Read this manual before use of product

IWAKI
Gas-Liquid Transfer Pump
APN-085-W
Instruction Manual

⚠️ Read this manual before use of product
Thank you for selecting the IWAKI APN-085-W gas-liquid transfer pump. This instruction manual deals with "Safety Instructions", "Outline", "Installation", "Operation" and "Maintenance" sections. Please read through this instruction manual to ensure the optimum performance, safety and service of your pump.

Important Instruction

For the Safe and Correct Handling of the Pump

- "Safety Instruction" section deals with important details about handling of the product. Before use, read this section carefully for the prevention of personal injury or property damage.
- Observe the instructions accompanied with "WARNING" or "CAUTION" in this manual. These instructions are very important for protecting pump users from dangerous situations.
- The symbols on this instruction manual have the following meanings:

<table>
<thead>
<tr>
<th>Types of Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="warning.png" alt="Warning Symbol" /></td>
</tr>
<tr>
<td><img src="caution.png" alt="Caution Symbol" /></td>
</tr>
</tbody>
</table>

Indicates a prohibited action or procedure. Inside or near this circle, a concrete and practical image of the activity to be avoided is depicted.

Indicates an important action or procedure which must be performed or carried out without fail. Failure to follow the instructions herein can lead to malfunction or damage to the pump.

Export Restrictions

Technical information contained in this instruction manual might be treated as controlled technology in your countries, due to agreements in international regime for export control. Please be reminded that export license/permission could be required when this manual is provided, due to export control regulations of your country.

---

Contents

Safety Instructions ................................................................. 1

Outline
1. Unpacking & Inspection ........................................ 4
2. Operating principle ................................................. 5
3. Identification code ................................................. 6
4. Specifications .......................................................... 6
5. Outer dimension ...................................................... 7
6. Performance curve .................................................. 8
7. Overview & Label ..................................................... 8
8. Part names & Structure ............................................. 9

Installation
1. Before installation ................................................. 10
2. Installation/Tubing/Electrical wiring ......................... 12

Operation
1. Before operation .................................................... 14
2. Pump operation ...................................................... 15

Maintenance
1. Troubleshooting .................................................... 17
2. Maintenance & Inspection ....................................... 17
3. Wear part replacement ............................................ 19

EC DECLARATION OF CONFORMITY .................................. 21

This instruction manual should be kept on hand by the end user for quick reference.

Contact us or your nearest dealer if you have any questions.
Safety Instructions

⚠️ WARNING

- **Turn off power before service**
  Risk of electrical shock. Be sure to turn off power to stop the pump and related devices before service is performed.

- **Do not use the pump in any condition other than its intended purpose**
  The use of the pump in any conditions other than those clearly specified may result in failure or injury. Use this product in specified conditions only.

- **Do not modify the pump**
  Alternations to the pump carries a high degree of risk. It is not the manufacturer's responsibility for any failure or injury resulting from alterations to the pump.

- **Wear protective clothing**
  Always wear protective clothing such as an eye protection, chemical resistant gloves, a mask and a face shield during disassembly, assembly or maintenance work.

⚠️ WARNING

- **Use specified power only**
  Do not apply power other than that specified on the nameplate. Otherwise failure or fire may result. Ensure the pump is properly grounded.

- **Do not damage the power cable**
  Do not pull, knot, or crush the power cable. Damage to the power cable could lead to a fire or electrical shock if cut or broken.

- **Do not operate the pump in a flammable atmosphere**
  Do not place explosive or flammable material near the pump.
Safety Instructions

⚠️ CAUTION

- **Qualified personnel only**
  The pump should be handled or operated by a qualified personnel with a full understanding of the pump.

- **Ventilation**
  Fumes or vapours can be hazardous with certain solutions. Ensure proper ventilation at the operation site.

- **Do not install or store the pump:**
  1. Where ambient temperature falls below 0°C or exceeds 40°C.
  2. Under a flammable/corrosive atmosphere.

- **Spill precautions**
  Ensure protection and containment of solution in the event of plumbing or pump damage (secondary containment).

- **Keep electric parts and wiring dry**
  Risk of fire or electric shock. Install the pump where it can be kept dry.

⚠️ CAUTION

- **Do not use a damaged pump**
  Use of a damaged pump could lead to an electric shock or death.

- **Stop operation**
  If you notice any abnormal or dangerous conditions, suspend operation immediately and inspect/solve problems.

