LCMR200

Product Lineup

reddot winner 2021

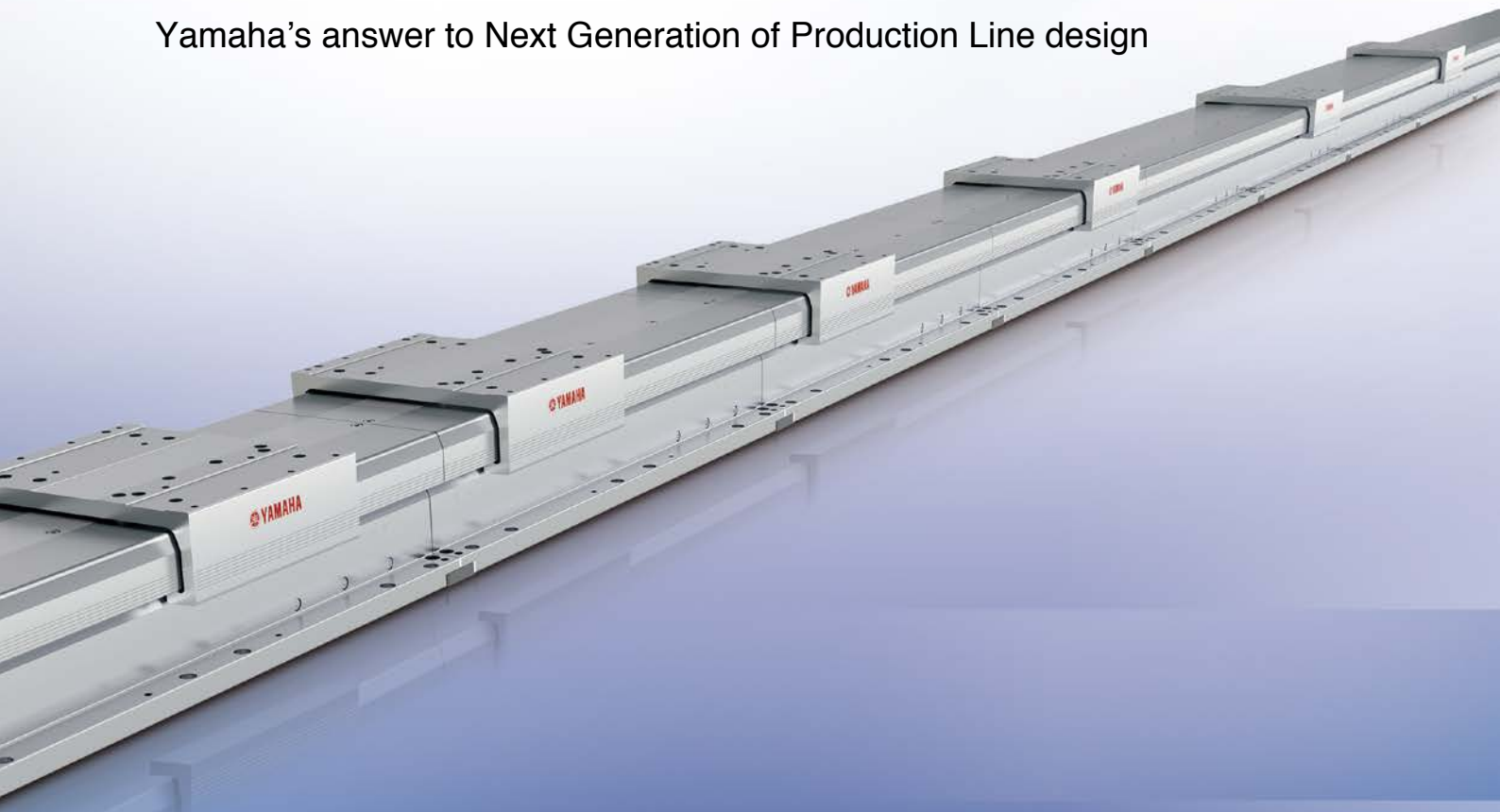
DESIGN AWARD 2021

LCM100 is introduced on another page. ▶ P.28

LINEAR CONVEYOR MODULES

Efficiency of time and space in production

Yamaha's answer to Next Generation of Production Line design

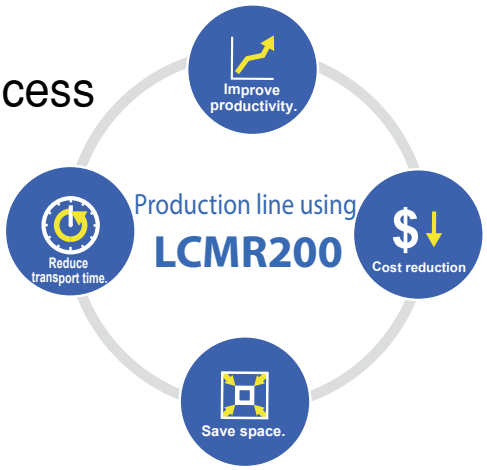


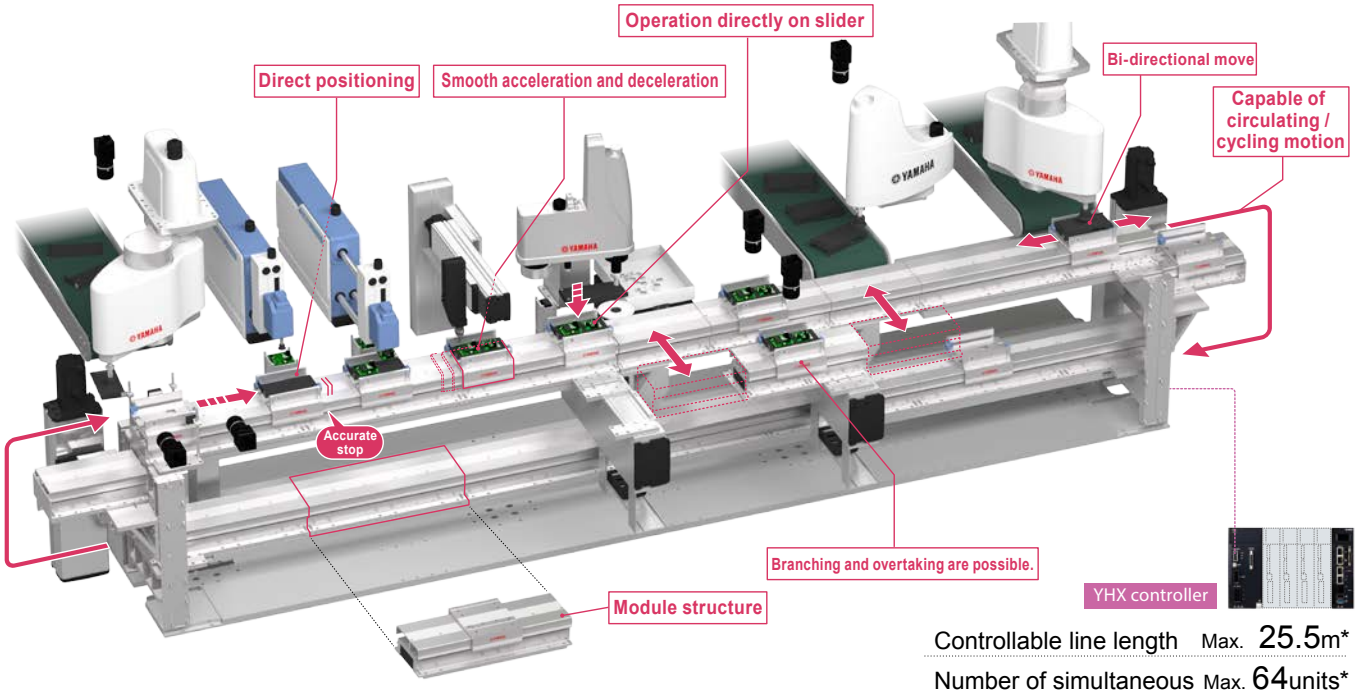
Linear conveyor module LCMR200

Note. As the figure shown above illustrates CG images, they are different from the actual product.

Adding productivity to the transportation process

Convert transfer processes into “value-added” assembly processes.





Controllable line length Max. 25.5m*

Number of simultaneous controllable sliders Max. 64units*

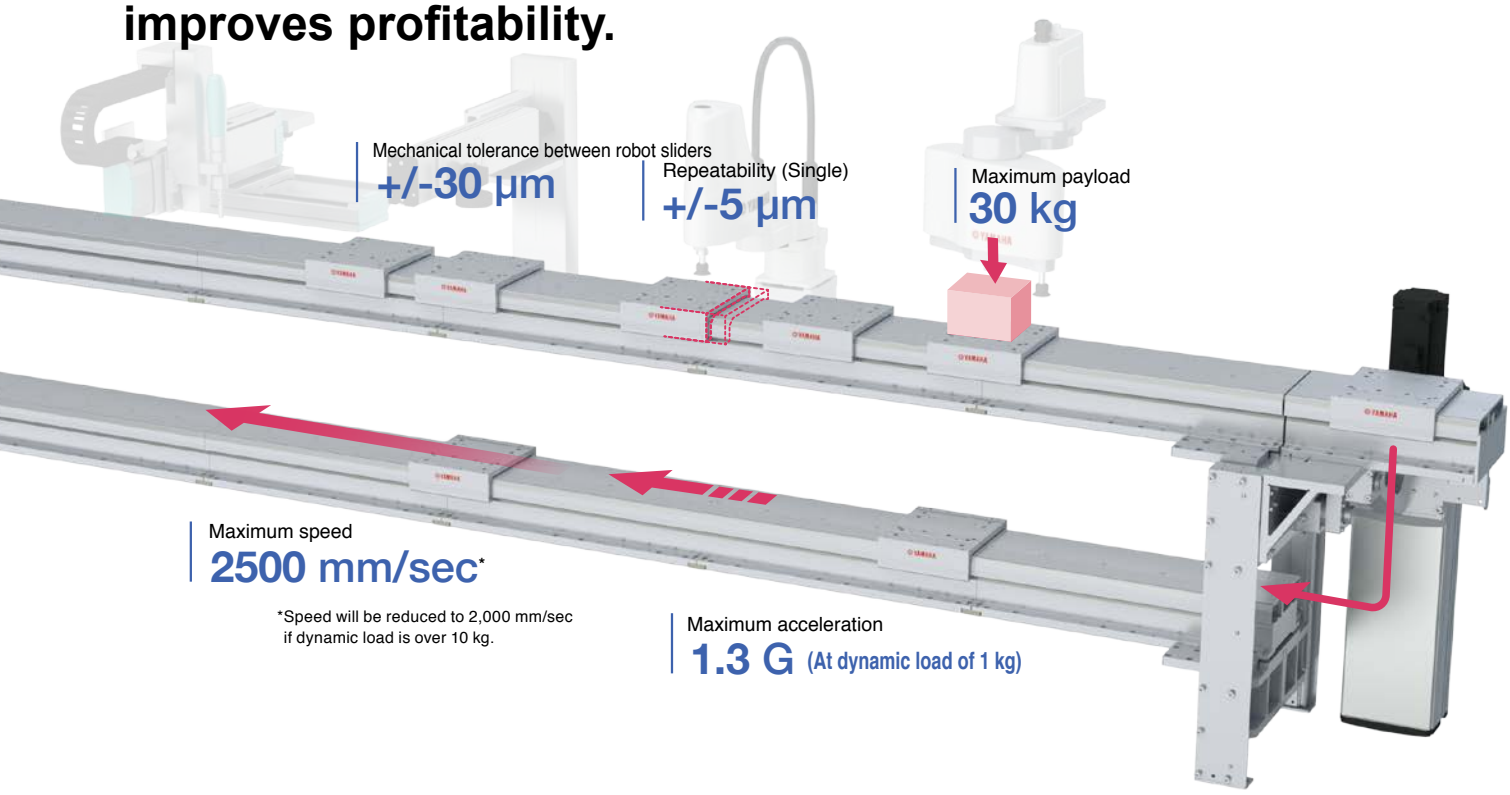
* It may differ depending on the system configuration.

Advanced linear conveyor module with high speed transport.

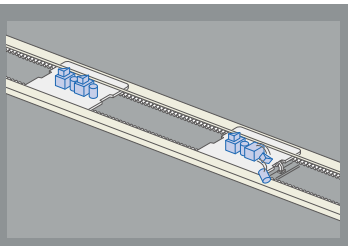
- Able to perform narrow pitch and high speed transport.
- Individual ID recognition.
- Complete absolute position system. No origin process needed.
- Built-in driver and reduced wiring.

- ➤ Reduction of Tact Time in transportation
- ➤ Improved Productivity
- ➤ Flexibility in line design
- ➤ Reduces line design time
- ➤ Easy maintenance
- ➤ Space saving design
- ➤ Low operation cost
- ➤ Durability

From ordinary “passive flow” to “active position transport”. By converting conveyor flow into active production process improves profitability.

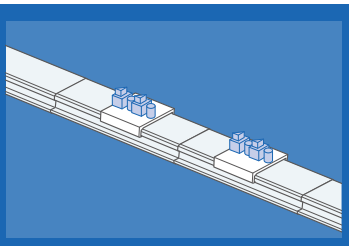


Thorough comparison of LCMR200 and conventional conveyor



Conventional type conveyors

- Mechanical stoppers or sensors are required at each stop position.
- Complicated control due to various conveyor components.
- Stopper adjustments are required each time the stop position is changed.
- Fixed productivity rate.
- Various adjustments required



LCMR200

- Direct driving of the slider.
- Stop positions are controlled with position data in program.
- No mechanical stoppers or external sensors required.
- Maximum speed of 2.5 m/sec for better transfer time.
- Adjustable transfer speed for total line flow coordination.
- Actual task times can be easily monitored.

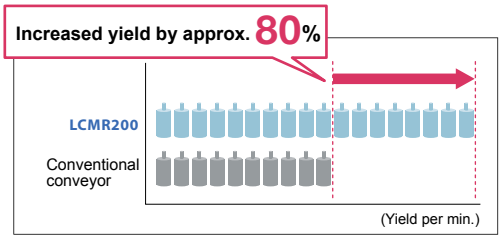
Speed control	△	Same speed required on entire conveyor	◎	Able to specify the speed and acceleration speed individually
Operation control	×	One (fixed) direction	◎	Bi-directional and distance can be set individually for each carriage
Travel / Stops	×	Physical impact at mechanical stop	◎	Smooth servo-controlled acceleration, deceleration, and incremental move
Number of system components	×	Stopper or sensor required at each stop position	◎	No mechanical components required for stop position
Accuracy	△	Additional support is required to increase accuracy	◎	Mechanical tolerance between sliders (between total sliders) +/- 30 µm
Rigidity	△	Additional support is required to ensure rigidity	○	Assembly work can be performed directly on carriage supported by high-rigidity guides
Line flow changes	×	Requires stopper adjustments at each line flow change	◎	Simple modification of line layout by modular design. Stop position can be changed in program
Footprint	△	Certain space is required	◎	Space saving design

Superior performance that improves the transfer environment.

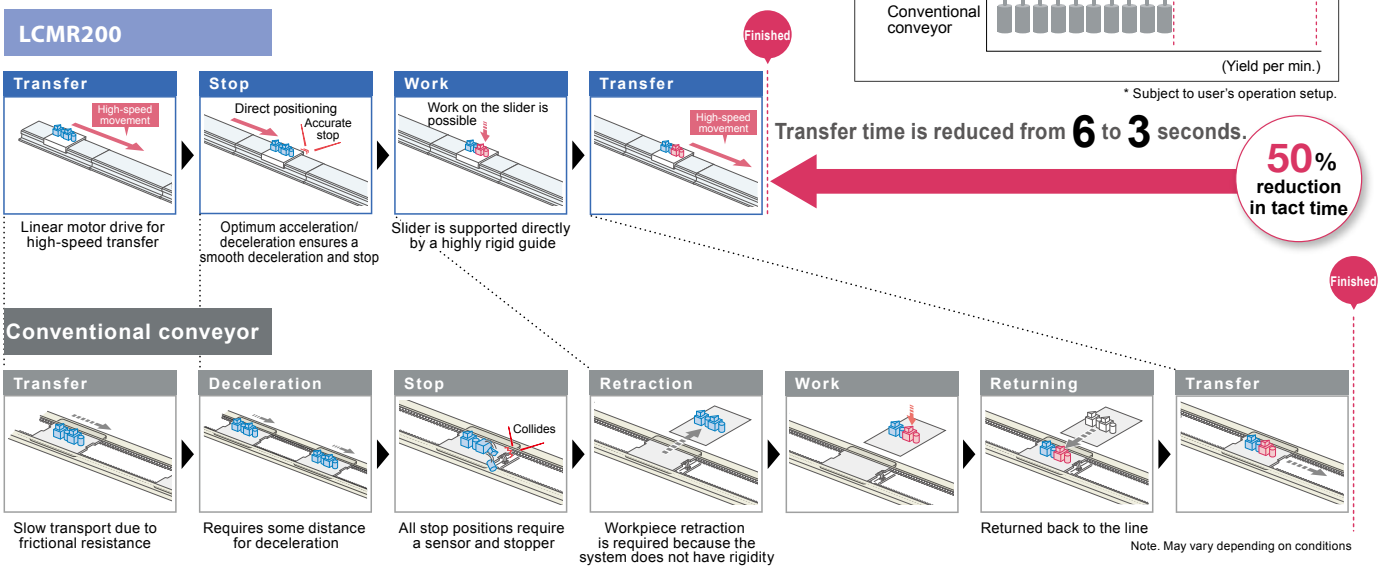
POINT 1

Transfer time is shortened to increase the production volume.

● Comparison between LCMR200 and a conventional conveyor



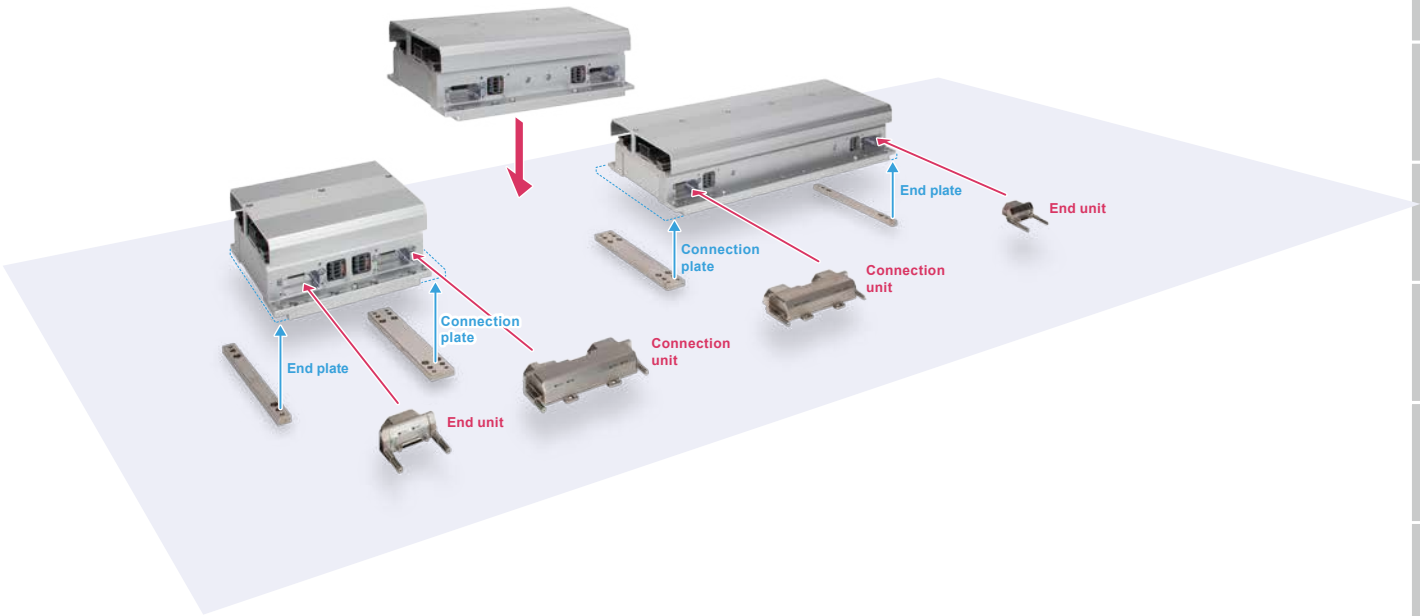
* Subject to user's operation setup.



POINT 2

Easy modular connection with Connecting Plate and Connecting Unit

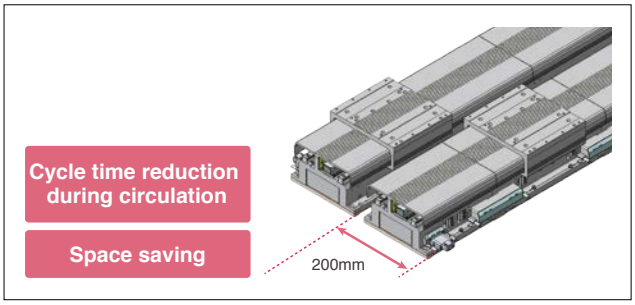
Mechanical connection by Connecting Plate and signal communicating by Connecting Unit. Simple yet, secured connecting method of modular system.

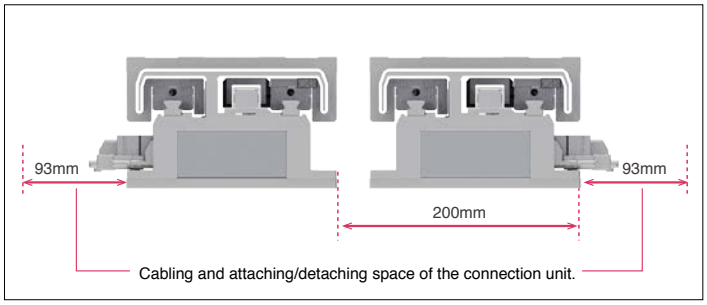


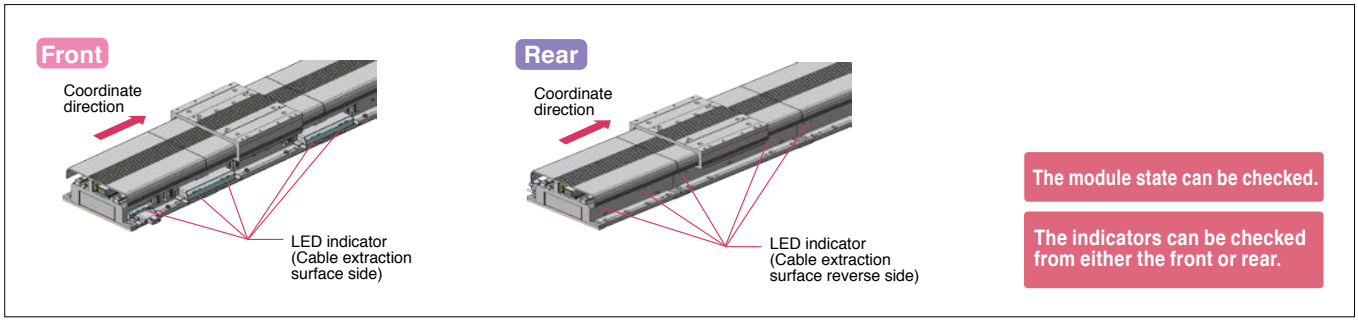
POINT 3

Saves space through proximity installation of forward and returning modules <Cable extraction direction can be selected Front Rear >

Since the cable extraction direction of a module can be selected, the degree of freedom in electrical wiring is improved when installed on the equipment. In particular, when the cable extraction direction is reversed on the forward and returning modules in the horizontal circulation layout, the module pitch can be made close to the shortest level of 200 mm. This can shorten the cycle time and reduce the installation space during circulation. In addition, the LED indicators that show the module state can be visually checked from both the front and rear sides of the module.



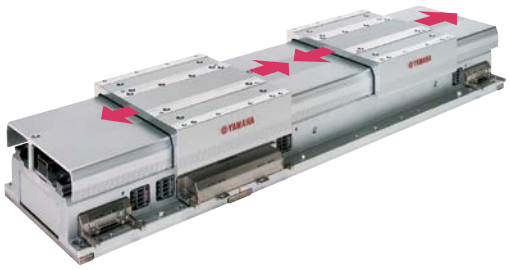




POINT 4

All the sliders can be operated / programmed independently.

Speed and acceleration can be programmed by each move.
All carriages can be controlled individually.



POINT 5

Top enclosure design for protection.

Top enclosure was designed to protect the internal mechanism from any fallen object during line setup process.

POINT 6

Mechanical tolerance between sliders +/-30 µm (Dowel hole standard)

Due to tis machined accuracy, each carriage has own tolerance at one stopping point, however, LCMR200 can limit the slide machine difference to +/-30 µm, and is suitable for high precision process. As RFID, etc. is not necessary, cost reduction is possible.

POINT 7

No origin process needed

Newly developed high-precision full-range absolute server eliminates the need for return-to-origin. The operation can be started and stopped easily, so there is no time loss even when starting or restarting.

High acceleration rate

High speed motion between an extremely short distance is possible even in a high density process or pitch feed.

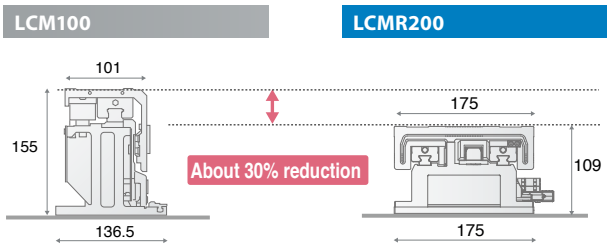
Recognize slider's individual IDs

All sliders can be identified when the power is applied.

POINT 8

Low profile structure

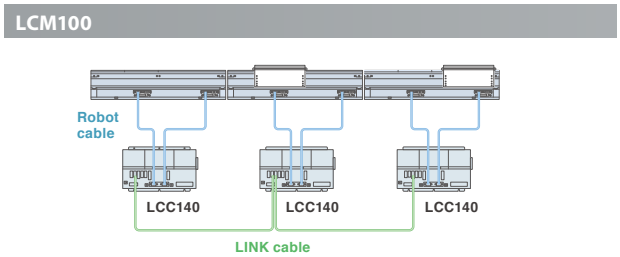
By adopting a newly developed linear motor, the module height is approx. 30 % down compared to LCM100. The space under the frame can be effectively utilized.

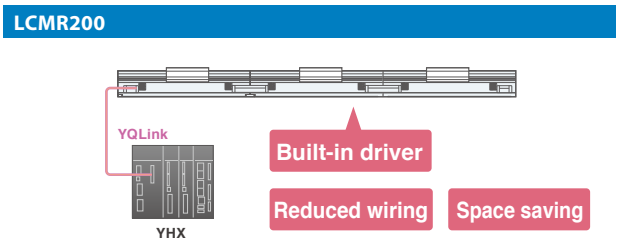


POINT 9

Built-in driver saves electrical wiring

Motor driver is incorporated inside module and entire LCMR200 is controlled by YHX controller through YQLink cable. It also contributes to space saving inside the control panel.





POINT 10

Concentrated control by the YHX controller

Including the operation environment, all sliders and single-axis robots on the transfer process can be controlled.

POINT 11

Simple control with the standard profile

According to the commands from the host PLC, it adopts a simple control method that operates the sliders and single-axis robots as positioners

Features of YHX standard profile

- **Eliminates writing ladder logic codes.**
- **Adding operation through a pendant.**
- **Perform simple direct value operation and specific point-to-point move.**
- **Servo ON of any slider individually.**
- **Obtain alarm information through the host PLC.**

Versatile and value added transport between work process.

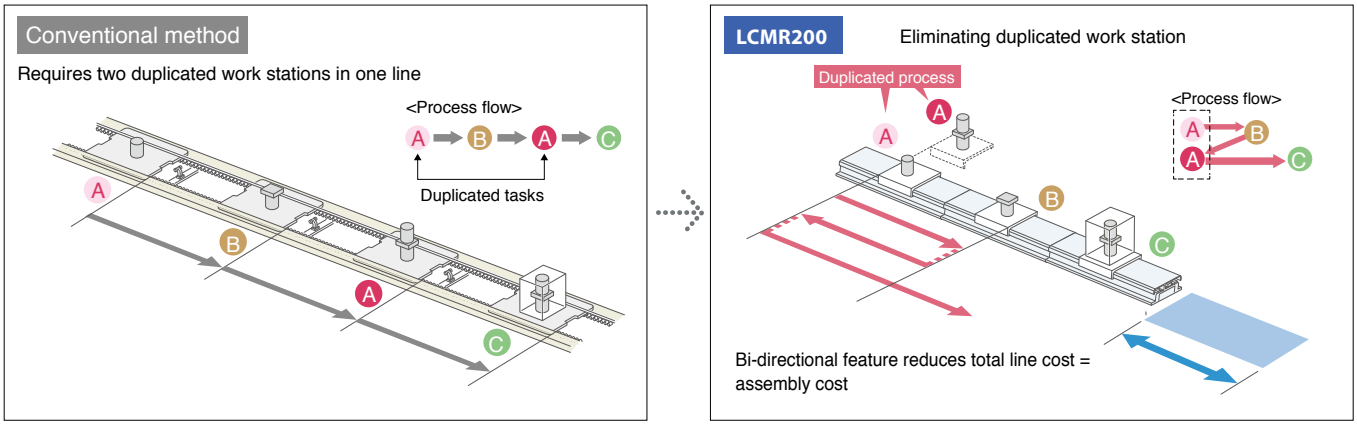
Improve cycle time and reduce line floor space.
Increase productivity and cost performance.

POINT 12

Direct drive | Slider backward travel

Process sharing

- Carriage is bi-directional and one work station can perform more than one task. Saving total line cost and floor space.
- High speed bi-directional move and simultaneous independent operation of multiple carriages.

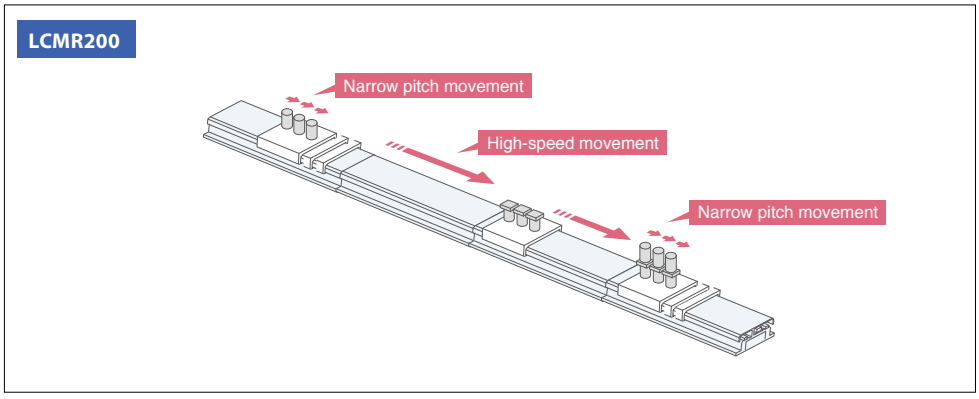


POINT 13

Direct drive | Narrow pitch operation

Variable speed control between work stations.

- Servo controlled direct drive eliminates mechanical stoppers and position sensors.
- Simple position setting by entering point data in a program.
- Flexibility in setup for production lot change
- Saving flow time by narrow pitch incremental move and high speed move.

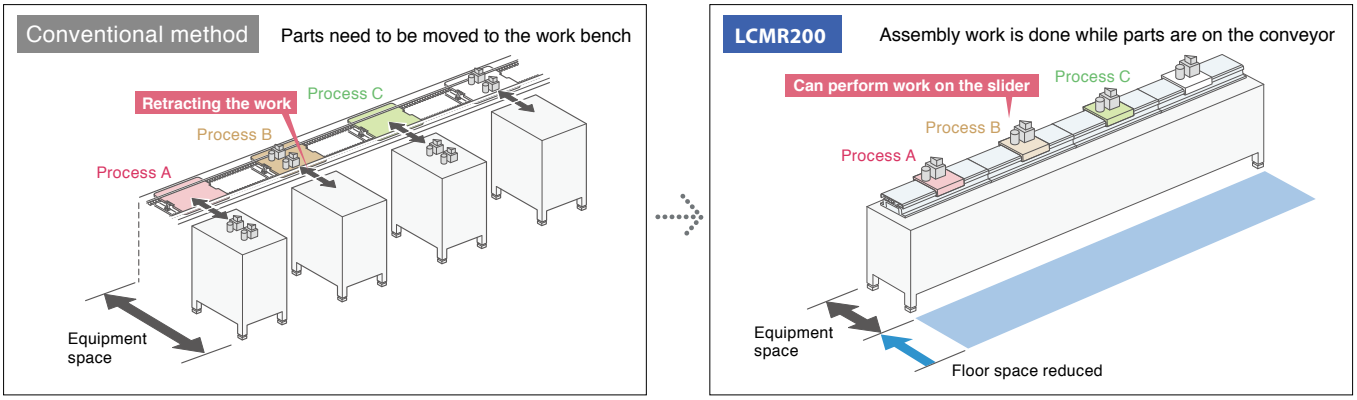


POINT 14

Highly rigid guide

Assembly can be done while parts are on the conveyor.

- The highly rigid guide enables assembly and processing on the transport line.
- No need to reposition parts to/from conveyor. Floor line space is reduced substantially.



POINT 15

Easily serviceability = Easy troubleshooting

- Covered structure of module keeps internal mechanism free from foreign objects.
- The environment-resistant magnetic sensor is resilient to contamination.
- Easy positioning with no precision setting.
- Non-contact motor and linear scale design eliminates mechanical wearing.
- Low particle generation (only mechanical contact is guide rail)
- Standardized components reduce spare parts SKU.
- Parts can be replaced easily.
- Operation can be restored just by replacing the slider or linear module, and the manufacturing line down time can be kept to a minimum.

Sleek and simple configuration. Simplified line design process with flexibility and efficiency by a modular concept.

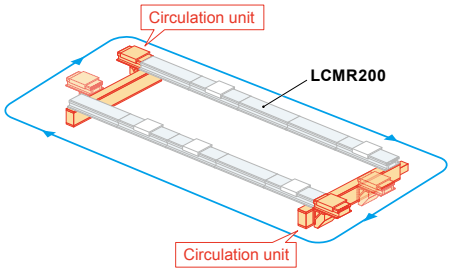
All carriages and peripheral linear robots can be controlled by the PLC through one YHX controller.

POINT 16

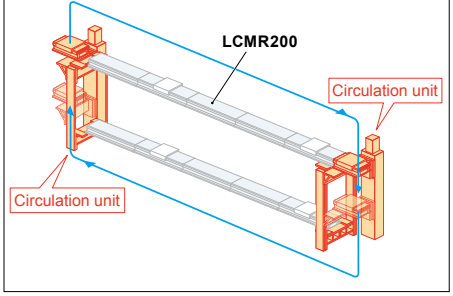
- Layout example with a combination of the module and circulation unit.

Example of a layout using the circulation unit

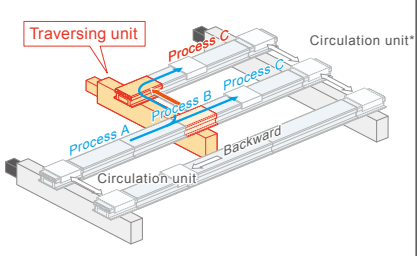
Horizontal circulation example



Vertical circulation example



Example of a layout using the traversing unit



* Circulation unit for 3-row line is a special order product.

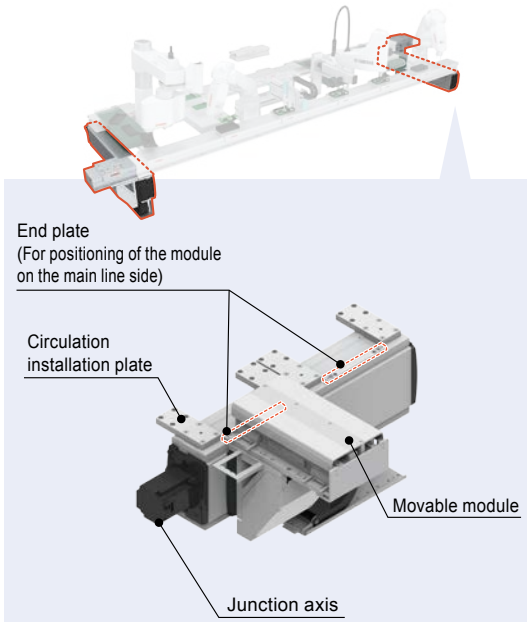
Circulation unit

Circulation units are available as standard.
Because the circulation units are manufacturer's standard products, the stable operation of the production line is achieved without worrying about module "deviation". Furthermore, you can also save time and effort in design.

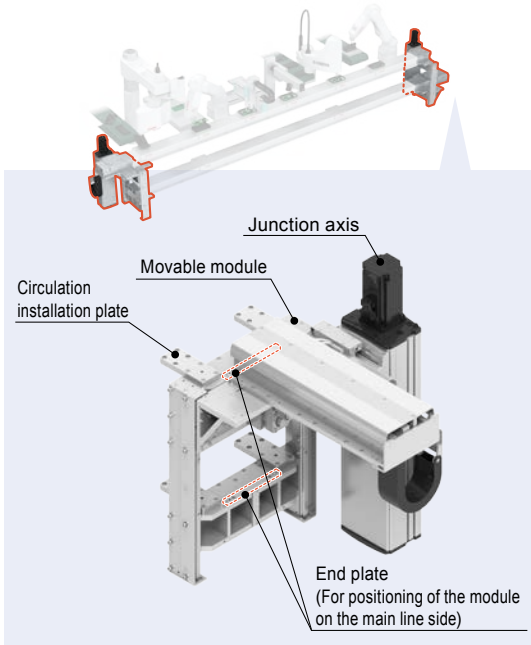
YAMAHA genuine circulation unit

YAMAHA genuine circulation units achieve the stable operation of the production line.

Horizontal circulation unit JGX16-H



Vertical circulation unit JGX16-V



Traversing unit

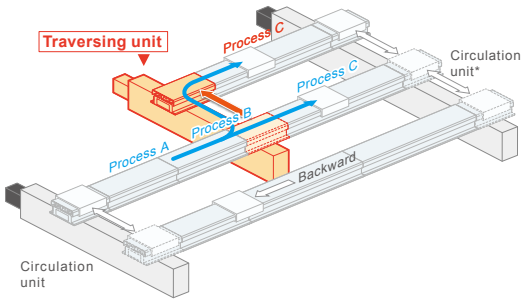
This unit can branch the production line or pass the process.
Improvement and high efficiency of the production line capacity can be achieved.

Traversing unit

- **Bottleneck process is resolved to improve the throughput.**
- **Sampling inspection and workpiece correction can be performed without stopping the line.**

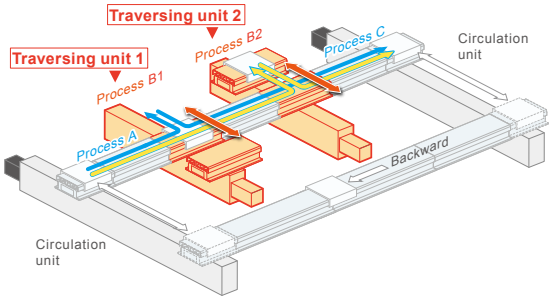
Traversing unit JGX16-T

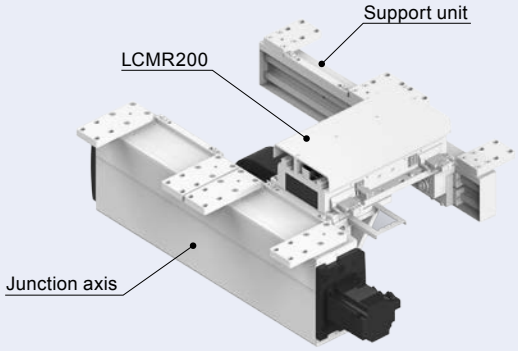
Branching specifications



* Circulation unit for 3-row line is a special order product.

