

Power Cylinder

Eco series

Eco series servo type

Thrust : 150N to 1500N {15.3kgf to 1530kgf}

- Maximization of servomotor performance
- Realization of high stopping accuracy
- Selectable servomotor
- Realization of high speeds and wide-ranging thrusts
- Reduction in servomotor capacity with precision planetary reducer



Eco series CDS type

Thrust : 250N to 1.00kN {25.5kgf to 102kgf}

- Self-contained
- Environmentally friendly
- Running cost reduction
- For highly frequent operation and long life
- Simple operation



Power cylinder eco series CDS type

New type power cylinders designed exclusively for press contact stop, and just fit for motorized air cylinders.

Self-contained

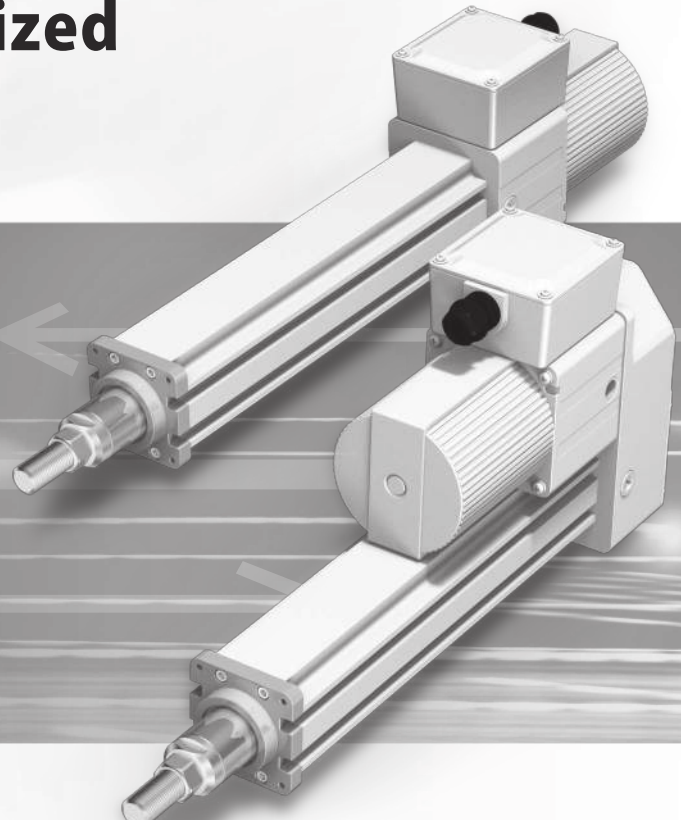
Cylinders are exclusive to press contact stop. Overcurrent is detected to stop the motor automatically.

Simple operation

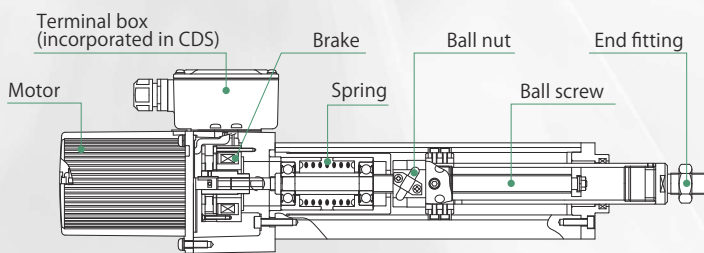
Best suited to operation between two points, like air cylinders. No intermediate stop can be made.

Simple wiring

Operation can be performed by simply connecting the three-phase power supply. No limit switch for stroke adjustment is required.



Structure of SpeedMech



The basic structure of this electric cylinder is a combination of a screw and motor, which is the same as conventional power cylinders.

This SpeedMech enables the cylinder to stop without a limit switch by the combination of the spring built into the actuating part and the special board (CDS) mounted in the terminal box.

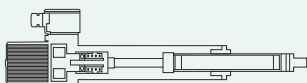
Also, compared with conventional electric cylinders, life is extended through the adoption of the first ball screw in this size and also the holding brake that is actuated after the motor is stopped.

Operating principle of SpeedMech

1

The cylinder extends.

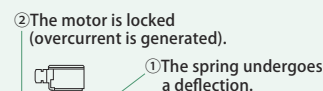
The cylinder rod extends by an extend signal. The rod stops in the middle of stroke due to the stopper, etc., of the equipment on the other side. Or, the rod stops when reaching the stroke end.



2

The spring undergoes a deflection to lock the motor.

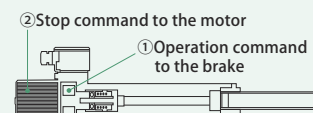
As the rod has stopped, the spring undergoes a deflection. At the same time, the motor is locked and the current value rises suddenly (overcurrent is generated).



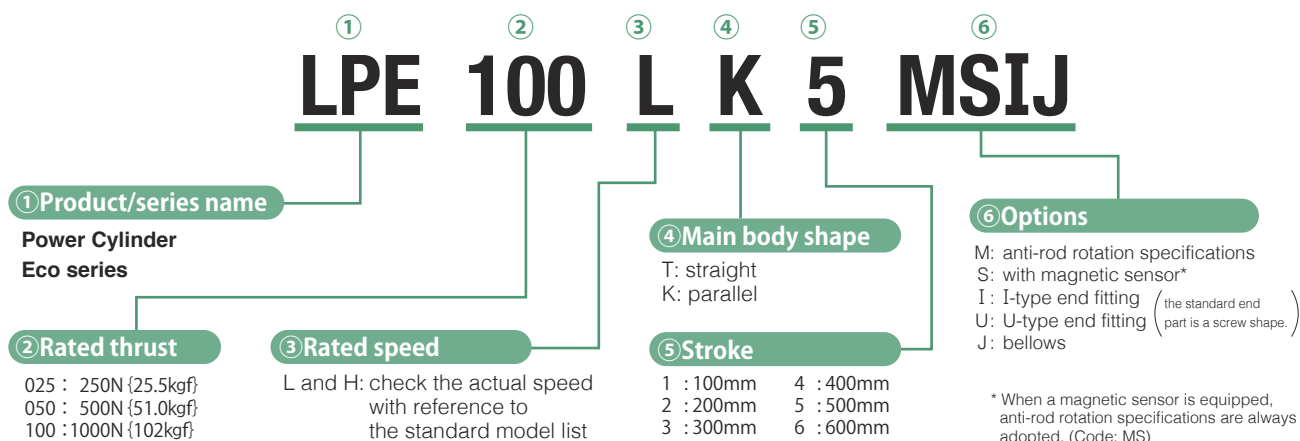
3

The brake is actuated to stop the motor.

The rise in current value is detected by the CDS, and an operation command is sent to the brake. Subsequently, a stop command is sent to the motor to stop the motor. At this time, a pressing force is maintained by the brake force.



Model No. designation



Standard model list

| Model number | Rated thrust N {kgf} | Rated speed mm/s 200/200/220V 50/60/60Hz | Motor output | Standard stroke mm |
|--------------|----------------------|------------------------------------------------|-----------------------------|--------------------|
| LPE025H | 250 {25.5} | 160/190/200 | 0.25N·m (50W or equivalent) | 100 |
| LPE050L | 500 {51.0} | 90/100/110 | 0.25N·m (50W or equivalent) | 200 300 |
| LPE050H | 500 {51.0} | 160/170/190 | 0.50N·m (90W or equivalent) | 400 |
| LPE100L | 1.00k {102} | 90/90/110 | 0.50N·m (90W or equivalent) | 500 600 |

* Pressing force varies depending on the machine type, and is two or three times the rated thrust.