- **Do not use the pump in a wet location**
  The pump is not waterproof. Use of the pump in wet or extremely humid locations could lead to electric shock or short circuit.

- **Do not touch the pump or pipe with bare hands**
  Risk of burning. The surface temperature of the pump or pipe rises high along with liquid temperature in or right after operation.

- **Electromagnetic precautions**
  This product is not protected against an electromagnetic field. Take appropriate measures as necessary.
Safety Instructions

⚠️ CAUTION

● Damaged power cable
Do not use any damaged power cable for the prevention of a fire or electrical shock. The cable is not replaceable, so that the whole pump unit needs to be replaced when the cable is damaged.

● Disposal of a used pump
Dispose of any used or damaged pump in accordance with local rules and regulations. If necessary, consult a licensed industrial waste disposal company.

● Release the pressure from the discharge line
Solution in the discharge line may be under pressure. Release the pressure from the discharge line before disconnecting plumbing or disassembly of the pump to avoid solution spray.

⚠️ CAUTION

● Preventative maintenance
Follow instructions in this manual for replacement of wear parts. Do not disassemble the pump beyond the extent of the instructions.

● Grounding
Risk of electric shock! Always properly ground the pump. Conform to local electric codes.
Before use, check the specification, limitation and hazardous nature of the pump.

1. Unpacking & Inspection

Open the package and check that the product conforms to your order. If any problem or inconsistency is found, immediately contact your distributor.

1. Check the nameplate to see if the information such as model codes, discharge capacity and discharge pressure are as ordered.

2. Check for transit damage, deformation and loose bolts.

*The CE marking on our product(s) is for us to market the product(s) into the European market, however, the CE marking does not ensure any safety or conformity of the product(s) outside the European market.

When the pump is incorporated into the equipment marketed in the European market, such equipment must meet all the requirements of applicable directives.

In such a case, any person who places the equipment on the market must carry a CE mark on the equipment as a manufacturer.
2. Operating principle

The APN-085-W is a gas-liquid transfer pump with a small size diaphragm and special valves, and is designed for built-in application. The rotary motion of the motor is converted via a connecting rod to the reciprocation of the diaphragm in the pump chamber, where the mixture of gas and liquid is transferred from the inlet to outlet.

Outline

Pump head (Pump chamber)
Diaphragm
Connecting rod

Discharge process
Suction process

: Diaphragm reciprocation
: Flow direction
3. Identification code

**APN - P 085 E X - E4 - W 02**

- **Pump head**
  - No code: Single head
  - P: Dual-head with parallel tubing

- **Series name**

- **Diaphragm materials**
  - E: EPDM
  - V: FKM

- **Pump connection**
  - X: Rc1/8 female thread connection (JIS taper pipe thread)

- **Rated voltage**
  - 1: 100VAC
  - E4: 220/240VAC (3-core cabtyre cable)

- **Gas-liquid transfer type**

- **Special specification**
  - No code: Standard
  - 01-99: Special design

---

4. Specifications

**Pump**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. air flow (L/min)</th>
<th>Max. discharge pressure (MPa)</th>
<th>Max. vacuum (kPa [abs])</th>
<th>Connec-</th>
<th>Weight (kg)</th>
<th>Lowest starting temp. (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APN-085E</td>
<td>3/4</td>
<td>0.05</td>
<td>34.66</td>
<td>Rc1/8</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>APN-085V</td>
<td></td>
<td></td>
<td>37.33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. air flow (L/min)</th>
<th>Max. discharge pressure (MPa)</th>
<th>Max. vacuum (kPa [abs])</th>
<th>Connec-</th>
<th>Weight (kg)</th>
<th>Lowest starting temp. (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APN-P085E</td>
<td>5/6</td>
<td>0.05</td>
<td>34.66</td>
<td>Rc1/8</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>APN-P085V</td>
<td></td>
<td></td>
<td>37.33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Motor**

<table>
<thead>
<tr>
<th>Type</th>
<th>Input power (W)</th>
<th>Output power (W)</th>
<th>Power current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100V</td>
<td>47/44 (50/60Hz)</td>
<td>48 (50Hz)</td>
<td>0.60/0.50 (50/60Hz)</td>
</tr>
<tr>
<td>220/240V</td>
<td></td>
<td>20</td>
<td>0.22 (50Hz)</td>
</tr>
</tbody>
</table>