Retracting specifications





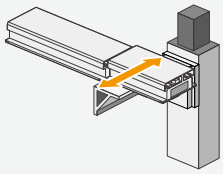
POINT 1

Measures against “deviation” necessary to maintain the accuracy are taken thoroughly.

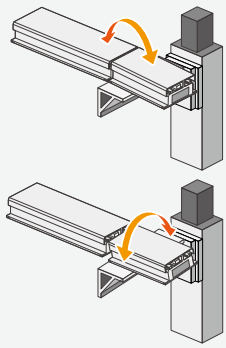
Maintaining the accuracy is very important for transfer sections, but is not easy since a “deviation” may occur.
Use of YAMAHA genuine circulation units makes it possible to eliminate such “deviation” and maintain the accuracy.

Concerns about "deviation" due to temperature or motor heat, etc.

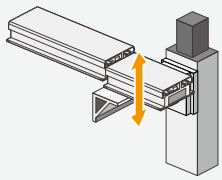
Horizontal deviation



Torsion deviation

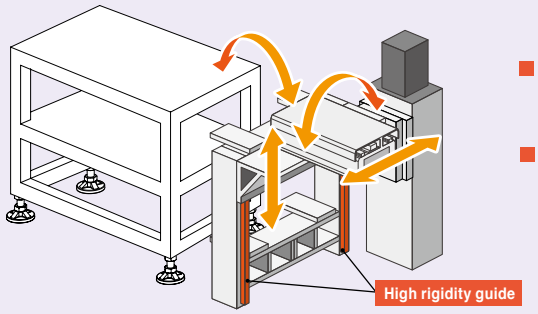


Vertical deviation



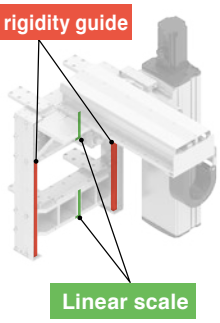
YAMAHA genuine circulation unit

Restricted by two high rigidity guides. Torsion deviation and horizontal deviation are eliminated.

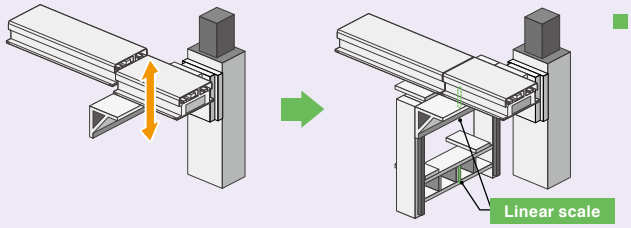


- Circulation module moves along the guide.
- Torsion deviation or horizontal deviation of the transfer section is restricted by two guides.

High rigidity guide



Corrected by the linear scale. Vertical deviation is eliminated.



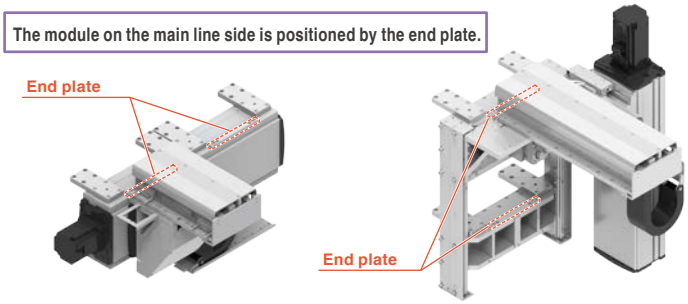
- Positioning is performed by the full closed loop system using the linear scale arranged near the transfer section to correct effects due to thermal elongation of the ball screw, etc.

POINT 2

Easy adjustment

The adjustment has been performed before shipment from the factory. After the product has arrived, the adjustment is completed in a short time by simply attaching the module to the equipment based on the end plate and performing the teaching.

The module on the main line side is positioned by the end plate.



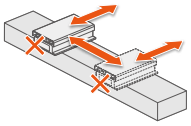
POINT 3

About Traversing unit

Circulation unit

- **One module moves.**
- **The slider can access from only one side of the module.**

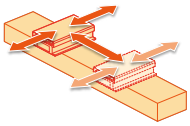
This figure shows that the slider can access from only the right side.

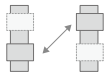


The slider cannot access from the left side of the module.

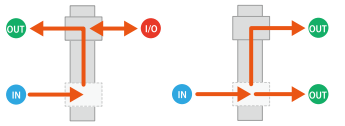
Traversing unit

Accessible from both sides of the module





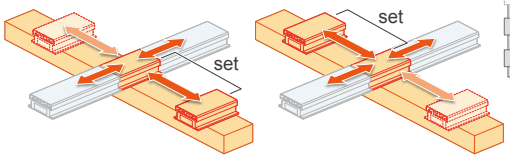
Basic movement pattern

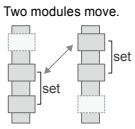


The lower side is only IN. The upper side is IN/OUT and OUT (IN: 2/OUT: 2).

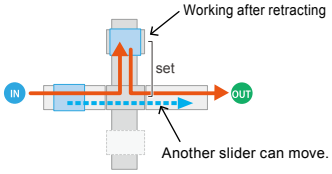
Pattern with different left and OUT positions (IN: 1/OUT: 2).

Two modules can also be installed.





Basic movement pattern



Usage example

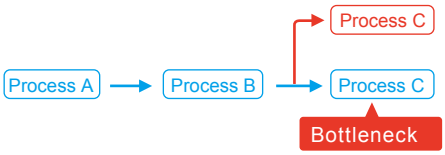
Bottleneck is resolved. **The production volume is improved by parallelizing processes that inevitably take time.**

■ Bottleneck is resolved./Multiple models are supported.

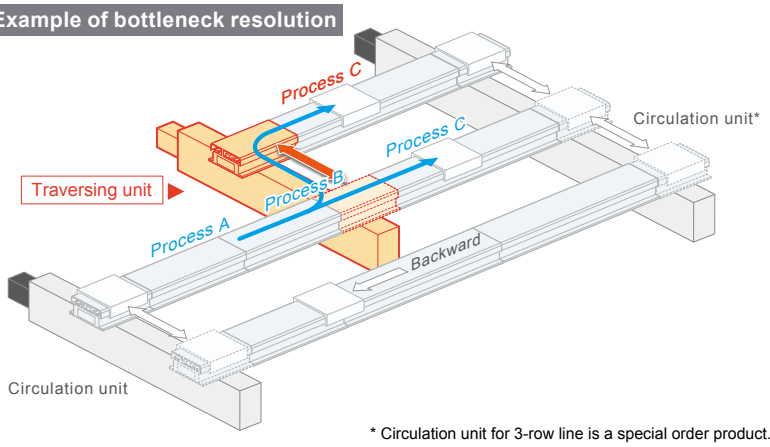
"Improvement of specific process capacity" and "Distribution of line by model" are achieved by branching.

Example of bottleneck resolution

Process C is parallelized to resolve the bottleneck.



Example of bottleneck resolution

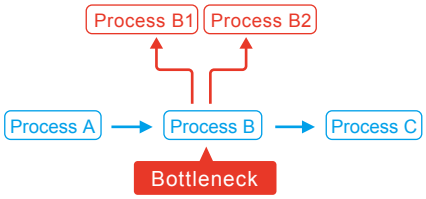


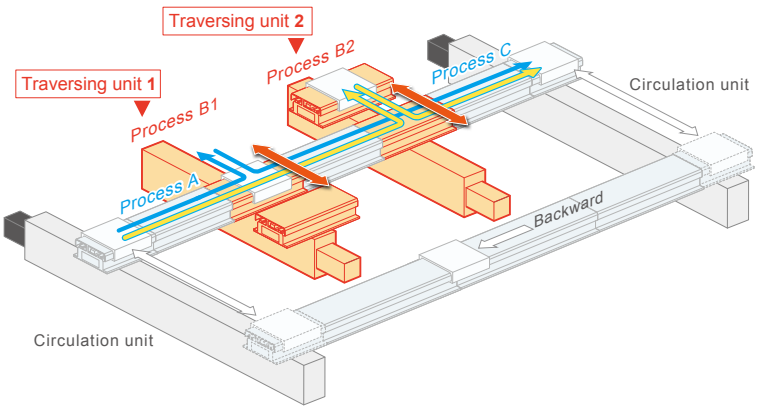
* Circulation unit for 3-row line is a special order product.

■ Bottleneck is resolved.

Passing the slider resolves the bottleneck.

Arranging multiple processes B and passing the working slider resolve the bottleneck.





Sampling inspection/correction

The production volume can be maintained while reducing losses.

■ Correction

NG product delivery ⇒ Correction ⇒ Inspection.
"Production line without waste" is achieved.

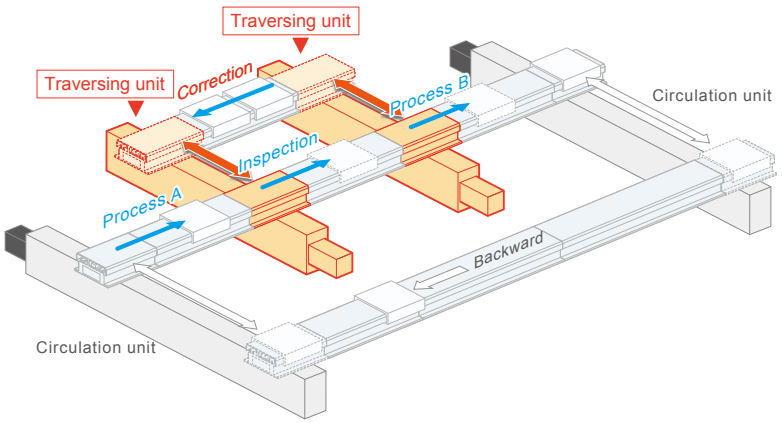
OK product

Process A → Inspection → Process B

Correction

Correction
Process A → Inspection → Process B

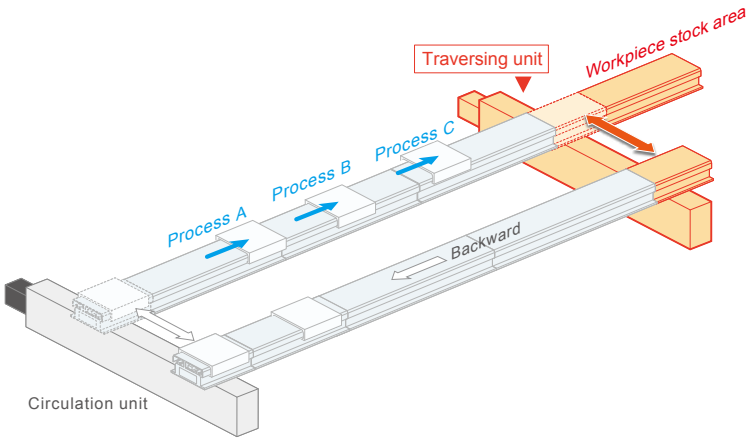
- Workpiece is retracted to the correction area according to the inspection results.
- Workpiece is returned to before the inspection process again after completion of the correction.



■ Sampling inspection/correction <Workpiece to be sampled needs to be extracted onto an extension of the line.>

When the jig pallet may be defective, it can be delivered and replaced immediately.
Production line that continuously manufactures OK products is achieved.

Process A → Process B → Process C
↓
Workpiece stock area



■ Sampling inspection/correction

Workpieces can be delivered to the workpiece stock area for sampling and correction.
Line that can be handled at a convenient timing on site is achieved.

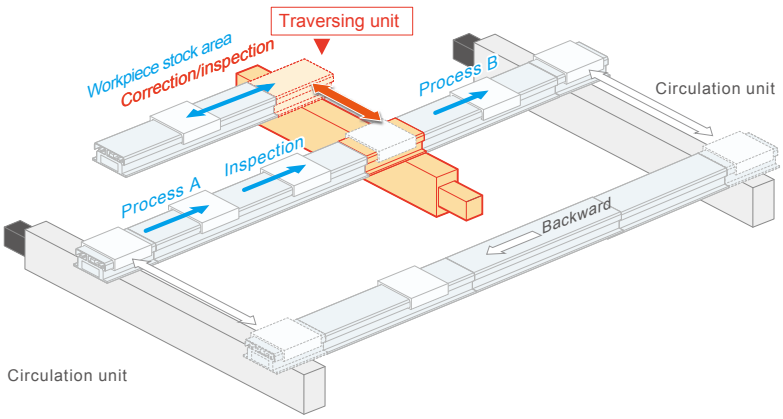
OK product

Process A → Inspection → Process B

Correction

Process A → Inspection → Correction/inspection

- Workpiece is retracted to the correction area according to the inspection results.
- Workpiece to be used for the sampling inspection is pulled out by the traversing unit.



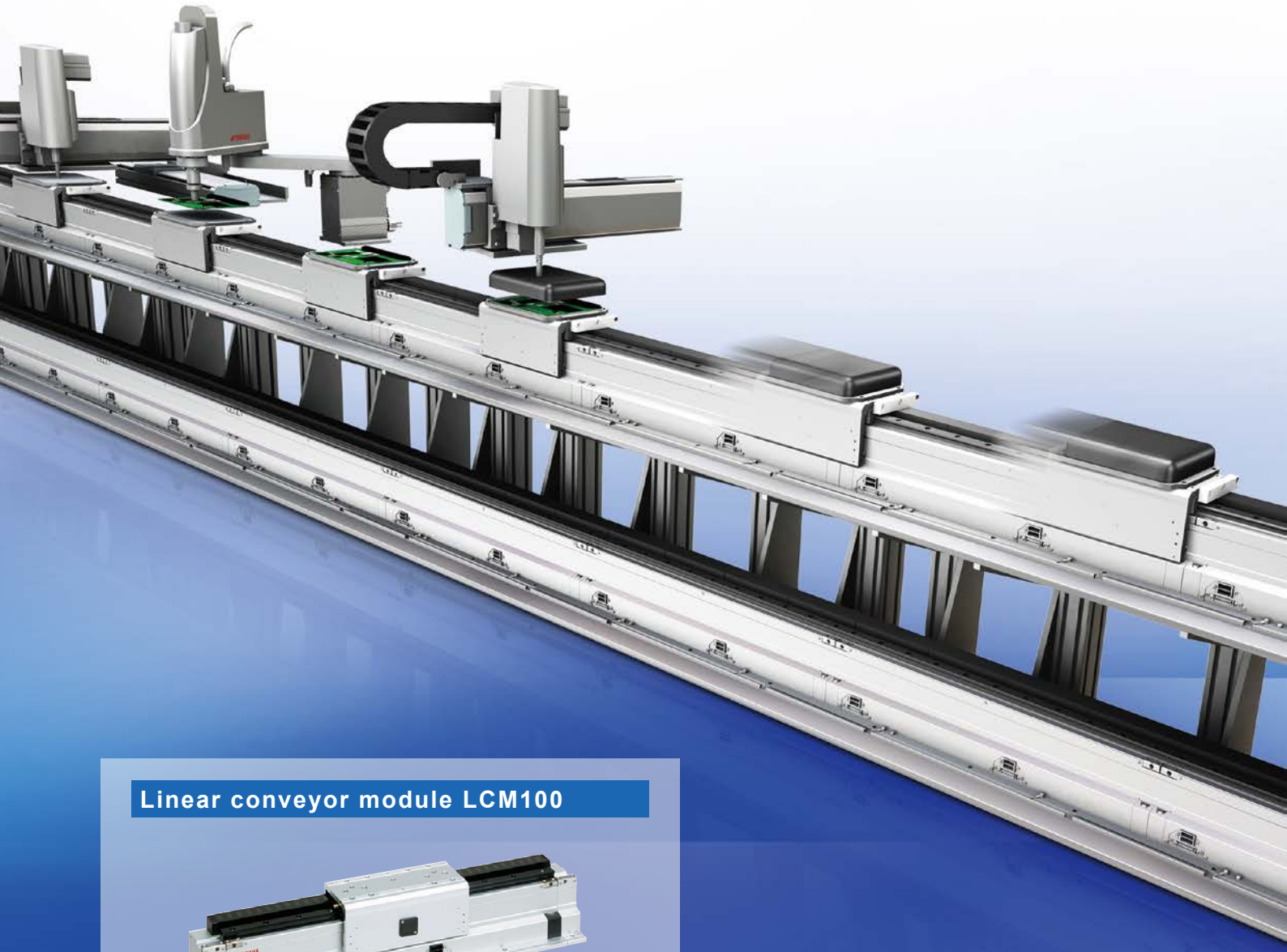
LCM100

Product Lineup

LCM200 is introduced on another page. ▶ P.8

LINEAR CONVEYOR MODULES

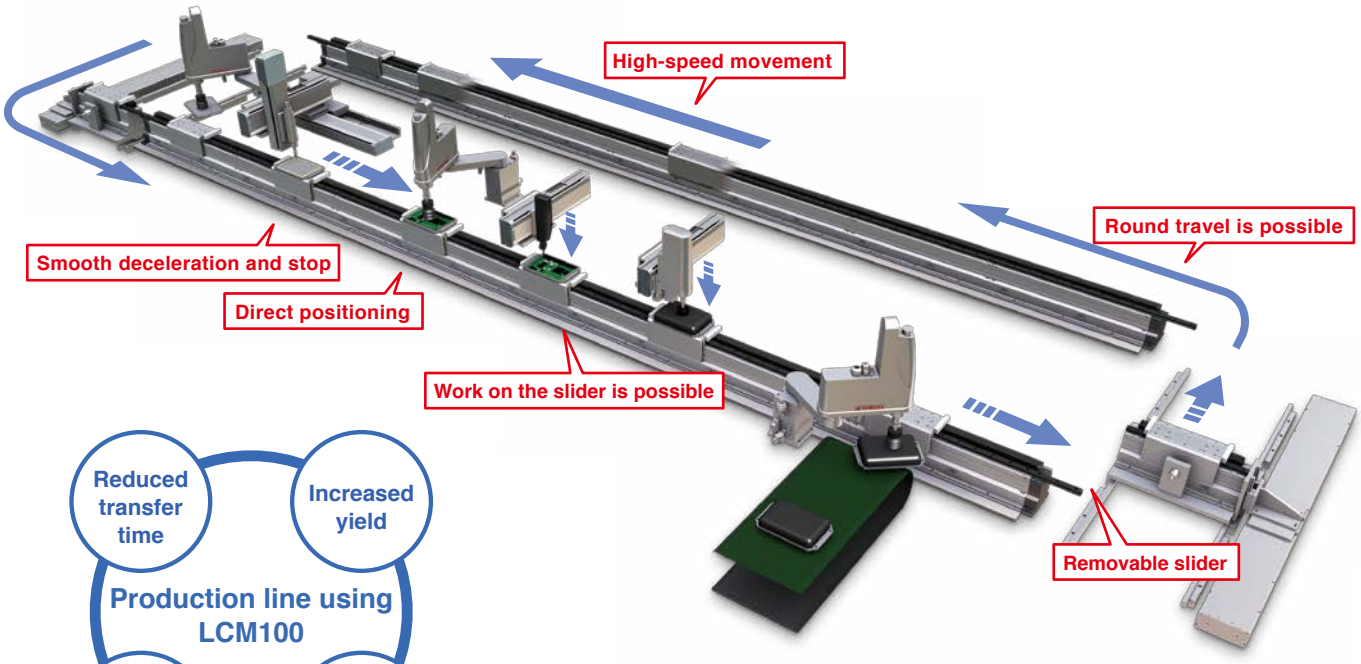
From "flow" to "move"
Efficient transfer processes for increased profitability



Linear conveyor module LCM100

Note. As the figure shown above illustrates CG images, they are different from the actual product.

Linear Conveyor Module LCM100
Constructing high-speed throughput lines.



High-speed and high-accuracy transfer

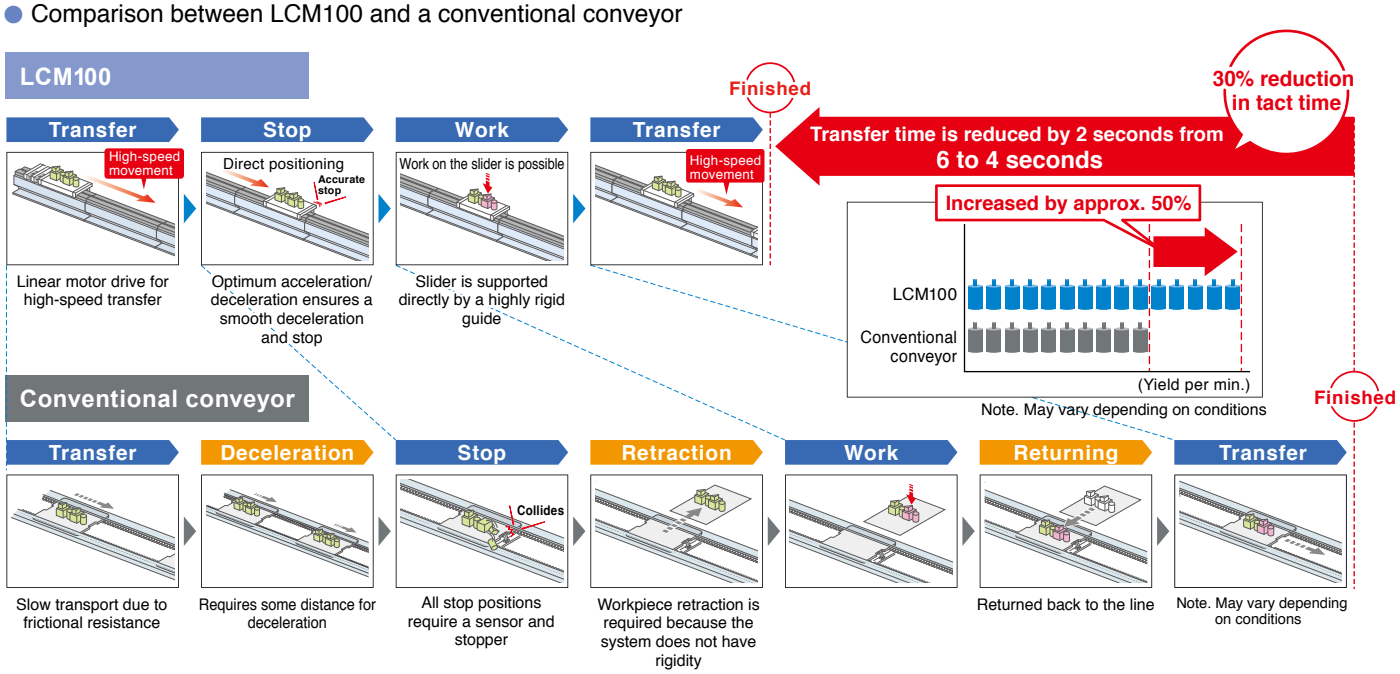
- Max. speed: **3000**mm/sec
- Max. acceleration: **2**G
- Max. load mass: **15**kg
- Repeated positioning accuracy: **+/-0.015**mm **(standalone slider)** Note

Note. This is the repeated positioning accuracy for a standalone slider when positioning from one direction (single-side approach).
Note. The positioning accuracy for the single-side approach after correction by RFID is 0.1 mm including the mutual difference between sliders.

POINT

Increase productivity by shortening transport time

- Comparison between LCM100 and a conventional conveyor

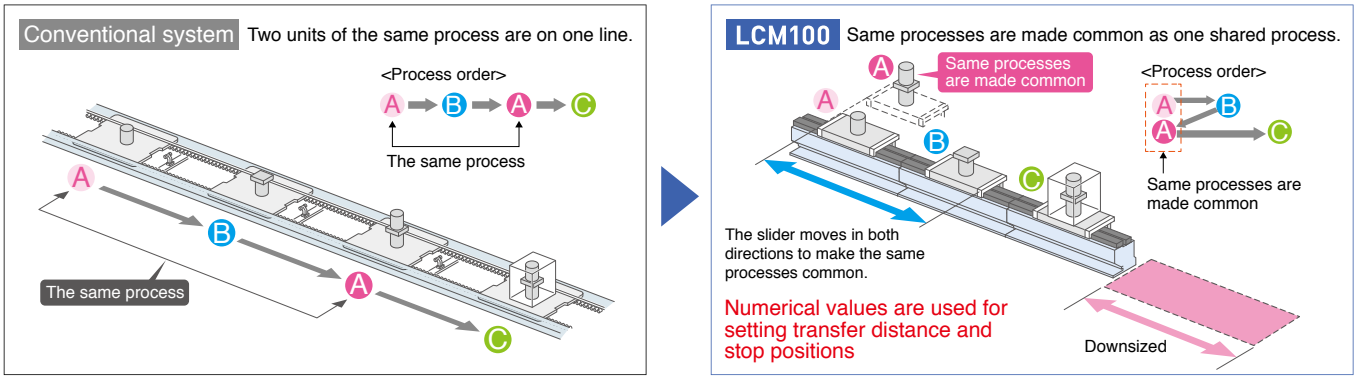


The length of the transfer line can be adjusted freely by adding modules.

POINT

Save equipment space.

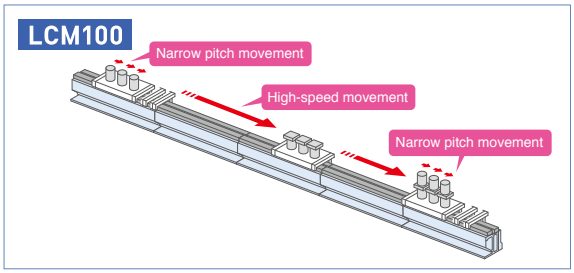
- Since the movement direction can be changed, the same processes are made common. This makes the equipment compact and results in cost reduction.
- Forward and backward movement at a high speed can be set freely.
- Flexible actions such as moving only some sliders backward is possible.



POINT

Can be moved efficiently between processes with different tacts

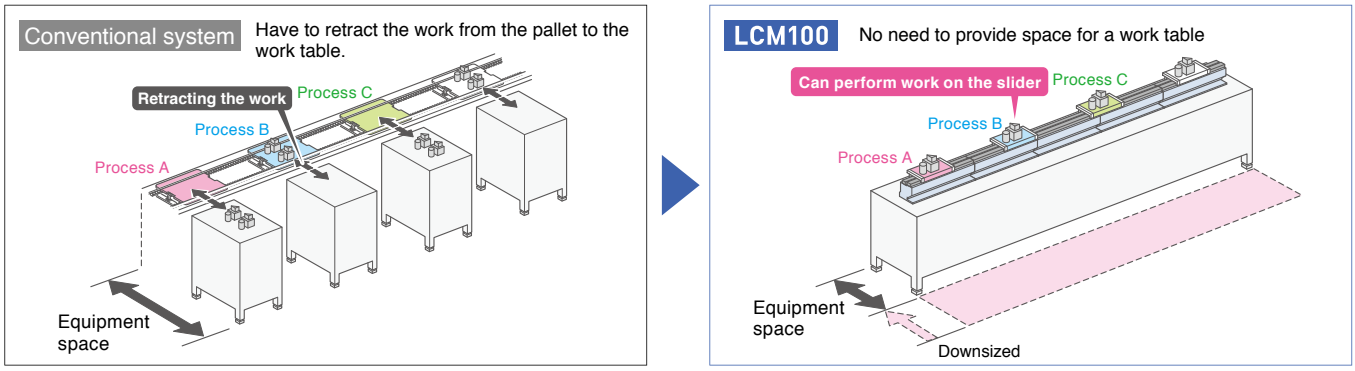
- Narrow pitch movement is possible.
- Movement time can be reduced by combining the use of different movements, such as using pitch-feed for the same processes in short-time processes while transferring three workpieces at the same time at a high speed in long-time processes.



POINT

Workpieces do not need to be retracted

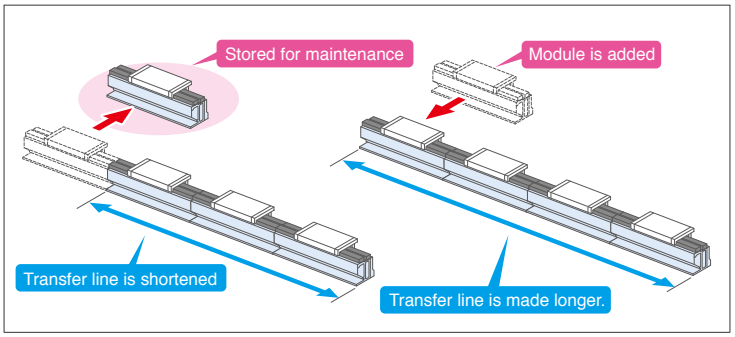
- As the work moves down, you can assemble and process them on the transfer line.
- Eliminates having to retract the work from the pallet to the work table.
- Reduces costs.



POINT

Significant reduction of start-up time

- Just connect modules for easy construction of a transfer line.
- Lifting cylinders, sensors, stoppers, and other complex parts are not necessary.
- Operations can be performed by using only the LCC140 Controller.
- Economical as excess modules can be used for other lines or stored for maintenance.

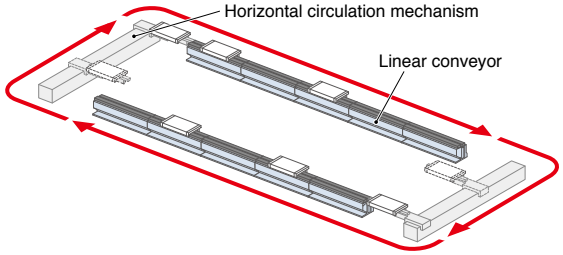


POINT

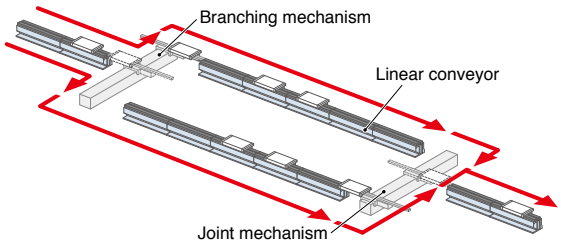
Construct branching lines, joint lines, and other lines in flexible configurations.

- Layout examples by combining modules with circulation mechanisms

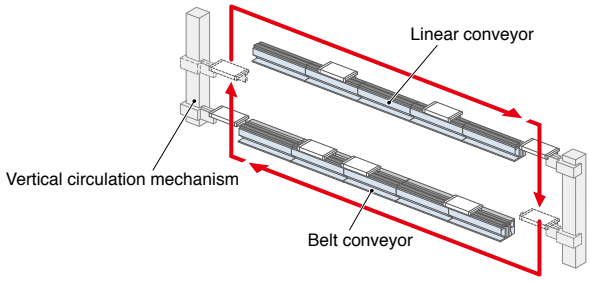
Example of horizontal circulation



Example of horizontal branching



Example of vertical circulation



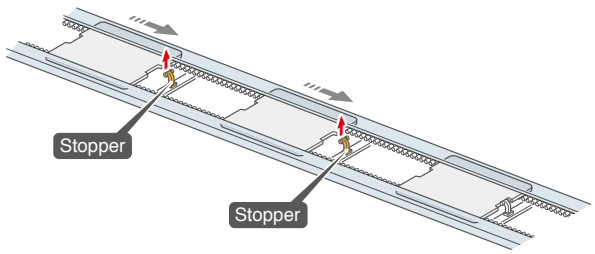
Note. The customer needs to prepare the return unit and the circulation mechanism.
Note. Modules convenient for the circulation are configured.

POINT

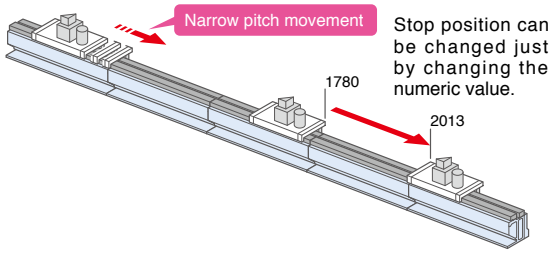
Optimal for small batch production of various product types

- No need for mechanical stoppers or sensors. Change layout easily.
- Reconstruction can be finished quickly by just changing the program to set a stop position.
- Frequent unit changes for different models can be handled flexibly.

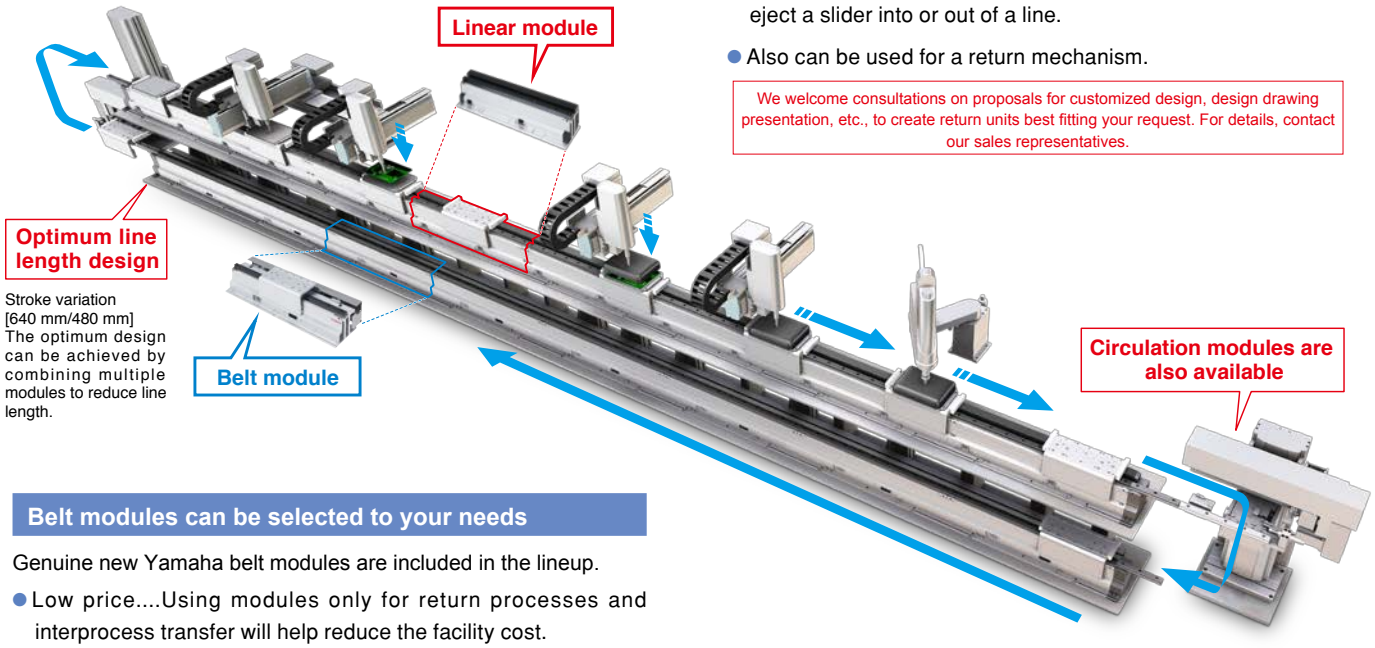
Conventional system Requires stopper position adjustment



LCM100 Stop positions can be set just by changing the program settings.



Flexible set-up of the slider's acceleration/deceleration, forward/backward movement, positioning, and other actions. The variety of possible line structures has been greatly expanded to supersede conventional models.



Simpler design and fewer processing steps

- LCM100-2MT, a module for circulation, is available to insert or eject a slider into or out of a line.
- Also can be used for a return mechanism.

We welcome consultations on proposals for customized design, design drawing presentation, etc., to create return units best fitting your request. For details, contact our sales representatives.

Belt modules can be selected to your needs

Genuine new Yamaha belt modules are included in the lineup.

- Low price....Using modules only for return processes and interprocess transfer will help reduce the facility cost.
- Easy control without controllers and no need to create robot programs

POINT

Quick recovery by replacing the slider when machine trouble occurs

- Parts can be replaced easily.
- Parts can be kept for maintenance as they are standardized.
- Possible to minimize the downtime of a production line.


LCM100 module


Slider

POINT

Easy maintenance

- Motors and scales do not make contact and are free from abrasion.
- As only the rails are sliding parts, dust generation is low.
- There are only a few consumable parts, which mean a long service life.

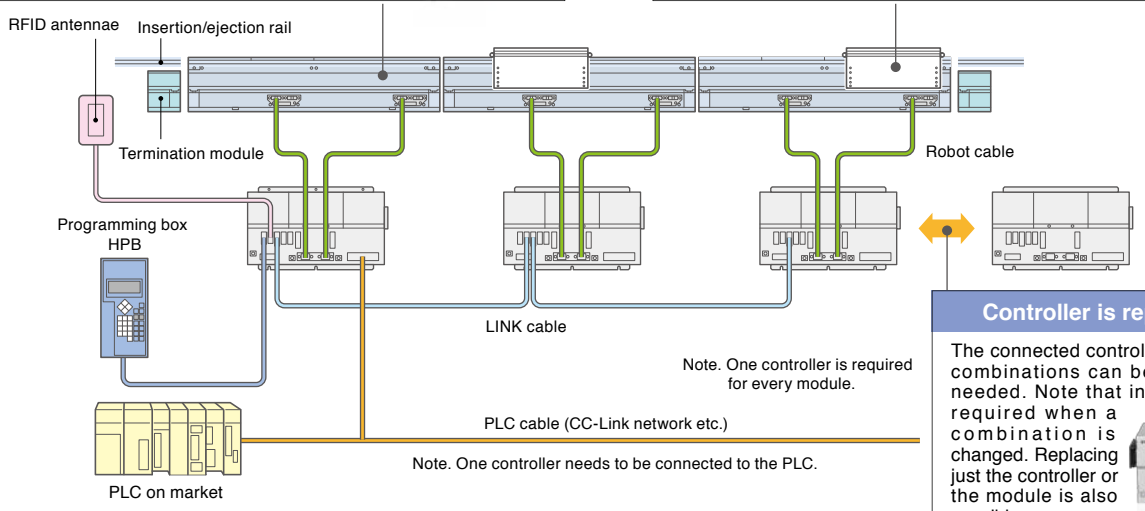
System configuration diagram (when 3 sliders are connected)

The module is standardized and can also be stored for maintenance.

If a short line is used and modules are in excess, they can be diverted to another line or stored for maintenance.

Standardized slider

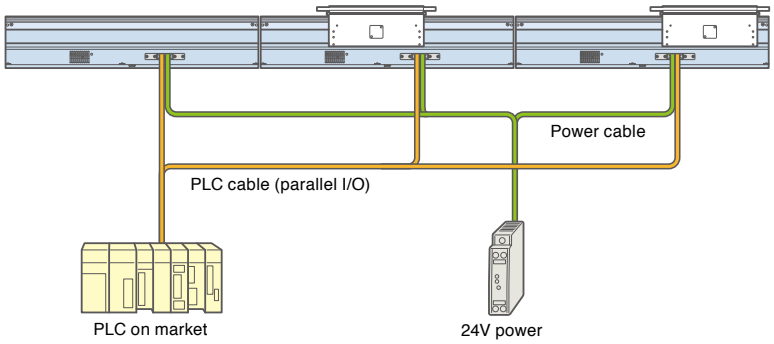
The slider is standardized and can be used for any line. It is also possible to share the slider on multiple lines. Production can be restored immediately by replacing a failed slider if trouble occurs.