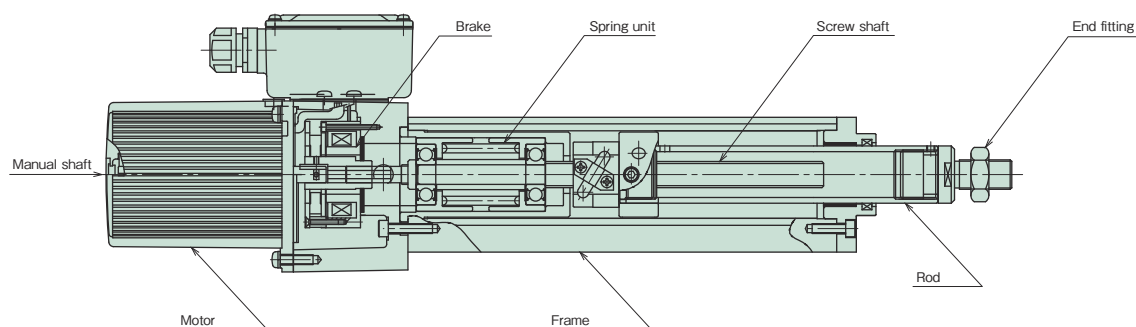
Standard environment of use

| Model Environment | Indoor type |
|------------------------|--------------------------------|
| Ambient temperature | 0 to 40°C |
| Relative humidity | 45 to 85% (non-condensing) |
| Shock resistance value | 0.5G or less |
| Installation altitude | 1000m or lower above sea level |
| Ambient | Normally indoors* |

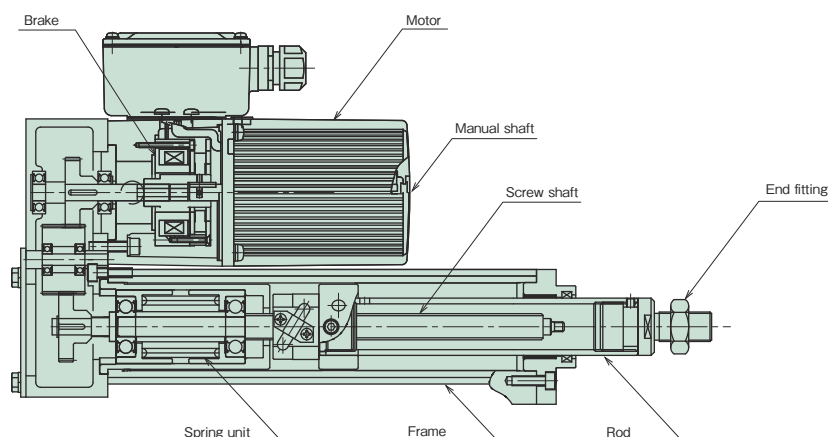
* Normally indoors means no exposure to wind, rain and water, and dust at a level inside an ordinary factory.

Structure

Straight

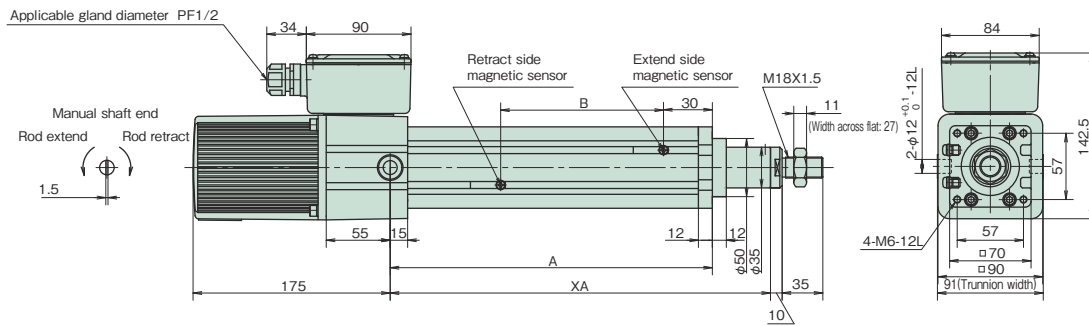


Parallel



Dimensions Table

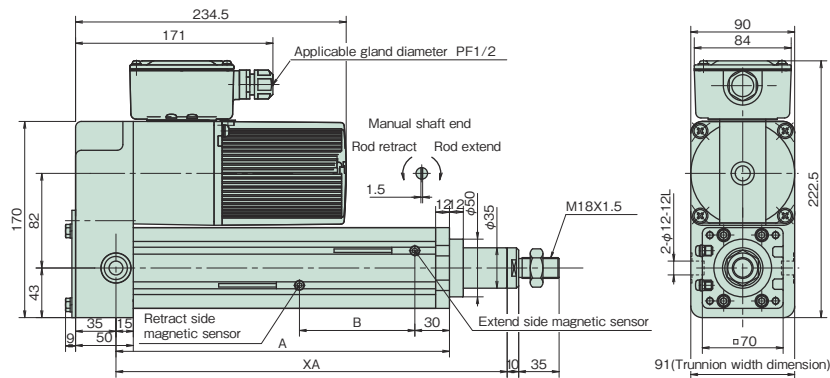
Straight



Unit: mm

| Model | Main body shape | Stroke | A | B | XA | | Approximate mass (kg) |
|------------------------------------------|-----------------|--------|-----|-----|-----|------|-----------------------|
| | | | | | MIN | MAX | |
| LPE025H LPE050L LPE050H LPE100L | T | 100 | 289 | 100 | 339 | 439 | 9 |
| | | 200 | 389 | 200 | 439 | 639 | 10 |
| | | 300 | 489 | 300 | 539 | 839 | 11 |
| | | 400 | 589 | 400 | 639 | 1039 | 12 |
| | | 500 | 689 | 500 | 739 | 1239 | 13 |
| | | 600 | 789 | 600 | 839 | 1439 | 14 |

Parallel

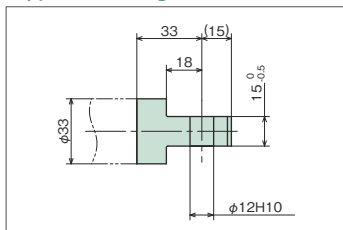


Unit: mm

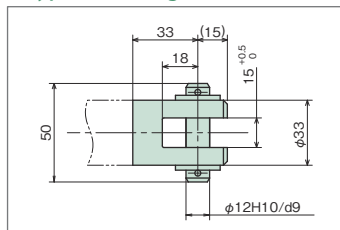
| Model | Main body shape | Stroke | A | B | XA | | Approximate mass (kg) |
|------------------------------------------|-----------------|--------|-----|-----|-----|------|-----------------------|
| | | | | | MIN | MAX | |
| LPE025H LPE050L LPE050H LPE100L | K | 100 | 289 | 100 | 339 | 439 | 14 |
| | | 200 | 389 | 200 | 439 | 639 | 15 |
| | | 300 | 489 | 300 | 539 | 839 | 16 |
| | | 400 | 589 | 400 | 639 | 1039 | 17 |
| | | 500 | 689 | 500 | 739 | 1239 | 18 |
| | | 600 | 789 | 600 | 839 | 1439 | 19 |

Options

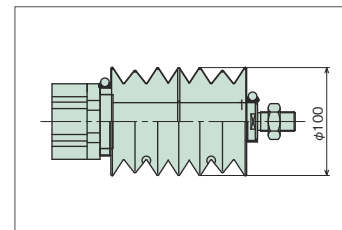
I-type end fitting (- I)



U-type end fitting (- U)

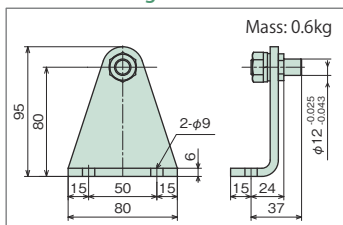


Bellows (- J)



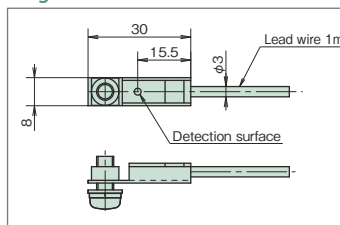
When bellows are equipped, flange mount is not available.

