

Did you know...
every Boeing 777 is fitted
with 52 of Morgan's ultrasonic
fuel level sensors?



▶ Morgan Transducers and Sensors

▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Sensors & Transducers

Morgan Electro Ceramics is a world leader in the design, manufacture and optimisation of electro ceramic materials, sensors and systems. We offer an extensive portfolio of piezoceramic materials, world-class design expertise and highly specialist manufacturing capabilities, allowing us to create a total bespoke solution to meet a very wide range of customer needs.

Morgan Electro Ceramics designs and manufactures specialised [piezo ultrasonic transducers](#), [piezo ultrasonic sensors](#) and [passive piezo sensors](#) for mechanical, electrical and electronics applications in medical, aerospace, automotive, industrial and defence markets. We offer a cost-effective sub-contract manufacturing service for prototype to production volumes.

For more information, or to discuss your application with a Morgan Electro Ceramics engineer, please [contact us](#).



Products:

- [Ultrasonic Transducers](#)
- [Ultrasonic Sensors](#)
- [Passive Piezo Sensors](#)

Capabilities:

- [Transducer Manufacture](#)
- [Transducer Design](#)
- [Transducer Testing](#)

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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Did you know...
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and hostile environments?

Morgan Transducers and
Sensors

Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
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Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
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Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

Transducer and Sensor
Manufacture

Transducer and Sensor
Design

Transducer and Sensor
Testing

Contact Us

Latest News

Vacancies

Morgan Electro Ceramics

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Case Studies

Morgan Electro Ceramics provides material expertise for G.E. Aviation (formerly Smiths Aerospace)



Leading manufacturer of electro ceramic material solutions, Morgan Electro Ceramics, has been awarded a manufacturing contract by G.E. Aviation (formerly Smiths Aerospace), the aerospace equipment and systems company. Morgan Electro Ceramics has been supplying G.E. Aviation with its piezoelectric ceramic sub-assembly for fuel-level sensors since the early 90's but will now also be responsible for the manufacture of the full sensors at its facilities in the UK.

“We have sub-contracted this part of the process to enable us (G.E. Aviation) to focus on the design and manufacture of fuel systems that we provide for all our customers,” explains Martin Kirkham, Manufacturing Systems Manager, G.E. Aviation. “We chose Morgan Electro Ceramics because of its expertise with the material involved and its process capabilities. We trusted them to take over the process quickly and seamlessly and I’m delighted to say that this was achieved.”

The sensors, which form part of the 60 ultrasonic fuel-level probes found in each fuel system of the Boeing 777 aircraft, include Morgan Electro Ceramics’ PZT5A2 piezoceramic material. This robust ceramic was originally developed for industrial applications but the temperature stability of the piezoceramic material makes it ideal for the aerospace environment. Further, Morgan Electro Ceramics’ high precision engineering capability ensures consistent and reliable production and functional testing (echo response) to meet the required quality standards for G.E. Aviation.

“This successful transition of the production process proves that we have more than just materials expertise to offer our customers,” comments Tony Beswick, General Manager, Morgan Electro Ceramics. “Our applications engineering and our manufacturing techniques are second to none, and I’m confident that we can continue to add value to our customer’s processes.”

Morgan Electro Ceramics is a division of Morgan Technical Ceramics that supplies the aerospace industry with a range of materials and expertise for applications including instrumentation and control systems, engine monitoring, missile guidance systems and aero-engine manufacture and repair.

About Morgan Electro Ceramics

Morgan Electro Ceramics (MEC) has a comprehensive range of Piezoelectric and Dielectric materials from which many products are manufactured, including

Transducers, Sensors, Actuators and High Voltage & RF capacitors. MEC has established an enviable reputation for providing value-added solutions through world-class research and development, innovative design and, perhaps most important of all, application engineering.

As a subsidiary of The Morgan Crucible Company, MEC forms part of the Morgan Technical Ceramics Group. The Group includes Morgan Advanced Ceramics and from manufacturing locations in North America, Europe and Asia, it supplies an extensive range of products, including ceramic components, braze alloys, ceramic/metal assemblies and engineered coatings.

For more information on Morgan Electro Ceramics [contact us](#).

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- ▶ Morgan Transducers and Sensors

- ▶ Ultrasonic Transducers
 - ▶ Ultrasonic Cleaning
 - ▶ Ultrasonic Therapy
 - ▶ Dental descalers
 - ▶ Pre-stressed Tubes

- ▶ Ultrasonic Sensors
 - ▶ Accelerometers
 - ▶ Blood Pressure Sensors
 - ▶ Air-in-line sensors (bubble detectors)
 - ▶ Integrated sensors
 - ▶ Fuel level sensors

- ▶ Passive Piezo Sensors
 - ▶ Wheel balancing
 - ▶ Impact Sensors

- ▶ Transducer and Sensor Manufacture

- ▶ Transducer and Sensor Design

- ▶ Transducer and Sensor Testing

- ▶ Contact Us

- ▶ Latest News

- ▶ Vacancies

- ▶ Morgan Electro Ceramics

- ▶  Deutsch

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Capabilities:

- [Transducer Manufacture](#)
- [Transducer Design](#)
- [Transducer Testing](#)

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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- ▶ Ultrasonic Transducers
 - ▶ Ultrasonic Cleaning
 - ▶ Ultrasonic Therapy
 - ▶ Dental descalers
 - ▶ Pre-stressed Tubes

- ▶ Ultrasonic Sensors
 - ▶ Accelerometers
 - ▶ Blood Pressure Sensors
 - ▶ Air-in-line sensors (bubble detectors)
 - ▶ Integrated sensors
 - ▶ Fuel level sensors

- ▶ Passive Piezo Sensors
 - ▶ Wheel balancing
 - ▶ Impact Sensors

- ▶ Transducer and Sensor Manufacture

- ▶ Transducer and Sensor Design

- ▶ Transducer and Sensor Testing

- ▶ Contact Us

- ▶ Latest News

- ▶ Vacancies

- ▶ Morgan Electro Ceramics

- ▶  Deutsch

Sensors & Transducers

Ultrasonic Transducers

Morgan Electro Ceramics' piezoceramic materials feature very good electrical loss properties, high coupling and excellent mechanical properties. Our excellent machining capabilities enable us to produce uniform (flat) geometries.

