



AW-LAKE
PROCESS FLOW MEASUREMENT



APPLICATION SPOTLIGHT

Helical Flow Meters Measure Adhesive in E-Battery Bonding



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APPLICATION:

The replacement of conventional combustion vehicles with electric vehicles is revolutionizing the automotive sector. A core requirement for electromobility is the provision of efficient and reliable battery technologies. The lithium batteries used in electric vehicles are based on battery stacking technology. In this process, several lithium batteries are connected in a series to form a power battery (cell). To form a module, the cells also are connected in a series. Several modules in parallel form a battery pack with high-energy density and range. This assembly process meets the specifications of the battery as well as requirements for heat dissipation, strength, and low weight. To improve the thermal conductivity, a quantity of fillers such as Aluminum Oxide, Silicone Dioxide, or Aluminum Trihydrate with a content of 30-70% is added to the process. The adhesive tape must be dimensionally stable and resistant to particle abrasion.

PRODUCT SUPPLIED:

- High Resolution Helical NPT Flow Meters with integral sensors

CHALLENGE:

The reliable operation at high viscosities and non-lubricating fluids poses a corresponding challenge to the flow measurement technology. High measuring range dynamics, long-term stability, and high reproducibility are critical to the process. The flow meter also must reliably perform in the following operating parameters:

- Medium: Thermal conductive adhesive
- Temperature: approx. 68°F - 104°F (20 - 40°C)
- Pressure: 580 - 1,160 psi (40-80 bar)
- Flow Range: 0.0019 - 0.123 gpm (0.12 - 7.75 cc/s)
- Viscosity: 270,000 - 300,000 cp
- Density: 9.6 -12.94 lbs/g (1.15 - 1.55 kg/l)

SOLUTION:

The high-resolution SRZ Helical Flow Meter is the ideal solution for the adhesive process of e-battery bonding. It meets the quality standard for the production processes through a bearing design specially adapted to meet the requirements for long-term stability and high reproducibility. Extremely high-resolution electronics integrated in the measuring equipment support the accurate measurement of the smallest dosage of fillers.

RESULTS:

The SRZ High Resolution Helical Gear Flow Meters offer:

- Very fast response time
- High measuring accuracy and high resolution
- High-quality materials
- Tolerance of highly viscous and highly abrasive media
- Suitability for the toughest applications (special bearing design)
- Compact design (simple system integration)