Trunnion fitting (LPE025-T)



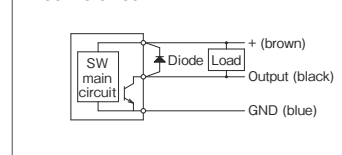
Order the trunnion fitting separately from main body model No. without entering any symbol at the end of model No.

Magnetic sensor (- MS)



The magnetic sensor cannot be attached later. If it is necessary, place an order first. Types with a lamp or 2 wire type are also available. Refer to page 129.

Electric circuit



Magnetic sensor specifications

No contact switch (DC 3-wire system) (lead wire 1m)

| | |
|-----------------------|--------------------------------------------|
| Power voltage | 5 to 26V DC |
| Consumption current | 8mA MAX (24V DC) |
| Output specifications | 15mA MAX (24V DC) Open collector output |

Selection

Conditions of use required for selection

1. Machine to use and application
2. Thrust or load N { kgf }
3. Stroke mm
4. Speed mm/s
5. Frequency of operation, starts/min.
6. Power voltage, frequency
7. Type of load of machine used
8. Environment of use
9. Hours of operation and annual number of operating days

Selection procedures

1. Select the suitable model number from the standard model list (page 156) based on thrust, speed and stroke.
2. Check that the number of cycles of the selected cylinder is within the allowable range with reference to the table at the right. (Table 1)
3. Check that the use conditions are satisfied with reference to the thrust – speed graph. (Figure 1)
4. In the case of use for transportation, check that the mass of the conveyed material is within the allowable range. (Table 2)
5. Select options as required.

Table 1 Allowable number of starts

| Model number | Stroke mm | Thrust N | | | |
|--------------|-----------|----------|-----|-----|------|
| | | 10 | 250 | 500 | 1000 |
| LPE025H | 100 | 15 | 12 | — | — |
| | 200 | 15 | 12 | — | — |
| | 300 | 10 | 10 | — | — |
| | 400 | 9 | 5 | — | — |
| | 500 | 8 | 4 | — | — |
| | 600 | 6 | 3 | — | — |
| LPE050L | 100 | 15 | 10 | 5 | — |
| | 200 | 8 | 8 | 5 | — |
| | 300 | 5 | 5 | 5 | — |
| | 400 | 5 | 5 | 3 | — |
| | 500 | 5 | 4 | 2 | — |
| | 600 | 4 | 4 | 2 | — |
| LPE050H | 100 | 15 | 12 | 10 | — |
| | 200 | 12 | 10 | 8 | — |
| | 300 | 10 | 10 | 6 | — |
| | 400 | 9 | 8 | 5 | — |
| | 500 | 8 | 7 | 4 | — |
| | 600 | 7 | 6 | 3 | — |
| LPE100L | 100 | 12 | 10 | 8 | 5 |
| | 200 | 8 | 8 | 8 | 5 |
| | 300 | 5 | 5 | 5 | 4 |
| | 400 | 5 | 5 | 5 | 3 |
| | 500 | 5 | 5 | 4 | 2 |
| | 600 | 4 | 4 | 4 | 2 |

Figure 1 Thrust – speed graph

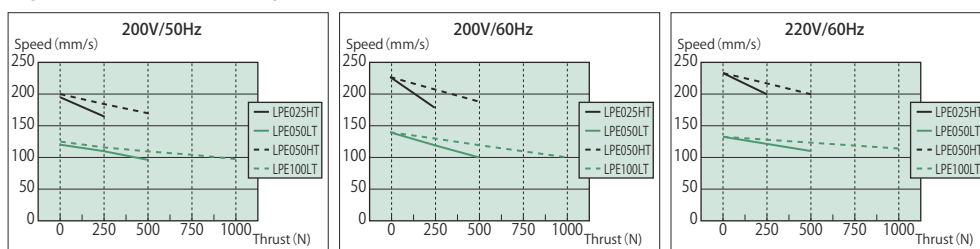


Table 2 Conveyed material mass in consideration of inertia

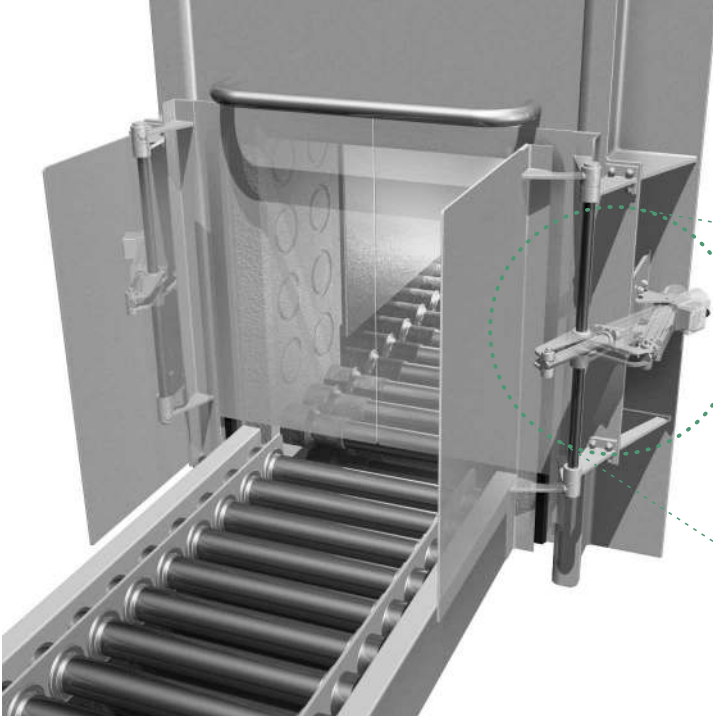
| Model number | Horizontal | Vertical |
|--------------|------------|----------|
| LPE025HT | 50 | 25 |
| LPE050LT | 100 | 50 |
| LPE050HT | 100 | 50 |
| LPE100LT | 200 | 100 |

* The data of the above table 1 and figure 1 are numerical values at an ambient temperature of 20°C. The numerical values may vary depending on the ambient temperature and other conditions, so use them as a guide.
* Select a power cylinder of a sufficient thrust, allowing for a safety rate so that the loads used (static and dynamic) do not exceed the rated thrust.

