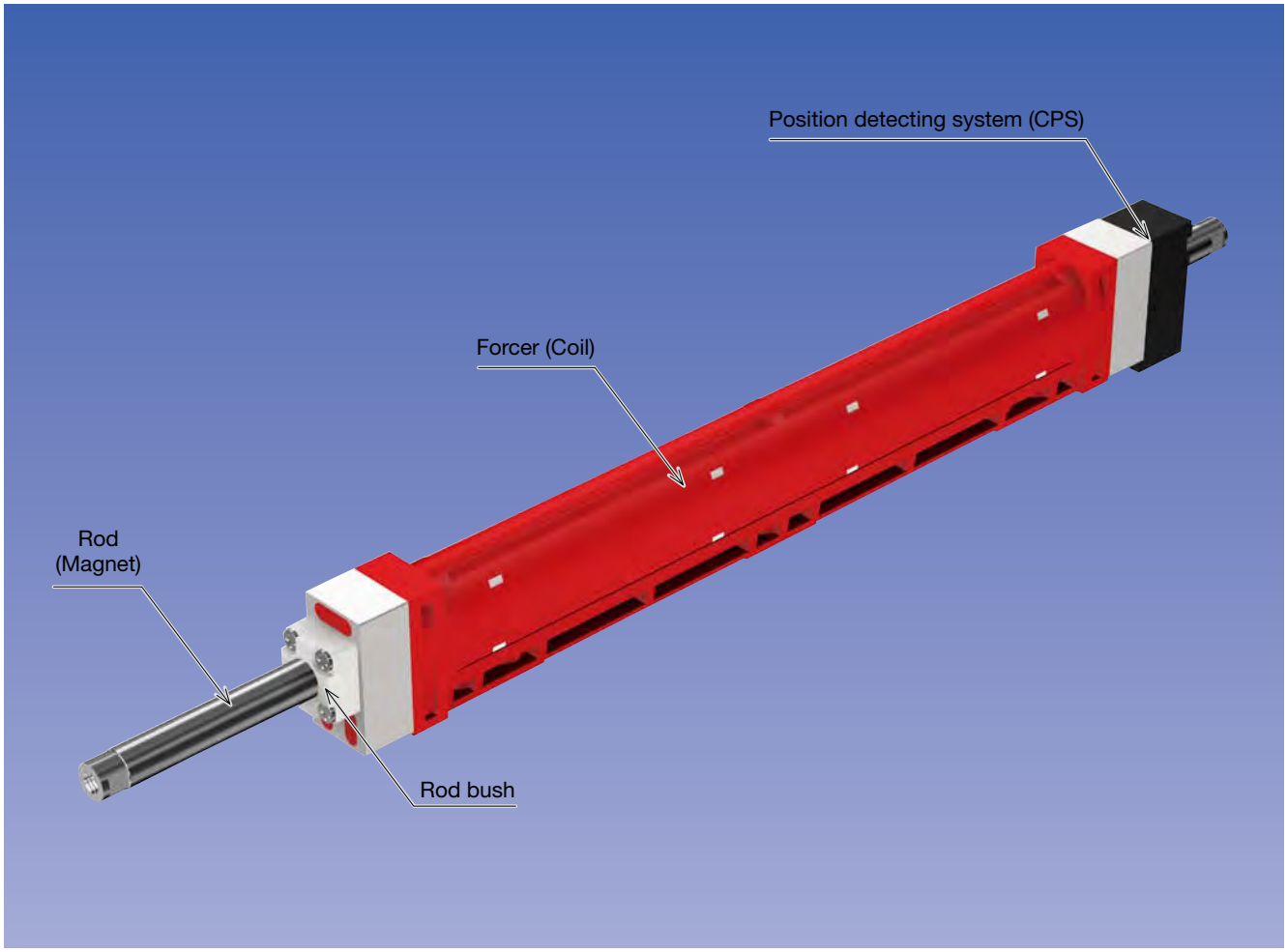
Motor type	Stroke symbol	ST Stroke [mm]	L Overall length [mm]	Main unit weight [kg]
CCR07-M	012	12.5	282	0.6
	017	17.5	287	
	022	22.5	292	
	027	27.5	297	

Linear motor series

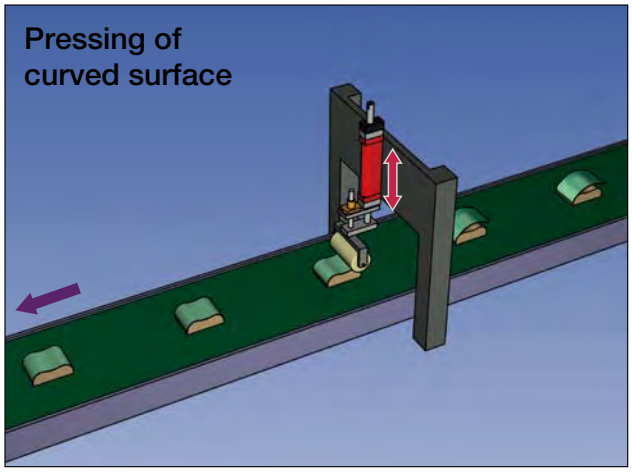
CCM

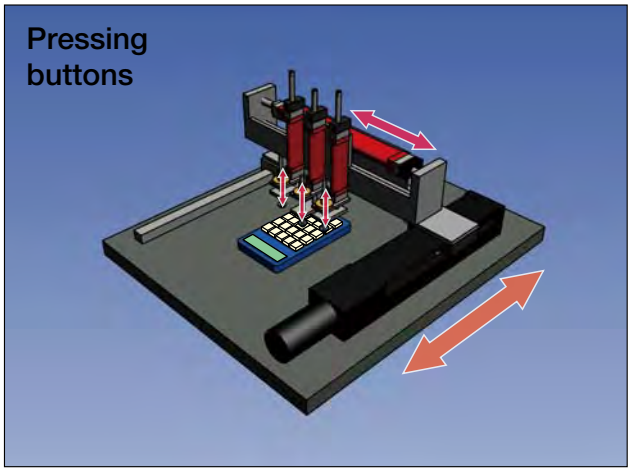
Cluster linear motor





Example applications

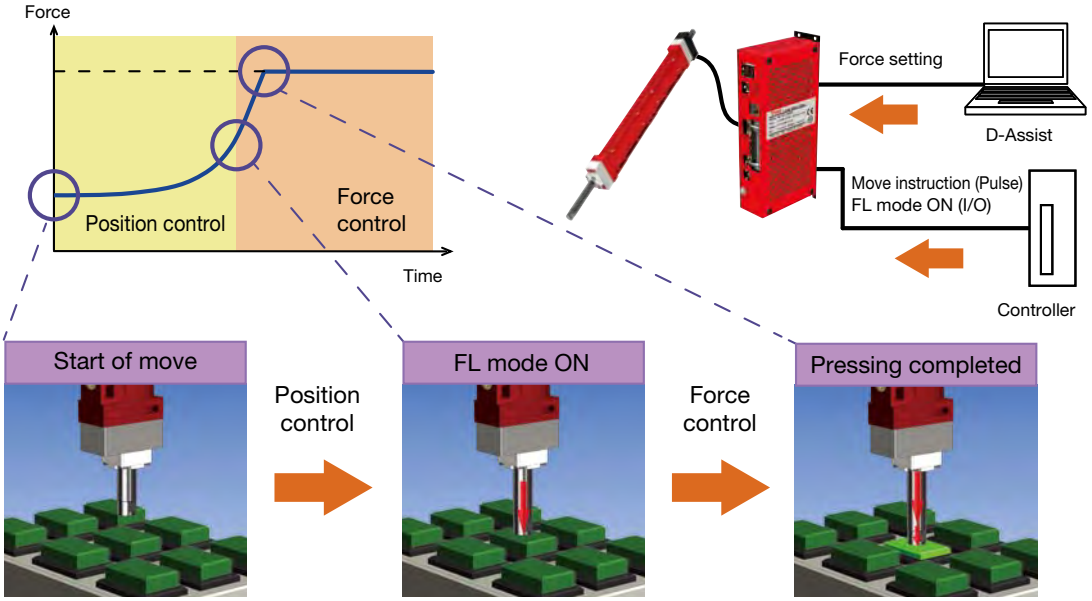




Features

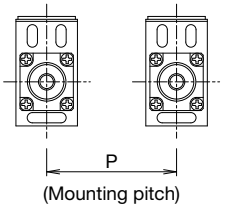
1 FL mode (force control)

The force can be controlled while easily controlling the speed and position.
As driving is possible only with I/O contact input, a system can be built with simple configuration.
* FL mode is optional.



2 Can be laminated

As CCM is designed with narrow width, lamination at narrower pitches is possible.



Motor type	Mounting pitch P	
	Recommended pitch	Minimum pitch
CCM03S/M	18mm or longer	7.5mm
CCM05S/M	24mm or longer	11.5mm
CCM07S/M	35mm or longer	16mm

Note) As motor features may vary, contact THK for mounting at the minimum pitches.

3 Lightweight and compact

Special resin with high electrical insulation and high thermal conductivity is used for the forcer section of CCM.
In addition, integral molding of the forcer realizes a lightweight and compact linear motor.

Compatible drivers

This unit is compatible with the following drivers. For more information on each driver, see P.29 and P.30.

Driver MD

High-performance driver compatible with FL mode.
(optional)

Driver XD

Small driver with converged functions.

Driver CD

Multiple-shaft driver that can control up to 4 shafts.

CCM

Basic Specifications

Item			Motor type	CCM03S	CCM03M	CCM05S	CCM05M	CCM07S	CCM07M
Compatible drivers	MD, CD *1		Capacity	10W					
			Power supply voltage of main circuit	24V DC		24V DC / 48V DC			
			Power supply voltage of control circuit	24V DC					
	XD		Capacity	–	–	10W			
			Power supply voltage of main circuit	–	–	24V DC			
			Power supply voltage of control circuit	–	–	24V DC			
Maximum thrust *2*3 [N]				2.6	5.3	5.1 (9.1)	10.4 (18.4)	9.4 (19.3)	19.3 (39.1)
Rated thrust *2 [N]				0.8	1.7	2.3	4.7	5.4	11.4
Encoder resolution [μm]				1.17		1.64		2.20	
Maximum speed [m/s]				1					

*1 CCM03S/M is only compatible with driver MD.

*2 Values with the average temperature of armature winding at 100°C in ambient temperature of 20°C. Specifications when the unit is used individually or the mounting pitch (P.14) is the following recommended pitch.
CCM03S/M: 18mm or longer, CCM05S/M: 24mm or longer, CCM07S/M: 35mm or longer

*3 Values for 48V DC are shown in parentheses. Contact THK for details.

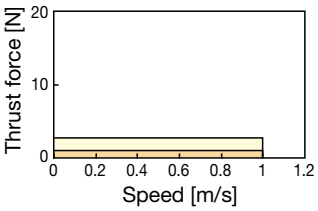
Note 1) Use CCM in combination with a rectilinear guide so that only the force in the axial direction is applied to the rod.
Note 2) If CCM is mounted vertically, the rod falls by its own weight in the event of power shutdown or any alarm. Please consider using a brake to prevent falls.
Note 3) Please consider a rotation stopper of the rod separately.