As a result, we are able to design and build very efficient [ultrasonic sensors](#) and [ultrasonic transducers](#). Standard products and bespoke solutions are available for medical, aerospace, automotive, industrial and defence applications.

With our patented cold weld technology we are able to manufacture very efficient piezoceramic stacks with low losses and high drive intensities, offering typically 20% better performance than conventional stacks.



Our transducers are designed using a suite of in-house [design tools](#), including finite element analysis and modelling software, backed by an extensive [test and measurement capability](#), including laser vibrometry and displacement measurement.

Our design team has the expertise and the resources to optimise all types of [piezo sensor](#) and [piezo transducer](#). They are experienced in all aspects of transducer design from acoustics and damping to adhesive technology. They have the capability to fine tune piezo materials, and to match drive circuitry to transducer characteristics for high performance in critical systems.



Product Types:

- [Ultrasonic Cleaning](#)
- [Ultrasonic Therapy](#)

- [Dental descalers](#)
- [Pre-stressed Tubes](#)

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) |
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- ▶ Morgan Transducers and Sensors

- ▶ Ultrasonic Transducers
 - ▶ Ultrasonic Cleaning
 - ▶ Ultrasonic Therapy
 - ▶ Dental descalers
 - ▶ Pre-stressed Tubes

- ▶ Ultrasonic Sensors
 - ▶ Accelerometers
 - ▶ Blood Pressure Sensors
 - ▶ Air-in-line sensors (bubble detectors)
 - ▶ Integrated sensors
 - ▶ Fuel level sensors

- ▶ Passive Piezo Sensors
 - ▶ Wheel balancing
 - ▶ Impact Sensors

- ▶ Transducer and Sensor Manufacture

- ▶ Transducer and Sensor Design

- ▶ Transducer and Sensor Testing

- ▶ Contact Us

- ▶ Latest News

- ▶ Vacancies

- ▶ Morgan Electro Ceramics

- ▶ Deutsch

Sensors & Transducers

Ultrasonic Cleaning



Morgan Electro Ceramics' ultrasonic cleaning transducers deliver high performance in the harshest industrial environments. They can be used in continuous mode, or intermittently, and have a proven track record in ultrasonic cleaning applications as diverse as cleaning semiconductors and engine parts.

Our ultrasonic cleaning transducers can be supplied with exposed contacts for soldering, or complete with flying leads. All our standard products are varnish treated to minimize resistance to humidity and other atmospheric conditions, and come complete with a grit-blasted base for good [adhesive bonding](#) in tanks. A thread for stud mounting is optional.

Standard products and bespoke solutions are available for medical, industrial, automotive, electronic and other cleaning applications.

Standard Transducers for Ultrasonic Cleaning

Frequency*	Continuous power*	Type	Part No	Contacts	Leaded Version
40 KHz	50 Watt	Langevin	0909/xxx	pdf	pdf
25 KHz	50 Watt	Langevin	09133/xxx	pdf	pdf
25 KHz	100 Watt	Langevin	0973/xxx	pdf	pdf
40 KHz	30 Watt	Unimorph	0914/xxx	-	pdf

* Frequency is specified as mounted on tank, for exact specification see specification sheet. Power rating is an approximation as it is highly dependant on operating conditions.

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▶ Morgan Transducers and
Sensors

▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
(bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Sensors & Transducers

Transducers for Ultrasonic Therapy



Morgan Electro Ceramics' ultrasonic therapy transducers offer cost-effective, high-efficiency performance with low self-heating for a wide range of therapy applications including equipment for massaging, skin treatments and soft tissue therapies.

Our ultrasonic therapy transducers are supplied to OEM specifications, in a wide range of sizes and shapes, with frequencies and wiring to suit customer needs.

Single and dual frequency transducers are available in standard and bespoke designs.

Frequency*	Diameter Type	Type	Part No	Specification
1.0 MHz	34mm	Cup	09134/000	 pdf

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▶ Morgan Transducers and Sensors

▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Transducers

Dental descalers



Morgan Electro Ceramics' ultrasonic descaling transducers and components offer cost-effective high performance for dental applications.

Our piezoceramic rings can be manufactured to very high mechanical specification to minimise mechanical losses. Our extensive manufacturing capability in this highly specialised sector allows us to offer high quality, high volume production very cost-effectively.

For customers looking for a total solution, we offer a complete design, manufacture and test service for dental transducers. These are designed using our a suite of in-house specialist [design tools](#), including finite element analysis and modelling software, backed by an extensive [test and measurement capability](#), including laser vibrometry and displacement measurement.

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▶ Morgan Transducers and Sensors

▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

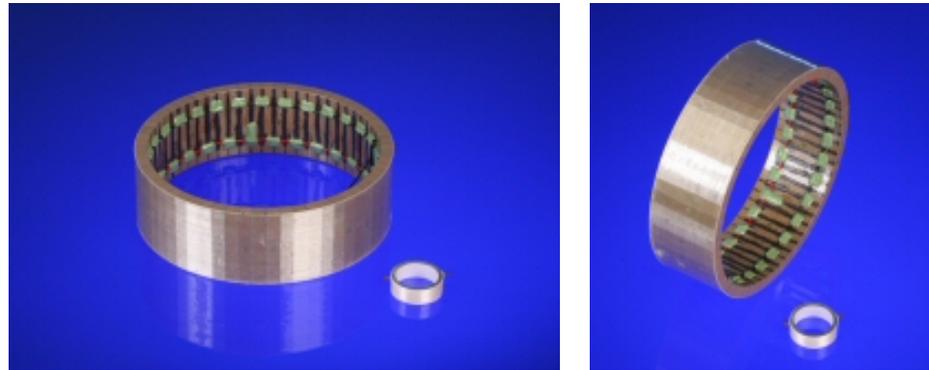
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▶  Deutsch

Sensors & Transducers

Pre-stressed Fibre Wrapped Tubes



Morgan Electro Ceramics' fibre-wrapped pre-stressed piezoceramic tubes offer high coupling and low energy loss, making them ideal for use in high-energy 360° projectors for sub-sea defence and commercial sonar applications.

The tubes are pre-stressed during manufacture with glass-fibre wrapping to increase their reliability under high-drive conditions. The process increases the maximum tensile stress, which in turn increases maximum drive voltage. The risk of ceramic failure through excess tension – a common problem with standard piezoceramic tubes – is minimised.