Application Solution

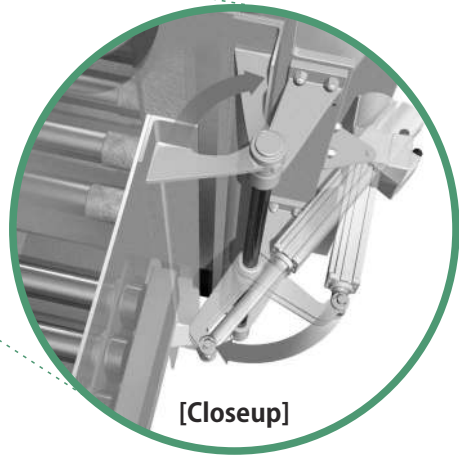
Heat treatment furnace <for door opening and closing> Link structure

- Substitution for pneumatic cylinders



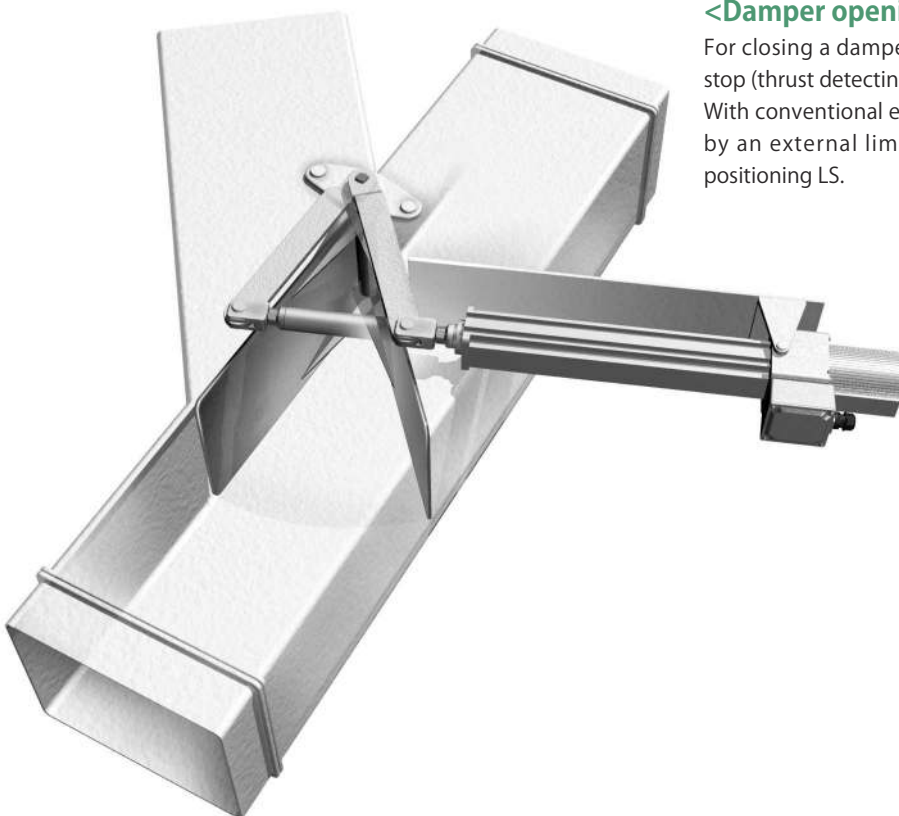
<Door opening and closing at a transfer outlet>

For door opening and closing at a heat treatment furnace outlet for metallic parts, the SpeedMech enabling reliable closing and holding of pressing force has been adopted because of the problem of a pneumatic cylinder, which would conventionally be used: the door-closed state cannot be maintained due to air leakage. It is usable because the temperature around the cylinder is 40°C or less.



Air duct <for damper opening and closing> Link structure

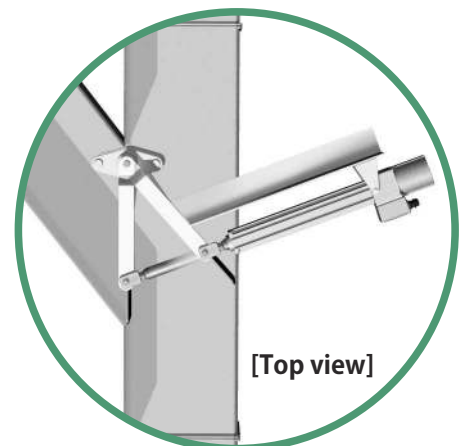
- Substitution for other companies' electric cylinders



<Damper opening and closing>

For closing a damper reliably, the cylinder needs a press contact stop (thrust detecting mechanism).

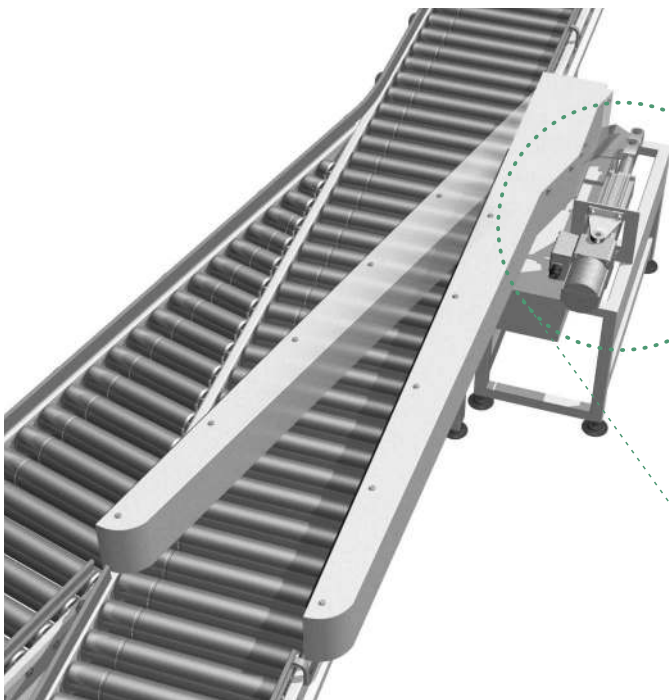
With conventional electric cylinders, stroke adjustments are made by an external limit switch, but the SpeedMech requires no positioning LS.



Sorting <for roller conveyor>

Link structure

● Substitution for pneumatic cylinders

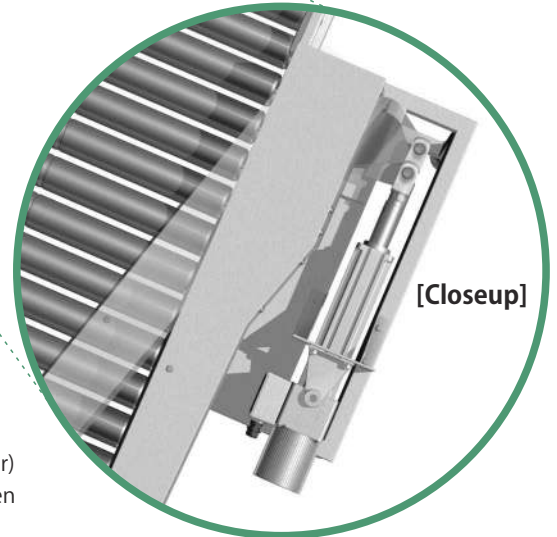


<Sorting (branching) of conveyed objects>

Since the destinations of conveyed objects are limited to two directions, reciprocations between two points are sufficient for the cylinder.

On the extending side, the cylinder extends to the stroke end and stops automatically. The same applies on the retracting side. Magnetic sensors are equipped because there is a need to remotely confirm the side on which the guide exists.

The SpeedMech and guide are a link mechanism.



<Roller conveyor>

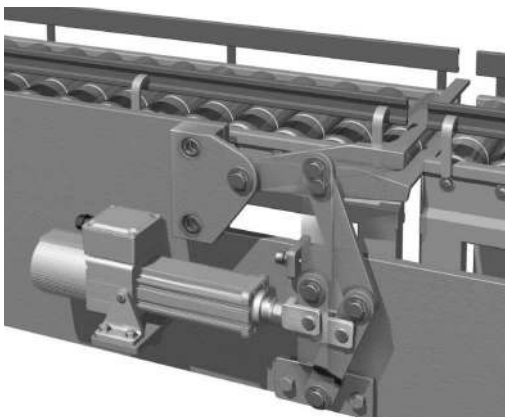
Conveyed objects on the roller conveyor are guided by moving the guide (bar) for direction change according to their destinations. The SpeedMech has been adopted to drive this guide.

Stopper

Link structure

● Substitution for pneumatic cylinders

A conveyed object on the conveyor is temporarily stopped by the stopper. When the cylinder rod fully extends, the stopper goes down, allowing the conveyed object to pass through. When the cylinder rod retracts to the backward limit, the stopper goes up to stop the conveyed object.