Features

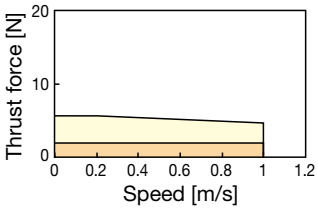
Maximum thrust
Rated thrust

24V DC driven

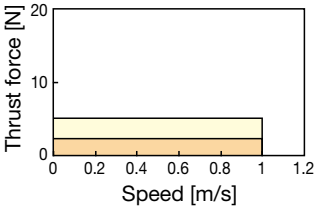
CCM03S



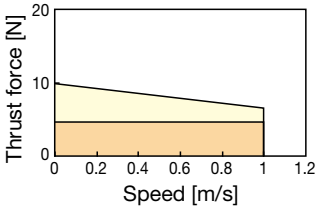
CCM03M



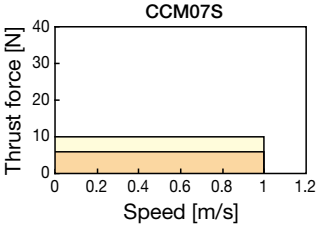
CCM05S



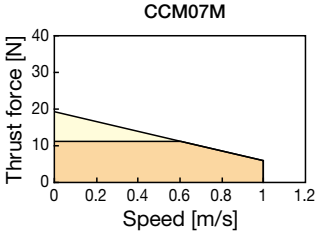
CCM05M



CCM07S

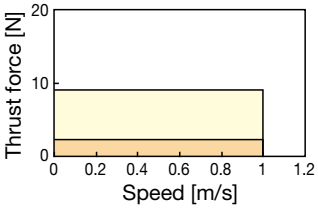


CCM07M

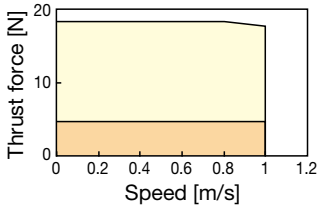


48V DC driven

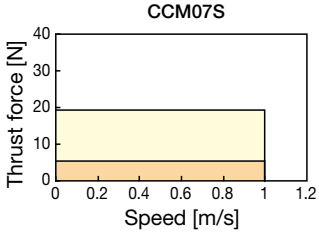
CCM05S



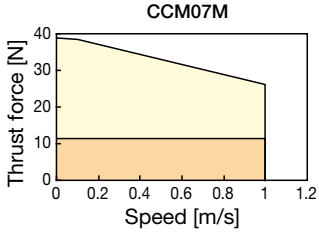
CCM05M



CCM07S



CCM07M



* When making selections, contact THK.

Model Configuration

Motor type	Stroke	Power cable terminal processing	Power cable	Encoder	Encoder cable
CCM05S	– 012	– C	– D01	– EN	– E01
(1)	(2)	(3)	(4)	(5)	(6)
CCM03S : CCM03 Type S	006: 6.5mm	C: Standard connector	D01: Cable length 1m	EN: Standard installation of position detecting system CPS	E01: Cable length 1m
CCM03M: CCM03 Type M	to	F: No connector processing	D03: Cable length 3m	ER: Inversed installation of position detecting system CPS	E03: Cable length 3m
CCM05S : CCM05 Type S	038: 38mm		D05: Cable length 5m		E05: Cable length 5m
CCM05M: CCM05 Type M					
CCM07S : CCM07 Type S					
CCM07M: CCM07 Type M					
	See Table 1. Stroke list.				

Table 1. Stroke list

Stroke symbol	CCM03	006: 6.5mm	011: 11.5mm	016: 16.5mm	021: 21.5mm	026: 26.5mm	–	–
	CCM05	012: 12.5mm	017: 17.5mm	022: 22.5mm	027: 27.5mm	032: 32.5mm	–	–
	CCM07	008: 8.0mm	013: 13.0mm	018: 18.0mm	023: 23.0mm	028: 28.0mm	033: 33.0mm	038: 38.0mm

Model configuration coding

CCM05M – 032 – C – D03 – EN – E03

Actuator

· CCM05 Type M
· Stroke 32.5mm
· CPS standard installation

Cable

Cable image

· Power cable length 3m
· Encoder cable length 3m

Driver

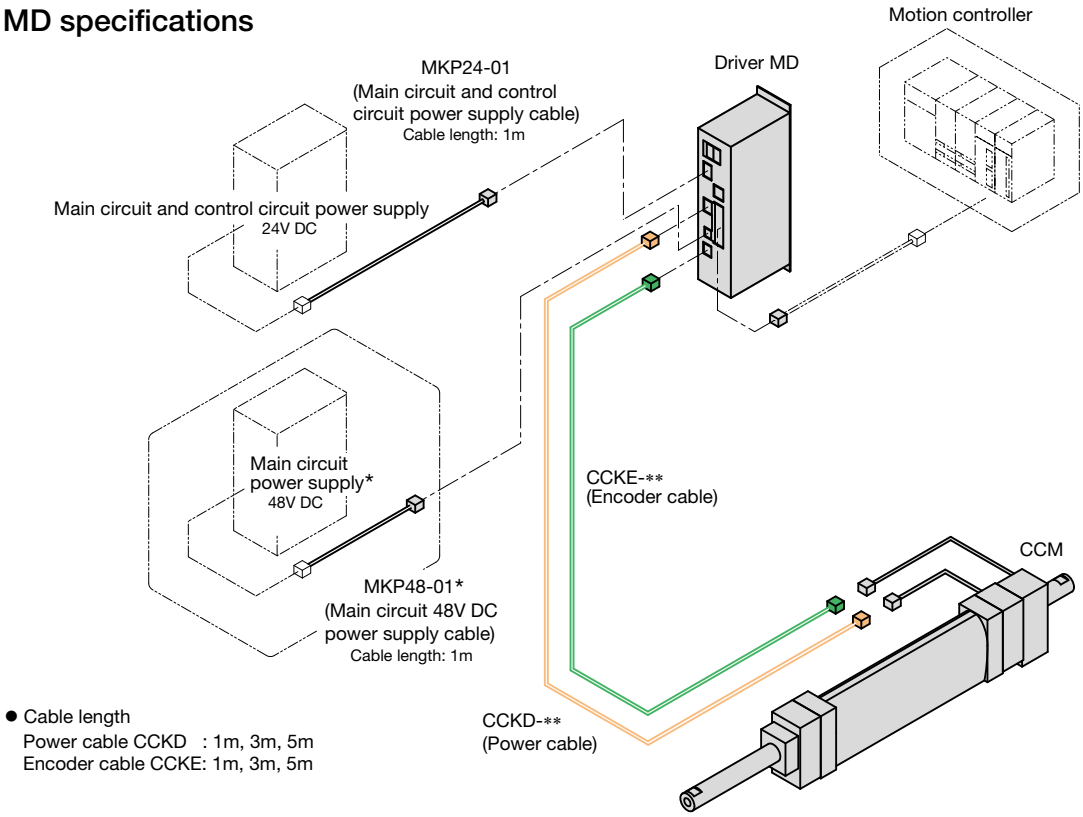
Note) The above model configuration includes an actuator and cables. Please contact THK separately when you place an order of a driver.
A motion controller and cable between a controller and driver to be provided by customer.

Pages for detailed description

(1) Motor type	Basic specifications and features	P.15
(2) Stroke	Dimensions	P.19 to 21
(4) Power cable	System configuration and options	P.17 to 18, P.32 to 33
(5) Encoder	Basic specifications and dimensions	P.15, P.19 to 21
(6) Encoder cable	System configuration and options	P.17 to 18, P.32 to 33

System Configuration

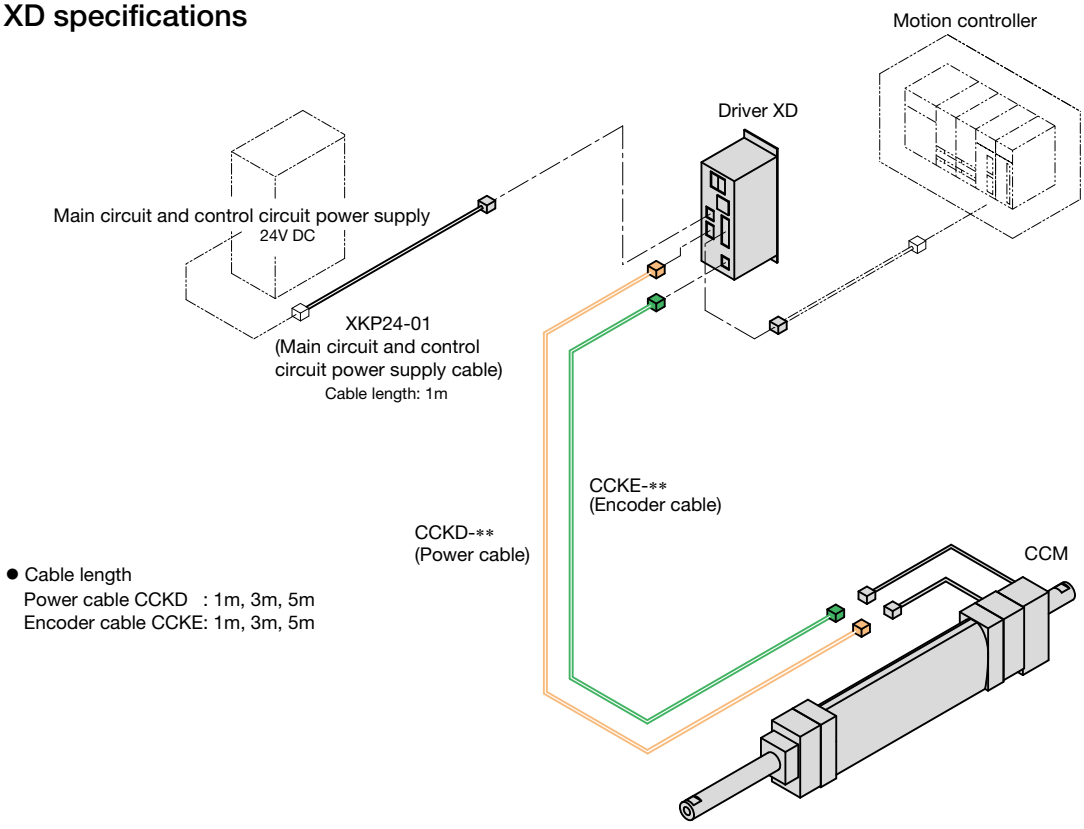
● Driver MD specifications



* Only required for 48V DC specifications.

