ASAHI SUNAC

Operation and Maintenance Manual

Single Color CNC Two-component Coating Machine

ACW1200EX

Installation/device Manual

The instruction manual of ACW Control Unit (ACW1200EX) is composed three part as below;
①Operation manual
②Installation/device manual
③Maintenance manual

And this document is Installation/device Manual.

Ec'Coater™ エコーター

This manual contains critical warnings and cautionary instructions.
It shall be carefully read before starting the use of the equipment.
This manual shall be kept at your hand until the equipment is thrown away.
In case it is lost or damaged, please contact us or any of our distributors.

13th Edition: February 5, 2026

Introduction

Thank you very much for choosing our computerized two-component coating machine (ACW1200EX).

In order to keep the equipment in the best condition for an extended period, please carefully read this manual before use. Above all, the specifications, warnings and prohibitory or cautionary instructions shown herein shall be fully understood and observed during the use of the equipment.

The equipment covered by this manual is designed for industrial coating work. It shall be used by those who have been duly trained regarding the handling and scope of application and have an understanding of the operating procedure.

Should you have any questions about the manual, please get in touch with us at the addresses, phone and fax numbers as shown on the back of this manual. In order for us to give you an answer that's relevant to your particular needs, don't forget to give us the "model" and "serial number" of your equipment at that time.

13th Edition: February 5, 2026

ACW1200EX (Installation/device) contents
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ACW1200EX (Operation) contents
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ACW1200EX (Maintenance) contents
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1 For Safety and Correct Use

Contents of this instruction manual shall be fully understood and the instructions shown herein strictly observed.
Using the machine without following instructions in this manual may lead to **bodily injury or damage to properties**.

The safety measures described herein are the minimum requirements and additional measures may also be required. All requirements provided by laws and legislations as well as rules and guidelines laid by your company or office shall be observed.

The cautionary instructions shown below shall be construed as minimum basic requirements for safety in the use of our product.

● Cautionary instructions are shown in three levels as defined below.

⚠ **WARNING**	Alerts a hazardous situation which may result in personal injury, along with hazard avoidance measures.
⚠ **CAUTION**	Alerts a hazardous situation which may result in equipment damage or breakage, along with hazard avoidance measures.
NOTE	Indicates important methods and practical information.

※ Please remember that the situation mentioned under CAUTION may also lead to a serious disaster under certain circumferences.
To ensure your own safety and prevent equipment failure, always observe the safety precautions and follow the hazard avoidance measures.

⚠ WARNING

Scope of suitable use for the equipment

- For mixed paint coating, the ACW control unit consisting of the ACW controller, exclusive ACW terminal block (ALB terminal block), flow meter barrier, solenoid valves and other electric components required for control is used with the ACW mixing unit incorporating a valve system alternately supplying two components.
  Do not use them in another composition or for another purpose than mixing two-component paint.
- The paint, coating conditions and equipment installing conditions shall comply with the specifications.
- There is a possibility of machine disorder, damage, malfunction, electric shock and fire. Use the primary power and air supplies complying with the specifications.
- The ACW control unit is not explosion-proof. Never install or operate it in a dangerous area.
- The intrinsically safe explosion-proof components include the flow meter and intrinsically safe explosion-proof solenoid valves. The local operation panel (optional) is also intrinsically safe and explosion-proof. Do not use other products in a dangerous area.
- Do not wet the ACW control unit, ACW controller or another electric component with any liquid (water, alcohol, solvent, etc.). Doing so may lead to machine disorder, damage, malfunction, electric shock or fire.
- Never use any acid or corrosive substance or halogenated hydrocarbon solvent for the ACW mixing unit or any paint control unit around the equipment.
- If you have any doubt about the intended use of the product or the paint to be used, please contact us.
- The use of the equipment under conditions other than specified above is considered as abuse unless such use is approved by us.

<<General safety instructions>>

- Never apply a fluid or air pressure exceeding the allowable maximum to the equipment during the coating operation.
  All components and accessories to be used shall be durable against the maximum operating pressures mentioned above.
- Check the whole equipment every day. If any unusual condition is found, turn off the main power switch and, if the problem can be solved within the specified scope of maintenance work, repair or replace faulty parts as necessary.
  If the unusual condition cannot be corrected within the specified scope of maintenance work, please contact us or any of our distributors for repair.
- To ensure a safe operation of the system, all operators shall read and understand this manual and labels attached to each unit. The equipment can only be operated by adequately trained personnel.
- Fire and electric codes and safety related regulations provided by the national or local government shall be observed during the work.

⚠ WARNING

Danger from fire, explosion and electric shock

<<Sources of ignition>>

When the paint flows through a pump or hose, it generates static electricity, which may spark at any part of the coating machine if not properly grounded. Sparks may ignite combustible volatile components of solvents, particles of sprayed paint, dust suspended in the air and other combustible substances to cause fire or explosion, resulting in serious injury or damage to the equipment.

- Always check that the coating machine, the products to be coated and all conductive materials are correctly grounded.
- Do not perform the coating operation in the vicinity of open flame, pilot lamp, drive unit such as electric motor or engine or another source of ignition.
- Never smoke in or around a spray booth or in the atmosphere containing solvent.
- Adequately ventilate the spray coating place so that it will not be filled with a combustible (solvent containing) atmosphere generated by the solvent.
- If you feel shocked even slightly by static electricity when handing the coating machine, immediately stop the coating operation and check that all components are grounded. Never restart the coating operation until the cause is located and corrective action taken.
- Fire extinguishers with a sufficient capacity must be provided in the place where the spray coating operation is performed.
- The ACW control unit is not explosion-proof. Do not operate it in a dangerous area.
  When using an explosion-proof electric component such as flow meter, local operation panel (optional) or intrinsically safe explosion-proof solenoid valve, thoroughly read the instruction manual or specifications for that component before use.
- Do not wet the ACW control unit or another electric component with any liquid (water, alcohol, solvent, etc.).
- If the ACW control unit or another electric component generates excessive heat or smokes, immediately turn off the main power switch to stop the equipment.
- When checking the equipment, never fail to turn off the main power switch on the ACW control unit and reduce the air and paint pressures supplied to the ACW control unit and ACW mixing unit to zero.
- Do not overhaul or remodel any electric component or ACW controller installed in the ACW control unit.

⚠ WARNING

<<Grounding>

Class D grounding is required for the equipment (to ensure an electric resistance not exceeding 100 ohms).

The pump, products to be coated and all other coating machine components (in use or around the unit in use) shall be grounded to prevent accidents from static electricity. If no adequate grounding means is provided, the grounding work (class D grounding) shall be performed according to the technical standard for electric equipment.

The coating machine components shall be grounded as specified below.

(1) Grounding the pump

- Attach a grounding wire to the grounding terminal provided at the pump body or car and connect the other end of the wire to a class D grounding means.

(2) Grounding the hoses

- All high-pressure hoses must be grounded to ground the whole coating system.
  When connecting additional hoses for extension, check that each hose is grounded.
- The paint hoses in use shall be checked every week to measure the electric resistance.
  The electric resistance shall be 100 ohms or less as obtained with class D grounding. If the maximum electric resistance is not indicated on the hose, contact the hose distributor or manufacturer.
  Connect an ohmmeter to metal parts such as the joint of the hose to measure the resistance and, if it exceeds the permissible limit, immediately replace the hose with another one.

(3) Grounding the products to be coated

- If hangers and earth clips are contaminated, complete grounding cannot be achieved. Keep hangers and earth clips clean and conductive (grounded).

(4) Grounding the paint containers

- The containers, if made of a conductive metal, shall be placed on a grounded floor or table.

(5) Grounding the container of solvent used for flushing

- The container, if made of a conductive metal, shall be placed on a grounded floor or table.
  Do not place it on a non-conductive sheet such as paper or corrugated cardboard.

<<Safe flushing>>

- Before flushing, check that the mixing unit, whole coating machine and paint and solvent containers have been correctly grounded.
- Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.

⚠ WARNING

Danger from toxic substances

<<Solvents>>

Never use halogenated hydrocarbon solvents.

Halogenated hydrocarbon solvents may explode if brought into contact with aluminum or plated part of a pressure vessel (pump, heater, filter, valve, gun, etc.).
The explosion may consequently lead to fatal bodily injury.

<<Examples of halogenated hydrocarbon solvents>>

Chlorine group	Trichlorethylene, Tetrachlorethylene and dichloroethylene
Bromine group	n- propyl bromide
Fluorocarbon group	HCFC-225,HFC-43-10mee,HFE-449s1(HFE-7100)

The above list does not include all halogenated hydrocarbons.
For detail, contact the paint distributor or manufacturer.

<<Influences on the human body>>

If a solvent containing atmosphere or fluid comes into contact with your eyes or mouth or a toxic substance is inhaled or swallowed and brought into your body, your nervous tissue may be destroyed to cause serious injury such as lifetime functional disorder.
Immediately ask for adequate medical treatment.

Necessity of medical treatment

If you are hit by the sprayed paint, immediately receive medical treatment by a medical specialist such as orthopedist, not by a layman.
At this time, you should tell him (her) the exact type of the paint you used.

- You may lapse into dyspnea or be poisoned by organic solvent in the mist of paint or spraying atmosphere. Do not use the equipment in a closed room, tunnel, tank or another poorly ventilated place. The user shall take enough care of persons and livestock around him as well as himself.
- The isocyanate used for two-component paint may hurt mucous membranes in your noise or throat. You should be acquainted with components of the paint, hardener, solvent and other volatile substances to be used.
  If you need further information, contact the paint or solvent manufacturer.
- When doing the spray coating work, always wear the protective goggles, working clothes and mask recommended by the paint or solvent manufacturer. Additional protective devices may be required depending on the paint components or ventilation level. Contact the paint or solvent manufacturer.

⚠ WARNING

Danger from spray and pressures

This system uses the paint under a very high pressure. Therefore, the spray gun is filled with the highly pressurized paint. If the sprayed or leaking paint hits a person at a close distance, it hurts his skin and a lot of toxic substances penetrate into his body. If he fails to receive adequate medical treatment, his nervous tissue may be destroyed to cause serious injury such as lifetime functional disorder or surgical amputation of damaged part of his body. You may be seriously injured if the paint is only pinged into your eyes or skin.

Necessity of medical treatment

If you are hit by the sprayed paint, immediately receive medical treatment by a medical specialist such as orthopedist, not by a layman.
At this time, you should tell him (her) the exact type of the paint you used.

- Never aim the head of a spray gun to your body or another person or draw any part of your body near the spray.
- Never cover the nozzle of the spray gun with your finger, palm or another part of your body.
- Do not start using the system before fully understanding how to operate it.
- Before using the system, always make sure that hose joints and all connections in the paint circuit are tight.
  Above all, check that joints of the hoses that move during operation are locked tight.

<<Safety device on spray gun>>

- Each spray gun is provided with a safety device. Before using the spray gun, make sure that the safety device correctly functions.
- Do not remove or modify any part of a safety device. Doing so may lead to a malfunction or injury.
- Use the spray gun according to the instruction manual provided with it.

<<For safety against nozzle>>

- Do not put your finger, palm or any article in your hand onto the nozzle.
- Take special care when cleaning or replacing the nozzle.
  If the nozzle is clogged during the spraying operation, immediately fasten the safety lock on the gun trigger, reduce the paint and air pressures to zero and remove the nozzle for cleaning. It is dangerous to start removing the paint sticking around the nozzle before fully releasing the pressures or with the trigger not locked.

⚠ WARNING

<<Safety of hoses>>

- Handle hoses with much care. Be sure that hoses are not caught or pulled by another object or brought into contact with sharp edges.
- Do not bend or collapse any hose. Doing so raises the pressure in the hose and possibly breaks the hose to cause the paint to be injected in a dangerous manner.
- Do not expose hoses to temperatures higher than 50 deg C or lower than -20 deg C. Doing so possibly breaks the hoses.
- Before using the system, always make sure that hose joints and all connections in the paint circuit are tight. Above all, check that joints of the hoses that move during operation are locked tight. Insufficient tightening causes the paint to be injected in a dangerous manner.
- Do not pull any hose to drag or move the equipment. Doing so possibly breaks the hoses.
- Never use any damaged hose. Check each hose throughout its length for scars, leak, wear, swells, cracks and loose fittings. If any of them is found, immediately withdraw the hose from service and replace it with a new one.
- Any hose with paint leak must be replaced with a new one. Use a standard hose complying with our specifications.

<<Danger from misuse of the equipment>>

- When checking or cleaning the spray gun, ACW mixing unit or another component, reduce the paint and air pressures to zero to prevent injury by paint injected at high pressure due to accidental starting of the pump.
- Do not move the equipment when it is under pressure. Doing so possibly breaks the paint circuit, resulting in injury by paint injected at high pressure.
- Never apply a fluid or air pressure exceeding the allowable maximum to the equipment during the coating operation. All components and accessories to be used shall be durable against the maximum operating pressures mentioned above.
- To ensure a safe operation of the system, all operators shall read and understand this manual and labels attached to each unit. The equipment can only be operated by adequately trained personnel.
- Fire and electric codes and safety related regulations provided by the national or local government shall be observed during the work.

2 Outline of System

2.1 Outline

Different from the conventional volume type simultaneous pumping to the mixer, this system employs new metering and mixing systems, in which each of the base material and hardener is precisely measured and fed alternately into the mixer by the computer control.

Necessary quantities of the base component and hardener are very precisely metered by flow meters and alternately fed into the mixing hose where the base component and hardener are mixed into a single fluid (primary mixed paint). After that, the primary mixed paint is sent into the static mixer for complete mixing and then fed into the spray gun.

Once necessary parameters are defined, the mixture can be sprayed only by switching on with the mode button. The parameters are divided into two groups; the ones related with the equipment conditions and the ones frequently used such as mixture ratio and flushing time, all of which are protected by passwords.

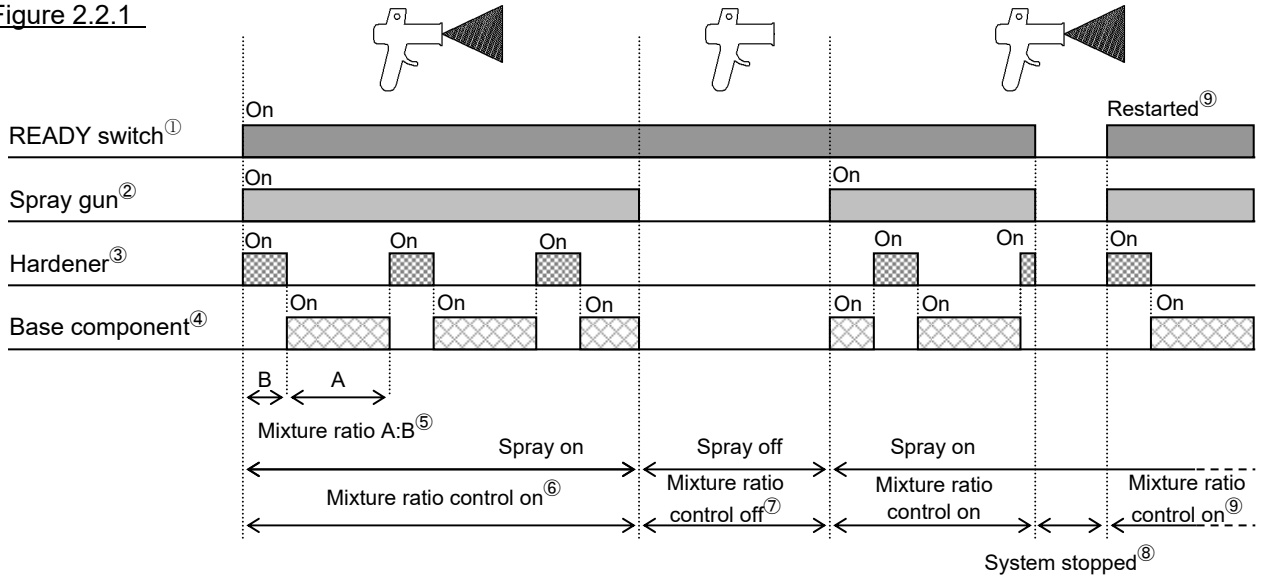
The mixture ratio, flow rate, quantities of the base component and hardener put into the system, the remaining time of pot life, etc. are very clearly indicated on the ACW controller.

2.2 Principles of operation

In this system, two components are metered and mixed as long as the spray gun is on (spraying) and the base component and hardener mixing valves close to stop the mixture control when the gun is off (see Figure 2.2.1).

① When the READY switch is “ON” on the main screen, the mixture and color change controls are available. With the READY switch “OFF,” the mixed paint is not sprayed even if the spray gun trigger is pulled.
② As the spray gun trigger is pulled, the ACW controller activates the hardener mixing solenoid valve to start feeding the hardener.
③ The hardener is fed through the flow meter to the mixing hose (see Figure 2.2.2).
④ The ACW controller controls the mixing valve according to the signals sent from the flow meter to obtain the calculated target flow rate and accurately meters the hardener fed into the mixing hose.
⑤ After feeding of the hardener is completed, the base component mixing valve is activated to feed the base component in the similar manner (see Figure 2.2.3).
⑥ Those steps are repeated to alternately feed the base component and hardener into the mixing hose.
⑦ The primary mixture prepared in the mixing hose is fed into the static mixer where it is thoroughly mixed and then sent into the spray gun.
⑧ When the spraying operation is stopped, the mixing valves under operation are closed. (At this time, both of the base material and hardener mixing valves are closed). When it is started again, the mixing valves are opened to start mixing.
Because both mixing valves are closed as soon as the spraying operation is stropped, there is no possibility of the reverse flow that may lead to hardening in the mid-line.
⑨ The pot-life counter starts counting down right after the system is filled with the two-component paint. As the spray gun trigger is pulled and the resetting point (flow rate) is reached, the pot-life counter is reset for restarting. In short, the count-down continues as long as the mixture is left unused for spraying. During the flushing process at the end of coating work, the pot-life counter does not count down.

Figure 2.2.1



① Indicates the on/off status of the READY switch on the ACW Controller.

② Indicates the status of signals from the spray gun trigger.

③ Indicates the hardener supply status (or the status of the hardener mixing valve).

④ Indicates the base component supply status (or the status of the base component mixing valve).

⑤ Indicates the mixture ratio.

⑥ Indicates that the base component and hardener are alternately supplied.

⑦ Indicates that the spray is not working. Both mixing valves are closed to stop the mixture ratio control.

⑧ Indicates that the READY switch is “OFF” and the control has been reset.
(The pot-life counter is not reset.)

⑨ Indicates that the READY switch is “ON” and the control is restarted with supply of the hardener.

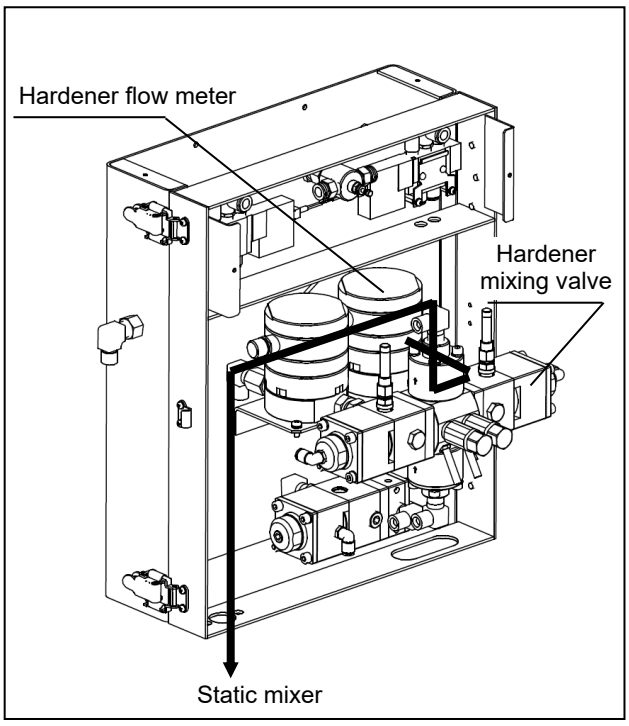


Figure 2.2.2

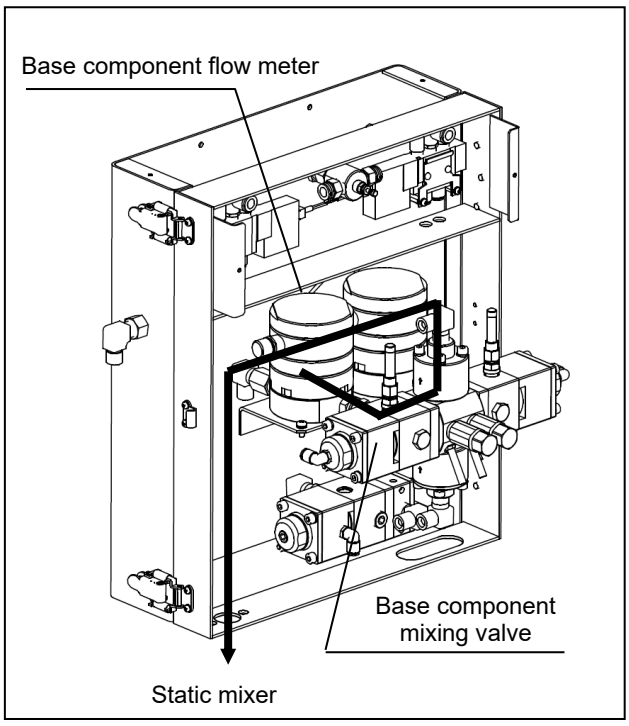


Figure 2.2.3

3 Specifications

3.1 General specifications

Designation:	ACW1200EX
Mixing ratio range:	1:1 to 12:1 (Max 30:1)
Mixture control accuracy:	±5% or less ※①
Components of paint:	A type of base component and a type of hardener
Viscosity ranges:	25 to 300 mPa-s for base component/hardener (for low-pressure type) ※② 25 to 3000 mPa-s for base component/hardener (for high-pressure type) ※②
Flow rate ranges:	100 to 1000 ml/min (for low-pressure type) ※③ 200 to 2000 ml/min (for high-pressure type) ※③
Compressed air pressure:	0.4 to 0.7MPa

3.2 Specifications for ACW control unit

Designation:	ACW1200EX control unit (ACW controller)
Model	ACW1200EXCUT
Operating conditions:	Temperature: 0 to +40 deg C, Humidity: 10 to 80%, No condensation
Operating atmosphere:	No exposure to corrosive gas, dust, vapor, dripping water and direct sunlight allowed.
Transporting and storing conditions:	Temperature: -10 to +50 deg C, Humidity: 10 to 90%, No condensation
Supply voltage:	100 to 240 VAC ±10%, 50 to 60 Hz
Consumption current:	3A
Weight	30kg
Dimensions	400mm wide x 400mm high x 250mm deep※④
Explosion protection:	Non-explosionproof

3.3 Specifications for ACW mixing unit

Designation:	ACW mixing unit
Model	ACW1200EXMUT-L (low-pressure type) or ACW1200EXMUT-H (high-pressure type)
Withstanding pressure of paint circuit:	25MPa (for high-pressure type) or 1.5 MPa (for low-pressure type)※⑤
Paint supply pressure:	Shall be at least three times the pressure required for spraying for the low pressure type. ※⑤
Materials of devices in contact with mixture:	Tungsten carbide, stainless steel, Teflon or polyacetal
Usable paint:	Solvent based two-component urethane paint for finish coat or epoxy paint ※⑥
Weight	30kg
Dimensions	350mm wide x 385mm high x 301mm deep
Explosion protection:	Intrinsically safe and explosion-proof (flow meter, solenoid valves, local operation panel) ※⑦
Miscellaneous	Base component and hardener metering valves included

Equipment components	① ACW mixing unit (low- and high-pressure types available) <Mixing valves, flow meters, flushing valve assembly, outer box and intrinsically safe explosion-proof solenoid valves (for mixing valves)> ② ACW control unit (control panel) <ACW controller, buzzer, lamp (red), power switch, non-explosionproof solenoid valves (for flushing valve assembly and drain valve)>
Other requisites:	① Two flow meter cables ② One cable A (between ACW control unit and ACW mixing unit) ③ Mixing hose (between ACW mixing unit and static mixer) ④ Static mixer ⑤ φ6 air tubes
Other necessary items:	① Base component, hardener and flushing pumps and pump supports ② Paint regulator (for base component/hardener and for flushing) ③ Paint hoses and air tubes ④ Spray gun and nozzle ⑤ Nitrogen gas bomb (w/pressure reducing valve) and gas piping work
Options	① Local operation panel (provided in the booth for mode selection) ② Stand
Miscellaneous	① Enclosed stainless steel tanks (10 liters, 20 liters, 40 liters and 60 liters) ② Lower limit level sensors for tanks (non-explosionproof, explosionproof)

NOTE

※① The mixture control accuracy depends on the conditions of use including the paint viscosity and flow rate.

※② For the paint with a viscosity above 100mPa-s (30 seconds/FC#4), the pump pressure shall be 0.6 MPa or higher (for the low-pressure type).
The specified mixture control accuracy cannot be maintained with a viscosity below 30 mPa-s (12 seconds/FC#4).

※③ For the paint with a viscosity below 30mPa-s (12 seconds/FC#4), the flow rate may not be controlled within this range.
The flow rate during the fill-up shall not exceed the specified limit.

※④ The size of the control panel excluding pneumatic devices.