Controller is replaceable

The connected controller and module combinations can be changed as needed. Note that initial setting is required when a combination is changed. Replacing just the controller or the module is also possible.

Belt module



This interface allows the customer to supply 24V power and select just the necessary signals to use.[Note]

Note. The customer will need to prepare the wiring on the user side.

Linear module controller LCC140

Program operation

The LCC140 controller can perform operations using registered programs and operations using remote commands from the PLC.
In addition to the control of input/output signals such as movement or positioning, processes related to the insertion/ejection of sliders can be performed.

SR1 controller base operation system

The same user interface as the SR1 controller is incorporated, and specifications and functions specific to the linear conveyor module have been added based on this user interface. A very user friendly operation system is provided.[Note 1]

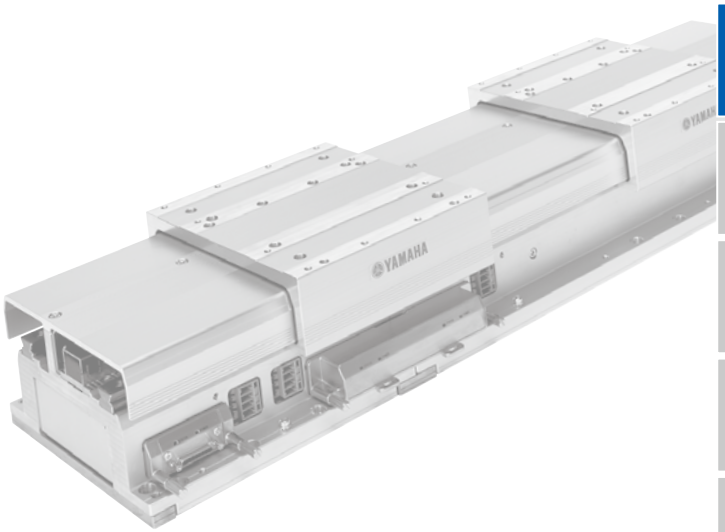
Controller-linking function

You can use the link cables dedicated to LCC140 controllers to connect the controllers when two or more modules are connected. You can handle multiple controllers as if they were one controller.

Position correction function using RFID

When multiple sliders are each stopped at a position of your choice, actual stop positions has an error width (machine difference) of 500 µm. This is because each slider has a different stopping accuracy. Link the RFID unit and LCC140 controller to suppress the machine difference of individual sliders to an error width of approximately 100 µm.[Note 2]

Note 1. Please note that some Yamaha single-axis controller SR1 functions are not available with the linear conveyor controller.
Note 2. All sliders stop within the width of 100µm that includes a teaching point.



LINEAR CONVEYOR MODULES

LCMR200

CONTENTS

LCMR200 basic specifications

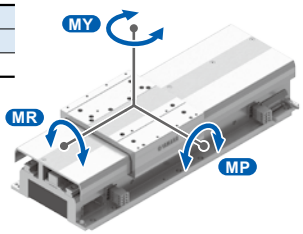
LCMR200 basic specifications

Drive method		Linear motor with moving magnet type core
Position Search		Magnetic absolute position sensor
Maximum payload		15 kg
Maximum speed		2,500 mm/sec *1
Repeatability		+/-5 µm
Mechanical tolerance between robot sliders		+/-30 µm (Dowel hole standard)
Total stroke limit		25.5 m *2
Maximum number of robot sliders		64 units *2
Minimum spacing between robot sliders		210 mm *3
Main frame dimensions	Max. external size of frame cross-section	W175 × H109 mm (Including robot slider)
	Linear module length	200 mm / 300 mm / 500 mm / 1000 mm
	Robot slider length	198 mm
Weight	Linear module	Approx 20 kg [Per 1 m of linear module]
	Robot slider	2.4 kg
Power supply	Control power supply	48 VDC Required power [W] = 75 [W/m] x Overall length of module [m] *4
	Motor power supply	48 VDC Yamaha's designated model *5
Operating environment	Operating temperature	0 °C to 40 °C *6
	Storage temperature	-10 °C to 65 °C
	Operating humidity	35 % to 85 %RH [No condensation]
Controller		YHX controller *7

*1. When the conveying weight exceeds 10 kg, it will drop to 2,000 mm/sec according to the weight.
*2. It may differ depending on the system configuration.
*3. When the jig palette to equip to the robot slider is longer, it shall be the jig palette length + 10 mm.
*4. The option 600 W power source supplies the power to the linear module with a length of up to 8 m while the 1000 W power source supplies the power to the linear module with a length of up to 13.3 m.
*5. The option power source can supply the power to up to two robot sliders. (When AC 200 to 240 V is input.)
*6. Operate LCMR200 in the temperature environment (+/-5 °C) that installation and adjustment were performed.
*7. The YHX controller requires a separate electrical power supply.

Static loading moment

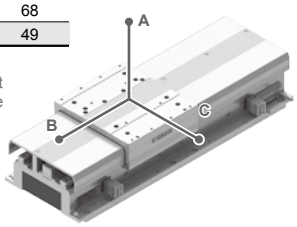
Static loading moment [N·m]		
MP	MY	MR
47.0	35.7	31.4



Allowable overhang

payload [kg]	Allowable overhang [mm]		
	A	B	C
5	760	405	239
10	762	231	158
15	700	173	122
20	648	117	73
25	509	82	68
30	453	58	49

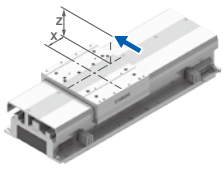
* Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.



Allowable Load

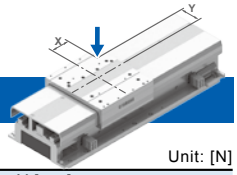
* When center of slider is center of gravity.
* Allowable load in the moving direction of slider is always 28 N regardless of the loading position.
* Any load cannot be applied to the slider on the movable module of YAMAHA' s circulation unit in both the horizontal and vertical directions. Vertical load variation within the slider payload is possible due to loading or unloading of workpieces to or from the slider on the movable module. However, do not insert or eject the slider to or from the movable module while the load is varying.
* Only vertical load can be applied to the slider on the movable module of YAMAHA' s traverse unit within the range shown in the table below. Do not insert or eject the slider to or from the movable module while the load is being applied.

Load: Horizontal Direction



Payload: Common up to 30 kg. Unit: [N]

Loading Position X [mm]	Loading Position Z [mm]					
	0	20	40	60	80	100
0	611	514	443	390	348	314
20	517	445	391	349	315	287
40	447	393	350	316	288	264
60	394	352	317	289	265	245
80	353	318	289	266	245	228
100	319	290	266	246	229	214



Load: Vertical Direction

Payload: 5 kg Unit: [N]

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	924	687	546	453	387	339
20	760	593	485	411	356	314
40	647	521	436	375	328	293
60	562	465	396	345	305	274
80	498	420	362	319	285	258
100	446	382	335	297	268	243

Payload: 10 kg

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	874	650	517	429	367	320
20	721	561	459	389	337	297
40	613	493	413	355	311	277
60	533	440	375	327	289	260
80	471	397	343	303	270	244
100	423	362	317	282	254	231

Payload: 15 kg

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	826	614	488	406	347	303
20	680	529	433	367	318	281
40	578	466	390	335	294	261
60	503	416	354	309	273	245
80	445	375	324	285	255	231
100	399	342	299	266	239	217

Payload: 20 kg Unit: [N]

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	777	578	459	381	326	285
20	640	498	408	345	299	264
40	544	438	367	315	277	246
60	473	391	333	290	257	231
80	419	353	305	269	240	217
100	376	322	281	250	225	205

Payload: 25 kg

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	728	540	431	358	305	267
20	599	466	382	323	281	247
40	509	410	344	295	259	231
60	443	366	312	272	240	216
80	392	331	286	252	225	203
100	352	302	264	234	211	192

Payload: 30 kg

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	678	505	401	333	285	249
20	560	435	356	302	261	231
40	476	382	321	276	241	215
60	413	341	291	253	225	201
80	366	309	266	235	210	190
100	328	281	246	219	197	179

Configuration parts

LCMR200 Main Body

Linear module

Length	Front* cable extraction	Rear* cable extraction
	Model	
200mm	LCMR200-F2	LCMR200-B2
300mm	LCMR200-F3	LCMR200-B3
500mm	LCMR200-F5	LCMR200-B5
1000mm	LCMR200-F10	LCMR200-B10

* The direction for the order of the driver numbers.
The motor power source connector is attached to the module.

Robot slider

Model	LCM200-XBOT-****
Parts No.	KNA-M2264-**

When ordering the robot slider, specify slider ID number 1001 to 1139 in the last 4 digits "****" section of the model.

ID, model, and parts No. correspondence example		
ID	Model	Parts No.*
1001	LCMR200-XBOT-1001	KNA-M2264-01
1002	LCMR200-XBOT-1002	KNA-M2264-02
1099	LCMR200-XBOT-1099	KNA-M2264-99
1100	LCMR200-XBOT-1100	KNA-M2264-A0
1112	LCMR200-XBOT-1112	KNA-M2264-B2

ID 110s are A*.
ID 111s are B*.
ID 112s are C*.
ID 113s are D*.

YQLink cable

YQLink movable cable

This cable connects the controller (YHX) and linear conveyor module.
Refer to the system configuration drawing for a connection example.

Cable length	Model	Parts No.
0.3m	YHX-YQL-R0.3M	KFA-M5361-P1
3m	YHX-YQL-R3M	KFA-M5361-31
7m	YHX-YQL-R7M	KFA-M5361-71
10m	YHX-YQL-R10M-N	KFA-M5361-A1

YQLink fixation cable

Cable length	Model	Parts No.
15m	YHX-YQL-M15M	KNA-M5362-F0

YQLink terminating connector

Model	Parts No.
YHX-YQL-TC	KFA-M5361-00

Other power source options

Module electric power supply (48 VDC)

Unit type general purpose power supply corresponding to the peak output that is applicable to both the module control and motor power. Select a power supply suitable for the required power and equipment installation conditions by considering the supply capacity and outside dimensions per application of each power supply.

LCM-XCU-PS-1000W PS-48V-600W

- Rated output 600 W/1000 W, Efficiency > 80%, Power factor > 90%
- When AC 200 to 240 V is input, the peak maximum output is 42 A (within 5 seconds).

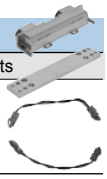
Supply capacity		Model	Parts No.
Control power supply [Rated output]	Motor power supply [Peak maximum output]		
Cluster within 8m [600W]	Within 2 sliders [1992W]	PS-48V-600W	KNA-M6561-00
Cluster within 13.3 m [1000W]	Within 2 sliders [2016W]	LCM-XCU-PS-1000W	KFA-M6561-00

Flexible power cable for movable module

Model	Parts No.
LCMR200-PJ-R2M	KNA-M539H-21

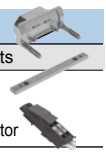
LCMR200 Connection Parts

Module connection kit



Model	Parts No.	Configuration parts
LCMR200-CKIT	KNA-M2043-C0	Connection unit Connection plate Motor power source jumper Control power source jumper

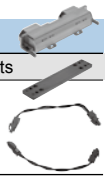
Module terminal kit*



Model	Parts No.	Configuration parts
LCMR200-EKIT	KNA-M2043-E0	End unit ×2 End plate ×2 Control power supply connector

* When a circulation unit made by Yamaha is not used, one terminal kit is necessary for one cluster. The components for two terminal kits are assembled to or supplied with Yamaha circulation unit.

Adjuster kit*



Model	Parts No.	Configuration parts
LCMR200-AKIT	KNA-M2043-A0	Connection unit Adjuster plate Motor power source jumper Control power source jumper

Return line length	Number of adjuster kit
3 m or less	1
More than 3 m and 14 m or less	2
More than 14 m and 25.5 m or less	3

* For the return line, use the specified number of adjuster kit according to the return line length.
For details about the usage location and how to use, see the user's manual.

Maintenance items*

Control power supply connector

Model	Parts No.
LCMR200-CPC	KNA-M4431-00

Control power source jumper

Model	Parts No.
LCMR200-CPJ	KNA-M4421-10

Motor power source connector

Model	Parts No.
LCMR200-MPC	KNA-M4432-00

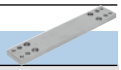
Motor power source jumper

Model	Parts No.
LCMR200-MPJ	KNA-M4422-10
LCMR200-MPJS (for 1000 mm module relay)	KNA-M4422-20

End plate

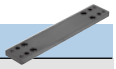
Model	Parts No.
LCMR200-EP	KNA-M22GM-E0

Connection plate



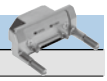
Model	Parts No.
LCMR200-CP	KNA-M22GM-C0

Adjuster plate



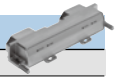
Model	Parts No.
LCMR200-AP	KNA-M22GM-A0

End unit



Model	Parts No.
LCMR200-EU	KNA-M2040-E0

Connection unit



Model	Parts No.
LCMR200-CU	KNA-M2040-C0

* These are single models of parts included in the module connection kit, adjuster kit, module terminal kit, circulation unit, or module main body.

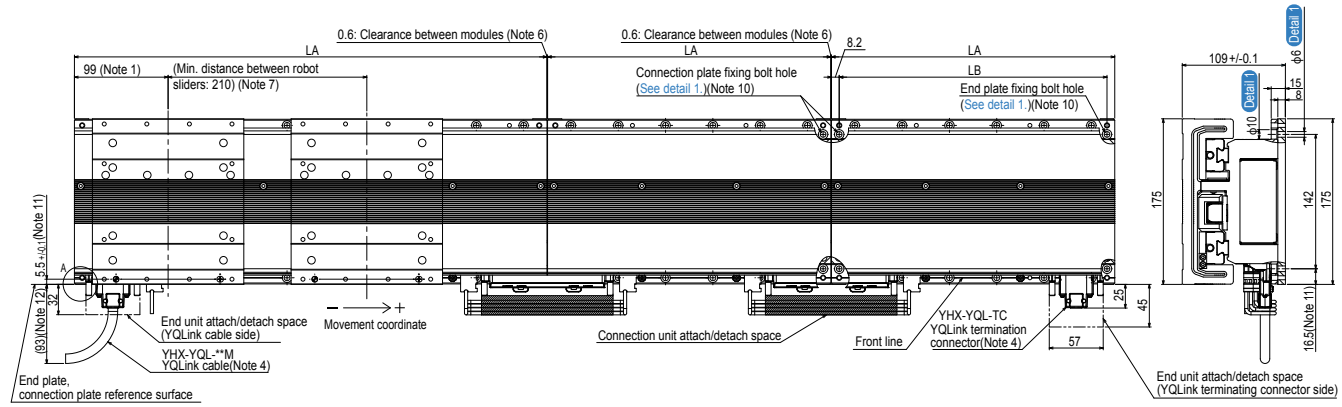
Component details ▶ P.50

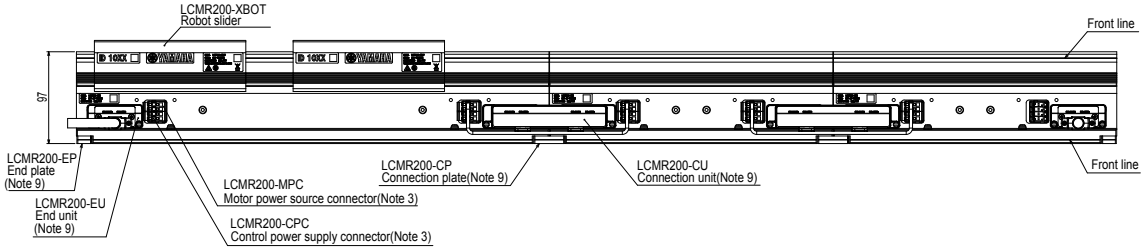
External view

LCMR200 Module connection and installation

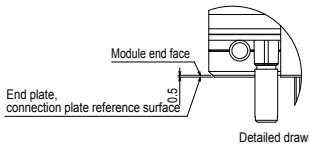
Front* cable extraction

LCMR200-F**





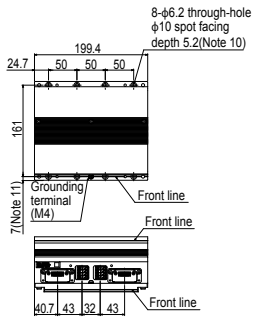
Module type	LA	LB
LCMR200-F2	199.4	183
LCMR200-F3	299.4	283
LCMR200-F5	499.4	483
LCMR200-F10	999.4	983



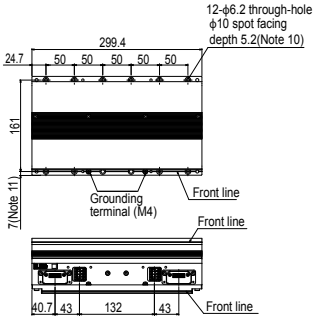
Linear module

Front* cable extraction

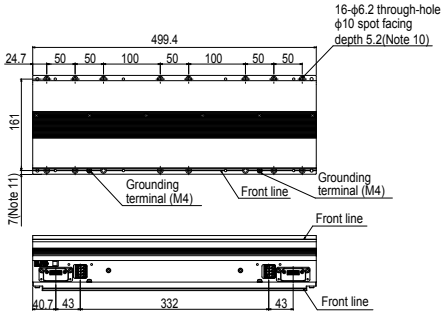
LCMR200-F2



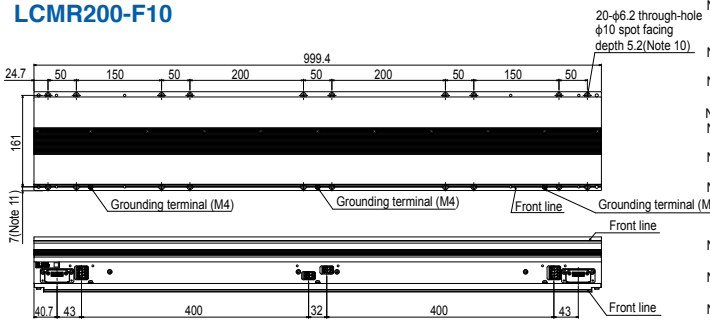
LCMR200-F3



LCMR200-F5



LCMR200-F10



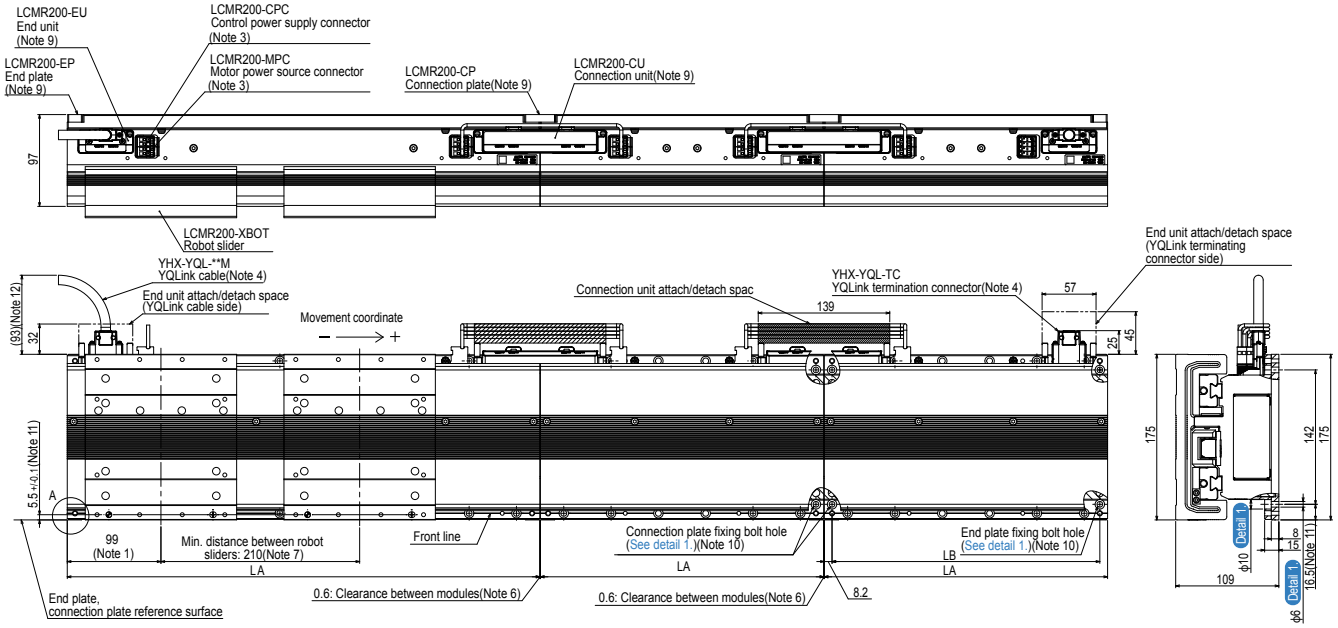
Note 1. The robot slider unstoppable range of 99 mm from both ends of the cluster may vary depending on the pallet length. However, when there is no adjacent cluster, the robot slider unstoppable range is 90 mm regardless of the pallet length. For details, see the manual.
Note 2. Module types can be freely combined within the same cluster after the front and rear of the cable extraction direction have been aligned.
Note 3. The control power source and motor power source can be passed and received by the jumper connector. See the manual for detail of passing and receiving.
Note 4. For the YQLink cable and YQLink terminating connector connection location, see the manual.
Note 5. Sixty-four robot sliders can be installed in a system connected by the YQ Link cables * (depending on the number of robots that are controlled by the same controller).
Note 6. Where modules are connected with the connection plate, the clearance between the adjacent modules is 0.6 mm.
Note 7. The minimum pitch of each slider at the stopping state is 210 mm; however, when they start at the same time, they may collide due to operation conditions, and conditions such as command timing from the upper PLC, programming with YHX, etc. In the case, it is necessary to adjust by securing more distance (pitch) between the sliders, changing the start timing (sequential start), etc.
Note 8. There is no mechanical stopper due to the nature of the product. Please install a mechanical stopper by the customer as needed.
Note 9. The connection plate and connection unit are used to connect the modules, and the end plate and end unit are used at the cluster end.
Note 10. To secure the module, end plate, connection plate, and adjuster plate to the base, use M5 hexagon socket head cap bolts.
Note 11. Distance from the end plate reference surface, connection plate reference surface and adjuster plate reference surface to the spot facing hole for the module clamp bolt.
Note 12. The YQLink movable cable is used. When the YQLink fixation cable is used, the distance is 104 mm.

* It may differ depending on the system configuration.
* Orientation corresponds to the order of the driver numbers.

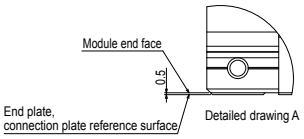
LCMR200 Module connection and installation

Rear* cable extraction

LCMR200-B**



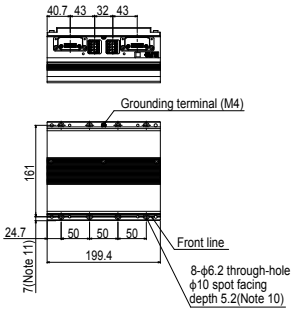
Module type	LA	LB
LCMR200-B2	199.4	183
LCMR200-B3	299.4	283
LCMR200-B5	499.4	483
LCMR200-B10	999.4	983



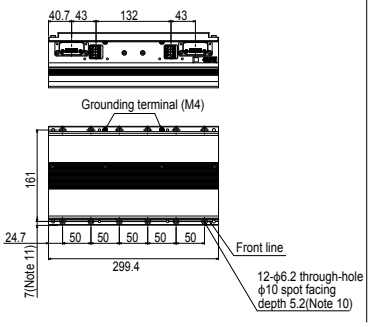
Linear module

Rear* cable extraction

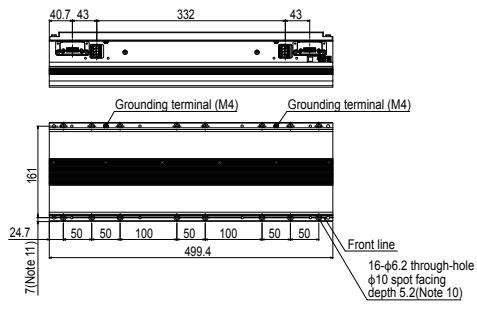
LCMR200-B2



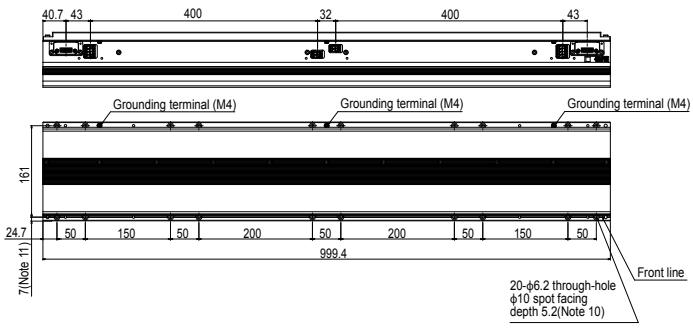
LCMR200-B3



LCMR200-B5



LCMR200-B10



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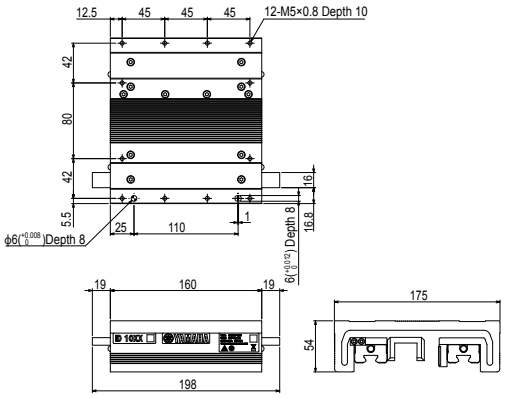
* It may differ depending on the system configuration.
* Orientation corresponds to the order of the driver numbers.

LCMR200

(Note 13)

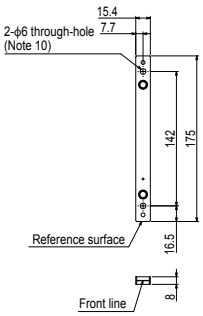
Robot slider

LCMR200-XBOT



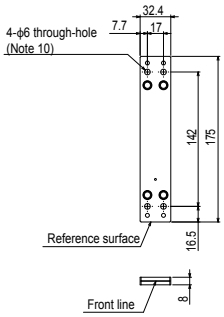
End plate

LCMR200-EP



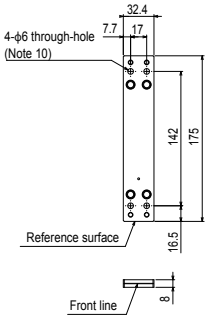
Connection plate

LCMR200-CP



Adjuster plate

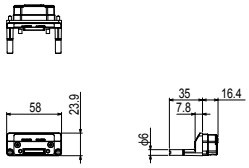
LCMR200-AP



Note 13. The overall length of the line after the modules have been connected using the adjuster plates can be adjusted. For details, see the manual.

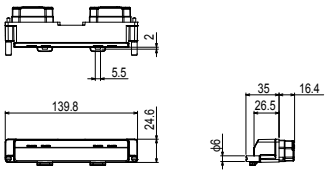
End unit

LCMR200-EU



Connection unit

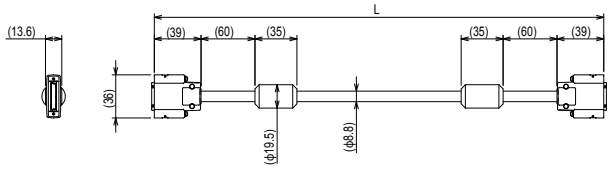
LCMR200-CU



YQLink movable cable

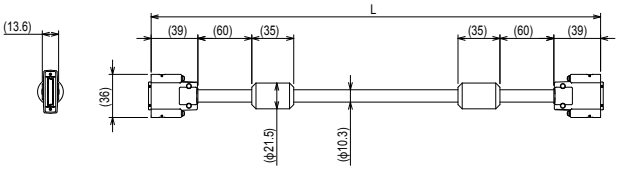
YHX-YQL-R□M (Only 10 m for R10M-N)

Within □	Cable length
0.3	0.3m
3	3m
7	7m
10	10m



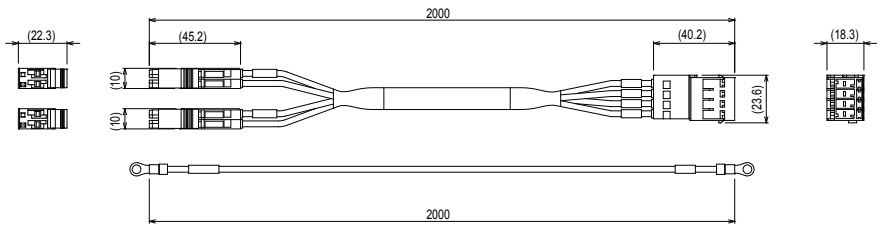
YQLink fixation cable

YHX-YQL-M15M



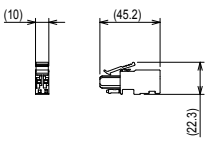
Flexible power cable for movable module

LCMR200-PJ-R2M



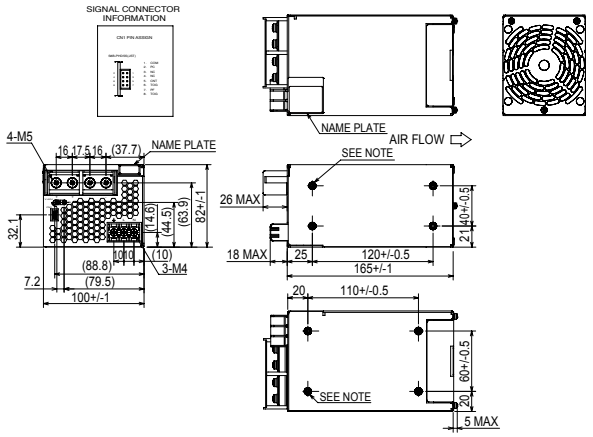
Control power supply connector / Motor power source connector

LCMR200-CPC/LCMR200-MPC



Module electric power supply (DC48V-600W)

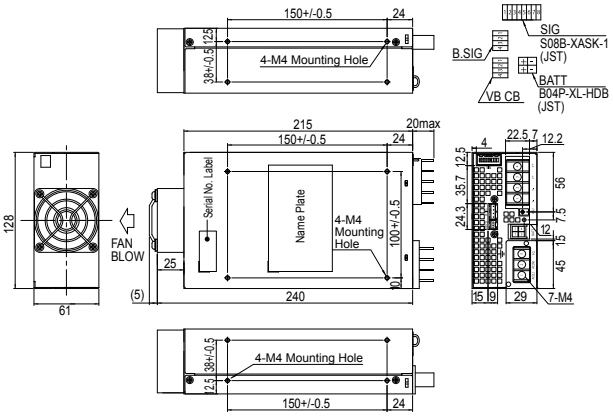
PS-48V-600W



Note. M4 tap holes for installing the customer's chassis (8 locations)
(The maximum screw thread depth is 6 mm.)

Module electric power supply (DC48V-1000W)

LCM-XCU-PS-1000W

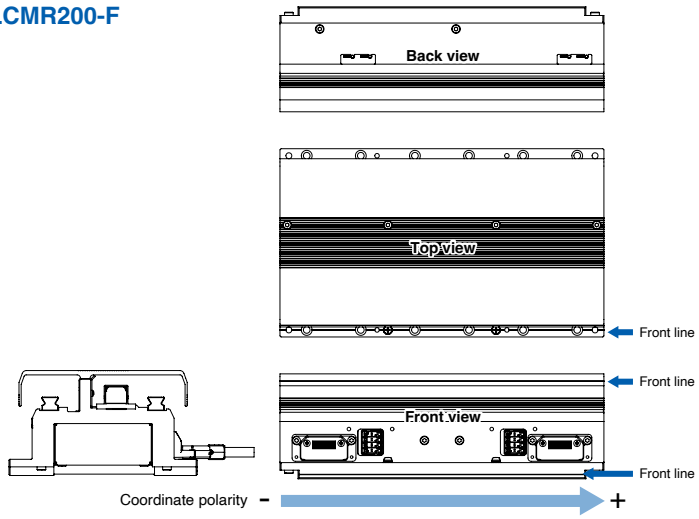


How to distinguish between the front and rear of the linear module

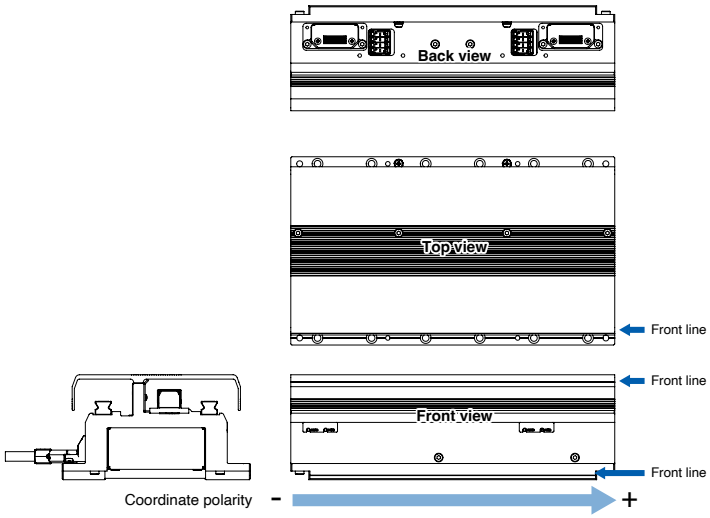
A line that indicates the front (hereafter referred to as front line) is provided at the position of the linear module shown in the figure below. The side with the front line is the front and the one without it is the rear.

* When linear modules are connected, each front/rear must be oriented uniformly.
* When viewed from the front of the linear module, the left side is the minus side of the coordinate polarity and the right side is its plus side.

LCMR200-F



LCMR200-B



LCMR200

Circulation unit Order model

Horizontal circulation

JGX16 – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Axis main body	Combination ①	Circulation installation position ②	Lead designation	Single-axis motor specification	Circulation pitch *1	Robot cable length	Robot cable lead-out direction
	H1: Front of motor H2: Rear of motor	L: Left installation R: Right installation	40: 40mm 20: 20mm	Blank: Battery-less S: Standard specification	20 to 80cm	R3 : 3m R5 : 5m R10 : 10m	F: Front of motor R: Rear of motor

– **LCMR200** – [ ] – [ ] – [ ] – **A30** – **N** – [ ]

LCM main body	Variation	YQLink cable length (IN side) ③	YQLink cable length (OUT side) ③	Driver	Brake unit	Battery *3
	F2: 200 mm (Front cable lead-out) F3: 300 mm (Front cable lead-out) F5: 500 mm (Front cable lead-out) B2: 200 mm (Rear cable lead-out) B3: 300 mm (Rear cable lead-out) B5: 500 mm (Rear cable lead-out)	3: 3m 7: 7m A: 10m	3: 3m 7: 7m A: 10m T: Termination connector *2	A30: YHX-A30-SET	N: None	B: With battery N: None

Vertical circulation

JGX16 – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Axis main body	Combination ④	Circulation installation position ②	Lead designation	Single-axis motor specification	Circulation pitch *1	Robot cable length	Robot cable lead-out direction
	V1: Rear of axis/Above motor V2: Rear of axis/Under motor V3: Rear of axis/Above motor/Folding V4: Front of axis/Above motor V5: Front of axis/Under motor V6: Front of axis/Above motor/Folding	L: Left installation R: Right installation	20: 20mm 10: 10mm	Blank: Battery-less S: Standard specification	30 to 60cm	R3 : 3m R5 : 5m R10 : 10m	F: Front of motor R: Rear of motor

– **LCMR200** – [ ] – [ ] – [ ] – **A30** – **V** – [ ]

LCM main body	Variation	YQLink cable length (IN side) ③	YQLink cable length (OUT side) ③	Driver	Brake unit	Battery *3
	F2: 200 mm (Front cable lead-out) F3: 300 mm (Front cable lead-out) F5: 500 mm (Front cable lead-out) B2: 200 mm (Rear cable lead-out) B3: 300 mm (Rear cable lead-out) B5: 500 mm (Rear cable lead-out)	3: 3m 7: 7m A: 10m	3: 3m 7: 7m A: 10 T: Termination connector *2	A30: YHX-A30-SET	V: With brake unit	B: With battery N: None

*1 Cautions on circulation pitch
- Specify the same distance as that between the forward and backward movements of the equipment for the crculation pitch.
- The transfer cannot be stopped at a location other than the specified circulation pitch.
- After delivery, the customer cannot adjust the circulation pitch.
- The circulation pitch is selected at increments of 5 cm.

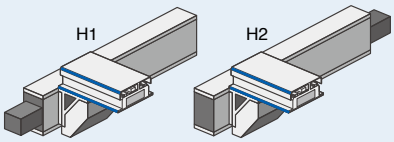
*2 The termination connector can be selected only when the circulation installation position is R (right installation).

*3 When the battery-less motor is selected, no battery is needed.

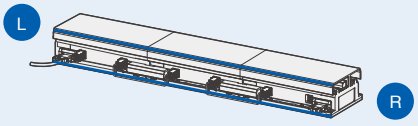
■ Left/right and front/rear are based on when the front line of the module is placed on the front of the system.

Front line

① Combination

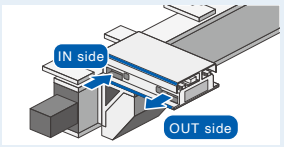


② Circulation installation position



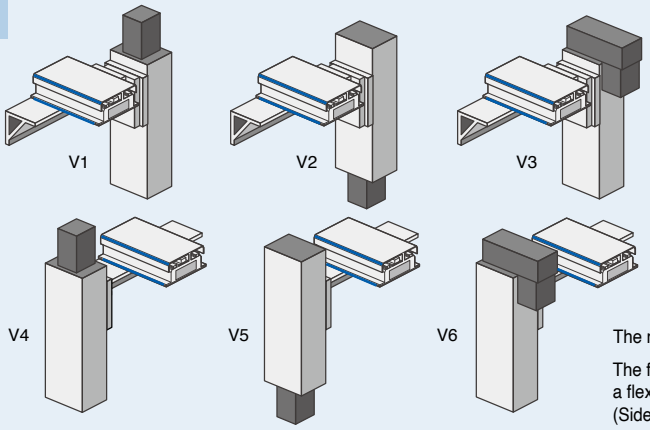
When the front line is placed on the front, the left side of the main line is L while its right side is R.

③ Length of YQLink cable



When the front line is placed on the front, the left side is the IN side while the right side is the OUT side.

④ Combination



The motor folding is performed only on the top side.

The folding direction is only on a side where there is a flexible cable carrier.
(Side where the slider is not ejected.)

* All illustrations shown above use the circulation installation position R (right installation).