**NOTE**

1. Allowable maximum discharge pressure is 0.05MPa.
2. Allowable gas temperature range is 0-40°C.
3. Allowable liquid temperature range is 5-40°C.
4. Allowable ambient temperature range is 0-40°C.
   - Observe the lowest starting temperature at the start of operation.
5. Allowable maximum noise level is 60dB at 1m (A scale).
5. Outer dimension

- **APN-085-W (Single)**

- **APN-P085-W (Twin parallel)**

Wet end material

<table>
<thead>
<tr>
<th>Parts</th>
<th>Model</th>
<th>V</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump head</td>
<td>GFRPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diaphragm</td>
<td>FKM</td>
<td>EPDM</td>
<td></td>
</tr>
<tr>
<td>Valve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve seat</td>
<td>GFRPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasket</td>
<td>FKM</td>
<td>EPDM</td>
<td></td>
</tr>
</tbody>
</table>

GFRPP: Glass fibre reinforced polypropylene  
FKM: Fluorine-contained rubber  
EPDM: Ethylene propylene diene monomer
6. Performance curve

- APN-085-W (Single)

- APN-P085-W (Twin parallel)

7. Overview & Label

The illustration below shows an APN-085-W single head type.

- Pump head
- Caution label
- Motor
- Lead wire
- Name plate
- Model and MFG. No. (Production number) are described.
- Base
- Anchor the pump with M5 screws.

Pump body (Driven unit)
An installation location should be free from liquid spillage.

Earth terminal
Be sure to earth the pump.

Outlet
Inlet
8. Part names & Structure

■ APN-085-W

<table>
<thead>
<tr>
<th>No.</th>
<th>Part names</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pump head</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Valve</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Valve seat</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Diaphragm</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Connecting rod unit</td>
<td>1 set</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Bracket</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>Motor</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>Capacitor</td>
<td>1</td>
</tr>
<tr>
<td>62</td>
<td>Small screw</td>
<td>4</td>
</tr>
<tr>
<td>79</td>
<td>Plate washer</td>
<td>1</td>
</tr>
<tr>
<td>38</td>
<td>Gasket</td>
<td>2</td>
</tr>
</tbody>
</table>

■ APN-P085-W

<table>
<thead>
<tr>
<th>No.</th>
<th>Part names</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pump head</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Valve</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Valve seat</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Diaphragm</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Connecting rod unit</td>
<td>2 set</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Bracket</td>
<td>2</td>
</tr>
<tr>
<td>40</td>
<td>Motor</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>Capacitor</td>
<td>1</td>
</tr>
<tr>
<td>62</td>
<td>Small screw</td>
<td>8</td>
</tr>
<tr>
<td>79</td>
<td>Plate washer</td>
<td>2</td>
</tr>
<tr>
<td>38</td>
<td>Gasket</td>
<td>4</td>
</tr>
</tbody>
</table>
1. Before Installation

Read through instructions in this section to ensure the optimum performance, safety and service of your pump.

⚠️ CAUTION

- Do not operate the pump in a flammable atmosphere
  Do not place explosive or flammable material near the pump.

- Do not use a damaged pump
  Use of a damaged pump could lead to an electric shock or death.

- Install the pump where it can be kept dry.

- Do not install the pump in a corrosive or flammable gas atmosphere. Keep good ventilation in a working area.

- Ambient temperature should not fall below 0°C or exceed 40°C. Observe the allowable gas temperature range of 0 and 40°C and liquid temperature range of 5 and 40°C.
Installation

- Observe the rated voltage specified on the nameplate. Applying any voltage than the rated one may result in failure.

- Surface temperature may rise high in operation. Do not touch the pump body directly or place the objects which may be deformed by heat close to the pump.

- Do not use the pump in a dusty place. Be sure to provide the inlet with a filter to prevent foreign matters from getting into the pump. Otherwise, the pump performance may reduce or the lives of the valves and diaphragm may remarkably shorten.

- Risk of burn

- Provide a filter

- Do not tube two or more pumps in series. It may prevent the motor from starting and lead to a burnout.

- The APN-P085-W must be plumbed in parallel. No series tubing is allowed.

Parallel

Series
### 2. Installation/ Tubing/ Electrical wiring

#### 2.1 Installation

1. **Installation location**
   - Do not expose the pump to direct sunlight, vibration and wind & rain.
   - Select a level location, free from vibration, that won’t hold liquid.
   - Keep good ventilation. The pump should always be free from the possibility of getting wet.
   - Ambient temperature should not fall below 0°C or exceed 40°C.
   - Ambient humidity should not fall below 35%RH or exceed 90%RH.
   - Allow sufficient space around the pump for easy access and maintenance.

