Hearing aid assembly using UV curing

Increased production rates and consistent quality

Starkey Hearing Technologies, Glencoe, MN, mass produces customized hearing aids. The basic components of every hearing instrument include: a microphone that picks up sound, an amplifier to boost the sound, and a speaker (speaker (receiver)) that delivers the amplified sound into the ear. Starkey was using solvent-based adhesives to precisely bond the micro-sized components together, but these adhesives needed to cure overnight. By converting to UV-curable adhesives, Starkey was able to significantly increase production rates.

To fabricate the speaker (receiver) assembly Starkey uses a Noblelight 10-inch microwave-powered UV curing system from Excelitas. The speaker (receiver) component consists of 2 wires, the speaker (receiver) itself, and a silicone tube to deliver the amplified sound into the ear. After manually placing each of the 50 speakers (receivers) onto a jig, a machine automatically places two wires on each speaker (receiver). Next, a worker manually dispenses a UV-curable silicone adhesive onto each speaker (receiver) and carefully places a tiny silicone tube, end up, on the adhesive.

After all fifty tubes are in place, the jig is placed onto the UV curing conveyor. While the conveyor belt moves at 3 ft/min, the single UV lamp moves back and forth along the 3 foot length of the conveyor belt to cure the adhesive without causing heat damage to the parts. At the end of the conveyor, all 50 speakers (receivers) are cured and ready for the next operation.

Benefits

- Increased production rates
- Lower production costs
- Improved product consistency and quality

Technical Data

- 10-inch microwave-powered UV curing system
- Dual UV & moisture cure silicone adhesive
- Bond 50 speakers/minute in a conveyor batch process

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