

The logo for the Electronics & Photonics Innovation Centre (EPIC) features the word "epic" in a bold, lowercase, sans-serif font. The letters are a dark blue color. To the right of the text is a vertical blue line of the same color, which is part of the overall design.

epic

ELECTRONICS &
PHOTONICS
INNOVATION
CENTRE

The background of the document is a photograph of a modern building's interior. It shows a glass ceiling with several long, cylindrical light fixtures hanging from it. The lighting is bright, and the architecture is clean and contemporary. A semi-transparent blue rectangle is overlaid on the left side of the image, containing the title text.

OVERVIEW AND CAPABILITY DOCUMENT



EPIC OVERVIEW

OBJECTIVES

EPIC is a purpose-built innovation centre located in Torbay, in the heart of a rich technology cluster in the South West of the UK. The centre has three clear objectives: to provide a modern environment, state-of-the-art equipment and strategic business support to facilitate the growth of technology businesses.

The centre offers a modern environment for all types of technology businesses, with an impressive array of shared facilities throughout the building that help companies to attract and retain staff. The >£3.5M of shared equipment provides businesses with the technical capability they need without the burden of capital expenditure, allowing them to focus on their core business activities.

In addition, EPIC provides strategic business support through carefully selected delivery partners, ensuring that companies have access to relevant advice when needed. This approach provides businesses with the support they need to navigate the challenges of the technology industry and to take advantage of the opportunities available.

EPIC is an ideal location for all types of tech businesses that are looking for new or additional space to grow. With its modern facilities, state-of-the-art equipment, and strategic business support, EPIC provides a dynamic and supportive environment for businesses to innovate, collaborate, and succeed in today's fast-paced technology industry.

This document provides an overview of the equipment that is available to technology companies that take space within EPIC. This capability is expected to continuously grow to support the needs of the industry.

EPIC SPACES



FACILITIES

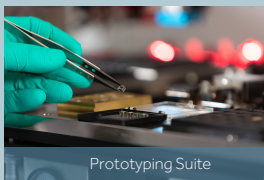
Businesses can choose their own office or lab which can be fully customised to suit the needs of their company. Sizes range from 35m² to 120m² to facilitate growth.

The competitive monthly rent provides 24/7 access to the centre and all other facilities including a classified cleanroom, fully-equipped prototyping suite, large boardroom, conference room, kitchens, showers, ample parking, secure indoor bicycle storage and comfortable breakout areas.

Rent also includes all utilities including electricity, broadband (1GB unlimited) and landlines (all UK calls) to allow businesses to focus on their innovation.



Modern Offices



Prototyping Suite



Conference Suites

EPIC SPACES



EPIC's ISO Class 7 Cleanroom provides a controlled environment with a limited number of particles per cubic metre of air. This allows for precise manufacturing and assembly processes that require high levels of cleanliness, such as in the production of medical devices and aerospace components.

A Fed STD Class 10,000 rating means that the cleanroom can maintain a maximum of 10,000 particles per cubic foot of air. This level of cleanliness is crucial to ensuring the quality and reliability of products that are produced within the cleanroom.

EPIC businesses can book time in this shared space to conduct assembly in this controlled environment. The centre is able to provide data to clients regarding particle counts, temperature and humidity.

A close-up, microscopic view of a mechanical assembly, possibly a microchip or a small engine component, illuminated with a strong blue light. The image is out of focus, showing the intricate details of the machinery. The background is dark, and the foreground shows the metallic surfaces of the assembly.

TECHNICAL CAPABILITY

INNOVATION

Every business that takes space within the centre is offered access to EPIC's classified cleanroom and >£3.5M of shared equipment. These facilities enable companies to conduct R&D, prototyping, assembly, microscopy and test all within a controlled and clean environment.

EPIC has partnered with some of the industry's leading equipment suppliers to collate an impressive range of technical capability to support its businesses. Being part of EPIC therefore offers companies access to apparatus that they ordinarily couldn't justify purchasing in their own right.

This allows businesses to offer additional processes and services to their customers without the need for subcontracting. Business can list the entire EPIC-owned capability as their own which helps raise their profile and win new contracts.

