

Q&A on How to mount and Handling of Air-pack sensor

Introduction

Consider that the role of covering tape (formerly called Mounting Film) of Air-Pack Sensor is a temporary skin of the human body when the Sensor is mounted on the human body. Its recommended image may be that Air-Pack Sensor is buried beneath the human skin and measurement is made with it. By doing so, Air-Pack effects from a shearing force caused by slipping off of the skin may be captured and taken into the measured values. Stick circumferences of the Air-Pack Sensor to the skin tightly. Think hard to ensure the Air-Pack may never peel off even in the event that a heavy shearing force be expected to take place in the course of wearing on or removing clothes or of measuring body pressures. Note that slipping off of the Air-Pack Sensor from the skin of human body might sometimes be connected to the breakage of itself.

HOW TO MOUNT

Since the use of square mounting films Nos. 07/7 newly developed, unevenness including wrinkles on the surface of air-pack sensor have been remarkably diminished and, as a result, measurements with better accuracies can be expected.

① In case when mounting the air-pack sensor with a covering tape, shape and size of compatible air-pack sensor shall be $\phi 15$, $\phi 20$, $\phi 25$, $\phi 30$

Preparation

A slit is prepared on the base board

Covering Tape

Rear side: (Side of base board to be peeled off)

Front side: (Without blue dots - Standard)

An Air-Pack to which the mounting film is attached should be treated as follows:

- Remove air from the air-pack (Refer to the description the last line on this data sheet).
- Detach cautiously from the air-pack the mounting film and the small double-sided adhesive tape.
- Mark a dot with penpoint at the center of the air-pack

Mark a dot with penpoint at the center of the air-pack in the event of no marks having not been given there.

<<Covering Tapes / 2 Types>>

① Standard for $\phi 15$, $\phi 20$ and $\phi 25$ AMI3037-PTS

② Blue for $\phi 30$ and $\phi 25$ AMI3037-PTB

Fix the root of the tube of air-pack with a small size tape on the human skin. Also, fix the wiring tube on the human skin with tape.

The covering tape from which the base board has been taken off shall be placed softly at such a position in which the dot marked on the air-pack can be seen. Then, make fixing as usual.

Press circumferences of the covering tape securely and confirm the completeness of fixing by rubbing the surface by hand flat.

At right angle to the direction of slipping off in the event of wrinkles taking place on curved

Direction of mounting or removal

A small tape fixing the air-pack tube shall be of the size not swelling out from the covering tape.

● More efficient protection of the air-pack without bringing any undesirable deflections on it could be expected if some small pressures (in the degree of around 0.1 to 1 kPa) might be exercised when fixing the air-pack with covering tapes.

(Read the value got from the measurement as it was provided that the measured value be higher than the pressure exercised during installation of the air-pack on the human skin. The measured value may become equal to or approaching the range of an acceptable error provided that the value got from the measurement be exceeding the pressure exercised during the installation of the air-pack. The above-mentioned effects may be confirmed on the calibration of hydraulic pressures.)

● For the installation of air-pack on any portions where a large deformation or elasticity must be taken into account, consider to apply the covering tape in the state of the air-pack being likely to be exposed to thrusting forces frequently (Elbow or the like, for example, would preferably be subject to installation with the covering tape in its state of being bent).

② In case when mounting the air-pack sensor with double-sided adhesive tape, Note that types and shapes of the air-pack sensors accepting this application shall be I, T, G, or finger pressing type

● Type and shape of the air-pack sensor whose mounting does not require the use of covering tape will be I, T, G, or finger pressing type. A special care must be taken in advance to the handling of these types because surfaces to which the covering tape shall not be used are very likely to be damaged (or torn out) in the course of effecting measurement.

Preparation

Strong adhesive made of cloth

Made of thin paper

Sticking the air-pack sensor on to silver tape by tweezers or the like.

Place the prepared device on an intended surface and fix the tube with tape.

Cutting the double-sided adhesive tape in the size slightly smaller than the silver tape.

※ Extract air from the air-pack sensor and peel the double sided tape off from the surface while pressing by a finger tip a corner of the silver tape securely.

QUESTION: We were unable to pour air into the air-pack well.

ANSWERS:

- Follow the above-mentioned procedures once again slowly.
Try particularly slowly if a special version comprised of a longer tube is in operation.
- Confirm if rotation of the gear stops at the position of pin shaft inserted into the hole of the gear on the air cylinder.
Confirm also if the gear might never be moving by negative pressures when the pin is inserted into the "blue" hole on the gear and the gear is rotated with a finger up to the position where the pin shaft was inserted.
- Confirm on press tester or the like if leakage of air might not take place on the air-pack sensor.

Inspection of the air-pack to see if it might be suffering a damage or breakage and countermeasures to be taken

- It can be concluded that the air-pack may be suffering air leakage if pressure values are falling down gradually as a result of pressure tests effected three times repeatedly.
- Confirmation of air leaking location:
Fill water into a vessel like washbasin and dip into it the whole of the air-pack filled with air (including the joint). Press down the tip of the air-pack under the water with a finger or a similar soft article in order to see if air bubbles might be coming out somewhere on the air-pack surface.
Send the air-pack to the manufacturer for repair if such is the case. (Inspection to be made most carefully to the following parts or articles to locate the position of failure: The air-pack, bump of the double tube, joints and so on).

※Remove water or moisture from the joint when connection is made to the main unit through it as there might be a possibility of the remaining water or moisture causing a disorder or breakage of the system during operation.

QUESTION: Give useful measures to be taken to prevent the air-pack from being broken as it has been damaged frequently during operation.

- ANSWER:**
- ① Employ the covering tape as far as possible if not being in use at present. The air-pack is likely to be broken if the covering tape is not in use. Conceive to find out an alternative useful means if the covering tape will not be in use.
 - ② It is assumed that the covering film has been bent excessively during application.
An acceptable degree of applying pressure may preferably be only a little, say within the range of 0.1 to 0.7kPa.
 - ③ Use the covering tape of higher adhering power or that of wider dimensions because the covering tapes of ordinary specifications are likely to come off during or after measurements. Clean an intended surface with alcohol before application

QUESTION: There should be a possibility of air coming into the air-pack spontaneously during its storage and the air-pack has accordingly swollen up.

ANSWER: Still not to be able to specify the correct cause of this phenomenon. It is assumed however that this phenomenon might be brought about by expansion or contraction of the metallic connecting portion of the air-pack on account of changes in room temperature.

COUNTERMEASURES TO BE TAKEN:

Extract air outside at the air cylinder through the under-mentioned procedures and effect thereafter air enclosing operations through the ordinary procedures.

HOW TO EXTRACT AIR:

- a. Shorten the length of the air-cylinder (3) by gear mechanism.
- b. Connect the air-pack (4) with the air-cylinder.
- c. Pull the head of the air-cylinder out to its fullest length.
- d. Disconnect the air-pack (8) from the system.