Circulation unit Basic specifications

JGX16-H (Horizontal circulation) Basic specifications

Axis configuration	Junction axis LCMR200*1		LCMR200*1
Motor output	□80 / 750 W		-
Repeated positioning accuracy	±5 μm		±5 μm
Speed reduction mechanism/drive method	Grinding ball screw ϕ20 (C5 grade)		Linear motor with moving magnet type core
Ball screw lead	40 mm	20 mm	-
Maximum speed*2	2400 mm/sec	1200 mm/sec	2500 mm/sec
Circulation pitch/linear module length	200 mm*3 to 1350 mm (50 mm pitch)		200mm, 300mm, 500mm
Position detection	Magnetic type absolute position sensor*4		Magnetic type absolute position sensor
Operating temperature	0°C to 40°C*5		
Controller	YHX controller		

* 1. For details about the specifications, see P.12
* 2. The maximum speed may not be reached depending on the operating range.
* 3. The cable extraction direction of the forward and backward modules is reversed (outside).
* 4. The circulation transfer position only
* 5. The operation is performed at an environmental temperature (+/-5 °C) at which the installation and adjustment have been performed.

JGX16-V (Vertical circulation) Basic specifications

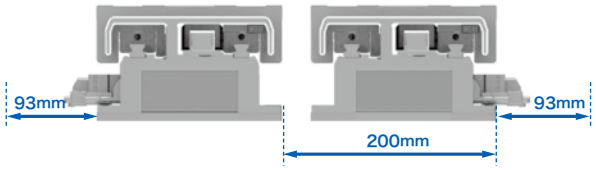
Axis configuration	Junction axis		LCMR200*1
Motor output	□80 / 750 W		-
Repeated positioning accuracy	±5 μm		±5 μm
Speed reduction mechanism/drive method	Grinding ball screw ϕ20 (C5 grade)		Linear motor with moving magnet type core
Ball screw lead	20 mm	10 mm	-
Maximum speed*2	1200 mm/sec	600 mm/sec	2500 mm/sec
Circulation pitch/linear module length	300 mm to 600 mm (50 mm pitch)		200 mm, 300 mm, 500 mm
Position detection	Magnetic type absolute position sensor*3		Magnetic type absolute position sensor
Operating temperature	0°C to 40°C*4		
Controller	YHX controller		

* 1. For details about the specifications, see P.12
* 2. The maximum speed may not be reached depending on the operating range.
* 3. The circulation transfer position only
* 4. The operation is performed at an environmental temperature (+/-5 °C) at which the installation and adjustment have been performed.

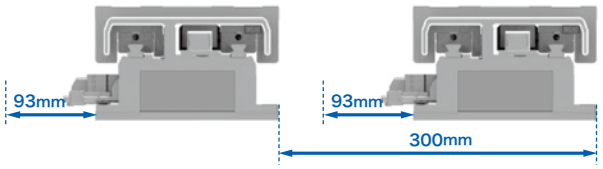
For the maximum payload and allowable overhang per robot slider, see page 49

Minimum circulation pitch of the circulation unit depending on the cable extraction direction

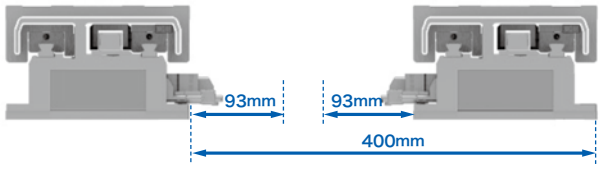
① Front cable extraction + rear cable extraction
<Cable extraction direction is outward.>
→ Select a circulation pitch of 200 mm or more.



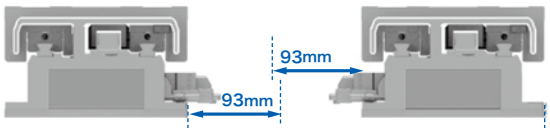
② Front cable extraction + front cable extraction
(Or, rear cable extraction + rear cable extraction)
<Cable extraction direction is the same orientation.>
→ Select a circulation pitch of 300 mm or more.



③ Rear cable extraction + front cable extraction
<Cable extraction direction is inward.>
→ Select a circulation pitch of 400 mm or more.



* However, when the cables can be stacked, a circulation pitch of 350 mm is also possible.

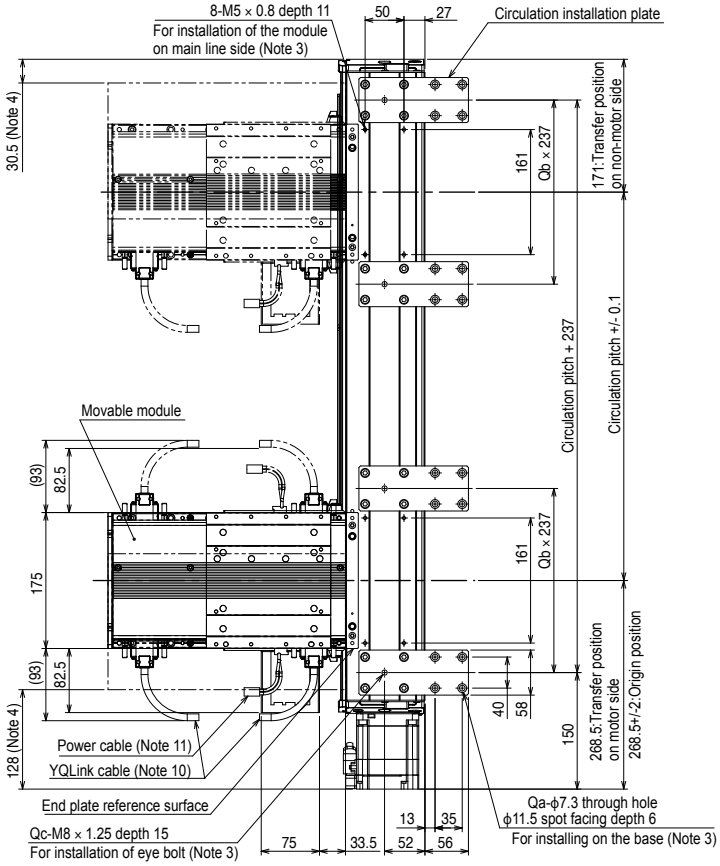


Circulation unit External view

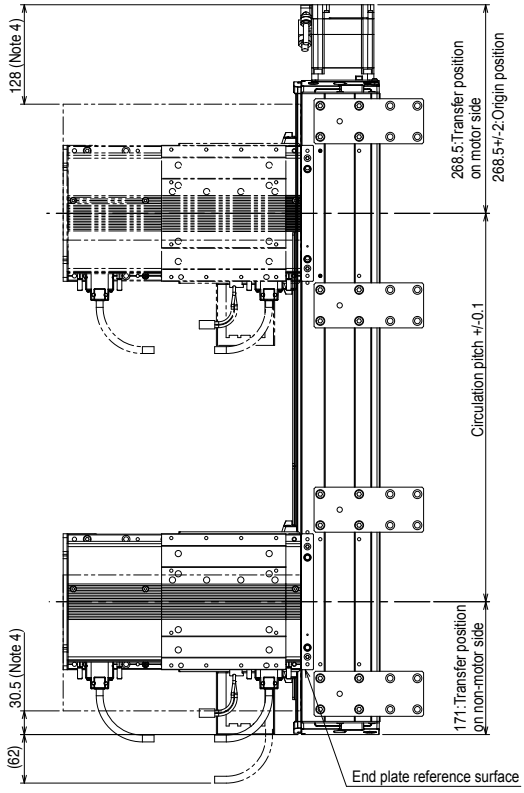
Horizontal circulation

JGX16-H1L/H2L

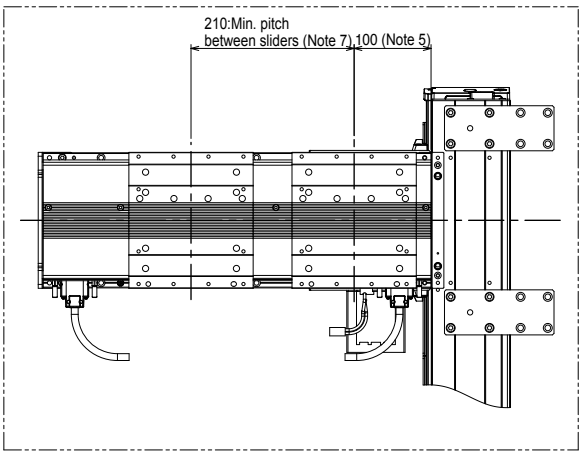
JGX16-H1L

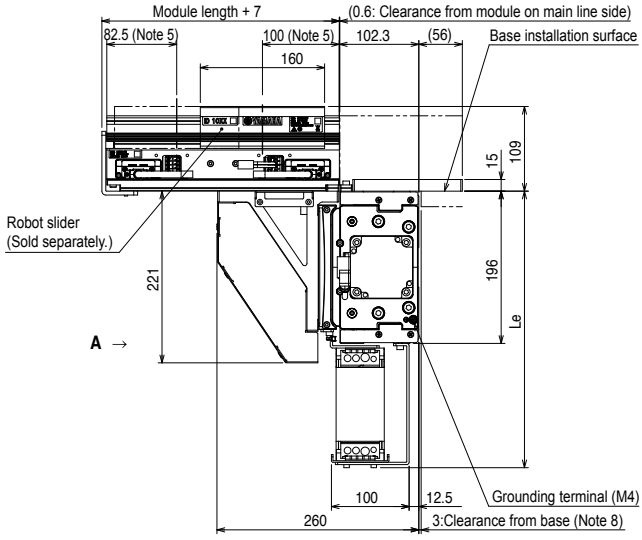


JGX16-H2L



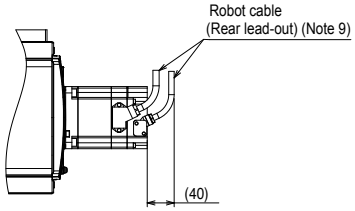
2-slider circulation (Note 6)

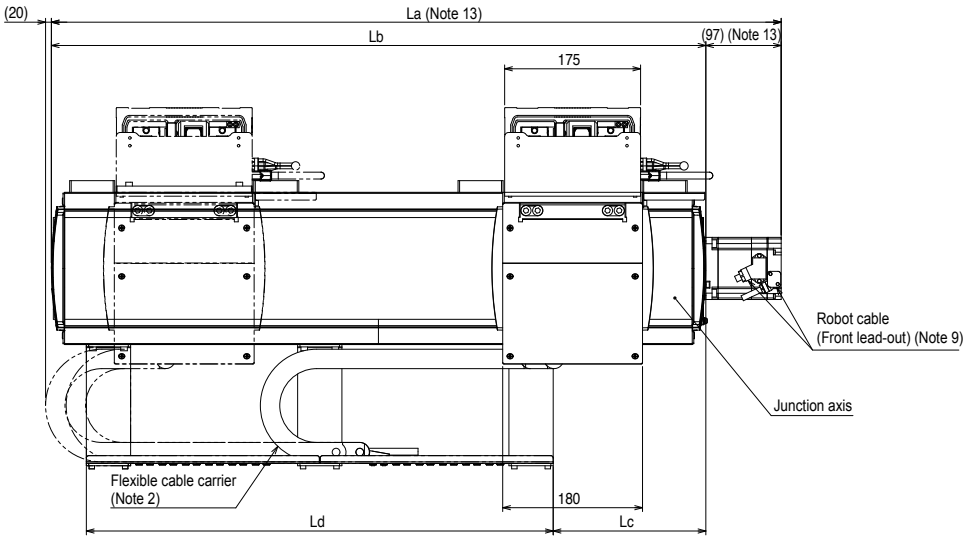




Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm on the main line side may vary depending on the pallet length.
For details, see the Manual.
Note 6. Two-slider simultaneous circulation can be performed only when the movable module is 500 mm-module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. For the battery-less absolute, a length of 8 mm is added.

Circulation pitch		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
La		639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5	1289.5	1339.5	1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5	1192.5	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		196.5	253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5	416.5	471.5	496.5	553.5	607.5	360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		300	300	300	601	601	601	601	601	601	601	601	601	601	601	601	902	902	902	902	902	902	902	902	902
Le		356	356	356	356	356	356	356	356	356	356	356	356	356	366	366	366	366	366	366	366	366	366	366	366
Qa		8	8	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Qb		0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Qc		2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weight (Kg)[Note 12]		27.6	28.7	31.7	33.6	34.7	35.8	37	38.1	39.3	40.4	41.6	42.7	43.9	45	46.2	48.1	49.3	50.4	51.6	52.7	53.9	55	56.2	57.3
Maximum speed (mm/sec)	Lead 40	2400													2160	1920	1680	1440	1320	1200	1080	960		840	720
	Lead 20	1200													1080	960	840	720	660	600	540	480		420	360
	Speed setting	-													90%	80%	70%	60%	55%	50%	45%	40%		35%	30%





View A

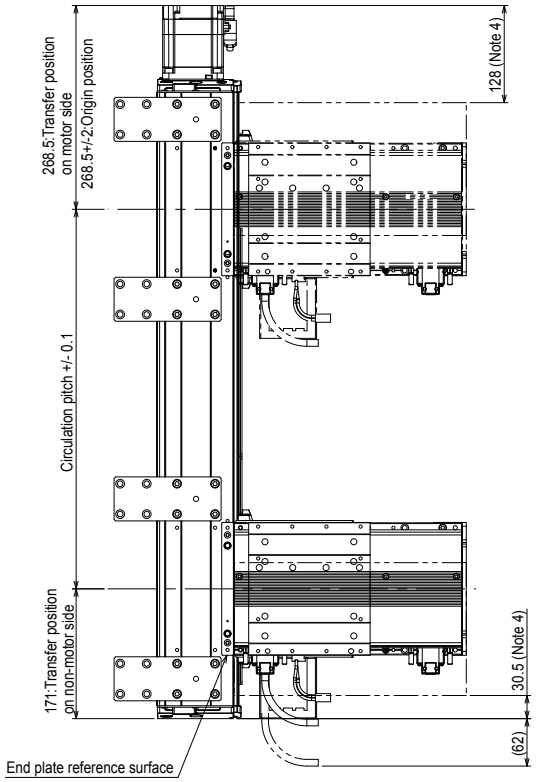
LCMR200

Circulation unit External view

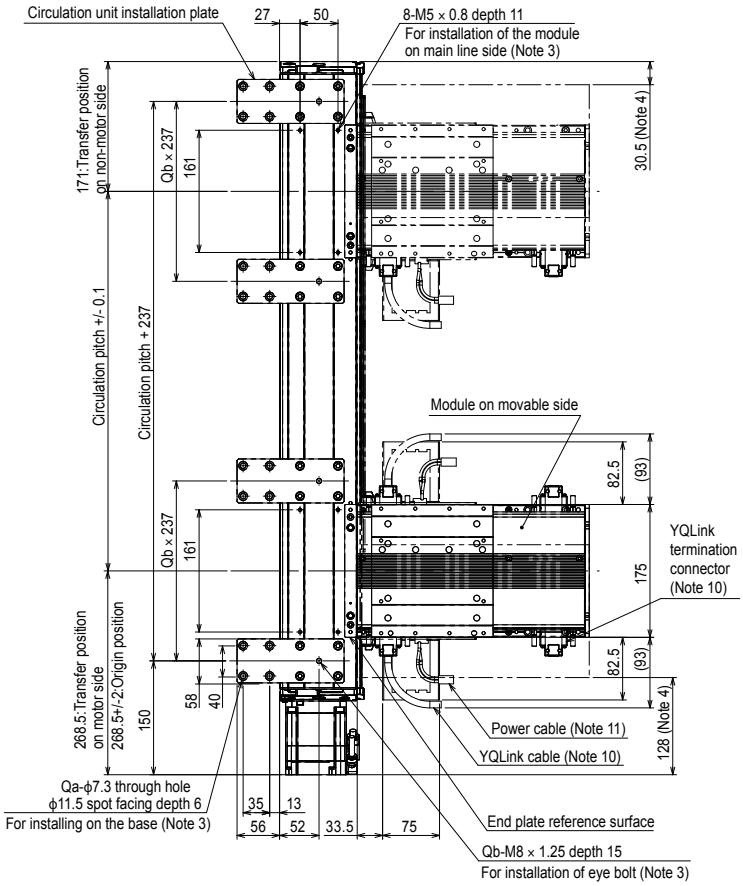
Horizontal circulation

JGX16-H1R/H2R

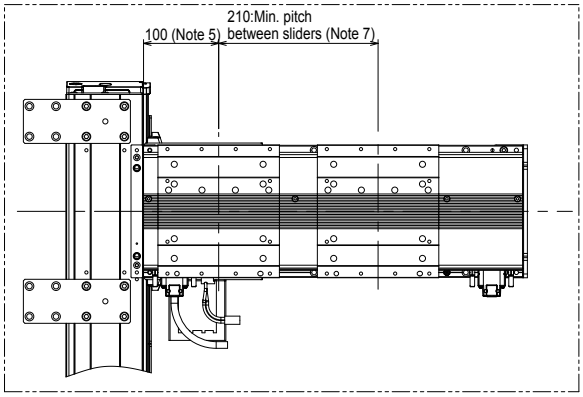
JGX16-H2R

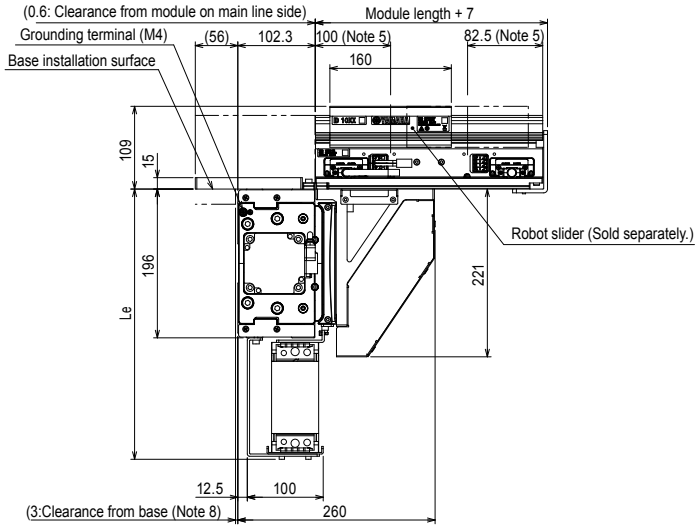


JGX16-H1R



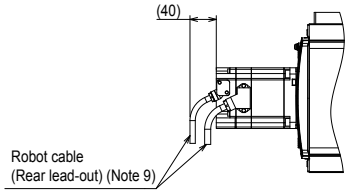
2-slider circulation (Note 6)

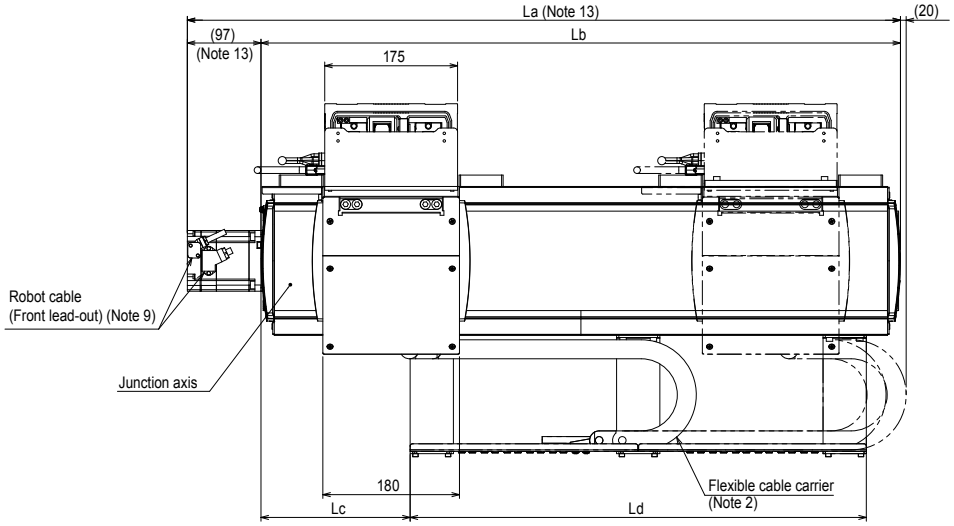




Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm on the main line side may vary depending on the pallet length.
For details, see the Manual.
Note 6. Two-slider simultaneous circulation can be performed only when the movable module is 500mm-module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. For the battery-less absolute, a length of 8 mm is added.

Circulation pitch		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
La		639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5	1289.5	1339.5	1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5	1192.5	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		196.5	253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5	416.5	471.5	496.5	553.5	607.5	360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		300	300	300	601	601	601	601	601	601	601	601	601	601	601	601	902	902	902	902	902	902	902	902	902
Le		356	356	356	356	356	356	356	356	356	356	356	356	356	366	366	366	366	366	366	366	366	366	366	366
Qa		8	8	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Qb		0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Qc		2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weight (Kg)[Note 12]		27.6	28.7	31.7	33.6	34.7	35.8	37	38.1	39.3	40.4	41.6	42.7	43.9	45	46.2	48.1	49.3	50.4	51.6	52.7	53.9	55	56.2	57.3
Maximum speed (mm/sec)	Lead 40	2400													2160	1920	1680	1440	1320	1200	1080	960		840	720
	Lead 20	1200													1080	960	840	720	660	600	540	480		420	360
	Speed setting	-													90%	80%	70%	60%	55%	50%	45%	40%		35%	30%



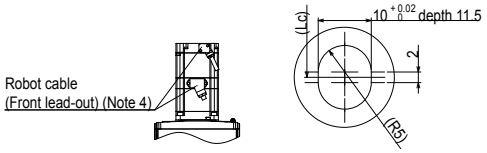


LCMR200

Circulation unit External view

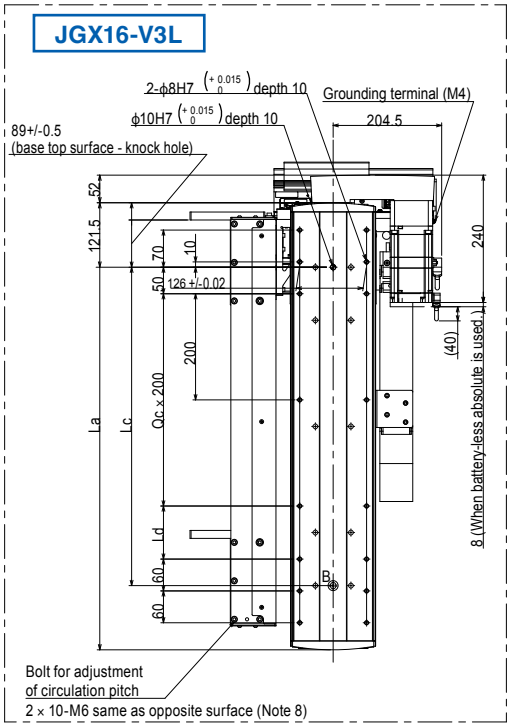
Vertical circulation

JGX16-V1L/V2L/V3L

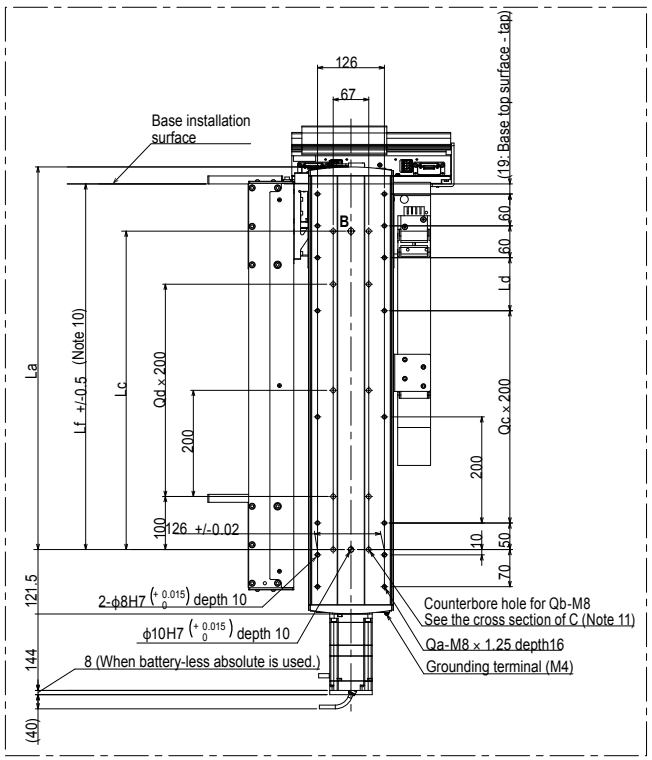


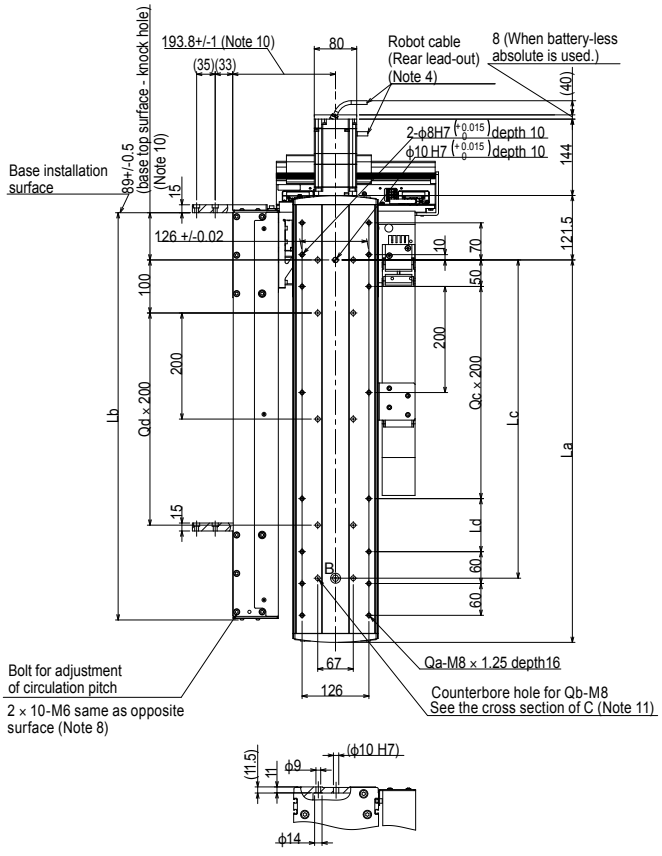
Detailed drawing B

JGX16-V3L



JGX16-V2L

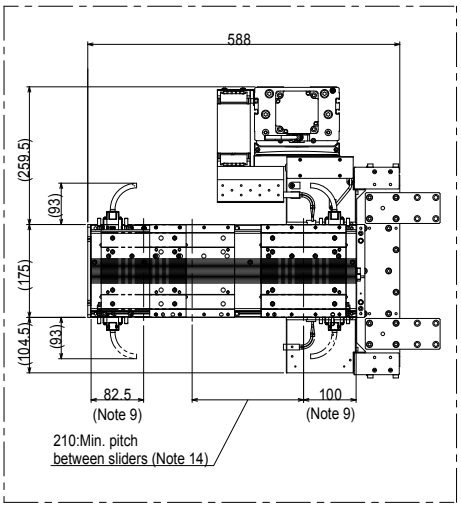




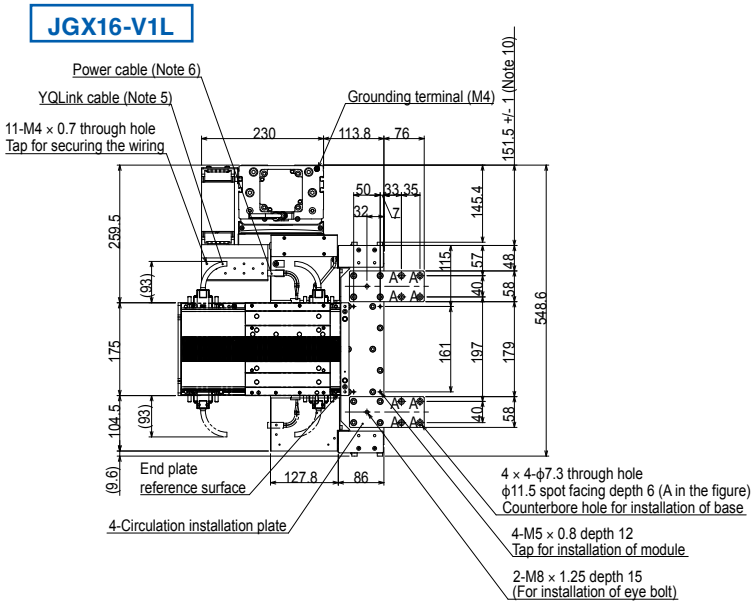
Cross section of C

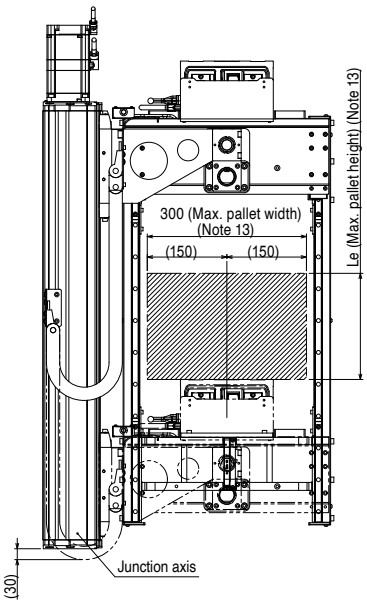
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 5. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 6. The power cable fixing R is R55.
Note 7. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 8. Hexagon socket head cap bolt for fine adjustment of circulation pitch.
Maintain a work space where you can access the bolt.
Note 9. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm on the main line side may vary depending on the pallet length.
For details, see the manual .
Note 10. Design and install the base so that it is within the described tolerance.
Note 11. When securing the unit using the installation counterbore hole (cross section of C), peel off the dust-proof seal adhered to the inside of the axis, and then install the unit.

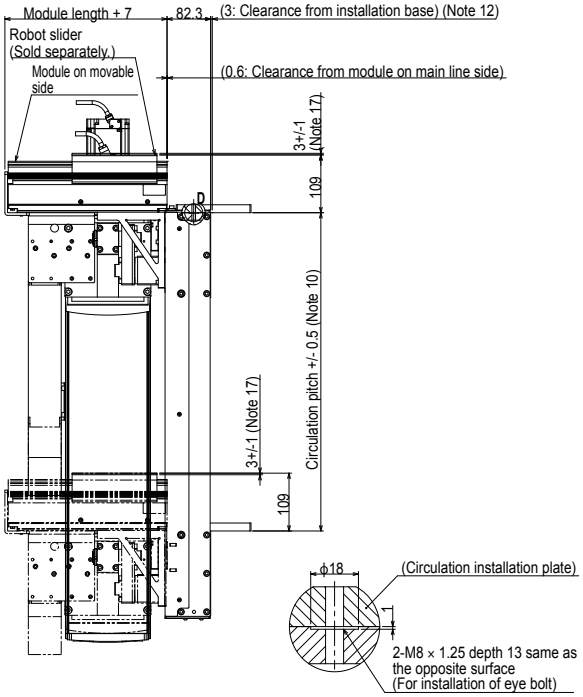
2-slider circulation (Note 15)



JGX16-V1L







Detailed drawing D

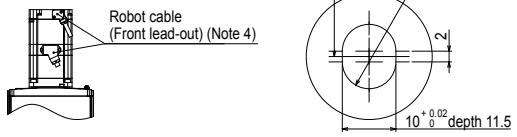
Note 12. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.
Note 13. This value may differ from the allowable overhang amount of the robot slider.
For details about the payload and allowable overhand amount, see the LCMR200 specifications.
Even when the circulation operation is performed with workpieces placed, the dimensions are restricted in the same manner.
Note 14. When the pallet length is 200 mm or more, this pitch is “pallet length + 10 mm”.
However, when two sliders start at the same time, the minimum pitch is 250 mm or “pallet length + 50 mm”.
Note 15. Two-slider simultaneous circulation can be performed only when the movable module is 500mm-module.
Note 16. The origin position is located on the motor side.
Note 17. Slider top surface position when the junction axis is stopped by the mechanical stopper.

Circulation pitch	300mm	350mm	400mm	450mm	500mm	550mm	600mm
La	421	471	521	571	621	671	721
Lb	467.8	517.8	567.8	617.8	667.8	717.8	767.8
Lc	300	350	400	450	500	550	600
Ld	200	50	100	150	200	50	100
Le	80	130	180	230	280	330	380
Lf	389	439	489	539	589	639	689
Qa	10	12	12	12	12	14	14
Qb	6	8	8	8	8	10	10
Qc	0	1	1	1	1	2	2
Qd	0	1	1	1	1	2	2
Weight (Kg)(Note 7)	47.6	49.0	50.5	52.0	53.5	55.0	56.4

Circulation unit External view

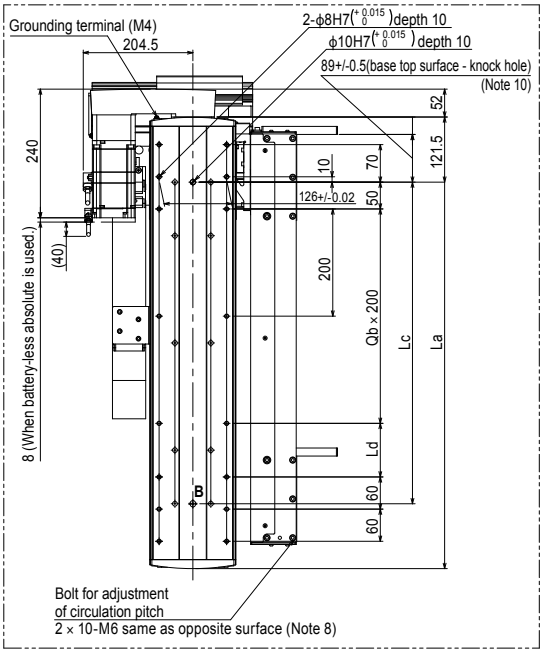
Vertical circulation

JGX16-V4L/V5L/V6L

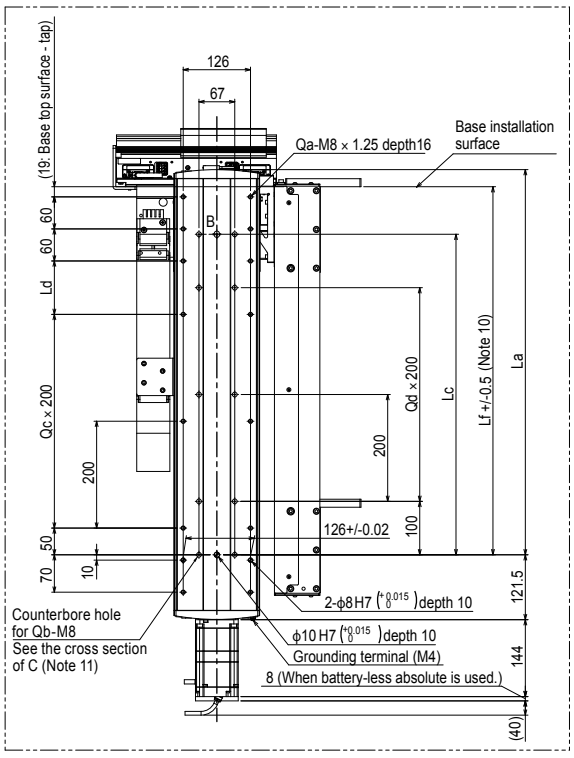


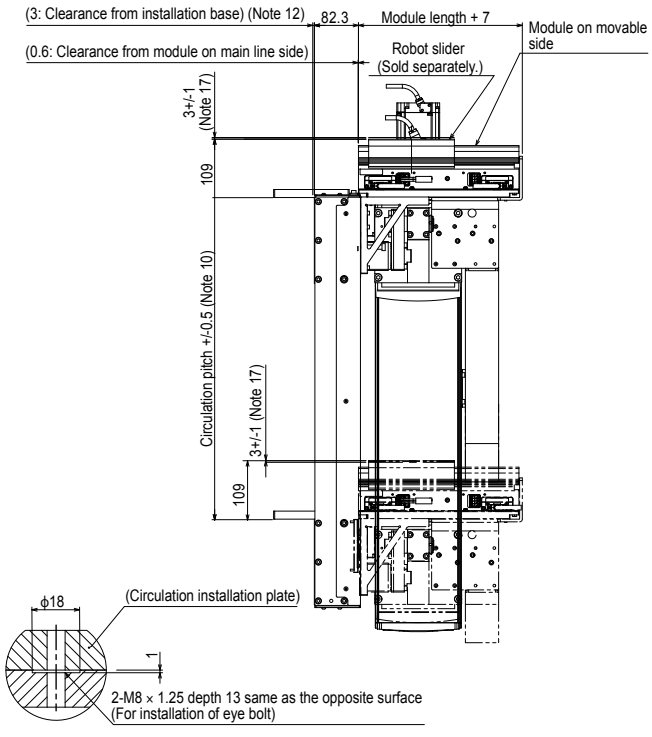
Detailed drawing B

JGX16-V6L



JGX16-V5L

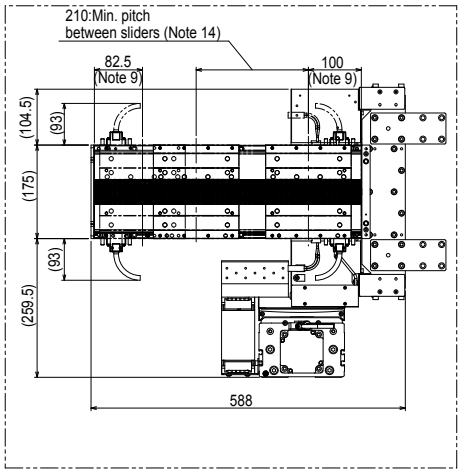




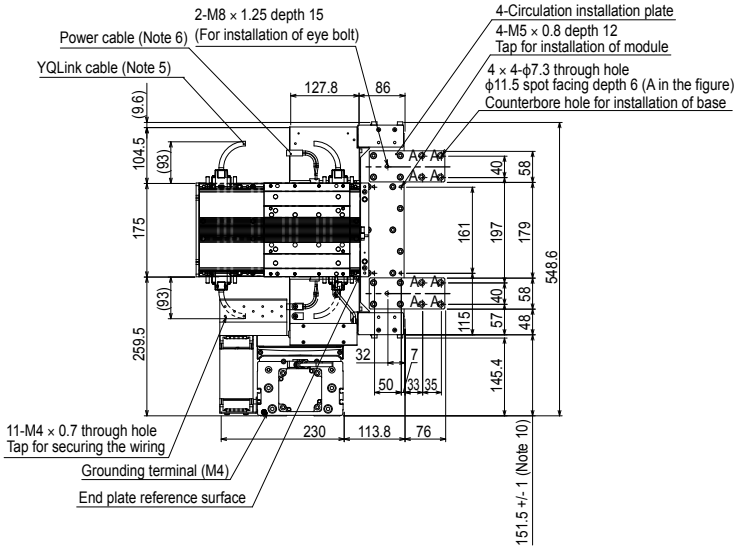
Detailed drawing D

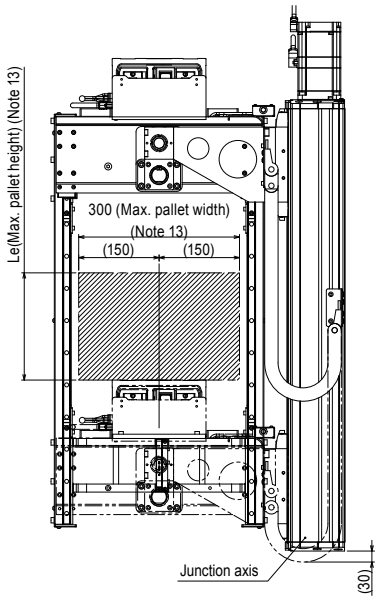
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 5. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 6. The power cable fixing R is R55.
Note 7. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 8. Hexagon socket head cap bolt for fine adjustment of circulation pitch.
Maintain a work space where you can access the bolt.
Note 9. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm on the main line side may vary depending on the pallet length. For details, see the manual .
Note 10. Design and install the base so that it is within the described tolerance.
Note 11. When securing the unit using the installation counterbore hole (cross section of C), peel off the dust-proof seal adhered to the inside of the axis, and then install the unit.
Note 12. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.
Note 13. This value may differ from the allowable overhang amount of the robot slider.
For details about the payload and allowable overhand amount, see the LCMR200 specifications.
Even when the circulation operation is performed with workpieces placed, the dimensions are restricted in the same manner.
Note 14. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 15. Two-slider simultaneous circulation can be performed only when the movable module is 500mm-module.
Note 16. The origin position is located on the motor side.
Note 17. Slider top surface position when the junction axis is stopped by the mechanical stopper.

