LANGO®

Solenoid Dosing Pump Instruction Manual

ED Series





Carefully read and understand the manual before installation and operation.

Order confirmation

After unpacking, check the following points. Contact us or your nearest dealer if the delivery is imperfect.

a. Check if the delivery is as per order.

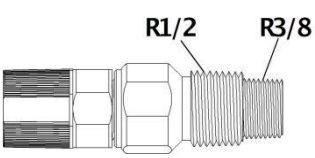
Check the nameplate to see if the discharge capacity, discharge pressure and voltage are as per order.

b. Check if accessories are complete.

- *A check valve*

* The attached check valve vary with pump models.

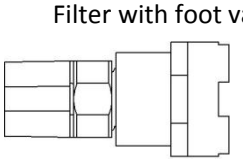
Check valve



- *A filter with foot valve*

* The attached filter with foot valve vary with pump models.

Filter with foot valve



- *A tube (3m)*

(ø4×9 or ø8×13 PVC braided tube)

c. Check if the delivery is damaged or deformed

Check for transit damage and loose bolts.

Safety instructions

Read through this section before use. This section describes important information for you to prevent personal injury or property damage.

■ Pictorial indication

In this instruction manual, the estimated risk of degree caused by incorrect use is ranked with the following pictorial indications. First, fully understand information on the pictorial indications.

⚠**WARNING**	Indicates mishandling could lead to a fatal or serious injury accident.

⚠**CAUTION**	Indicates mishandling could lead to personal or property damage.

Pictorial indication accompanies each precaution, suggesting "Caution", "Prohibition" and "Requirement".



⚠For exportation

Technology related to the use of goods in this instruction manual falls in the category of technology contained in the Foreign Exchange Order Attachment, which includes complementary export control of technology. Please be reminded that export license, which is issued by the Ministry of Economy, Trade, and Industry could be required, when this is exported or provided to someone even in China.

WARNING

Turn off power before work

Risk of electrical shock. Be sure to turn off power to stop the pump and related devices before work.



Stop operation

On sensing any abnormality or dangerous sign, suspend operation immediately and inspect/solve problems.



Do not use the pump in anything other than a specified purpose

The use of the pump in any purpose other than those clearly specified may result in failure or injury. Use this product in a specified condition.



Do not modify the pump

Remodeling the pump carries a high degree of risk. We are not responsible for any failure or injury results from remodeling.



Wear protective clothing

Always wear protective clothing such as an eye protection, chemical resistant gloves, a mask and a work cap during dismantlement, assembly or maintenance work.



Do not damage the power cable

Do not pull or knot the power cable or place a heavy stuff on it. Damage to the power cable could lead to a fire or electrical shock.



Do not use the pump in a flammable atmosphere

Do not place dangerous or flammable goods near the pump foryour safety.



⚠CAUTION

A qualified operator only

The pump must be handled or operated by a qualified person with a full understanding of the pump. Any person who is not familiar with this product should not take part in operation or management.



Use a specified voltage only

Do not apply any voltage other than the one specified on the nameplate. Otherwise, failure or fire may result. Also, be sure to earth the pump.



Do not run pump dry

Do not run pump dry for more than 30 minutes (even when the pump runs for degassing). Otherwise, the pump head fixing screws may loosen and liquid may leak. Optimise your system in order for the pump not to run dry. If the pump run dry for a long period (for more than 30 minute), the pump head and valve case may deform by friction heat and consequently leakage results.



Do not wet electric parts or wiring

Risk of fire or electrical shock. Install the pump free from liquid spill.



Ventilation

Poisoning may result when handling a toxic or odorous liquid. Keep good ventilation in your operating site.



Do not install or store the pump in the following places where...

- Under a flammable atmosphere or in a dusty/humid place.
- Ambient temperature is beyond 0-40 degrees Celsius.
- Under direct sunlight or wind & rain.



Countermeasure against efflux

Take a protective measurement against an accidental chemical overflow results from pump or piping breakage.



Do not use the pump in a water place

The pump is not totally waterproof. The use of the pump in water or high humidity could lead to electrical shock or short circuit.



Earthing

Risk of electrical shock. Always earth the pump.



Install an earth leakage breaker

Risk of electrical shock. Do not use the pump without a leakage breaker. Purchase separately.



Wear part replacement

Follow instructions in this manual for wear part replacement. Do not dismantle the pump beyond the extent of the instructions.



Do not use a damaged pump

Using a damaged controller could lead to an electric leak or shock.



Disposal of the used pump

Dispose of any used or damaged pump in accordance with relevant regulations. Consult a licensed industrial waste products disposing company.



Tighten the pump head

Liquid may leak if pump head fixing bolts are loose. Tighten the bolts diagonally and evenly before initial operation. Also, periodically tighten the bolts for the prevention of leakage.

Tightening torque

EH-B10/15/20, C15/20 : 2.16 N•m

EH-B30, C30/35 : 2.55 N•m



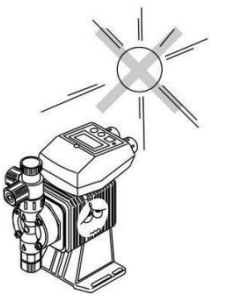
Precautions for use

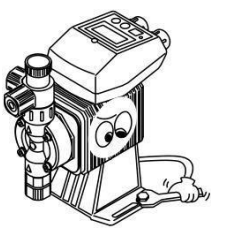
- Electrical work shall be performed by a qualified operator. Otherwise, personal or property damage accident may result.



- Do not install the pump in the following places where...
  - Under a flammable atmosphere or in a dusty/humid place.
  - Under direct sunlight or wind & rain.
  - Ambient temperature is beyond 0-40 degrees Celsius.

  Protect the pump with a cover when installing it out of doors.
- Select a level location where is free from vibration and liquid can't stay. Fix the pump with M4 bolts so as not to vibrate. If the pump is installed at a tilt, the flow may reduce.





- When two or more pumps are installed, the pump operation interacts each other and vibration becomes significant, resulting in poor performance or failure of internal electrical devices. Select an installation location where tolerates vibration to enough degree.



- Keep a wide maintenance space around the pump.



- Install the pump as close to a supply tank.



- Install the pump in a cool and dark place when handling liquids that readily generate gas bubbles such as sodium hypochlorite or hydrazine solution. Flooded suction mounting is strongly recommended when using the pump with a supply tank.



- Be careful not to drop the pump onto the floor. A strong impact may reduce pump performance. Do not use a pump which has once damaged. Otherwise an electrical leak or shock may result.



- The pump is a light water-/dust-proof structure of IP65, but is not totally waterproof. Do not have the pump wet with the liquid handled or rainwater.



- Never wet the pump head, control unit and drive unit. Otherwise, failure or an accident may result. Immediately wipe off liquid if the pump has got wet.



- Do not close the discharge line during operation. Otherwise, liquid may leak or tubing may break.



- Remove the control unit only when necessary. Note that an applicable control unit differs with each drive unit. Do not attach a control unit to an inapplicable drive unit. Otherwise, an electrical circuit or the drive unit may fail.



- Release the pressure from the discharge line before dismantling the pump or removing tubing. Otherwise, chemical liquid gushes out.