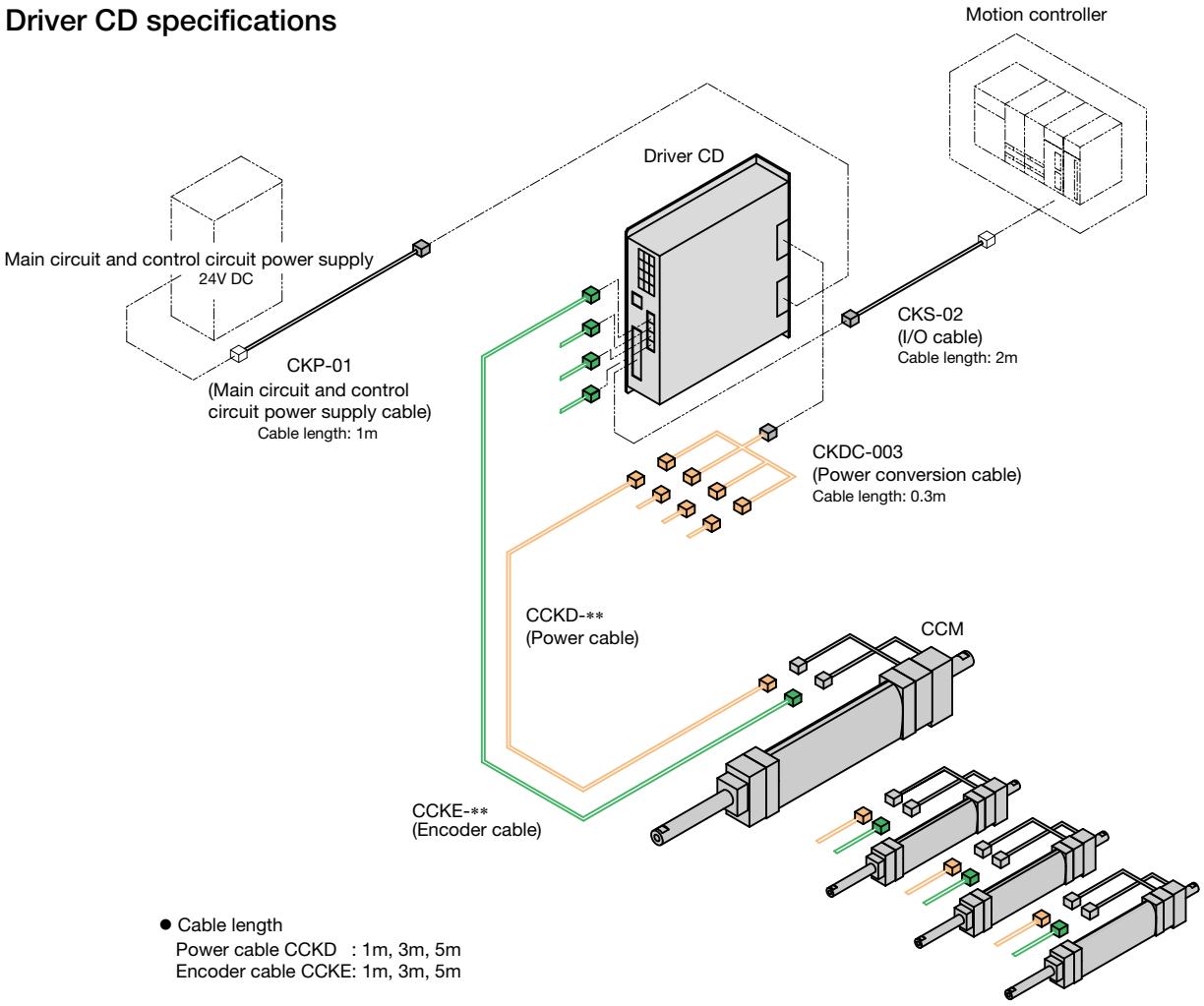
Note) A motion controller, connection cable between a motion controller and driver, DC power supply and its peripherals to be provided by customer.

● Driver XD specifications



Note) A motion controller, connection cable between a motion controller and driver, DC power supply and its peripherals to be provided by customer.

● Driver CD specifications



● Cable length
Power cable CCKD : 1m, 3m, 5m
Encoder cable CCKE: 1m, 3m, 5m

Note) Motion controller, DC power supply and its peripherals to be provided by customer.

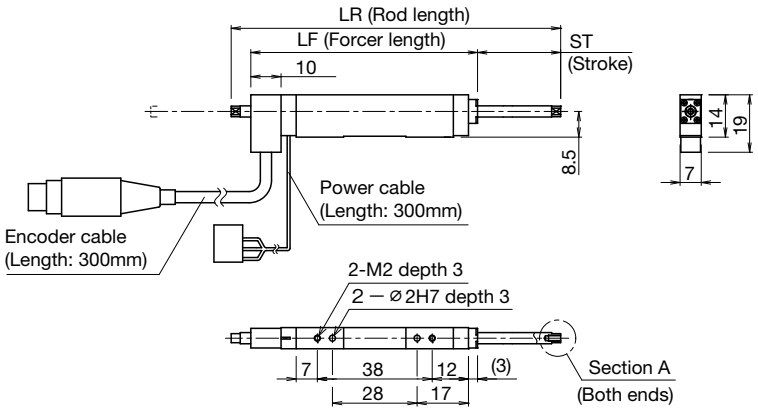
CCM03

Type S/Type M

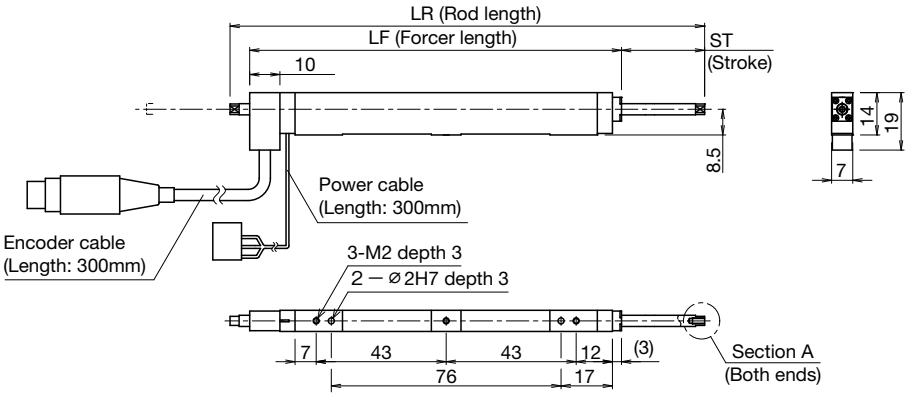
Stroke: 6.5 to 26.5mm

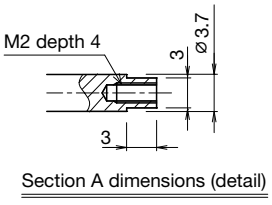
Dimensions

● Type S



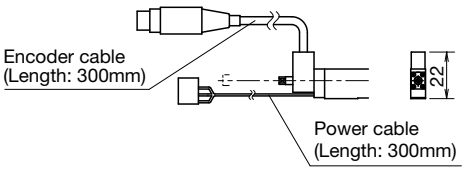
● Type M





Section A dimensions (detail)

● **CPS inverted installation (common to Type S and Type M)**



Motor type	Stroke symbol	ST Stroke [mm]	LR Rod length [mm]	LF Forcer length [mm]	Main unit weight [kg]
CCM03S	006	6.5	89	75	0.02
	011	11.5	94		
	016	16.5	99		
	021	21.5	104		
	026	26.5	109		
CCM03M	006	6.5	137	123	0.04
	011	11.5	142		
	016	16.5	147		
	021	21.5	152		
	026	26.5	157		

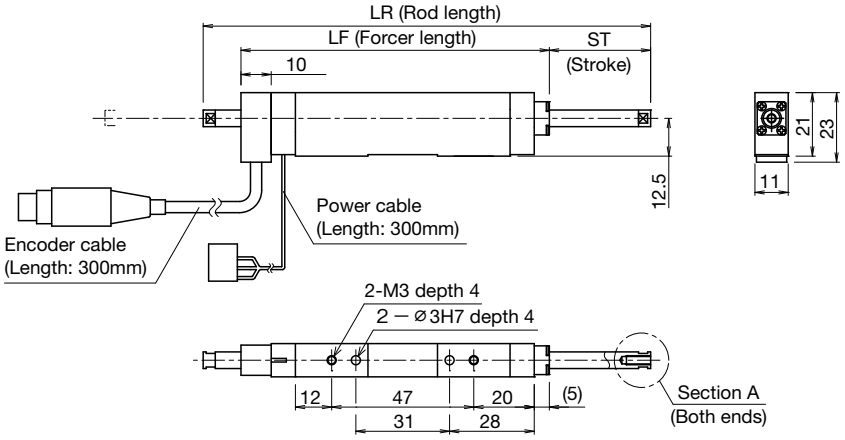
CCM05

Type S/Type M

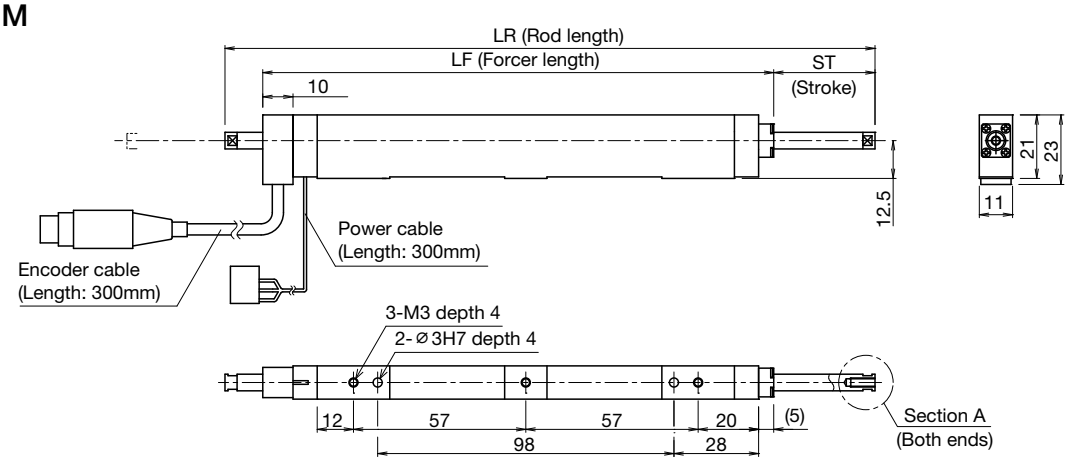
Stroke: 12.5 to 32.5mm

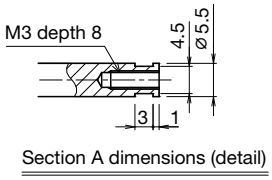
Dimensions

● Type S



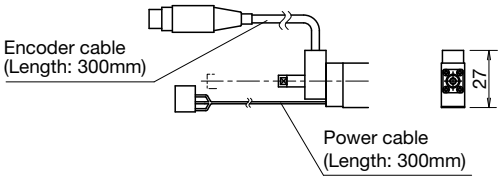
● Type M





Section A dimensions (detail)

● CPS inverted installation (common to Type S and Type M)



Motor type	Stroke symbol	ST Stroke [mm]	LR Rod length [mm]	LF Forcer length [mm]	Main unit weight [kg]
CCM05S	012	12.5	128	102	0.08
	017	17.5	133		
	022	22.5	138		
	027	27.5	143		
	032	32.5	148		
CCM05M	012	12.5	195	169	0.1
	017	17.5	200		
	022	22.5	205		
	027	27.5	210		
	032	32.5	215		