Points for adoption

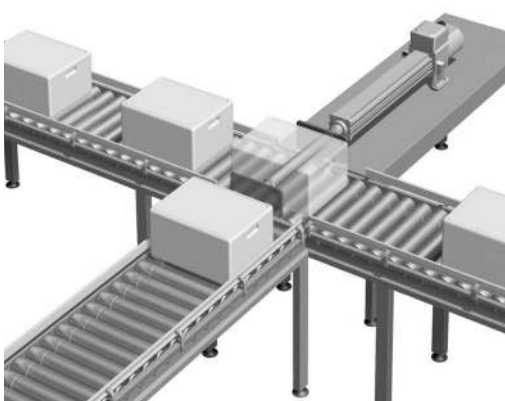
- ① **Total cost reduction**
Compared with air type, the total cost can be reduced. The running cost can also be reduced.
- ② **Environment-friendliness**
Pneumatic type has adverse environmental effects caused by noise and oil mist generation.

Pusher

Direct-push structure

● Substitution for pneumatic cylinders

A specific object conveyed on the conveyor is pushed by the pusher to change the traveling direction. On the extending side, the cylinder extends to the stroke end to fully push the conveyed object with reliability. After the conveyed object is fully pushed, the cylinder rod is returned as quickly as possible.



Points for adoption

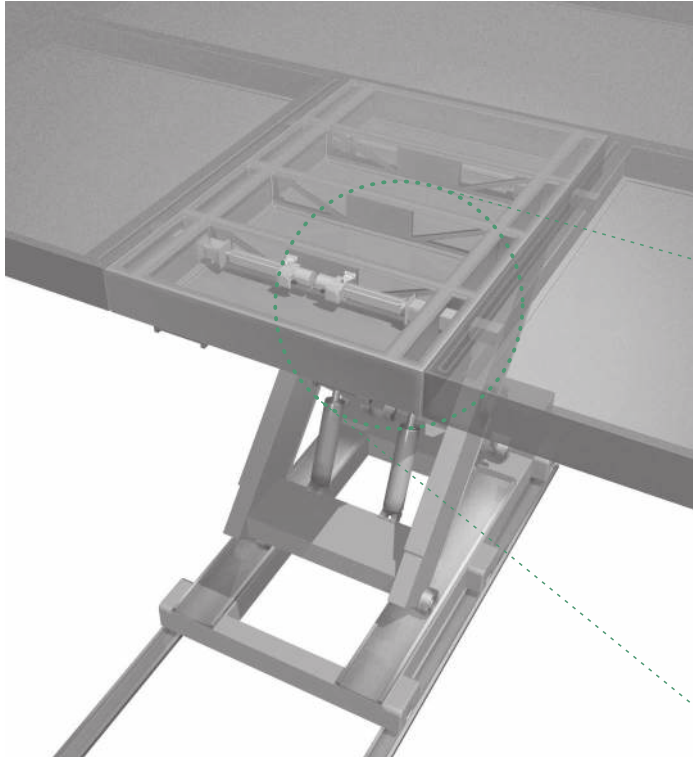
- ① **Simplified piping and wiring**
In the case of air, piping and wiring become complicated because solenoid valves, speed controllers, etc., are required.
- ② **Cylinder speed**
The speed, which is faster than that of conventional electric cylinders, cylinders virtually approaches that of pneumatic cylinders.

Application Solution

Lifter <for pin insertion to fix>

Direct-push structure

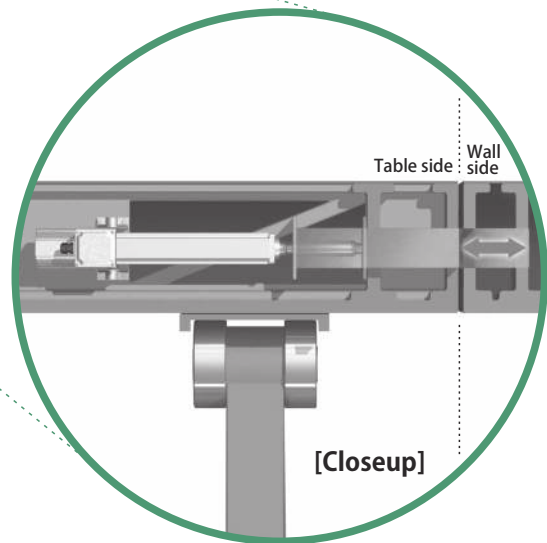
- Substitution for hydraulic cylinders



<Table fall prevention>

On the extending side, the cylinder stops automatically when hitting against the wall on the other side. On the retracting side, it stops at the stroke end.

The cylinder rod position is always checked by outputting a signal with the optional magnetic sensor. Also, since the equipment on the other side has no anti-rotation mechanism, the optional rod anti-rotation specification has been adopted.



<Table lifter>

Using a hydraulic cylinder for table elevation, there is danger that the table may fall due to oil leakage from the hydraulic cylinder during an attempt to fix at the ascent position. The SpeedMech has been adopted to fix the table position.

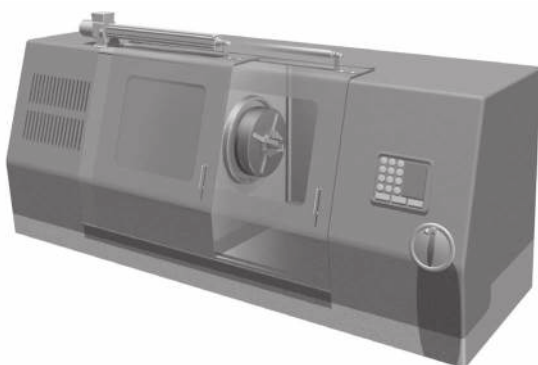
Door opening and closing

Direct-push structure

- Substitution for pneumatic cylinders

Generally, pneumatic cylinders are adopted for opening and closing the automatic doors of machines, such as lathes, but there is an increasing demand for motorization in consideration of environmental aspects.

Also, wiring man-hours can be reduced compared with air piping and wiring.



Points for adoption

- ① **Environment-friendliness**
Being free from noise and oil mist like pneumatic cylinders, the environmentally-friendly points have been well-recognized.
- ② **Simplified wiring**
Compared with air piping, extra work and maintenance are not required because it can be actuated by the power line alone.

Cutter

Direct-push structure



● Substitution for pneumatic cylinders

Bread dough in the hopper drops from the discharge spout, and the bread dough is cut by the opposing cylinders. Each cutter-equipped cylinder end stops just before the cutters collide with each other.

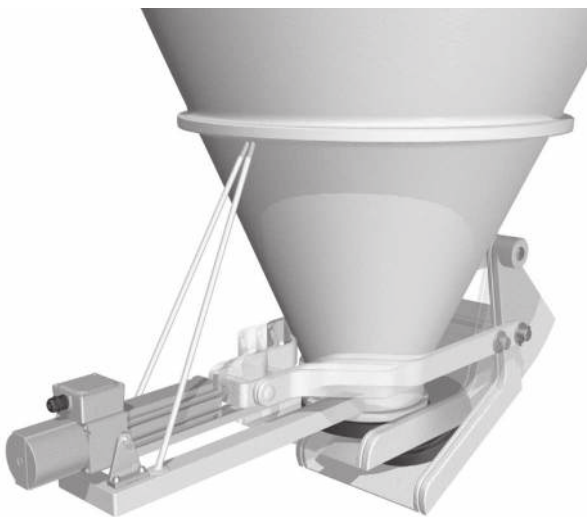
Points for adoption

- ① **Simplified piping and wiring**
In the case of air, piping and wiring become complicated because solenoid valves, speed controllers, etc., are required.
- ② **Emergency stop**
The cylinder brake is intended for holding, but in an emergency, it can urgently be stopped even in the middle of a stroke.

