

T1-139:

Standard for Handling Wrist Straps

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PRODUCTION DEPARTMENT

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- ① Purpose of **“Standard for Handling Wrist Straps”**
- ② Definition of Terms
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① Purpose of “Standard for Handling Wrist Straps”

Purpose

To define minimum **rules for using wrist straps** and thereby implement complete and effective basic measures for preventing electrostatic damage.

Compliance Rules

- The requirements mentioned under Compliance rules shall be strictly followed to adhere to the standard. Ensure that such requirements will not be violated.

Wrist Strap

- Wrist straps consist of bands and cords, and their purpose is to keep the person grounded.

ESD protective grounding line

- A grounding line installed to prevent ESD (electrostatic discharge).

Wrist strap checkers

- Checkers provide the function of confirming that wrist straps remain attached to people

Reliability Flash

- This open report on electronic technology information is published by Brother's division in charge of electronic technology.

Testers

- Testers are instruments for measuring electrical resistance, voltage, current, etc. There are both digital and analog testers.

Insulation resistance meters

- These devices test resistance to determine whether the insulation between a circuit's ground and wire is being maintained. They apply 25 V to 2,000 V AC and measure the electrical current. They are used when resistance exceeds the range that testers can measure.

3. Wrist Strap Selection

Wrist straps conduct static the electricity that occurs and builds up in the human body away from the skin and discharge it into a grounding wire, and thus able to lower the static charge of the human body.

Select wrist straps that incorporate resistance of about $1\text{M}\Omega$ in order to limit current. The role of $1\text{M}\Omega$ is to ensure safety by reducing impact on the human body by reducing the current that passes through the body by adding resistance despite the danger of a shock when mistakenly touching a power line.

Additionally, in order to be easily removable during an emergency, the connection between the band and the cord must be designed to come apart when force of 5 to 25 N is applied.

3.1 Selection

Compliance Item

- Wrist straps must be connected to a grounding wire

③ Wrist Strap Selection

4.1 Verification before work

Compliance Item

1. The wrist straps cord must be firmly connected to the ESD protective grounding grounding line.
2. Wrist straps are managed and identified with a management number.



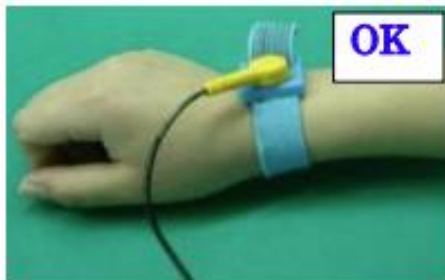
Manage identity with management numbers

④ Using on Wrist Strap

4.2 Putting on the wrist strap

Compliance Item

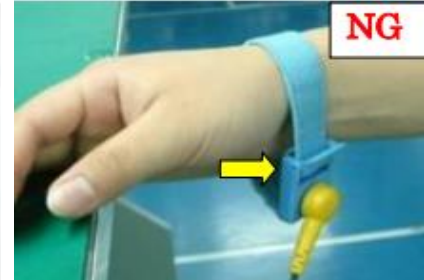
1. Put the wrist strap on the wrist so the inside of the band rests snugly and directly against the skin.
2. When there is identification of static measure processes, even when the work only needs antistatic measures temporarily, always wear the wrist strap.



The inside of the band should be worn directly against the skin with no slackness.



Grounding will not work if the wrist strap is worn on top of clothing.



Grounding will be unreliable if the inside of the band is not sufficiently snug against the skin.