Small tubes (up to 100mm) are manufactured from a monolithic piezoceramic tube, while larger tubes (up to 500mm) are made with multiple tapered piezoceramic tube segments.

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[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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- ▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

- ▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

- ▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

- ▶ Transducer and Sensor Manufacture

- ▶ Transducer and Sensor Design

- ▶ Transducer and Sensor Testing

- ▶ Contact Us

- ▶ Latest News

- ▶ Vacancies

- ▶ Morgan Electro Ceramics

- ▶  Deutsch

Sensors & Transducers

Ultrasonic Sensors



Morgan Electro Ceramics' piezoceramic materials feature very good electrical loss properties, high coupling and excellent mechanical properties.

As a result, we are able to design and build very efficient [ultrasonic sensors](#) and [ultrasonic transducers](#). Standard product and bespoke solutions are available for medical, aerospace, industrial and defence applications.

We produce ultrasonic sensors using time-of-flight, Doppler and acoustic principals, for the measurement of a wide range of critical parameters such as level, flow, vibration, presence, distance and pressure.

Piezo sensors and piezo transducers can be combined with optical, temperature and / or pressure sensors to provide OEMs with a complete multi-functional [integrated sensor](#) package from a single-source.

Our sensors are designed using our suite of in-house specialist [design tools](#), including finite element analysis and modelling software, backed by an extensive [test and measurement capability](#), including laser vibrometry and application-specific functional testing (e.g. transmit / receive sensitivity in a time of flight application).

Our design team has the expertise and the resources to optimize all types of piezo [ultrasonic sensor](#) and piezo [ultrasonic transducer](#). They are experienced in all aspects of sensor design from acoustics and damping to adhesive technology. They have the capability to fine tune piezo materials and to match drive circuitry to transducer characteristics for high performance in critical systems.

Product Types:

- [Accelerometers](#)
- [Blood Pressure Sensors](#)
- [Air-in-line sensors \(bubble detectors\)](#)
- [Integrated sensors](#)
- [Fuel level sensors](#)

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our piezoelectric blood pressure sensors provide fast, accurate ultrasensitive readings?



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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

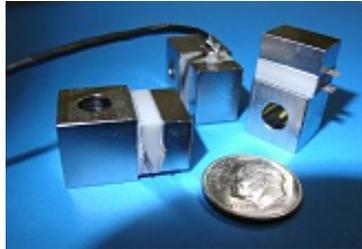
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▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Sensors

Accelerometers



Morgan Electro Ceramics' piezo materials are ideal for use in accelerometers, for the measurement of vibration in aerospace applications, for example, because of their excellent stability and high sensitivity. They can be used in compression or shear mode to form single or multi-axis accelerometers with standard housings or customer-designed packages.

For even higher levels of sensitivity, a range of bimorph materials is available.

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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Sensors

Blood Pressure Sensors



Piezoelectric technology provides ultrasensitive readings

The Arterial Pressure Transducer (APT) is a piezoelectric transducer that provides fast, accurate blood pressure readings. Like all of Morgan Electro Ceramics' ultrasonic transducers, it has been designed using our world leading piezo materials. These materials have extremely good electrical loss properties, high coupling and excellent mechanical properties.

We design our transducers using in-house modeling software backed by extensive test and measurement capabilities, including laser vibrometry for displacement measurement. All of Morgan Electro Ceramics' transducer solutions are designed and manufactured to meet the requirements of customer specifications, for reliable performance in the most demanding environments.

The APT's 1.25" diameter probe has a resonant frequency of 1.8kHz, capacitance of 2000pf, and an output of 3 volts/Newton. It can be used with blood pressure cuffs, works well as a microphone, and comes with a shielded cable. It is available in O.E. M. quantities from stock.

A leader in piezoelectric technology

Morgan Electro Ceramics is a subsidiary of the Morgan Crucible Group Plc and forms part of the Morgan Technical Ceramics division. Morgan Electro Ceramics is a world leader in the design and manufacture of piezo components used in medical electronics applications, including:

- gas and liquid flow sensors
- doppler probes for fetal monitoring
- air in-line sensors
- actuators for miniature pumps

- ultrasonic imaging
- pacemakers

For more information about the APT or our ability to provide custom fabricated piezoelectric components and assemblies, please contact us using the details below:

APT Customer Services, 232 Forbes Road, Bedford, Ohio 44146-5418, USA

Telephone: +1 440 232 8600

Fax: +1 440 232 8731

Email: sales@morganelectroceramics.com

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It comprises [Morgan Advanced Ceramics](#) and [Morgan Electro Ceramics](#).

Did you know...
our transducers are designed to
perform reliably in the most demanding
and hostile environments?

Morgan Transducers and
Sensors

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- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
(bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Sensors

Air-in-line sensors (ultrasonic bubble sensors)



Morgan Electro Ceramics' ultrasonic air-in-line sensors and ultrasonic bubble detectors (also known as ultrasonic bubble sensors) offer very high reliability for the detection of air bubbles in liquid flows in medical dosing applications.

Our design expertise and manufacturing capability in this highly specialised sector allows development of high specification products to meet the tight tolerances of our medical OEM customers.

We can supply sensors and systems for applications including [volumetric infusion pumps](#), hemodialysis machines, blood collection and component separation instruments and cardio-pulmonary bypass systems.

Our ultrasonic air-in-line sensors and ultrasonic bubble detectors can be designed to suit a variety of plastic tubing as commonly used in medical equipment. The quality of our designs and the high performance of our piezo materials mean that bubble sizes down to four microlitres volume or just two millimetres diameter can be detected.

Ultrasonic air-in-line sensors and ultrasonic bubble detectors are available on their own or complete with integrated control electronics and / or additional integrated sensors. For example, the air-in-line sensor can be combined with optical sensors to detect that the housing is correctly closed, for fail-safe operation.

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
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- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Sensors

Integrated sensors

Morgan Electro Ceramics' piezo ultrasonic sensors can be combined with optical, temperature, pressure and / or other sensors to provide OEMs with a complete multi-functional integrated sensor package from a single-source.

For example, the air-in-line sensor can be combined with optical sensors to detect the presence of the pipe or that the housing is correctly closed, for fail-safe operation.

Or a temperature sensor can be incorporated into a piezo ultrasonic sensor to provide built-in temperature compensation, for more accurate measurement in variable environmental conditions.

By combining multiple sensors in a single package in this way, OEMs can reduce the number of components in their product, and simplify the supply chain for more cost effective manufacture and faster time-to-market.

