Adhesive Injection System for Ferrule

NTT Advanced Technology Corporation
Automation of Injecting Adhesive for Ferrule

Manufacturing Process of Optical Connector

- Covering up optical fiber, Prepare the Adhesive
- Inject Adhesive into the ferrule
- Insert the fiber into the ferrule
- Assemble
- Polish and examine
- Harden the adhesive by using a hotplate
Conventional injection method

Vacuum Method

Put adhesive on the top of SUS part and vacuum from the bottom

Problems
- It’s rely on worker’s expertise
- Injection volume is not stabilized

Dispenser Method

Use dispenser to inject adhesive with high pressure

Problems
- The adhesive volume on Zirconia is not stabilized.
Streamline the injection operation

Select channel, and just push the start button, it will start injecting, so the worker is able to do other operation while the injecting.

It’s compatible with large variety of ferrule

Just change this work stage, select the channel, it can inject different kind of ferrule.

Improve workability
Feature

Stabilizing adhesive spread

This robot is equipped with a high precision pneumatic dispenser that accurately corrects for fluctuations in the dose volume caused by changes in viscosity, such as occur with two-part resin material.

Temperature control by peltier device

We use peltier device to control adhesive temperature. It can control $\pm 0.1$ degree C

Stabilizing of the quality
Injection step

- Moving down the needle
- Start injecting
- End of injecting
- Vacuum

- SUS
- Zirconia
- Needle
Injection Order

Origin (Start point)

Injection start point

After injecting 50 vacuum up

After injecting 50 vacuum up

x-axis

Y-axis
Centrifugal bubble eliminator for syringes

This is bubble eliminator for removing bubbles that are generated when filling material into syringes by using centrifugal force.

Simple operation: Put a liqued-filled syringes in the machine and press the switch. Two models are available according to the syringe size.

Clean and simple bubble removal for various fluids such as epoxy resin and grease.