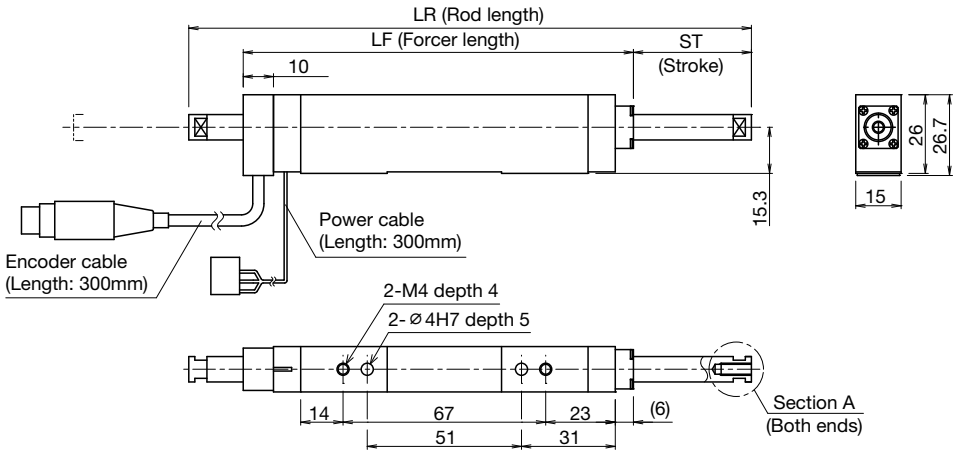
CCM07

Type S/Type M

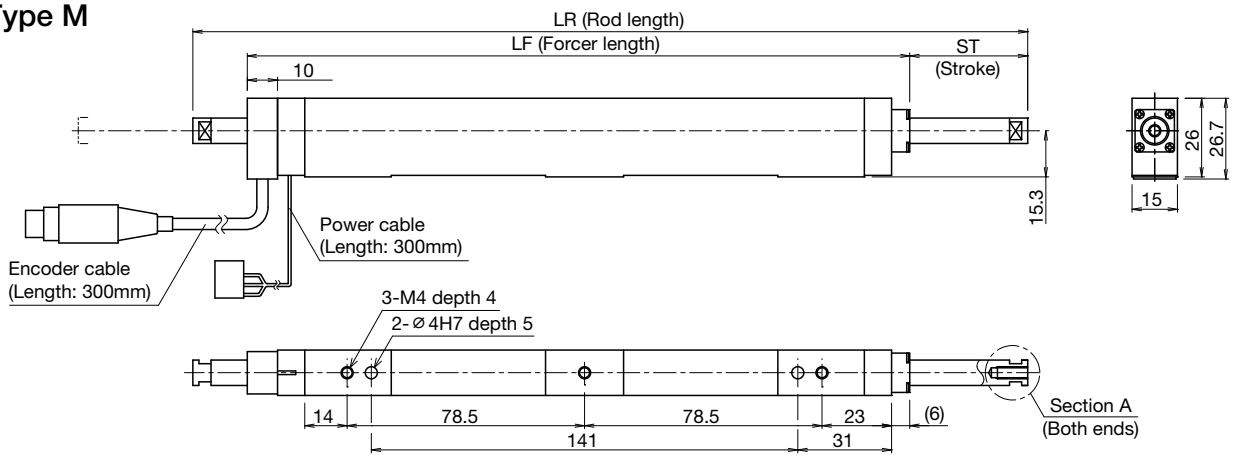
Stroke: 8 to 38mm

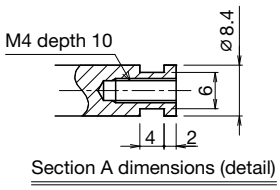
Dimensions

● Type S



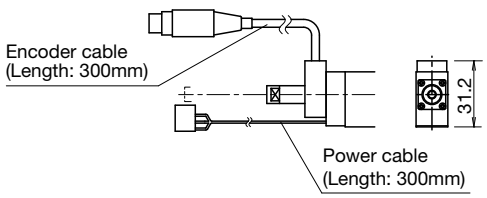
● Type M





Section A dimensions (detail)

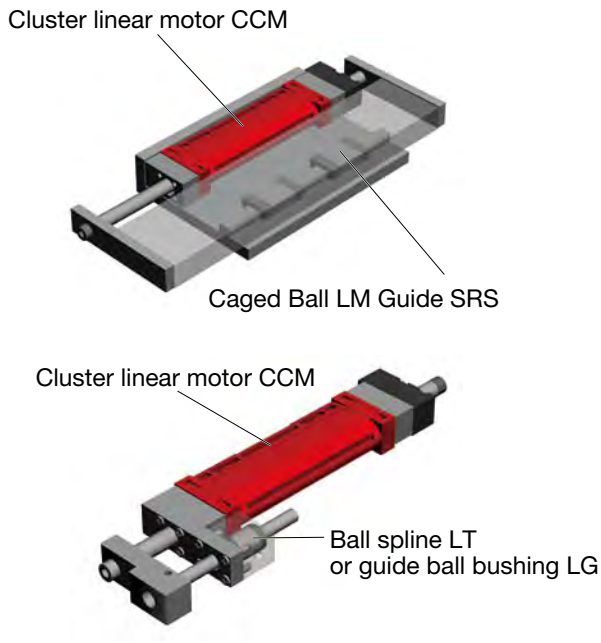
● CPS inverted installation (common to Type S and Type M)

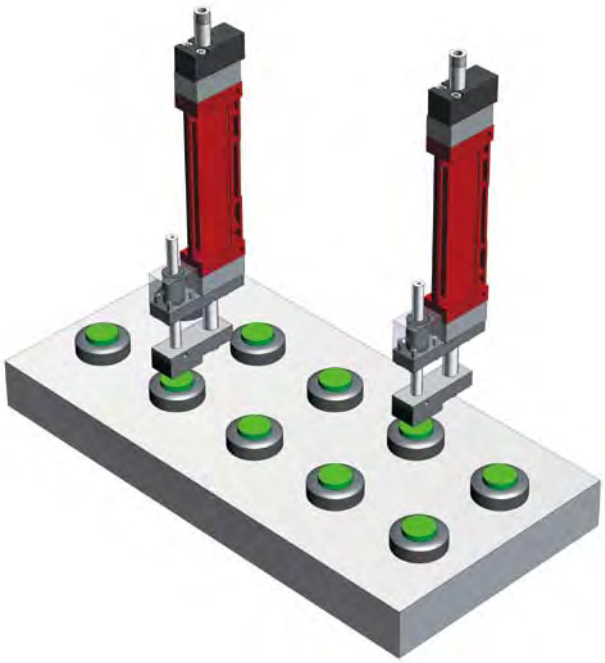


Motor type	Stroke symbol	ST Stroke [mm]	LR Rod length [mm]	LF Forcer length [mm]	Main unit weight [kg]
CCM07S	008	8.0	156	129	0.2
	013	13.0	161		
	018	18.0	166		
	023	23.0	171		
	028	28.0	176		
	033	33.0	181		
	038	38.0	186		
CCM07M	008	8.0	246	219	0.3
	013	13.0	251		
	018	18.0	256		
	023	23.0	261		
	028	28.0	266		
	033	33.0	271		
	038	38.0	276		

Actuator configuration example

The actuator may be designed flexibly in combination with rectilinear guides (LM guide or ball spline, etc.).



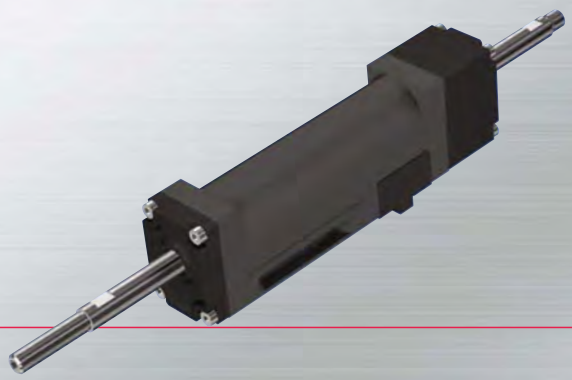


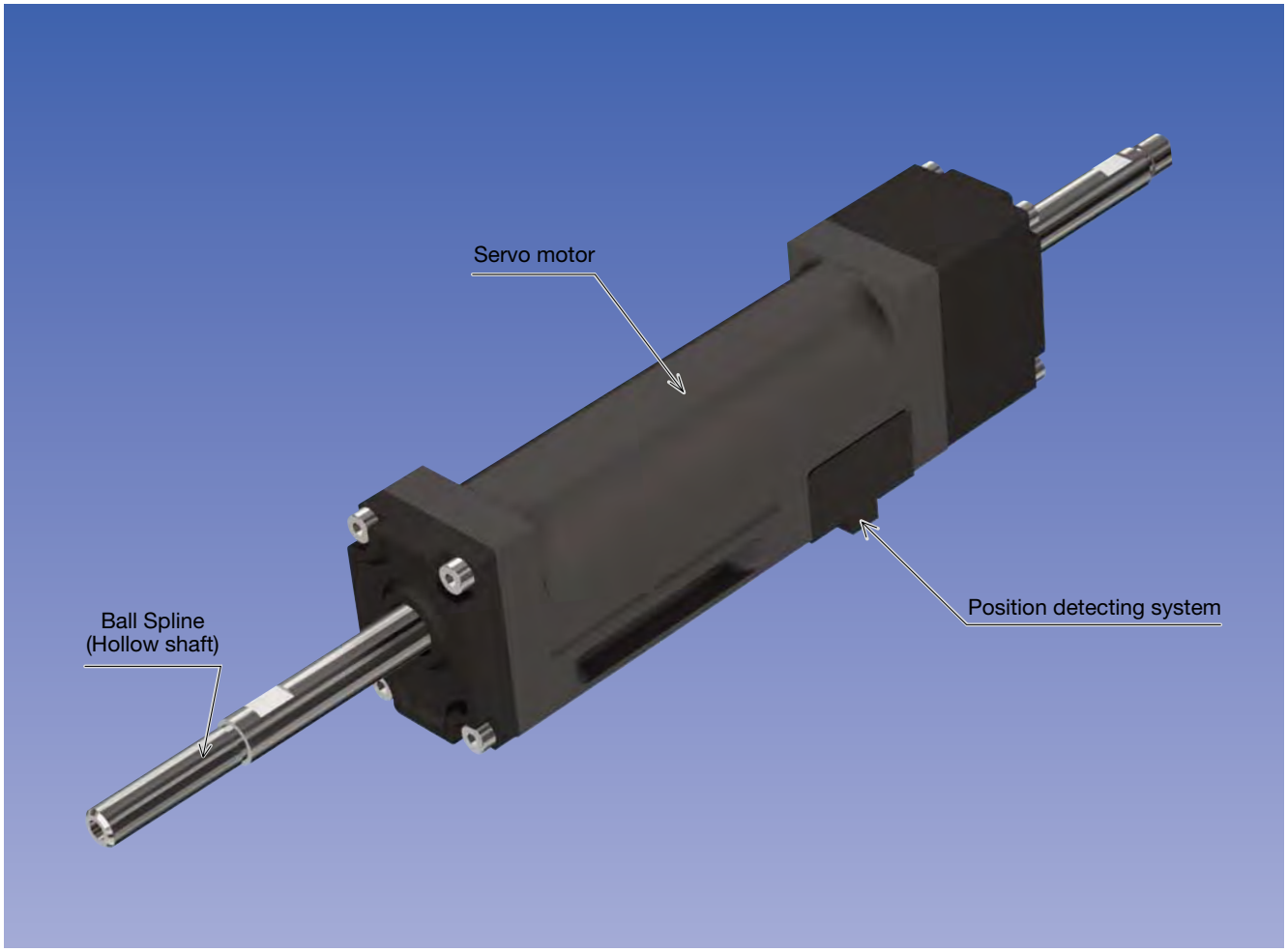
*1 For the product and technical information of SRS/LT/LG, see the THK general catalog.
*2 For the installation procedure of CCM (forcer and rod), contact THK.