※⑤ For the low-pressure type, the pressure loss through the mixing unit is about 0.15MPa.
To ensure a stable flow rate, the paint supply pressure shall be three times the pressure required for spraying. The tripled pressure shall not exceed the maximum withstanding pressure of the paint circuit.

※⑥ Use a flushing fluid with sufficient solubility. See 7-3 “Flushing fluid.”
Water-based paints cannot be used.
Some metallic paints and special paints containing rough particles may not be used.
See 7-2 “Metallic paints.”

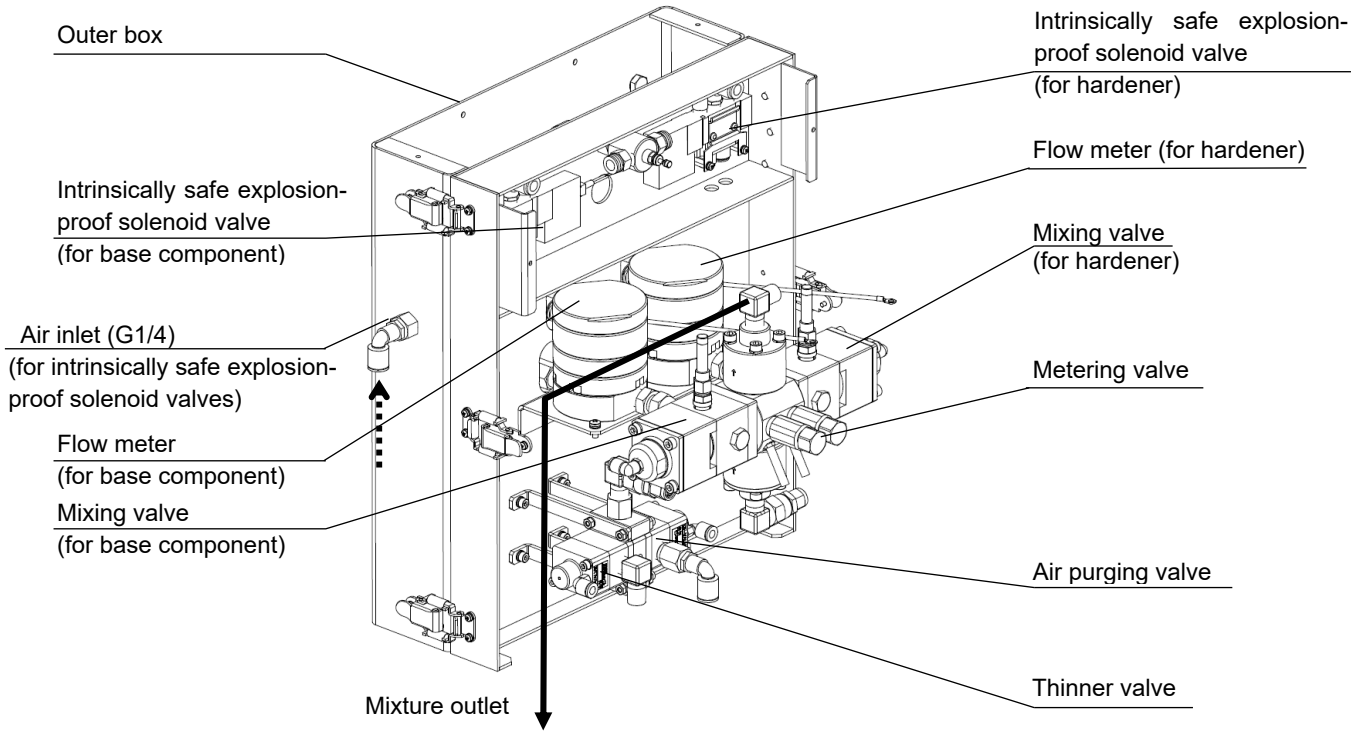
※⑦ All components and electric devices are not explosion-proof.

4 Main Components

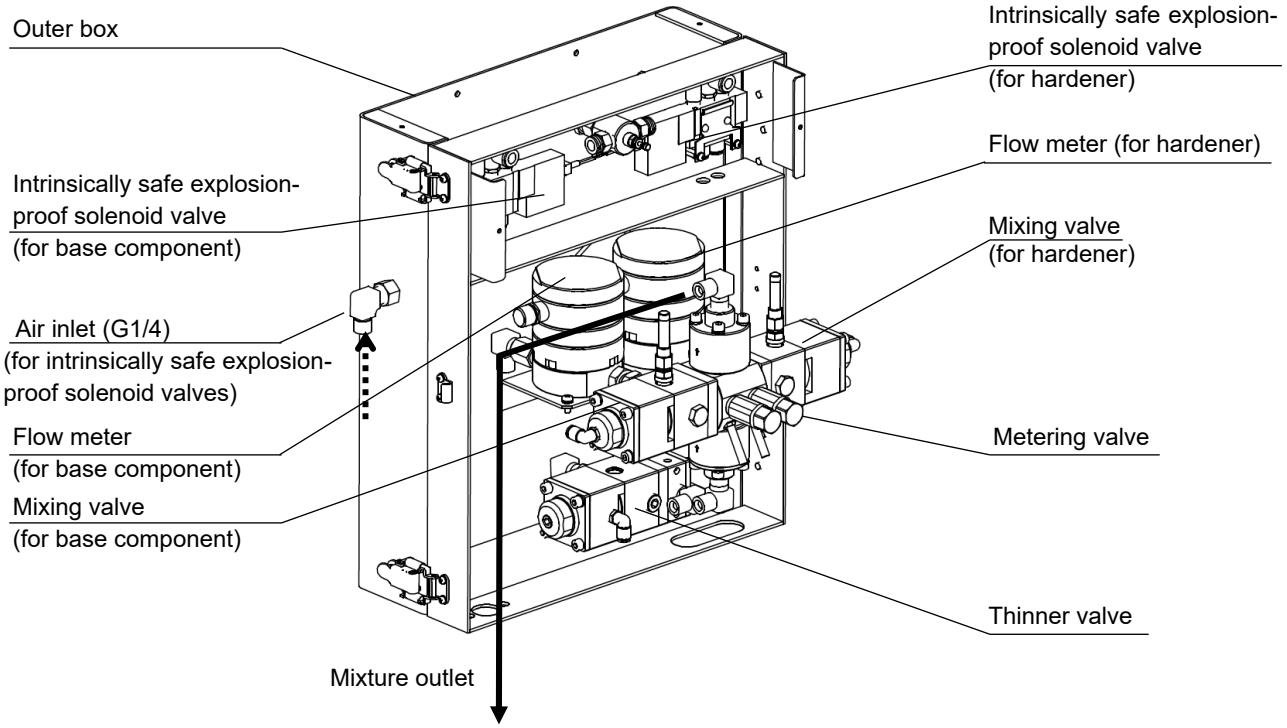
4.1 ACW mixing unit

Components of the unit are illustrated below with a basic assembly arrangement.

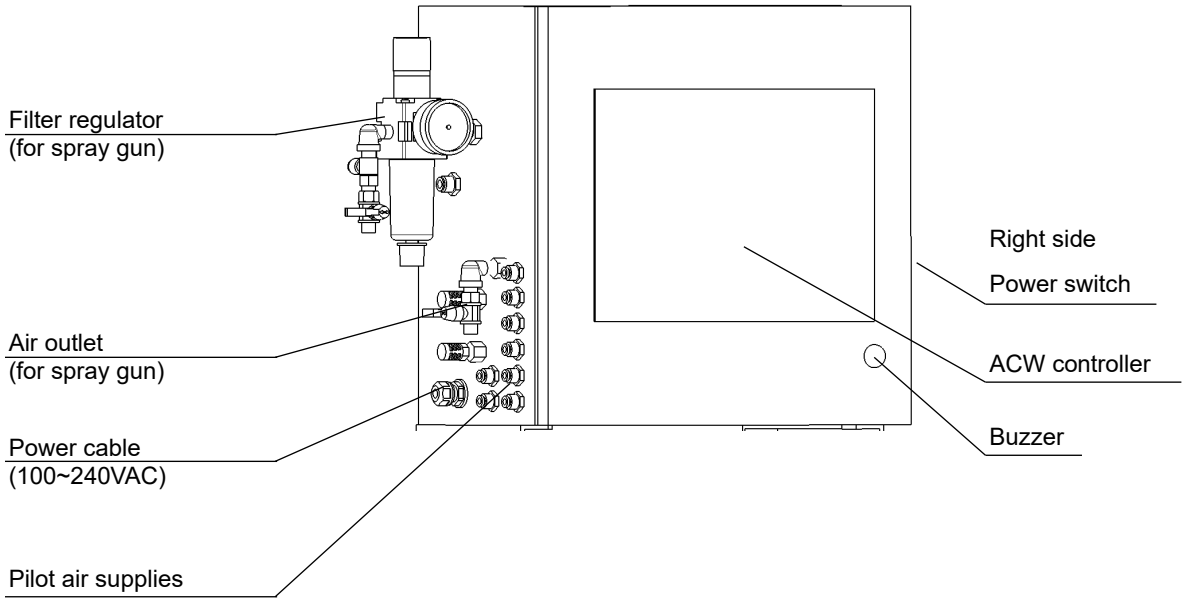
4.1.1 Low pressure type



4.1.2 High pressure type

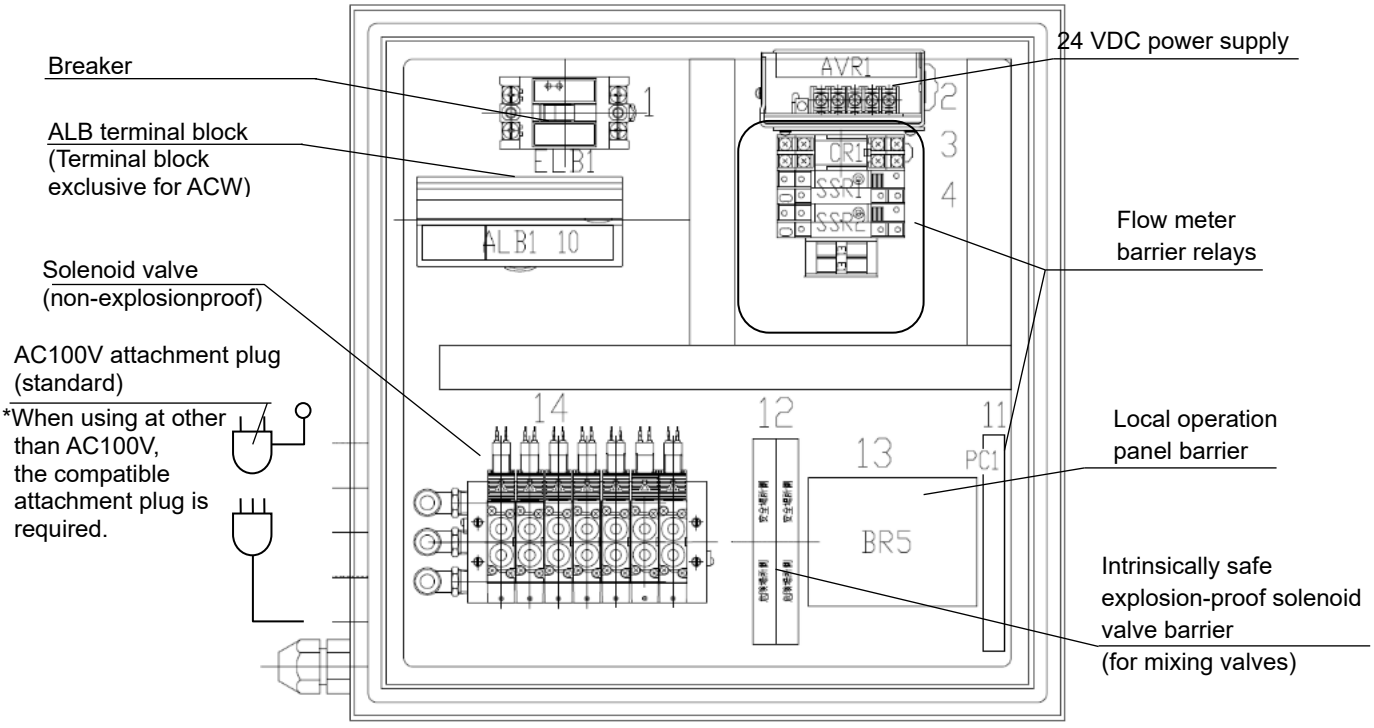


4.2 ACW control unit (outside)



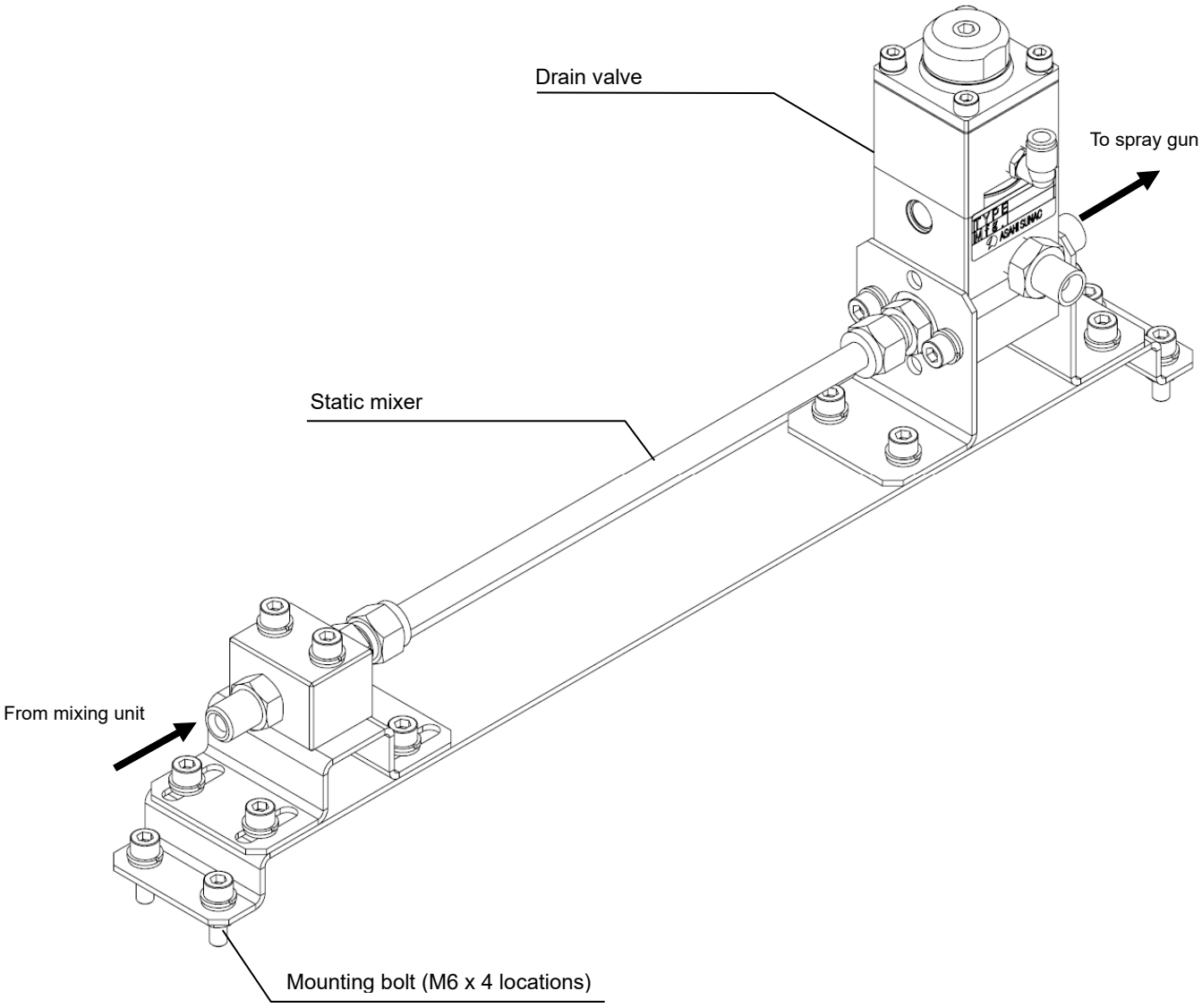
- For air buzzer (local operation panel)
- Drain (Static mixer)
- For air purging (for low pressure type only)
- For thinner

4.3 ACW control unit (inside)



4.4 Static mixer

This mixing unit does not incorporate a drain valve. Use the static mixer illustrated below that has the drain valve combined.



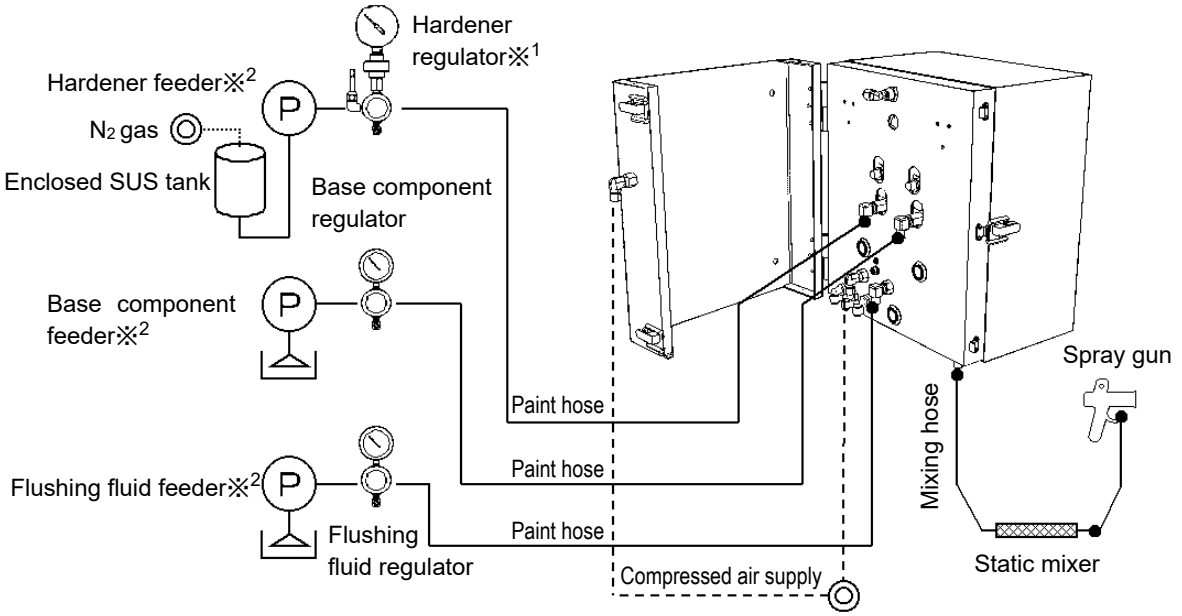
Low pressure type part No.: 4439-1

High pressure type part No.: 4437-1

5 System Construction

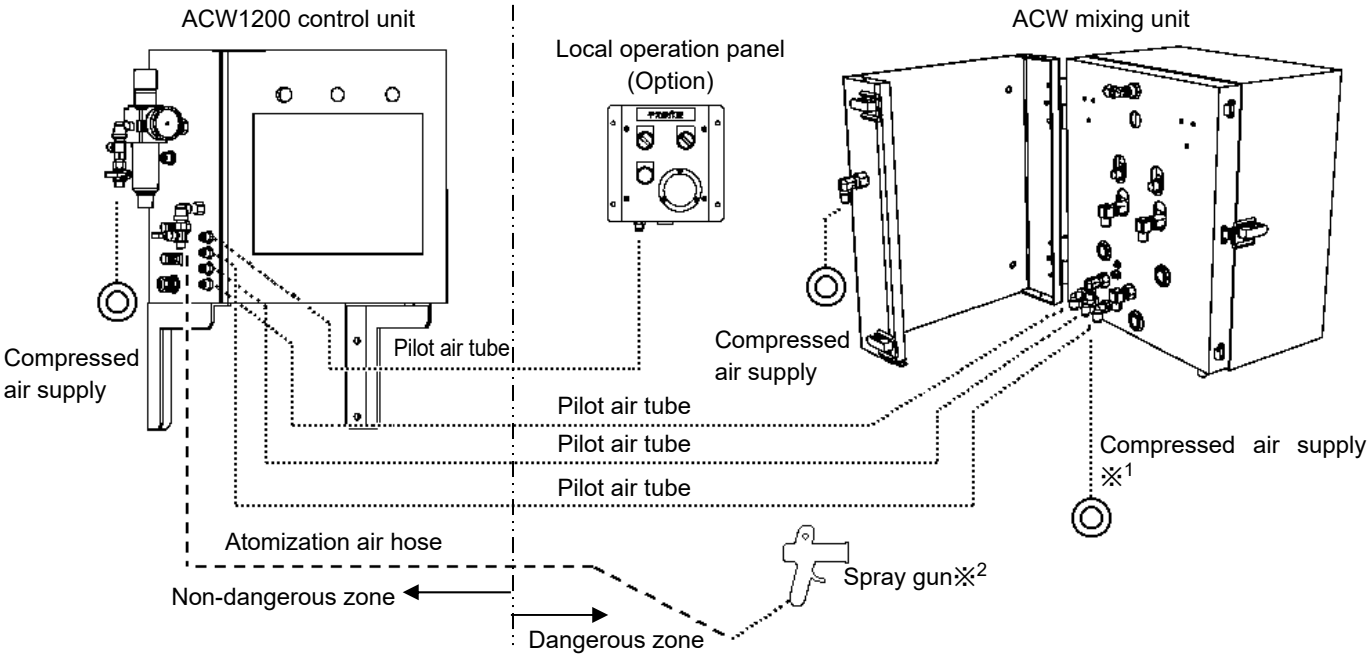
5.1 Paint circuits

The base component, hardener, flushing pump (feeder), spray gun, paint and air hoses and nitrogen gas (N_2 gas) shall be separately prepared for use with this system.



※1. For the pressure gauge of the hardener regulator, a diaphragm type shall be used to prevent hardening.
※2. For pump specifications, see 9 “Feeders.”

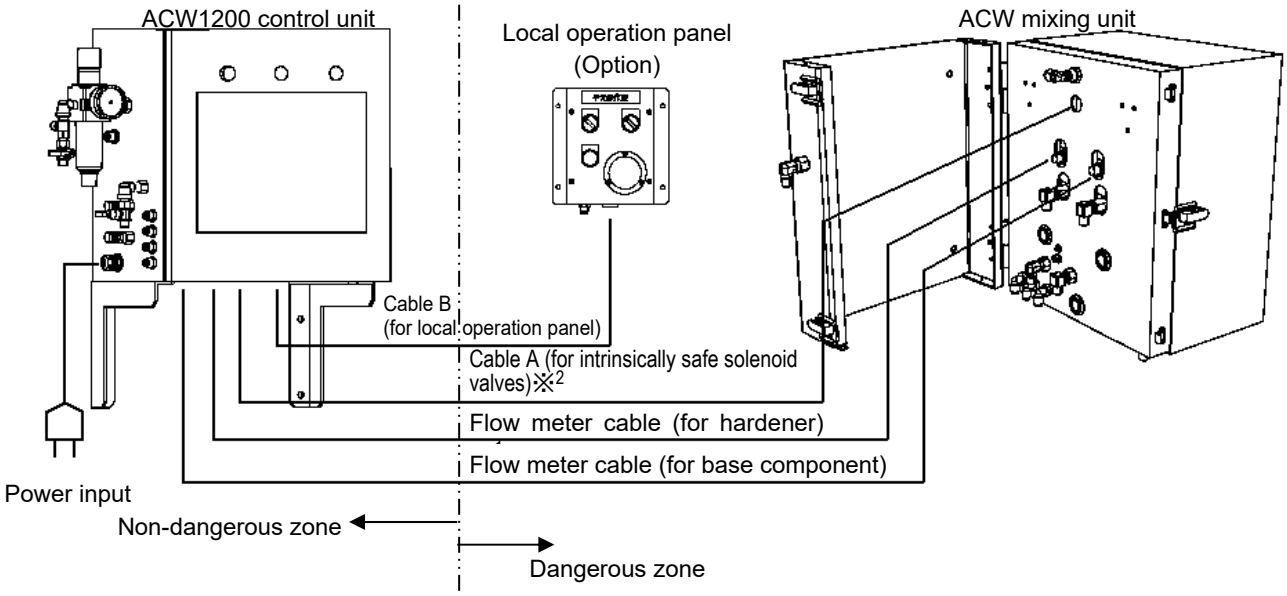
5.2 Air circuits



※1. For the purging air, see 8-7-4 “Connection of purging air supply” (for the low-pressure type only).
※2. For the spray gun, see 8-7-1 “ACW control unit.”

5.3 Electric circuits

In this system, the ACW controller detects signals from the flow meters and accordingly controls the mixing valves using the pilot air through the intrinsically safe explosion-proof solenoid valves. The electric circuits are illustrated below.



※1. For the flow meter cables, see 8-3 “Connection of (exclusive) flow meter cables.”
※2. For cable A, see 8-4 “Connection of cable A (cable for intrinsically safe explosion-proof solenoid valves).”
※3. For cable B, see 8-5 “Connection of cable B (cable for local operation panel).”
※4. For the part No. and length of each cable, see the following table.