- Be careful not to come in contact with residual liquid.



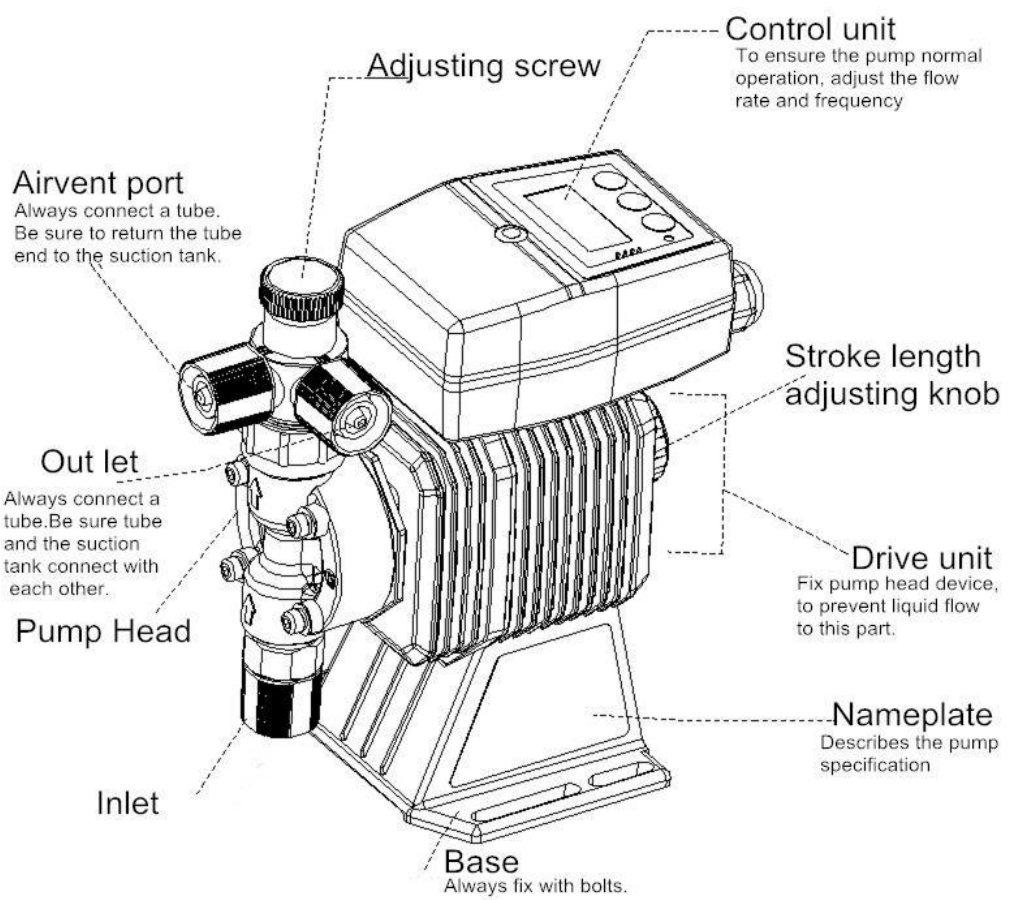
- Do not clean the pump or nameplate with a solvent such as benzene and thinner. This may discolour the pump or erase printing. Use a dry cloth or a wet cloth with water or neutral detergent.



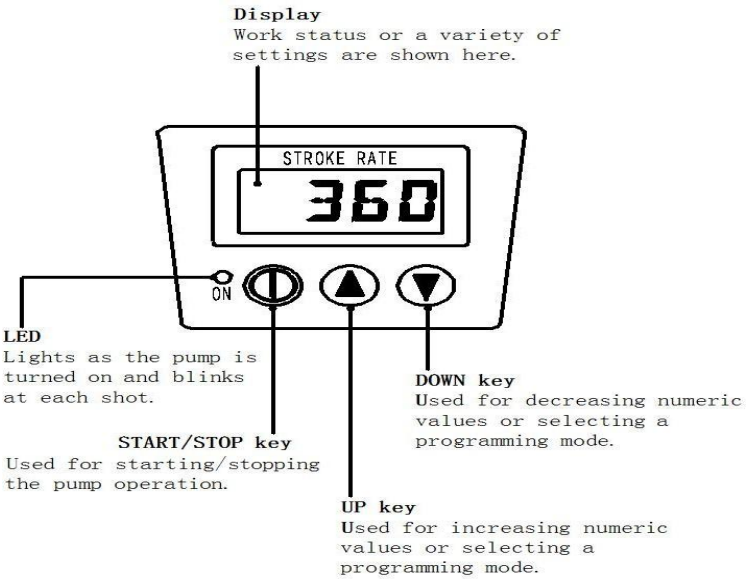
- **Multivoltage**
  All the EH series is multivoltage type (AC100-240V) and can be selected without concern for local power voltage.
- **High resolution**
  Digitally-controlled spm range is 0～360. The stroke length shifts for a fine flow adjustment.
- **Waterproof and dustproof structure**
  The sealed drive unit and control unit assure IP65.
  * This pump is not completely water resistant. Protect the pump with a cover when installing it out of doors.

Part names

* The air vent port is not provided to the ED-C30•35 .



Operational panel



	LED lights	LED blinks
360	A wait state in manual mode The screen shows the manual operation spm.	Operation in manual mode. spm indication blinks. The screen shows manual opera-tion spm.
.0 360	A wait state in EXT mode (E-SP), waiting for the external signal. The screen shows ".0".	Operation in EXT mode (E-SP), receiving the external signal. The screen shows manual opera-tion spm.
STOP	The stop function is suspending the pump operation.	—
-STOP	The pump is stopped by the stop signal in the manual wait state.	—
M--OF M--ON	STOP function is programmed.	—
A.000	The 485 communication address setting, each pump must set an address, address range of 1-255.	—
A360 LocK AENT	Keypad is locked. In this state key operation is cancelled. First release the lock state before operation.	Keypad is locked. In this state key operation is canceled. First release the lock state before operation.

Identification codes

The model codes of the pump/drive units and the control unit represent the following information.

Pump/Drive units

ED - B 10 VC W 1

a b c d e f

a. Series name

ED: RS485 Signal Model

b. Drive unit code (Average power consumption)

B: 20W

C: 24W

c. Diaphragm effective diameter

10/15/20/30/35

d. Flow end materials

Code	Pump head	Valve	O ring	Valve seat	Gasket	Diaphragm
VC	PVC	ceramic	FKM	FKM	PTFE	PTFE + EPDM (EPDM is not a wet end.)
VH		ceramic	EPDM	EPDM		

Material code

PVC : Transparent polyvinylchloride

EPDM : Ethylene-propylene rubber

FKM : Fluorine-contained rubber

PTFE : Polytetrafluoroethylene

e. Power-supply voltage

W: AC100-240V

f. Tube connection bore code

No.	Tube connection bore	Tube type
1	ø4×9	PVC braided tube (PVC)
2	ø8×13	PVC braided tube (PVC)

Installation

This section describes the installation of the pump, tubing and wiring. Read through this section before work.

Observe the following points when installing the pump.