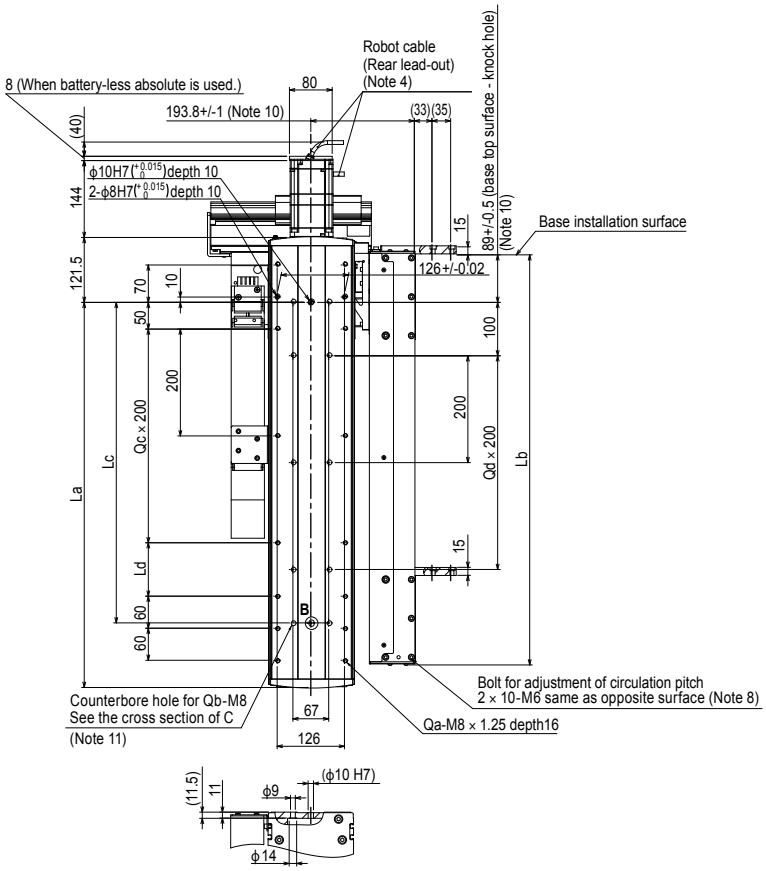
2-slider circulation (Note 15)



JGX16-V4L







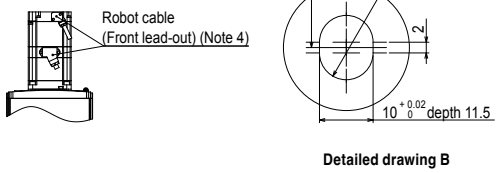
Cross section of C

Circulation pitch	300mm	350mm	400mm	450mm	500mm	550mm	600mm
La	421	471	521	571	621	671	721
Lb	467.8	517.8	567.8	617.8	667.8	717.8	767.8
Lc	300	350	400	450	500	550	600
Ld	200	50	100	150	200	50	100
Le	80	130	180	230	280	330	380
Lf	389	439	489	539	589	639	689
Qa	10	12	12	12	12	14	14
Qb	6	8	8	8	8	10	10
Qc	0	1	1	1	1	2	2
Qd	0	1	1	1	1	2	2
Weight (Kg) (Note 7)	47.6	49.0	50.5	52.0	53.5	55.0	56.4

Circulation unit External view

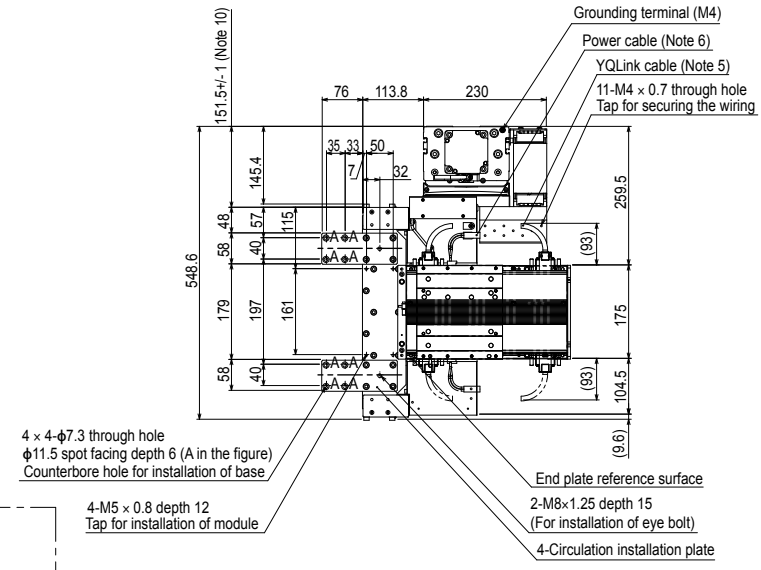
Vertical circulation

JGX16-V1R/V2R/V3R

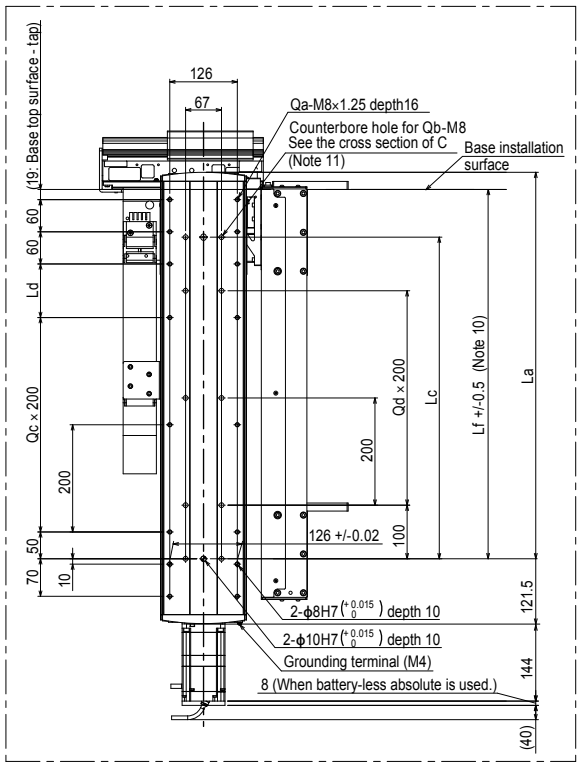


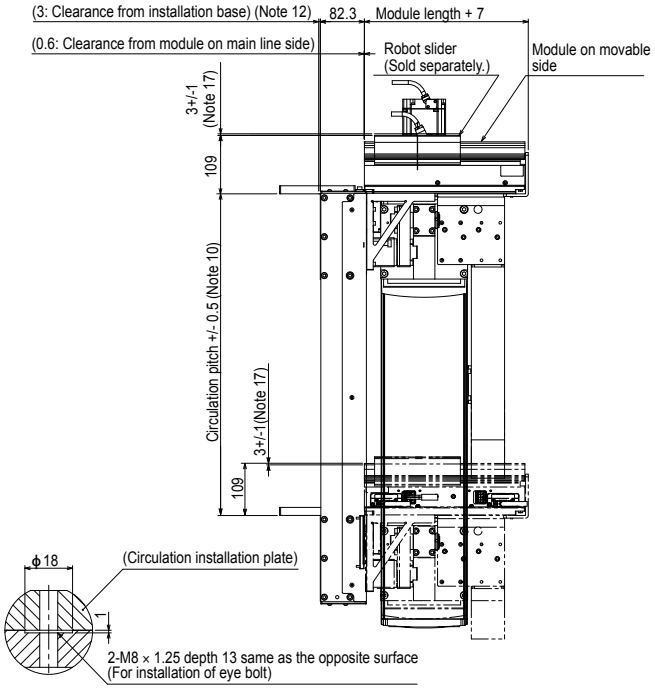
Detailed drawing B

JGX16-V1R



JGX16-V2R

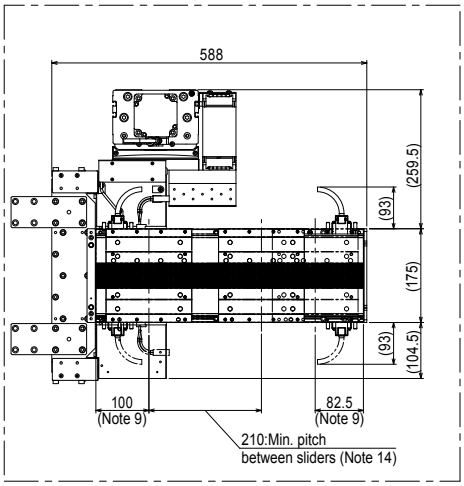




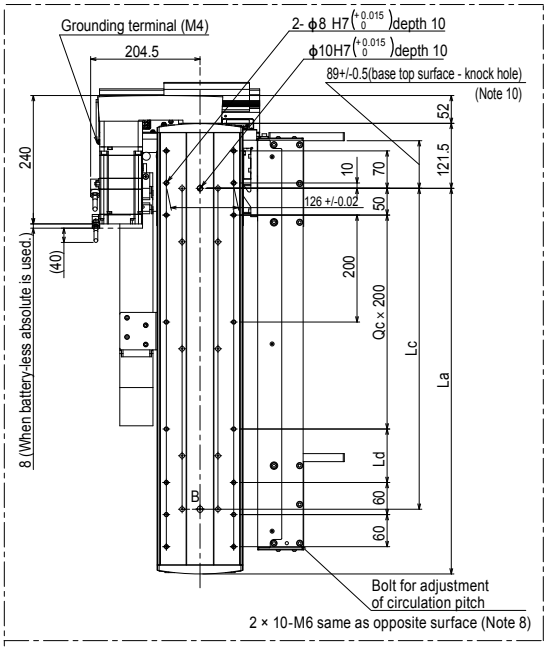
Detailed drawing D

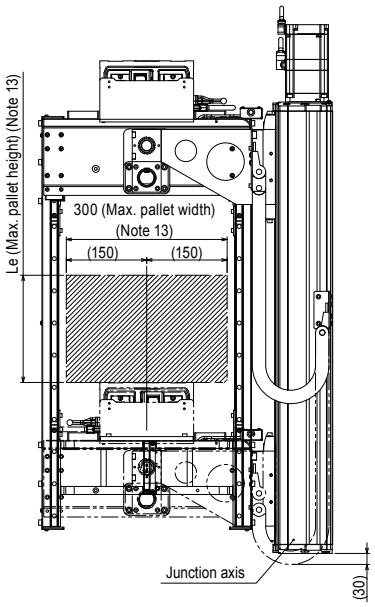
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier. direction may vary depending on the specifications.
Note 5. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 6. The power cable fixing R is R55.
Note 7. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 8. Hexagon socket head cap bolt for fine adjustment of circulation pitch. Maintain a work space where you can access the bolt.
Note 9. Robot slider unstoppable range from the module end. An unstoppable range of 100 mm on the main line side may vary depending on the pallet length. For details, see the manual.
Note 10. Design and install the base so that it is within the described tolerance.
Note 11. When securing the unit using the installation counterbore hole (cross section of C), peel off the dust-proof seal adhered to the inside of the axis, and then install the unit.
Note 12. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.
Note 13. This value may differ from the allowable overhang amount of the robot slider. For details about the payload and allowable overhand amount, see the LCMR200 specifications. Even when the circulation operation is performed with workpieces placed, the dimensions are restricted in the same manner.
Note 14. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm". However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 15. Two-slider simultaneous circulation can be performed only when the movable module is 500mm-module.
Note 16. The origin position is located on the motor side.
Note 17. Slider top surface position when the junction axis is stopped by the mechanical stopper.

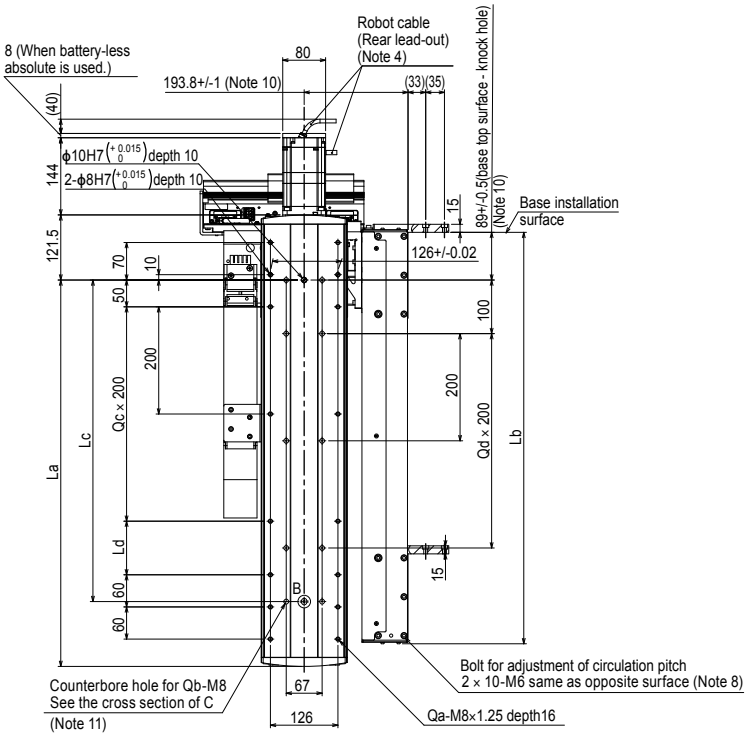
2-slider circulation (Note 15)

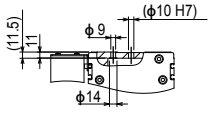


JGX16-V3R









Cross section of C

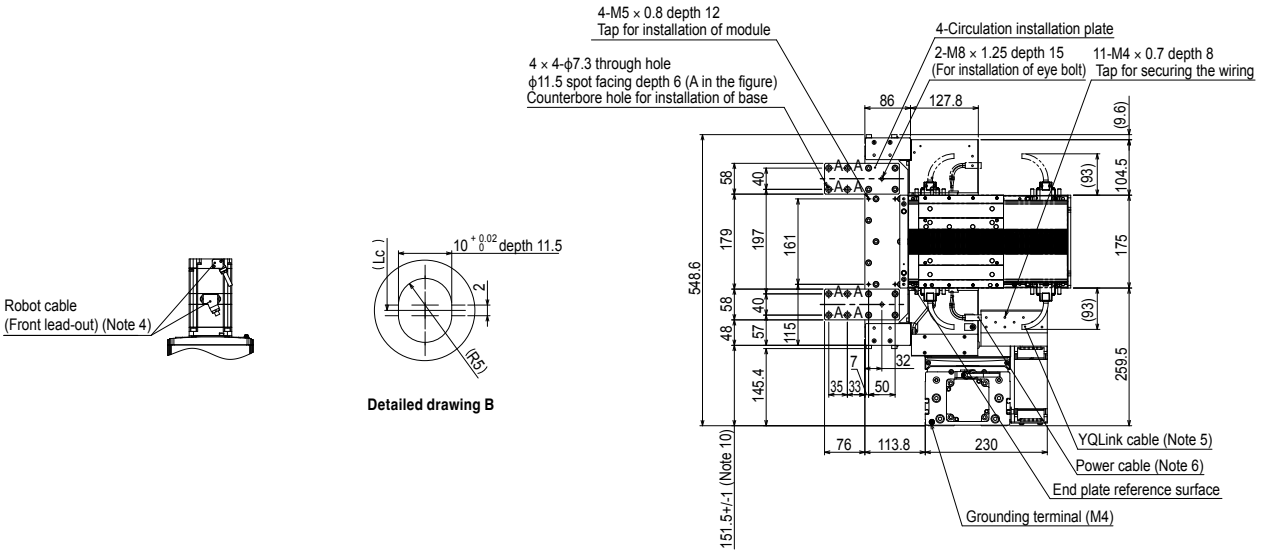
Circulation pitch	300mm	350mm	400mm	450mm	500mm	550mm	600mm
La	421	471	521	571	621	671	721
Lb	467.8	517.8	567.8	617.8	667.8	717.8	767.8
Lc	300	350	400	450	500	550	600
Ld	200	50	100	150	200	50	100
Le	80	130	180	230	280	330	380
Lf	389	439	489	539	589	639	689
Qa	10	12	12	12	12	14	14
Qb	6	8	8	8	8	10	10
Qc	0	1	1	1	1	2	2
Qd	0	1	1	1	1	2	2
Weight (Kg)(Note 7)	47.6	49.0	50.5	52.0	53.5	55.0	56.4

Circulation unit External view

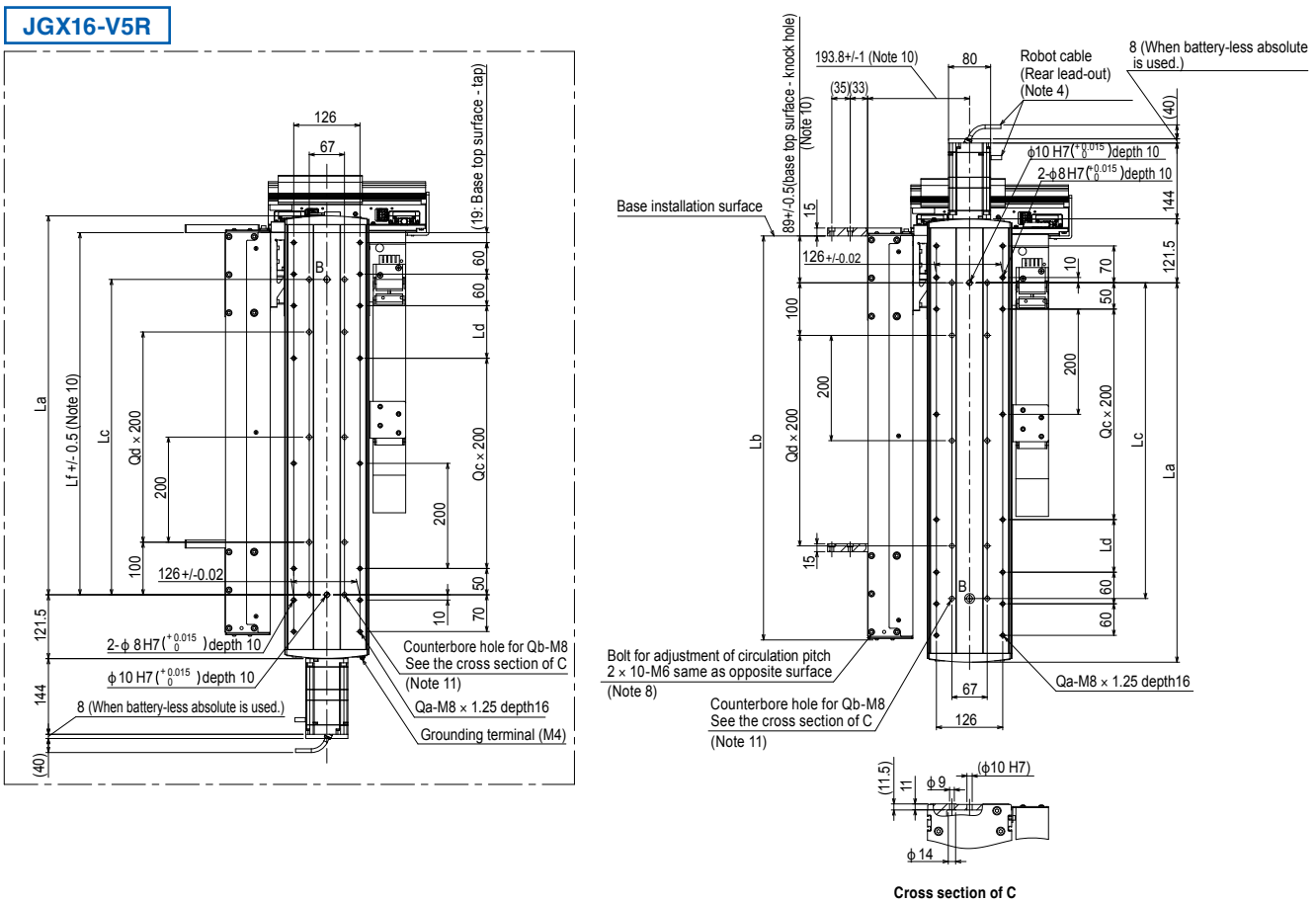
Vertical circulation

JGX16-V4R/V5R/V6R

JGX16-V4R



JGX16-V5R



Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
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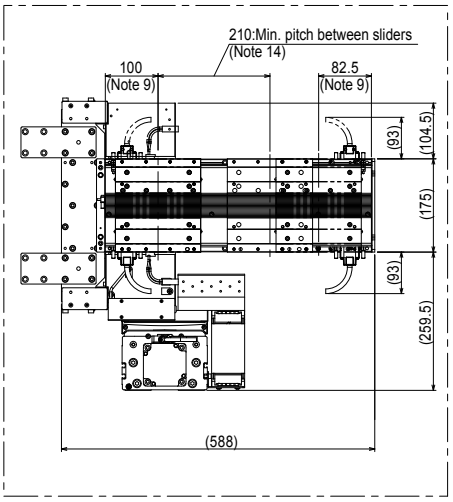
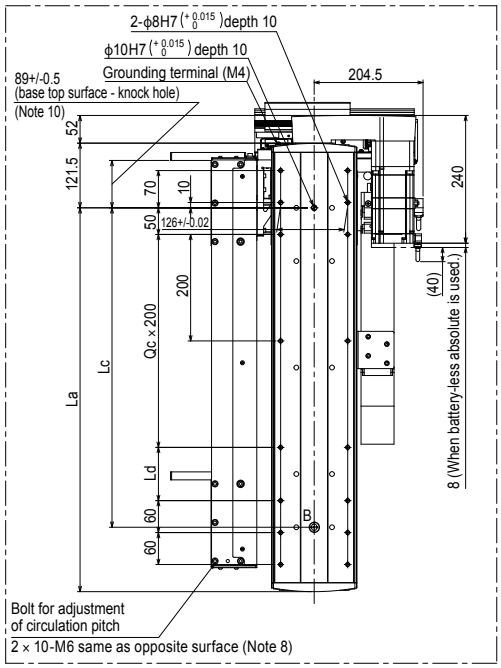
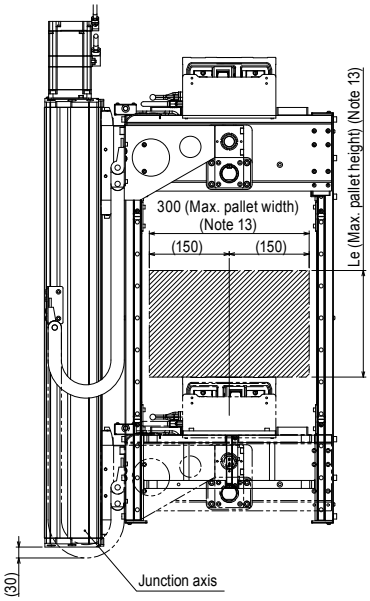
Note 11. When securing the unit using the installation counterbore hole (cross section of C), peel off the dust-proof seal adhered to the inside of the axis, and then install the unit.
Note 12. Reference value for installation of the base. Install the circulation unit so that it is not in contact with the base end.

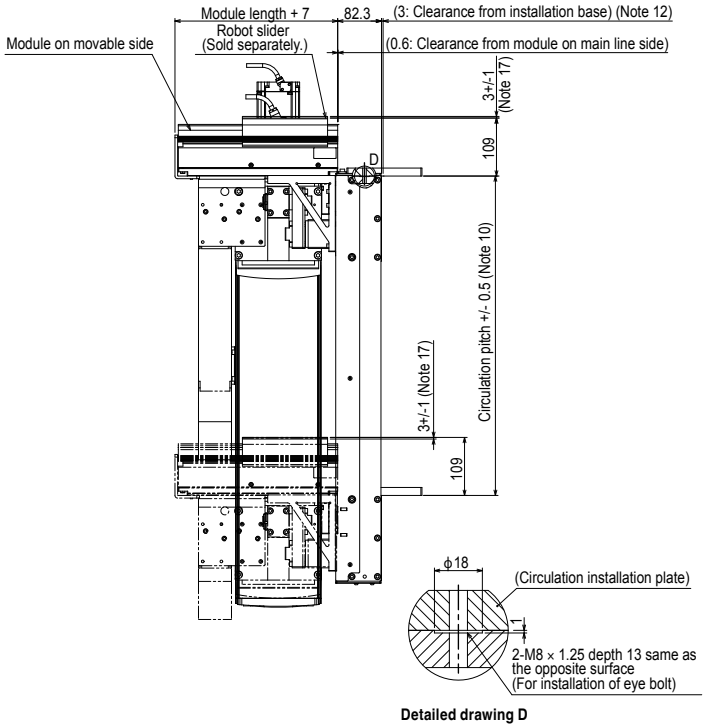
2-slider circulation (Note 15)



JGX16-V6R







Detailed drawing D

Note 13. This value may differ from the allowable overhang amount of the robot slider.
For details about the payload and allowable overhand amount, see the LCMR200 specifications.
Even when the circulation operation is performed with workpieces placed, the dimensions are restricted in the same manner.
Note 14. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 15. Two-slider simultaneous circulation can be performed only when the movable module is 500mm-module.
Note 16. The origin position is located on the motor side.
Note 17. Slider top surface position when the junction axis is stopped by the mechanical stopper.

Circulation pitch	300mm	350mm	400mm	450mm	500mm	550mm	600mm
La	421	471	521	571	621	671	721
Lb	467.8	517.8	567.8	617.8	667.8	717.8	767.8
Lc	300	350	400	450	500	550	600
Ld	200	50	100	150	200	50	100
Le	80	130	180	230	280	330	380
Lf	389	439	489	539	589	639	689
Qa	10	12	12	12	12	14	14
Qb	6	8	8	8	8	10	10
Qc	0	1	1	1	1	2	2
Qd	0	1	1	1	1	2	2
Weight (Kg)(Note 7)	47.6	49.0	50.5	52.0	53.5	55.0	56.4

Traversing unit Order model

Traversing unit (Ⓐ2-row branching specifications / Ⓑ3-row branching specifications)

JGX16 – [ ] – [ ] – [ ] – [ ] – [ ]

Axis main body	Combination 1	Lead designation	Single-axis motor specification	Traverse pitch 2 *1	Intermediate pitch 3 *2
	H1T: Left of junction axis/Front of motor H2T: Left of junction axis/Rear of motor H3T: Right of junction axis/Front of motor H4T: Right of junction axis/Rear of motor	40: Lead 40mm 20: Lead 20mm	Blank: Battery-less absolute S: Standard specification	20 to 135cm (5cm pitch)	25 to 110cm (5cm pitch)

– [ ] – [ ] – [ ]

Left fixed module installation position - Right fixed module installation position 4 *3		Robot cable length	Robot cable lead-out direction
AC-D	ABC-D	R3: 3m	F: Front of motor
AC-F	ABC-E	R5: 5m	R: Rear of motor
A-DF	ABC-F	R10: 10m	
C-DF	A-DEF		
AC-E	B-DEF		
B-DF	C-DEF		

– **LCMR200** – [ ] – [ ] – [ ]

LCM main body	Variation	YQLink cable length (IN side) 5	YQLink cable length (OUT side) 5
	F2/F3/F5 B2/B3/B5	3: 3m 7: 7m A: 10m	3: 3m 7: 7m A: 10m T: Termination connector

– **A30** **N** [ ]

Driver	Brake unit	Battery *4
A30: YHX-A30-SET	N: None	B: With battery N: None

*1 When the intermediate pitch is used, the traverse pitch is 50 to 135 cm.
*2 This pitch is selected only when the intermediate pitch is used.
It is necessary that "traverse pitch - intermediate pitch" ≥ 25 cm.
*3 There are restrictions on the combination of positions where the fixed module is installed.
The fixed module cannot be installed at a position other than the selected combination.
For details, check "Selectable combination of fixed module installation positions" on page 45.
*4 When the battery-less absolute is selected, no battery is needed.

Traversing unit (ⒸRetracting specifications = Fixed module installation position "B-E")

JGX16 – [ ] – [ ] – [ ] – [ ] – [ ]

Axis main body	Combination 1	Lead designation	Single-axis motor specification	Traverse pitch 2	Intermediate pitch 3 *1
	H1T: Left of junction axis/Front of motor H2T: Left of junction axis/Rear of motor H3T: Right of junction axis/Front of motor H4T: Right of junction axis/Rear of motor	40: Lead 40mm 20: Lead 20mm	Blank: Battery-less absolute S: Standard specification	50 to 130cm (10cm pitch)	25 to 65cm (5cm pitch)

– [ ] – [ ] – [ ]

Left fixed module installation position - Right fixed module installation position 4 *2	Robot cable length	Robot cable lead-out direction
B-E	R3: 3m R5: 5m R10: 10m	F: Front of motor R: Rear of motor

– **LCMR200** – [ ] – [ ] – [ ] – [ ]

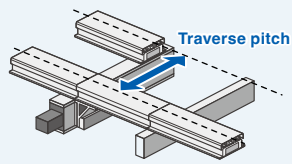
LCM main body	Variation	YQLink cable length (IN side) 5	2nd module variation 6 *3	YQLink cable length (OUT side) 5
	F2/F3/F5 B2/B3/B5	3: 3m 7: 7m A: 10m	F2/F3/F5 B2/B3/B5	3: 3m 7: 7m A: 10m T: Termination connector

– **A30** **N** [ ]

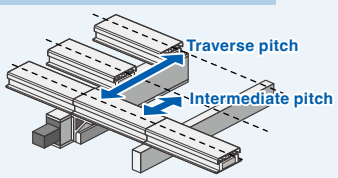
Driver	Brake unit	Battery *4
A30: YHX-A30-SET	N: None	B: With battery N: None

*1 It is necessary that traverse pitch = intermediate pitch x 2.
*2 For details, check "Selectable combination of fixed module installation positions" on page 45.
*3 Specify two modules with the same length.
*4 When the battery-less absolute is selected, no battery is needed.

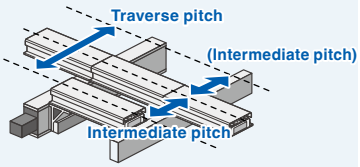
Ⓐ 2-row branching specifications



Ⓑ 3-row branching specifications



Ⓒ Retracting specifications

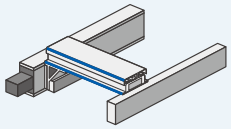


* For the retracting specifications, the intermediate pitch is the same on the front and rear.

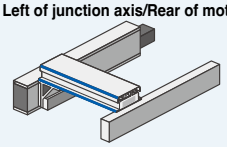
■ Left/right and front/rear are based on when the front line of the module is placed on the front. Front line

1 Combination

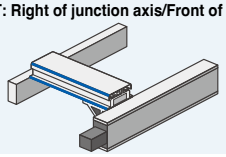
H1T: Left of junction axis/Front of motor



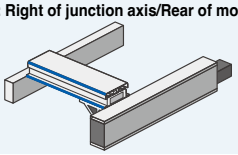
H2T: Left of junction axis/Rear of motor



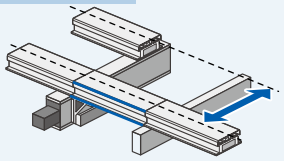
H3T: Right of junction axis/Front of motor



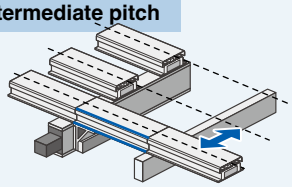
H4T: Right of junction axis/Rear of motor



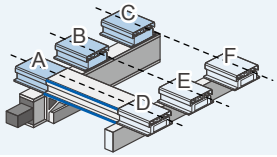
2 Traverse pitch



3 Intermediate pitch

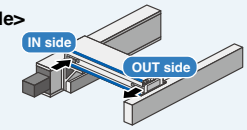


4 Fixed module installation position

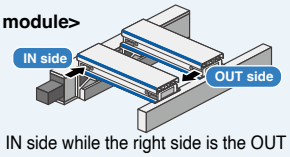


5 Length of YQLink cable

<1 module>

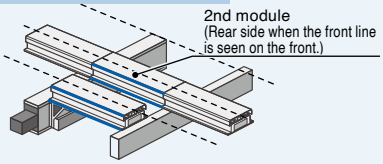


<2 module>



When the front line is placed on the front, the left side is the IN side while the right side is the OUT side.

6 2nd module variation



Traversing unit Basic specifications

JGX16-T Basic specifications

Axis configuration	Junction axis		LCMR200[*1]
Motor output	□80/750 W		-
Repeated positioning accuracy	+/-5 µm		+/-5 µm
Speed reduction mechanism/drive method	Grinding ball screw ϕ20 (C5 grade)		Linear motor with moving magnet type core
Ball screw lead	40 mm	20 mm	-
Maximum speed[*2]	2400 mm/sec	1200 mm/sec	2500 mm/sec
Traverse pitch/linear module length	200 to 1350 mm (50 mm pitch)		200, 300, 500
Position detection	Magnetic type absolute position sensor[*3]		Magnetic type absolute position sensor
Operating temperature	0°C to 40°C[*4]		
Controller	YHX controller		

* 1. For details about the specifications, see P.12
* 2. The maximum speed may not be reached depending on the operating range.
* 3. Slider transfer position only
* 4. The operation is performed at an environmental temperature (+/-5 °C) at which the installation and adjustment have been performed.

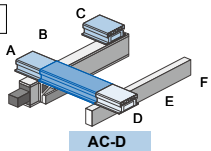
For the maximum payload and allowable overhang per robot slider, see page 49.