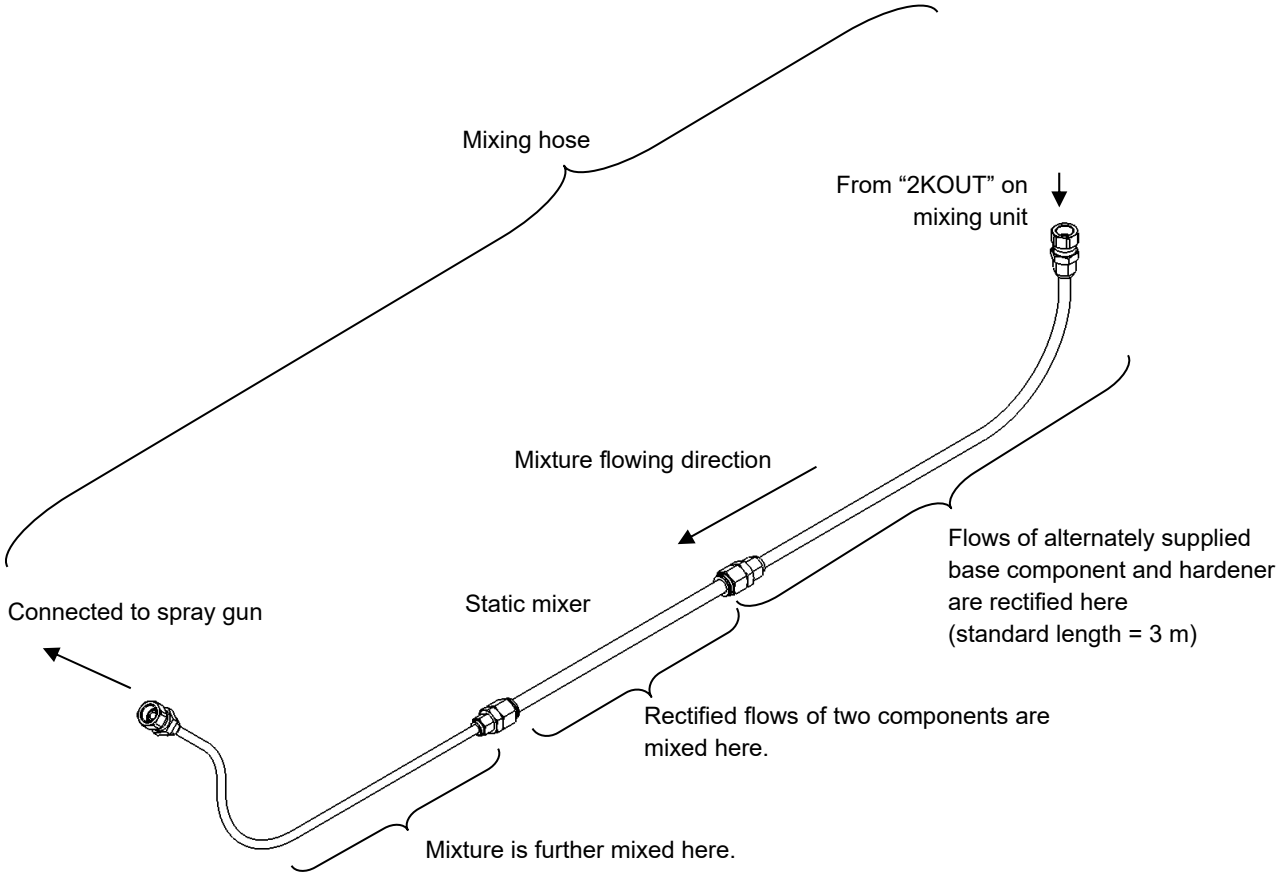
● Part Nos. and specifications for cables

Part name	Part No.	Quantity	Length	Specifications
Flow meter cable	390A-001	2	10 m	Cables exclusively used for flow meters. Commonly used for base component and hardener.
	390A-002		20 m	
	390A-003		30 m	
	390A-004		40 m	
	390A-005		5 m	
Cable A (For intrinsically safe solenoid valve)	390C-001	1	10 m	Cables for intrinsically safe explosion-proof solenoid valves in ACW mixing unit.
	390C-002		20 m	
	390C-003		30 m	
	390C-004		40 m	
	390C-005		5 m	
Option cable B (For local operation panel)	390E-001	1	10 m	Cables exclusively used for optional local operation panel.
	390E-002		20 m	
	390E-003		30 m	
	390E-004		40 m	
	390E-005		5 m	

6 Mixing Hose

The mixing hose serves to rectify the flows of the alternately supplied base component and hardener to ensure complete mixing by the static mixer.

6.1 Parts and functions of mixing hose



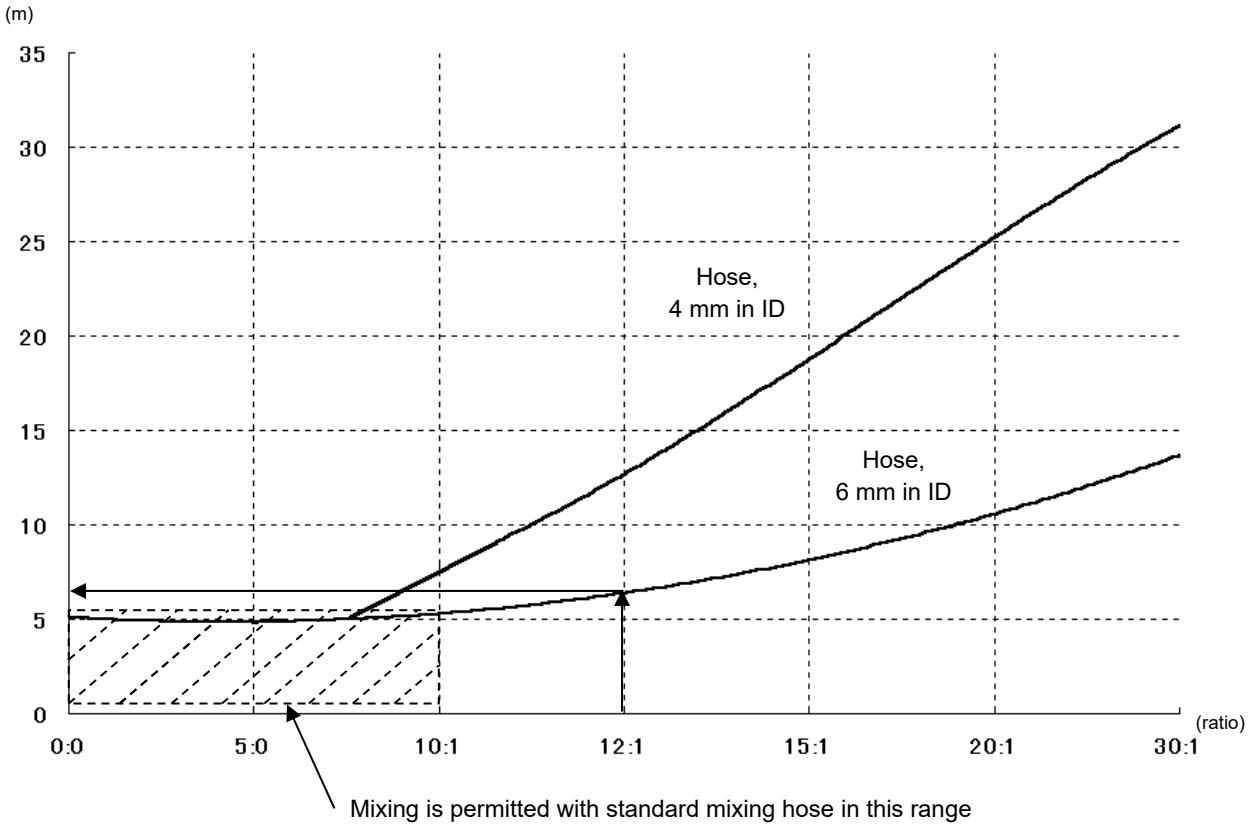
⚠ CAUTION

Poor mixing or hardening in the mid-line may occur.

- **If the hose length to the static mixer is too small, the paint cannot be thoroughly mixed by the static mixer, possibly resulting in poor hardening. Do not reduce the hose length to the static mixer or change the hose diameter.**
- **The hose portion downstream the static mixer also serves to ensure the mixture quality. Do not directly connect the static mixer to the spray gun.**

6.2 Effect of mixing hose length on mixture ratio

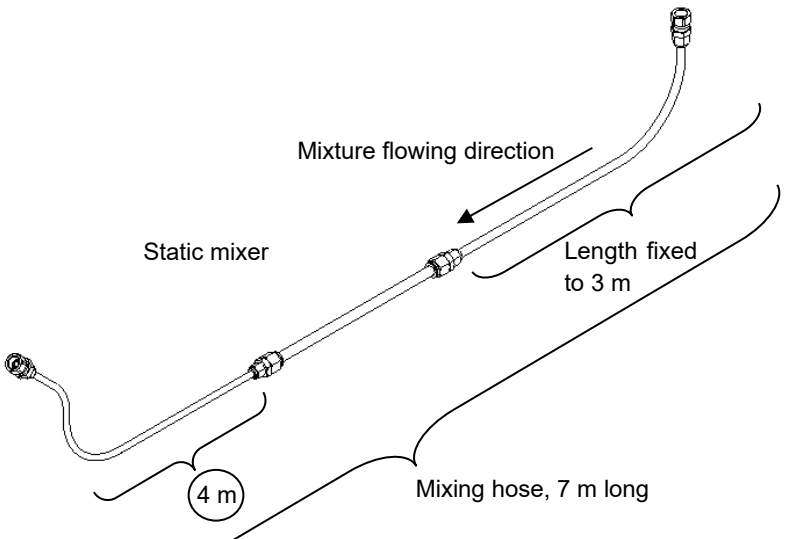
The hose length to the static mixer has an effect on the mixture ratio.
To achieve a larger mixture ratio, the hose length from the static mixer to the spray gun shall be increased.
Adjust the hose length according to the following chart.



(Example) To achieve the ratio of 12:1

The mixing hose shall be 7 m long. This means that the hose length from the static mixer shall be changed to 4 m. See 16-12 “Mixing hose L.”
See the following table for extension hoses. Cut them to a necessary length before use.

Hose	Part No.	Remarks
5 m	570-0050	For φ6-4
	52C-0050	For φ8-6
10 m	570-0100	For φ6-4
	52C-0100	For φ8-6



7.1 Mixture (two-component paint)

As shown in Figure 1, fluid flow velocity is fast in the middle of a pipe but the velocity is almost zero on the pipe wall. The paint as mixed with isocyanate or reactor (hardener), which has been in contact with the moisture in the air, initiates a chemical reaction and accumulates on the pipe wall just like cholesterol to make the pipe narrower and finally clog it. Therefore, it is important to control the hardener and keep the devices and pipes in contact with the mixture thoroughly clean.

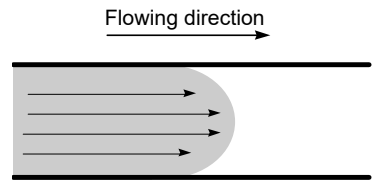


Figure 1

⚠ CAUTION

There is a possibility of machine disorder, malfunction or hardening in the mid-line.

- **Make sure to clean regularly because some paints can react with pipe wall and accumulate on the pipe.**

Isocyanate, a chemical agent used for the two-component paint, may hurt mucous membranes in your nose or throat.
Put on a face mask for protection from organic solvents during the work. Additional protective devices may be required depending on the paint components or ventilation level. Contact the paint or solvent manufacturer.

7.2 Metallic paints

General metallic paints may be used but some metallic paints and special paints containing rough particles (pearly paints) may not be used because the particles may clog the precision geared flow meters, which have very small clearances, and make the mixture control impossible.
When using any of such paints, communicate properties of the paint to our sales personnel and perform a test run in advance.
When using a paint not used before, do not directly use it on the line but perform a functional test using the equipment to check the mixing, washing and color change functions and verify the coating quality with coated samples.

7.3 Flushing fluid

For cleaning the base component and hardener circuits and hardener tank, use a flushing fluid specially provided for two-component paints. Do not use any lacquer or alcohol based solution, solution containing much alcohol or collected and recycled solution.

⚠ CAUTION

There is a possibility of machine disorder, malfunction or hardening in the mid-line.

- **Do not use any lacquer or alcohol based solution for flushing the equipment. It reacts with the mixture or hardener and accumulates in the flow meters and mixing valves in the equipment and on inside surfaces of paint hoses just like cholesterol to cause a machine disorder and gel the fluid in circuits. Always use an exclusive flushing fluid recommended by the paint manufacturer.**
- **Do not use any collected and recycled solution for flushing the equipment.**

7.4 Ratio by weight and ratio by volume

This system controls the flow rates by volume. To convert weight ratio to volume ratio or the paint weight sampled for mixture ratio test (optional) to a volumetric value, calculate by using gravity ratio of the paint.

① Calculation of mixture ratio (by weight → by volume)
- ◆ Mixture ratio (by volume) = Weight of base component / specific gravity of base component : weight of hardener / specific gravity of hardener

② Calculation of sampled paint quantity (weight→ volume)
- ◆ Volume of sampled paint (ml) = Weight of sampled paint (g) / specific gravity

7-5 How to control the hardener

When an isocyanate based hardener comes into contact with the moisture (OH group) in the air or another solution, it generates an invisible substance (crystal dust). In the initial stage of reaction, no effect of the crystal dust is observed with eyes. But, after a certain time, it is increasingly hardened and sticks to or accumulates on inside surfaces of pipes and it can cause malfunction. Therefore, the following steps must be taken to control the hardener.

① To keep the hardener out of contact with the air as far as possible, use an exclusive tank capable of sealing in nitrogen gas.

② We do not take responsibility for the machine disorder or clogged circuit or flow meter due to the crystal dust or hardened wastes generated when the hardener is not controlled with nitrogen gas. If nitrogen gas is not available, the compressed air may be dried by passing it through an air dryer (heated after cooled) and an air filter containing silica gel. In this case, however, the equipment shall be used at the customer's risk.

③ Use stainless steel pipes and Teflon hoses, which are slow to absorb moisture or air, to feed the hardener. In an absorptive nylon hose or easily oxidized iron pipe, the hardener quickly reacts and hardens even if the circuit is apparently enclosed. Especially in hot, moist seasons, the hardener is cured within a day in such a hose or pipe.

④ Sometimes the Teflon hose can't stop the hardening reaction. Install hardener tank nearby ACW mixing unit and make the route as short as possible.

⚠ CAUTION

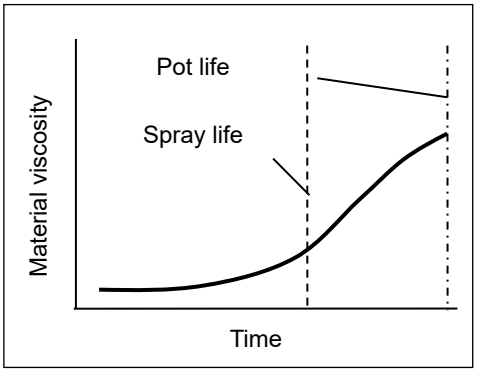
There is a possibility of machine disorder, malfunction or hardening in the mid-line.

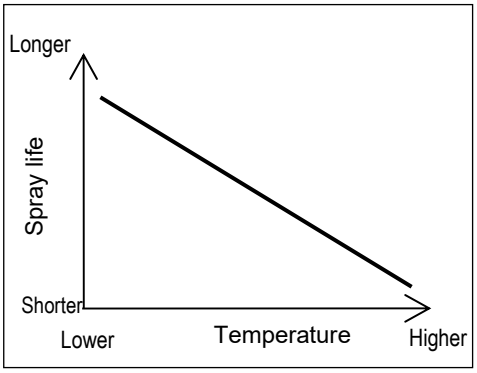
- **The hardener shall be kept out of contact with the air. The hardener shall be stored in an exclusive sealable tank with the air replaced with nitrogen gas.**
- **If the equipment is not used two weeks or more, the circuit shall be flushed.**

7.6 Spray life and pot life

① Spray life : A length of time in which the mixture can be sprayed to obtain a desired coating quality.

② Pot life : A length of time from the point of mixing to the point when the mixture is hardened (gelled).





The viscosity more quickly increases after the end of the spray life, in general.

8 Unpackaging and Installation

This equipment is 100% inspected at the manufacturer's factory and supplied with the paint hoses, spray gun, power supply, compressed air and paint (base component and hardener) for immediate use after delivery. However, some parts may be damaged or lost during transportation. After unpackaging, please check carefully for missing or damaged parts and, if any, contact us or any of our distributors.

See 5 "System Construction."

8.1 Caution in unpackaging

Check each unit for broken fittings and screws and for gouges and dents around the periphery.

② Check the electric components in the ACW control unit and remount them if disconnected.

③ Tighten loose bolts, nuts and joints if any.

④ Check the air pressure gauge for damage and replace it with a new one if necessary.

8.2 Installation place and caution in installing

① The ACW control unit is not explosion-proof. It cannot be installed in a dangerous area.

② Class D grounding work is required for all pumps, ACW control unit and ACW mixing unit.

③ The ACW mixing unit and local operation panel (optional) are intrinsically safe and explosion-proof. They can be installed in any place other than class 0 dangerous areas. When installing any device other than above, thoroughly read the instruction manual for that device before use and, if you need further information, contact the manufacturer or distributor before installation.

④ Each unit shall be installed with enough space reserved around it for routing of the paint hoses and air tubes and for ease of maintenance.

⑤ Vibration and noise give an adverse effect on the flow meters and may prevent accurate mixture control. The ACW mixing unit shall be secured on a rigid foundation and installed at least 1 m apart from sources of noise such as robots.

⑥ Never apply a tensile force to a power cable (to the flow meter, etc.), air tube or paint hose or collapse it with a heavy object. If any of them has a deformation or pressure mark at the time of delivery, we will replace it with a new one.

⑦ Install hardener tank nearby ACW mixing unit and make the route as short as possible.

8.3 Connection of flow meter cables (exclusive)

⚠ CAUTION

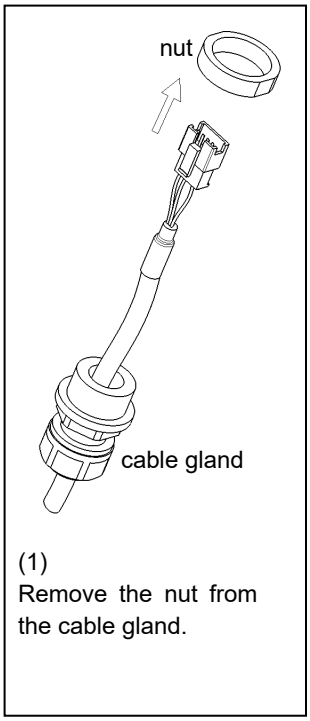
There is a possibility of malfunction.

- **If the flow meter cables are affected by noise, this may be indicated as an error by the ACW controller, possibly resulting in a line suspension or malfunction. Always use shielded wires and ground them to prevent noise.**
- **A malfunction due to noise or improper grounding is considered to exist if the hardener or base component flow rate is counted up on the ACW controller display when the spray is not on.**

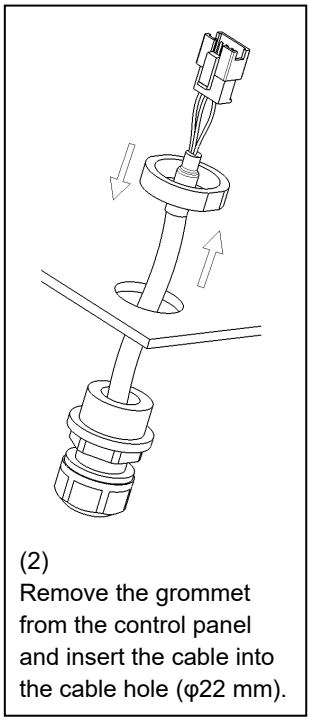
8.3.1 Connection to ACW control unit

① Open the door, remove the grommets at the bottom and firmly mount the glands of the flow meter cables.

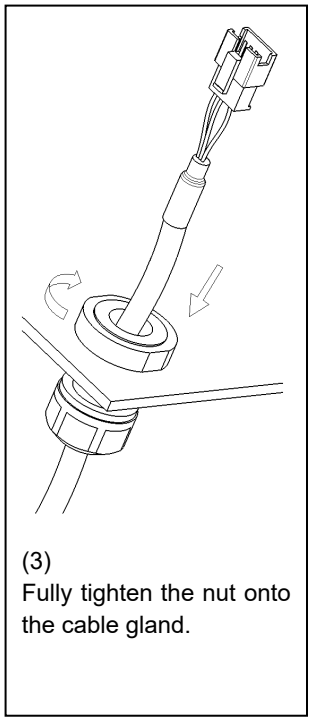
② Connect the cables to the connectors marked as “For Base Component” and “For Hardener” respectively.



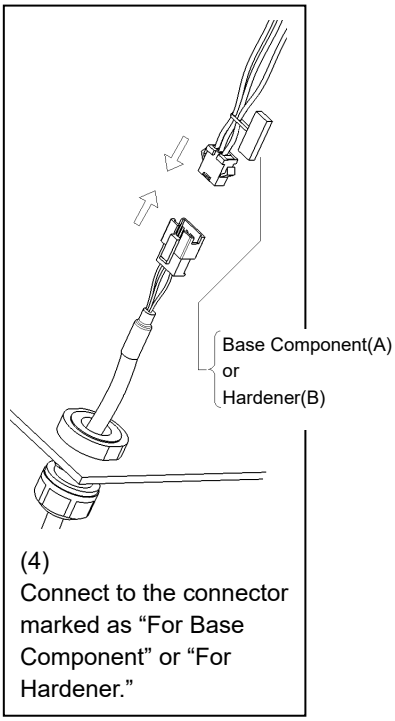
(1)
Remove the nut from the cable gland.



(2)
Remove the grommet from the control panel and insert the cable into the cable hole (φ22 mm).



(3)
Fully tighten the nut onto the cable gland.

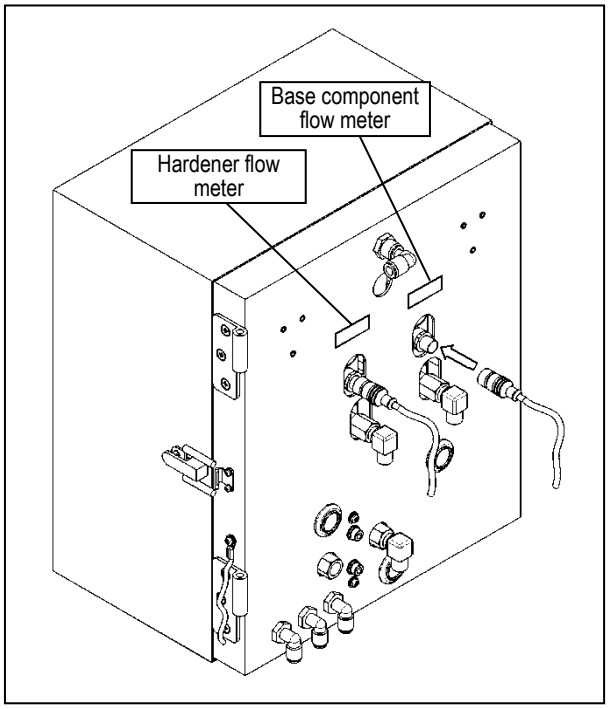


(4)
Connect to the connector marked as “For Base Component” or “For Hardener.”

8.3.2 Connection to ACW mixing unit

① Open the unit and connect the cable connectors to the flow meters.

② Install two flow meter cables. The cable for base component and that for hardener have the same shape and care shall be taken to prevent wrong connection of the cables from the ACW control unit.

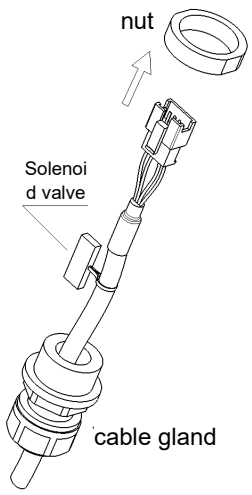


8.4 Connection of cable A (cable for intrinsically safe explosion-proof solenoid valves)

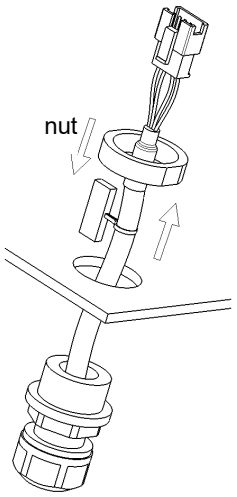
Cable A may be installed in either direction. It has connectors of the same shape at both ends.

8.4.1 Connection to ACW control unit

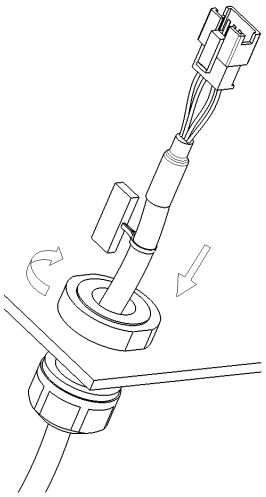
① Open the door, remove the grommet at the bottom and firmly mount the gland of cable A.
② Connect the cable to the connector marked as “For Solenoid Valve.”