Linear motor series

RLT

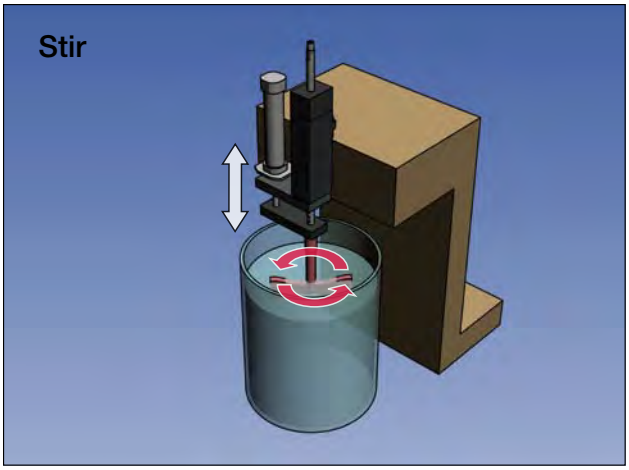
Ball spline shaft motor



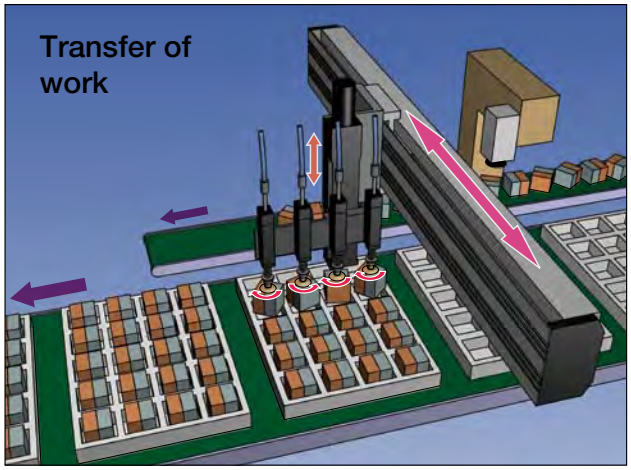


Example applications

Stir



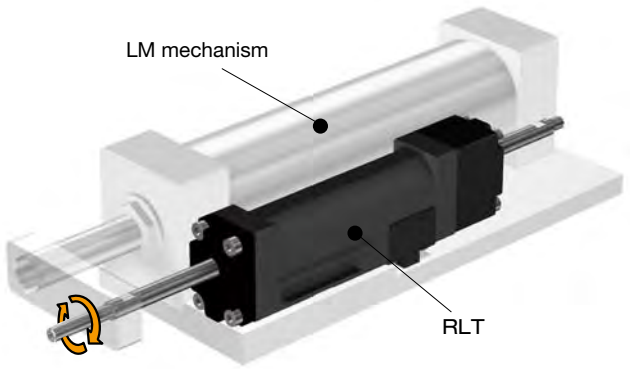
Transfer of work



Features

1 Rotational motor with linear guide

Ball spline is used as rotating motor shaft.
Combining with linear motion products, output shaft can rotate and travel at same time.

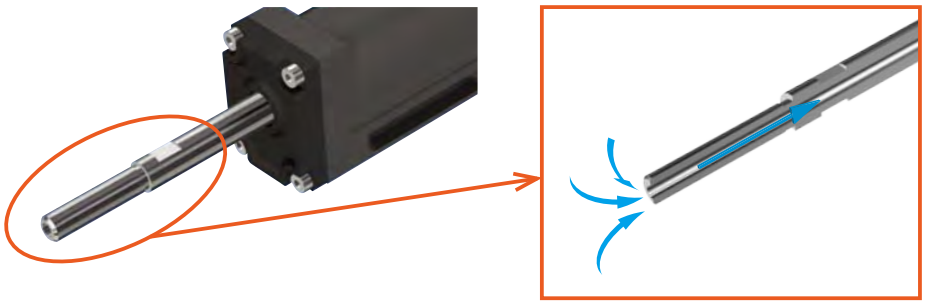


2 Position detecting system

A compact servo motor with an integral position detecting system.

3 Hollow shaft

As the movable shaft is hollow, it can be used as an air flow path.



Compatible drivers

This unit is compatible with the following drivers. For more information on each driver, see P.29.

Driver MD

High-performance driver.

Driver XD

Small driver with converged functions.

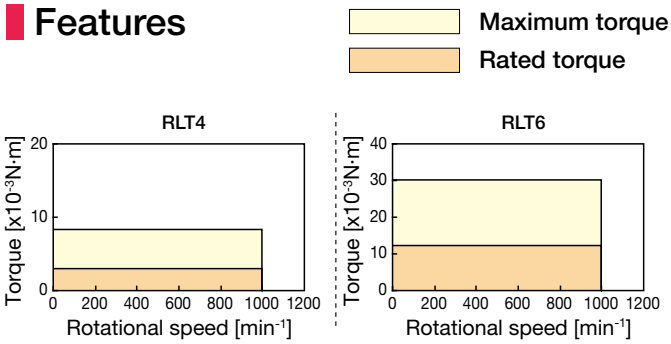
RLT

Basic Specifications

Item			Motor type	RLT4	RLT6
Compatible drivers	MD, XD	Capacity		10W	
		Power supply voltage of main circuit		24V DC	
		Power supply voltage of control circuit		24V DC	
Maximum torque * [N·m]				8.0×10^{-3}	29.9×10^{-3}
Rated torque * [N·m]				3.5×10^{-3}	12.0×10^{-3}
Encoder resolution [deg]				0.011 (32768 divisions)	
Maximum rotational speed [min^{-1}]				1000	

* Values with the average temperature of armature winding at 100°C in ambient temperature of 20°C.

Features



* When making selections, contact THK.

Model Configuration

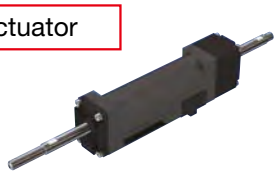
Motor type	Encoder	Sensors	Cable length
RLT4 –	EN –	N –	01
(1)	(2)	(3)	(4)
RLT4	EN: Position detecting system	Q: Proximity sensor for rotation [N.O. contact] x 1	01: 1m
RLT6		N: No sensor	03: 3m
			05: 5m

(3)Q: GX-F8A x 1
(Panasonic Industrial Devices SUNX Co., Ltd.)
* If you select no proximity sensor, please provide a proximity sensor.
Note) Connect the proximity sensor with a controller provided by customer.

Model configuration coding

RLT4 – EN – N – 03

Actuator



· RLT4
· With position detecting system

Cable

Cable image

· Cable length 3m

Driver

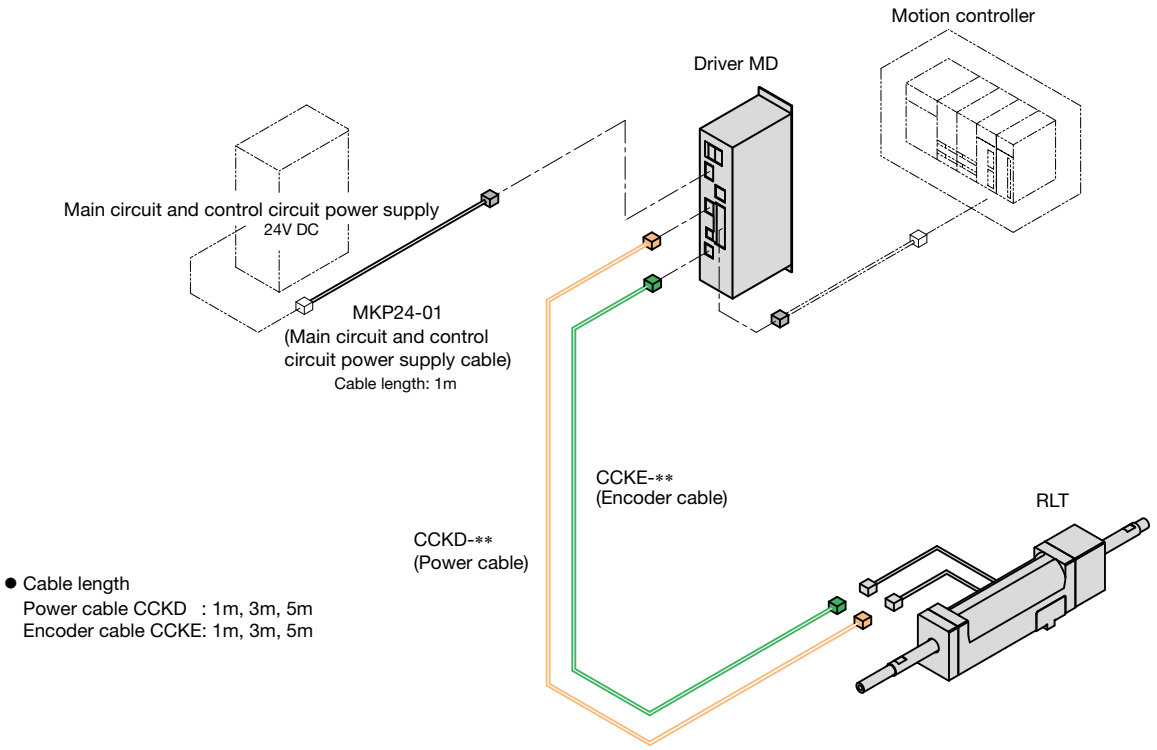
Note) The above model configuration includes an actuator and cables. Please contact THK when you place an order of a driver.
A motion controller and cable between a controller and driver to be provided by customer.

Pages for detailed description

(1) Motor type	Basic specifications, features and dimensions	P.25, P.27 to 28
(2) Encoder	Basic specifications and features	P.25
(4) Cable length	System configuration and options	P.26, P.32 to 33

System Configuration

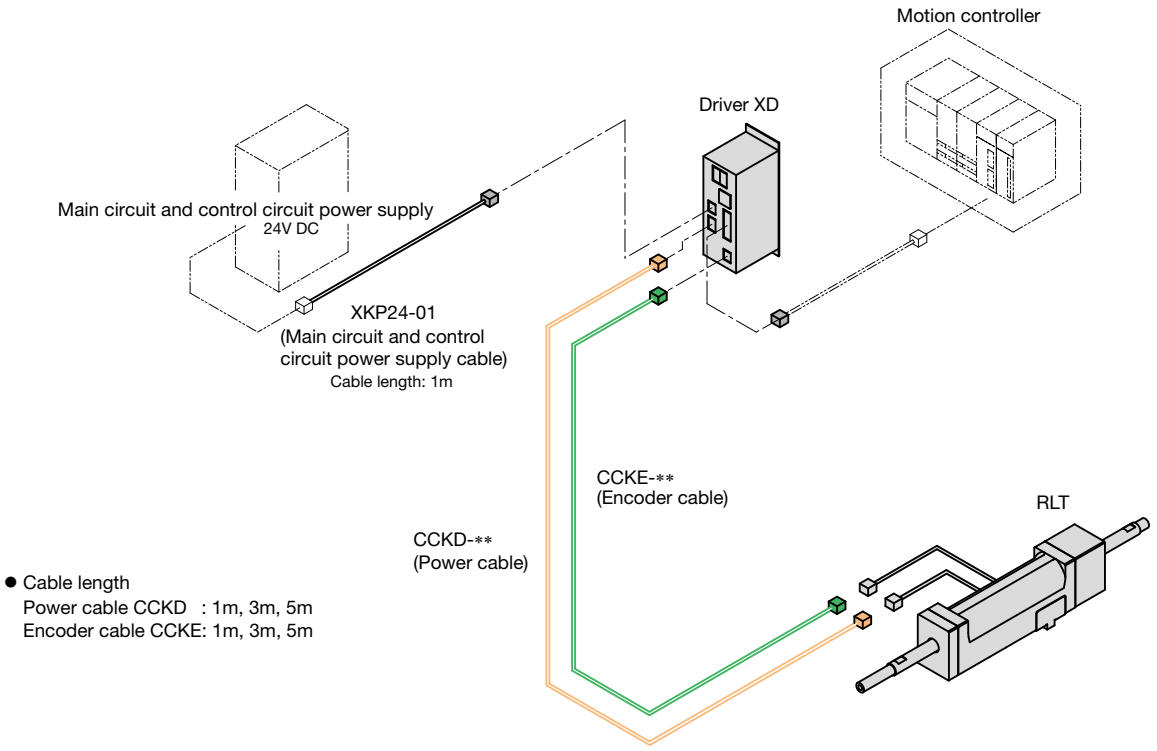
● Driver MD specifications



● Cable length
Power cable CCKD : 1m, 3m, 5m
Encoder cable CCKE: 1m, 3m, 5m

Note) A motion controller, connection cable between a motion controller and driver, DC power supply and its peripherals to be provided by customer.