* Cylinder end mounting flanges are not included as options. Also, centering is required for installation.

Gate opening and closing

Link structure



● Substitution for hydraulic cylinders

When pouring fresh concrete into formwork, the gate (lid) is opened and closed.

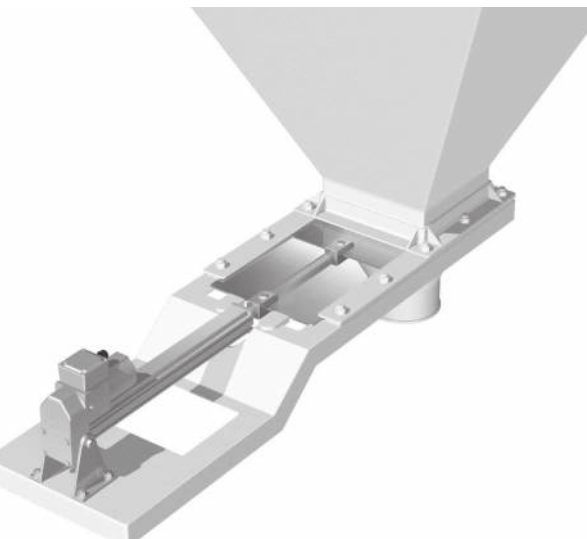
The gate is closed by the cylinder in the pulling direction. If the fresh concrete has a high water content, there is a need to close the gate reliably in order to prevent leakage from the hopper. Conventionally, a hydraulic cylinder would be adopted.

Points for adoption

- ① **High speed**
There is a need to close the gate quickly in order to secure a specified amount of pouring.
- ② **Reduction of piping and maintenance work**
The hydraulic method requires time and effort, and cost for piping, and also maintenance should be performed.

Shutter opening and closing

Direct-push structure



● Substitution for pneumatic cylinders

In the process of conveying grains, a fixed amount of raw materials in the tank is dropped down and weighed. At that time, when the shutter is opened and closed, it should quickly be performed because the material drops at a high speed. Also, there is a need to close the shutter reliably and hold the pressing force.

Points for adoption

- ① **High speed**
The shutter is closed quickly to prevent more than a fixed amount of raw materials from dropping.
- ② **Holding of pressing force**
After the shutter is closed, the state needs to be held. (Press contact stop)

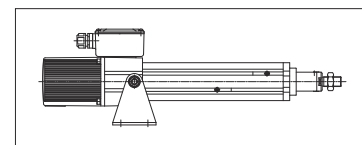
! WARNING

Cautions for selecting

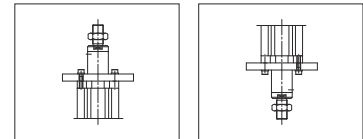
- No anti-rod rotation mechanism is attached to a cylinder with standard specifications. To use the end part freely, select the anti-rod rotation specifications (option).
And when a magnetic sensor (option) is equipped, anti-rod rotation specifications are required.
- Refer to the allowable number table on page 46 to check that the number of the starts of selected cylinder is within the allowable range.
- If this cylinder is used for press or pull contact stopping, the strength of the equipment side must be 300% or more of the rated thrust.
- Structurally, this power cylinder is an indoor type. Since there are problems, such as rust formation, store in a good indoor environment. Pay sufficient attention to humidity. Be aware that if it is installed in a place where the temperature changes rapidly, condensation will occur, causing failure or rust.
- Do not store or use in a corrosive atmosphere. Also, it cannot be used in a flammable atmosphere.
- Do not use in a place where there is no expectation for heat dissipation, such as in a closed container because doing so will cause failure.

Cautions for installation

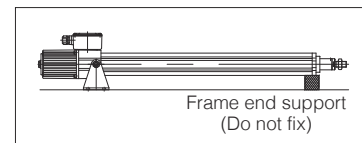
- Install the main body using a trunnion or a flange mount.
When it is used with oscillation using a trunnion mount, select an I-type or an U-type end fitting.
- If lateral load is applied, provide a guide so as not to receive lateral load or bending moment directly.
- When it is installed with a flange mount, install it in the vertical direction. (Refer to the figure at the right.)
- When it is used horizontally for a long stroke, support the bottom part of the frame end as shown in the figure below. Do not fix the frame and the supporting base.



Trunnion mount



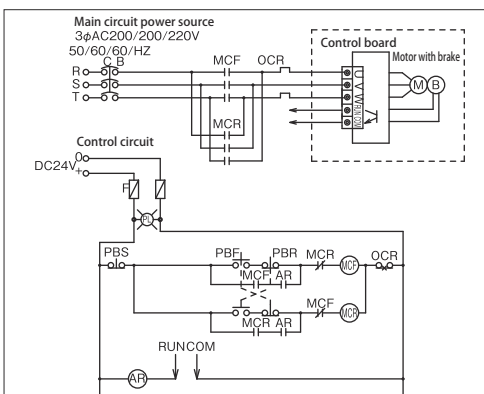
Flange mount



Frame end support
(Do not fix)

Cautions for use

- The motor stops when press or pull contact stops, however, on-the terminal block electricity is still being conducted. Never fail to cut off the main power source before working with the terminal box open.
- When adjusting the stroke manually, remove the cap bolt of the opposite load side of the motor, and turn the manual shaft with a flat-blade screwdriver or the like. However, use this only as an emergency since it is an operation with the brake working. And when operating manually, make sure to remove the load.
- Never use an inverter. This cylinder controls the press contact force by detecting overcurrent with the built-in CDS inside the terminal block and stopping the motor. If an inverter is used, the CDS circuit may be broken.
- Megger testing is prohibited for this cylinder. It may break the built in CDS. Remove all the terminals in the terminal block for megger testing of external circuits.
- Ensure the change over between extend and retract are at an interval of 0.2 seconds or more.
- The temperature around the motor may rapidly increase during operation and immediately after stopping. Do not touch around the motor part.
- Refer to the diagram below for connection and reference circuitry.

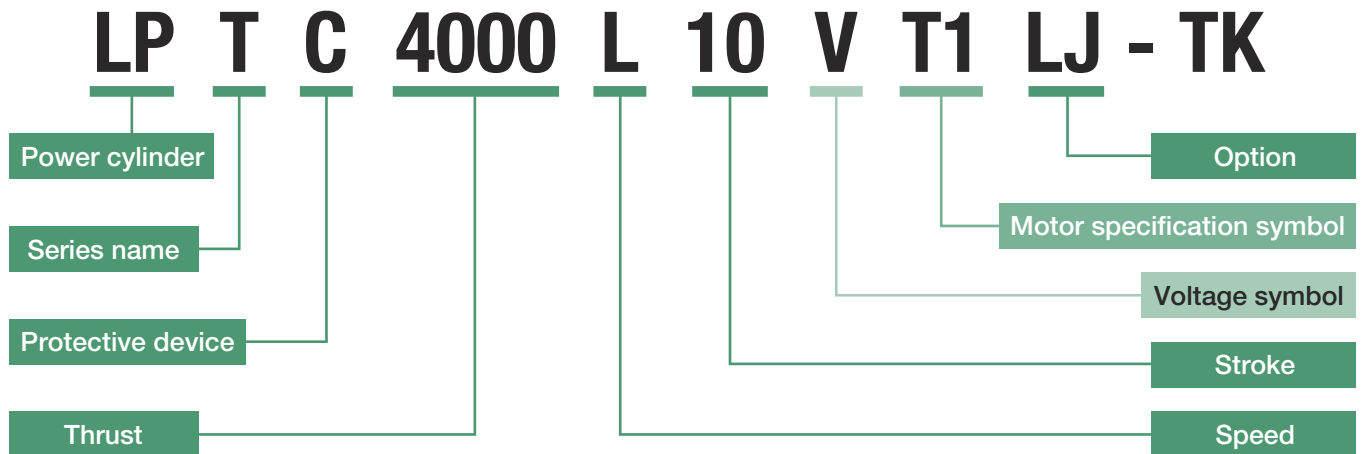


NOTE:

- ① This is a single acting circuit diagram. The cylinder extends with the PBF and automatically stops with the press contact force at the stroke end or when hitting a wall in the middle of a stroke, etc. For retract, the cylinder retracts with the PBR and stops in the same manner as the extend side. Provide a circuit for allowing MCF and MCR to be turned OFF every time the cylinder stops.
- ② RUN and COM terminals can take out the output signal of the cylinder action.
Open collector output: 50mA maximum 30V DC
Coil current of the relay AR must be 50mA DC or less.
- ③ Use an electromagnetic contactor with a contact capacity of SC-0 made of a Fuji Electric or equivalent.