- Be sure to turn off power to stop the pump and related devices before work.
- Upon sensing abnormal condition or a dangerous sign, stop the work immediately. Remove problems before resuming work.
- Do not place dangerous or flammable goods near the pump for your safety.
- Risk of an electrical leak or shock. Do not use a damaged pump.

Pump mounting

Select an installation location and mount the pump.

Necessary tools

- Four M5 bolts (pump mounting)
- Adjustable wrench or spanner

1 **Select a suitable place.**

Always fix the pump on a flat floor free of vibration. See page 10 for detail.

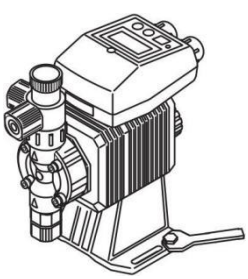
Flooded suction is recommended when handling a gaseous liquid such as sodium hypochlorite

2 **Fix the pump by the M5 bolts.**

Be sure to fix the pump at four points.

NOTE

Install the pump horizontally. If the pump is installed at a tilt, the flow may reduces.

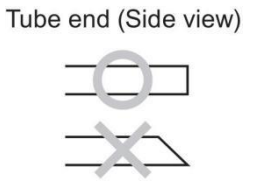


Pipework

Connect tubes to the pump and install a check valve.

Before operation

- Cut the tube ends flat.



Necessary tools

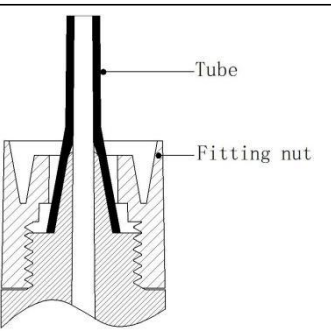
- Adjustable wrench or spanner

Tube connection

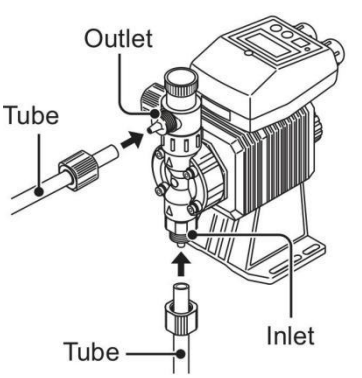
a. Pass a tube into the fitting nut and insert a tube end all the way seated on the fitting. Then hand tighten the fitting nut.

b. Retighten the fitting nut by turning it 180 degrees with an adjustable wrench or spanner.

* The fitting nut is made by plastics and may be broken if it is tightened too much.

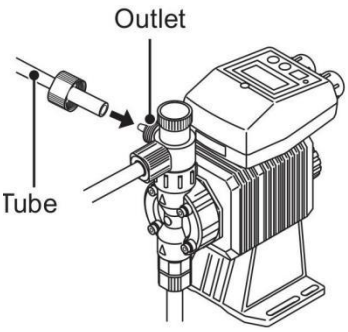


1 **Connect tubes into the inlet and outlet.**



2 **Connect an air bleed tube into the air vent port.**

Place the tube end in the supply tank or another container.



3 **Direction of the air vent port.**

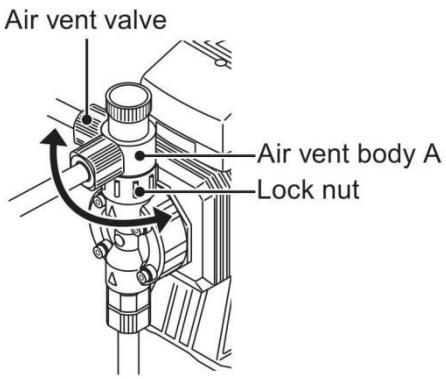
The air vent port can rotate 90 degrees.

a. Turn the lock nut anticlockwise.

b. Adjust the direction of the air vent port.

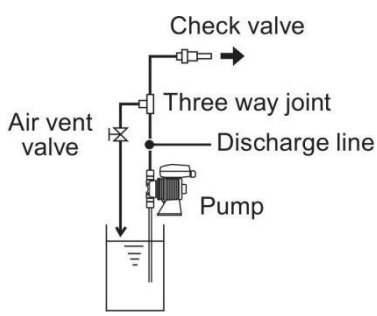
c. Turn the lock nut clockwise and fix it, holding the air vent body A.

d. Further tighten the lock nut by turning it 90 degrees with an adjustable wrench or spanner.



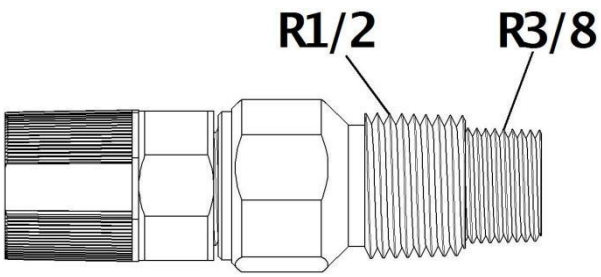
NOTE

The air vent port is not provided to the EH-30•35 types. Install an air vent valve.
See the right diagram. Optional air vent valves are available. See page 82 for detail.



1 **Mount the check valve at the discharge tube end.**

* The CA check valve have R1/2,R3/8 thread connections as well as tube connection. Cut off and adjust the connection length to fit the check valve into tubing.

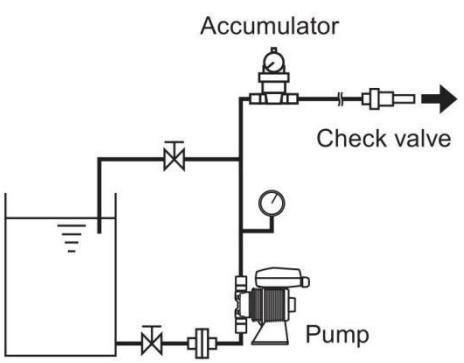


NOTE

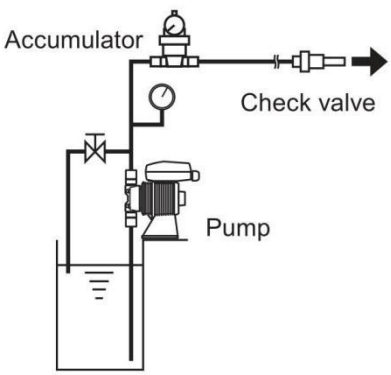
Periodically clean or replace the check valve with new one because it may be clogged by crystal.

Tubing layout

Flooded suction application



Suction lift application



* Flooded suction is recommended when handling a gaseous liquid such assodium hypochlorite.

Wiring

Wiring for the power source, earthing and external signal.

Observe the following points during wiring work.

- Electrical work shall be performed by a qualified operator. Always observe applicable codes or regulations.
- Observe the rated voltage range. Otherwise the electrical circuit on the control unit may break.
- Do not perform wiring work while the power is on. Otherwise, an electrical shock and short circuit may result, and consequently the pump may fail. Be sure to turn off power before wiring work.
- Be careful for the power not to be turned on during work.

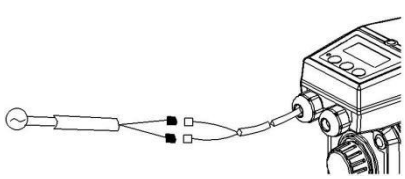
Necessary tools

- Adjustable wrench or spanner
- Phillips screw driver
- Precision screw driver

Power supply/Earthing

Check that the main power is turned off.