#### 2.2 Tubing

1. The short tubing with the minimum bends is optimal to reduce resistance.
2. Avoid sharp turns or bends.

   **CAUTION**
   Do not have tubing bent or pressed. Otherwise, the tube end may break.

3. Provide tube fittings to the threaded inlet and outlet (Rc1/8) of the pump. Use chemically-resistant tubes or temperature-/pressure-resistant tubes as necessary. Cut the tube ends flat beforehand.

#### 2. Pump fixation

- Set the pump baseplate on a concrete foundation and fasten corrosion-resistant M5 screws tightly to prevent the pump from vibrating during operation.

   **CAUTION**
   Do not install the pump on an unstable place.

---

**WARNING**

If you notice any abnormal or dangerous conditions, suspend operation immediately and inspect/solve problems.
4. When the pump is used for the delivery of liquid, use a suction line of 4mm I.D. to give a certain resistance to an incoming flow for the prevention of an overloaded/locked motor, and a discharge line of 8mm O.D. to maintain a certain amount of outgoing flow and assures the rated pump performance will be kept.

⚠️ CAUTION
Use of a wrong tube size bears the risk of coming off, causing an air and a liquid leak.

5. Install valves on both discharge and suction lines.
   • Suction valve:
     For adjustment of an air/liquid flow and a vacuum.
   • Discharge valve:
     For maintenance and shutoff.

6. Wrap a sealing tape to the thread of tube fittings and screw them into the inlet and outlet of the pump. And then fit and slide tubes down onto the fittings as far as they will go.

NOTE: If the suction line connection is imperfect, the pump entrains air and so the full performance will not be achieved.

2.3 Electrical wiring

Electrical wiring must be performed by a qualified electrician. It is not the manufacture’s responsibility for personal injury or property damage resulting from unauthorized service. Contact us or your nearest distributor for wiring as necessary.

■ Before wiring
1. Check that the main power is turned off.
2. Electrical work should be performed in accordance with local electric codes, with an appropriate wire gauge or so.
3. Apply the specified power voltage. See the spec label.
4. Earth the pump through the earth terminal.
5. When an earth leakage breaker is used and has tripped, always investigate and solve root causes. Be sure to unplug the pump before investigation is performed.
1. Before operation

- Use care handling the pump. Do not drop. An impact may affect pump performance. Do not use a pump that has been damaged to avoid the risk of electrical damage or shock.

- The pump can not start with full discharge/suction pressure or liquid. Remove pressure or liquid before operation.

- After a long period of stoppage, pump performance at the beginning of operation becomes occasionally unstable. In this case, warm the pump up for 10 minutes with no discharge line pressure.

- Always use a suction valve to adjust an air/liquid flow.

- If the compressed air or liquid (higher pressure than atmospheric pressure) is transferred to the pump, sharp deterioration to the lives of the valve, diaphragm and bearing may result. Always keep atmospheric or lower pressure in the suction line.

- Do not clean the pump or nameplate with a solvent such as benzine, alcohol or thinner. This may discolour the pump or erase printing. Use a dry or damp cloth or a neutral detergent.
2. Pump operation

■ Start-up

1. Before pump operation, check that each tube connection is secured.

2. Check that a suction line is connected to the inlet and a discharge line to the outlet.

⚠️ **CAUTION**

If a suction line and a discharge line are connected the other way around, pumping process is inverted.

3. Check that the pump is firmly fixed on a mounting position.

■ Operation

Operate the pump according to the following steps.

<table>
<thead>
<tr>
<th>No.</th>
<th>Procedure</th>
<th>Points to be Checked</th>
</tr>
</thead>
</table>
| 1   | Check tubing, wiring and voltage. | ● Check installation, tubing and wiring are properly done and wiring system is fused.  
● Check the spec label to see if power supply voltage is correct. |
| 2   | Open valves. | ● Fully open both discharge and suction lines. |
| 3   | Supply power to the pump. | ● Smooth starting may not be obtained when ambient temperature is 10°C or below. In this case, run the pump with no discharge line pressure for a few minutes to warm it up.  
● Smooth starting may not be obtained when the pump chamber is filled with liquid. Get rid off liquid before operation. |
| 4   | Adjust a liquid/air flow. | ● Provide a running-in period before full scale operation.  
● Always adjust a liquid/air flow by a suction valve. |
| 5   | Check the operation. | ● After starting, check a pressure gauge to see if suction and discharge line pressure are correct and an air flow meter to see if the specified air flow is obtained.  
● Keep a suction line pressure at or below atmospheric pressure.  
● In case electric power has failed while the pump is running, switch off main power. Otherwise, the motor may not restart or may burn out depending on a line pressure at the time of power recovery. |
Stop and Storage