● Driver XD specifications

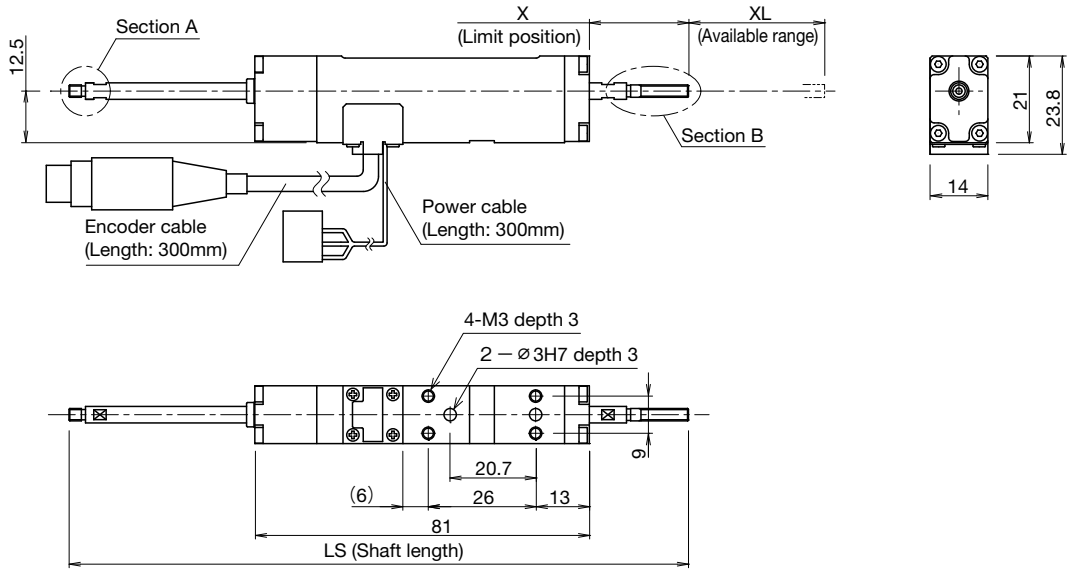


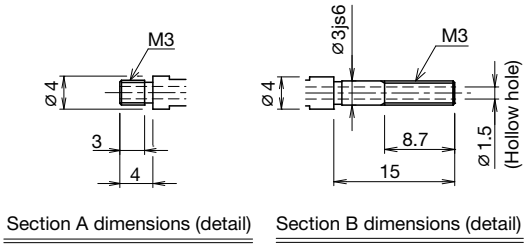
● Cable length
Power cable CCKD : 1m, 3m, 5m
Encoder cable CCKE: 1m, 3m, 5m

Note) A motion controller, connection cable between a motion controller and driver, DC power supply and its peripherals to be provided by customer.

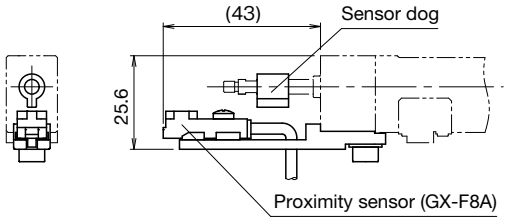
RLT4

Dimensions





● With proximity sensor specifications



Motor type	XL*1*2 Available range [mm]	X*1 Limit position [mm]	LS Shaft length [mm]	Shaft weight [kg]	Main unit weight [kg]
RLT4	35.0	22.0	150	0.02	0.1

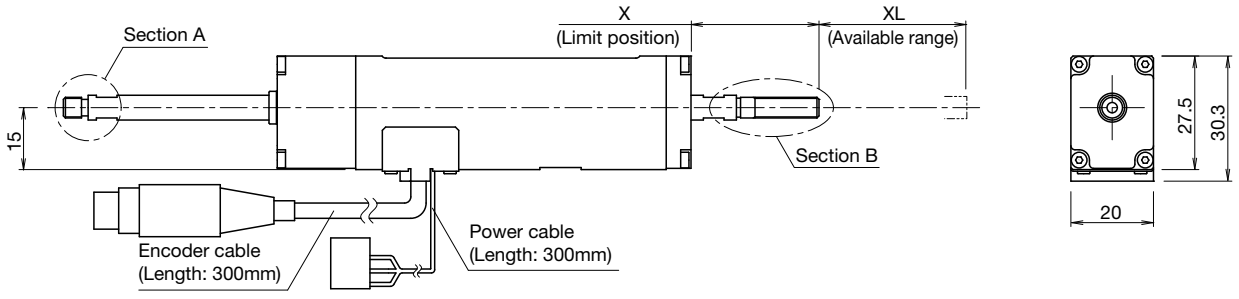
*1 Use beyond the limit position may cause damage.

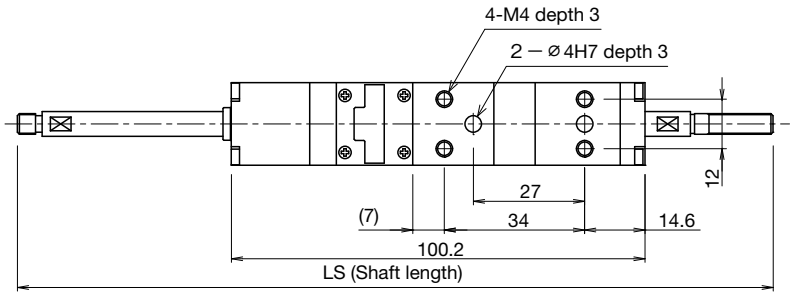
*2 For proximity sensor specifications, the available range may be narrower depending on the mounting position for the sensor dog. Contact THK for details.

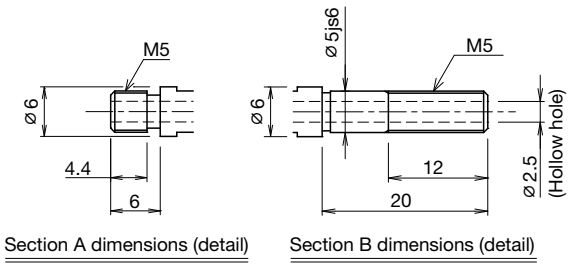
Note) Never remove the ball spline shaft.

RLT6

Dimensions



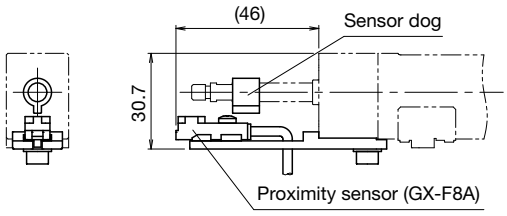




Section A dimensions (detail)

Section B dimensions (detail)

● With proximity sensor specifications



Motor type	XL*1*2 Available range [mm]	X*1 Limit position [mm]	LS Shaft length [mm]	Shaft weight [kg]	Main unit weight [kg]
RLT6	37.5	29.0	183	0.04	0.2

*1 Use beyond the limit position may cause damage.

*2 For proximity sensor specifications, the available range may be narrower depending on the mounting position for the sensor dog. Contact THK for details.

Note) Never remove the ball spline shaft.

Driver series

MD / XD / CD

Specifications

Type of machine	Model		MD		XD
	Capacity		10W		
	Appearance				
Input power supply	Main circuit		24V DC ±10%	48V DC ±10%	24V DC ±10%
	Control circuit		24V DC ±10%		
Control	Control axis		Single shaft		
	Control method		PWM control, sinusoidal wave driving system		
	Auto-tuning		–		
	Position detection	Detection system	Incremental		
		Input signal	Phase A + Phase B (sinusoidal wave)		
	Position control	Instruction system	Pulse train (code + pulse train/CCW + CW pulse train/90 deg. phase difference dual phase pulse train)		
		Input signal	Differential line driver (5V DC)		
		Frequency	5MHz (max)		
	FL mode*	Instruction system	I/O input		–
		Input signal	Photocoupler (24V DC)		–
Input/output	Position signal output		Phase A, Phase B, Phase Z		
	Dedicated input/output	Input point	6 points (servo ON, forward drive prohibited, reverse drive prohibited, alarm reset, instruction pulse blocked, and DB input)		2 points (servo ON, alarm reset)
		Output point	6 points (servo alarm, alarm code (3 bits), positioning completed and servo ready)		3 points (servo alarm, positioning completed, servo ready)
Communication	Serial communication	Communication software	PC software, D-Assist		
		Communication method	RS–232C		
		Port count	RJ-11 (6 poles/6 cores) × 1		
Functions	Functions	Display functions	7-segment LED (2 digits), charge LED and internal power supply LED × 5		7-segment LED (2 digits), charge LED and alarm LED
		Monitor functions	Analog monitor × 2		–
		Protective function	Motor overcurrent, main circuit overvoltage, motor overload, overdrive detection, and electric thermal, etc.		
Peripherals	Accessories		I/O connector (with case) and power supply cable		
	Option (Optional)	Integral	–		–
		External	PC communication cable (RJ-11⇔RS-232C)		
Environment	Operating/storage temperature		0 to 50°C (No freezing)/-20 to 85°C (No freezing)		
	Operating/storage humidity		90% RH or below (No condensation)		
	Ambient condition		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)		
Applicable standards	CE Marking		Low voltage directive: EN 61800-5-1 EMC directive: EN 61800-3		
	UL standard		–		–
Structure	Protection class		IP20		
	Weight		0.5kg		0.2kg

* FL mode (force control) is an option for the driver MD.