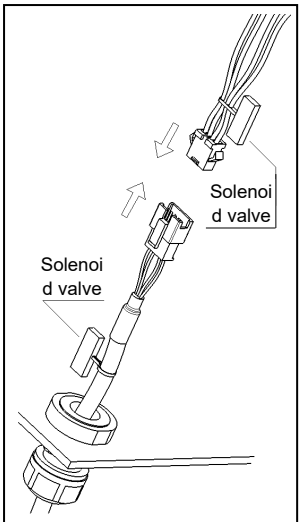
(1)
Remove the nut from the cable gland.



(2)
Remove the grommet from the control panel and insert the cable into the cable hole (φ22 mm).



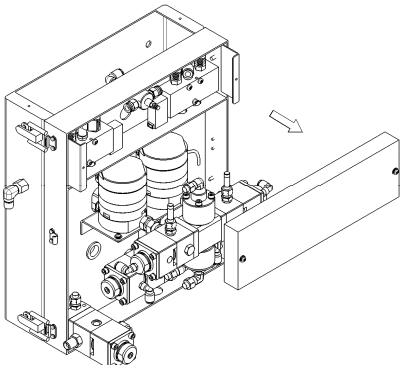
(3)
Fully tighten the nut onto the cable gland.



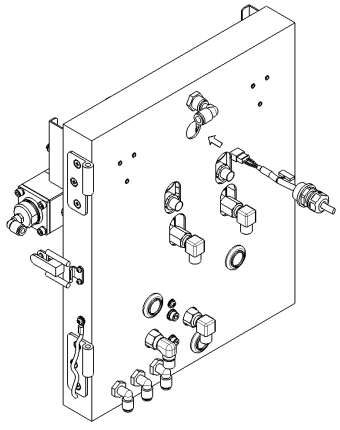
(4)
Connect to the connector marked as “For Solenoid Valve.”

8.4.2 Connection to ACW mixing unit

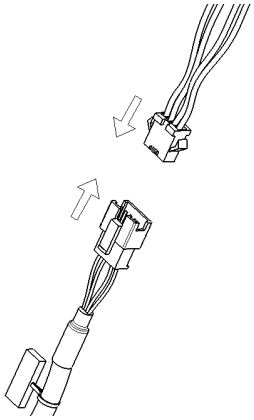
① Remove the cover and the lid for intrinsically safe explosion-proof solenoid valve.
② Open the unit and firmly mount the gland of cable A in the cable hole.
③ Connect the connectors. When installing the lid, take care not to entangle any cable.



(1)
Remove the cover and the lid for intrinsically safe explosion-proof solenoid valve.



(2)
Open the unit and firmly mount the gland of cable A in the cable hole.



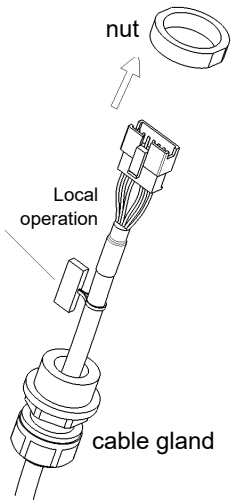
(3)
Connect the connectors.
When installing the lid, take care not to entangle any cable.

8.5 Connection of cable B (cable for local operation panel)

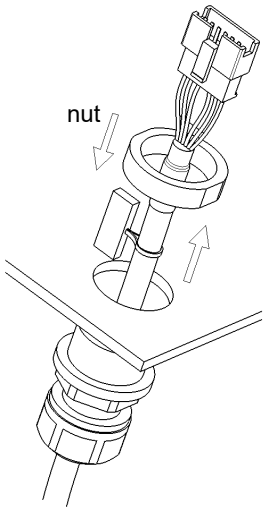
Cable B may be installed in either direction. It has connectors of the same shape at both ends.

8.5.1 Connection to ACW control unit

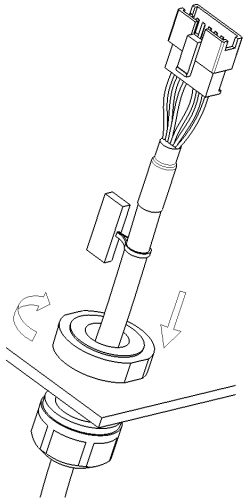
① Open the door, remove the grommet at the bottom and firmly mount the gland of cable B.
② Connect the cable to the connector marked as “For Local Operation Panel.”



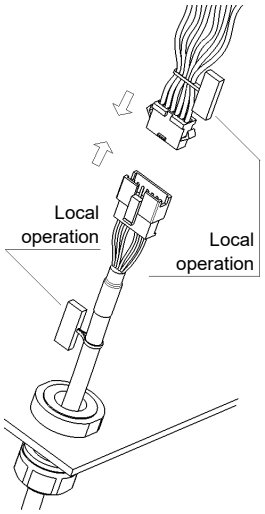
(1)
Remove the nut from the cable gland.



(2)
Remove the grommet from the control panel and insert the cable into the cable hole (φ22 mm).



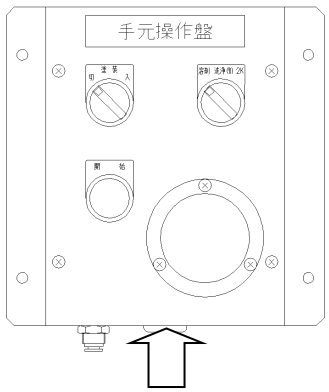
(3)
Fully tighten the nut onto the cable gland.



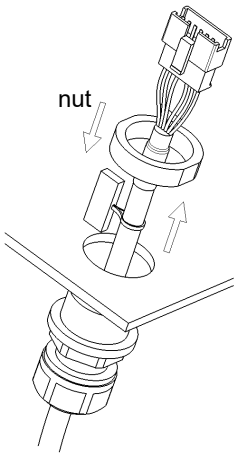
(4)
Connect the cable to the connector marked as “For Local Operation Panel.”

8.5.2 Connection to local operation panel

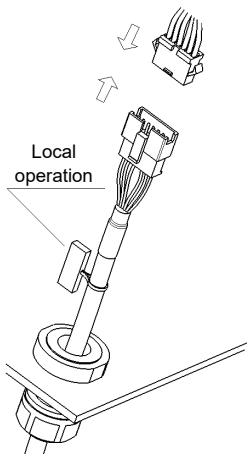
① Remove the lid, remove the grommet at the outer box and firmly mount the gland of cable B in the cable hole.
② Connect the connectors. When installing the lid, take care not to entangle any cable.



(1)
Remove the grommet at the outer box.



(2)
Remove the lid and firmly mount the gland of cable B in the cable hole.



(3)
Connect the connectors.
When installing the lid, take care not to entangle any cable.

8.6 Working in a dangerous area (combustible/explosive atmosphere)

When installing the equipment in a dangerous area such as inside of the booth, the following instructions shall be observed.

A difference of an explosion-proof device from general ones is that it requires “safety check” before use.

⚠ WARNING

To prevent injury

- **Never remodel the equipment or use a combination of units other than specified as doing so may lead to an accident. If remodeling or structural change is required, please contact the responsible personnel of us.**

To prevent fire and explosion

- **Check that all units have been completely grounded.**
- **Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.**

8.6.1 Before starting the work

① The grounding work according to the “Guidelines for Electric Equipment Protection against Explosion at Factories” is required for the equipment and all devices and tools used for operation, maintenance and servicing of the equipment in a “dangerous area” where, for example, a combustible (explosive) atmosphere exists.

② When directly involved in the work in a place where a combustible (explosive) atmosphere exists, all operators shall have full knowledge about the explosion prevention and electric work and fully check the safety of everything including the devices and tools to be used and (anti-static) working clothes.

8.6.2 Working tools

① The tools connected with an “outlet” when used, e.g. power drills and illuminators, must be checked before work.
Scared, thinned (elongated), swelled or otherwise deformed cables must be always checked for.

② Perform a continuity test using an ohmmeter between metallic part or grounding terminal of each tool and the power cable terminal and ground the tool before use.

③ The “outlet” used in a dangerous area must be equipped with an interlock to open or close contacts after a given delay. A capability of making electric circuits completely continuous or open when the plug is inserted or removed is a precondition for the explosion-proof equipment.

④ A power supply intermittently connected to a tool may become a source of ignition. Preventive measures against human errors and correct operating procedures shall be strictly observed in working.

8.6.3 Grounding

For the equipment installed in a dangerous area such as inside of the booth (e.g. ACW mixing unit and local operation panel), the main body and grounding terminals (e.g. terminals provided in the spray booth) shall be grounded according to the “Guidelines for Electric Equipment Protection against Explosion at Factories.”

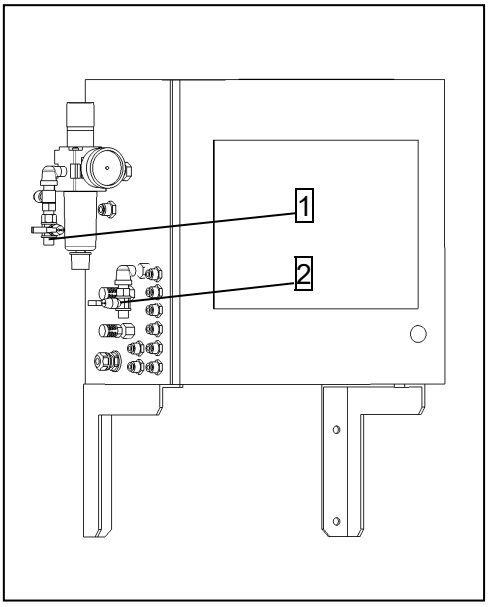
① A continuity test shall be performed between the main bodies of the ACW mixing unit and local operation panel (optional) and the grounding terminals to check that there is a continuity meeting the standard for class D grounding.

② Thoroughly read the paragraph of “Grounding” in section 1 “For Safety and Correct Use” before starting the work.

8.7 Connection of air hoses

8.7.1 ACW control unit

① Attach the supplied filter regulator.
② Connect the air hose from the compressor to the air cock (G1/4 screw) of the filter regulator. 1
③ Use the cock 2 for the air hose to the spray gun. Adjust pressure for the spray gun with the filter regulator.
④ Connection must ensure that compressed air supplied to the spray gun is separated from compressed air that drives other drives to prevent activation of the air flow switch when the spray gun is not used.
⑤ We recommend that used air hose should be 3/8 inch (8 mm in ID) or greater.

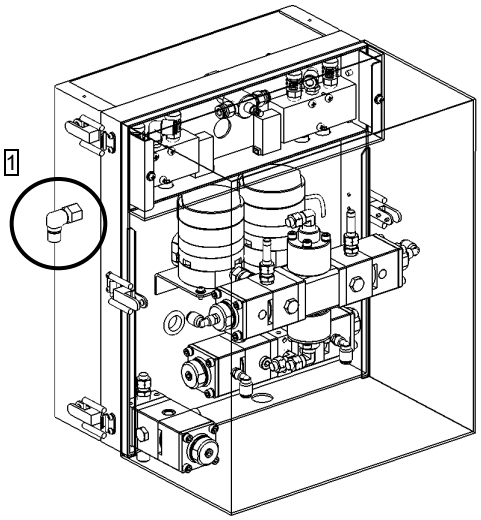


NOTE

The compressed air for spray gun shall be taken from the cock mentioned above.
The air supply on/off control for spray gun is linked with the mixing switch.

8.7.2 ACW mixing unit

① Connect the air tube (φ8) from the compressor to the joint. 1
② The air pressure shall be 0.4 MPa or higher. It is recommended to install an air regulator as necessary.

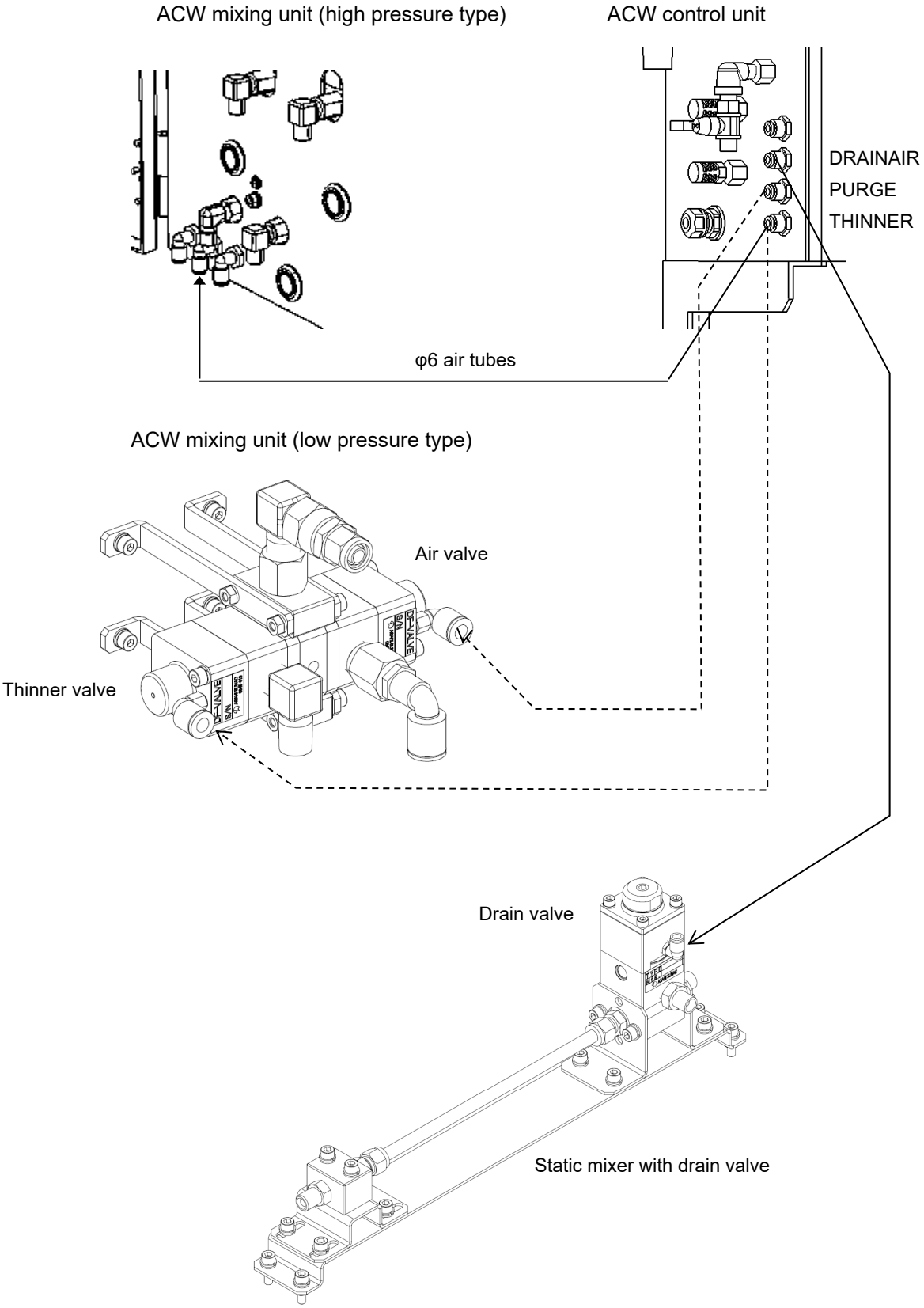


8.7.3 Pilot air supplies

① Connect the attached φ6 air tubes (three tubes) according to the illustration below. (Be aware that connecting destinations are different between low and high pressure types. Dotted lines show connections for low pressure type and, solid lines for high pressure type.)
For DRAIN, connect the air tube to the drain valve of the static mixer separately placed.

② For the high-pressure type, two tubes are used. In this case, no tube is installed for air purging.

③ Cut or extend the tubes to a desired length if necessary.



8.7.4 Connection of purging air hose (for the low-pressure type only)

The air purging valve is mounted on the ACW mixing unit (for the low-pressure type).

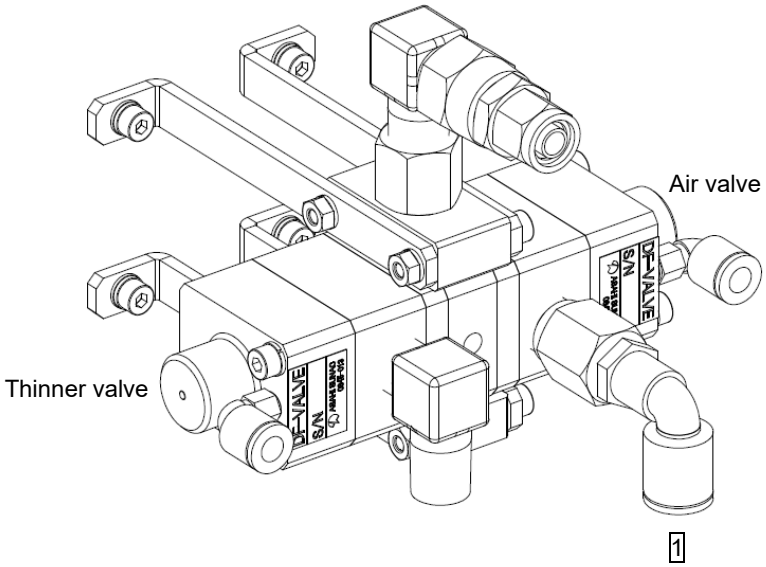
Connect the air hose with the following procedure.

① Remove the lid from the body, and connect the φ8 air hose to the air purging valve joint. 1

② The purging air to be supplied shall be adjustable in pressure and free of oils and debris.

③ It is recommended to provide an air filter at the purging air supply to prevent intrusion of the paint in case it flows reversely.

④ The purging air hose to be installed shall be transparent and resistant to solvent.



1

⚠ CAUTION

<u>There is a possibility of machine disorder, malfunction and paint leak.</u>

- **The air purging valve joint contains a check valve to prevent intrusion of the paint into the air circuit in case it flows reversely due to a disorder of the valve or for another reason. Do not remove the check valve or replace it with another part.**

8.8 Connection of paint hoses

① Connect the hose joint at the paint outlet on each pump (feeder) and that at the paint regulator.

See 10 “Preparation of Paint and Compressed Air.”

② Connect the paint hoses coming from the paint regulator to the ACW mixing unit.

③ For the hardener, use a Teflon hose with a stainless steel cap.

See 7-5 “How to control the hardener.”

8.9 Flushing the equipment

After the location of each unit is determined and the air and paint hoses are connected, flush the paint circuit and equipment (circulate the flushing fluid).

⚠ WARNING

To prevent danger from toxic substances and compressor

- **When working, wear a face mask, safety goggles and protective clothes for protection against organic solvents.**
- **Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.**

To prevent fire and explosion

- **Check that all units have been completely grounded.**

⚠ CAUTION

There is a possibility of machine disorder, malfunction or hardening in the mid-line.

- **Failure to flush leads to the outflow of wastes, etc., which clogs the flow meters to cause a malfunction or damages the valve or check valve seat, resulting in a reverse flow of the paint. Never fail to flush.**
- **For the flushing fluid, do not use any lacquer or alcohol based solution, solution containing much alcohol or collected and recycled solution. See 7-3 “Flushing fluid.”**

① Flushing the pumps (feeders)

Suck the flushing fluid through the suction port and open the pump drain to circulate the flushing fluid. Flush all feeders.

② Flushing the paint circuits

After flushing each pump (feeder), remove the paint hoses connected to the ACW mixing unit and wrap a clean cloth around the loose end of each paint hose and run the pump to drain the flushing fluid and remove debris, etc. in the hose. Flush the flushing pump in the same manner.

③ Flushing the base component container

Chips and other particles stick to the inside surface of the container. Carefully wash them using a waste cloth or brush.

④ Flushing the enclosed SUS tank for hardener (optional)

See 7-3 “Flushing fluid” and the separately provided manual “Enclosed stainless steel tanks.”

⑤ Flushing the paint filter

After flushing, never fail to overhaul and clean the paint filter and other filters.

9 Pump

The fluid may be fed from a pneumatic pump, pressurized tank (paint tank) or circulation line. When feeding the fluid, follow the procedure described below.
For the hardener feeder, follow the instructions described in 7-5 “How to control the hardener.”

9.1 When feeding the fluid at a pressure not higher than 1 MPa (for the low-pressure type)

① Each feeder shall have a capacity not lower than three times the flow rate and delivery pressure required for the spray gun.
If a spray gun delivery pressure of 0.2 MPa is required, it is necessary to ensure a stable pressure not lower than 0.4 MPa at each paint valve of the ACW mixing unit although depending on the length and inside diameter of the paint hose to be connected and the viscosity of the paint. Therefore, a feeder capable of feeding at 0.6 MPa or higher is required.

② The feeder shall be capable of generating a fluid pressure not lower than 0.6 MPa for the paint with a viscosity between 80 and 100 mPa-s or not lower than 1.0 Mpa for the paint with a viscosity not lower than 100 mPa-s.

③ It is desirable to install the paint regulator and paint pressure gauge in the paint circuit consisting of a 2 m or shorter hose from the mixing valve of the ACW mixing unit.
If the pressure is regulated at the outlet of the pump, it may significantly drop around each paint valve of the ACW mixing unit. The pressure around the base component valve and that around the hardener valve shall not differ by more than 10%.

④ Keep the pressure gauge clean enough to ensure clear readings and regularly reduce the pressure to confirm that the pressure gauge correctly functions.

⑤ Use a filter with 100 or more meshes (0.15 x 0.15 mm openings) in the paint circuit.

9.2 When using a cylinder pump

① Install an anti-pulsation device or paint regulator to prevent pulsation due to pump piston changes.

② For the high-pressure type (fluid pressure 1 MPa or higher), the base component pressure shall be about 10% lower than the hardener pressure.

9.3 When using a pressurized (paint) tank

① Always install a check valve in the paint circuit to prevent reverse flow.
Different from pumps, the pressurized tank is not equipped to prevent reverse flow of the fluid and may cause the fluid to circulate between the paint hose and the tank. Always take steps to prevent reverse flow to the tank.

② Provide a safety valve in the tank and a cock valve in the paint circuit for servicing and maintenance.

9.4 When using a circulation line

① Provide a T-shaped joint in the circulation line to supply to the ACW mixing unit through a single circuit.

② When feeding the paint from the circulation line, always install a cock, paint regulator and paint pressure gauge at the intake port for servicing and maintenance.

10 Preparation of Paint and Compressed Air

⚠ WARNING

To prevent danger from toxic substances and compressor

- **When working, wear a face mask, goggles and protective clothes for protect against organic solvents.**
  Isocyanate, a chemical agent used as hardener, may hurt your nose or throat. Put on a face mask for protection from organic solvents during the work. Additional protective devices may be required depending on the paint components or ventilation level. Contact the paint manufacturer.
- **Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.**

To prevent fire and explosion

- **Check that all units have been completely grounded.**
- **Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.**

10.1 Hoses

① Check each hose throughout its length for scars, leak, wear, swells, cracks and loose fittings. If any one of the faults is found, replace the hose with a new one to ensure normal condition before use.

② Check hose connectors and joints (especially at the gun mounting section) for loose fittings and fluid leak. If any leak is found, tighten or replace them.

10.2 Compressed air supply

① Use compressed air at 0.4 MPa or higher.

② The compressed air to be supplied shall be adjustable in pressure and free of oils and debris.

③ Prepare for air consumption enough to satisfy the spray gun specifications.

④ If the air pressure at the gun head is too low, change the air hose to the next larger size to reduce the pressure loss.

10.3 Base component supply

① Drain the flushing fluid remaining in the can or container and fill new paint (base component).

② Run the pump to suck the paint.

③ Adjust the fluid pressure using the base component regulator so that the base component and hardener pressures will be the same. For the high-pressure type, the base component pressure shall be about 10% lower than the hardener pressure.

10.4 Hardener supply

① Supply hardener to tank following the manual "Enclosed stainless tanks (for hardener)."

② Run the pump to suck the hardener.

③ Adjust pressure with paint regulator. See 10.3 “Base component supply.”

NOTE

To control hardener, make sure to use enclosed stainless steel tanks. Regarding handling, see the manual “Enclosed stainless steel tanks (for hardener).”