1 **Connect power cable via crimp contacts.**



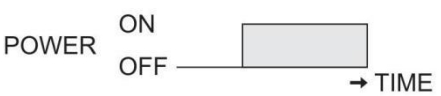
2 **Earth the pump.**

Be sure to earth the pump.

NOTE

- Do not share a power source with a high power equipment which may generate surge voltage. Otherwise electronic circuit may fail. The noise caused by the inverter also affects the electronic circuit.
- Power voltage should be charged at a sitting via a switch or a relay. Otherwise CPU may malfunction. See page 28 for the precautions for ON-OFF control by the relay.

When the power is applied at a sitting



When the power is applied gradually

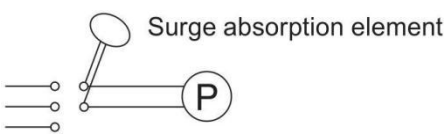


Surge voltage

The electronic circuit in the control unit may fail due to surge voltage. Do not place the pump close to the high power equipment of 200V or more which may generate large surge voltage.

If the use near the high power equipment is inevitable, take any of the following measures.

- Install a surge absorption element (ex. a varister with capacity of 2000A or more) via power cable.



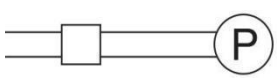
Recommended varisters

Panasonic ERZV14D431

KOA NVD14UCD430

See manufacturer's catalogues for detail.

- Install a noise cut transformer via power cable.



Noise cut transformer

External input cable

Points to be checked

- Check that the main power is turned off.
  The pump is still charged right after turning off power. Wait for one minute before wiring.

Applicable cables

A cable diameter shall be 7.8mm.
Triplex cable: VCTF-3 1.25mm 2
Duplex cable: UL, CSA SJT 18AWG/2

* The use of a cable diameter other than 7.8mm results in improper connection and reduced seal performance.

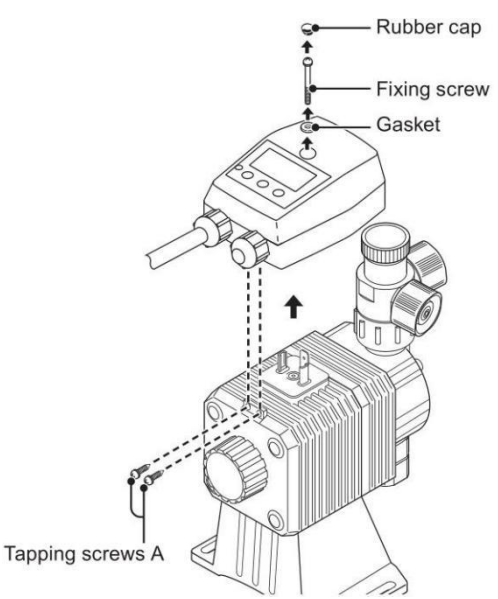
NOTE

- Do not install the EXT/STOP signal wires in parallel with a power cable or combine them in a concentric cable (ex. 5 wires cable). Otherwise distractions is generated through the EXT/STOP signal wires due to induction effect and it results in malfunction or failure.

1 **Remove the control unit.**

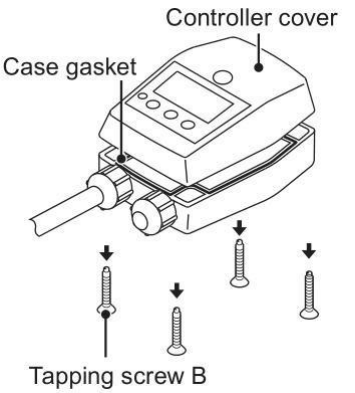
a. Remove the rubber cap, fixing screw and gasket from the top.

b. Loosen the two tapping screws (A) located above the stroke length adjusting knob and detach the control unit.



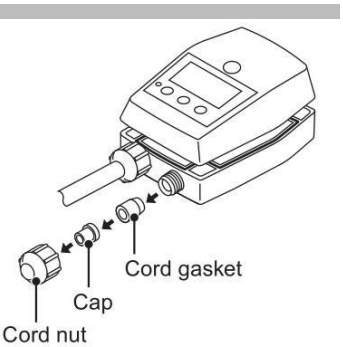
2 **Remove four screws (B) from the bottom of the control unit to detach the controller cover.**

* The controller cover can not be totally removed because the screen on the controller cover and the PCB on the controller case are connected via cable.
* The controller cover and the controller case are sealed by a case gasket. Do not forger to fit the case gasket when mounting the controller cover.



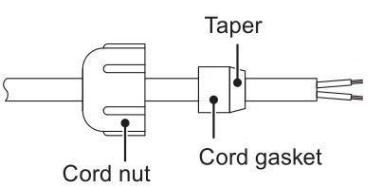
3 **Remove a cord nut and a cap and pull out a cord gasket.**

* The cap is no longer used.



4 **Pass the external signal cable into the control unit via the cord nut and the cord gasket.**

* Be careful not to oppositely orient the cord gasket.



5 **Connect an external signal cable.**

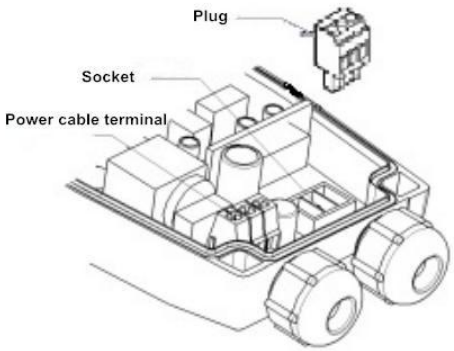
a. Detach the plug from the socket.

b. Use a precision screwdriver to connect the signal wires on the plug and then attach the plug to the socket.

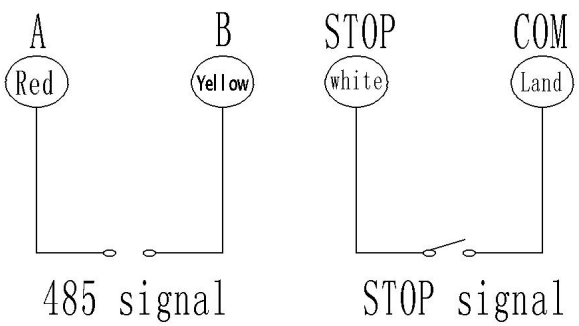
c. Adjust the slackness of the external signal cable, pulling it out.

d. Securely hand tighten the cord nut.

* The external signal cable is sealed by the cord gasket.



Wiring diagram



6 **Attach the controller in a reverse way of the item 1 and 2.**

Tightening torque

Fixing screw (For mounting control unit)	0.39 N•m
Tapping screw A (For mounting control unit)	0.39 N•m
Tapping screw B (For mounting control cover)	0.8 N•m

NOTE

Always check that gaskets (a rubber cap, fixing screw gasket and a case gasket) are fitted. Otherwise, the liquid may enter the control unit and failure may result.

Operation

Run the pump after pipework and wiring is completed.
This section describes pump operation and programming.