Selectable combination of fixed module installation positions

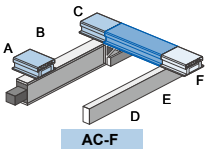
2-row branching specifications

Selectable combination

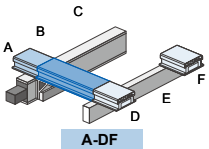
- AC-D
- AC-F
- A-DF
- C-DF



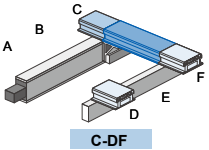
AC-D



AC-F



A-DF

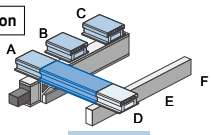


C-DF

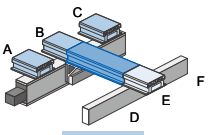
3-row branching specifications

Selectable combination

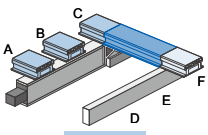
- ABC-D
- ABC-E
- ABC-F
- A-DEF
- B-DEF
- C-DEF
- AC-E
- B-DF



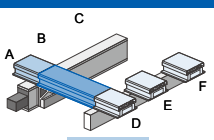
ABC-D



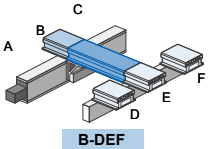
ABC-E



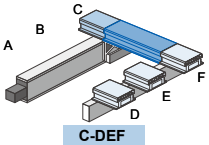
ABC-F



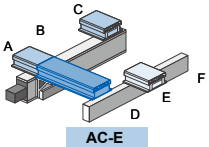
A-DEF



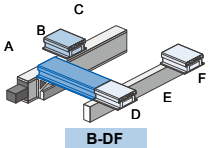
B-DEF



C-DEF



AC-E

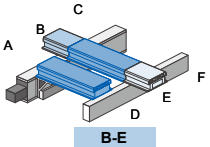


B-DF

Retracting specifications

Selectable combination

- B-E



B-E
(2-module traverse)

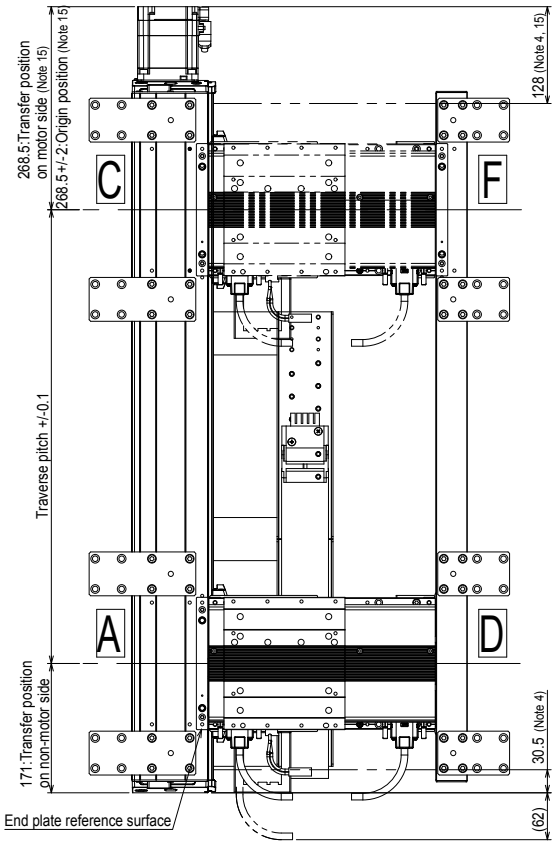
LCMR200

Traversing unit External view

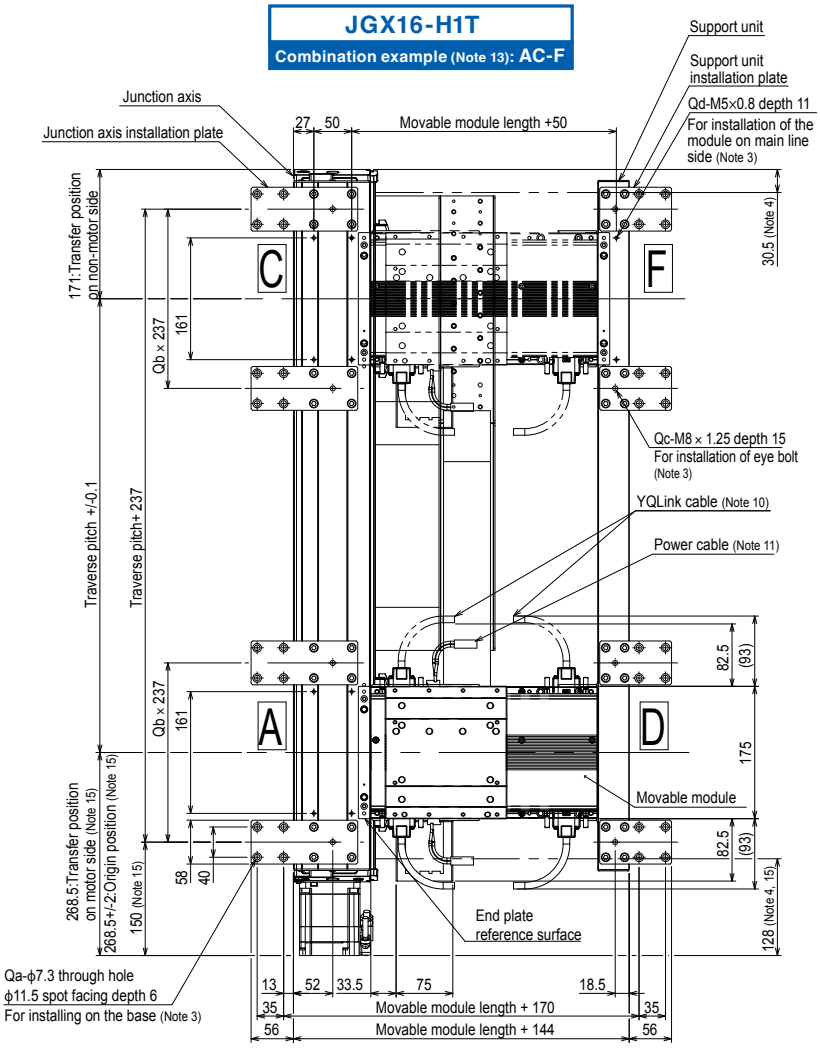
2-row branching specifications

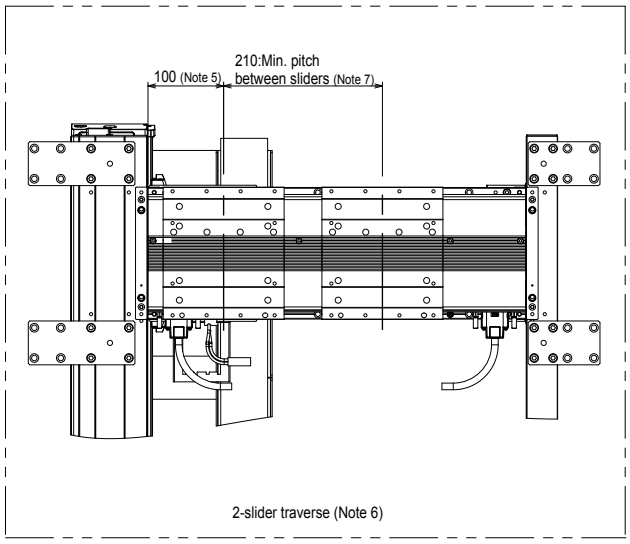
JGX16-H1T/H2T

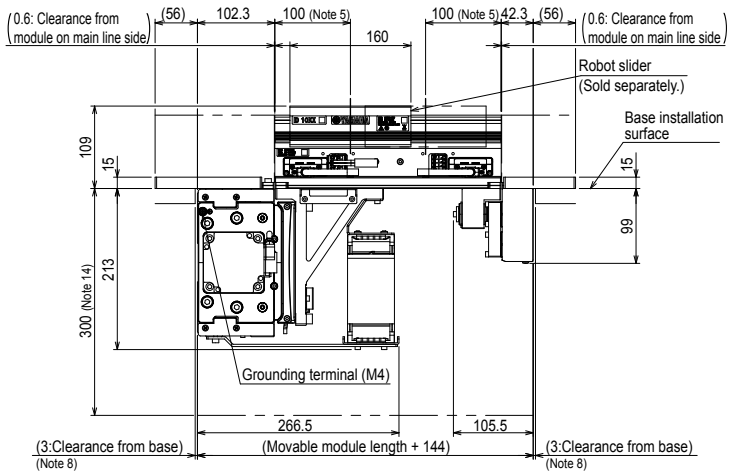
JGX16-H2T
Combination example (Note 13): AC-F



JGX16-H1T
Combination example (Note 13): AC-F





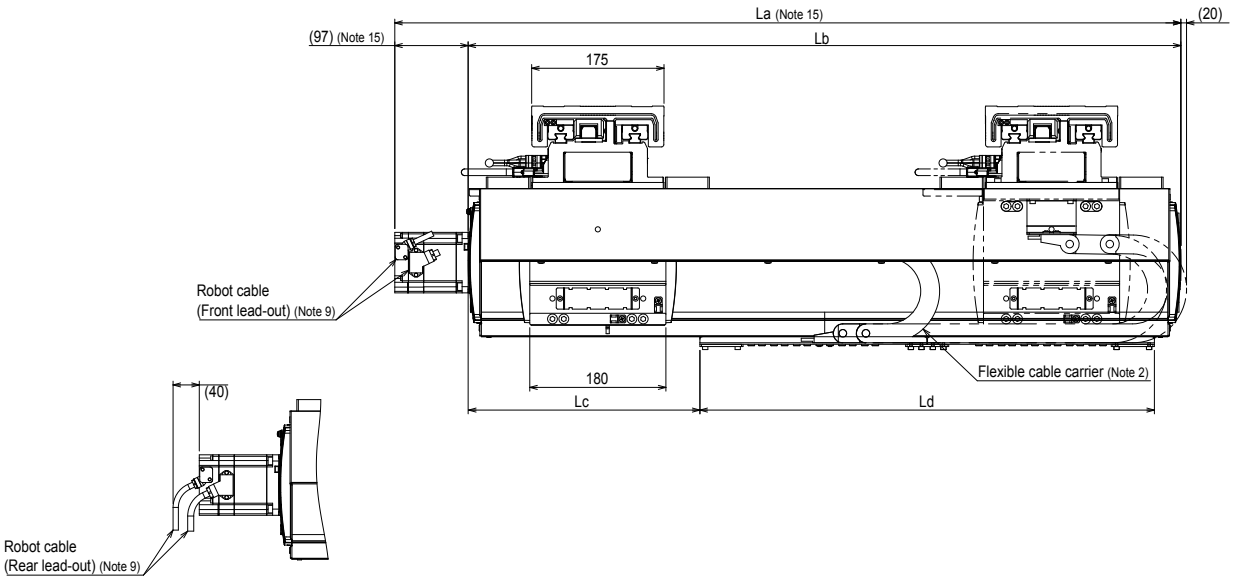


Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•AC-D •A-DF
•AC-F •C-DF
Note 14. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 15. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		200	250	300	350	400	450	500	550	600	650	700	750	800
La		639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5
Lb		542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5
Lc		196.5	253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5	416.5	471.5	496.5
Ld		300	300	300	601	601	601	601	601	601	601	601	601	601
Qa		16	16	32	32	32	32	32	32	32	32	32	32	32
Qb		0	0	1	1	1	1	1	1	1	1	1	1	1
Qc		4	4	8	8	8	8	8	8	8	8	8	8	8
Weight (Kg)(Note 12)		37.0	38.5	41.8	44.1	45.5	46.9	48.5	49.9	51.5	52.9	54.4	55.9	57.4
Maximum speed (mm/sec)	Lead 40	2400												
	Lead 20	1200												
	Speed setting	-												

Traverse pitch		850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
La		1289.5	1339.5	1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		1192.5	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		553.5	607.5	360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		601	601	902	902	902	902	902	902	902	902	902
Qa		32	32	32	32	32	32	32	32	32	32	32
Qb		1	1	1	1	1	1	1	1	1	1	1
Qc		8	8	8	8	8	8	8	8	8	8	8
Weight (Kg)(Note 12)		58.9	60.4	62.6	64.2	65.6	67.2	68.6	70.1	71.6	73.1	74.6
Maximum speed (mm/sec)	Lead 40	2160	1920	1680	1440	1320	1200	1080	960		840	720
	Lead 20	1080	960	840	720	660	600	540	480		420	360
	Speed setting	90%	80%	70%	60%	55%	50%	45%	40%		35%	30%

Combination	•AC-D •AC-F	•A-DF •C-DF
Qd	10	8



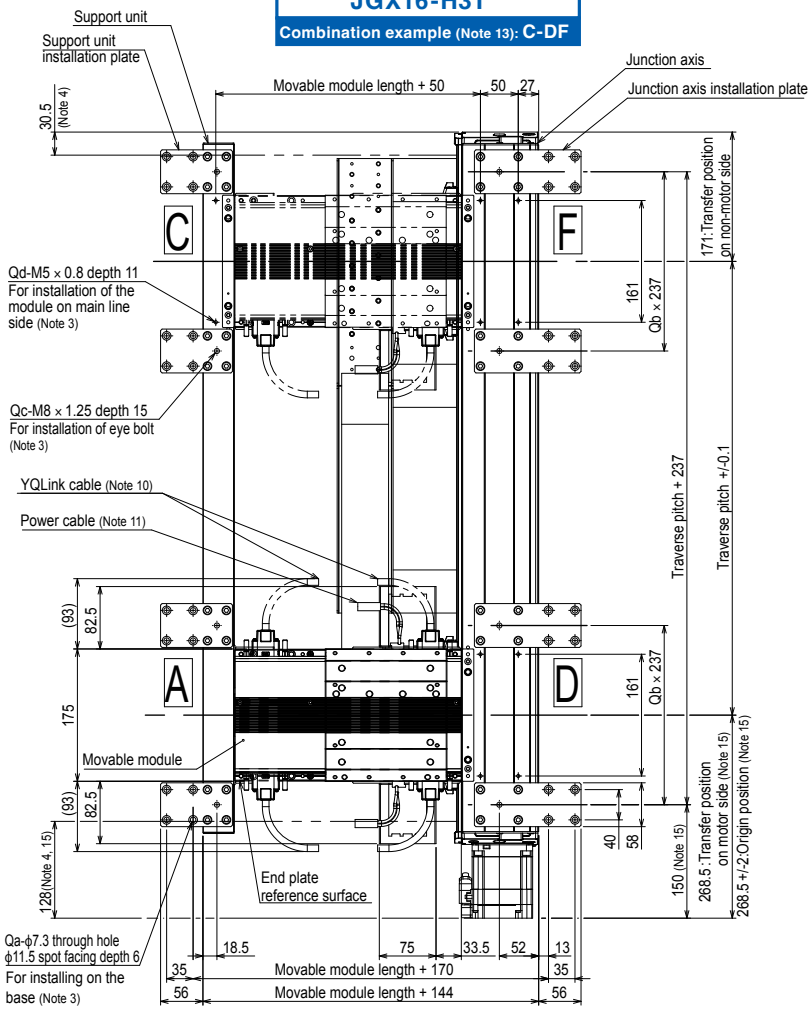
LCMR200

Traversing unit External view

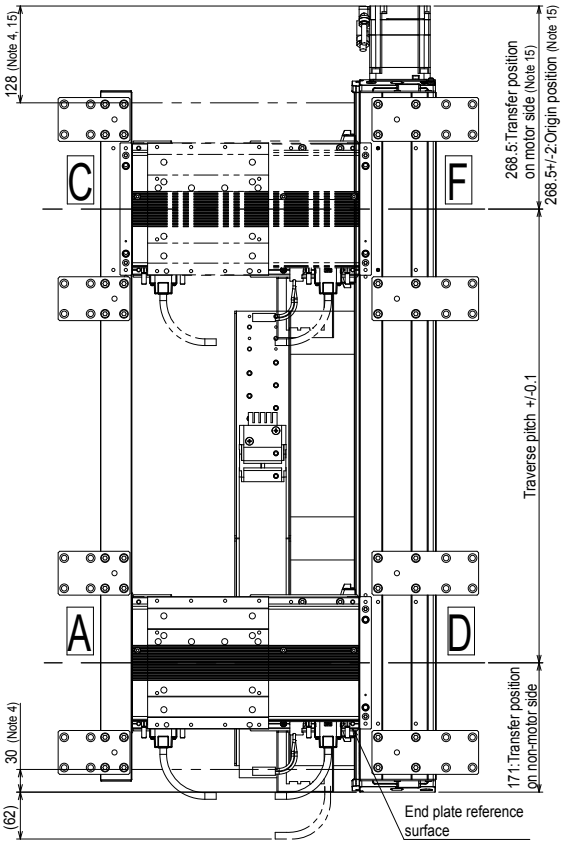
2-row branching specifications

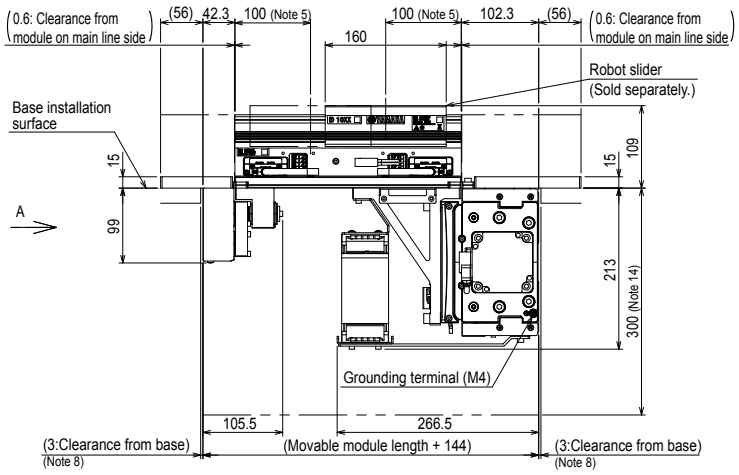
JGX16-H3T/H4T

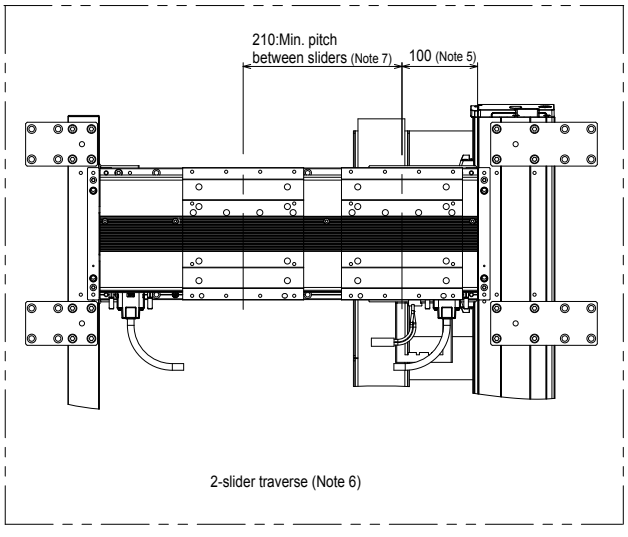
JGX16-H3T
Combination example (Note 13): C-DF



JGX16-H4T
Combination example (Note 13): C-DF





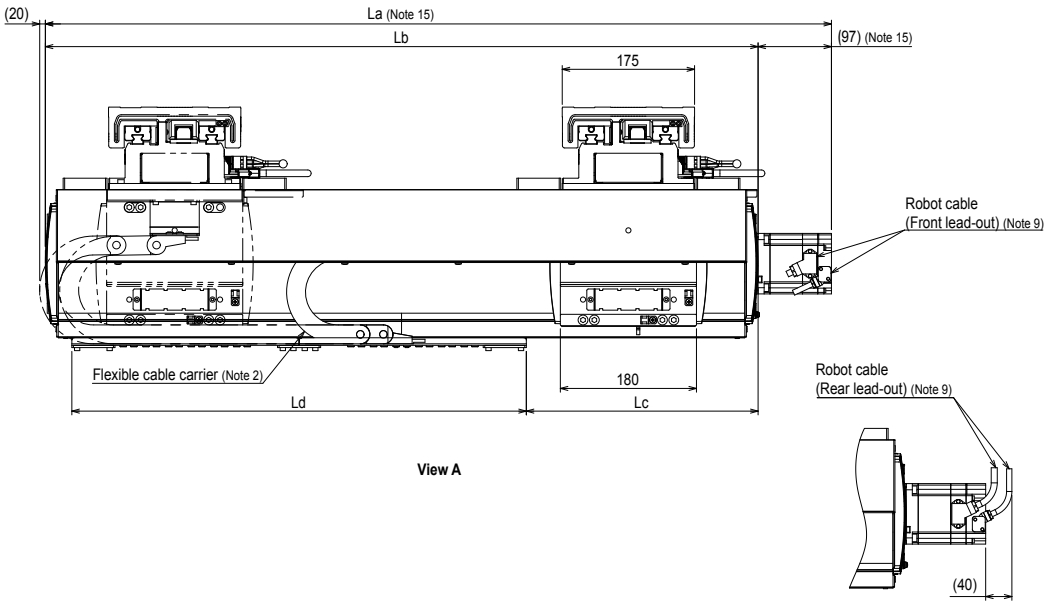


Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•AC-D •A-DF
•AC-F •C-DF
Note 14. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 15. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		200	250	300	350	400	450	500	550	600	650	700	750	800
La		639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5
Lb		542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5
Lc		196.5	253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5	416.5	471.5	496.5
Ld		300	300	300	601	601	601	601	601	601	601	601	601	601
Qa		16	16	32	32	32	32	32	32	32	32	32	32	32
Qb		0	0	1	1	1	1	1	1	1	1	1	1	1
Qc		4	4	8	8	8	8	8	8	8	8	8	8	8
Weight (Kg)(Note 12)		37.0	38.5	41.8	44.1	45.5	46.9	48.5	49.9	51.5	52.9	54.4	55.9	57.4
Maximum speed (mm/sec)	Lead 40	2400												
	Lead 20	1200												
	Speed setting	-												

Traverse pitch		850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
La		1289.5	1339.5	1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		1192.5	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		553.5	607.5	360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		601	601	902	902	902	902	902	902	902	902	902
Qa		32	32	32	32	32	32	32	32	32	32	32
Qb		1	1	1	1	1	1	1	1	1	1	1
Qc		8	8	8	8	8	8	8	8	8	8	8
Weight (Kg)(Note 12)		58.9	60.4	62.6	64.2	65.6	67.2	68.6	70.1	71.6	73.1	74.6
Maximum speed (mm/sec)	Lead 40	2160	1920	1680	1440	1320	1200	1080	960		840	720
	Lead 20	1080	960	840	720	660	600	540	480		420	360
	Speed setting	90%	80%	70%	60%	55%	50%	45%	40%		35%	30%

Combination	•AC-D •AC-F	•A-DF •C-DF
Qd	8	10



View A

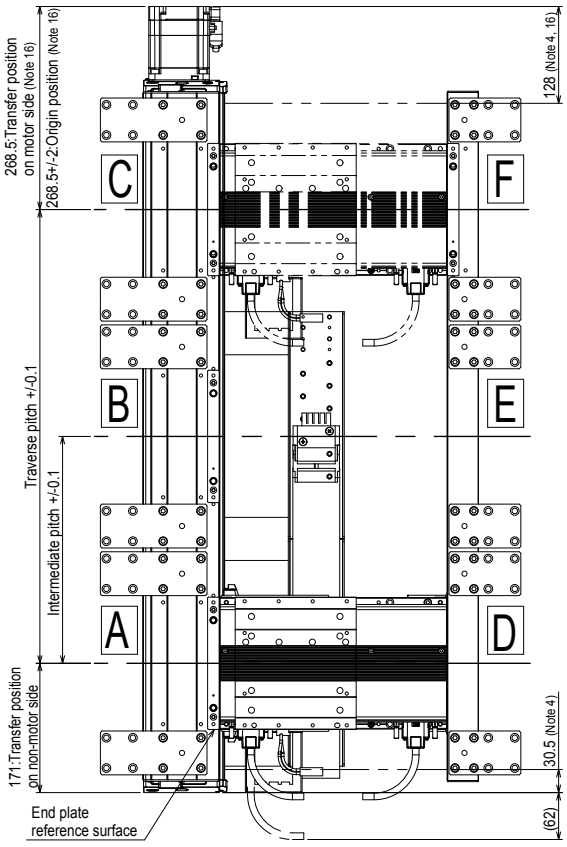
LCMR200

Traversing unit External view

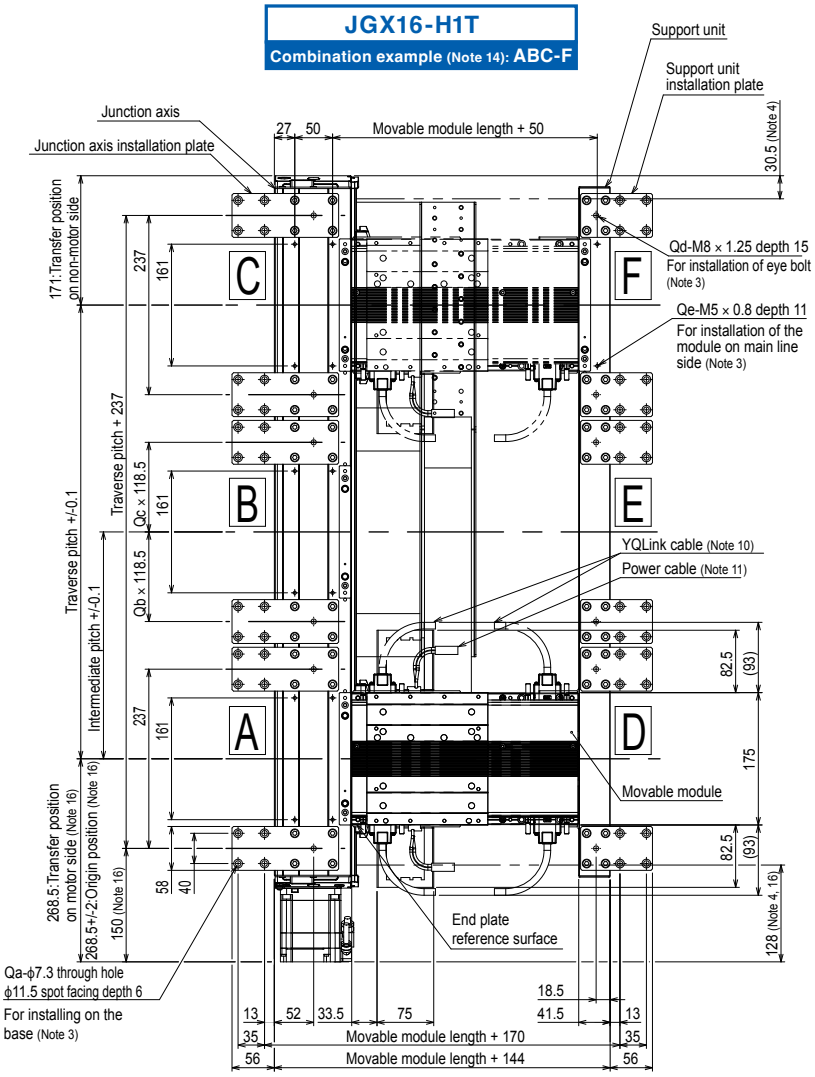
3-row branching specifications

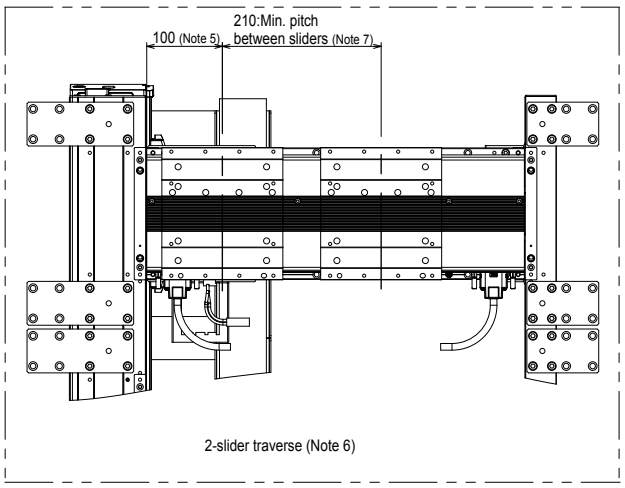
JGX16-H1T/H2T

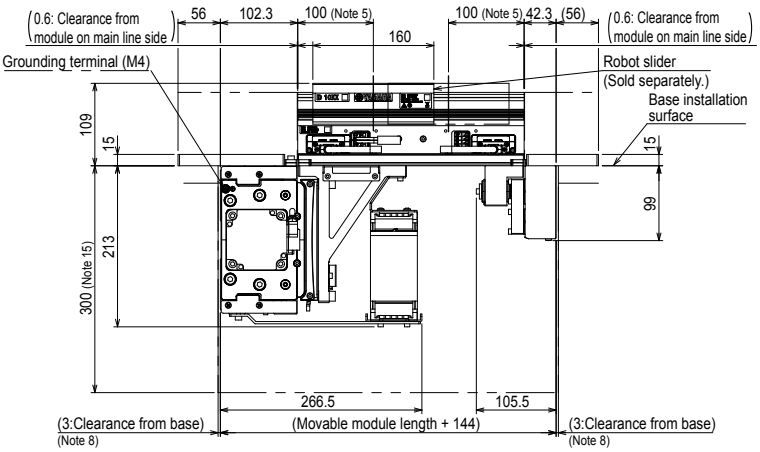
JGX16-H2T
Combination example (Note 14): ABC-F



JGX16-H1T
Combination example (Note 14): ABC-F







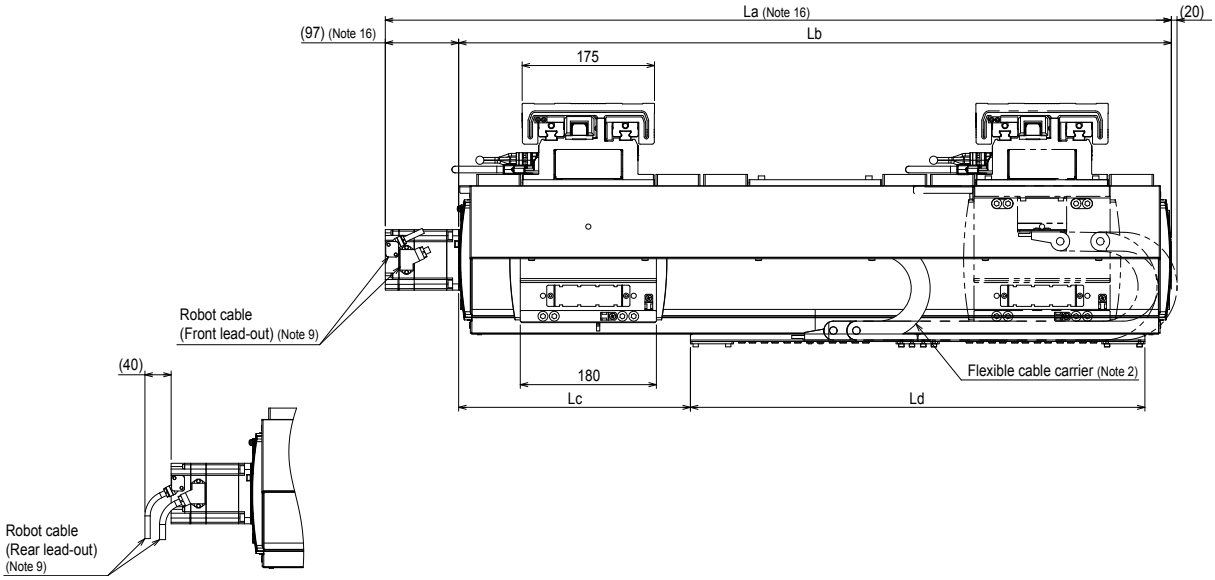
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The intermediate pitch can be selected in 50 mm increments. The selectable intermediate pitch may vary depending on the traverse pitch.
Note 14. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•ABC-D •A-DEF •AC-E
•ABC-E •B-DEF •B-DF
•ABC-F •C-DEF
Note 15. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 16. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		500	550	600	650	700	750	800	850	900
Intermediate pitch (Note 13)		250	250 to 300	250 to 350	250 to 400	250 to 450	250 to 500	250 to 550	250 to 600	250 to 650
La		939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5	1289.5	1339.5
Lb		842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5	1192.5	1242.5
Lc		196.5	251.5	306.5	361.5	416.5	471.5	496.5	553.5	607.5
Ld		601	601	601	601	601	601	601	601	601
Weight (Kg)(Note 12)		48.5	49.9	51.5	52.9	54.4	55.9	57.4	58.9	60.4
Maximum speed (mm/sec)	Lead 40	2400							2160	1920
	Lead 20	1200							1080	960
	Speed setting	-							90%	80%

Traverse pitch		950	1000	1050	1100	1150	1200	1250	1300	1350
Intermediate pitch (Note 13)		250 to 700	250 to 750	250 to 800	250 to 850	250 to 900	250 to 950	250 to 1000	250 to 1050	250 to 1100
La		1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		902	902	902	902	902	902	902	902	902
Weight (Kg)(Note 12)		62.6	64.2	65.6	67.2	68.6	70.1	71.6	73.1	74.6
Maximum speed (mm/sec)	Lead 40	1680	1440	1320	1200	1080	960		840	720
	Lead 20	840	720	660	600	540	480		420	360
	Speed setting	70%	60%	55%	50%	45%	40%		35%	30%

	Intermediate pitch = 250	(Traverse pitch) - (Intermediate pitch) = 250	Traverse pitch =500 and Intermediate pitch = 250	Others
Qa	40	40	32	48
Qb	0	1	0	1
Qc	1	0	0	1
Qd	10	10	8	12

Combination	•ABC-D •ABC-E •ABC-F	•A-DEF •B-DEF •C-DEF •AC-E	•B-DF
Qe	14	10	8

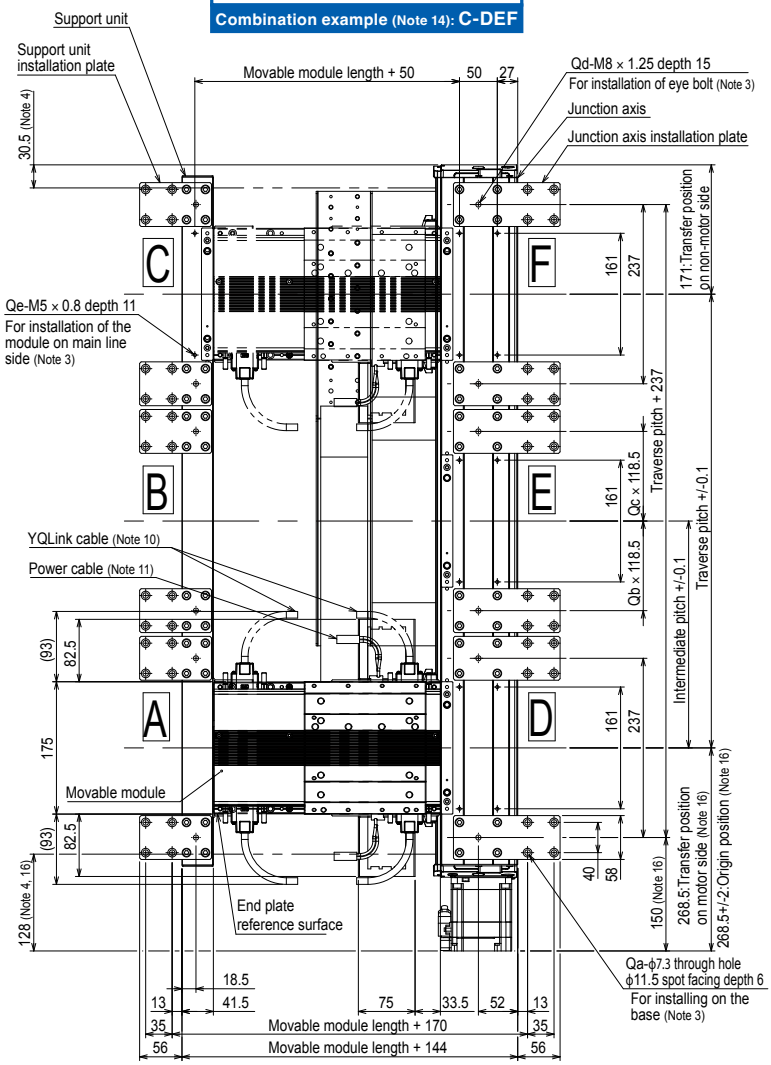


Traversing unit External view

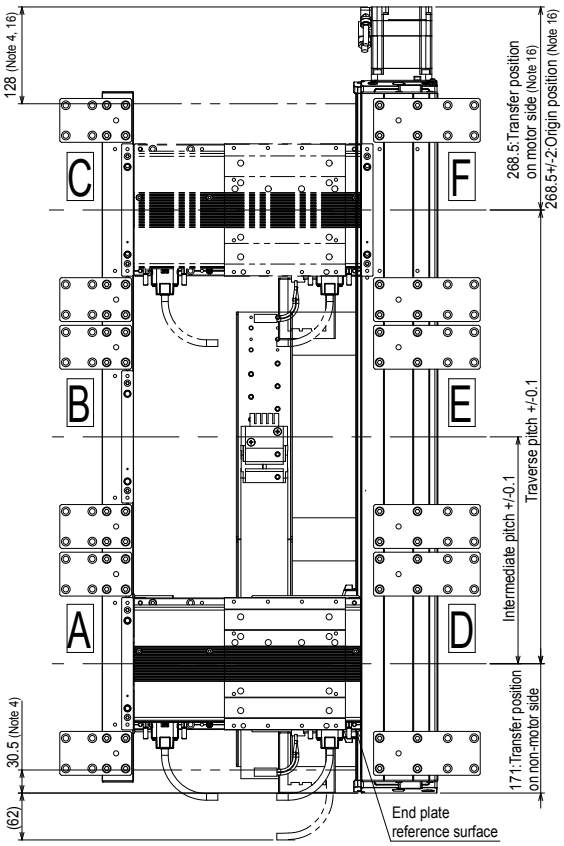
3-row branching specifications

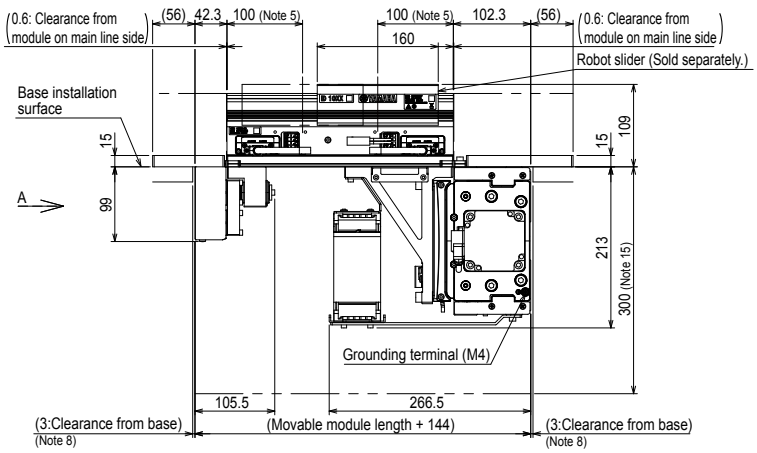
JGX16-H3T/H4T

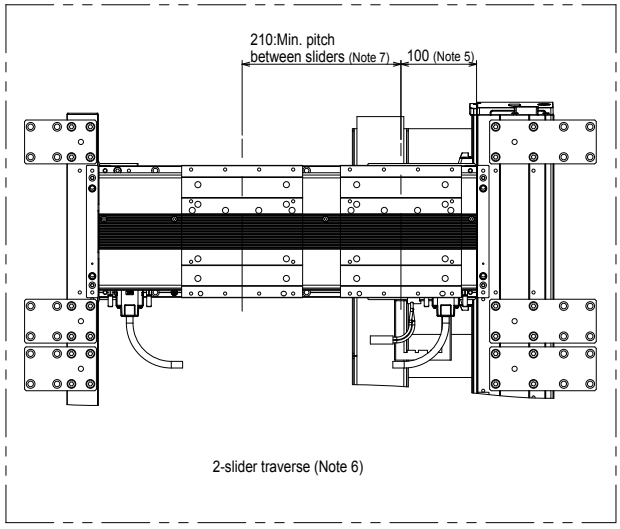
JGX16-H3T
Combination example (Note 14): C-DEF



JGX16-H4T
Combination example (Note 14): C-DEF







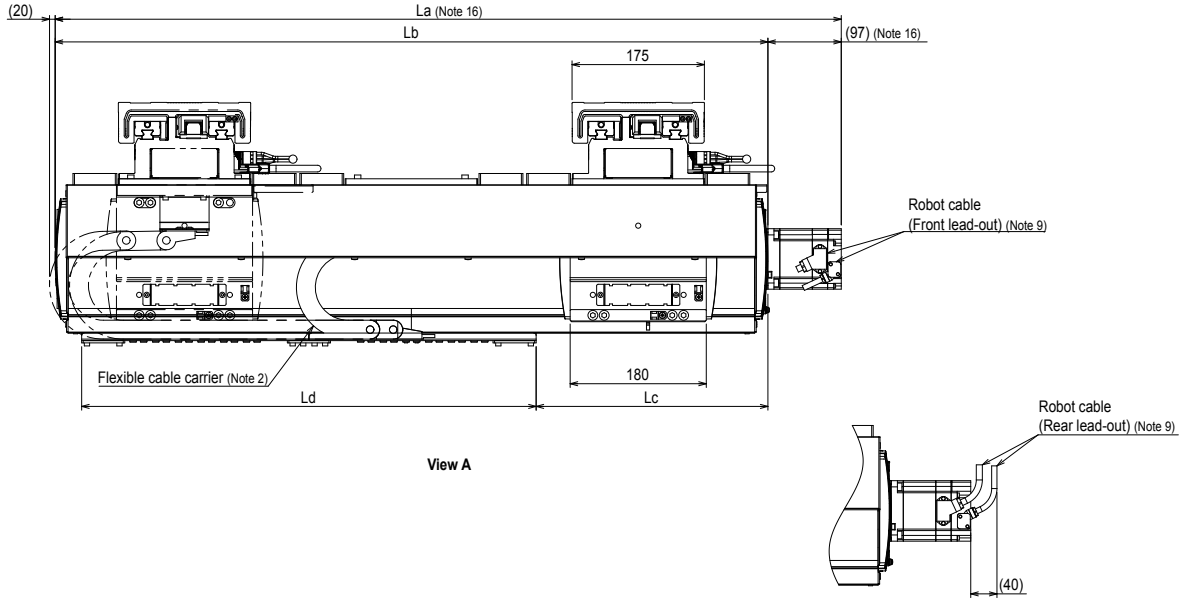
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The intermediate pitch can be selected in 50 mm increments. The selectable intermediate pitch may vary depending on the traverse pitch.
Note 14. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•ABC-D •A-DEF •AC-E
•ABC-E •B-DEF •B-DF
•ABC-F •C-DEF
Note 15. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 16. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		500	550	600	650	700	750	800	850	900
Intermediate pitch (Note 13)		250	250 to 300	250 to 350	250 to 400	250 to 450	250 to 500	250 to 550	250 to 600	250 to 650
La		939.5	989.5	1039.5	1089.5	1139.5	1189.5	1239.5	1289.5	1339.5
Lb		842.5	892.5	942.5	992.5	1042.5	1092.5	1142.5	1192.5	1242.5
Lc		196.5	251.5	306.5	361.5	416.5	471.5	496.5	553.5	607.5
Ld		601	601	601	601	601	601	601	601	601
Weight (Kg)(Note 12)		48.5	49.9	51.5	52.9	54.4	55.9	57.4	58.9	60.4
Maximum speed (mm/sec)	Lead 40	2400							2160	1920
	Lead 20	1200							1080	960
	Speed setting	-							90%	80%