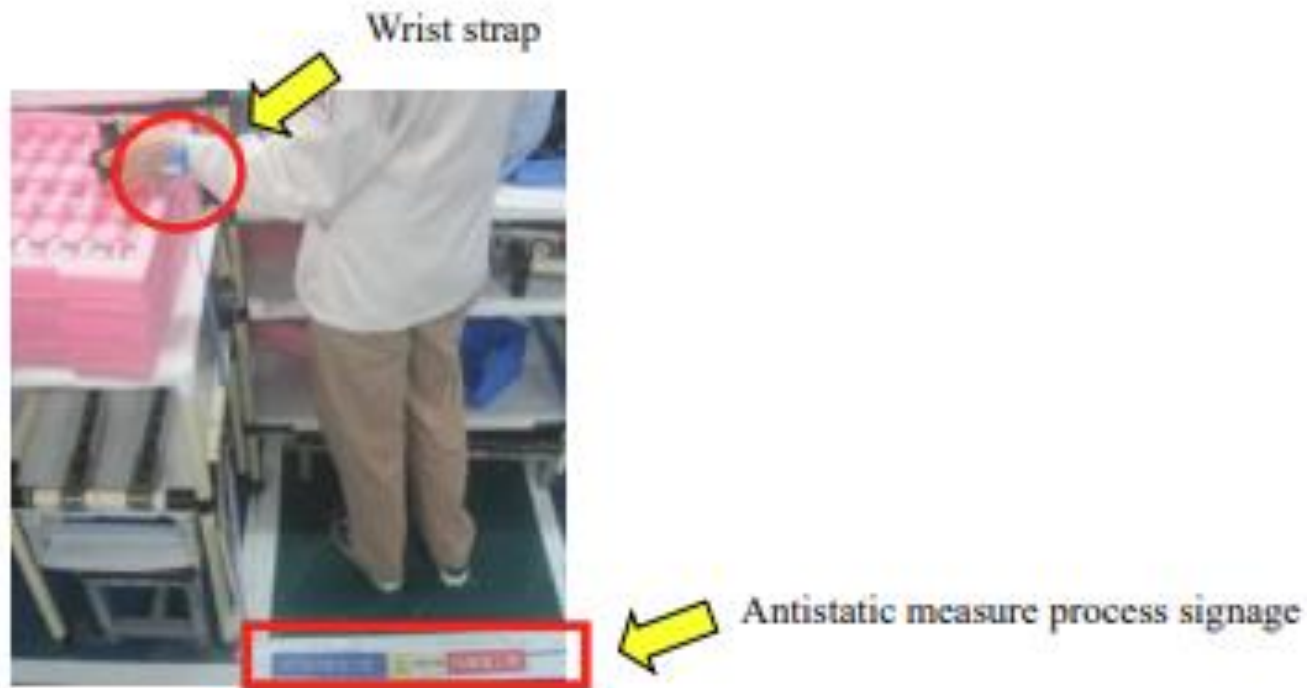
You will not be grounded if the grounding contact inside the band is not snugly against the skin.

④ Using on Wrist Strap

4.2 Putting on the wrist strap

To prevent forgetting to wear the wrist strap, it is necessary to always wear the wrist strap.

Example of wrist straps being worn

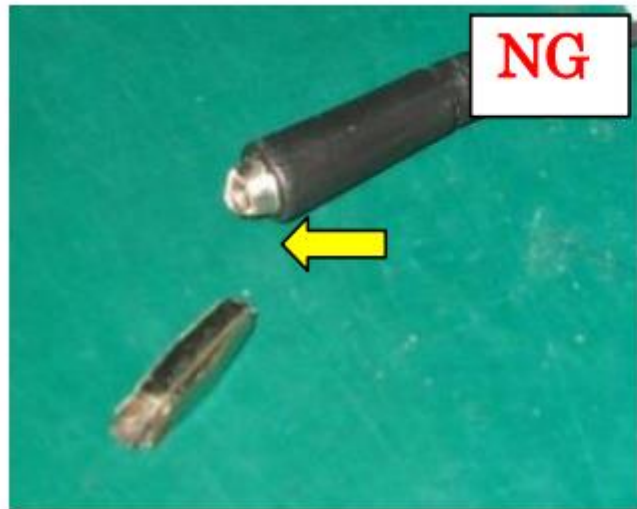


⑤ Wrist Strap Inspection

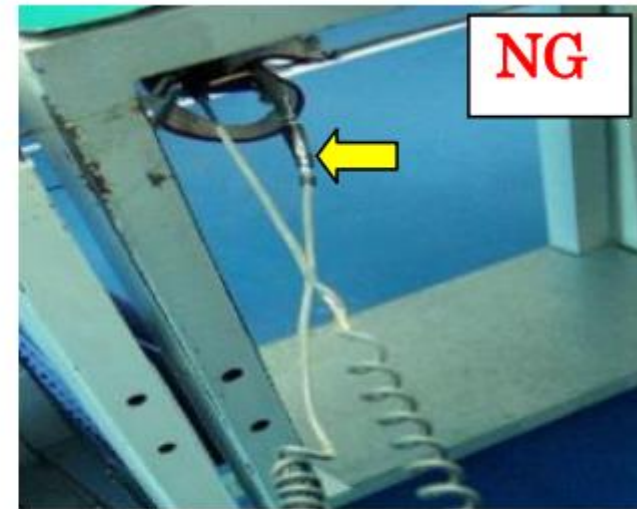
5.1 Daily Inspections

Compliance Item

- (1) Ensure there are no externally visible abnormalities with the wrist straps.
- (2) Inspect wrist straps at least once per week and record the results in the inspection records