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
(bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Ultrasonic Sensors

Fuel level sensors



Morgan Electro Ceramics' piezo ultrasonic level sensors are favoured in high performance automotive and aerospace applications for reliable, accurate level measurement in the harsh environment of the fuel tank.

The system calculates the fuel level based on a time-of-flight measurement made by the piezo sensor. The excellent sensitivity of Morgan Electro Ceramic' materials, coupled with our design expertise in optimising sensors for these applications has led to the development of innovative level measurement solutions for [commercial aircraft](#), fighter planes and [cars](#).

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

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Did you know...
every Boeing 777 is fitted
with 52 of Morgan's ultrasonic
fuel level sensors?



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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Sensors & Transducers

Passive Piezo Sensors

Wheel Balancing Sensors



Morgan Electro Ceramics' wheel balancing sensors are robust, accurate and offer excellent value for money. They are used in automotive applications all over the world.

Our wheel balancing sensors can be supplied with exposed contacts for soldering, or complete with IDC or flying leads, and with over-moulded or other custom-designed housings.

Sensing material	Type	No. of sensing elements	Part No.	Contacts	Leaded version
5A2	Compression	2	0911/000	 pdf	upon request
403	Compression	2	0911/001	 pdf	upon request

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

Impact Sensors



Morgan Electro Ceramics' impact sensors use piezoceramic material to detect and measure impact forces in applications as varied as coin validation and firmness testing of fruit.

Our impact sensors can be optimised for consistency of response in a variety of conditions (angle of impact, temperature etc).

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) |
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Did you know...
our piezoelectric blood pressure sensors provide fast, accurate ultrasensitive readings?



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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Transducer and Sensor Manufacturing

Morgan Electro Ceramics' piezoceramic materials feature very good electrical loss properties, high coupling and excellent mechanical properties. This extensive portfolio of materials is combined with specialist manufacturing capabilities for cost-effective production of piezoceramic components and subassemblies in prototype to production volumes.

We are skilled in the assembly of custom products to meet tight customer specifications, and have invested in specialist equipment and resources to be able to meet a wide range of requirements.

With our patented cold weld technology we are able to manufacture very efficient piezoceramic stacks with low losses and high drive intensities, offering typically 20% better performance than conventional stacks.

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, contact us by email or phone.



- Custom assembly
- Clean room facilities
- Wire bonding / pulse soldering
- Thermal cycling
- Humidity chamber
- Encapsulation (thermoplastic and thermoset)

Our transducer and sensor manufacturing facilities are certified to ISO 9000:2000 and ISO 14001.

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

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▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Transducer and sensor design

Morgan Electro Ceramics' offers a world-class design capability for piezo sensors and systems for mechanical, electrical and electronics applications in medical, aerospace, automotive, industrial and defence markets.

Our design team has the expertise and the resources to optimize all types of piezo sensor and piezo transducer. They are experienced in all aspects of transducer design from acoustics and damping to adhesive technology. They have the capability to fine tune piezo materials, and to match drive circuitry to transducer characteristics for high performance in critical systems.

- 3D finite-element analysis software
- Proprietary computer modelling software
- Custom formulated piezoceramic materials and shapes
- Single and multi-layer products
- Stack transducers – conventional and cold weld
- Flexural mode transducers
- Bonded and encapsulated assemblies
- Bimorph actuators and sensors

For more information, or to discuss your application with a Morgan Electro Ceramics' engineer, please [contact us](#).

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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▶ Morgan Transducers and Sensors

▶ Ultrasonic Transducers

- ▶ Ultrasonic Cleaning
- ▶ Ultrasonic Therapy
- ▶ Dental descalers
- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors (bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor Manufacture

▶ Transducer and Sensor Design

▶ Transducer and Sensor Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Transducer and sensor testing



Morgan Electro Ceramics' world-class design capability for piezo sensors is backed by an extensive in-house capability for the testing of electrical properties of resonating structures.

- Impedance analyser (Agilent 4194A and 4294A)
- Laser vibrometer
- Acoustic characterisation (tank test) and echo response rigs
- Sound pressure measurement and beam characterisation
- Shaker table, charge sensitivity measurement (for accelerometers)
- Power meter
- Optical inspection including SEM and vision CMM

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) | [Site Map](#) | [Legal Notice](#)

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- ▶ Morgan Transducers and Sensors
- ▶ Ultrasonic Transducers
 - ▶ Ultrasonic Cleaning
 - ▶ Ultrasonic Therapy
 - ▶ Dental descalers
 - ▶ Pre-stressed Tubes
- ▶ Ultrasonic Sensors
 - ▶ Accelerometers
 - ▶ Blood Pressure Sensors
 - ▶ Air-in-line sensors (bubble detectors)
 - ▶ Integrated sensors
 - ▶ Fuel level sensors
- ▶ Passive Piezo Sensors
 - ▶ Wheel balancing
 - ▶ Impact Sensors
- ▶ Transducer and Sensor Manufacture
- ▶ Transducer and Sensor Design
- ▶ Transducer and Sensor Testing
- ▶ Contact Us
- ▶ Latest News
- ▶ Vacancies
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Contact Us

For prompt service, we've made it easy for you to contact us.

1) Direct contact details:

Morgan Electro Ceramics,
 Bursledon Road, Thornhill,
 Southampton, SO19 7TG
 Telephone: +44 (0)2380 444811
 Fax: +44 (0)2380 431768

Interactive Location Map



2) Alternately you can use the contact form below:

Select your region and click 'Select'...