Traverse pitch		950	1000	1050	1100	1150	1200	1250	1300	1350
Intermediate pitch (Note 13)		250 to 700	250 to 750	250 to 800	250 to 850	250 to 900	250 to 950	250 to 1000	250 to 1050	250 to 1100
La		1389.5	1439.5	1489.5	1539.5	1589.5	1639.5	1689.5	1739.5	1789.5
Lb		1292.5	1342.5	1392.5	1442.5	1492.5	1542.5	1592.5	1642.5	1692.5
Lc		360.5	385.5	471.5	496.5	551.5	606.5	661.5	716.5	771.5
Ld		902	902	902	902	902	902	902	902	902
Weight (Kg)(Note 12)		62.6	64.2	65.6	67.2	68.6	70.1	71.6	73.1	74.6
Maximum speed (mm/sec)	Lead 40	1680	1440	1320	1200	1080	960		840	720
	Lead 20	840	720	660	600	540	480		420	360
	Speed setting	70%	60%	55%	50%	45%	40%		35%	30%

	Intermediate pitch = 250	(Traverse pitch) - (Intermediate pitch) = 250	Traverse pitch =500 and Intermediate pitch = 250	Others
Qa	40	40	32	48
Qb	0	1	0	1
Qc	1	0	0	1
Qd	10	10	8	12

Combination	•ABC-D •ABC-E •ABC-F •B-DF	•A-DEF •B-DEF •C-DEF	•AC-E
Qe	10	14	8

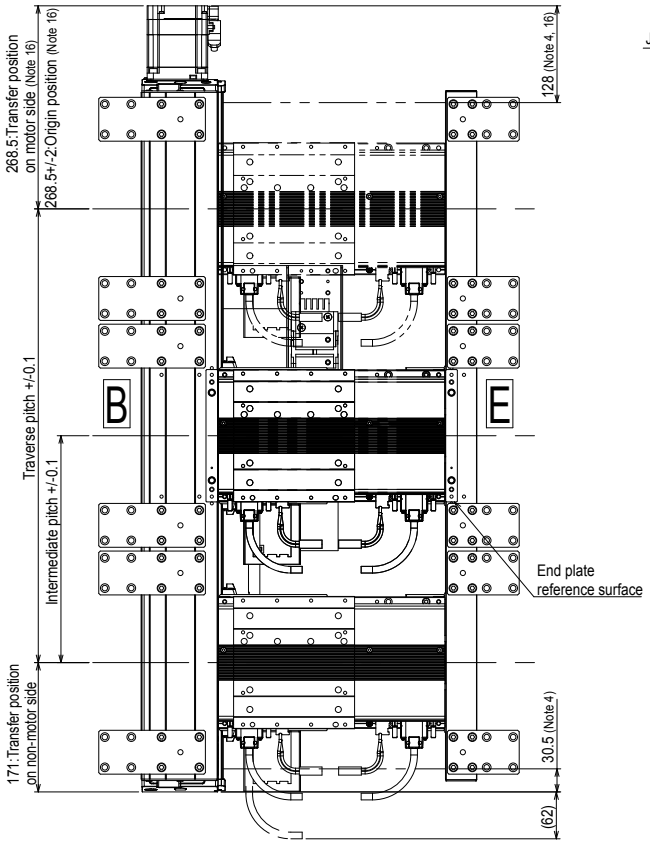


Traversing unit External view

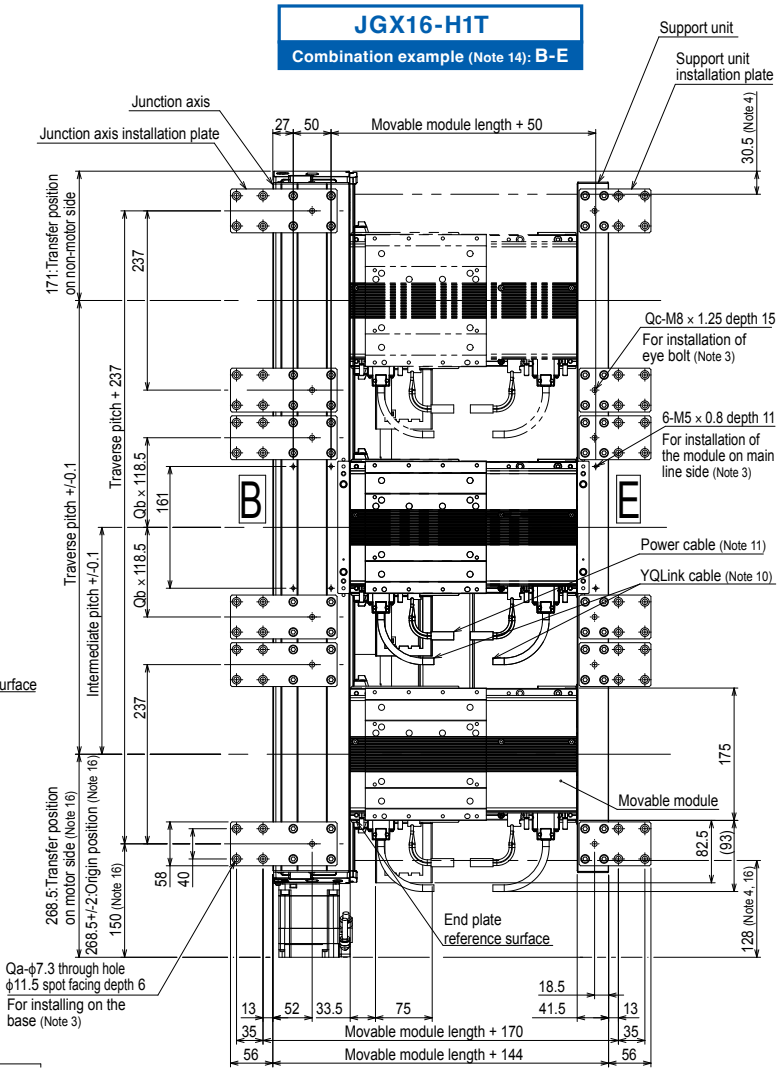
Retracting specifications

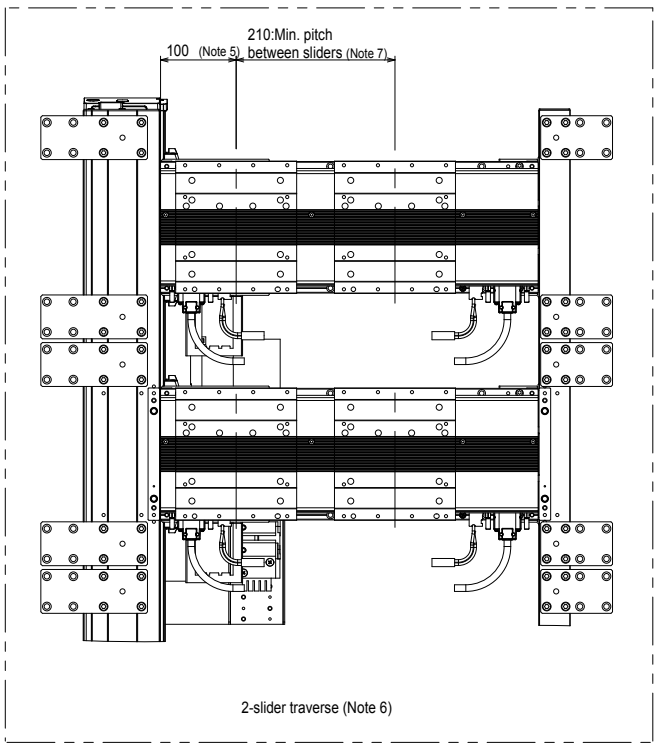
JGX16-H1T/H2T

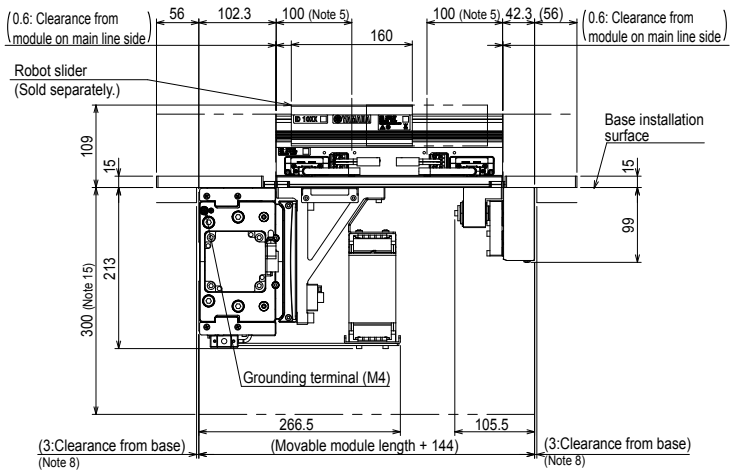
JGX16-H2T
Combination example (Note 14): B-E



JGX16-H1T
Combination example (Note 14): B-E



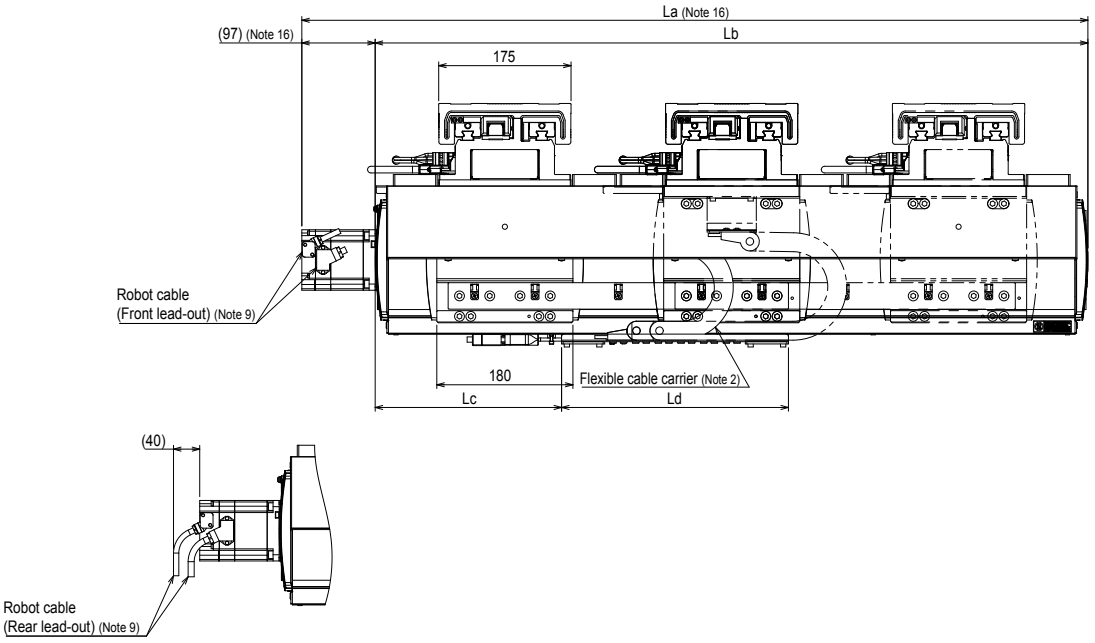




Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The intermediate pitch can be selected only at the half value of the traverse pitch.
Note 14. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•B-E
Note 15. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 16. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		500	600	700	800	900	1000	1100	1200	1300
Intermediate pitch (Note 13)		250	300	350	400	450	500	550	600	650
La		939.5	1039.5	1139.5	1239.5	1339.5	1439.5	1539.5	1639.5	1739.5
Lb		842.5	942.5	1042.5	1142.5	1242.5	1342.5	1442.5	1542.5	1642.5
Lc		253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5
Ld		300	300	601	601	601	601	601	601	601
Weight (Kg)(Note 12)		58.0	61.2	64.3	67.5	70.7	74.7	77.9	81.0	84.2
Maximum speed (mm/sec)	Lead 40	2400				1920	1440	1200	960	840
	Lead 20	1200				960	720	600	480	420
	Speed setting	-				80%	60%	50%	40%	35%

	Traverse pitch = 500 (Intermediate pitch = 250)	Others
Qa	32	48
Qb	0	1
Qc	8	12

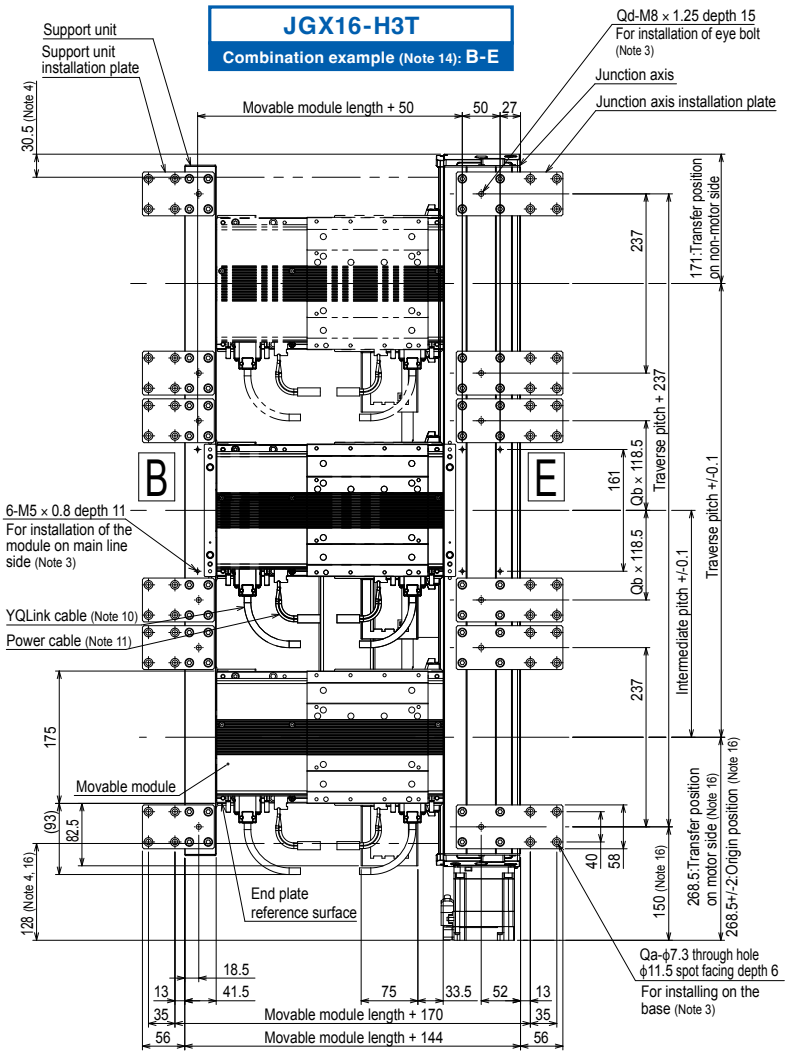


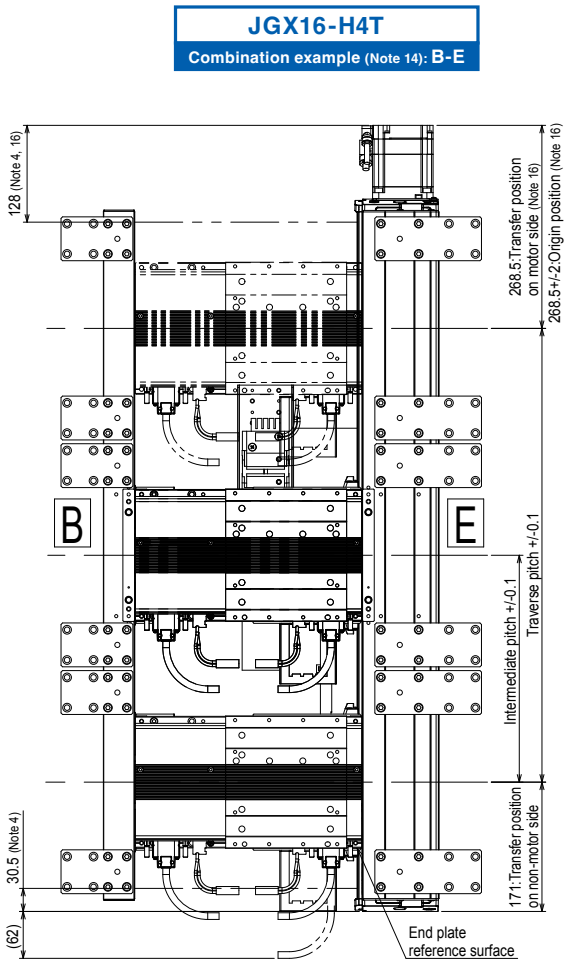
LCMR200

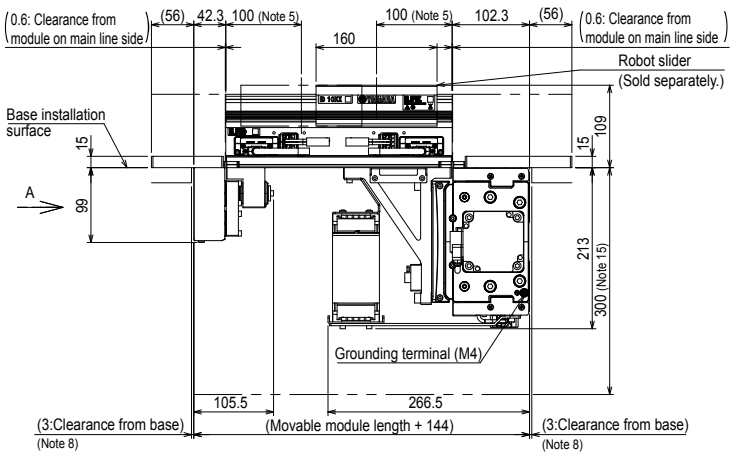
Traversing unit External view

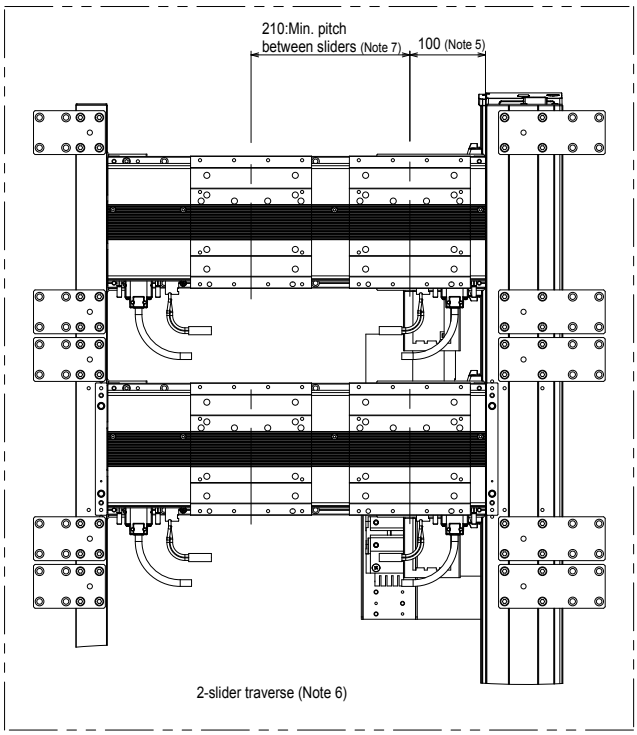
Retracting specifications

JGX16-H3T/H4T





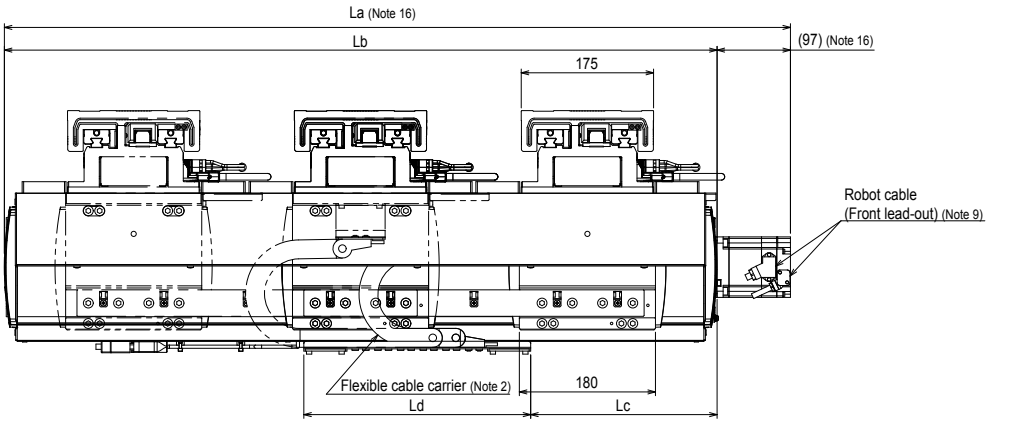




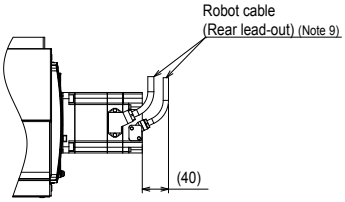
Note 1. For details about the installation and operation procedures, see the user's manual.
Note 2. The user wiring cannot be passed through the flexible cable carrier.
Note 3. Do not use the installation hole at each location for an application other than that specified.
Note 4. Movable module position when the junction axis is stopped by the mechanical stopper.
Note 5. Robot slider unstoppable range from the module end.
An unstoppable range of 100 mm may vary depending on the pallet length.
For details, see the YHX User's Manual.
Note 6. 2-slider simultaneous traverse is possible only when the movable module is a 500 mm module.
Note 7. When the pallet length is 200 mm or more, this pitch is "pallet length + 10 mm".
However, when two sliders start at the same time, the minimum pitch is 250 mm or "pallet length + 50 mm".
Note 8. Reference value for installation of the base.
Perform the installation so that the junction axis and support unit are not in contact with the end face of the installation base.
Note 9. The robot cable fixing R is R30. The lead-out direction may vary depending on the specifications.
Note 10. The YQLink cable fixing R is R55. This cable may become the termination connector depending on the specifications.
Note 11. The power cable fixing R is R55.
Note 12. The weight of the main body is a reference value. The weights of the module and robot slider are not included.
Note 13. The intermediate pitch can be selected only at the half value of the traverse pitch.
Note 14. The module installation position on the main line side can be selected from the following combinations.
The end plate for positioning the module on the main line side is installed only at the selected combination position.
The module on the main line side cannot be installed at a position other than the selected combination.
•B-E
Note 15. A maintenance space of 300 mm must be maintained below the top surface of the installation base.
Note 16. For the battery-less absolute, a length of 8 mm is added.

Traverse pitch		500	600	700	800	900	1000	1100	1200	1300
Intermediate pitch (Note 13)		250	300	350	400	450	500	550	600	650
La		939.5	1039.5	1139.5	1239.5	1339.5	1439.5	1539.5	1639.5	1739.5
Lb		842.5	942.5	1042.5	1142.5	1242.5	1342.5	1442.5	1542.5	1642.5
Lc		253.5	307.5	60.5	85.5	171.5	196.5	251.5	306.5	361.5
Ld		300	300	601	601	601	601	601	601	601
Weight (Kg)(Note 12)		58.0	61.2	64.3	67.5	70.7	74.7	77.9	81.0	84.2
Maximum speed (mm/sec)	Lead 40	2400				1920	1440	1200	960	840
	Lead 20	1200				960	720	600	480	420
	Speed setting	-				80%	60%	50%	40%	35%

	Traverse pitch = 500 (Intermediate pitch = 250)	Others
Qa	32	48
Qb	0	1
Qc	8	12



View A



Circulation unit / Traversing unit option

Circulation unit / Traversing unit transfer accuracy measurement jig

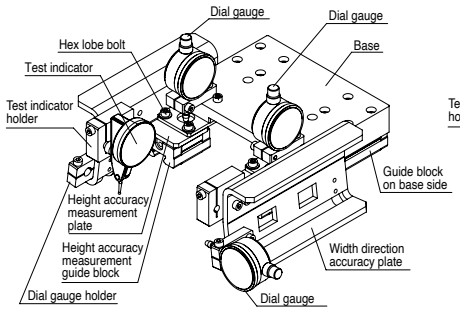
Using this jig improves the workability when the following is measured.

- · Transfer section teaching accuracy when YAMAHA genuine circulation unit and traversing unit are used.
- · Accuracy of the transfer section when the circulation part designed by the customer is used.
- · Installation accuracy of linear modules that are connected with the adjuster plate.

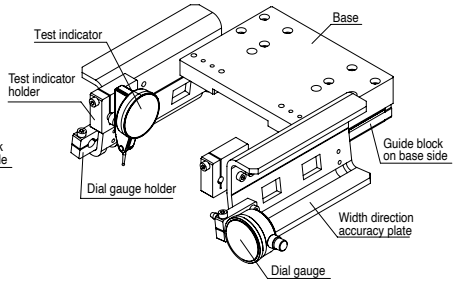
Applicable model	Model (Japan)	Model (Other countries)*1
Circulation designed by the customer YAMAHA traversing unit JGX16-T	KNA-M2930-00	KNA-M2930-A0
YAMAHA horizontal circulation JGX16-H	KNA-M2930-10	KNA-M2930-B0
YAMAHA vertical circulation JGX16-V	KNA-M2930-20*2	

*1: Please order the model for other coutries in countries other than Japan.
The models for other countries (KNA-M2930-A0, KNA-M2930-B0) have a φ8 installation hole for the test indicator holder.
*2: The model for JGX16-V is common to Japan and other countries.

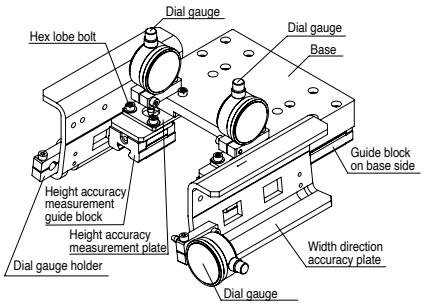
Customer-designed circulation unit For JGX16-T
KNA-M2930-00 (Japan) / KNA-M2930-A0 (Other countries)



For JGX16-H
KNA-M2930-10 (Japan) / KNA-M2930-B0 (Other countries)



For JGX16-V
KNA-M2930-20 (Common to Japan and other countries)



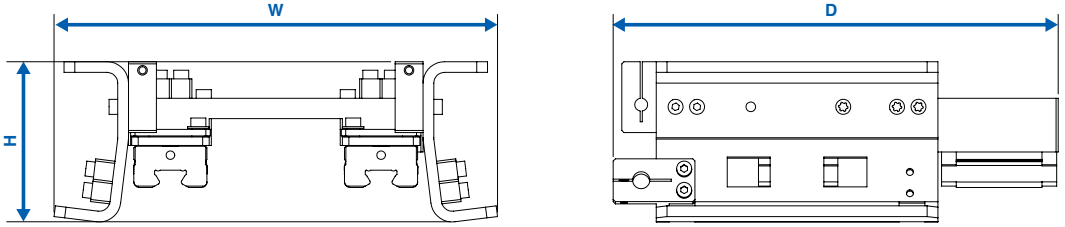
* This product does not include dial gauge and test indicator. The figure shows an image when dial gauge and test indicator are installed.

Specifications

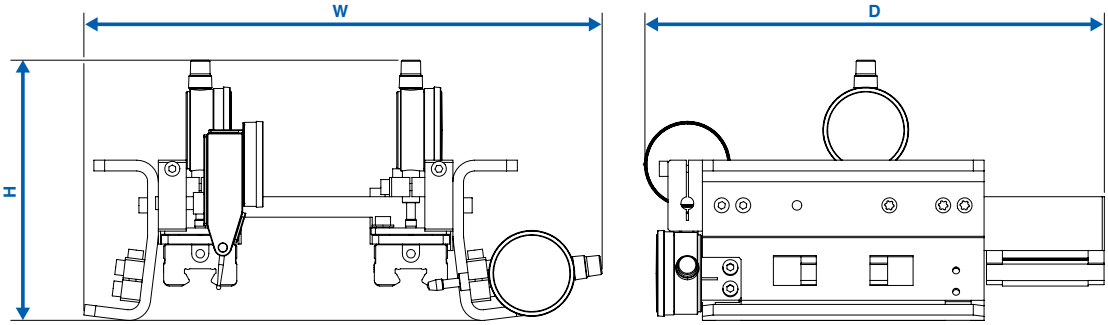
Item		Customer-designed circulation unit For JGX16-T KNA-M2930-00 (Japan) / KNA-M2930-A0 (Other countries)	For JGX16-H KNA-M2930-10 (Japan) / KNA-M2930-B0 (Other countries)	For JGX16-V KNA-M2930-20 (Common to Japan and other countries)
Outside dimensions	Main body only *1	W 206 mm x D 207 mm x H75 mm	W 206 mm x D 207 mm x H 75 mm	W 206 mm x D 207 mm x H 75 mm
	When measuring instrument is installed *2	W 242 mm x D 213 mm x H 121 mm	W 242 mm x D 213 mm x H 92 mm	W 242 mm x D 210 mm x H 121 mm
Weight	Main body only	2.5 kg	2.1 kg	2.4 kg
	When measuring instrument is installed *2	2.8 kg	2.2 kg	2.6 kg

*1: This product does not include dial gauge and test indicator.
Please select a dial gauge with an installation hole diameter of φ8 for the dial gauge holder and a test indicator with an installation hole diameter of φ6 for the test indicator holder for Japan or φ8 for other countries.
*2: YAMAHA' s recommended dial gauge (Mitutoyo, model 1109AB-10), and test indicator (Mitutoyo, model 513-425-10H for Japan) or (Mitutoyo, model 513-425-10E for other countries)

No measuring instrument is installed.

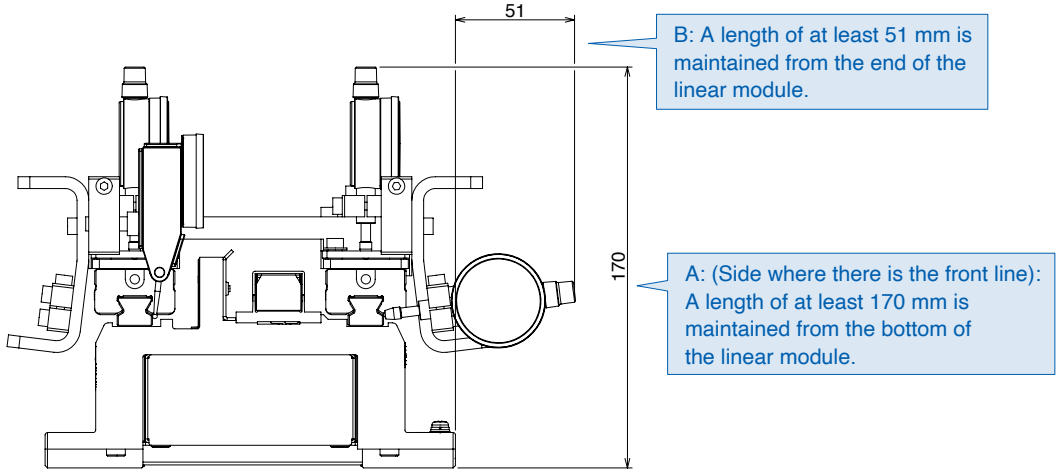


Measuring instrument is installed.



[Cautions]

• A (Side where there is the front line): A length of at least 170 mm is maintained from the bottom of the linear module.
• B: A length of at least 51 mm is maintained from the end of the linear module.
If above spaces cannot be maintained, any part of the measuring jig may interfere with a peripheral device on the equipment side. Therefore, the measuring jig cannot be used on the linear module.
In addition, the length of the linear module on the reference side must be 300 mm or more.



* This product does not include dial gauge and test indicator.
The above size is when YAMAHA's recommended dial gauge (Mitutoyo, model 1109AB-10) and test indicator (Mitutoyo, model 513-425-10H) are installed.
The size may vary depending on the dial gauge to be installed.

About selection of measuring instrument

Select a dial gauge and test indicator that satisfy the following specifications.

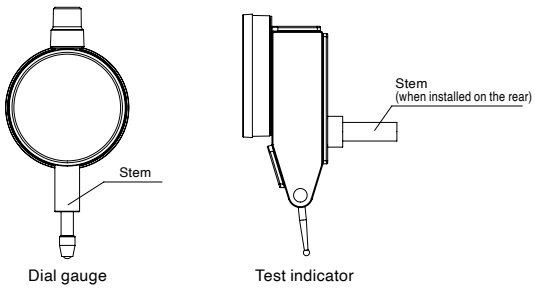
Dial gauge

Measurement range	0.5 mm or more
Measurement resolution	2 µm or less
Stem diameter	ϕ8 mm

Test indicator

Measurement range	0.5 mm or more
Measurement resolution	2 µm or less
Stem diameter	ϕ6 mm (For Japan)*1 / ϕ8 mm (For other countries)*2
Others	① A dovetail groove (male) to install the stem is provided on the rear of the test indicator.
	② A dovetail groove (female) is provided on the stem.

*1: For accuracy measurement jigs for Japan (KNA-M2930-00, KNA-M2930-10)
*2: For accuracy measurement jigs for other countries (KNA-M2930-A0, KNA-M2930-B0)



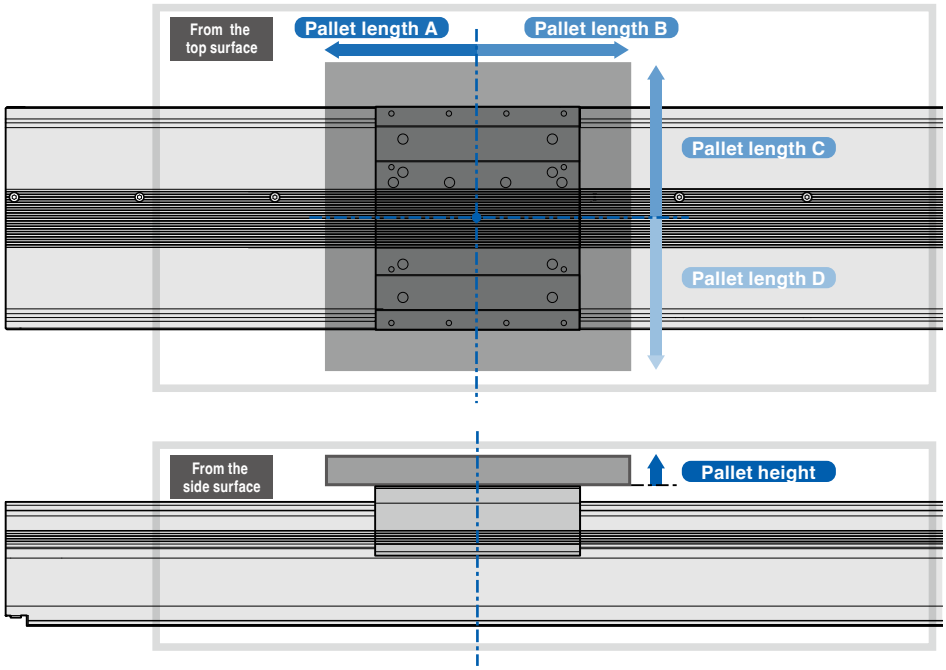
Caution
■ About calibration of measuring instrument
• The customer should calibrate each measuring instrument by the calibration guarantee date specified by the measuring instrument manufacturer.
• For details about the calibration, contact the measuring instrument supplier.

Circulation unit Basic specifications

Transferable pallet size table *1

		Unit	Linear module length	Pallet length [mm] A	Pallet length [mm] B	Pallet length [mm] A+B	Pallet width [mm] C	Pallet width [mm] D	Pallet width [mm] C+D	Pallet height [mm]
Circulation unit	Recommended size at 1-slider circulates.	JGX16-H	200	99	99	198	Not restricted.*2			Not restricted.*2
			300	199	199	298				
			500	399	399	498				
		JGX16-V	200	99	99	198	150	150	300	Circulation pitch -220mm
			300	199	199	298				
			500	399	399	498				
	Maximum size at 1-slider circulates.	JGX16-H	200	99	99	198	Not restricted.*2			Not restricted.*2
			300	199	199	398				
			500	399	399	798				
		JGX16-V	200	99	99	198	150	150	300	Circulation pitch -220mm
			300	199	199	398				
			500	399	399	798				
	Maximum size at 2-slider circulates.	JGX16-H	200	Unavailable.			Unavailable.			Unavailable.
			300							
			500	145*3	145*3	244*3	Not restricted.*2			Not restricted.*2
		JGX16-V	200	Unavailable.			Unavailable.			Unavailable.
			300							
			500	145*3	145*3	244*3	150	150	300	Circulation pitch -220mm
Traversing unit	Maximum size at 1-slider traverse*4	JGX16-T	200	99	99	198	Not restricted.*2			Not restricted.*2
			300	199	199	298				
			500	399	399	498				
	Maximum size at 2-slider traverse*4	JGX16-T	200	Unavailable.			Unavailable.			Unavailable.
			300							
			500	145*3	145*3	244*3	Not restricted.*2			Not restricted.*2

* 1. The pallet size indicates the total size of the loads on the robot slider including the customer's workpieces.
In addition, it is assumed that all pallets on the robot sliders have the same shape.
For the horizontal circulation method, be aware that pallets or workpieces on the robot sliders that pass each other on the outbound and inbound routes do not collide with each other.
* 2. The allowable overhang amount must not be exceeded. Be aware that the robot sliders do not collide with each other between the main lines.
* 3. When either A or B is 122 mm or more, the pallet cannot be arranged at the center of the robot slider.
It is assumed that all pallets on the robot sliders have the same shape.
* 4. The recommended pallet size of the traversing unit is the same as the maximum pallet size.



Maximum payload per robot slider/Allowable overhang amount

Maximum payload per robot slider

Model		Ball screw lead[*1]	Movable module length	200	300	500	
			Number of robot slider simultaneous circulation traverses	1	1	1	2
Circulation unit (Horizontal)	JGX16-H	40mm	Maximum payload of robot slider [kg]	30	30	26	12
		20mm		30	30	30	15
Circulation unit (Vertical)	JGX16-V	20mm		28	26	22	10
		10mm		30	30	30	15
Traversing unit	JGX16-T	40mm		30	30	26	12
		20mm		30	30	30	15

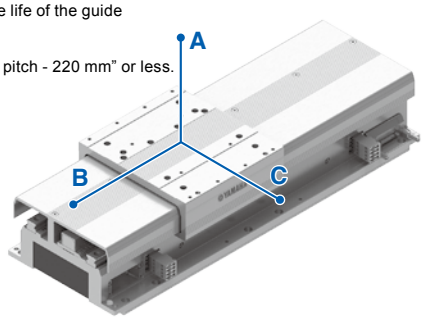
* 1. Note that the optimal lead length may vary depending on the operating environment.