Before a long period of stoppage (1 week or more):
- Depressurize/empty the pump. Some liquids may harden or crystallize when they are left for a long time. In this case clean wet ends before/after operation.
- Keep the inside of the pump head free from residual gas/liquid.

Before resuming operation:
- Operation may occasionally be upset in the beginning. In this case, warm up the pump with no load operation.
- Follow the operation table to resume operation.
1. Troubleshooting

If you notice any abnormal or dangerous conditions, suspend operation immediately and inspect/solve problems. Contact us or your nearest distributor as necessary.

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Causes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump does not run.</td>
<td>No power distribution</td>
<td>Check wiring.</td>
</tr>
<tr>
<td>Pump stops running.</td>
<td>Motor trouble (disconnection or capacitor failure)</td>
<td>Replace the motor.*</td>
</tr>
<tr>
<td>Poor air flow or discharge pressure</td>
<td>Wrong tubing or poor connection</td>
<td>Check and fix tubing.</td>
</tr>
<tr>
<td>Pump makes noise.</td>
<td>Pump head mounting screws are loose.</td>
<td>Tighten the screws.</td>
</tr>
<tr>
<td>Diaphragm insertion is loose.</td>
<td>Diaphragm is damaged.</td>
<td>Tighten diaphragm.</td>
</tr>
<tr>
<td></td>
<td>Filter is clogged.</td>
<td>Replace diaphragm.</td>
</tr>
<tr>
<td></td>
<td>Valves are worn.</td>
<td>Remove foreign matters.</td>
</tr>
<tr>
<td></td>
<td>Motor-Bracket fixing screws are loose.</td>
<td>Replace valves.</td>
</tr>
<tr>
<td></td>
<td>Eccentric shaft has worn.</td>
<td>Secure them.</td>
</tr>
<tr>
<td></td>
<td>Connecting rod bearing has worn.</td>
<td>Replace the connecting rod.*</td>
</tr>
<tr>
<td></td>
<td>Motor bearing has worn.</td>
<td>Replace the connecting rod.*</td>
</tr>
<tr>
<td></td>
<td>Voltage reduction</td>
<td>Replace the motor.*</td>
</tr>
<tr>
<td></td>
<td>Higher suction pressure than atmospheric</td>
<td>Increase voltage to the rated level.</td>
</tr>
<tr>
<td></td>
<td>The pump head is filled with liquid.</td>
<td>Reduce suction pressure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drain liquid.</td>
</tr>
</tbody>
</table>

Contact us for the measures marked with *.

2. Maintenance & Inspection

Handling of the pump, maintenance and inspection should be carried out within the descriptions of this instruction manual.

It is not the manufacturer’s responsibility for personal injury or property damage resulting from unauthorized service. Contact us or your nearest distributor as necessary.

- Daily inspection

Check the following points every day. If you notice any abnormal or dangerous conditions, suspend operation immediately and remove problems according to the troubleshooting section. When wear parts come to the life limit, replace them by new ones. Contact your distributor for detail.

<table>
<thead>
<tr>
<th>No.</th>
<th>Check that:</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pump operation is normal.</td>
<td>• Apply correct voltage and amperage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Adjust discharge/suction pressure.</td>
</tr>
<tr>
<td>2</td>
<td>there is no noise or vibration problem.</td>
<td>• Unusual noise/vibration may occur when pump operation is not normal.</td>
</tr>
<tr>
<td>3</td>
<td>there is no air leak or air ingress from pump parts and tubing connections.</td>
<td>• Retighten connections.</td>
</tr>
</tbody>
</table>
**Maintenance**

- **Wear parts**
  If pump performance has remarkably reduced, replace diaphragms and valves with new ones. Wear part duration varies with the pressure, temperature and characteristics of gas/liquid. Values in the table below are collected in continuous operation at the rated voltage and 20°C ambient temperature with 20°C gas/liquid.