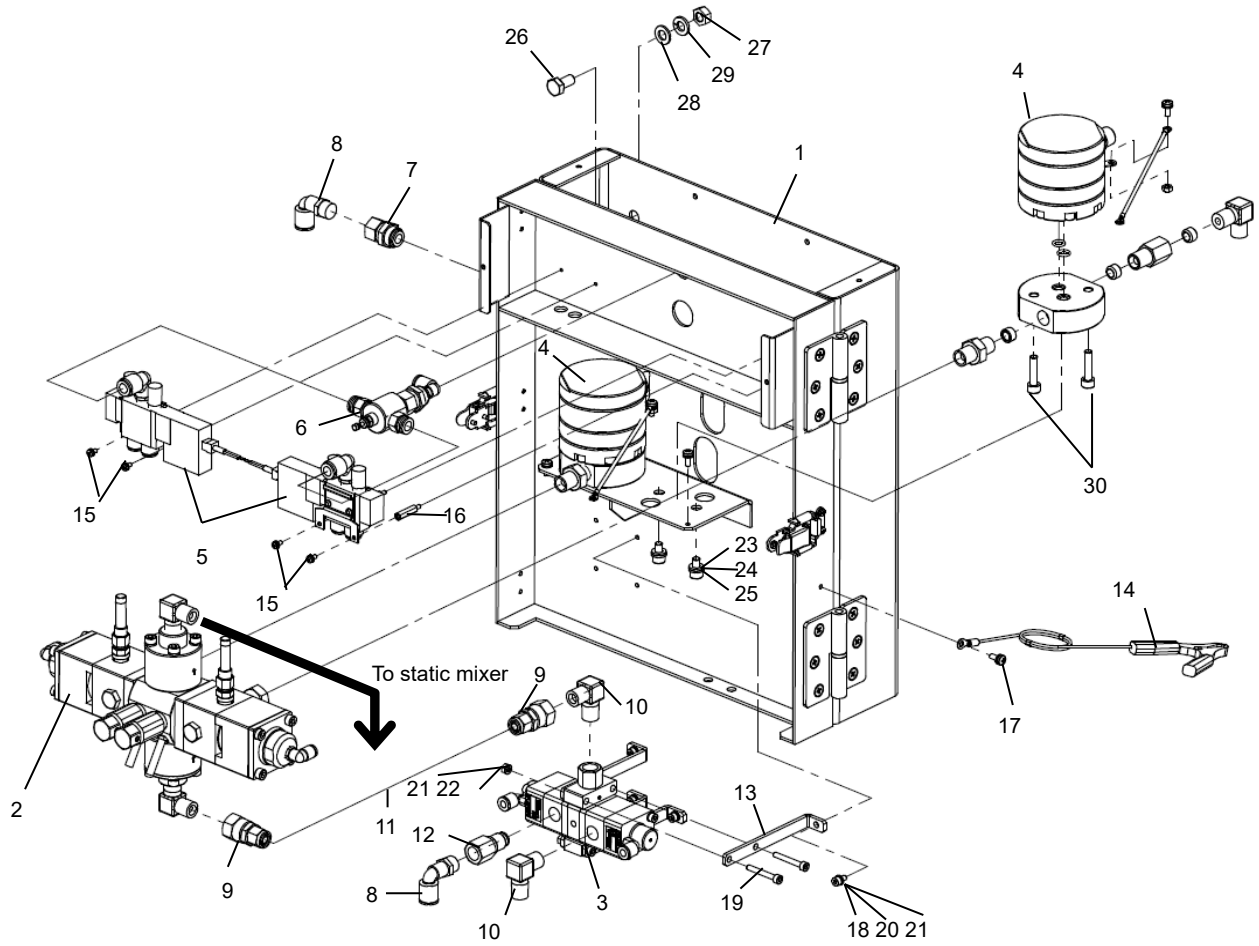
11 Exploded Diagram and Names of Parts

11.1 ACW mixing unit

A fundamental unit consisting of valves and flow meters of mixing unit.

11.1.1 Low pressure type

Part No. 4930-1



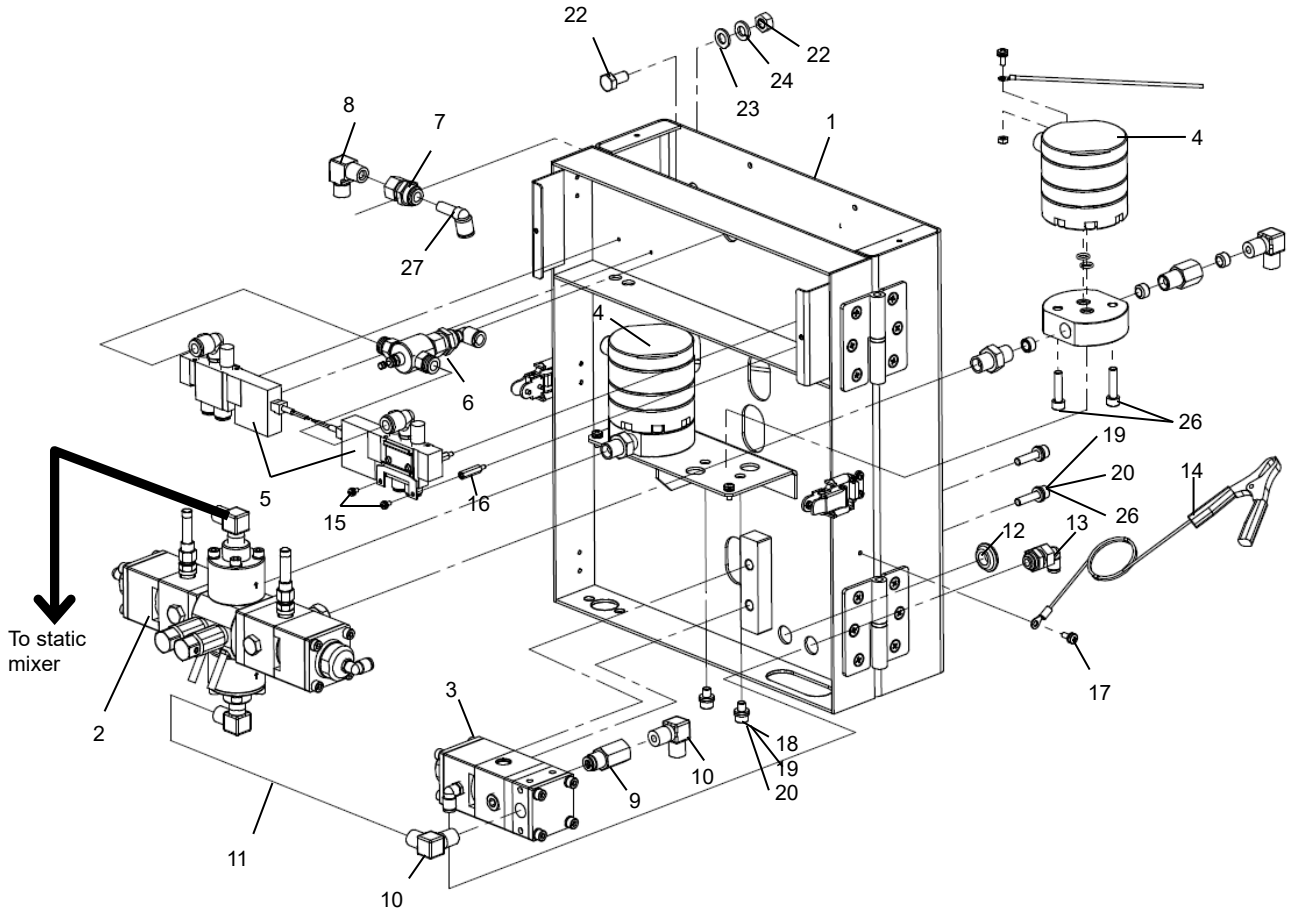
No.	Part No.	Part name	Qty	Remarks
1	1975	Outer box	1	
2	5046	Mixing valve assembly (L)	1	For low-pressure type
3	0850	CCV2PA	1	For air and thinner
4	375-0013	Flow meter	2	
5	4930-020	Solenoid valve set	1	2 solenoid valves
6	4924-021	Air purging assembly	1	
7	374-0802	Female bulkhead union	1	
8	384-0802	Quick joint	2	
9	342-0057	Hose joint	2	
10	249-2202	L-shaped hose joint	2	
11	52C-0000	Teflon tube	1	※1
12	3625	Check valve	1	
13	4930-012	Bracket	4	
14	40338-024	Grounding wire	1	
15	13-10306	Double SEMS screw	4	M3×6

No.	Part No.	Part name	Qty	Remarks
16	316-0156	Spacer bolt	2	
17	13-10410	Double SEMS screw	1	M4×10
18	03-80410	Hex. socket head cap screw	4	M4×10 (plated)
19	03-80430	Hex. socket head cap screw	4	M4×30 (plated)
20	37-10400	Plain washer	4	M4
21	41-80400	Spring washer	8	M4 (plated)
22	15-10400	Hex. nut	4	M4
23	03-80610	Hex. socket head cap screw	4	M6×10 (plated)
24	37-10600	Plain washer	4	M6
25	41-80600	Spring washer	4	M6 (plated)
26	01-10816	Hex. bolt	4	M8×10
27	15-10800	Hex. nut	4	M8
28	37-10800	Plain washer	4	M8
29	41-80800	Spring washer	4	M8 (plated)
30	03-80625	Hex Socket Bolt	4	M6×25L (plated)

※1 Cut and adjust the length of the Teflon tube before use.

11.1.2 High pressure type

Part No. 4931-1

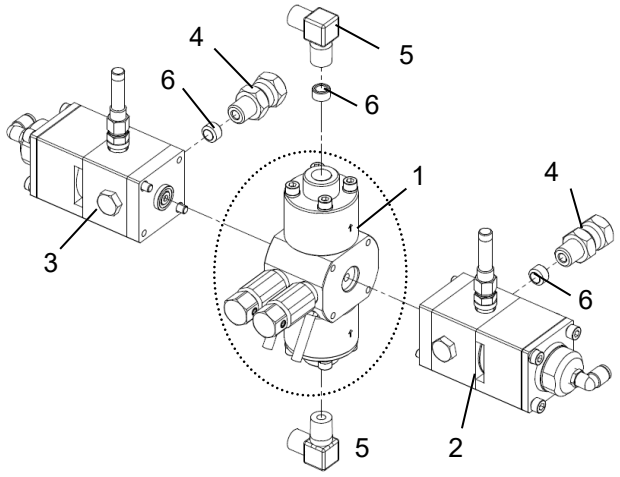


No.	Part No.	Part name	Qty	Remarks
1	1975-1	Outer box	1	
2	5046-1	Mixing valve assembly (L)	1	For high-pressure type
3	5035-1	Flushing valve assembly (H)	1	For thinner
4	375-0014	Flow meter	2	
5	4930-020	Solenoid valve set	1	2 solenoid valves
6	4924-021	Air purging assembly	1	
7	374-0802	Female bulkhead union	1	
8	347-0002-1	Elbow union	1	
9	3621-1	Check valve	1	For high-pressure type
10	249-2202	L-shaped hose joint	2	
11	503-1003	Material hose	1	
12	417-0044	Grommet	1	
13	342-0113	Bulkhead elbow	1	

No.	Part No.	Part name	Qty	Remarks
14	40338-024	Grounding wire	1	
15	13-10306	Double SEMS screw	4	M3×6
16	316-0156	Spacer bolt	2	
17	13-10410	Double SEMS screw	1	M4×10
18	03-80610	Hex. socket head cap screw	4	M6×10 (plated)
19	37-10600	Plain washer	4	M6
20	41-80600	Spring washer	4	M6 (plated)
21	01-10816	Hex. bolt	4	M8×10
22	15-10800	Hex. nut	4	M8
23	37-10800	Plain washer	4	M8
24	41-80800	Spring washer	4	M8 (plated)
25	342-0164	Straight elbow	1	
26	03-80625	Hex Socket Bolt	6	M6×25L (plated)

11.2 Mixing valve assembly (L), Mixing valve assembly (H)

Model: MVA-L (for low-pressure type) or MVA-H (for high-pressure type) Part No.: 5046 (for low-pressure type) or 5046-1 (for high-pressure type)

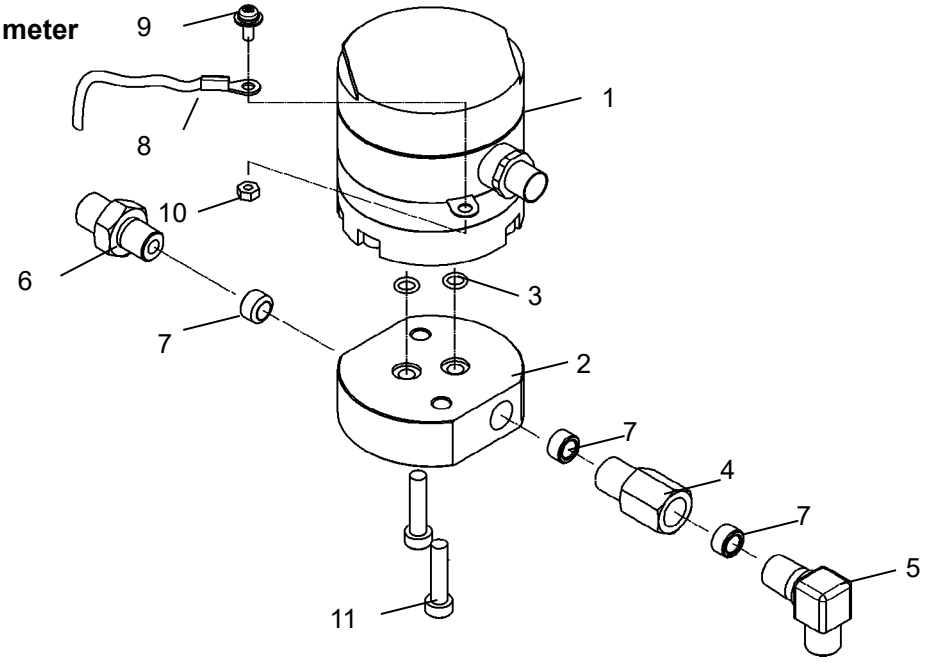


See 11.1 “ACW mixing unit” in Exploded

No.	Part No.	Part name	Qty	Remarks
1	P37 for details	Mixing block L	1	For low-pressure type
	P37 for details	Mixing block H	1	For high-pressure type
2	5024-4	Mixing valve (R)	1 set	
3	5024-5	Mixing valve (L)	1 set	

No.	Part No.	Part name	Qty	Remarks
4	342-0227	Male/female union joint	2	For low-pressure type
	22E-4202	Male/female union joint	2	For high-pressure type
5	249-4202	L-shaped hose joint	2	
6	4920-031	Collar A	3	

Details of flow meter



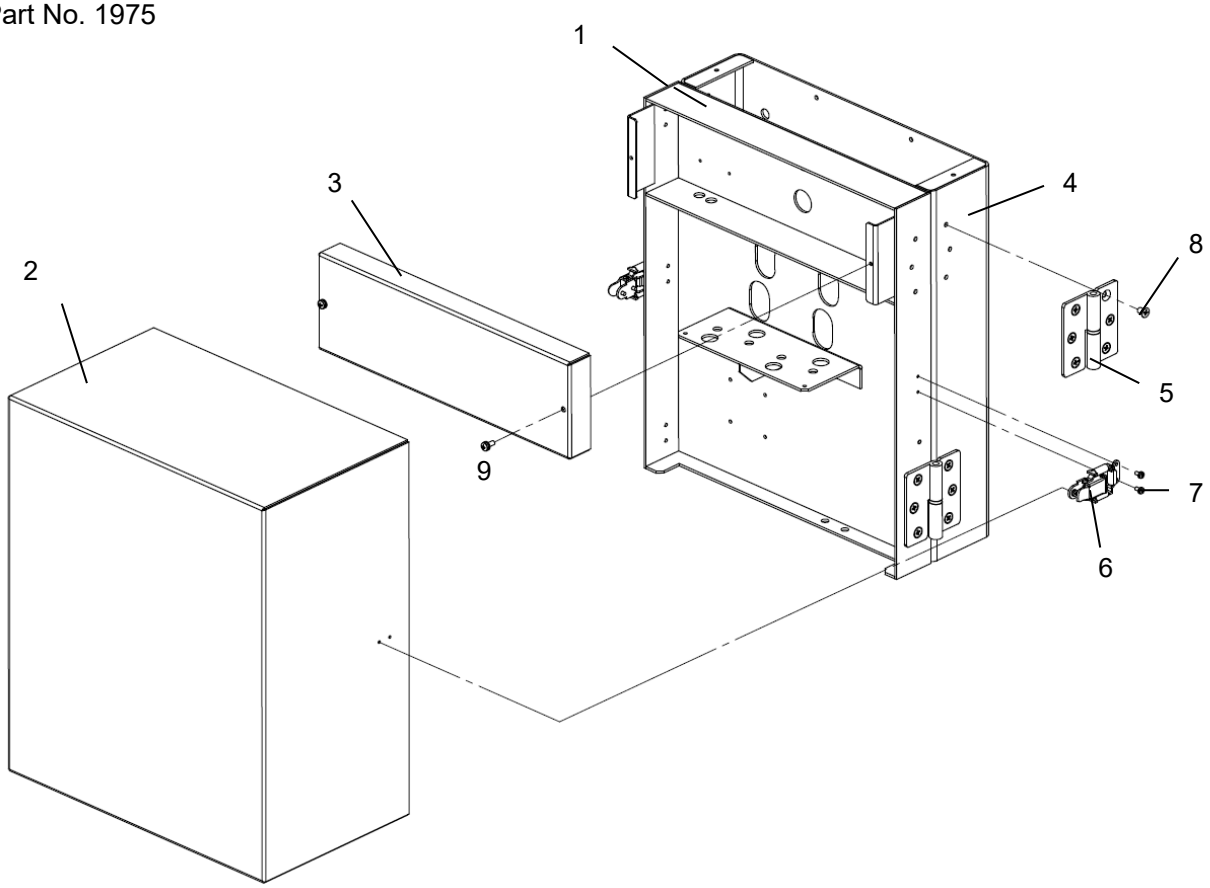
No.	Part No.	Part name	Qty	Remarks
1	375-0013	Flow meter	1	For low-pressure type
	375-0014	Flow meter	1	For high-pressure type
2	4924-007	Manifold	1	
3	101-2007	O-ring	2	
4	4924-008	Male/female joint	1	
5	249-4202	L-shaped hose joint	1	

No.	Part No.	Part name	Qty	Remarks
6	247-4202	Hose joint	1	
7	4920-031	Collar A	3	
8	4924-036	Grounding wire	1	
9	13-10410	Double SEMS screw	1	M4×10
10	15-10400	Hex. nut	1	M4
11	03-80625	Hex. socket head cap screw	2	M6×25 (plated)

11.3 Outer box

11.3.1 For low-pressure type

Part No. 1975

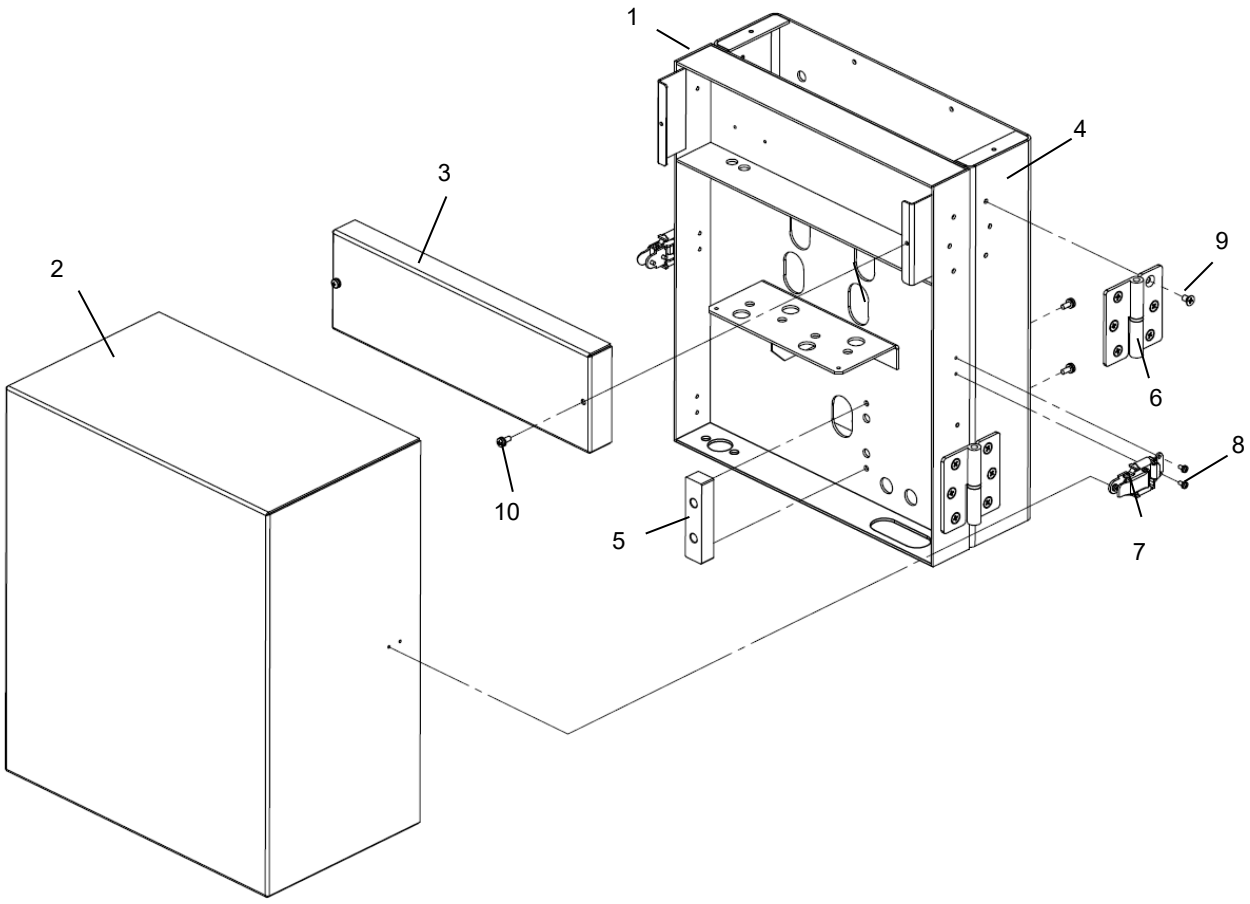


No.	Part No.	Part name	Qty	Remarks
1	1975-001	Base	1	
2	1975-002	Cover	1	
3	1960-003	Lid	1	
4	1960-004	Plate	1	
5	323-0048	Hinge	2	

No.	Part No.	Part name	Qty	Remarks
6	323-0006	Catch clip	4	
7	12-10306	SEMS with washer	16	M3×6
8	69-10508	Cross-recessed countersunk head machine screw	12	M5×8
9	13-10410	Double SEMS screw	2	M4×10

11.3.2 For high-pressure type

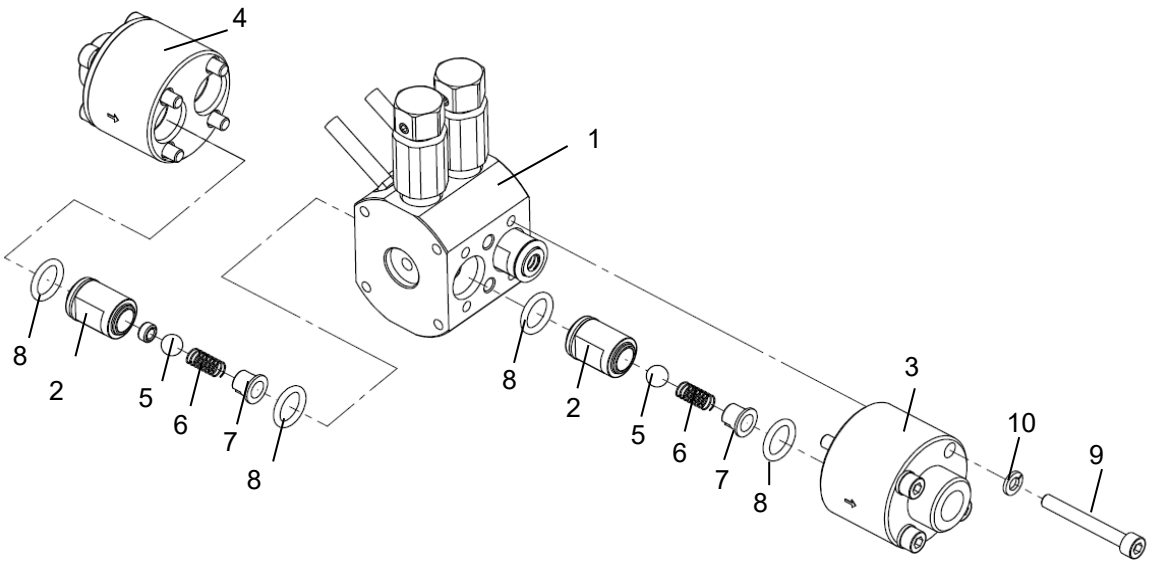
Part No. 1975-1



No.	Part No.	Part name	Qty	Remarks
1	1975-101	Base	1	
2	1960-002	Cover	1	
3	1960-003	Lid	1	
4	1960-004	Plate	1	
5	1960-005	Block	1	

No.	Part No.	Part name	Qty	Remarks
6	323-0048	Hinge	2	
7	323-0006	Catch clip	4	
8	12-10306	SEMS with washer	16	M3×6
9	69-10508	Cross-recessed countersunk head machine screw	12	M5×8
10	13-10410	Double SEMS screw	4	M4×10

11.4 Details of mixing block

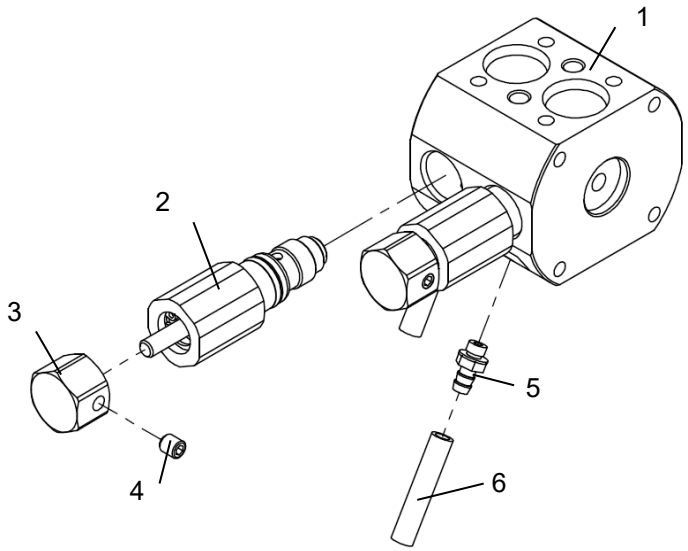


No.	Part No.	Part name	Qty	Remarks
1	4436	Metering unit	1	
2	4435-002	Valve body	4 sets	
3	4435-003	Flange 1	1	
4	4435-004	Flange 2	1	
5	0231-009	Valve ball	4	
6	4426-006	Spring	4	For low-pressure type
	4435-106	Spring	4	For high-pressure type