TECHNICAL CAPABILITY

TECHNOLOGY

EPIC's capability will continue to grow as it expands its network of suppliers. Currently the centre offers all of the following equipment to its businesses to use in a professional and collaborative environment:

- **DIE BONDING**
- **WIRE BONDING**
- **FIBRE ALIGNMENT**
- **DEVICE PACKAGING**
- **MICROSCOPY**
- **METROLOGY**
- **TEST & MEASUREMENT**
- **LASER MARKING**
- **PLASMA CLEANING**
- **3D PRINTING**
- **SHARED SOFTWARE**

DIE BONDING

PALOMAR 3880

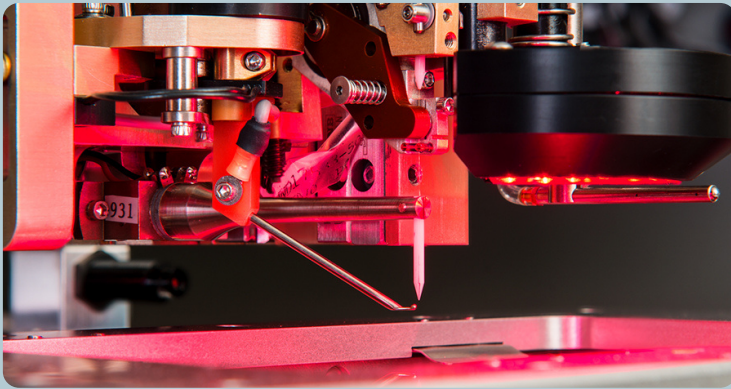


This component placement system offers the capability of four separate machines; eutectic die bonding, material dispensing, flip chip and UV bonding. The 3880 supports multiple applications including:

- Optical Transceivers
- 5G Power Amplifiers
- LiDar Products
- Active Optical Cable
- Chip-on-Carrier (CoC)
- Chip-on-Board (CoB)
- Passive Optics Assembly
- Gold Box Assembly
- Power LED Assembly
- Microwave Modules
- RF Packages
- MEMS / MOEMS
- Solid State Lasers
- VCSEL, PD, DFB Laser and Lens Attach

WIRE BONDING

PALOMAR 8000I



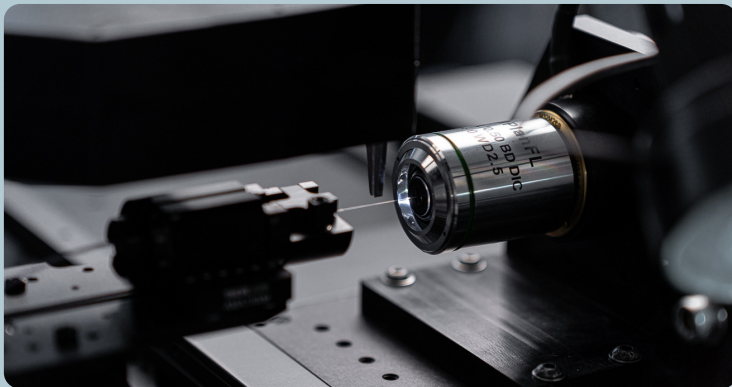
This fully automated thermosonic ball-and-stitch wire bonder is capable of ball bumping, stud bumping, wafer bumping, chip bumping and customisable looping profiles. The bonder is suitable for component assembly including complex hybrids, MCMs and high-reliability devices. Capability includes:

- Ball Bumping
- Gold Wire Bonding
- VisionPilot
- Bond Data Miner
- Intelligent Interactive Graphical Interface - i2Gi
- Vision Standardisation
- Automated Handler System
- Digitally Controlled NEFO Generator

FIBRE ALIGNMENT

NANOPOSITIONING

queensgate
a brand of PRIOR

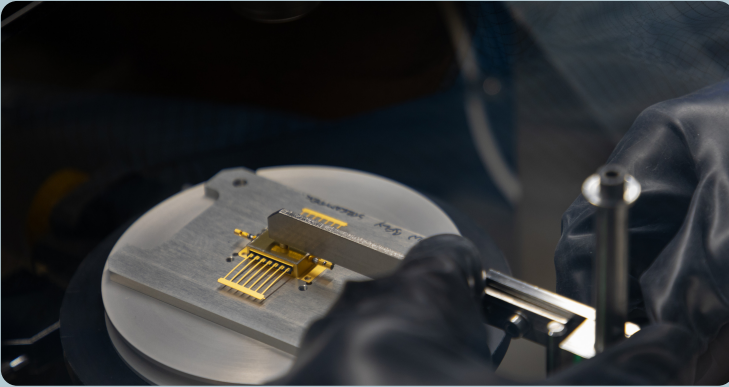


Nanopositioning specialists Queensgate have developed a bespoke fibre alignment system in collaboration with various photonics experts. This capability supports:

- Optical Inspection of Fibre Ends
- Active Alignment
- Alignment to Transceiver / Receiver
- Rotational Adjustment
- Modularity of Components
- Fibre Manipulation
- Functional Playback
- Adjustable Geometrical Gripper
- Piezo XY + Grab

DEVICE PACKAGING

PYRAMID HPS 10-19



Packaging experts Pyramid Engineering are the partner of choice for seam sealing. EPIC's hermetically sealing capability supports all hybrid style packages. This guarantees reliability every time products are sealed. Capability includes:

- Square, Rectangular, Circular and Vertical Lead Packages
- Range from 2mm to 152mm
- Plain or Step Lids up to 0.5mm
- Sealing Spec $>1 \times 10^{-9}$ mBar
- High Production Yields
- Accuracy 0.025mm
- Repeatability 0.025mm
- Automatic Height and Pressure Adjustment
- Easy-to-use Software
- In-house Leak Detection Capability

INDUSTRIAL MICROSCOPY

JCM-6000 PLUS SEM



In addition to a LV100ND Metallurgical Microscope and a SMZ745T Stereo Microscope from NIKON, in-house Scanning Electron Microscope (SEM) from JEOL is also available. The system includes high-vacuum functionality and a secondary electron detector. Other features include:

- Secondary Electron Imaging
- Backscattered Imaging
- Composition and Topography
- Dual Frame Imaging
- Wide-magnification from 10x up to 60.000x
- Elemental Analysis Device (EDS)
- Smart Coating (Gold and Platinum)

INDUSTRIAL METROLOGY

XT V 160 X-RAY / CT



With sub-micron feature recognition, EPIC's XT V 160 system offers high performance, non-destructive inspection of complex electronic components. Nikon's Xi Nanotech X-ray source paired with industry leading flat panel detectors produces best-in-class image quality, with seamless transition between 2D and 3D inspection.

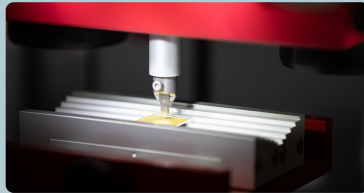
- Xi Nanotech X-ray Microfocus
- PCB Analysis Suite
- Oblique Angle Concentric Imaging
- 3D CT
- C.Clear Image Engine
- Laminography
- Automated Inspection
- 160kV tube
- 20W of Target Power and
>0.5 μ m Feature Recognition

TEST & MEASUREMENT

BOND TESTING



The Condor Sigma bond tester from XYZTEC provides unparalleled 0.075% accuracy. The system offers the following test features:

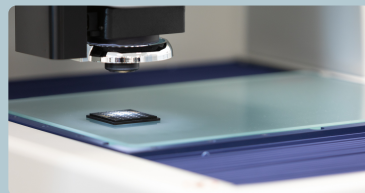


- Ball Shear
- Bending Test
- Cavity Shear
- Cold Bump Pull
- Die Shear
- Fatigue Test
- Impact Test
- Probe
- SMD Shear
- Wire Pull

VISION MEASURING



The Quick Vision Apex Pro from Mitutoyo offers fantastic in-house visual measuring capability. Features include:



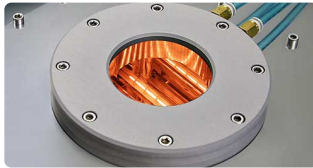
- Triangular Pattern Focus
- Programmable Magnification
- High-precision Lens
- High-resolution Camera
- Scale Resolution 0.1 μm
- QVPAK Software
- Flexible QV Programming Language

ADDITIONAL CAPABILITY

VACUUM REFLOW



The ATO SRO 700 is ideal for R&D or low volume batch production generating high quality results; designed for multiple solder reflow processes.



Piped Nitrogen

LASER MARKING



The Keyence MD-X2500A is a 25w Hybrid Laser Marker with 3D Marking, Z tracking (Autofocus with 42mm range), X-Y Tracking and 2d Code Reader.



Piped Dry Compressed Air

PLASMA CLEANING



The HPT-200 system from Henniker plasma supports plasma cleaning and etching. The system is suitable for routine cleaning and activation for a wide range of materials.

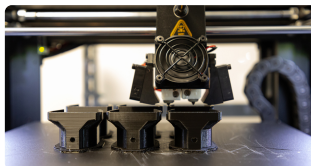


Nitrogen Cabinets

3D PRINTING



The Raise 3D Pro 2 Plus offers FFF print technology and build volumes up to 305x305x605mm



Particle Counters



Environmental Simulation



epic

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