Power Cylinder motor option

Model No. designation



| | Voltage symbol | Motor specification symbol | Model No. specification |
|---------------------------------|----------------|----------------------------|-------------------------------------------|
| Standard specification | No symbol | | 200V class |
| | V | | 400V class |
| Different voltage specification | V1 | | 380V, 50Hz |
| | V2 | | 380V, 60Hz |
| | V3 | | 415V, 50Hz |
| | V4 | | 460V, 60Hz |
| Heat resistance specification | | T1 | 200V class, heat resistance class F, 40°C |
| | | T2 | 200V class, heat resistance class F, 60°C |
| | | T3 | 200V class, heat resistance class F, 80°C |
| | | T4 | 200V class, heat resistance class H, 80°C |
| | V | T1 | 400V class, heat resistance class F, 40°C |
| | | T2 | 400V class, heat resistance class F, 60°C |
| | | T3 | 400V class, heat resistance class F, 80°C |
| | | T4 | 400V class, heat resistance class H, 80°C |

| | Voltage symbol | Motor specification symbol | Model No. specification |
|-----------------------------------------------------------------|----------------|------------------------------------------|------------------------------------------|
| Different voltage specification + heat resistance specification | V1 | T1 | 380V 50Hz, heat resistance class F, 40°C |
| | | T2 | 380V 50Hz, heat resistance class F, 60°C |
| | | T3 | 380V 50Hz, heat resistance class F, 80°C |
| | | T4 | 380V 50Hz, heat resistance class H, 80°C |
| | V2 | T1 | 380V 60Hz, heat resistance class F, 40°C |
| | | T2 | 380V 60Hz, heat resistance class F, 60°C |
| | | T3 | 380V 60Hz, heat resistance class F, 80°C |
| | | T4 | 380V 60Hz, heat resistance class H, 80°C |
| | V3 | T1 | 415V 50Hz, heat resistance class F, 40°C |
| | | T2 | 415V 50Hz, heat resistance class F, 60°C |
| | | T3 | 415V 50Hz, heat resistance class F, 80°C |
| | | T4 | 415V 50Hz, heat resistance class H, 80°C |
| V4 | T1 | 460V 60Hz, heat resistance class F, 40°C | |
| | T2 | 460V 60Hz, heat resistance class F, 60°C | |
| | T3 | 460V 60Hz, heat resistance class F, 80°C | |
| | T4 | 460V 60Hz, heat resistance class H, 80°C | |

| | Voltage symbol | Motor specification symbol | Model No. specification |
|-------------------------------|----------------|----------------------------|-------------------------------------------------------|
| Inverter specification | | Z | 200V class inverter drive supported |
| | | ZV | 400V class inverter drive supported ^{Note 1} |
| Global specification | | N | 200V class CE-compliant |
| | | N2 | 200V class UL-compliant |
| | | N3 | 200V class CCC-compliant |
| | V | N | 400V class CE-compliant |
| | | N2 | 400V class UL-compliant |
| | | N3 | 400V class CCC-compliant |
| Explosion-proof specification | | D | 200V class d2G4-compliant |
| | V | D | 400V class d2G4-compliant |
| Adapter specification | | A | Adapter supported |

Note 1) ZV only for double voltage with inverter drive supported.

* All special specifications of brake motors other than the above shall be expressed as "X."

Brake motor upgrades

1 Heat resistance specification: T

Compared with conventional products, substantial reductions in delivery time and price reduction have been realized. Also, heat resistance class "H", which would conventionally be unavailable, can be met.

- <Common specifications>
- Adaptable models: U series, T series and G series
 - Adaptable motor capacity: 0.1kW to 1.5kW
 - Totally outdoor type (IP55) with brake (The heat resistance class of the brake is B.)

Heat resistance class "F" supported

40°C

- Model No.: T1 (200V class), VT1 (400V class), V1T1 (380V, 50Hz), V2T1 (380V, 60Hz), V3T1 (415V, 50Hz), V4T1 (460V, 60Hz)
- Usable temperature range: 0 to 40°C (non-condensing)
- Duty factor: 25%ED
- Rating: S2 30min.
- Brake power supply module: Built into the terminal box

60°C

- Model No.: T2 (200V class), VT2 (400V class), V1T2 (380V, 50Hz), V2T2 (380V, 60Hz), V3T2 (415V, 50Hz), V4T2 (460V, 60Hz)
Usable temperature range: 0 to 60°C (non-condensing)
Duty factor: 15%ED
Rating: S2 15min.
Brake power supply module: Separate placement (standard DC module) * Install in a 40°C or lower environment.
* If being built into the terminal box is desired, contact us.

80°C

- Model No.: T3 (200V class), VT3 (400V class), V1T3 (380V, 50Hz), V2T3 (380V, 60Hz), V3T3 (415V, 50Hz), V4T3 (460V, 60Hz)
Usable temperature range: 0 to 80°C (non-condensing)
Duty factor: 5%ED
Rating: S2 5min.
Brake power supply module: Separate placement (standard DC module) * Install in a 40°C or lower environment.
* If being built into the terminal box is desired, contact us.

Heat resistance class “H” supported

- Model No.: T4 (200V class), VT4 (400V class), V1T4 (380V, 50Hz), V2T4 (380V, 60Hz), V3T4 (415V, 50Hz), V4T4 (460V, 60Hz)
Usable temperature range: 0 to 80°C (non-condensing) * We will confirm the duty factor and rating in each case.
Duty factor: 15%ED
Rating: S2 15min.
Brake power supply module: Separate placement (special DC module) * Install in a 40°C or lower environment.
* The motor terminal is a lug type.

2 Different voltage specification: V

We will deliver conventionally-available different voltage motors in a short period of time. Also, an estimation request and arrangements can be made smoothly through model-numbering of each voltage.

- <Common specifications>
- Adaptable models: U series, T series and G series
 - Adaptable motor capacity: 0.1kW to 1.5kW
 - Totally outdoor type (IP55) with brake
 - Heat resistance class B

Different voltage supported

- Model No.: V1 (380V, 50Hz), V2 (380V, 60Hz), V3 (415V, 50Hz), V4 (460V, 60Hz)
Usable temperature range: -15 to 40°C (non-condensing)
Duty factor: 25%ED
Rating: S2 30min.
Brake power supply module: Built into the terminal box
- Note
 - For using the brakes by external wiring, contact us.

3 Inverter specification: Z

Compared with conventional products, substantial reduction in delivery time and price reduction have been realized. The controllability of power cylinders has been improved as speed control including acceleration and deceleration and speed variations can be performed easily. Also, outdoor type with brake is standard.

- <Common specifications>
- Adaptable models: U series, T series and G series
 - Adaptable motor capacity: 0.1kW to 1.5kW
 - Totally outdoor type (IP55) with brake (The heat resistance class of the brake is B.)
 - Heat resistance class F
 - Constant torque operation can be performed in the range of 6 to 60Hz.