● Actuator correspondence table

Actuator \ Driver	MD		XD	CD	
	24V DC	48V DC	24V DC	24V DC	48V DC
CCR05	●		●		
CCR07					
CCM03	●				
CCM05	●	●	●	●	●
CCM07					
RLT4	●		●		
RLT6					

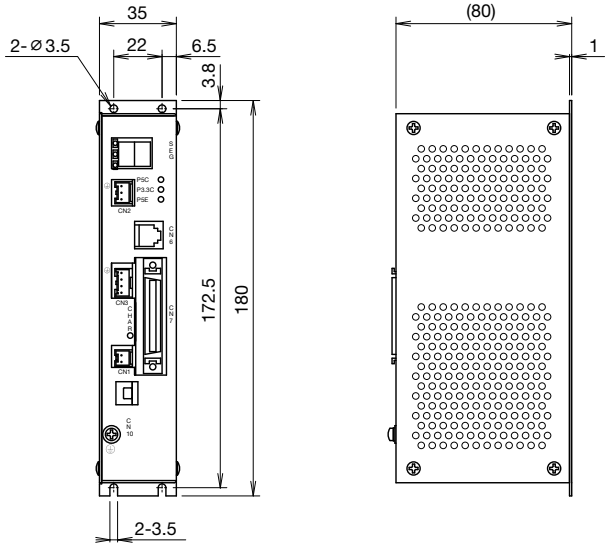
Type of machine	Model		CD	
	Capacity		10W	
	Appearance			
Input power supply	Main circuit		24V DC ±10%	48V DC ±10%
	Control circuit		24V DC ±10%	
Control	Control axis		4 shafts	
	Control method		PWM control, sinusoidal wave driving system	
	Auto-tuning		–	
	Position detection	Detection system	Incremental	
		Input signal	Phase A + Phase B (sinusoidal wave)	
	Position control	Instruction system	Pulse train (code + pulse train/CCW + CW pulse train/90 deg. phase difference dual phase pulse train)	
		Input signal	Differential line driver (5V DC)	
		Frequency	5MHz (max)	
	FL mode*	Instruction system	–	
		Input signal	–	
Input/output	Position signal output		–	
	Dedicated input/output	Input point	2 points (servo ON, alarm reset)	
		Output point	3 points (servo alarm, positioning completed, servo ready)	
Communication	Serial communication	Communication software	PC software, D-Assist	
		Communication method	RS–232C	
		Port count	RJ-11 (6 poles/6 cores) × 1	
Functions	Functions	Display functions	7-segment LED (3 digits) × 4 shafts	
		Monitor functions	–	
		Protective function	Motor overcurrent, main circuit overvoltage, motor overload, overdrive detection, and electric thermal, etc.	
Peripherals	Accessories		I/O cable, power supply cable and power conversion cable	
	Option (Optional)	Integral	–	
		External	PC communication cable (RJ-11⇔RS-232C)	
Environment	Operating/storage temperature		0 to 50°C (No freezing)/-20 to 85°C (No freezing)	
	Operating/storage humidity		90% RH or below (No condensation)	
	Ambient condition		Indoor (Free from direct sunlight, corrosive gas, flammable gas, oil mist, dust, water, oil and chemicals)	
Applicable standards	CE Marking		Low voltage directive: EN 61800-5-1 EMC directive: EN 61800-3	
	UL standard		–	
Structure	Protection class		IP20	
	Weight		1.1kg	

* FL mode (force control) is an option for the driver MD.

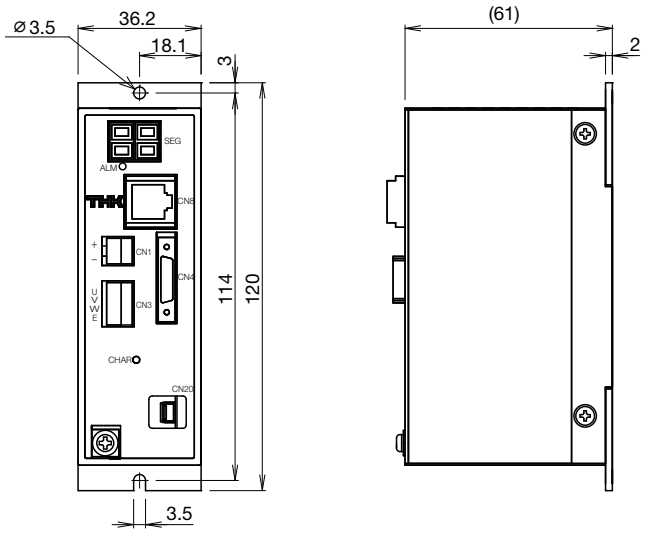
MD / XD / CD

Dimensions

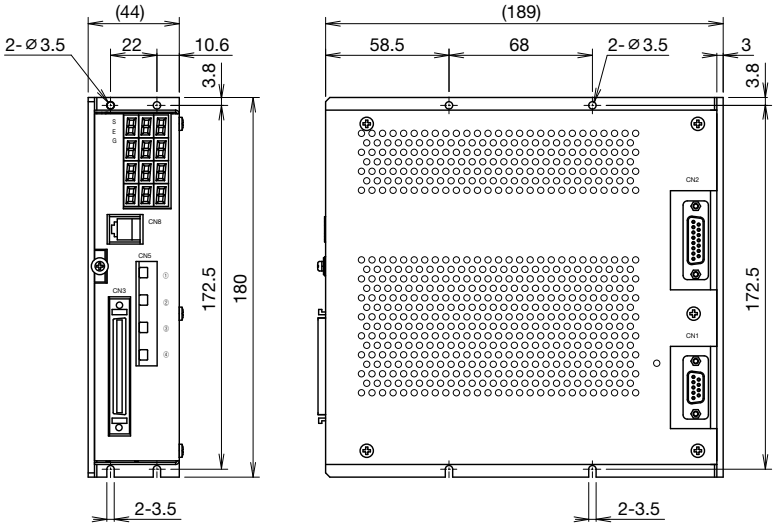
MD-001



XD-001

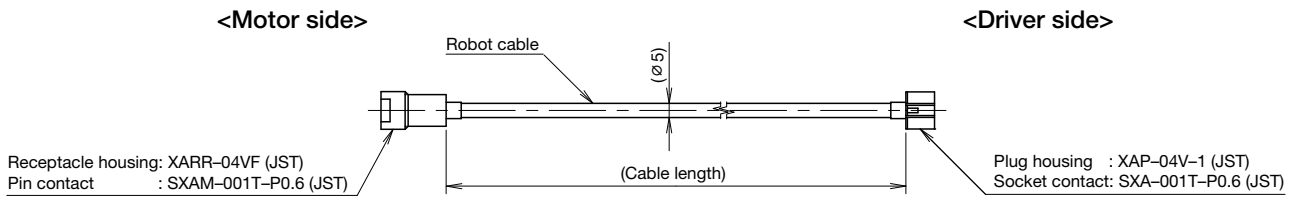


CD-001

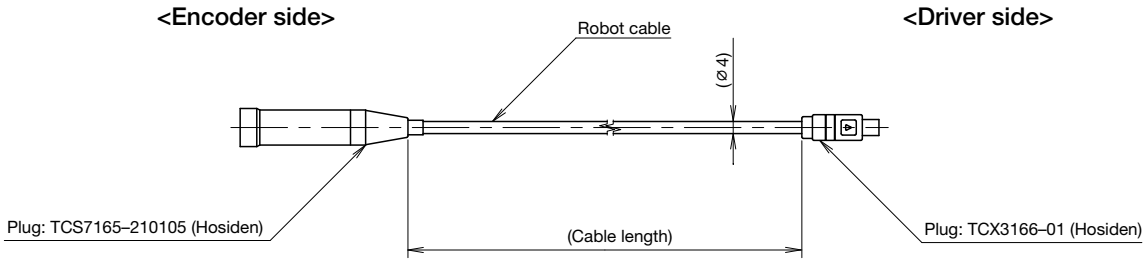


Optional

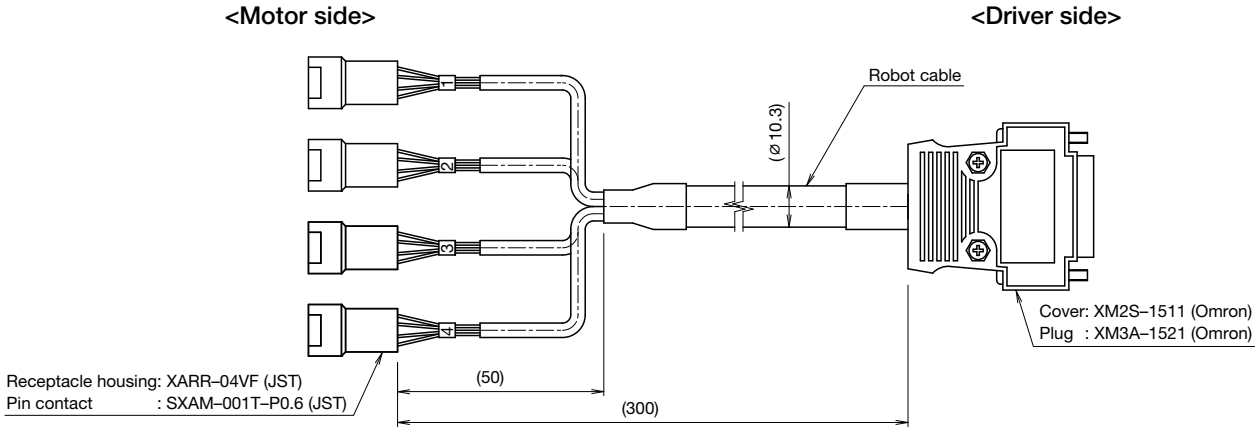
CCKD-∗∗: Power cable



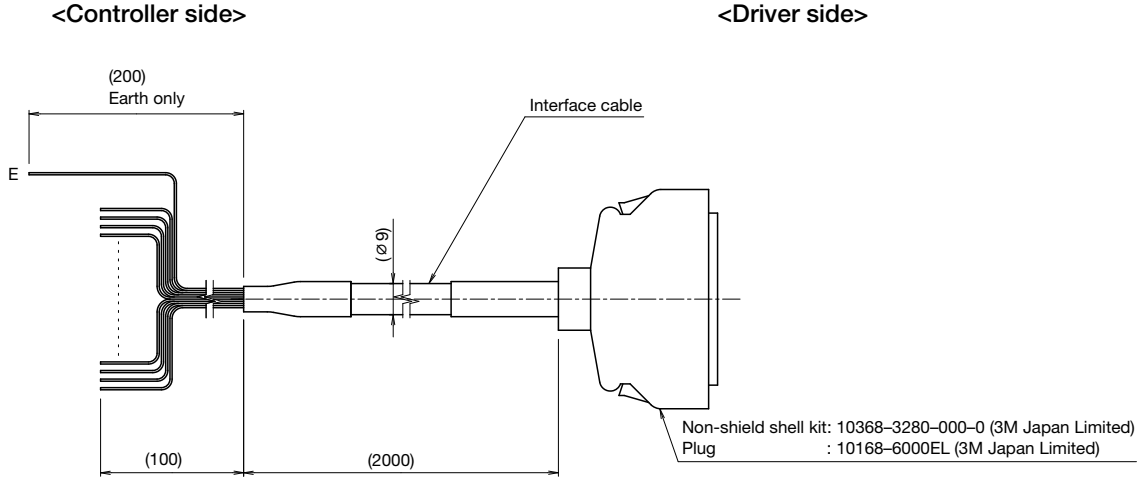
CCKE-∗∗: Encoder cable



CKDC-003: Power conversion cable (dedicated to driver CD)

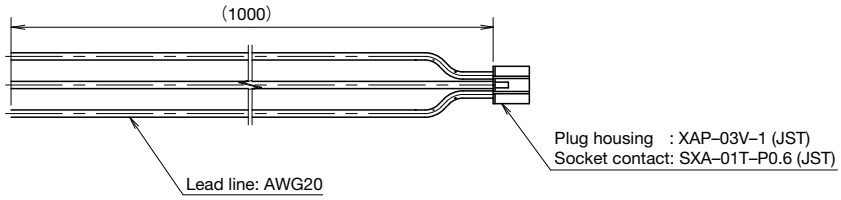


CKS-02: I/O cable (dedicated to driver CD)