No.	Part No.	Part name	Qty	Remarks
7	4430-005	Gasket	4	For low-pressure type
	4425-007	Gasket	4	For high-pressure type
8	101-9012	O-ring	8	
9	03-80540	Hex. socket head cap screw	8	M5x40 (plated)
10	41-80500	Spring washer	8	M5 (plated)

11.4.1 Metering unit

Part No. 4436

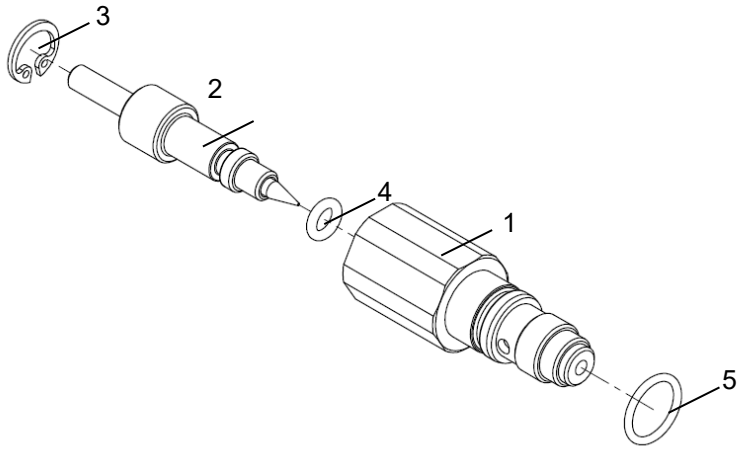


No.	Part No.	Part name	Qty	Remarks
1	4436-001	Block	1	
2	4436-002	Needle valve	2 sets	
3	4436-003	Handle	2	

No.	Part No.	Part name	Qty	Remarks
4	86-50506	Hex. socket set screw	2	
5	342-0132	Barb fitting	2	
6	507-0002	Teflon tube	2	φ6-4×0.2m

11.4.2 Needle valve

Part No. 4436-002



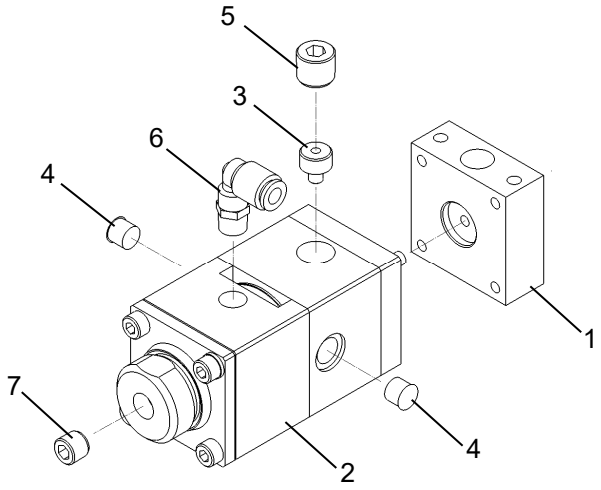
No.	Part No.	Part name	Qty	Remarks
1	8047-001	Body	1 set	
2	8047-002	Rod	1 set	
3	59-21200	C type retaining ring for hole	1	

No.	Part No.	Part name	Qty	Remarks
4	101-9005	O ring	1	
5	130-9012	O ring	1	S12

11.5 Flushing valve assembly (H)

Model: FVA-H (for high-pressure type), Part No. 5035-1

For the flushing valve assembly (low pressure type), see the manual for CCV2PA.

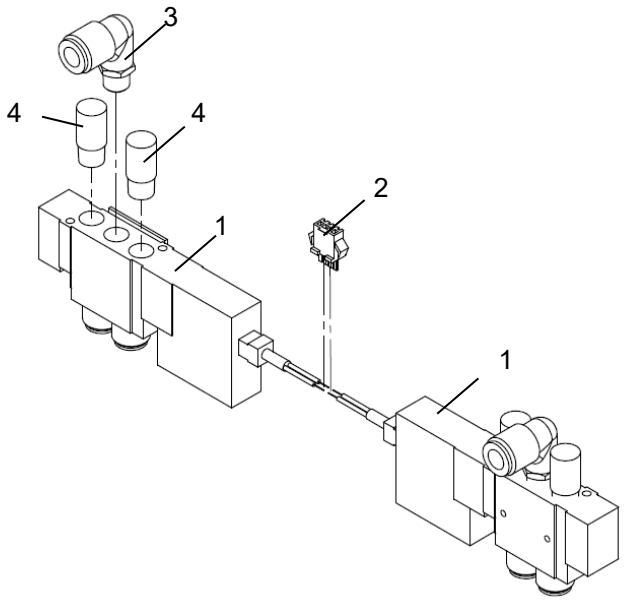


No.	Part No.	Part name	Qty	Remarks
1	5035-101	Manifold	1	
2	5027	Core valve	1	
3	5028-002	Plug	1	
4	363-0022	Resin cap	2	

No.	Part No.	Part name	Qty	Remarks
5	244-4002	Hex. socket plug	1	1/4"
6	384-0601	Quick joint	1	φ6 1/8”
7	1381-030	Leak plug	1	

11.6 Solenoid valve set

Part No.: 4930-020 (provided with two solenoid valves)



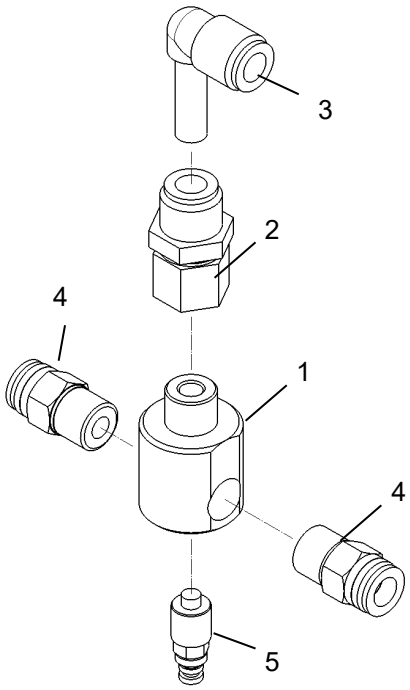
No.	Part No.	Part name	Qty	Remarks
1	411-0131	Intrinsically safe solenoid valve	2	
2	4930-020-1	SOL harness	1	

No.	Part No.	Part name	Qty	Remarks
3	384-0801	Quick joint	2	φ8 1/8”
4	326-0014	Muffler	4	

For the part of No.1 (411-0131 intrinsically safe solenoid valve), keeping spares is recommended.

11.7 Air purging assembly

Part No. 4924-021

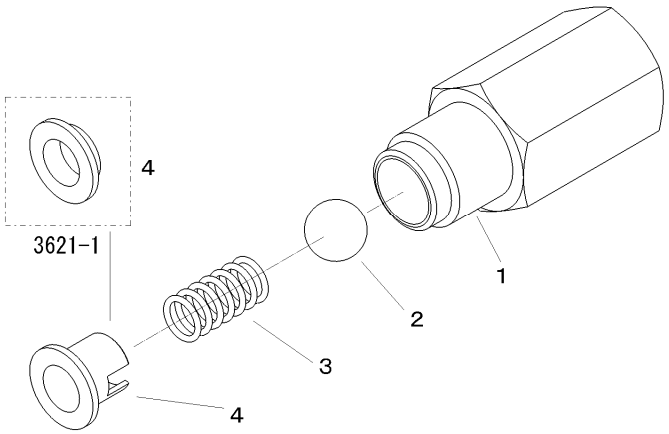


No.	Part No.	Part name	Qty	Remarks
1	4924-021-1	Manifold	1	
2	374-0802	Female bulkhead union	1	φ8 1/4”
3	342-0164	Straight elbow	1	φ8

No.	Part No.	Part name	Qty	Remarks
4	376-0802	Quick joint	2	φ8 1/4”
5	342-0163	Exhaust throttle valve w/muffler	1	

11.8 Check valve (female)

Part No.: 3620-1 (for low-pressure type) or 3621-1 (for high-pressure type)

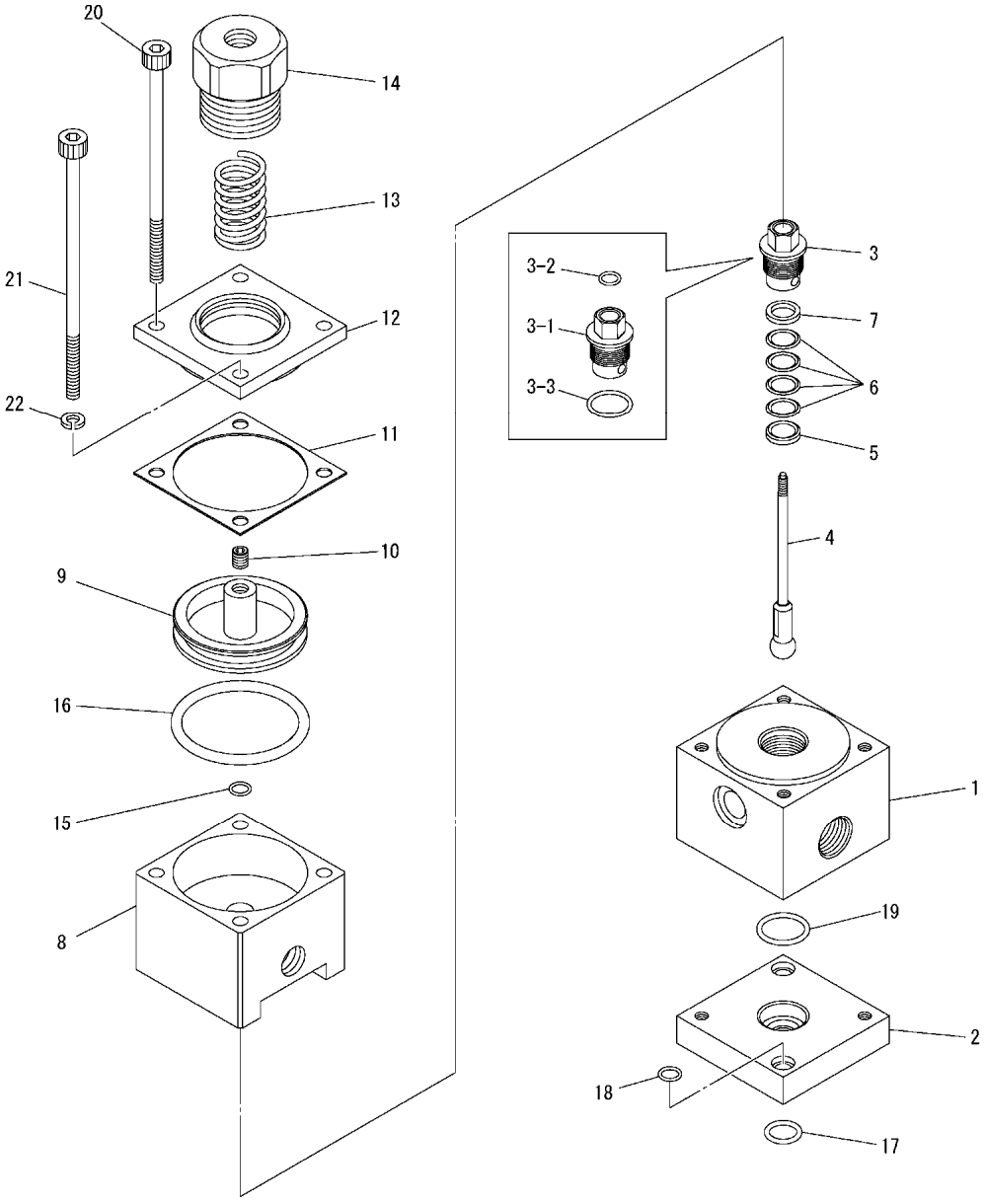


No.	Part No.	Part name	Qty	Remarks
1	5026-202	Seat body (female)	1	
2	0231-009	Valve ball	1	
3	4426-006	Spring	1	For low-pressure type
	4435-106	Spring	1	For high-pressure type

No.	Part No.	Part name	Qty	Remarks
4	4430-005	Gasket	1	For low-pressure type
	4425-007	Gasket	1	For high-pressure type

11.9 Core valve (for mixing valves R and L)

Model: ACV1, Part No.: 5030



No.	Part No.	Part name	Qty	Remarks
1	5027-001	Body	1	
2	5027-102	Seat case	1	
3	5027-003	Packing adjuster	1	
3-1	5027-003-1	Adjuster	1	
3-2	101-9003	O-ring	1	
3-3	130-9012	O-ring	1	S12
4	5024-204	Needle	1	
5	1203-225	Packing gland	1	
6	V850320105	V-packing	4	
7	1203-224	Packing gland	1	
8	1381-002	Cylinder	1	
9	1381-005	Piston	1	
10	83-50506	Hex. socket set screw	1	

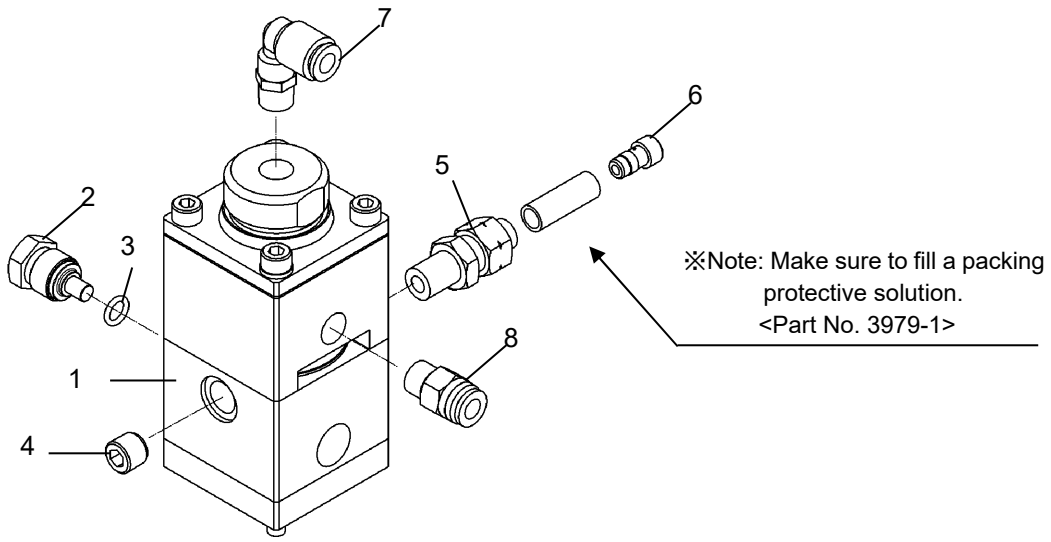
No.	Part No.	Part name	Qty	Remarks
11	1381-013	Gasket	1	
12	1381-006	End plate	1	
13	1381-014	Spring	1	
14	1381-007	End cap	1	
15	101-6003	O-ring	1	
16	101-6034	O-ring	1	
17	130-2010	O-ring	1	S10
18	130-6005	O-ring	2	S5
19	130-9012	O-ring	1	S12
20	03-80580	Hex. socket head cap screw	2	M5×80 (plated)
21	03-80590	Hex. socket head cap screw	2	M5×90 (plated)
22	41-80500	Spring washer	2	M5 (plated)
23	3370-001	Nameplate	1	Not shown

※If you need No.3-1 (5027-003-1), please order No.3 (5027-003).

11.9.1 Mixing valve R

(R: for right-hand hardener, L: for left-hand base component)

Model: AMV-R1, Part No.: 5024-4



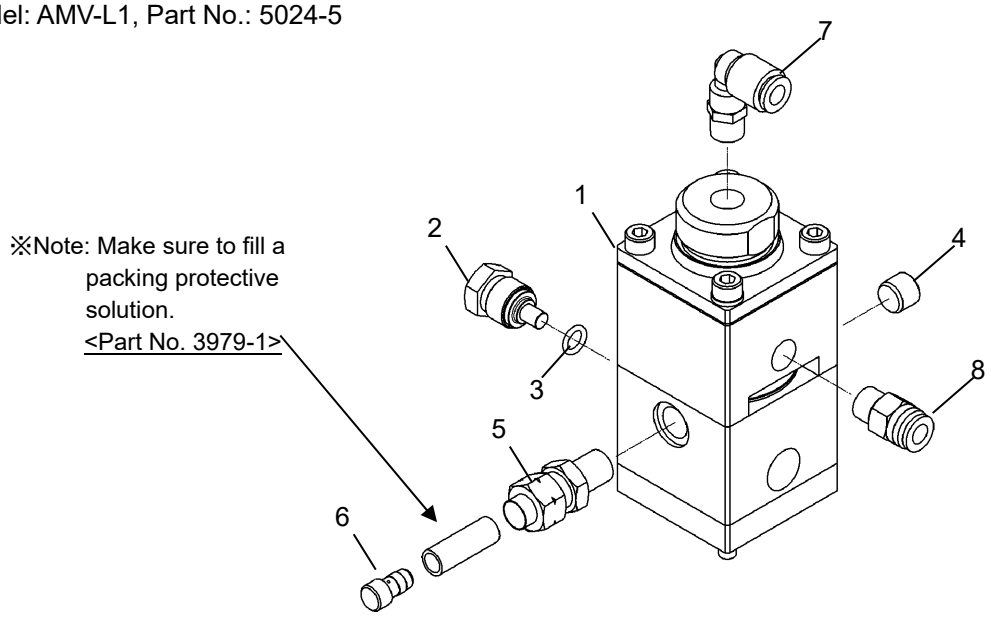
No.	Part No.	Part name	Qty	Remarks
1	5030	Core valve	1 set	
2	5024-224	Plug	1	
3	101-2008	O-ring	1	
4	244-4001	Hex. socket plug	1	R1/8"

No.	Part No.	Part name	Qty	Remarks
5	345-0015	Connector	1	
6	5021-026	Plug	1	
7	384-0601	Quick joint	1	φ6-R1/8”
8	376-0601	Quick joint	1	φ6-R1/8”

11.9.2 Mixing valve L

(R: for right-hand hardener, L: for left-hand base component)

Model: AMV-L1, Part No.: 5024-5



No.	Part No.	Part name	Qty	Remarks
1	5030	Core valve	1 set	
2	5024-224	Plug	1	
3	101-2008	O-ring	1	
4	244-4001	Hex. socket plug	1	R1/8"

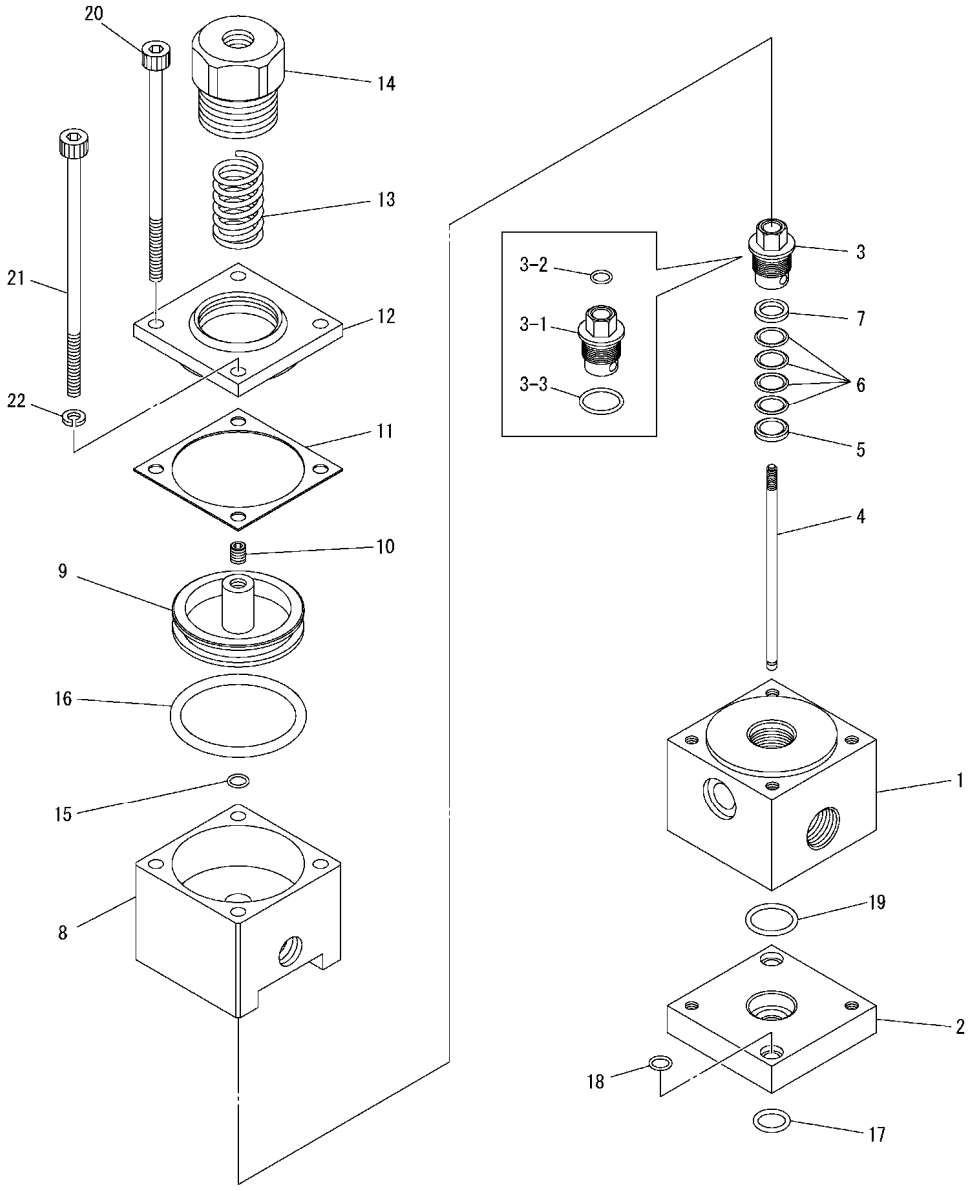
No.	Part No.	Part name	Qty	Remarks
5	345-0015	Connector	1	
6	5021-026	Plug	1	
7	384-0601	Quick joint	1	φ6-R1/8”
8	376-0601	Quick joint	1	φ6-R1/8”

11.10 Core valve

(CCV valve: Commonly used for air purging, thinner and drain valves)

Each of the valves listed above mainly consists of a core valve with part No. 5027.