3) To contact other Morgan Technical Ceramics manufacturing sites, select from the list below

Interactive Location Map (Zoom in By Continent)



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[Europe](#)



[China](#)

Information by Manufacturing Site: [America](#) [Europe](#) [China](#)

America

Morgan Advanced Ceramics Inc, Diamonex Products, Allentown PA



This site produces polycrystalline and amorphous Diamond products and is known in the market by the trade name Diamonex. The main products are [DLC \(Diamond Like Carbon\) coating](#), [Wear resistant windows](#), [CVD Diamond CMP Pad Conditioners and Heat-spreaders](#). The site also manufactures [Ion Beam Systems](#), [CVD Diamond Components and Composite Products](#) & [DIAMONDSHIELD®](#)

Address: Morgan Advanced Ceramics Inc Diamonex Products 7331 William Avenue Allentown PA 18106 USA
Telephone: +1 610-366-7100
Fax: +1 610-366-7144
[Web Site](#)

↑ Return to top

Morgan Electro Ceramics, Bedford, OH



This site manufactures piezoelectric ceramics and designs and builds transducers. Processes include Iso Pressing, Die Pressing, Tape Casting, multilayer electroding and co-firing processing

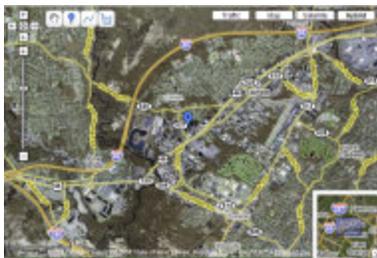
Morgan Electro Ceramics, Customer Services, 232 Forbes Road, Bedford, Ohio 44146-5418, USA
Telephone: +1 440 232 8600
Fax: +1 440 232 8731

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[Web Site](#)

↑ Return to top

Morgan Advanced Ceramics Inc, Fairfield, NJ

- **Wesgo/Duramic Products**
- **Bolt Technical Ceramics**



Utilising the range of Wesgo Ceramics, the Fairfield site manufactures similar products to Hayward Ceramics but their focus is on prototype or small – medium production. Fairfield offers support to the other MTC sites but also excels in rapid turnaround for custom parts. Processes include Iso-static and die pressing, green machining, firing, and hard grinding.

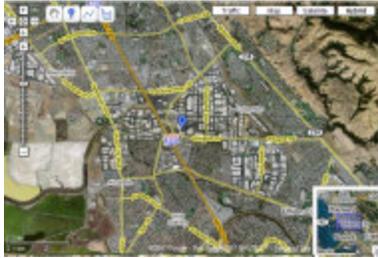
Address: Morgan Advanced Ceramics Inc, Wesgo/Duramic Products, 26 Madison Road Fairfield NJ 07004 USA
Telephone: +1 973 227 8877
Fax: +1 973 227 7135

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↑ Return to top

Morgan Advanced Ceramics Inc, Hayward, CA

- **Wesgo Ceramic Products**
- **Wesgo Metals**
- **Engineered Coatings**



This site has three distinct manufacturing facilities

Wesgo Ceramic Products **Wesgo Metals** **Engineered Coatings**

Address: 2425 Whipple Road, Hayward, CA 94544, USA
Telephone: +1 (510) 491 1100
Fax: +1 ((510) 491 1287

Wesgo Ceramic Products

Manufactures custom made ceramic components from 94% - 99.5% alumina. The site has an extensive refractory metallising department and components can be supplied with Molybdenum or Molybdenum-manganese suitably plated ready for brazing. On-site processes include powder/mix preparation, Iso-static pressing, die pressing, slip casting, firing, grinding, metallising and brazing. Primary markets are Power Tube, Semiconductor equipment, lasers and medical.

Address: Morgan Advanced Ceramics Inc, Wesgo Ceramic Products, 2425 Whipple Road, Hayward, CA 94544 USA
Telephone: +1 510 491-1100
Fax: +1 510 491-1175

[Web Site](#)

Wesgo Metals

Manufactures precious and non-precious metal braze alloys and related metal products. Products are high purity, high temperature, low vapour pressure braze alloys of gold, silver, palladium and platinum. These alloys can be manufactured as foil, wire, powder, paste or pre-forms. Most products are made to customer specifications. On-site processes include batch and continuous vacuum melting, atomizing, wire drawing, rolling, melt spinning, laser cutting, coiling and metal stamping.

Address: Morgan Advanced Ceramics Inc, Wesgo Metals 2425 Whipple Road, Hayward, CA 9444 USA
Telephone: +1 510 491-1100
Fax: +1 510 491-1175

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Engineered Coatings

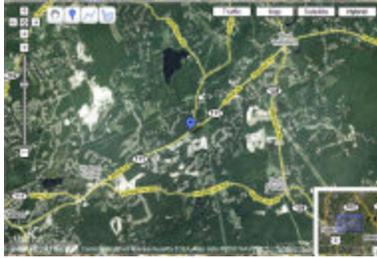
Engineered Coatings Division is an applicator of liquid soft coatings such as Teflon / PTFE, Solid Dry Film Lubricants, and low-VOC water based coatings for a wide range of markets. The majority of the coatings are cured at elevated temperature, but ambient cured coatings are also available. We are licensed applicators of the E/M coatings products.

Address: Morgan Advanced Ceramics Inc, Engineered Coatings, 2425 Whipple Road, Hayward, CA 94544 USA
Telephone: +1 510 491-1207
Fax: +1 510 491-1230

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↑ Return to top

Morgan Advanced Ceramics Inc, CVD Materials, Hudson, NH



The Hudson site manufactures CVD silicon carbide and Pyrolytic boron nitride ceramics, made by a chemical vapor deposition (CVD) process. The resulting products are machined to meet the customers' drawing and specifications. This site was formerly recognised by the name PMI (Performance Materials Inc).

Address: Morgan Advanced Ceramics Inc, CVD Products, 4 Park Avenue Hudson New Hampshire 03051-3927 USA.

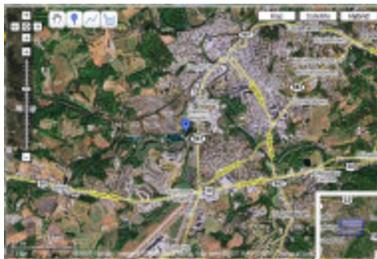
Telephone: +1 603 598-9122

Fax: +1 603 598-9126

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↑ Return to top

Morgan Advanced Ceramics Inc, GBC Materials, Latrobe, PA



This site manufactures high volume alumina ceramic components and glass shapes. Recognised by the GBC™ trademark, products range from 94% - 99.5% alumina to a wide variety of sealing glasses. Processes are mix preparation, die pressing, and firing with the equipment dedicated to very high volume applications.

