

## Gwent Group Technical Capabilities

We put our efforts into obtaining agglomerate free, well dispersed materials with controllable and repeatable rheological properties as well as batch to batch repeatability.

**New pastes development:** Our Company will be pleased to work in confidence with our individual customers to produce new and novel materials that are required for specific processes. We have the experience and the equipment to formulate and produce new pastes or inks in the range 50g to 300kg per batch.

- **Dispersion equipment:** All pastes can be made in our own designed, fully computer controlled dispersion equipment. Our equipment would allow mixing ingredients in the range 1kg to 300kg per batch during the paste manufacturing process.
- **Milling equipment:** We have bead milling as well as triple roll milling equipment. The suitable milling equipment will be decided upon the properties of ink or paste manufactured.

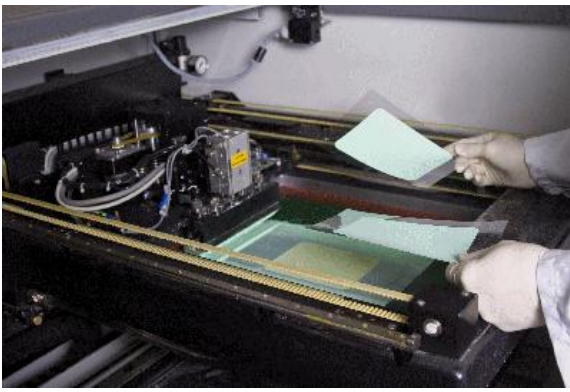


Milling devices in use.

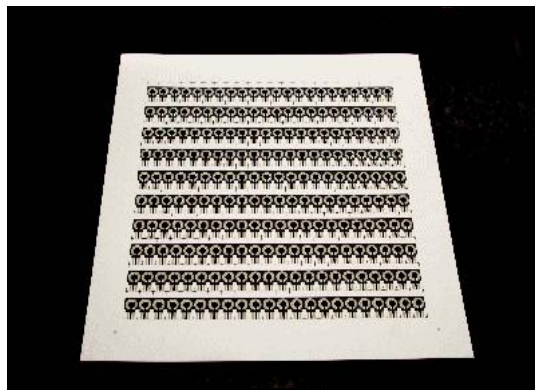
- **Quality control:** We have an extensive range of testing equipment to ensure that our products meet the highest standards. Part of our compulsory in-process quality control is fineness of grind (FOG), viscosity and dry solids measurements. Upon discussion with the customer further quality control test could be set up specifically for each individual product.

**Sensor design:** We have the capability and experience to use customer's design when available or to generate a new sensor design based on customer's specification.

**Screen printing equipment:** We have a range of DEK screen printing machines which give us the possibility to print in the range 83x83mm up to 330x330mm. A DEK 248 instrument with humidity controlled chambers used for screen printing pastes requiring an accurately controlled humidity environment is available. The screen printing process is performed in a Clean Room Environment Class 100.



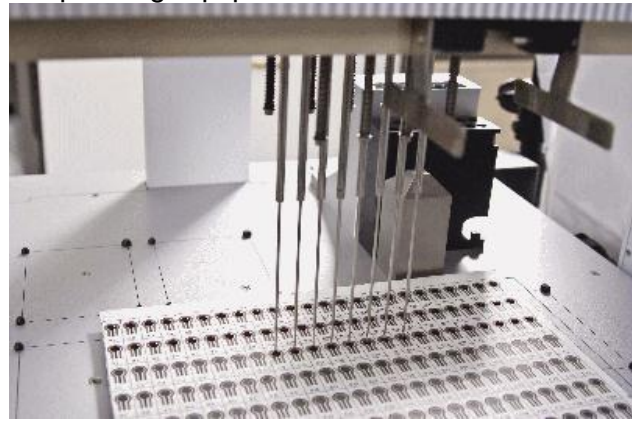
Screen printing process



Sensor designs

**Curing and firing equipment:** Polymer based pastes are cured in batch ovens and conveyor belt drier. Glass based conductive or passivating pastes are fired in batch furnace or B.T.U. belt furnace.

**Reagent deposition:** We have the capability and expertise to develop reagent systems as well as screen print or deposit them onto sensor surface. Our screen printing equipment is suitable for reagent deposition and at AET we have a range of dispensing equipment: Biodot and Bio-Robot.



Reagent deposition using the Bio-Robot

**Quality Control:** During all screen printing stages in-process visual inspection is performed as part of our internal quality standards.

Upon agreement with the customer we have the ability and expertise to perform electrochemical testing on the final device as well as resistance measurements and under microscope visual inspection.

**Packaging:** The electrochemical sensors are packed as full screen printed sheets as part of our standard packing procedure.

We have the capability to cut the sensors in specified sizes and pack them in desiccated tubes or pack the sensors under controlled conditions which can be done upon agreement with the customer.

**Business contacts:** Due to our long time activity in the field of electrochemical sensors and biosensors we have close relationships with several suppliers which would provide

- Laser scribing for specific substrate or sensor design and pre-cutting
- Fill device for designing and manufacturing sample filling devices which would be attached to the sensor.

For discussing your application and requirements please contact us by email: [sales@gwent.org](mailto:sales@gwent.org)