Model: ACV, Part No.: 5027



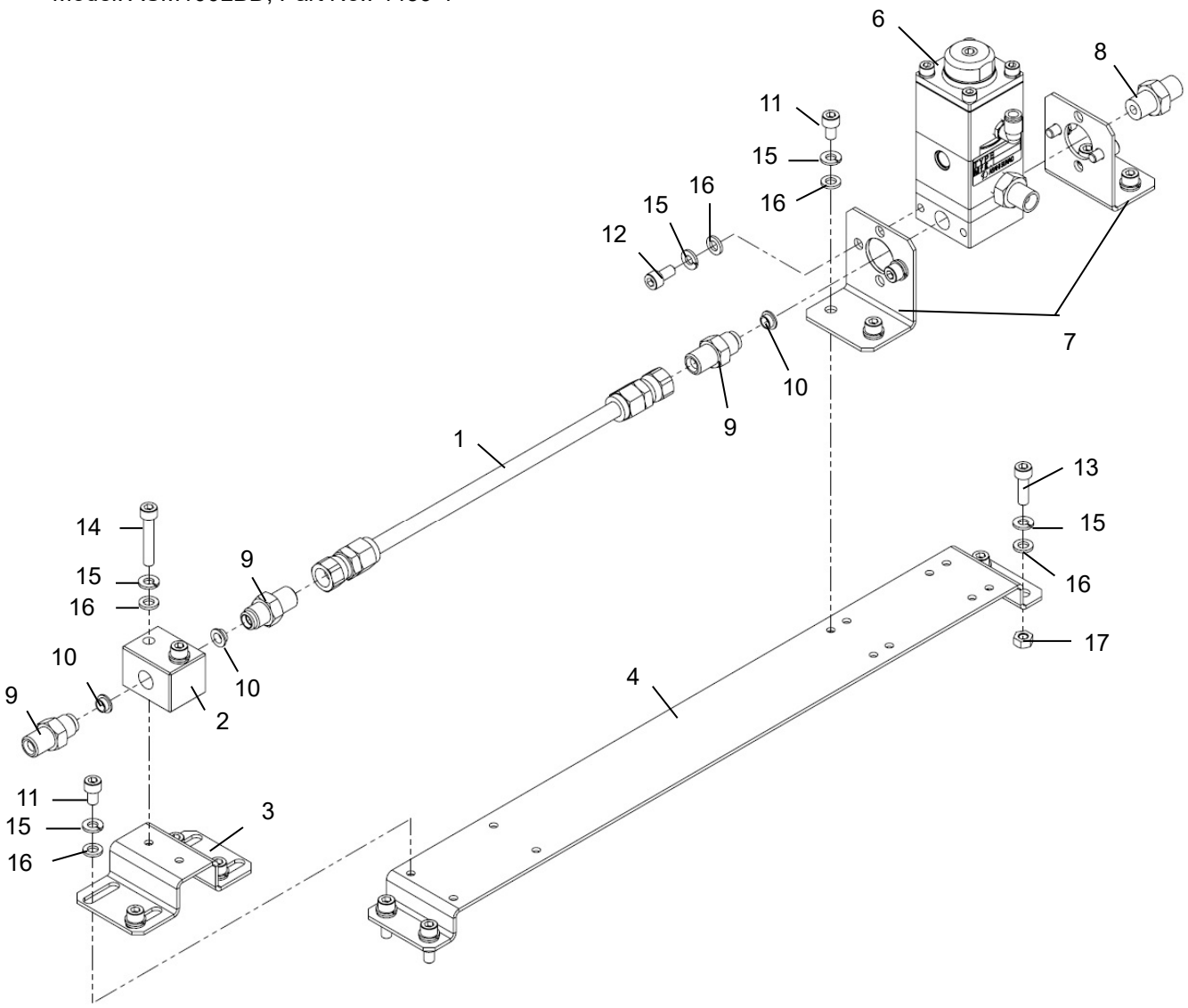
No.	Part No.	Part name	Qty	Remarks
1	5027-001	Body	1	
2	5027-002	Seat case	1 set	
3	5027-003	Packing adjuster	1 set	
3-1	5027-003-1	Adjuster	1	
3-2	101-9003	O-ring	1	
3-3	130-9012	O-ring	1	S12
4	5027-004	Needle	1 set	
5	1203-225	Packing gland	1	
6	V850320105	V-packing	4	
7	1203-224	Packing gland	1	
8	1381-002	Cylinder	1	
9	1381-005	Piston	1	
10	83-50506	Hex. socket set screw	1	

No.	Part No.	Part name	Qty	Remarks
11	1381-013	Gasket	1	
12	1381-006	End plate	1	
13	1381-014	Spring	1	
14	1381-007	End cap	1	
15	101-6003	O-ring	1	
16	101-6034	O-ring	1	
17	130-2010	O-ring	1	S10
18	130-6005	O-ring	2	S5
19	130-9012	O-ring	1	S12
20	03-80580	Hex. socket head cap screw	2	M5×80 (plated)
21	03-80590	Hex. socket head cap screw	2	M5×90 (plated)
22	41-80500	Spring washer	2	M5 (plated)

11.11 Static mixer

11.11.1 For low pressure type (with drain valve)

Model: ASM100LBD, Part No.: 4439-1



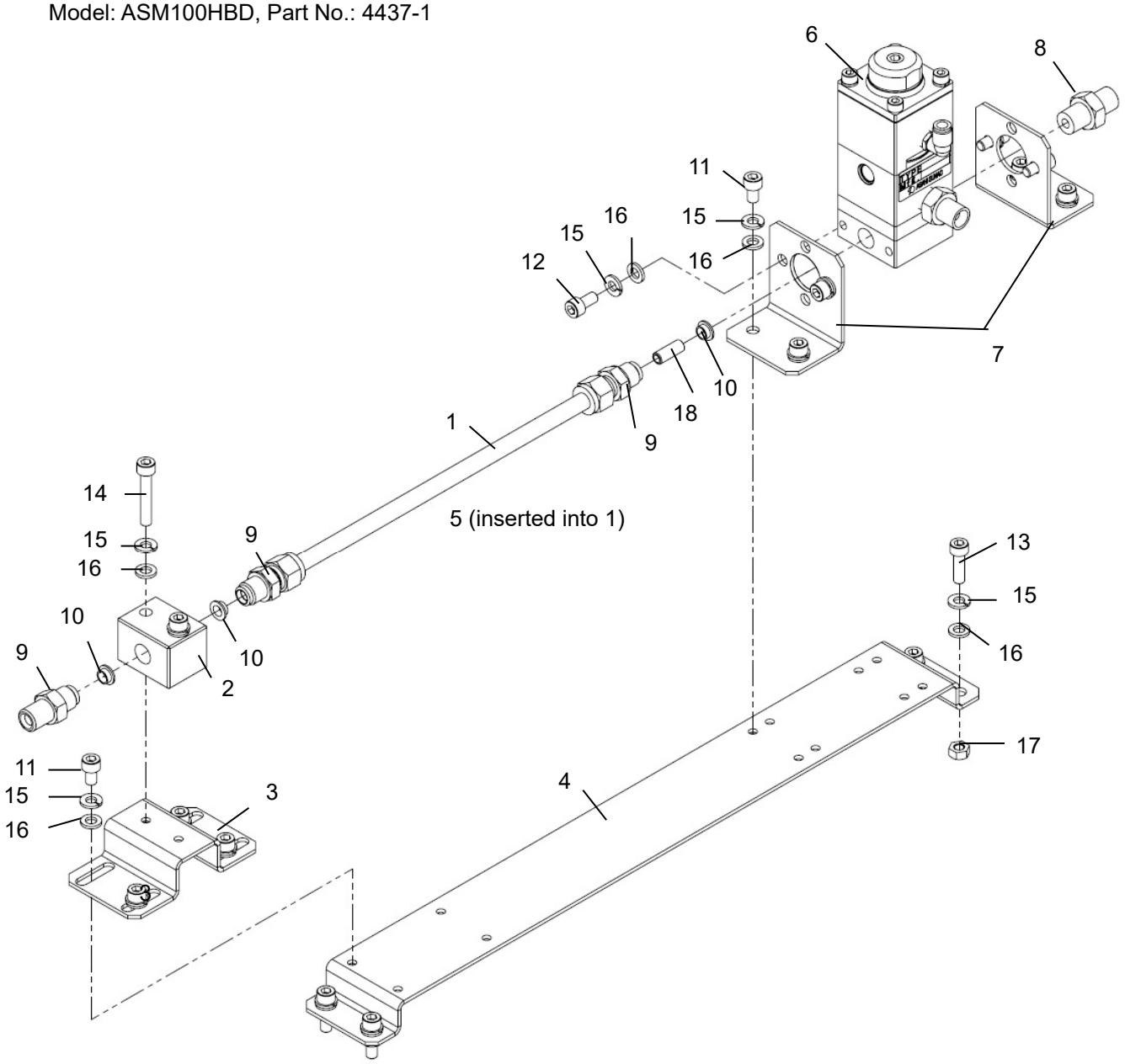
No.	Part No.	Part name	Qty	Remarks
1	4432	Static mixer	1	
2	4437-002	Base	1	
3	4437-003	Bracket	1	
4	4439-004	Bracket	1	
5	Missing No.			
6	134E-2	Drain valve	1	
7	1957-009	Bracket D	2	
8	247-4202	Hose joint	1	
9	134E-025	Hose nipple	3	

No.	Part No.	Part name	Qty	Remarks
10	4425-007	Gasket	3	
11	03-80610	Hex. socket head cap screw	8	M6×10
12	03-80612	Hex. socket head cap screw	4	M6×12
13	03-80620	Hex. socket head cap screw	4	M6×20
14	03-80635	Hex. socket head cap screw	2	M6×35
15	37-10600	Plain washer	18	M6
16	41-80600	Spring washer	18	M6 (plated)
17	15-10600	Hex. nut	4	M6

See 6 “Mixing Hose.”

11.11.2 For high pressure type (with drain valve)

Model: ASM100HBD, Part No.: 4437-1

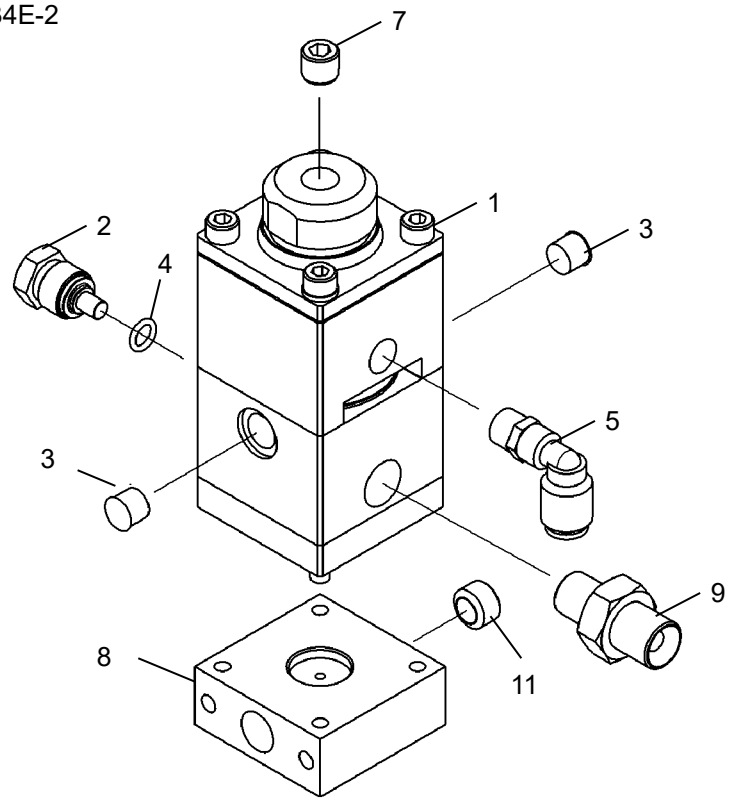


No.	Part No.	Part name	Qty	Remarks
1	4437-001	Mixer pipe	1	
2	4437-002	Base	1	
3	4437-003	Bracket	1	
4	4437-004	Bracket	1	
5	4432-102	Element	1	
6	134E-2	Drain valve	1	
7	1957-009	Bracket D	2	
8	247-4202	Hose joint	1	
9	134E-025	Hose nipple	3	

No.	Part No.	Part name	Qty	Remarks
10	4425-007	Gasket	3	
11	03-80610	Hex. socket head cap screw	8	M6×10
12	03-80612	Hex. socket head cap screw	4	M6×12
13	03-80620	Hex. socket head cap screw	4	M6×20
14	03-80635	Hex. socket head cap screw	2	M6×35
15	37-10600	Plain washer	18	M6
16	41-80600	Spring washer	18	M6 (plated)
17	15-10600	Hex. nut	4	M6
18	4425-014-4	Spacer	1	

11.12 Drain valve

Model: DV, Part No.: 134E-2

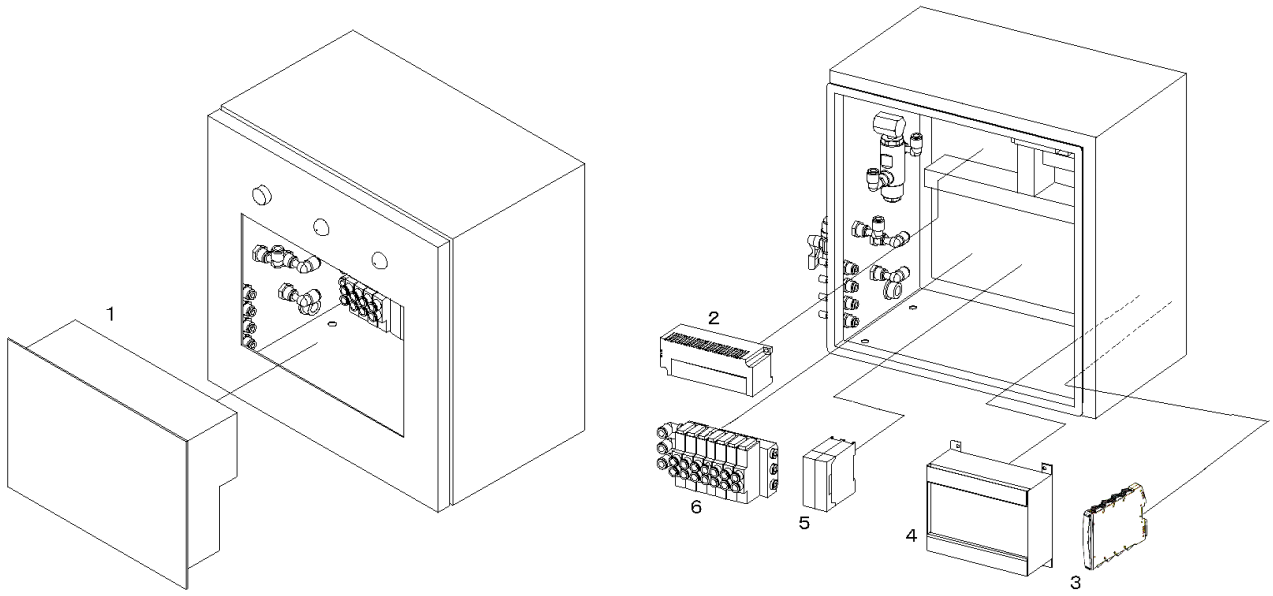


No.	Part No.	Part name	Qty	Remarks
1	5027	Core valve	1 set	
2	5024-224	Plug	1	
3	363-0022	Resin cap	2	
4	101-2008	O-ring	1	
5	384-0601	Quick joint	1	
6	3370-001	Nameplate	1	Not shown

No.	Part No.	Part name	Qty	Remarks
7	1381-030	Leak plug	1	
8	134E-116	Manifold	1	
9	247-4202	Hose joint	1	MHJ2FF2TS
10	Missing No.		1	
11	4920-031	Collar A	1	
12	1353-046	Nameplate	1	Not shown

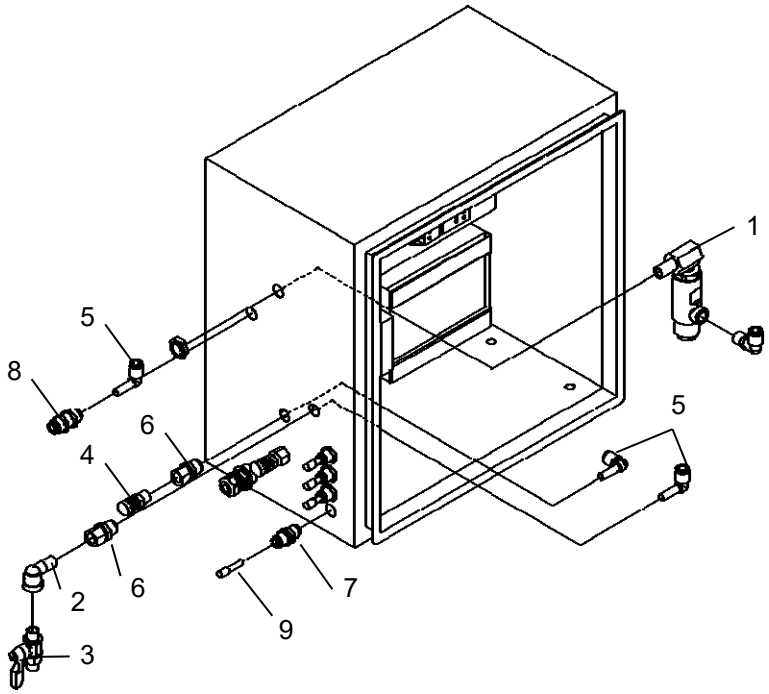
11.13 ACW control unit

Model: ACW1200EXCUT, Part No. 26FB-1



No.	Part No.	Part name	Qty	Remarks
1	E-040180	ACW controller	1	
2	471-0005	ALB digital I/O terminal block	1	
3	467-0035	Zener barrier	1	

No.	Part No.	Part name	Qty	Remarks
4	467-0019	Barrier relay	1	
5	467-0025	SOL barrier	2	
6	411-0097	Solenoid valve	1	7 pcs., coupled



No.	Part No.	Part name	Qty	Remarks
1	398E	Air flow switch	1	
2	203-3002	Male/female elbow	1	
3	325-0003	Ball cock	1	
4	326-0013	Muffler	2	
5	342-0164	Straight elbow	4	For φ8

No.	Part No.	Part name	Qty	Remarks
6	374-0802	Female bulkhead union	3	For φ8
7	382-0600	Bulkhead union	8	For φ6
8	382-0800	Quick joint	1	For φ8
9	393-0600	Plug	14	

12 List of Consumable Parts

Durable lives of the parts may vary depending on the type of paint used and coating and equipment conditions. The values shown below should be taken as reference lives under the conditions of 20 working days per month and 6 hours per day.

12.1 ACW mixing unit

① Mixing valve, R (part No. 5024-4) and mixing valve, L (part No. 5024-5)(R: for hardener, L: for base component)

Part No.	Part name	Qty	Durable life	Remarks
V850320105	V-packing	4	12 months	Replace every 12 months.
5024-204	Needle	1	12 months	Ditto
101-9003	O-ring	1	Until overhauled	Replace when overhauled.
130-9012	O-ring (S12)	2	Ditto	Ditto
1381-013	Gasket	1	Ditto	Ditto
101-6003	O-ring	1	Replace as necessary.	
101-6034	O-ring	1	Ditto	

② Core valve (commonly used for flushing valve assembly (thinner and air purging) and drain valve)

Part No.	Part name	Qty	Durable life	Remarks
V850320105	V-packing	4	24 months	Replace every 24 months.
5027-004	Needle (for φ2)	1	24 months	Ditto
5027-104	Needle (for φ4)			
101-9003	O-ring	1	Until overhauled	Replace when overhauled.
130-9012	O-ring (S12)	2	Ditto	Ditto
1381-013	Gasket	1	Ditto	Ditto
101-6003	O-ring	1	Replace as necessary.	
101-6034	O-ring	1	Ditto	

③ Flow meter

Part No.	Part name	Qty	Durable life	Remarks
134-9132	O-ring (exclusive)	1	Until overhauled	O-ring around flow meter gear
101-2007	O-ring	2	Ditto	O-ring for manifold

※It is recommended to keep a surplus number of flow meters as single units in stock.

Part No.	Part name	Specification	Remarks
375-0013	Flow meter	For low-pressure type	MAX1000 ml/min
375-0014	Flow meter	For high-pressure type	MAX 2000 ml/min

④ Mixing block, L (part No. 4435) and mixing block, H (part No. 4435-1)

Part No.	Part name	Qty	Durable life	Remarks
0231-009	Valve ball	4	24 months	Commonly used for low- and high-pressure types
4426-006	Spring	4	12 months	For low-pressure, disassemble and wash every 6 months
4435-106	Spring	4	12 months	For high-pressure, disassemble and wash every 6 months
101-9012	O-ring	4	Replace as necessary.	

⑤ Miscellaneous

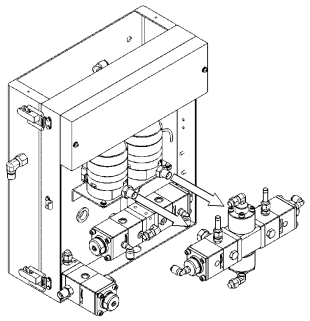
Part No.	Part name	Qty	Durable life	Remarks
411-0131	Intrinsically safe solenoid valve	2	12 months	Replace solenoid valve as a single unit.
3625	Check valve (female)	1	Replace as necessary.	For low-pressure type
3621-1	Check valve (female)	1	Replace as necessary.	For high-pressure type
3979-1	Packing protective solution	1	Replace as necessary.	200 ml (See mixing valve, R, L overhaul drawing)

12.2 ACW control unit

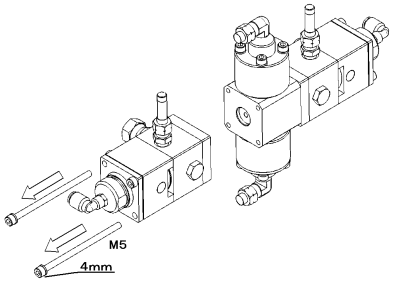
Part No.	Part name	Qty	Durable life	Remarks
398E	Air flow switch	1	Replace as necessary.	For hand gun
467-0025	SOL barrier	2	Ditto	For intrinsically safe solenoid valve

※For the paint regulators, pumps (feeders) and other devices, see the relevant instruction manuals.

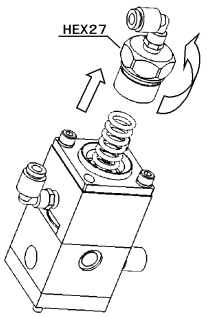
13.1 Mixing valve



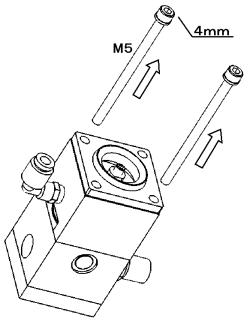
(1) Remove the mixing block.
Loosen the joint using a (19 mm) spanner and remove the mixing block from the manifold of the flow meter.



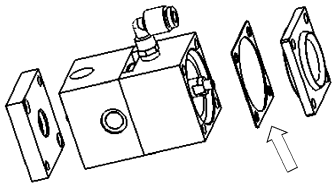
(2) Remove the valve.
Remove two hexagon socket head cap screws together with spring washers using a (4 mm) wrench and remove the valve.



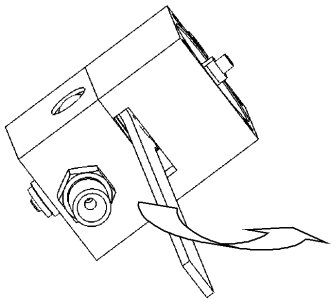
(3) Remove the end cap.
Remove the end cap using a (27 mm) spanner and remove the spring.



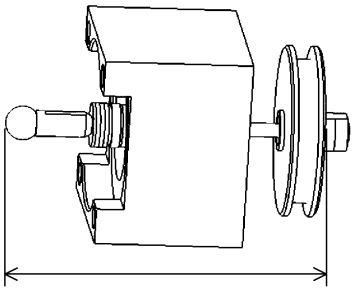
(4) Remove the hexagon socket head cap screws.
Remove the remaining two hexagon socket head cap screws (80 mm long) using a (4 mm) wrench.



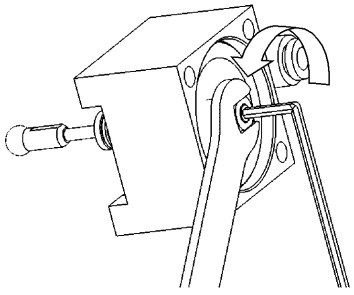
(5) Overhaul.
The assembly can be overhauled as shown above. Replace the gasket and other parts.



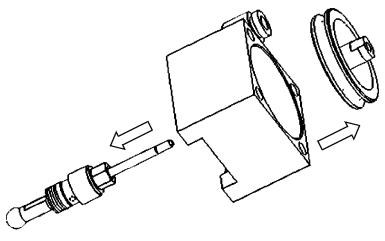
(6) Remove the packing adjuster.
Loosen and remove the packing adjuster by prying with a (8 mm) spanner as shown above.



(7) Measure the needle dimensions.
Before overhauling, measure and note the needle dimensions as assembled.

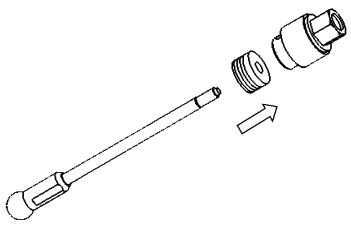


(8) Loosen the plug.
Loosen the plug using a (2.5 mm) wrench and (8 mm) spanner and replace the needle.

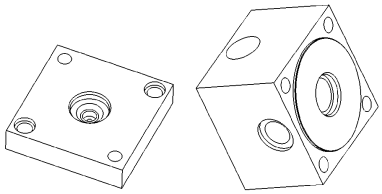


(9) Overhaul.
The assembly can be overhauled as shown above. Do not remove the plug from the piston as it may be lost.

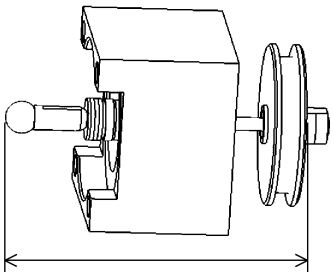
For part Nos. of replacement parts, see 12 “List of Consumable Parts.”



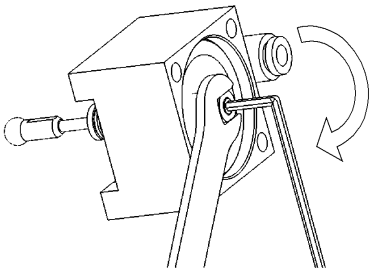
(10) Replace consumable parts.
Remove the packing adjuster from the needle and replace the needle and V-packing.



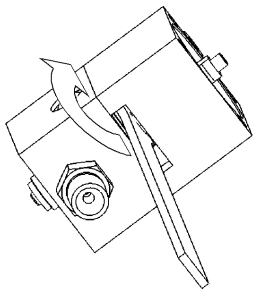
(11) Wash parts.
When overhauling, wash parts in contact with the paint.



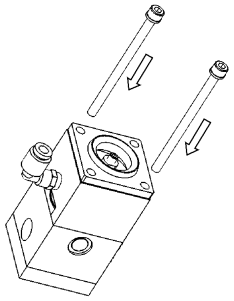
(12) Regain the needle dimensions.
After replacing the needle and V-packing, regain the noted needle dimensions as assembled.



