

epic

ELECTRONICS &
PHOTONICS
INNOVATION
CENTRE

**OVERVIEW AND
CAPABILITY
DOCUMENT**



EPIC OVERVIEW

OBJECTIVES

Located in Torbay (South West UK) in the heart of a rich technology cluster, EPIC has three clear objectives; these are to provide the environment, equipment and support to facilitate business growth.

The purpose-built centre offers a modern environment for all types of technology businesses. It has an impressive array of shared facilities throughout the building that help companies to attract and retain staff.

>£3M of shared equipment provides businesses with the technical capability they need without the burden of capital expenditure. The centre also provides strategic business support through carefully selected delivery partners. This approach ensures that companies have access to relevant advice when needed.

EPIC is therefore an ideal location for all types of tech businesses that are looking for new or additional space to grow.

EPIC SPACES



LOCATION

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



Classified cleanroom



Prototyping Suite

TECHNICAL CAPABILITY

INNOVATION

Every business that takes space within the centre is offered access to EPIC's classified cleanroom and >£3M 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

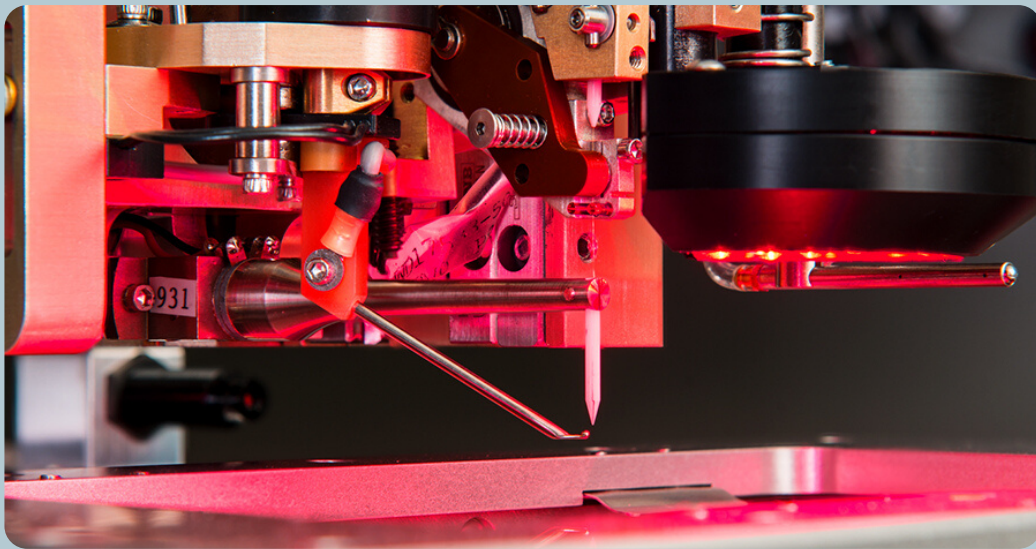


This component placement system offers the capability of four separate machines; eutectic die bonding, material dispensing, flip chip and UV bonding. The 3880 supports multiple applications including:

- 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



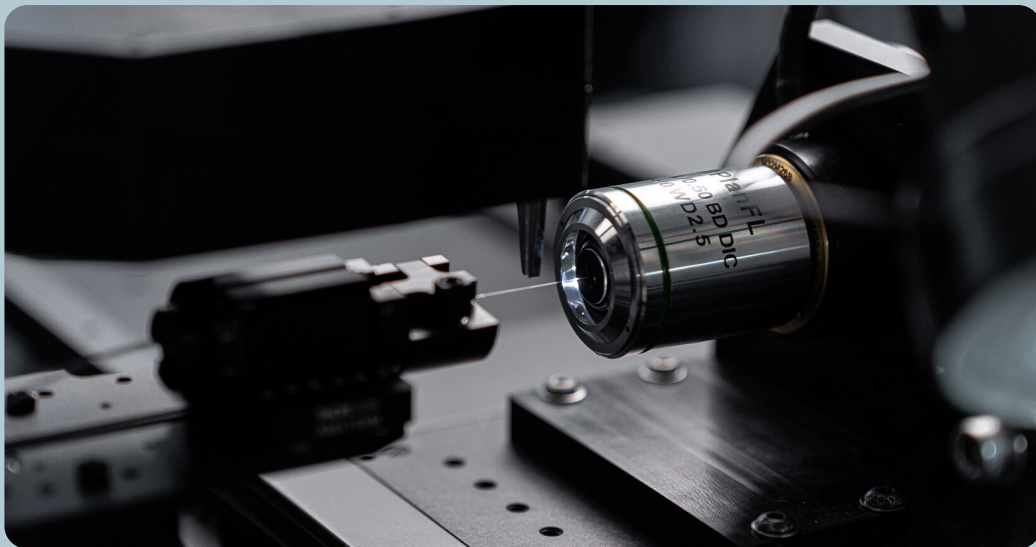
This fully automated thermosonic ball-and-stitch wire bonder is capable of ball bumping, stud bumping, wafer bumping, chip bumping and customisable looping profiles. The bonder is suitable for component assembly including complex hybrids, MCMs and high-reliability devices. Capability includes:

- 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

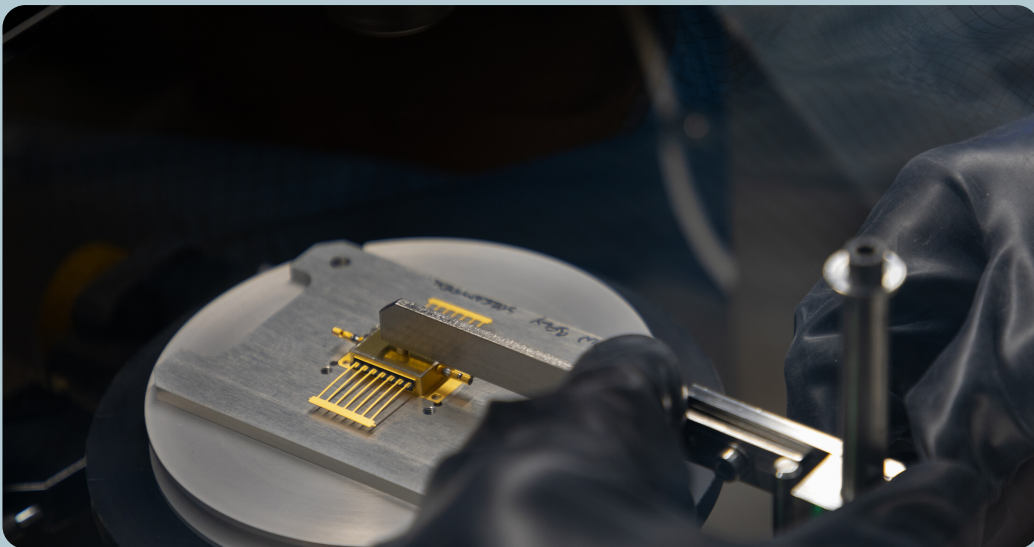


Nanopositioning specialists Queensgate have developed a bespoke fibre alignment system in collaboration with various photonics experts. This capability supports:

- 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.

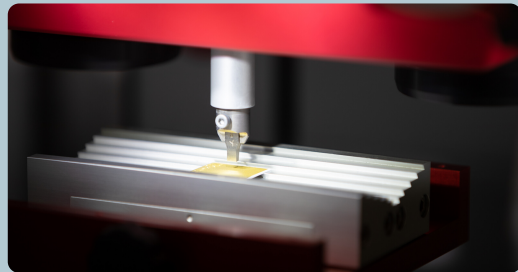
- Xi Nanotech X-ray Microfocus
- PCB Analysis Suite
- Oblique Angle Concentric Imaging
- 3D CT
- C.Clear Image Engine
- Laminography
- Automated Inspection
- 160kV tube
- 20W of Target Power and >0.5 μ m Feature Recognition

TEST & MEASUREMENT

BOND TESTING



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

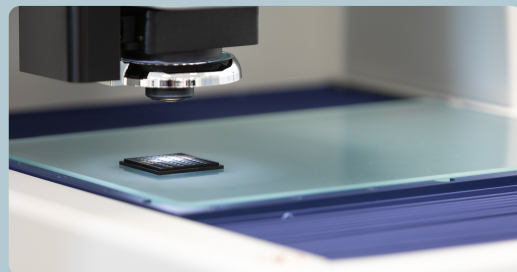


- Ball Shear
- Bending Test
- Cavity Shear
- Cold Bump Pull
- Die Shear
- Fatigue Test
- Impact Test
- Probe
- SMD Shear
- Wire Pull

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

LASER MARKING

KEYENCE

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.



PLASMA CLEANING

henniker plasma

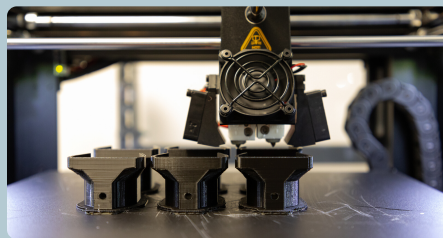
The HPT-200 system from Henniker plasma support plasma cleaning and etching. The system is suitable for routine cleaning and activation for a wide range of materials.



3D PRINTING

RAISE3D

The Raise 3D Pro 2 Plus offers FFF print technology and build volumes up to 305x305x605mm. Shared SolidWorks Premium licences are also available to support prototyping.



Piped Nitrogen



Piped Dry Compressed Air



Nitrogen Cabinets



Particle Counters



Environmental Simulation



epic

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