Address: Morgan Advanced Ceramics Inc, GBC Products 580 Monastery Drive. Latrobe, PA 15650

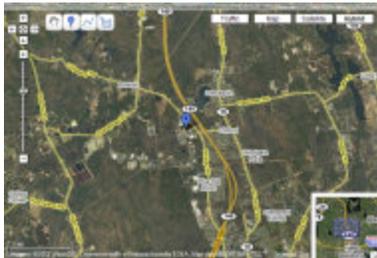
Telephone: +1 724 537-7791

Fax: +1 724 537-4910

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↑ Return to top

Morgan Advanced Ceramics Inc, Alberox Products, New Bedford, MA



This site specialises in ceramic/metal hermetic seals. Recognised in the market by the trade name "Alberox™", New Bedford's skills represent the marriage of ceramic to metal using the Wesgo™ precious metal braze alloys. New Bedford is a fully integrated facility from ceramic mix preparation and component manufacture, metallising, brazing and testing of hermetic seals.

Address: Morgan Advanced Ceramics Inc Alberox Products 225 Theodore Rice Blvd. New Bedford MA 02745 USA

Telephone: +1 508 995-1725

Fax: +1 508 995-6954

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↑ Return to top

[America](#) [Europe](#) [China](#)

Europe

Morgan Electro Ceramics, BV, Eindhoven, The Netherlands



This site manufactures Piezoelectric ceramics and bimorphs. Processes include die pressing, Iso Pressing, firing, grinding, metallising, Bimorph assembly and testing.

Zwaanstraat 2a,
Bld RAH-1,
5651 CA Eindhoven, Netherlands
Telephone: +31 4027 88864
Fax: +31 4027 84324

[Email](#)

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↑ Return to top

Morgan Advanced Ceramics, Wesgo GmbH, Erlangen, Germany



This site manufactures high purity alumina ceramic parts from the range of Wesgo 94% to 99.5% Alumina. A high percentage of products supplied are metallised, with molybdenum-manganese and nickel plated, ready for customers to braze. The site also has its own brazing capability. Processes are die and Iso-pressing, green machining, firing, diamond grinding and metallising. Formerly part of the Wesgo group, it is recognized by this name.

Address: Morgan Advanced Ceramics, Wesgo Ceramics GmbH
Willi-Grasser Str. 11 D-91056 Erlangen-Frauenaurach Germany
Telephone: +49 9131 7976-0
Fax: +49 9131 7976-33

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↑ Return to top

Morgan Electro Ceramics Ltd, Ruabon, UK



This site manufactures Piezoelectric ceramics, Dielectric and low loss Microwave ceramics and also manufactures multilayer capacitors using the high dielectric range of materials. Processes include Tape Casting, Iso pressing, die pressing, extrusion, green machining, firing, multilayer electroding and co-firing, grinding, metallising and assembly.

Vauxhall Industrial Estate, Ruabon, Wrexham, LL14 6HY
Telephone: +44 (0)1978 810456
Fax: +44 (0)178 824303

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↑ Return to top

Morgan Advanced Ceramics, Rugby, UK



Produces a wide variety of products from bare ceramic components to ceramic/metal assemblies. Rugby manufactures most of its custom products from a range of Alumina materials but also produces Zirconia components. Processes include Iso pressing, die pressing, green machining, firing, grinding, metallising and brazing.

Address: Morgan Advanced Ceramics Ltd, Central Park Drive,
Central Park, Rugby, Warwickshire CV23 OWE

Telephone: +44 (0)1788 542166

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↑ Return to top

Morgan Electro Ceramics, Southampton, UK



This site manufactures Piezoelectric ceramics and designs and builds transducers. Processes include die pressing, firing, grinding, metallising, assembly and testing.

Bursledon Road, Thornhill, Southampton, SO19 7TG

Telephone: +44 (0)2380 444811

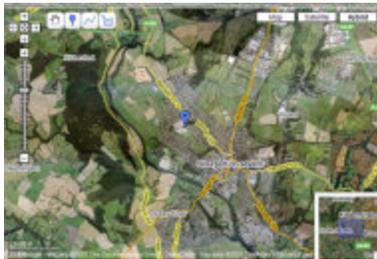
Fax: +44 (0)2380 431768

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↑ Return to top

Morgan Advanced Ceramics, Stourport, UK



The first ceramic manufacturing site to be purchased by Morgan Crucible, the Stourport site manufactures the majority of its products from a range of alumina and steatite materials. Processes are material preparation, Iso-static pressing, green machining, firing and grinding.

Address: Morgan Advanced Ceramics Ltd, Bewdley Rd Stourport-
on-Severn Worcestershire DY13 8QR UK

Telephone: +44 (0)1299 827000

Fax: +44 (0)1299 827872

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↑ Return to top

Morgan Advanced Ceramics, W. Haldenwanger Technische Keramik GmbH & Co. KG, Waldkraiburg, Germany



This site specialises in extrusion but also utilises Iso-pressing and slip casting to manufacture its products, which are mainly supplied to the Thermal Processing market.

A variety of Ceramic Tubes, Rollers and Kiln Furniture are offered, together with a standard range of Laboratory Porcelain products. It is recognized by the brand Haldenwanger.

Address: Morgan Advanced Ceramics, W Haldenwanger
Technische Keramik GmbH & Co KG Teplitzer Str. 27 D-84478
Waldkraiburg Germany

Telephone: +49 (0) 8638 6004-0

Fax: +49 89-416098-41

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↑ Return to top

[America](#) [Europe](#) [China](#)

China

Morgan Advanced Ceramics, Shanghai Morgan Matroc Technical Ceramics Co. Ltd



The Shanghai site manufactures products from mostly alumina and steatite and are either die pressed, dry bag Iso-pressed or low-pressure injection molded. Shanghai is a fully integrated ceramics facility and has its own material preparation facility. It trades under the Morgan Matroc name.

Address: Morgan Matroc Shanghai 158 Jiajian Road Jiading District
Shanghai P.C. 201818 P.R. China

Tel: 86-21-59902614

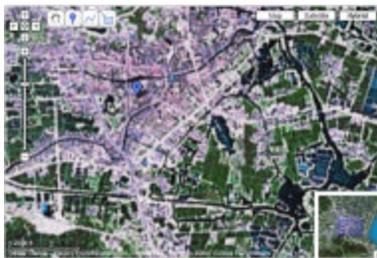
Fax: 86-21-59903241

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↑ Return to top

Morgan Advanced Ceramics, Yixing Haldenwanger Fine Ceramic Co. Ltd. Yixing City, China



This site manufactures Haldenwanger Rollers for the Thermal Processing Industry. Processes include material preparation, extrusion, Iso-pressing, slip casting, green machining, sintering and grinding.