Before operation

Check the flow rate, tubing and wiring. And then perform degassing and flow rate adjustment before starting operation.

Points to be checked

Before operation, check if...

- Liquid level in the supply tank is enough.
- Tubing is securely connected and is free from leakage and clogging.
- Discharge/suction valves are opened.
- Proper power voltage is applied to the pump.
- Electrical wiring is correct and is free from the risk of short circuit and electrical leakage.

Retightening of pump head fixing bolts

Important

The pump head fixing bolts may loosen when plastic parts creep due to temperature change in storage or in transit.
This can lead to leakage. Retighten the pump head fixing bolts before starting operation.
Always tighten the bolts diagonally. See below for the tightening torque at each model.

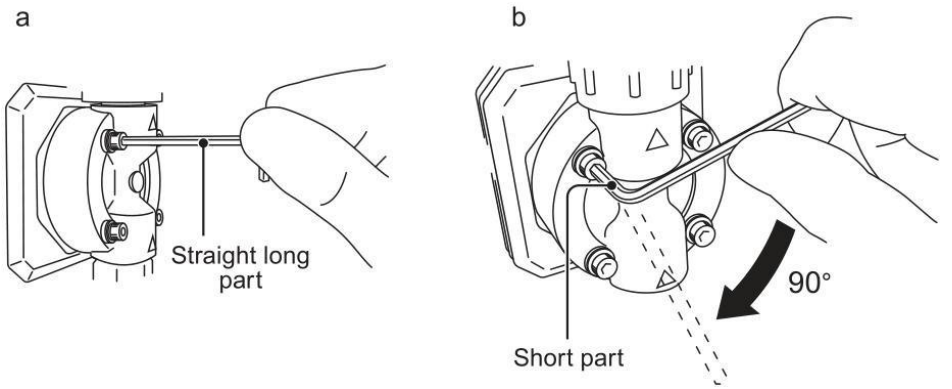
Tightening torque

Model identification code	Torque	Bolts
ED-B10/B15/B20,C15/C20	2.16 N•m	M4 Hex. socket head bolt
ED-B30	2.55 N•m	M4 Hex. socket head bolt
ED-C30	2.55 N•m	M4 Hex. socket head bolt
ED-C35	2.55 N•m	M4 Hex. socket head bolt

*Tighten fixing bolts once every three months.

■ **Use of hexagon wrench instead of a torque wrench**

Tighten the fixing bolts with the straight long part of a hexagon wrench (a) and further turn the bolts clockwise 90 degrees with the short part (b).



Degassing

The gas needs to be expelled from the pump and tubing by degassing. Normal operation can not be obtained with gas in the pump. Perform degassing in the following cases.

- When the pump starts to run for the first time
- When the flow rate is too low
- After liquid is replaced in the supply tank
- After a long period of stoppage
- After maintenance and inspection

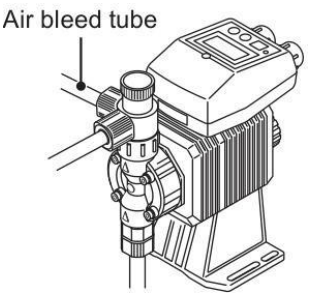
NOTE

- Both gas and chemical come out together through air bleed tube. Place the end of the tube in the supply tank or another container.
- Some chemicals may cause skin trouble or damage component parts. When your hand or component parts get wet with chemical liquid, wipe off immediately.

■ ED- [B10/B15/B20/C15/C20] [VC]

Points to be checked

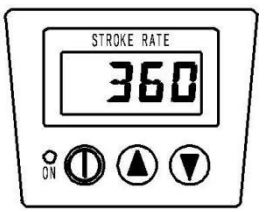
- An air bleed tube is connected to the pump.



1 **Turn on power and call up manual mode.**

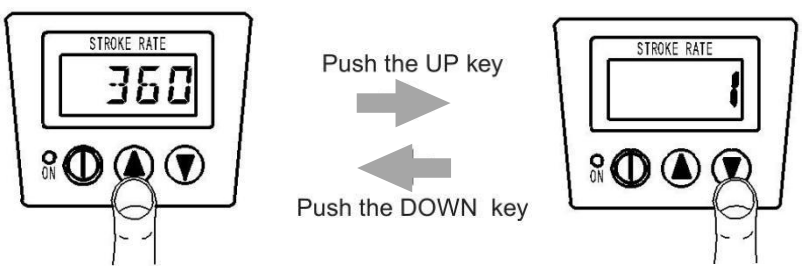
Enter manual mode to indicate spm on the screen.

- Push the EXT key when "EXT" or ".0"-".360" is on the screen.
- When "STOP" or "-STOP" appears on the screen, see "STOP function cancellation" on page 60 and release the STOP function.



2 **Use the UP or DOWN key to adjust stroke rate.**

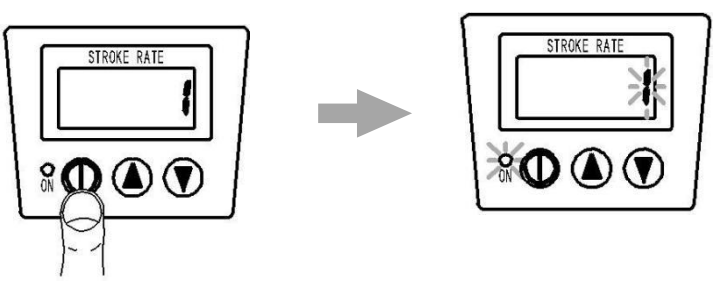
- spm increases/decreases as pushing the UP/DOWN keys.
- Press and hold either key for more than three seconds for quick change. Quick change stops at 1 or 360spm. 1 or 360spm skips to 360 or 1spm when the key is released and pushed again.



3 **Push the start/stop key.**

The LED and spm indication blink as the pump starts to run.

- They blink in sync with the pump operation.

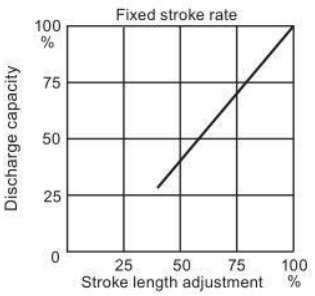


■ **Stroke length adjustment**

Stroke length can be adjusted when the moving distance of the plunger is changed by the stroke length adjusting knob.

The stroke length adjustment range is 50-100% for the B type, 40-100% for C type.

The relation between a flow rate* and stroke length is shown as below.



*The flow rate described on the nameplate is at 100%.

NOTE

Do not rotate the stroke length adjusting knob when the pump is not running.

Before a long period of stoppage (One month or more)

Clean the insides of pump head and tubing.

- Run the pump with clean water for about thirty minutes to rinse the insides of the pump head and tubing.

Before unplugging the pump

- Always stop the pump by key operation. Wait for three seconds before unplugging the pump. Otherwise, the lastkey operation to stop the pump may not be put in memory. In this case the pump unintentionally starts to run as powered on, discharging liquid.

When the pump does not transfer liquid at resuming operation.