Inverter drive supported

- Model No.: Z (200V class), ZV (400V class)
Usable temperature range: 0 to 40°C (non-condensing)
Duty factor: 25%ED
Rating: S2 30min.
Brake power supply module: Built into the terminal box * Apply not inverter output but normal power supply voltage to the brake power supply module.
Applicable power supply voltage is 200 to 220V for 200V class and 400 to 440V for 400V class.

4 Global specification: N

Power cylinders conforming to worldwide directives, standards and systems (CE, UL and CCC) are available. They can be used for equipment to be exported abroad.

<Common specifications>

- Adaptable models: U series, T series and G series
- Adaptable motor capacity: 0.1kW to 0.4kW
- Usable temperature range: -15 to 40°C (non-condensing)
- Totally indoor type with brake

■ Note

- Only brake motors are compliant with the standards. If limit switches, etc., are required, contact us.

CE-compliant

- Model No.: Z (200V class), VN (400V class)
- Specifications (both N and VN)
Protection class: IP20
Heat resistance class: B



Target directive and standard
Target directive: Low Voltage Directive 73/23/EEC
Target standard: EN60034-1 (general motor regulations)

Products to be exported to the European market must be CE-marked to prove conformity with safety requirements provided by EC Directives. (Being "CE-compliant" is to affix a "CE mark" to products to prove conformity with EC Directives.)

UL-compliant

- Model No.: N2 (230/240V, 60/60Hz), VN2 (460V, 60Hz)
- Specifications (both N2 and VN2)
Protection class: IP20
Heat resistance class: A



Target standard and file No.
Target standard: UL1004
UL file No.: E225995

UL is an abbreviation for "Underwriters Laboratories" which represents safety standards for testing in the U.S. (Being "UL-compliant" is to affix a "UL mark" to products to prove UL standard certification with use of UL-standard-accredited motors.) Our certification in C-UR model conforms with both UL and CSA standards.

CCC-compliant

- Model No.: N3 (200/220/200/220V, 50/50 60/60Hz)
* Only 200/220V, 50/60Hz for 0.4kW.
VN3 (380V/50Hz)
- Specifications (both N3 and VN3)
Protection class: IP23
Heat resistance class: E



National standard: GB12350

CCC is the China Compulsory Certification system, and for exporting 1.1kW or smaller motors to China, it is necessary to indicate a "CCC mark" to prove compulsory certification. We have received certification from the CQC (China Quality Certification Center).

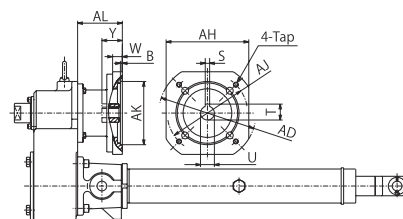
5 Adapter specification: A

To be prepared for customer-desired manufacturer, IEC, NEMA, overseas standards, and other special flange motors, adapters are available from us to facilitate installation. Also, they are available for other special flange sizes and motor shaft diameters. Contact us.

- <Common specifications>
- Adaptable models: U series, T series and G series
 - Adaptable motor capacity: 0.1kW to 7.5kW

Adapter supported

- Model No.: A (adaptable to all brake motors)
- Standards use environment of power cylinder
Usable temperature range: -15 to 40°C (non-condensing) *40°C or higher is also supported.
Duty factor: Within 25%ED
- Note
 - The brake motor starting torque should be 200% or more of the rated torque.
 - Make sure to prepare power cylinders with brakes because they are highly efficient.
 - The brake torque should be 150% or more of the rated torque.



Adapter type interface dimensions list (IEC standard motor)

| Model No. | Speed | Motor capacity | Frame No. | AL | AD | AH | AK | B | AJ | S | T | U | W | Y | Tap dia. | | | | | | | | | | |
|--------------|-------|----------------|-----------|------|-----|------|------|--------|------|------|------|------|-------|----|----------|-------|--------|------|--------|------|--------|-------|------|-------|-------|
| LPTB LPTC | 250 | S | 0.1 | 63 | 80 | φ160 | — | φ110G7 | 4 | φ130 | 4Js9 | 12.8 | φ11F7 | 15 | 25 | 4-M8 | | | | | | | | | |
| | | L | 0.1 | | — | | 5 | | 14 | | | | | | | | | | | | | | | | |
| | | M | 0.2 | 71 | — | | | | | | | | | | | | 5Js9 | 16.3 | φ14F7 | 32 | | | | | |
| | | H | 0.4 | 71 | — | | | | | | | | | | | | | | | | | | | | |
| LPTB LPTC | 500 | S | 0.1 | 63 | 80 | φ160 | — | φ110G7 | 4 | φ130 | 4Js9 | 12.8 | φ11F7 | 15 | 25 | 4-M8 | | | | | | | | | |
| | | L | 0.2 | | 71 | | — | | 5 | | | | | | | | 14 | | | | | | | | |
| | | M | 0.4 | 71 | — | | 5Js9 | | | | | | | | | | | 16.3 | φ14F7 | 32 | | | | | |
| | | H | 0.75 | 80 | 92 | | | | φ200 | | | | | | | | □170 | | | | φ130H7 | 4 | φ165 | 6Js9 | 21.8 |
| LPTB LPTC | 1000 | S | 0.2 | 63 | 80 | φ160 | — | φ110G7 | 4 | φ130 | 4Js9 | 12.8 | φ11F7 | 15 | 25 | 4-M8 | | | | | | | | | |
| | | L | 0.4 | | 71 | | 72 | | — | | | | | | | | 5 | 14 | | | | | | | |
| | | M | 0.75 | 80 | 92 | | φ200 | | □170 | | | | | | | | | | φ130H7 | 4 | φ165 | 6Js9 | 21.8 | φ19F7 | 20 |
| | | H | 1.5 | 90L | 92 | | φ200 | | □170 | | | | | | | | φ130H7 | 4 | φ165 | 8Js9 | 27.3 | φ24F7 | 20 | 52 | 4-M10 |
| LPTB LPTC | 2000 | S | 0.4 | 71 | 85 | φ160 | — | φ110G7 | 4 | φ130 | 5Js9 | 16.3 | φ14F7 | 15 | 32 | 4-M8 | | | | | | | | | |
| | | L | 0.75 | | 80 | | 72 | | — | | | | | | | | 5 | 16 | | | | | | | |
| | | M | 1.5 | 90L | 72 | | φ200 | | — | | | | | | | | | | φ130G7 | 5 | φ165 | 6Js9 | 21.8 | φ19F7 | 20 |
| | | H | 2.2 | 100L | 116 | | φ250 | | □200 | | | | | | | | φ180H7 | 4.5 | φ215 | 8Js9 | 27.3 | φ24F7 | 20 | 52 | 4-M10 |
| LPTB LPTC | 4000 | S | 0.75 | 80 | 90 | φ200 | — | φ130G7 | 4 | φ165 | 6Js9 | 21.8 | φ19F7 | 20 | 42 | 4-M10 | | | | | | | | | |
| | | L | 1.5 | | 90L | | 72 | | — | | | | | | | | 5 | 16 | | | | | | | |
| | | M | 2.2 | 100L | 116 | | φ250 | | □200 | | | | | | | | | | φ180H7 | 4.5 | φ215 | 8Js9 | 27.3 | φ24F7 | 20 |
| | | H | 3.7 | 112M | 116 | | φ250 | | □200 | | | | | | | | φ180H7 | 4.5 | φ215 | 8Js9 | 31.3 | φ28F7 | 20 | 62 | 4-M12 |

Unit: mm



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