Address: Yixing Haldenwanger Fine Ceramic Co Ltd,
Dingshu Town, Yixing City 214221,
Jiangsu Province P.R. China

Telephone +86 510 8718 2811/ 1042

Fax +86 510 8718 2826

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↑ Return to top

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▶ Sensors

▶ Ultrasonic Sensors

▶ Accelerometers

▶ Blood Pressure Sensors

▶ Wheel balancing

▶ Impact Sensors

▶ Transducer Manufacture

▶ Transducer Design

▶ Transducer Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

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Sensors & Transducers

[Morgan Electro Ceramics New Piezoelectric Composite Components Provide Improved Performance In Medical Imaging](#)

Morgan Electro Ceramics, a leading manufacturer of electro ceramic products, including piezoelectric ceramics, high voltage and RF capacitors and microwave ceramics, introduces new piezoelectric composite components used in medical imaging equipment. Morgan Electro Ceramics' composite components offer improvements over traditional transducer designs, which result in increased performance accuracy for medical imaging applications. The new composite transducer component is comprised of pillars of conventional piezoelectric ceramics shaped by precisely controlled dicing techniques. The composite transducer component is placed in a matrix of polymer materials with front and rear faces electroded with a conducting epoxy to form electrical connections.

[Read more...](#)

[Ultrasonic Sensors For Infusion Pumps](#)

Swiss-based Debiotech specialises in the research and development of innovative therapeutic and diagnostic medical devices. It works with industrial and manufacturing partners, education institutions and suppliers to develop products based on breakthrough technology. One such partnership is with Morgan Electro Ceramics who has been providing materials expertise and piezoceramic components for Debiotech's latest infusion pump, IV Expr's. IV Expr's is a miniature lightweight infusion pump that accurately dispenses medication and fluids, such as morphine and nutrition, into a patient's circulatory system. Measuring just 14.0 x 4.3 x 5.8 cm and weighing only 380 grams, it can be used at home, for example clipped to a wheelchair, or in a hospital or alternative care facility. A key safety feature of the pump is an "air-in-line" detection system, which monitors for the presence of air bubbles in the fluid.

"Accurate detection of air bubbles is vital in maintaining the health and recovery of patients," says Ary Saaman, QA Director, Debiotech. "Air embolisms can lead to serious complications in blood flow and the heart's operation."

[Read more...](#)

[Piezo Pressure Sensor Is Ideal For Single Event And Long Term Blood Pressure](#)

New from Morgan Electro Ceramics is a compact, robust piezoelectric transducer ideal for use as a high-accuracy, cost-effective blood pressure monitor in medical equipment applications. Following successful trials with medical device manufacturers in the USA, the Arterial Pressure Transducer (APT) is launched in Europe on Stand 5-111/9, Sensor + Test, 30th May 06. Equipment manufacturers

working in the medical sector are realizing the benefits of using electronic sensors over mechanical devices in blood pressure monitoring, for their greater accuracy and long-term reliability. In addition to use in conventional systems, they facilitate long-term monitoring, allowing medical staff to analyse trends in a patient's blood pressure over time.

[Read more...](#)

[Piezoceramic Tubes for Underwater Sonar Instruments](#)

Morgan Electro Ceramics has opened a new facility at its site in Southampton, UK, dedicated to the design and manufacture of fibre-wrapped piezoceramic tubes that are used in commercial and military sonar instruments. The facility, which is the only one of its kind in the UK, has been set up in response to an increasing need for 360 degree high-energy projectors. It provides equipment manufacturers with reliable, pre-stressed tubes that give a high degree of accuracy for sub-sea detecting and sensing. The tubes are pre-stressed during the manufacturing process with glass fibre wrapping which increases their reliability under high drive conditions. The process increases the maximum tensile stress which, in turn, increases maximum drive voltage. The risk of ceramic failure through excess tension, which is a problem with standard piezoceramic tubes, is also minimised.

[Read more...](#)

[Arterial Pressure Sensors and Medical Ultrasound Transducers Showcase at MD&M West 2007](#)

Morgan Technical Ceramics (MTC), comprising Morgan Advanced Ceramics (MAC) and Morgan Electro Ceramics (MEC), is a leading manufacturer of innovative ceramic, glass, precious metal, piezoelectric and dielectric materials. The company's MEC subsidiary will showcase an array of its piezoelectric materials for a variety of medical applications, including arterial pressure sensors and medical ultrasound transducers, at MD&M West 2007, held this February 13-18, 2007 in Anaheim, CA in booth # 2884. On display will be MEC's advanced piezoelectric materials, including PZT-5K1-HD, PZT-5K3-HD, PZT-508-HD, that significantly improve the transmitting and receiving capabilities of transducers used in medical ultrasound applications. These piezoelectric materials offer higher coupling and dielectric properties. They also provide improved signal to noise ratios, despite the very small size and large aspect ratio of the piezoelectric components in the miniaturized transducers of state-of-the-art medical ultrasound arrays.

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▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
(bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Morgan Electro Ceramics - Vacancies

Morgan Electro Ceramics are world leaders in the design and manufacture of piezoelectric ceramic components. Our factory on the South Coast of the UK has both extensive manufacturing capability as and onsite transducer design and test facilities. We are seeking to recruit for the following positions.

Team Leader at Morgan Electro Ceramics

Morgan Electro Ceramics are world leaders in the design and manufacture of piezoelectric ceramic components.

Due to business needs, we are now looking to recruit a Team Leader.

In this hands on role as a Team leader you can expect to be challenged daily. Your responsibilities will move across all aspects of cellular manufacture. This includes people management, target attainment, problem solving and ensuring quality standards are achieved and maintained whilst health and safety and environmental issues are adhered to.

If you feel you have the above qualities and drive to succeed then please apply-
Quote :TLvam

To apply for either position or to request further information, please write to Mr. C Roberts at Morgan Electro Ceramics, Bursledon Road, Thornhill, Southampton, SO19 7TG, please state current salary.

Closing Date: 8th June 07

E: carl.roberts@morganplc.com

Senior Transducer Design Engineer

We require an experienced design engineer with a proven track record of designing and testing ultrasonic sensors & transducers. Previous experience may have been gained with an ultrasound component supplier, OEM or Academic establishment. Good analytical skills and an academic technical qualification are considered essential. You will lead our established transducer design team and ensure the team delivers innovative technical solutions within agreed time and budget constraints. You will probably have previous experience of direct customer contact and an ability to demonstrate technical competence to a range of audiences. A personality to develop relationships with key industry contacts and suppliers of services and technology is considered a key quality of a successful candidate.