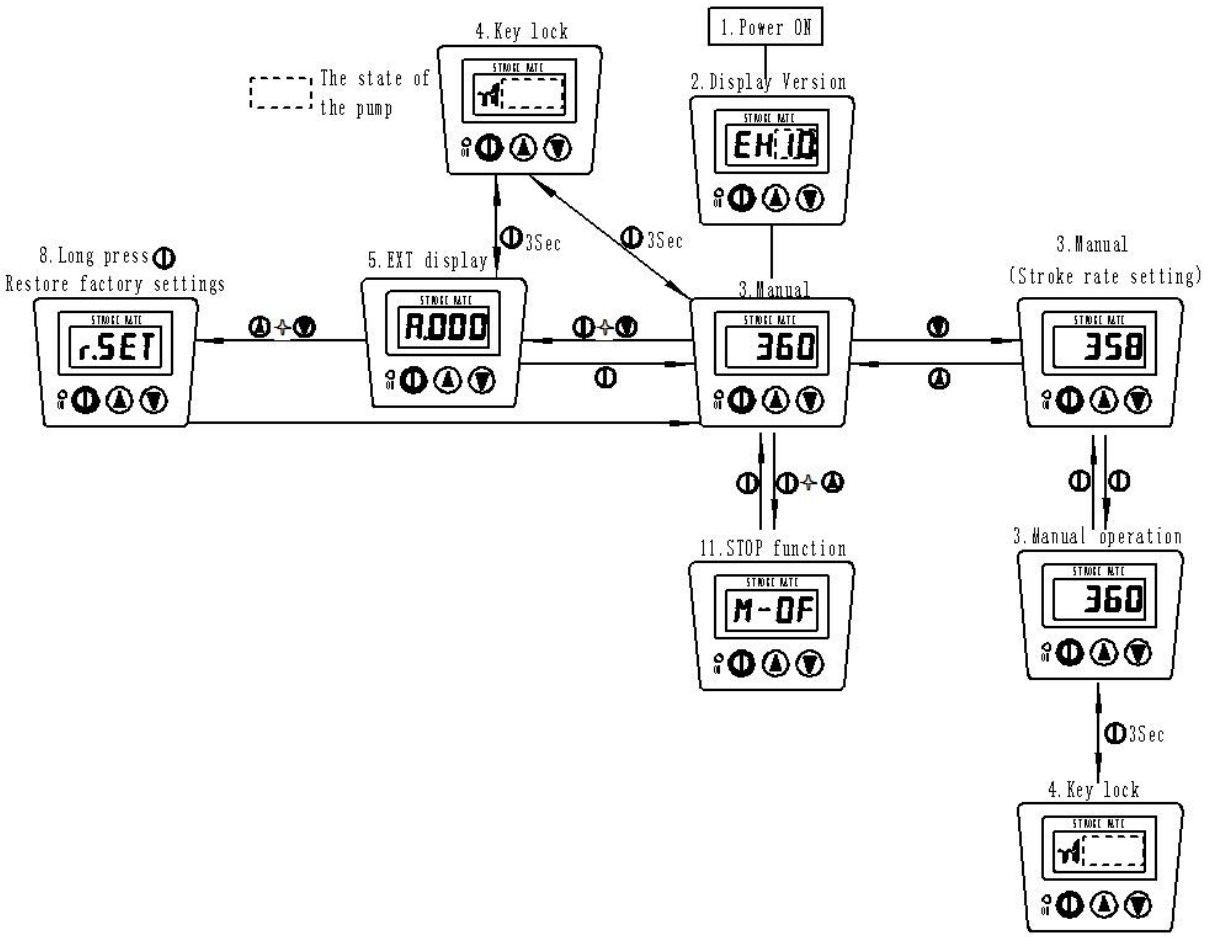
- Clean the valve sets, removing foreign matters.

Programming flow

The pump operation is controlled by the external (RS485) signal.

■ **EXT mode**

See modbus communication protocol for details.



NOTE

- If a divider is programmed to 1 to make 1:1 operation and the input interval of the external signal is close to a manual operation spm (but not exactly in synchronization), irregular operation may occur. This irregular operation occurs as the external signal is cancelled. Note that this is not malfunction. In order to avoid this phenomenon, perform 1:1 operation by programming a multiplier to 1.
- Do not enter the EXT signal during the programming.

Maintenance

This section describes troubleshooting, inspection, wear part replacement, exploded views and specifications.

Important

- Observe instructions in this manual for maintenance, inspection, dismantlement and assembly. Do not dismantle the pump beyond the extent of the instructions.
- Always wear protective clothing such as an eye protection, chemical resistant gloves, a mask and a work cap during dismantlement, assembly or maintenance work.
- Be sure to turn off power to stop the pump and related devices before work. See below.

Before unplugging the pump

Always stop the pump by key operation. And wait for three seconds before unplugging the pump. Otherwise, the last key operation to stop the pump may not be put in memory. In this case the pump unintentionally starts to run as powered on, discharging liquid.

Troubleshooting

First check the following points. If the following measures do not help removing

States	Possible causes	Solutions
The pump does not run. (LED does not appear. Blank screen.)	Power voltage is too low.	• Recover the power voltage to a normal level. Allowable voltage range:AC100-240V
	The pump is not powered.	• Check the switch if it is installed. • Correct wiring • Replace a breaking wire to new one.
	An electronic circuit in the control unit is failed.	• Replace the control unit.
Liquid can not be sucked up.	Air lock in the pump	• Expel air. See page 33.
	Stroke length is too short.	• Run the pump at 100% stroke length and adjust it to proper length.
	Air ingress through suction line.	• Correct tubing.
	A valve set is installed upside down.	• Reinstall the valve set.
	Valve gaskets are not installed.	• Install valve gaskets.
	Foreign matters are stuck in the pump head valves.	• Dismantle, inspect and clean the valve. Replace as necessary.
	A ball valve is stuck on a valve seat.	• Dismantle, inspect and clean the valve. Replace as necessary.
The flow rate fluctu-ates.	Air stays in the pump head.	• Expel air. See page 33.
	Overfeeding occurs.	• Mount a check valve. See page 24.
	Foreign matters are stuck in the pump head valves.	• Dismantle, inspect and clean the valve. Replace as necessary.
	Diaphragm is broken.	• Replace diaphragm.
	Pressure fluctuates at an injection point.	• Review tubing layout to maintain a pressure constant at an injec-tion point or change an injection point in a constant pressure.

Liquid leaks	Loose fit of the fitting or the air vent body.	• Retighten them.
	Loose fit of the pump head.	• Retighten the pump head. See page 32.
	O rings or valve gaskets are not installed.	• Install O rings and valve gaskets.
	Diaphragm is broken.	• Replace the diaphragm.
	Excessive discharge pressure.	• Check that a discharge line is not closed. • Check if tubing is not clogged.

Inspection

Perform daily inspection and periodic inspection to keep pump performance and safety.

Daily inspection

Check the following points. Upon sensing abnormal condition, stop operation immediately and remove problems according to "Troubleshooting".
When wear parts come to the life limit, replace them by new ones. Contact us or your nearest dealer for detail.