<table>
<thead>
<tr>
<th>Application</th>
<th>Load range</th>
<th>Valve</th>
<th>Diaphragm</th>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas transfer</td>
<td>All range</td>
<td>8000hr</td>
<td>8000hr</td>
<td>8000hr</td>
</tr>
<tr>
<td>Liquid transfer</td>
<td>No load</td>
<td>4000hr</td>
<td>4000hr</td>
<td>4000hr</td>
</tr>
</tbody>
</table>

*The above lives are reference values and not warranted.*

- **Cleaning**
  Turn off power and wait until the pump has cooled down. Then clean off the surface of the pump with a wet cloth. Use a neutral detergent for greasy dirt as necessary and dry it with a dry cloth. Check the pump surface has dried up before operation.

⚠️ **CAUTION**

Risk of electrical shock. Do not wet electric parts or wiring.

- **Storage**
  - Protect the pump from dust during storage.
  - Do not store the pump:
    - Where ambient temperature falls below 0°C or exceeds 40°C.
    - In a flammable or corrosive atmosphere.
    - In a dusty/humid place.
    - In direct sunlight or wind & rain.
    - Under vibration.
3. Wear part replacement
For a long period of operation wear parts need to be replaced periodically.

⚠️ CAUTION

- **Turn off power before service**
  Risk of electrical shock. Be sure to turn off power to stop the pump and related devices before service is performed.

- **Do not touch the pump or pipe with bare hands**
  Risk of burning. The surface temperature of the pump or pipe gets high in or right after operation.

- **Wear protective clothing**
  Always wear protective clothing such as an eye protection, chemical resistant gloves, a mask and a face shield during disassembly, assembly or maintenance work.

See page 9 the "8. Part names & Structure" section as necessary.

- **Diaphragm replacement**
  1. Unscrew the pump head fixing screws and take out the pump head, valves, gaskets and valve seat.
  2. Turn the diaphragm anti-clockwise so as to detach it from the rod.
  3. Mount a new diaphragm into the rod and fasten as far as it will rotate.
  4. Push down the diaphragm until it bottoms out and then reassemble and secure the above parts onto the bracket with the screws by 1.37N•m.
Valve & Gasket replacement

1. Unscrew the pump head fixing screws and take apart the pump head unit.

2. Replace old valves and gaskets with new ones and then reassemble the pump head unit.

3. Supply air into the pump inlet and check the air is discharged through the outlet.

4. Push down the diaphragm until it bottoms out and then secure the unit onto the bracket with the screws by 1.37N•m.

NOTE1. For the pumps with two pump heads, build up each pump head separately.

NOTE2. Do not loosen the motor-bracket fixing screws during maintenance work.

NOTE3. Contact your nearest distributor for the replacement of the connecting rod and the motor.
## EC DECLARATION OF CONFORMITY

**A copy of the original Declaration of Conformity**

<table>
<thead>
<tr>
<th>(SUPPLIER’S NAME)</th>
<th>WE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWAKI CO.,LTD.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(ADDRESS)</th>
<th>6-6 2-CHOME KANDA-SUDACHO CHIYODA-KU TOKYO JAPAN</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>(PRODUCT)</th>
<th>DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AIR PUMP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(MODEL NAME)</th>
<th>APN-W SERIES AC TYPE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>(DIRECTIVES)</th>
<th>TO WHICH THIS DECLARATION RELATES ARE IN CONFORMITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACHINERY DIRECTIVE 2006/42/EC (ANNEX IIA)</td>
<td>WITH THE FOLLOWING STANDARDS OR DIRECTIVES AS FAR AS APPLICABLE</td>
</tr>
<tr>
<td>RoHS DIRECTIVE 2011/65/EU</td>
<td></td>
</tr>
</tbody>
</table>

|-------------|------------------------------------------------------------|

<table>
<thead>
<tr>
<th>(A PERSON WHO IS AUTHORISED TO COMPILE THE TECHNICAL FILE IN THE COMMUNITY)</th>
<th>IWAKI EUROPE GMBH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIEMENSRING 115 D-47877 WILICH GERMANY</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** THIS DECLARATION BECOMES INVALID IF TECHNICAL OR OPERATIONAL MODIFICATIONS ARE INTRODUCED WITHOUT THE MANUFACTURER’S CONSENT.

---

**TSUTOMU SAWADA**
**DEPUTY SENIOR GENERAL MANAGER, QUALITY ASSURANCE HEAD OFFICE**

**Tokyo, Sep. 13, 2021**

**DOCUMENT NO.** JS-51K-450-4