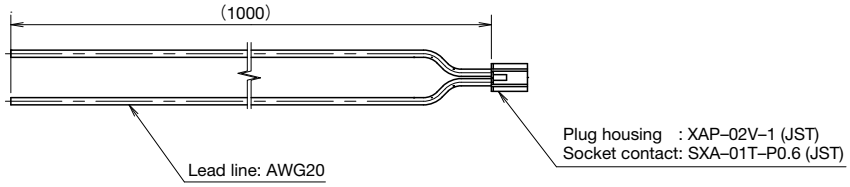
MKP24-01: Power supply cable (dedicated to driver MD)

<Driver side>



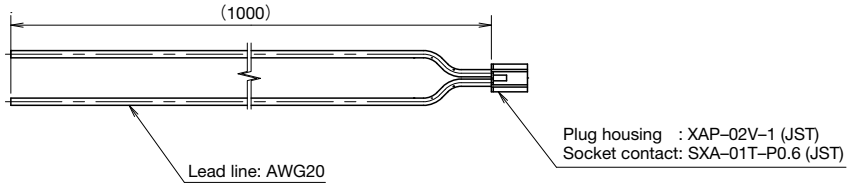
MKP48-01: Power supply cable (dedicated to driver MD)

<Driver side>



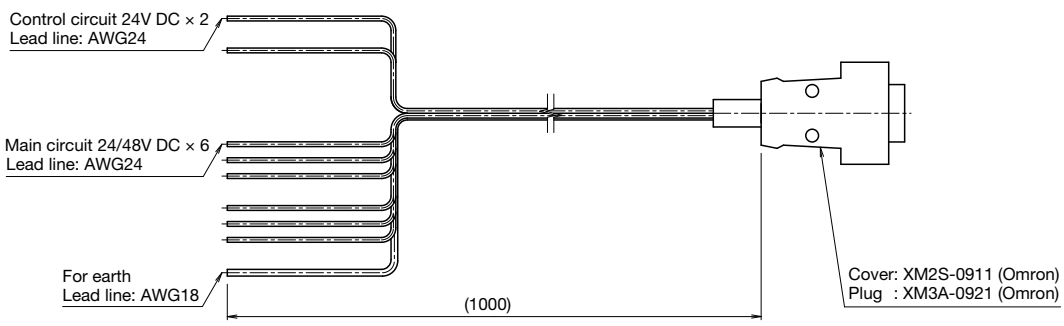
XKP24-01: Power supply cable (dedicated to driver XD)

<Driver side>



CKP-01: Power supply cable (dedicated to driver CD)

<Driver side>



Setup tool

To change parameters of driver MD, XD and CD, the PC software D-Assist is required.
To use D-Assist, contact THK.

PC software, D-Assist

Features

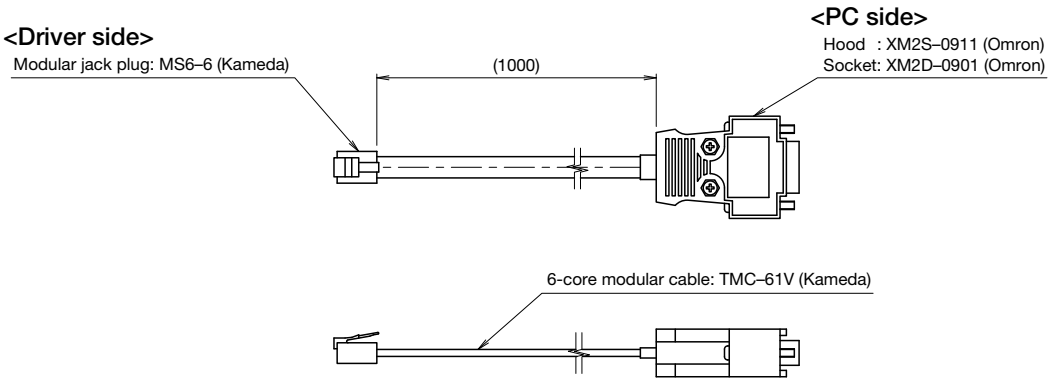
Easy setting on PC	You can set parameters on your PC.

Functions

- Check/change/write/save parameters
- Monitor (I/O, position, alarm, and effective load rating)
- Jog/inching operation
- Communication speed setting
- Supported OS: Windows XP, Windows 7 (32bit/64bit)

Note) To use D-Assist, an optional PC communication cable is required.

K232-01: PC communication cable RS-232C



Precautions on Use

Safety Precautions

- Take care not to drop or strike this product. Doing so may cause injury or damage the unit. If the product is dropped or impacted, functionality may be reduced even if there is no surface damage.
- Tilting the unit may cause the rod to fall by its own weight.
- Do not rework or disassemble this product. Doing so may allow foreign materials to enter or loss of functions. Reworking the rod section may cause the magnet to be spattered, resulting in human injury. Also this will cause the risk of electric shock from the driver.
- The warning labels are attached to the linear motor and driver.
- Do not place any ferromagnet material (especially metal objects) near the rod. As a strong magnet is packed in the rod, fingers may be pinched between the rod and a metal object due to the magnet force. In addition, those using a cardiac pacemaker must never come close to it.
- Do not touch the moving part of the linear motor while it is energized. In addition, do not enter the operating area of the linear motor while the product is operating or in the ready state.
- Before performing installation, adjustment, checking, or services regarding the linear motor, driver and the relevant connected equipment, make sure to remove all power plugs from the outlet and apply locking or safety plugs so that nobody else can turn on the power. Also display a signboard showing that the work is ongoing at a prominent place.
- If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.
- This product is not equipped with functions or devices to prevent falls of moving elements (rod) in servo-off state. When using this unit mounted vertically, please install a fall prevention device to prevent device damage caused by rod falls and ensure safety.
- Forcer surface may become very hot. When it is energized or after power off, perform any work after checking the forcer is sufficiently cooled.
- Do not measure the motor's insulation dielectric strength voltage as it is dangerous. It will cause the risk of electric shock.
- Read the manual carefully, understand the contents well, and strictly observe the safety precautions.

Environment

The wrong environment can cause failures of the linear motor and driver. The best place to use the product is as follows:

- For linear motor, an indoor location and ambient temperatures from 0 to 40°C, and humidity of 20 to 80%RH (no freezing or condensation).
- For driver, an indoor location and ambient temperatures from 0 to 50°C, and humidity of 90%RH or below (no freezing or condensation).
- A place free from corrosive gas and flammable gas.
- A place free from electrically conductive powder (such as iron powder), dust, oil mist, cutting fluid, moisture, salt, and organic solvent.
- A place free from direct sunlight and radiant heat.
- A place free from strong electric and magnetic fields.
- A place where vibration or impact is not transmitted to the unit.
- A place that is easily accessible for service and cleaning purposes.

Storage

- When storing the unit, enclose it in a package designated by THK and store it in a horizontal orientation in a place with power off and without condensation while avoiding high temperature, low temperature and high humidity.

THK CO., LTD.

Head Office 3-11-6 Nishigotanda, Shinagawa-ku, Tokyo 141-8503 JAPAN
International Sales Department Phone:+81-3-5434-0351 Fax:+81-3-5434-0353
Global site : http://www.thk.com/

NORTH AMERICA
THK America,Inc.
●HEADQUARTERS
Phone:+1-847-310-1111 Fax:+1-847-310-1271
●CHICAGO OFFICE
Phone:+1-847-310-1111 Fax:+1-847-310-1182
●NORTH EAST OFFICE
Phone:+1-631-244-1565 Fax:+1-631-244-1565
●ATLANTA OFFICE
Phone:+1-770-840-7990 Fax:+1-770-840-7897
●LOS ANGELES OFFICE
Phone:+1-949-955-3145 Fax:+1-949-955-3149
●SAN FRANCISCO OFFICE
Phone:+1-925-455-8948 Fax:+1-925-455-8965
●DETROIT OFFICE
Phone:+1-248-858-9330 Fax:+1-248-858-9455
●TORONTO OFFICE
Phone:+1-905-820-7800 Fax:+1-905-820-7811

SOUTH AMERICA
THK BRAZIL INDUSTRIA E COMERCIO LTDA.
Phone:+55-11-3767-0100 Fax:+55-11-3767-0101

EUROPE
THK GmbH
●EUROPEAN HEADQUARTERS
Phone:+49-2102-7425-555 Fax:+49-2102-7425-556
●DÜSSELDORF OFFICE
Phone:+49-2102-7425-0 Fax:+49-2102-7425-299
●STUTTGART OFFICE
Phone:+49-7141-4988-500 Fax:+49-7141-4988-888
●U.K. OFFICE
Phone:+44-1384-47-1550 Fax:+44-1384-47-1551
●ITALY OFFICE
Phone:+39-02-9901-1801 Fax:+39-02-9901-1881
●SWEDEN OFFICE
Phone:+46-8-445-7630 Fax:+46-8-445-7639
●AUSTRIA OFFICE
Phone:+43-7229-51400 Fax:+43-7229-51400-79
●SPAIN OFFICE
Phone:+34-93-652-5740 Fax:+34-93-652-5746
●TURKEY OFFICE
Phone:+90-216-362-4050 Fax:+90-216-569-7150
●PRAGUE OFFICE
Phone:+420-2-41025-100 Fax:+420-2-41025-199
●MOSCOW OFFICE
Phone:+7-495-649-80-47 Fax:+7-495-649-80-44
THK Europe B.V.
●EINDHOVEN OFFICE
Phone:+31-040-290-9500 Fax:+31-040-290-9599
THK France S.A.S.
●PARIS OFFICE
Phone:+33-1-7425-3800 Fax:+33-1-7425-3799

CHINA
THK (CHINA) CO.,LTD.
●HEADQUARTERS
Phone:+86-411-8733-7111 Fax:+86-411-8733-7000
●SHANGHAI OFFICE
Phone:+86-21-6219-3000 Fax:+86-21-6219-9890
●BEIJING OFFICE
Phone:+86-10-8441-7277 Fax:+86-10-6590-3557
●CHENGDU OFFICE
Phone:+86-28-8526-8025 Fax:+86-28-8525-6357
●GUANGZHOU OFFICE
Phone:+86-20-8523-8418 Fax:+86-20-3801-0456
●SHENZHEN OFFICE
Phone:+86-755-2642-9587 Fax:+86-755-2642-9604
●XIAN OFFICE
Phone:+86-29-8834-1712 Fax:+86-29-8834-1710
THK (SHANGHAI) CO.,LTD.
Phone:+86-21-6275-5280 Fax:+86-21-6219-9890

TAIWAN
THK TAIWAN CO.,LTD.
●TAIPEI HEAD OFFICE
Phone:+886-2-2888-3818 Fax:+886-2-2888-3819
●TAICHUNG OFFICE
Phone:+886-4-2359-1505 Fax:+886-4-2359-1506
●TAINAN OFFICE
Phone:+886-6-289-7668 Fax:+886-6-289-7669

KOREA
SEOUL REPRESENTATIVE OFFICE
Phone:+82-2-3468-4351 Fax:+82-2-3468-4353

SINGAPORE
THK LM System Pte. Ltd.
Phone:+65-6884-5500 Fax:+65-6884-5550

THAILAND
THK RHYTHM(THAILAND) CO., LTD. LM System Division
●Bangkok Branch
Phone:+66-2751-3001 Fax:+66-2751-3003

INDIA
THK India Pvt. Ltd.
●HEADQUARTERS & Bangalore Branch
Phone:+91-80-2340-9934 Fax:+91-80-2340-9937
●Pune Branch
Phone:+91-20-4120-8742