No.	States	Points to be checked	How to check
1	Pumping	• If liquid is pumped.	Flow meter or visual inspection
		• If the suction and discharge pressure are normal.	Check specification.
		• If liquid is deteriorated, crystallized or settled?	Visual or audio inspection
2	Noise and vibration	• If abnormal noise or vibration occurs. They are signs of abnormal operation.	Visual or audio inspection
3	Air ingress from pump head joints and a suction line	• If leakage occurs. • If discharge liquid includes air bubbles, check lines for leakage and retighten as necessary.	Visual or audio inspection

Periodic inspection

Retighten the pump head mounting bolts diagonally according to the following torque.

* Mounting bolts may loosen in operation. How fast the bolts start to loosen is depending on operating conditions.

Tightening torque

Model identification code	Torque	Bolts
ED-B10/15/20,C15/20	2.16 N•m	M4 Hex. socket head bolt
ED-B30	2.55 N•m	M4 Hex. socket head bolt
ED-C30	2.55 N•m	M4 Hex. socket head bolt
ED-C35	2.55 N•m	M4 Hex. socket head bolt

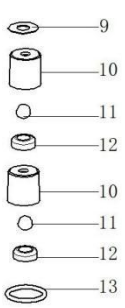
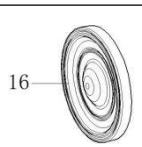
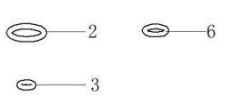
Wear part replacement

For a long operation wear parts need to be replaced periodically.
It is recommended that the following parts are always stocked for immediate replacement. Contact us or your nearest dealer for detail.

Precautions

- When dismantling the pump, pay attention to the residual liquid in the pump.
- Rinse wet ends thoroughly with water.
- Each time the pump head is dismantled, replace the diaphragm, Orings, valve gaskets and valve sets with new ones.

Wear part list

<table>
<tr><th colspan="2">Parts</th><th># of parts</th><th>Estimated life</th></tr>
<tr><td rowspan="2">Valve set</td><td>VC</td><td rowspan="2">2 sets</td><td rowspan="3">8000hours</td></tr>
<tr><td>
</td></tr>
<tr><td>Diaphragm</td><td>
</td><td>1</td></tr>
<tr><td>O ring</td><td>

(except the B-30,-35)</td><td>See page 77.</td><td></td></tr>
</table>

* Wear part duration varies with the pressure, temperature and characteristics of the liquid.
* The estimated life is calculated based on the continuous operation with ambient clean water.

Before replacement

First release the pressure from the pump.

1 **Stop the pump operation.**

2 **Rotate the adjusting screw two revolutions anticlockwise to open the air vent port.**

NOTE

Do not rotate it three revolutions or more. Otherwise, liquid may comes out from the adjusting screw.

3 **Check that liquid comes out from the air vent port and the internal pressure has been released.**

NOTE

The internal pressure may not be expelled completely as long as liquid does not come out. In this case run the pump until the pressure is released.

** For the EH-30/35, the air vent port is not equipped. Install an air vent valve on a discharge line and release the pressure by opening the valve. See page 23.*

Valve set replacement

■ **Discharge valve set dismantlement/assembly**

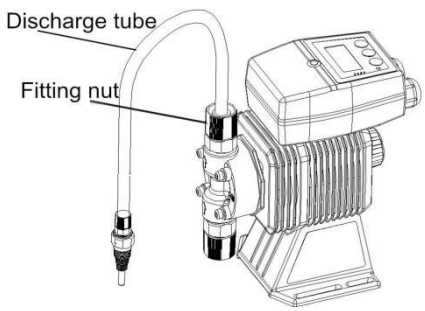
Necessary tools

- Adjustable wrench or spanner
- 17mm Box wrench
- A pair of tweezers

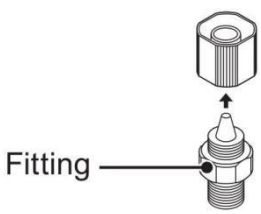
**Unfix the pump base before work.*

ED-B30/C30/C35

1 **Remove the fitting nut to remove the discharge tube.**



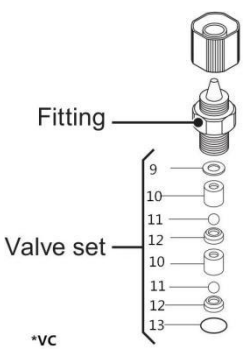
2 **Remove the fitting by an adjustable wrench or a spanner.**



3 **Pull out the valve set by a pair of tweezers.**

4 **Place a new valve set into the pump head. Screw the fitting into the pump head and turn it clockwise about 90 degrees by an adjustable wrench or a spanner.**

* Be careful not to misarrange the valve set or misplace upside down. Otherwise, leakage or flow rate reduction may result.
* Do not forget to fit O rings and gaskets.
* Keep the valve set free from dust or foreign matters.



5 **Reconnect the discharge tube.**

Diaphragm replacement

Necessary tools

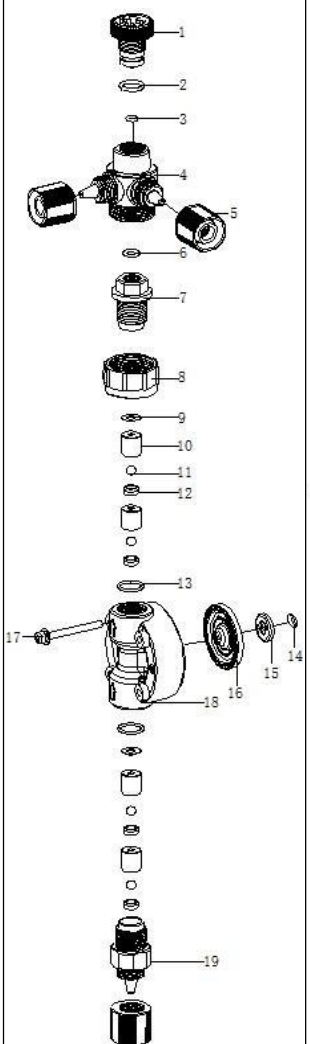
- Adjustable wrench or spanner
- Hexagon wrench
- Torque wrench

NOTE

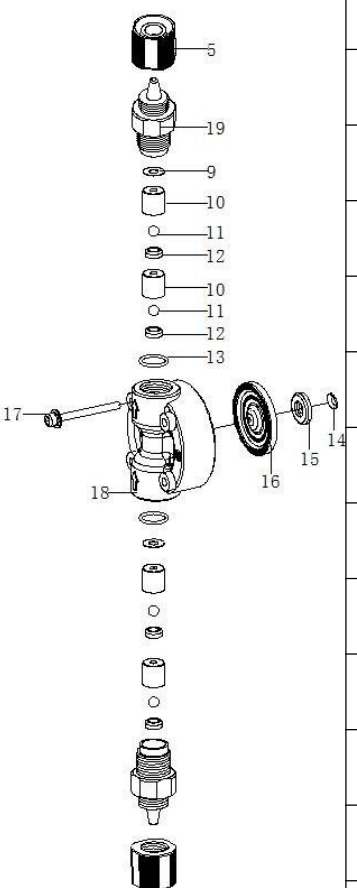
Pay attention not to lose diaphragm spacers. Always apply a proper number of diaphragm spacers. 0 or a few diaphragm spacers are inserted between the retainer and plunger for the adjustment of diaphragm location. Note that the number of diaphragm spacers varies with pump model. Some pumps may use no spacer

Pump head

•ED-B10/15/20,C15/20



•ED-B30,C30/35



Parts List

Item	Part names	ED-B10/15/20,C15/20	ED-B30,C30/35
1	Adjusting screw	1	0
2	O ring	1	0
3	O ring	1	0
4	Air vent body A	1	0
5	Fitting nut	3	2
6	O ring	1	0
7	Air vent body B	1	0
8	Lock nut	1	0
9	Valve gasket	2	2
10	Valve guide	4	4
11	Valve ball	4	4
12	Valve seat	4	4
13	O ring	2	2
14	Diaphragm spacer	（1）	（1）
15	Retainer	1	1
16	Diaphragm	1	1
17	Hex. socket head bolt [PW•SW]	4	4
18	Pump head	1	1
19	Fitting	1	2

Specification/Outer dimension

Specification

Specifications and apparent condition are subject to change without notice.