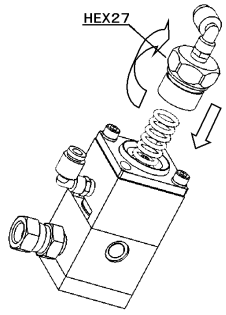
(13) Fix the needle to the piston.
Tighten the hexagon socket head cap screw using a (2.5 mm) wrench and a (8 mm) spanner.
Tightening torque: 1.0 N·m ※1



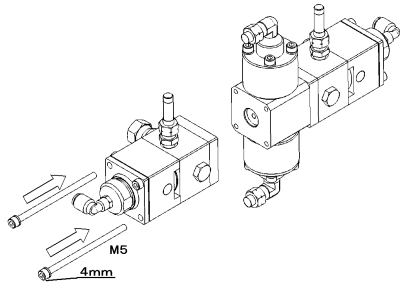
(14) Install the packing adjuster.
Insert a spanner (HEX8) as shown above and tighten the packing adjuster 30-40 degrees after it touches V-packing.



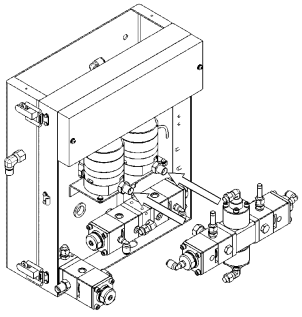
(15) Install the hexagon socket head cap screws.
Replace the gasket and assemble parts. Tighten the hexagonal socket head cap screws (80 mm long) using a (4 mm) wrench.



(16) Install the end cap.
Insert the spring and install the end cap. (Use a 27 mm spanner.) Check opening and closing and leakage of liquid.



(17) Install the valve.
Insert the spring washers and install the two hex. socket head cap screws (90 mm long) using a wrench (4 mm).

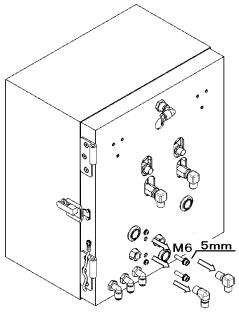


(18) Install the mixing block.
Install the mixing block to the manifold of the flow meter using a (19 mm) spanner.

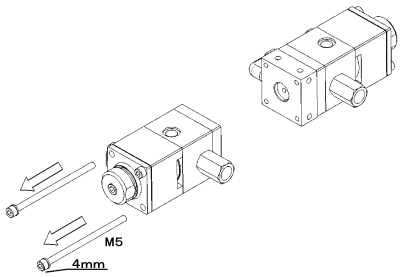
For part Nos. of replacement parts, see 12 “List of Consumable Parts.”

※1: Tightening a hexagon socket head cap screw with a strong force could lead to breakage of screws or needles.
In this case, therefore, lightly tighten the hexagon socket head cap screw to the end, and retighten 10 to 20 degrees (tightening torque: 1.0 N·m).

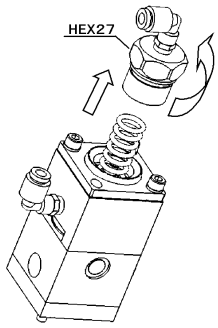
13.2 Flushing valve assembly



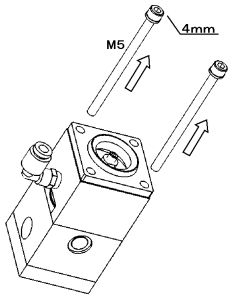
(1) Remove the flushing valve assembly.
Open the body and remove the two hexagon socket head cap screws securing the hose joint to the flushing valve assembly, using a (5 mm) wrench.



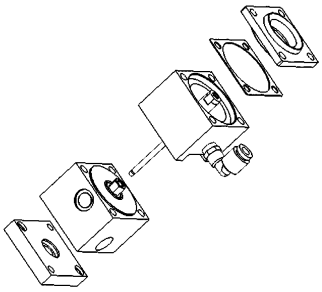
(2) Remove the valve.
Remove two hexagon socket head cap screws together with spring washers using a (4 mm) wrench and remove the valve. No air purging valve is provided for the high-pressure type.



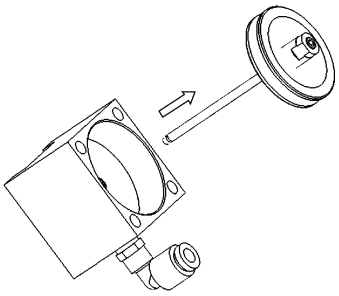
(3) Remove the end cap.
Remove the end cap using a (27 mm) spanner and remove the spring.



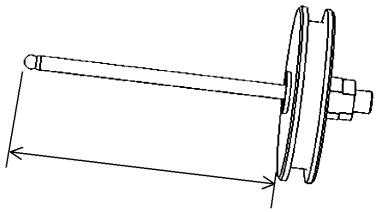
(4) Remove the hexagon socket head cap screws.
Remove the remaining two hexagon socket head cap screws (80 mm long) using a (4 mm) wrench.



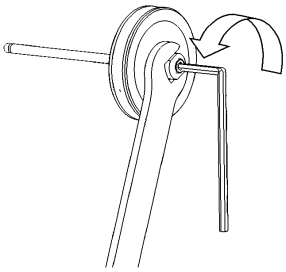
(5) Overhaul.
The assembly can be overhauled as shown above. Replace the gasket and other parts.



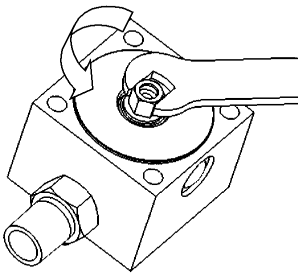
(6) Remove the piston.
Remove the piston from the cylinder.



(7) Measure the needle dimensions.
Before overhauling, measure and note the needle dimensions as assembled.

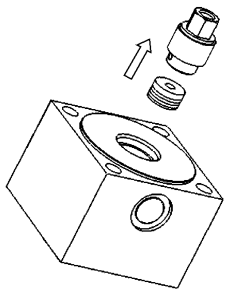


(8) Loosen the plug.
Loosen the plug using a (2.5 mm) wrench and (8 mm) spanner and replace the needle. The plug should only be loosened.

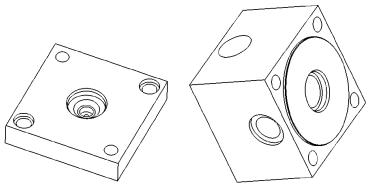


(9) Remove the packing adjuster.
Remove the packing adjuster using a (8 mm) spanner.

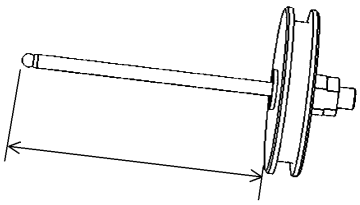
For part Nos. of replacement parts, see 12 “List of Consumable Parts.”



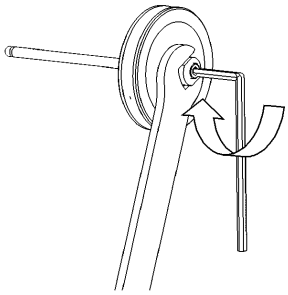
(10) Remove the V-packing.
Remove the packing adjuster and remove and replace the V-packing.



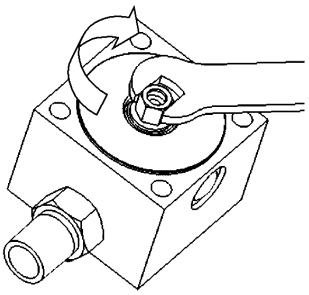
(11) Wash parts.
When overhauling, wash parts in contact with the paint.



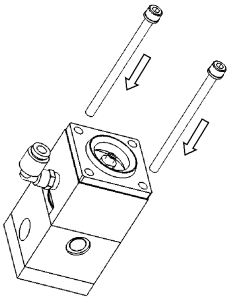
(12) Regain the needle dimensions.
Install a new needle and regain the noted needle dimensions as assembled.



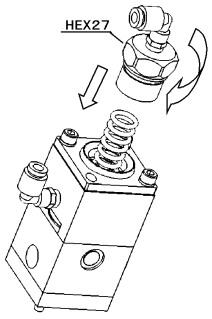
(13) Fix the needle to the piston.
Tighten the hexagon socket head cap screw using a (2.5 mm) wrench and a (8 mm) spanner.
Tightening torque: 1.0 N·m ※1



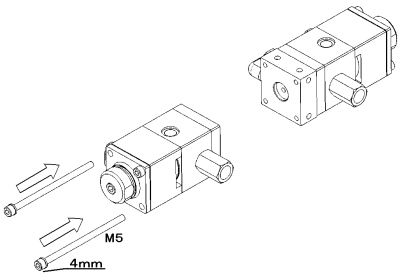
(14) Install the packing adjuster.
Set brand new four sheets of V packing, and using a (8 mm) spanner, tighten the packing adjuster 30-40 degrees after it touches V-packing.



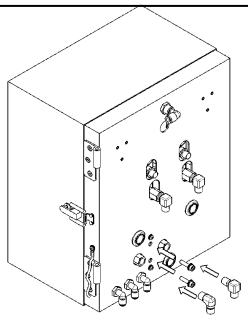
(15) Install the hexagon socket head cap screws.
Replace the gasket and assemble parts. Tighten the hexagonal socket head cap screws (80 mm long) using a (4 mm) wrench.



(16) Install the end cap.
Insert the spring and install the end cap. (Use a 27 mm spanner.)
Check opening and closing and leakage of liquid.



(17) Install the valve.
Insert the spring washers and install the two hex. socket head cap screws (90 mm long) using a wrench (4 mm).



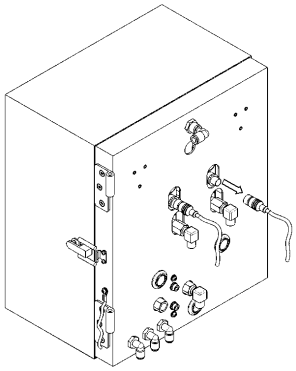
(18) Install the flushing valve assembly.
Open the body and install the two hexagon socket head cap screws. Then, install the hose joint.

For part Nos. of replacement parts, see 17 “List of Consumable Parts.”

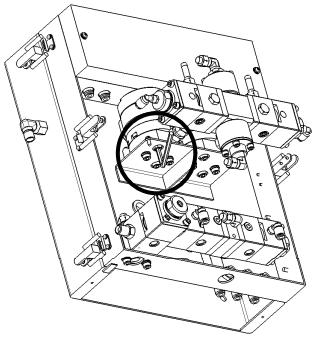
※1: Tightening a hexagon socket head cap screw with a strong force could lead to breakage of screws or needles.
In this case, therefore, lightly tighten the hexagon socket head cap screw to the end, and retighten 10 to 20 degrees (tightening torque: 1.0 N·m).

13.3 Flow meter

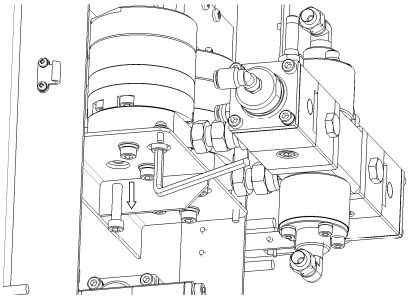
Reduce the pump (feeder) pressure to zero or flush the circuit from the pump to the ACW mixing unit before overhauling.



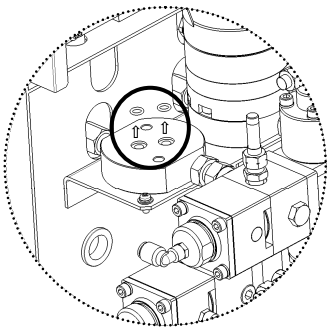
(1) Remove the flow meter cable.
Open the body and disconnect the flow meter cable connector.



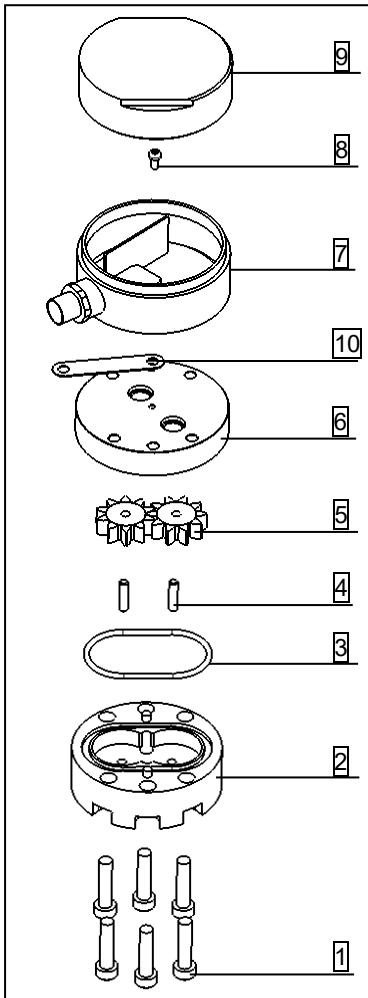
(2) Remove the flow meter (step 1).
Remove the two hexagon socket head cap screws having no washer from the bottom of the body using a (5 mm) wrench.

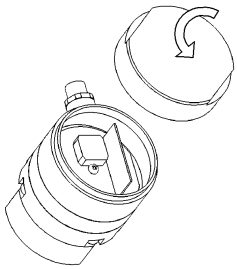


(3) Remove the flow meter (step 2).
The hexagon socket head cap screws to be removed are the two ones having no washer (25 mm long). Removing them separates the manifold and flow meter.

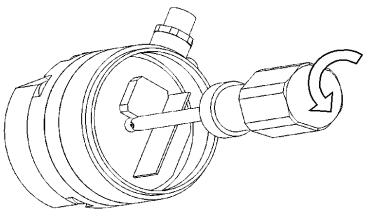


(4) Replace the O-ring.
When using the high-pressure type, never fail to replace the two O-rings of the manifold. See 12 “List of Consumable Parts.”





(5) Overhaul the amplifier.
Remove the case lid.

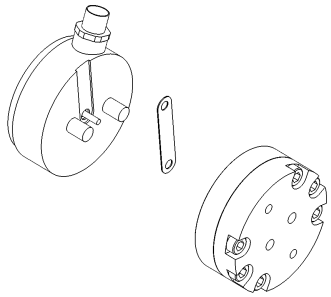


(6) Overhaul the amplifier.
Remove the mounting (cross-recessed head) screws and remove the amplifier case from the flow meter body.

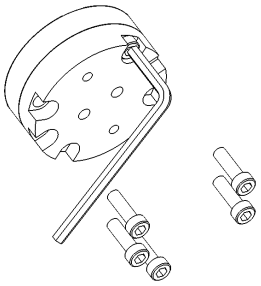
※Do not rotate the amplifier case.
※Do not wet the printed board with solvent.

1	Hexagon socket head cap screw (M6)
2	Housing
3	O-ring <134-9132>
4	Shaft
5	Gear
6	Upper cover
7	Amplifier case
8	Mounting screw
9	Case lid
10	Grounding plate

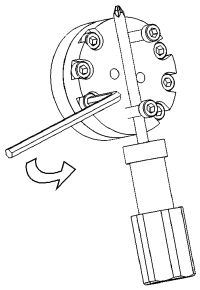
※Not to affect the flow meter performance and calibration after installation, the parts except the O-ring (No. 3) can only be ordered as an assembly.
See 12 “List of Consumable Parts.”



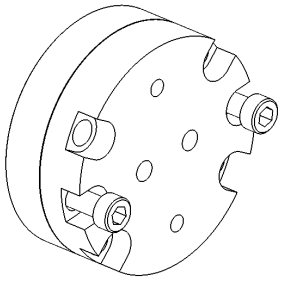
(7) Overhaul.
The assembly can be overhauled as shown above.
Take care not to lose the grounding plate.



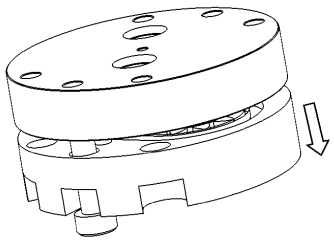
(8) Remove the cap screws.
Remove the six hexagon socket head cap screws using a (5 mm) wrench.



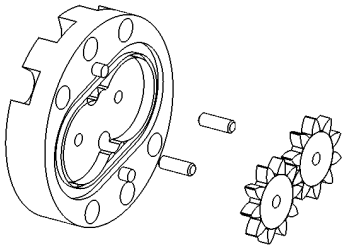
(9) Remove the cap screws.
Install two cap screws as shown above and loosen the body using a screwdriver as a lever.



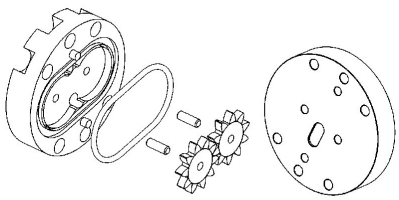
(10) Overhaul the body.
Install two cap screws as shown above to facilitate the overhaul.



(11) Overhaul the body.
Slowly separate the upper cover and housing. The cap screws serve as guides to facilitate the removal.

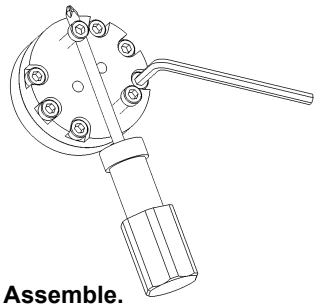


(12) Overhaul and clean the gears and shafts.
Remove the gears and shafts and wipe out using clean solvent and a soft brush or waste cloth.
Take care not to damage or gouge the parts.



(13) Clean all parts.
Clean the shaft and gear mounting sections, whole gears and sections of the upper cover and housing in contact with the gears.
Take care not to damage or gouge the gears, housing and other parts.
Replace an O-ring (134-9132) with a new one if required.

※Note: Lint or hair from the waste cloth or brush shall not stick to any part.



(14) Assemble.
When assembling, align with the mark on the side and tighten the cap screws until the gap between the upper cover and the housing is eliminated.
Tightening torque: 12 N-m

(15) Check.
Install the flow meter with the reverse procedure of disassembly.
Turn on the power switch and fill the system with two-component paint to check the performance and check for a while that the flow rate is smoothly counted up.
Also check for fluid leak.

For part Nos. of replacement parts, see 12 “List of Consumable Parts.”

14 Inspection Items

14.1 Pre-work inspection

Check the following items at the start of the everyday work.

ACW each unit			
Check item	Check method	Judgment	Corrective action
Fluid leak from base component mixing valve	Check with eyes.	No fluid leak allowed.	- Reduce the fluid pressure to zero and tighten packing adjuster of valve. - Overhaul valve and replace packing.
Fluid leak from hardener mixing valve	Check with eyes.	No fluid leak allowed.	- Reduce the fluid pressure to zero and tighten packing adjuster of valve. - Overhaul valve and replace packing.
Error/alarm indication on ACW controller display	Check with eyes. Check on display.	No error/alarm indication allowed.	- Locate and remove the cause so that no error or alarm will be indicated.
Air supply pressure to control panel	Check with eyes.	The pressure gauge shall read 0.4 MPa or higher.	- Raise the air pressure. - Check air hose for bends.
Air pressure at intrinsically safe solenoid valves	Check with eyes.	The pressure gauge shall read 0.4 MPa or higher.	- Raise the air pressure. - Check air hose for bends.

Feeders			
Check item	Check method	Judgment	Corrective action
Pump (feeder) performance	Check with eyes.	Pump shall smoothly function.	- Replace packing and ball. - Overhaul pump.
Fluid leak from SUS tank	Check with eyes.	No fluid leak allowed.	- Tighten pipe joints. - Replace packing.
Nitrogen gas leak from SUS tank	Stop nitrogen gas supply and check for pressure changes.	No fluid leak allowed. Pressure gauge reading shall not change.	- Replace packing at SUS tank lid. See the manual “Enclosed stainless steel tanks.”
Air pressure from air booster	Check with eyes.	Pressure gauge reading shall reach or exceed necessary pressure.	- Raise the air pressure. - Check air booster.
Fluid leak from paint regulators	Check with eyes.	No fluid leak allowed.	- Overhaul regulators.
Pressures at paint regulators	Check with eyes.	Base component and hardener pressures shall be the same.	- Hardener and base component pressures shall be the same or the former shall be about 10% higher during the mixing process. ※Pressure gauge may be out of order. Reduce the primary fluid pressure to zero to check that pressure gauge reads zero.

Feeders			
Check item	Check method	Judgment	Corrective action
Pulsation of fluid flow	Check with pressure gauge. Check with eyes.	No pulsation allowed. ※Variations shall not exceed 10%.	- Raise the pump pressure. - Replace pump with a one that has a higher capacity. - Install the pulsation controller.
Remaining quantity of nitrogen gas	Check with pressure gauge. Check with eyes.	A sufficient quantity shall remain.	- Replace gas bomb. - Refill before bomb becomes empty.
Quality of air from air drier			- Take action according to the instruction manual for air drier. ※Drier using silica gel or such shall be replaced when silica gel needs replacement.
Remaining flushing fluid quantity	Check with eyes.	Necessary quantity for flushing x 1.5	- Refill flushing fluid. ※Keep tank full of flushing fluid.

14.2 Inspection after work

Check the following items at the end of the everyday work.

Check item	Check method	Judgment	Corrective action
Error/alarm indication on ACW controller display	Check with eyes. Check on display.	No error/alarm indication allowed.	- Locate and remove the cause so that no error or alarm will be indicated. Never fail to flush after that.
Flush check	“W” lamp on display	Flushing fluid shall come out of gun head. “W” lamp shall be lit.	- Pull spray gun trigger with “W” lamp lit until a sufficient quantity of flushing fluid comes out of gun.
Air cap and nozzle cleaning	Check with eyes.	Contaminants and clogging matter in air spray hole or nozzle	- Remove air cap and nozzle and remove contaminants and clogging matter using a brush.

14.3 Weekly inspection

Check the following item once a week.

Check item	Check method	Judgment	Corrective action
Quality and pressure of air from pumps, etc.	Air filter clogging matter	Shall be free of dirt, oil and water.	- Remove wastes in air filter. - Replace filter.
Quality of air from intrinsically safe solenoid valves	Air filter clogging matter	Shall be free of dirt, oil and water.	- Remove wastes in air filter. - Replace filter.

14.4 Monthly inspection

Check the following items every month.

Check item	Check method	Judgment	Corrective action
Regulation by paint regulators	Check with eyes.	Shall correctly regulate pressure.	- Overhaul regulators. - Replace pressure gauge.
Paint filter in pump	Check with eyes.	No filter clogging matter and contaminants allowed.	- Clean or replace filter.
Clogging matter in paint filter at hardener tank	Check with eyes.	No filter clogging matter and contaminants allowed.	- Clean or replace filter.
Film formation in paint hoses	Check with eyes.	No film formation allowed.	- Replace the paint hoses.

14.5 Regular inspection

Check the following items every 3 to 6 months.

Check item	Check method	Criteria	Corrective action
Leak from paint hoses	Check with eyes.	No fluid leak allowed.	- Tighten hose joints. - Replace the paint hoses.
Contamination of static mixer	Overhaul and check with eyes.	Accumulated contaminants and paint	- Overhaul and clean static mixer element or replace it.
Dirt in mixing block	Check with eyes.	Accumulated contaminants and paint	- Remove and clean valve ball and spring or replace them.
Responsiveness of mixing valves (base component and hardener)	Learning	30% or higher than the level obtained by learning at the time of delivery	- Replace consumable parts of valves (V-packing, needle and O-ring). - Replace intrinsically safe solenoid valves.

※The “learning” is a function to determine the responsiveness of valves. After the learning operation, note the settings.

14.6 Miscellaneous

Check the following items as necessary.

Check item	Check method	Criteria	Corrective action
Flow meter operation	Indication of flow rate	Shall be smoothly counted up.	- Overhaul or replace flow meter.

See 12 “List of Consumable Parts” and 13 “Overhauling and Maintenance.”

15 Warranty

ASAHI SUNAC CORPORATION (the “Company”) shall provide the original purchaser (the “Purchaser”) with warranty service for a period of one (1) year from the date of purchase of the product, as follows:

- Should you find defects in design or workmanship with regard to parts, ship them back to the Company, with freight prepaid. The Company shall repair or replace the parts free of charge and reimburse the freight charges, provided that, as a result of an inspection and investigation of the parts conducted by the Company, the defects are deemed to be attributable to the factors within the Company’s responsibility.

- In the following cases, free after-sales service is not provided.

  1. Failure resulting from an inappropriate method of installing this equipment.
  2. Failure resulting from a use method not conforming to this instruction manual or mishandling.
  3. Failure resulting from insufficient maintenance management of this equipment and incorrect handling such as non-conformance to the procedures specified in this instruction manual.
  4. Failure resulting from unauthorized alteration or structure change of this equipment without the Company’s consent.
  5. Failure due to force majeure such as earthquake, disaster, flood disaster or lightening.
  6. Warranty for consumables worn or deteriorated even in the case where this equipment is used correctly.
  7. Repair after the machine has been used outside Japan, and shipping cost.
  8. In addition to the above, failure due to circumstances beyond our control.

- As for items such as parts purchased by the Company from another manufacturer, the warranty of that manufacturer shall apply.

- As for any parts deemed to be defective, the Company shall not be held liable for any expenses beyond the provision of repair or replacement parts free of charge.

- The Company shall not be held liable for any damage to the Purchaser caused by factors not attributable to the Company, such as misuse of product, etc.

- When transferring this machine to another owner, attach the instruction manual to the machine.
- This machine has been manufactured according to the laws and legislations of Japan and may only be used in Japan.

  When using the machine in another country, it is necessary to observe the safety standards in that country.

13th Edition, February, 5, 2026

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