Allowable overhang amount

Model		Payload	5kg				10kg				15kg			
		Overhang direction	A[*3]	B	C[*4]		A[*3]	B	C[*4]		A[*3]	B	C[*4]	
LCMR200		Overhang amount[*1]	760	405	239		762	231	158		700	173	122	
Circulation unit (Horizontal)	JGX16-H	Number of robot slider simultaneous transfers	1 or 2				1 or 2				1 or 2			
		Overhang amount[*2]	760	405	239		762	231	158		700	173	122	
Circulation unit (Vertical)	JGX16-V	Number of robot slider simultaneous transfers	1 or 2		1	2	1 or 2		1	2	1 or 2		1	2
		Overhang amount[*2]	380	405	150	150	380	231	150	100	380	173	122	50
Traversing unit	JGX16-T	Number of robot slider simultaneous transfers	1 or 2				1 or 2				1 or 2			
		Overhang amount[*2]	760	405	239		762	231	158		700	173	122	

Model		Payload	20kg			25kg			30kg		
		Overhang direction	A[*3]	B	C[*4]	A[*3]	B	C[*4]	A[*3]	B	C[*4]
LCMR200		Overhang amount[*1]	648	117	73	509	82	68	453	58	49
Circulation unit (Horizontal)	JGX16-H	Number of robot slider simultaneous transfers	1			1			1		
		Overhang amount[*2]	648	117	73	509	82	68	453	58	49
Circulation unit (Vertical)	JGX16-V	Number of robot slider simultaneous transfers	1			1			1		
		Overhang amount[*2]	380	117	73	380	82	68	380	58	49
Traversing unit	JGX16-T	Number of robot slider simultaneous transfers	1			1			1		
		Overhang amount[*2]	648	117	73	509	82	68	453	58	49

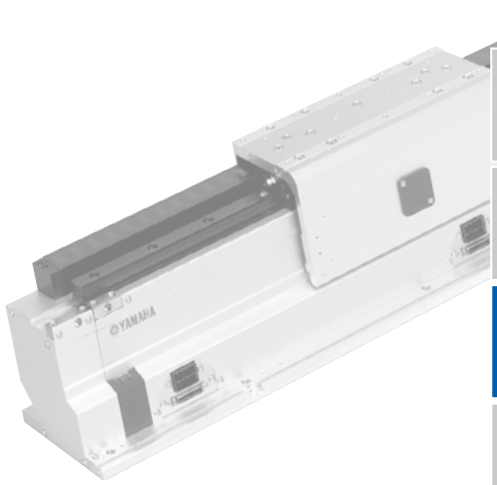
* 1. Distance from the center of the robot slider top surface to the center of gravity of the transfer object when the service life of the guide is 10,000 km.
* 2. Distance from the center of the top surface of the robot slider to the center of gravity of the load.
* 3. When the circulation unit is inserted or ejected to/from the lower stage line, the pallet height needs to be “circulation pitch - 220 mm” or less.
* 4. Be aware that the robot sliders do not interfere with each other between the main lines.

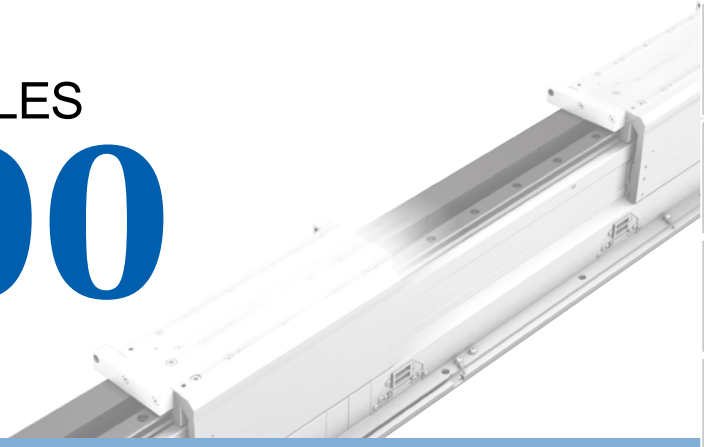


Component details

■ Some products consist of a combination of several types of products.

Model	Component	Component model	Qty.
LCMR200-F2/B2/F3/B3/F5/B5	Linear module main body	No setting	1
	Motor power source connector	LCMR200-MPC	1
LCMR200-F10/B10	Linear module main body	No setting	1
	Motor power source connector	LCMR200-MPC	2
	Motor power shorting jumper	LCMR200-MPJS	1
LCMR200-EKIT	End unit	LCMR200-EU	2
	End plate	LCMR200-EP	2
	Control power supply connector	LCMR200-CPC	1
LCMR200-CKIT	Connection unit	LCMR200-CU	1
	Connection plate	LCMR200-CP	1
	Motor power source jumper	LCMR200-MPJ	1
	Control power source jumper	LCMR200-CPJ	1
LCMR200-AKIT	Connection unit	LCMR200-CU	1
	Adjuster plate	LCMR200-AP	1
	Motor power source jumper	LCMR200-MPJ	1
	Control power source jumper	LCMR200-CPJ	1





LINEAR CONVEYOR MODULES

LCM100

CONTENTS

LCM100 basic specifications

Basic specifications of linear conveyor module

Model	LCM100-4M / 3M / 2MT
Drive method	Moving magnet type, Linear motor with flat core
Repeat positioning accuracy	+/-0.015mm (single slider) Note 1 / width 0.1mm (mutual difference among all sliders) Note 2
Scale	Electromagnetic type / resolution 5μm
Max. speed	3000mm/sec
Max. acceleration	2G
Max. payload	15kg Note 3 Note 4
Rated thrust	48N
Total module length	640mm (4M) / 480mm (3M) / 400mm (for 2MT circulation)
Max. number of combined modules	16 (total length: 10240 mm)
Max. number of sliders	16 (when 16 modules are combined)
Min. pitch between sliders	420mm
Mutual height difference between sliders	0.08mm
Max. external size of body cross-section	W136.5mm x H155mm (including slider)
Bearing method	1 guide rail / 2 blocks (with retainer)
Module weight	12.5kg (4M) / 9.4kg (3M) / 7.6kg (2MT)
Slider weight	2.4kg / 3.4kg (when the belt module is used.)
Cable length	3m / 5m
Controller	LCC140

Note 1. Repeated positioning accuracy when positioning in the same direction (pulsating).
Note 2. Positioning accuracy in the pulsating when using the position correction function with the RFID.
Note 3. Weight per single slider.
Note 4. When used together with the belt module, the max. payload becomes 14kg since the parts dedicated to the belt are attached to the slider.
Note. Operate LCM100 in the temperature environment (+/-5 °C) that installation and adjustment were performed.

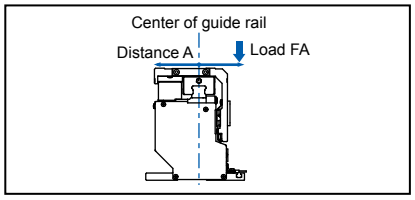
Basic specifications of belt module

Model	LCM100-4B / 3B
Drive method	Belt back surface pressing force drive Note 1
Bearing method	1 guide rail / 2 blocks (with retainer)
Max. speed	560mm/sec
Max. payload	14kg
Module length	640mm (4B) / 480mm (3B)
Max. number of sliders	1 slider / 1 module
Main unit maximum cross-section outside dimensions	W173.8mm×H155mm (including slider)
Cable length	None
Controller	Dedicated driver (Included)
Power supply	DC24V 5A
Communication I/F	Dedicated input/output 16 points
Module weight	11.2kg (4B) / 8.8kg (3B)

Note 1. Because the belt module works on the principle of using the friction of the belt to move the slider, the belt will be abraded and generate dust, making it unsuitable for environments that require a degree of cleanliness.

Static tolerable load of slider

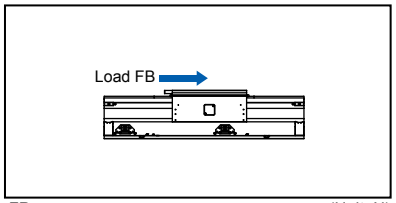
Static loads shown below are tolerable as references when performing the screw tightening, part assembly, or light press-fitting on the slider.



FA (Unit: N)

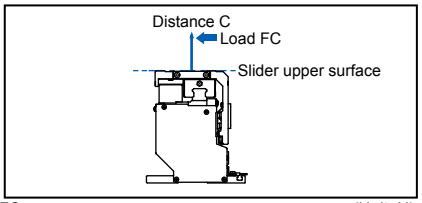
A (mm)	Payload		
	5 kg	10 kg	15 kg
0	2550	1560	1270
10	1790	1280	1170
20	1380	780	630
30	1130	520	420
40	900	390	310
50	720	310	250
60	600	260	210

Note. The loads shown above are tolerable loads at a position “A”mm away from the center of the guide rail.



FB (Unit: N)

Payload		
5 kg	10 kg	15 kg
38		



FC (Unit: N)

C (mm)	Payload		
	5 kg	10 kg	15 kg
0	1190	850	780
10	970	710	650
20	760	610	560
30	630	530	490
40	540	480	430
50	470	430	390
60	410	390	360

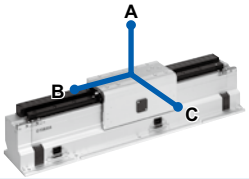
Note. The loads shown above are tolerable loads at a position “C”mm away from the slider upper surface.

Allowable overhang

Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km.

(Unit: mm)

	A	B	C
5kg	677	325	325
10kg	533	146	146
15kg	468	90	90



Ordering method

Linear module

LCM100 - [ ] - [ ] - LCC140 - 10 - [ ]

Model	Cable length Note 1	Controller	Current sensor	Network option Note 2
4M: 640mm	3L : 3m		10 : 10A	No entry : None
3M: 480mm	5L : 5m			CC : CC-Link
2MT: Module for circulation	3K: 3m (Flexible cable)			DN : DeviceNet™
	5K: 5m (Flexible cable)			EP : EtherNet/IP™

The above shows “one module + one controller” ordering method. When connecting modules, please separately inform the number of necessary modules.

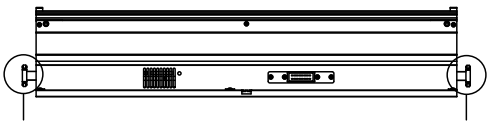
Note 1. The cable for 2MT has flexible specifications.
Note 2. For 2MT, be sure to select an appropriate network option.

Belt module

LCM100 - [ ] - [ ]

Model	Termination option for belt module Note 1, Note 2
4B: 640mm	No entry : None
3B: 480mm	R: Linear module is connected to the right.
	L: Linear module is connected to the left.
	RL: Linear module is connected to both sides.

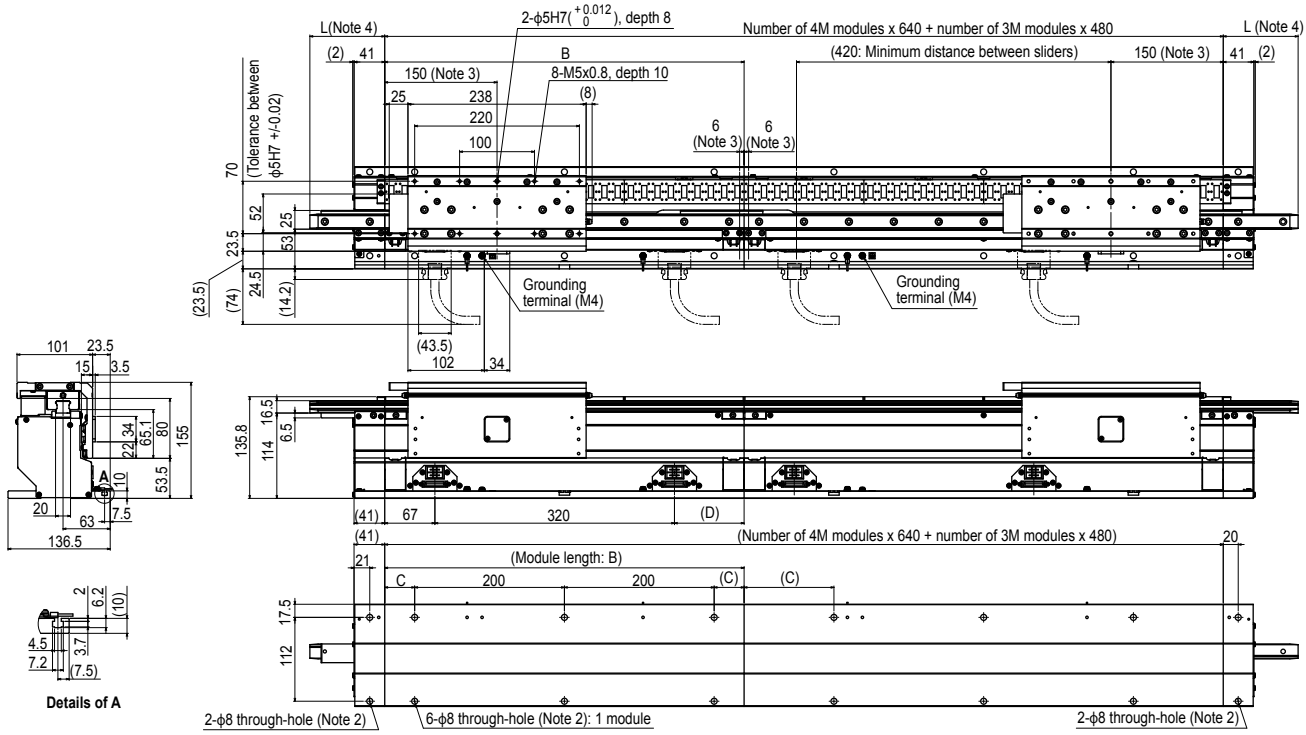
Note 1. Parts necessary to connect the belt module and linear module. Parts are incorporated into the belt module.
Note 2. Perform the bonding with the connection cable that comes from the belt module.



Connection cable (When the termination option L for the belt module is selected.)

Connection cable (When the termination option R for the belt module is selected.)

LCM100-4M/3M Linear conveyor module (640mm/ 480mm)



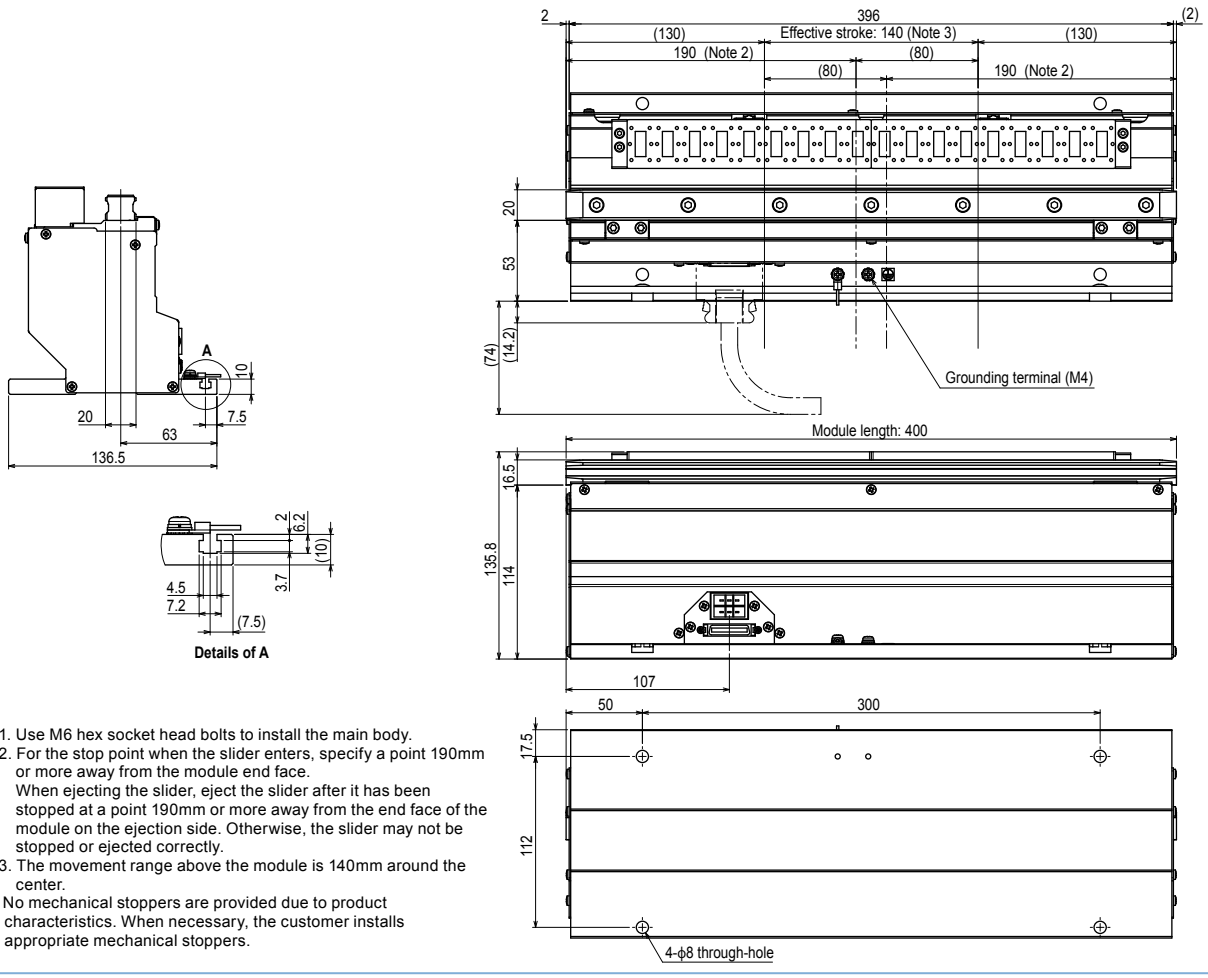
Stroke variations	B	C	D
4M	640	120	253
3M	480	40	93

Insertion/ejection rail length selection table

Insertion/ ejection rail (mm)	L
	44
	100
	340

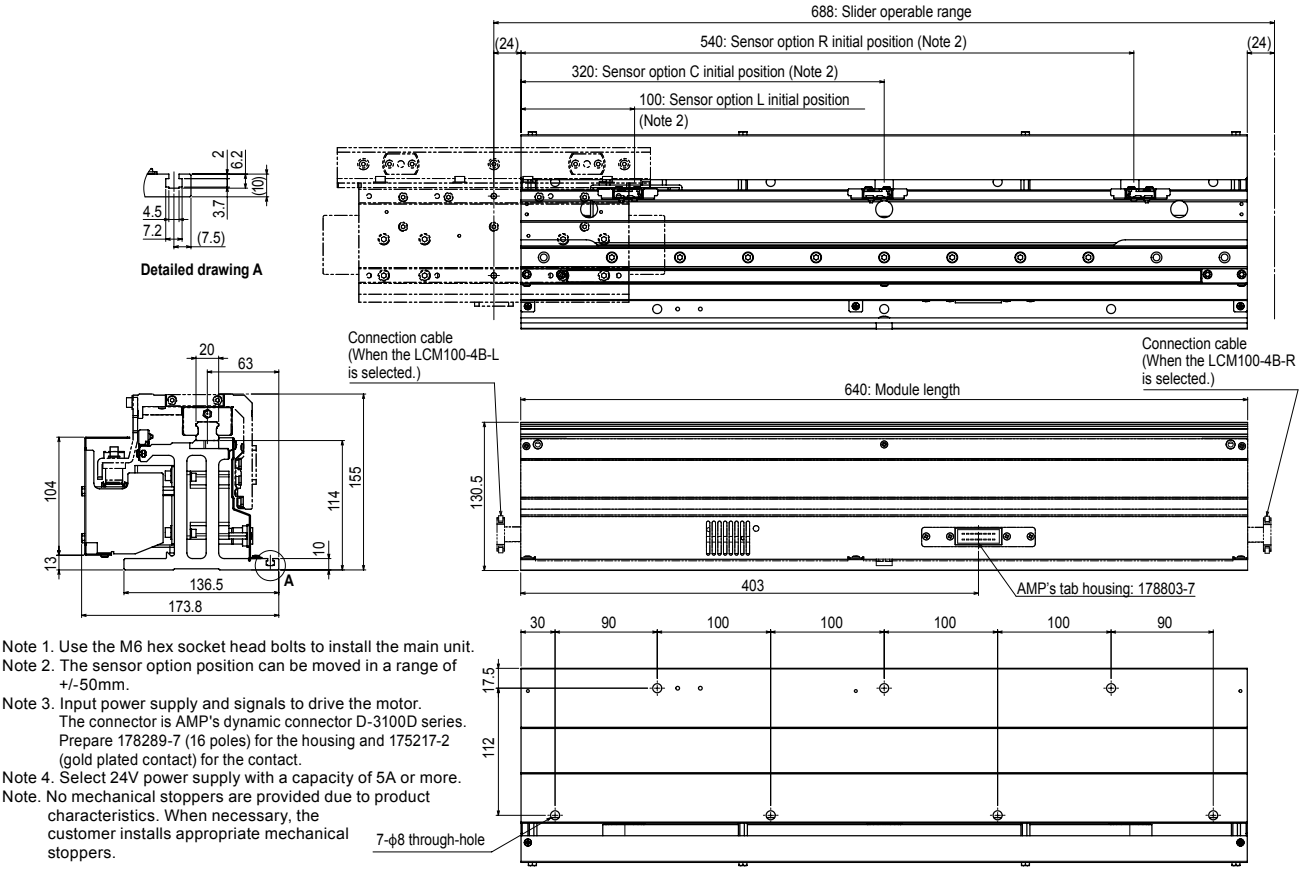
Note 1. All sliders and modules have the same dimensions.
Note 2. Use M6 hex socket head bolts to install the main body.
Note 3. An area of +/-6mm from both ends of each connected module and an area of 150mm from the line end become slider stop inhibited areas. (These dimensions are obtained when the slider is located at its center position.)
Note 4. Select an appropriate rail length of the insertion/ejection rail option from the "Insertion/ejection rail length selection table" shown on the left.
Note 5. The LCM100 is installed only in the horizontal direction.
Note 6. Module variations can be combined freely within the same line. (This figure shows that 3M on the left is combined with 4M on the right.)
Note 7. It is recommended to install rail support parts on the insertion/ejection rail. When no support parts are installed, the rail may be deflected by the slider's own weight, leading to poor rail accuracy or short service life of the guide.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

LCM100-2MT Module for circulation



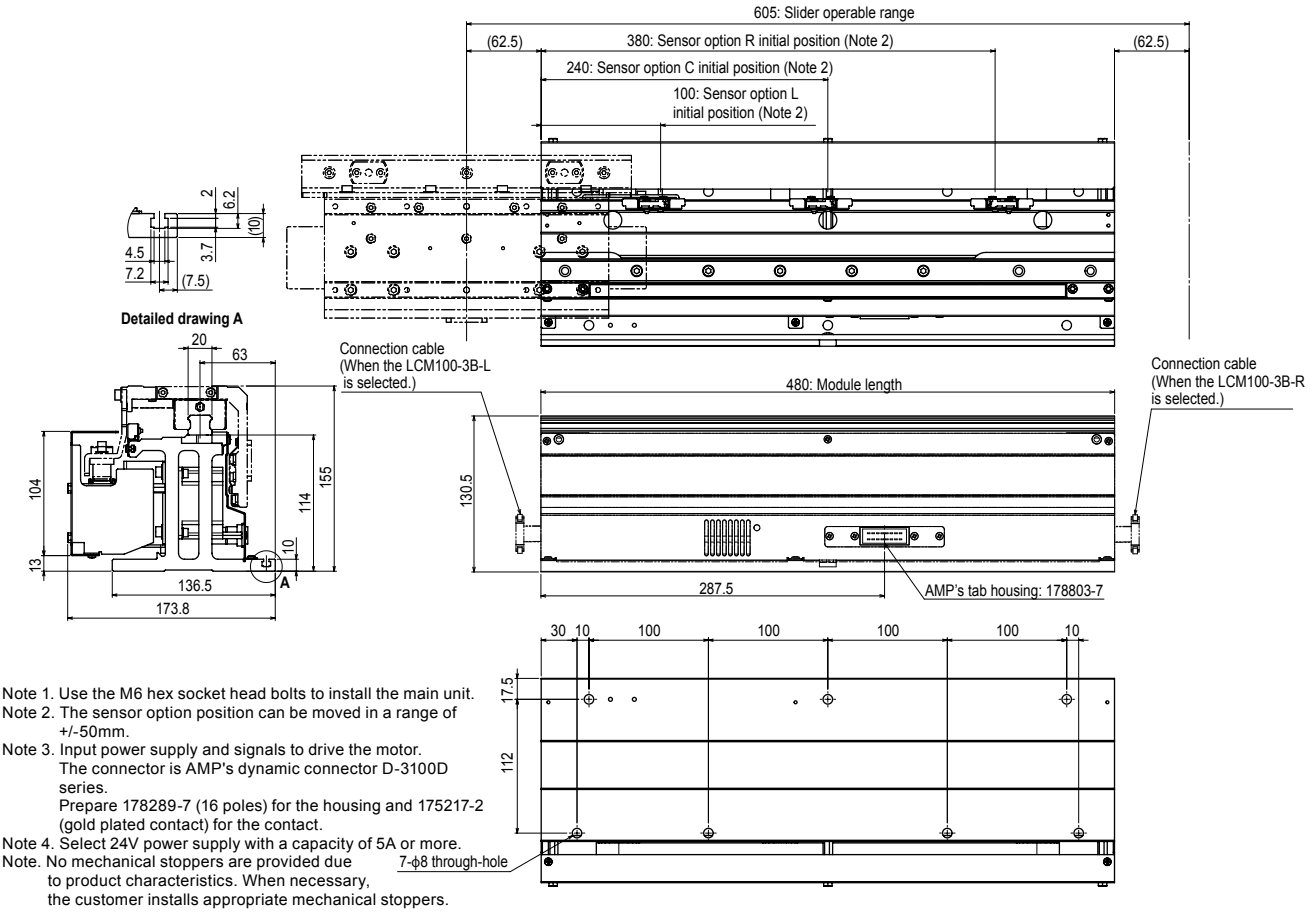
Note 1. Use M6 hex socket head bolts to install the main body.
Note 2. For the stop point when the slider enters, specify a point 190mm or more away from the module end face.
When ejecting the slider, eject the slider after it has been stopped at a point 190mm or more away from the end face of the module on the ejection side. Otherwise, the slider may not be stopped or ejected correctly.
Note 3. The movement range above the module is 140mm around the center.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

LCM100-4B Belt module (640mm)



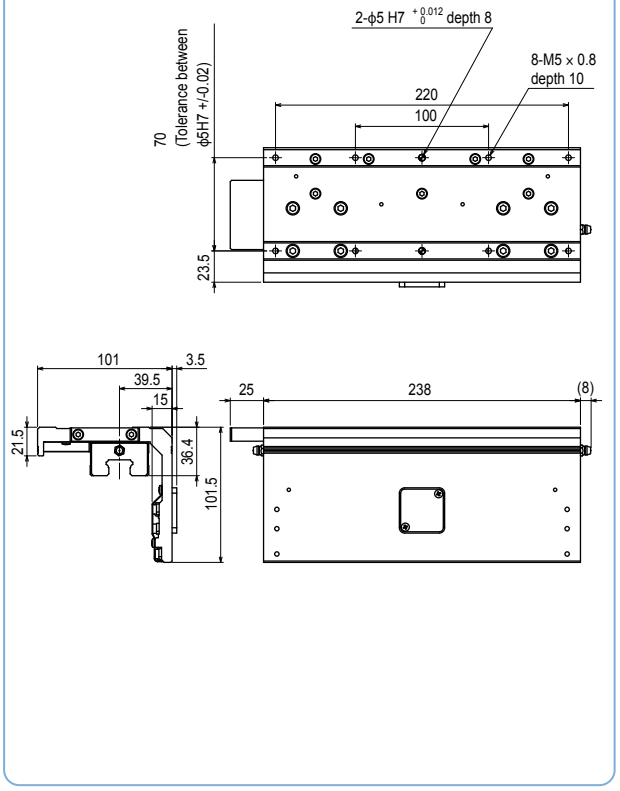
Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
The connector is AMP's dynamic connector D-3100D series.
Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
Note 4. Select 24V power supply with a capacity of 5A or more.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

LCM100-3B Belt module (480mm)

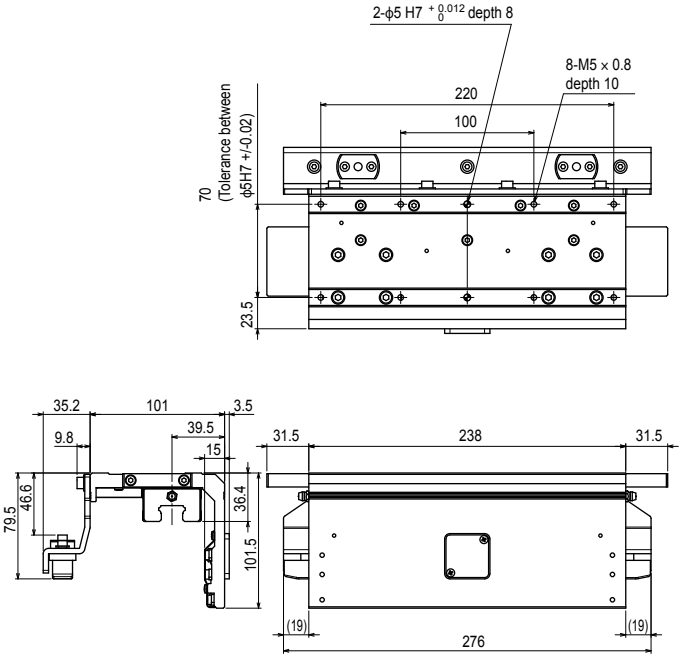


Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
The connector is AMP's dynamic connector D-3100D series.
Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
Note 4. Select 24V power supply with a capacity of 5A or more.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

Linear module slider



Belt module slider



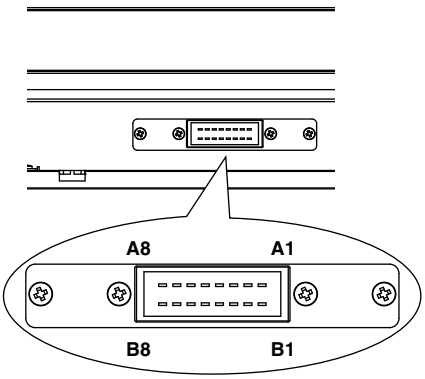
Belt module outline diagram of input/output signal wiring

Connector on front panel

Pin No.	Signal name	Function
A1	+24V	Power supply connection DC24V (+/-10%)
A2	GND	
A3	(Blank)	
A4	Option sensor L	Detection output
A5	Option sensor C	Detection output
A6	Option sensor R	Detection output
A7	ALARM	Alarm output
A8	SPEED	Speed output
B1	ALARM-RESET	Alarm reset input ON [L]: Reset OFF [H]: Normal
B2	INT.VR/EXT	Speed setting unit change-over input ON [L]: Internal OFF [H]: External
B3	CW/CCW	Rotation direction change-over input ON [L]: CW OFF [H]: CCW
B4	RUN/BRAKE	Brake input ON [L]: Run OFF [H]: Instantaneous stop
B5	START/STOP	Start/stop input ON [L]: Start OFF [H]: Stop
B6	VRH	(When using the dedicated speed setting unit)
B7	VRM	Minus (-) side DC power supply for speed setting
B8	VRL	Plus (+) side DC0 to 5V, 1mA or more

Note. For each input, a side to be connected to GND by the external switch is ON (L level).
Note. When both the START/STOP and RUN/BRAKE signals are turned ON (L level), the motor starts rotating. In this case, when the CW/CCW signal is turned ON (L level), the slider moves to the left as viewed from the connector side.
Conversely, when this signal is turned OFF (H level), the slider moves to the right.
Note. When the START/STOP signal is turned OFF (H level) in the RUN/BRAKE signal ON (L level) state, the motor stops naturally.
According to the operation speed, the slider may overrun several tens to hundreds of millimeters.
Note. When the RUN/BRAKE signal is turned OFF (H level) in the START/STOP signal ON (L level) state, the motor stops instantaneously to suppress the slider overrun to its minimal level.

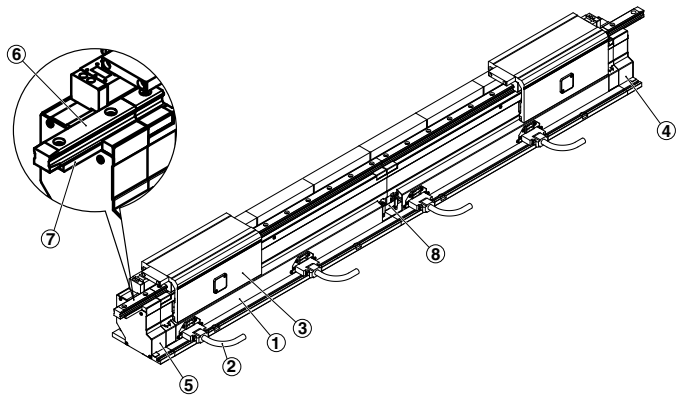
Pin assignment drawing



When investigating the linear conveyor module LCM100 actually, it is necessary to discuss the specifications and restrictions in detail. So, please contact YAMAHA or your dealer to hold hearings regarding your requests.

LCM100

LCM100/LCC140 Accessory parts



① Module
② Robot cable
③ Slider
④ Termination option (R side)
⑤ Termination option (L side)
⑥ Insertion/ejection rail
⑦ Module connection block (with fastening bolts)
⑧ Module connection cable

LCM100 main body

LCM100 module

Linear module

①

Belt module

Linear module

Model	LCM100-4M
	KDJ-M2020-40 (640mm)
	LCM100-3M
	KDJ-M2020-30 (480mm)
	LCM100-2MT (for circulation)
	KDJ-M2022-20 (400mm)

Belt module

Model	LCM100-4B
	KDJ-4K111-40 (640mm)
	LCM100-3B
	KDJ-4K111-30 (480mm)

Robot cable for linear module

Robot cables for the number of modules are required.

②

Model	For LCM100-4M/3M
	KDJ-M4710-30 (3m×2 pcs.) KDJ-M4710-50 (5m×2 pcs.)
	For LCM100-2MT
	KDJ-M4721-30 (Flexible cable 3m×1 pc.) KDJ-M4721-50 (Flexible cable 5m×1 pc.)

Slider

For linear module

For belt module

③

Linear module

Model	KDJ-M2264-00

Belt module

Model	KDJ-M2264-10

Parts for LCM100

Termination option for linear module (R side)

This part is attached to the right end of the module.
One termination module per line is required. Note 1
Additionally, even when using only one module without connections, one termination module is required.

④

Model	KDJ-M2021-R0

Termination option for linear module (L side)

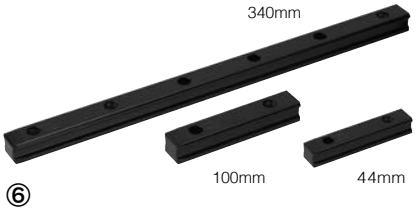
This part is attached to the left end of the module.
One termination module per line is required. Note 1
Additionally, even when using only one module without connections, one termination module is required.

⑤

Model	KDJ-M2021-L0

Insertion/ejection rail

Tapered rail.
Up to two rails per line can be installed. Note 1



⑥

Model	44mm : KDJ-M6200-00 (With a dedicated 44mm connection block)
	100mm : KDJ-M2222-10
	160mm : KDJ-M2222-20 Note
	220mm : KDJ-M2222-30 Note
	280mm : KDJ-M2222-40 Note
	340mm : KDJ-M2222-50

Note. Not in stock. We require some lead time for delivery.

Module connection block (with fastening bolts)

This block connects modules.
([Number of modules making up the line Note 1] - 1) blocks are required.
Additionally, when installing insertion/ejection rails, one block per rail is required.

⑦

Model	KDJ-M6100-00 (44mm)
	KDJ-M6100-10 (100mm) Note

Note. Use this model when installing 100 mm insertion/ejection rails to L side.

Module connection cable

This cable connects modules.
([Number of modules] - 1) cables per line are required. Note 1

⑧

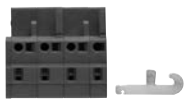
Model	KDJ-M4811-00

Note 1. A state, in which multiple modules are connected, is called “line”.

Parts for LCC140 controller

Power connector + connection lever

One set of parts per LCC140 is required.



Model	KAS-M5382-00

HPB dummy connector

When performing the operation with the programming box HPB removed, connect this dummy connector to the HPB connector.
One connector per LCC140 is required.

Model	KDK-M5163-00

SAFETY connector

One connector per LCC140 is required.

Not wired (plug + shell kit) Wired Note

Model	Not wired : KDK-M5370-10
	Wired Note : KDK-M5370-00

Note. The wired connector is that the wiring for the emergency stop cancel was performed inside the connector. Select this model when performing the operation check or debugging with single linear conveyor.

Parts for line configuration

LINK cable

([Number of modules] - 1) cables per line are required.

Model	1m : KDK-M5361-10
	3m : KDK-M5361-30
	5m : KDK-M5361-50

Terminator connector

When connecting modules, two connectors per line are required.

Model	KDK-M5361-00

Dust cover (for LINK connector)

This dust cover is attached to the insertion port, into which the LINK cable terminator connector is not inserted.
When using only one module without connections, two dust covers are required.

Note. The dust cover is essential for the 2MT.

Model	KDK-M658K-00 (for MDR20 pin)

Selection parts

Proximity sensor for belt module

A sensor for checking the slider position. Install this to prevent slider collisions and to ensure smooth action.

Model	L (Left): KDJ-M2205-L0
	C (Center): KDJ-M2205-C0
	R (Right): KDJ-M2205-R0

Programming box HPB/HPB-D

All operations, such as robot manual operation, program input or edit, teaching, and parameter setting can be performed with this programming box.
As an interactive interface with the screen display is used, even personnel who use this programming box for the first time can easily understand how to operate it.

Model	HPB: KBB-M5110-01
	HPB-D: KBB-M5110-21 (CE specifications / with 3-position enable switch)

HPB-D

Backside of HPB-D (with enable switch)

Support software POPCOM+

PC supporting software POPCOM+

POPCOM+ software model	KBG-M4966-00

POPCOM+ environment

OS	Windows XP (32bit), Vista, 7, 8 / 8.1, 10 (Supported version: V.2.1.1 or later)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX to SR1, DRCX, TRCX, ERCX, ERCD, LCC140 Note 1

Note 1. LCC140 is applicable to Ver. 2.1.1 or later.
Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.

Data cables (5m)

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB

D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCM100

RFID

RFID (manufactured by BALLUFF GmbH)*

Reader/writer cable

* This cable is a flexible cable.

Model	3m : KDK-M6300-00
	5m : KDK-M6300-10
	10m : KDK-M6300-20

RFID (manufactured by OMRON)

Antenna amplifier controller cable

Model	0.5m+2m : KDK-M6300-A0

Dust cover (for RFID)

This cover is attached to the insertion port if RFID is not used. (Included as standard)

Model	KDK-M658K-10 (for MDR26 pin)

Whether or not the RFID system can be used may vary depending on the destination place (country). Before selecting a RFID system, please contact YAMAHA.

Maintenance parts

Robot cable for LCM100

Model	Fixed cable
	KDJ-M4751-30 (3m×1 pc.) KDJ-M4751-50 (5m×1 pc.)
	Flexible cable
	KDJ-M4755-30 (3m×1 pc.) KDJ-M4755-50 (5m×1 pc.)

Lithium battery for system backup

Model	KDK-M4252-00

Replacement filter for LCC140 (5 pcs. in package)

Model	KDK-M427G-00

Controller for linear module

LCC140 basic specifications

Basic specifications of LCC140 controller

Controllable robot	Linear conveyor module LCM series
Outside dimensions	W402.5×H229×D106.5mm
Main body weight	4.8kg
Input power voltage	Single-phase AC200 to 230V +/-10% or less (50/60Hz)
Maximum power consumption	350VA (LCM100-4M 1 slider is driven.)
External input/output	SAFETY
	RS-232C (dedicated to RFID)
	RS-232C (for HPB / doubles as POPCOM+)
Network option	CC-Link Ver. 1.10 compatible, Remote device station (2 stations)
	DeviceNet™ Slave 1 node
	EtherNet/IP™ adapter 2 ports
Programming box	HPB, HPB-D (Software version 24.01 or later)

External view of LCC140