**Technology Services**

The University of Glasgow offers a wide range of high technology services, supported by the University’s base for innovative research and knowledge. These services are available to industry at commercially competitive rates, enabling companies to address and solve key technical challenges, increase product performance, and improve business operations.

Our technology centre provides easy access to a professional service, delivering high quality, client-focused, and insightful solutions on a timely basis. For your company’s own requirements, please contact the University facility below, and they will be delighted to help.

**Glasgow Laboratory for Advanced Detector Development (GLADD)**

The Glasgow Laboratory for Advanced Detector Development (GLADD) is an electronic device fabrication and test facility housed in a Class 10,000 clean-room. It features a suite of state-of-the-art equipment including an ultrasonic fine pitch wire bonder for fabricating interconnects in electronic devices and a probe station for investigating the functionality of improved sensor designs. GLADD staff have extensive experience in building silicon strip detector systems and have played a key role in several major international particle detection projects, including the novel semiconductor tracker and pixel detector technology used in ATLAS upgrades at CERN and in applications for medical imaging and airport security.

**Wire Bonding Services**

The GLADD facility has a Bondjet BJ820 Hesse & Knipps High Speed Fully Automated Thin Wire Wedge Wedge Bonder one of Hesse's market leading wedge bonding innovations, responding to all wire bonding challenges on a single platform for a variety of applications such as RF and microwave devices, COB, MCM and hybrids, fibre-optics and automotive using aluminium wire, gold wire (17.5μm up to 60μm) or ribbon. The BJ820 defines the benchmark in the industry for offering:

* Excellent wiring speed. (up to 7 bonds per second)
* One of the largest wire bonding work areas in the Industry enabling intelligent automation of extra-large products.
* Market leading high precision axis accuracy (axis positioning repeatability: 1μm at 3σ)
* Precise control of bond force (+/- 1 cN)
* Real time bond quality monitoring system.
* The PBS software supports control by host computer, product traceability and external statistical analysis.
* Process advantages – Wire bond Loop length: 70µm up to 20mm, Various loop form functions including Constant wire length, Constant loop height & Individual loop shapes.

Wire bonding inspection and electrical characterisation processes include:

* Bondjet BJ820 Integral Bond Quality Control - Continuous real time monitoring of wire deformation and transducer current within programmable upper and lower control limits.
* Dage 4000 Universal Pull Tester for testing wire bonding strength. The on-board statistical results analysis package provides test results by grade, mean load, standard deviation and CPK complete with distribution curve
* Heraeus HT4004 Environmental Chamber for Temperature cycling.
* Cascade S300 12” Semiconductor Probe Station & Wentworh Pegasus S2000 Probe Station with Thermal Chuck Chiller for temperature controlled electrical characterisation of bonded circuitry.
* Electrical testing using component testers, Megger or multimeters
* Traditional measurements using micrometers and callipers
* Various visual inspections using microscopes and visual comparison standards.

Our engineers and technical team are experienced in a variety of quality assurance methods. All measurement and inspection data is recorded and data can be extracted into a variety of user friendly reports, or more basic 'raw data' formats, which can be provided to customers on request.

All of our measuring and testing equipment is calibrated to be traceable to National Standards, where applicable. This is achieved either by calibration of equipment by UKAS accredited calibration laboratories, or calibration of master equipment by UKAS laboratories and internal calibration of measuring equipment.

**Bondjet 820 Bonder Specifications:**

Bonding Method: Ultrasonic wedge – wedge bonding

Bonding Area: X: 305mm

Y: 410mm

Z: 30mm

Theta: 420º

Wire: Aluminium, Gold (17.5µm to 60µm diameter)

Bond head (Angle of wire feed): 45º standard, (89º deep access or 60º optional)

**Note:** GLADD Facility currently provides tooling for 45º bondhead with 25µm bond wire. Customer options and tooling requirements can be identified and discussed during initial enquiry stage.

Design Considerations for customers

Minimal bond pad size – 50 µm width x 100 µm length

Test bond pad areas provided on items to be bonded.