■ Pump unit

VC

Model code	Discharge amount mℓ/min	Discharge amount of each stroke mℓ/shot	Discharge pressure MPa	Stroke rate spm	Tube connec-tion bore mm	Power consumption W
ED-B10	38	0.05～0.11	1.0	0～360	ø4×9	20
ED-B15	65	0.09～0.18	0.7			
ED-B20	95	0.13～0.26	0.4			
ED-B30	200	0.28～0.56	0.2		ø8×13	
ED-C15	80	0.09～0.22	1.0		ø4×9	24
ED-C20	130	0.14～0.36	0.7			
ED-C30	270	0.30～0.75	0.35		ø8×13	
ED-C35	400	0.44～1.11	0.2			

1. The performance of the pump is obtained by clean water under a rated voltage and ambient temperature.
2. The above parameters are measured with clean water. The discharge amount increases when discharge pressure decreases.
3. Allowable ambient temperature: 0～40° C
4. Allowable liquid temperature: 0～40° C
5. Allowable voltage deviation: ±10% of the rated voltage

1) The allowable voltage range of special circumstances, such as the transmission of slurry, please consult us.

2) Due to product improvement, the product specifications may change without prior notice.

■ Control unit

Operation mode	Mode	Manual
		RS485
	Switch	Key operation
Stroke rate	Setting range	0～360spm
	Setting method	UP or DOWN key
	Storage function memory function	Non-volatile memory
STOP function	M-OF	The pump runs during contact input.
	M-ON	The pump stops during contact input.
	Input signal	No-voltage contact or open collector*1
Indicator	Numeric indication	4-digit LCD
	Operation	Green LED (Blinks at each shot)
Power voltage		AC100-240V 50/60Hz*2

*1 The maximum applied voltage to the contact is 12V at 5mA. When using a contact type relay, the minimum application load should be 5mA or below.

*2 Observe the specified power voltage range. Otherwise failure may result. The allowable voltage range is AC100-240V.

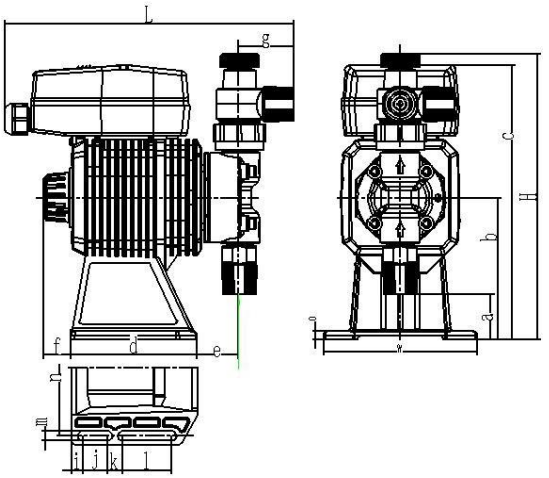
Accessories ***Unit (mm)***

■ Check valve

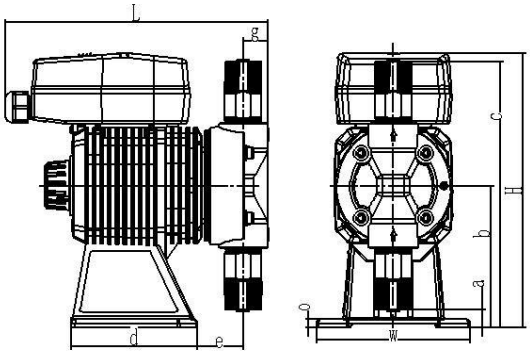
Model	Pipe joint(mm)		Material		Applied pump model
	Suction port	Discharge port	Valve	O-ring	
CA-11	ø4×9	R1/2 R3/8	PVC	FKM	B10/B15/B20/C15/C20
CA-12				EPDM	
CA-21	ø8×13			FKM	B30/C30/C35
CA-22				EPDM	

Outer dimensions

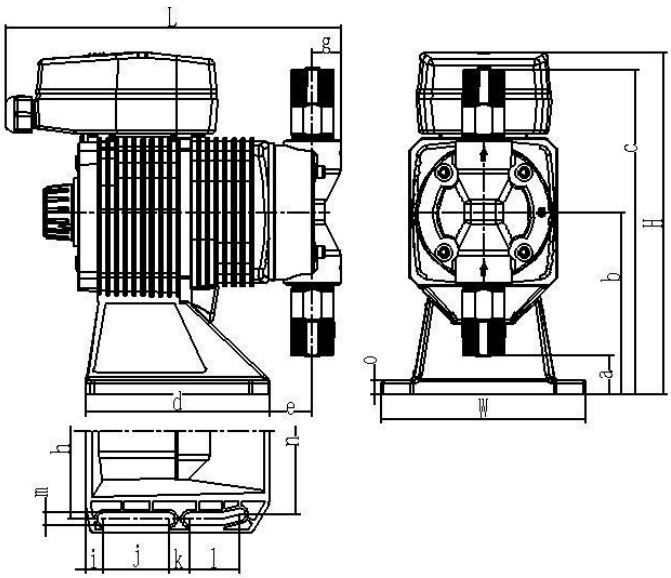
- ED-B10/15/20

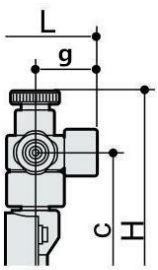


- ED-B30



- ED-C15/20/30/35





(C15/20)

Model	W	H	L	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
ED-B10/15/20	100	185	186	29	92	153	82	28	18	36	88	7	16	10	32	6.2	88	5
ED-B30	100	178	172	11	92	173	82	30	18	16	88	7	16	10	32	6.2	88	5
ED-C15/20	116	196	207	40	103	164	104	22	24	36	100	10	37	12	28	7	95	8
ED-C30/35	116	194	190	22	103	184	104	24	24	16.5	100	10	37	8.5	27	7	95	8

SHANDONG LANGO METERING PUMP TECHNOLOGY CO., LTD
ADD：Building 2, No. 850 Government Street, Muping District, Yantai City, Shandong Province
WEBSITE: www.langopump.com
E-MAIL：sale@langopump.com
Ver.: ED-M-2024/A