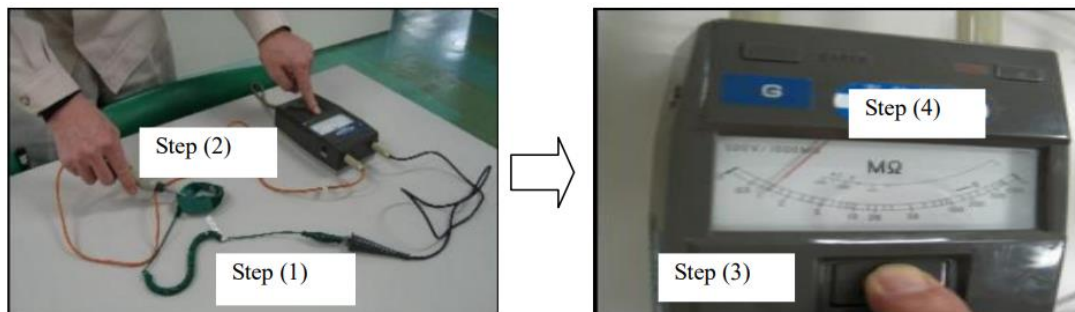
Damage to ground connector
(broken)



Torn sheath on ground cord

⑤ Wrist Strap Inspection

5.1.1 How to measure resistance values of non-worn wrist straps using an insulation resistance meter

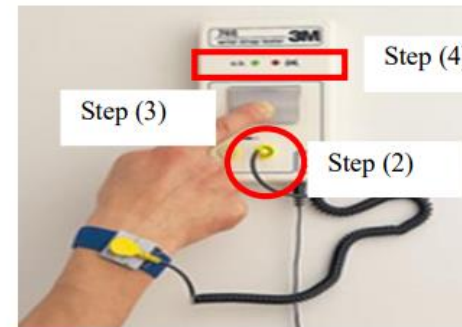
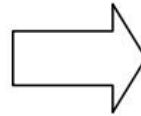
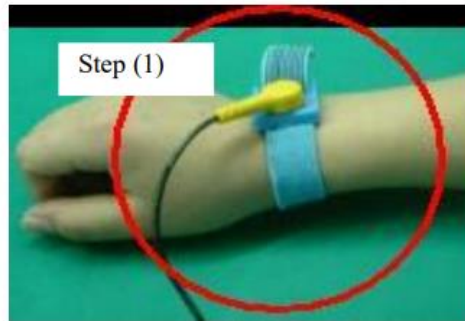


Procedure

- (1) Ensure there are no externally visible abnormalities with the wrist straps.
- (2) Inspect wrist straps at least once per week and record the results in the inspection records
- (3) Check the measured range of the insulation resistance meter and press the button to apply voltage.
- (4) With measurement voltage applied, read the resistance value on the insulation resistance meter. (0.75 to 5.0 MΩ)
- (5) Record the resistance value and check that it is within the regulated value.

⑤ Wrist Strap Inspection

5.1.2 How to inspect wrist straps while being worn using a wrist strap checker



Procedure

- (1) Put on the wrist strap with the cord attached to the band, and with the band snugly around the wrist.
- (2) Attach the cord's terminal plug to the ground of the main unit.
- (3) Lightly press down with one finger until results appear.
- (4) The results will be indicated by lamps that light up.

Green lamp: OK

Red lamp: Not acceptable * perform the steps in 5.2 Dealing with abnormalities

5.2 Dealing with abnormalities

Compliance Item

- If you observe any abnormalities or defects during a wrist strap inspection, the defective component must be replaced and the abnormal component speedily discarded.

⑥ Measuring Instrument Management

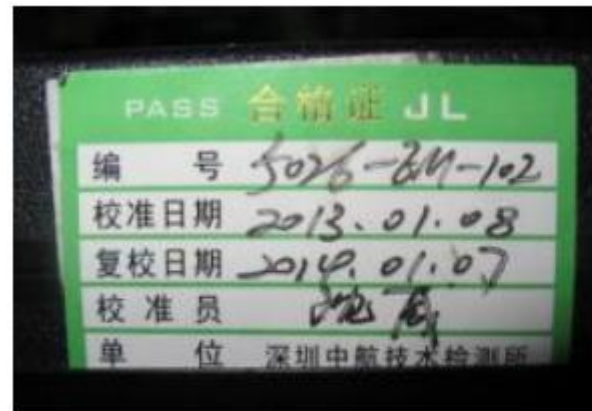
6. Measuring Instrument Management

Compliance Item

- Insulation resistance meters, testers, and wrist strap checkers should be inspected once a year.



Example of tester inspection



Example of insulation resistance meter inspection

brother
at your side