Process Engineer

We require a process engineer to develop and implement new processing methods

and products. This will involve tooling and equipment, training and establishing quality standards. The position will also contain a CI element, monitoring and improving gross margin through productivity and quality improvements. You will probably have experience of manufacturing gained from at least 2 years in a medium volume manufacturing environment, and have a suitable technical qualification. The successful candidate will have self motivation combined with a strong team spirit, interpersonal and communication skills are considered essential, foreign language skills are considered beneficial but not essential as some international travel will be required.

To apply or request further information, please contact Cynthia Kirby at Morgan Electro Ceramics, Bursledon Road, Southampton, SO19 7TG, UK, cynthia.kirby@morganplc.com

Please include CV and details of current remuneration.

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Did you know...
our piezoelectric blood pressure
sensors provide fast, accurate
ultrasensitive readings?



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- ▶ Microwave Products
- ▶ Piezoelectric Products
- ▶ Sensors & Transducers
- ▶ Capacitors
- ▶ Tutorials
- ▶ MSDS / COSHH data pdf
- ▶ News and Information
- ▶ Manufacturing Sites
- ▶ Quality
- ▶ Contact
- ▶ Vacancies
- ▶ MEC Home

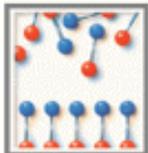


Morgan Electro Ceramics (MEC) has a comprehensive range of [Piezoelectric](#) and [Dielectric](#) materials from which many products are manufactured, including [Transducers](#), [Sensors](#), [Actuators](#) and [High Voltage & RF capacitors](#). MEC has established an enviable reputation for providing value-added solutions through world-class research and development, innovative design and, perhaps most important of all, application engineering.

A subsidiary of [The Morgan Crucible Company](#), MEC forms part of the [Morgan Technical Ceramics Group](#). The Group includes [Morgan Advanced Ceramics](#) and from manufacturing locations in North America, Europe and Asia, it supplies an extensive range of products, including [ceramic components](#), [braze alloys](#), ceramic/metal assemblies and [engineered coatings](#).

Use this web site to design-in our [piezoelectric ceramic products](#), discover [how Electro Ceramics suit your application](#) or to [make contact with us](#).

Now Available Online!



PIEZOELECTRIC
CERAMICS
Properties &
Applications



Morgan Electro Ceramics, together with Morgan Advanced Ceramics forms Morgan Technical Ceramics, a global business unit of the Morgan Crucible Company plc

The Morgan Crucible Company plc is one of the world's leading advanced materials companies specialising in the design, manufacture and marketing of ceramic, magnetic and carbon products. These are used in a wide range of applications from transport and telecommunications to fire

protection and medical instruments. Morgan is listed on the London Stock Exchange in the engineering sector. For more information visit <http://www.morgancrucible.com>



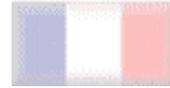
Ruabon, Southampton and Eindhoven are assessed by [CICS](#) (Ceramic Industry Certification Services)

**To find out how Morgan Electro Ceramics
can provide an unexpected solution
for your business**

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Did you know...
our piezoelectric blood pressure
sensors provide fast, accurate
ultrasensitive readings?



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Sensoren

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- ▶ Ultraschallreinigung
- ▶ Ultraschalltherapie
- ▶ Ultraschallwandler für
die professionelle
Zahnreinigung
- ▶ Keramikröhrchen mit
vorgespannten Fasern

▶ Sensoren

- ▶ Ultraschallsensoren
Beschleunigungs-
messgeräte
- ▶ Ultraschallwandler zur
Messung von arteriellem
Druck
- ▶ Ultraschallsensoren zur
Bläschenerkennung
- ▶ Sensoren zum
Auswuchten von Reifen
- ▶ Drucksensoren
- ▶ Tankfüllstandssensoren

▶ Die Herstellung von
Ultraschallwandlern und
Sensoren

▶ Entwicklung unserer
Ultraschallwandler

▶ Tests an Ultraschallwandlern

▶ Kontakt

▶ Morgan Electro Ceramics

▶  English

Sensoren und Ultraschallwandler

Morgan Electro Ceramics ist im Bereich elektronischer Keramik Weltmarktführer und Hersteller einer umfassenden Bandbreite hochspezialisierter piezoelektrischer Ultraschallwandler und Sensoren für mechanische, elektrische und elektronische Anwendungen. Mit Entwicklungszentren und Produktionsstätten in Europa und den USA konzentriert sich Morgan auf die Entwicklung und Herstellung kundenspezifischer Produkte für Originalhersteller. Die Mehrheit unserer Kunden ist der Auffassung, dass die Bereiche Sensoren und Ultraschallwandler ihre kompletten Bedürfnisse abdecken. Dies beinhaltet die Marktsegmente Medizin, Raumfahrt, Industrie und Verteidigung.



Produkte:

- [Ultraschallwandler](#)
- [Sensoren](#)

Das bieten wir Ihnen:

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Ultraschallwandlern](#)
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Morgan's piezo ceramic is the
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unborn babies using ultrasound?



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▶ Ultrasonic Sensors

- ▶ Accelerometers
 - ▶ Blood Pressure Sensors
 - ▶ Air-in-line sensors
(bubble detectors)
 - ▶ Integrated sensors
 - ▶ Fuel level sensors
-

▶ Passive Piezo Sensors

- ▶ Wheel balancing
 - ▶ Impact Sensors
-

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

Sitemap

[Sensors & Transducers - Morgan Electro Ceramics](#)

- [Ultrasonic Transducers - Morgan Electro Ceramics](#)
 - [Ultrasonic Cleaning - Morgan Electro Ceramics](#)
 - [Transducers for ultrasonic therapy - Morgan Electro Ceramics](#)
 - [Pre-stressed Fibre Wrapped tubes - Morgan Electro Ceramics](#)
- [Sensors - Morgan Electro Ceramics](#)
 - [Ultrasonic Sensors - Morgan Electro Ceramics](#)
 - [Accelerometers - Morgan Electro Ceramics](#)
 - [Arterial Pressure Sensor - Morgan Electro Ceramics](#)
 - [Wheel Balancing Sensors - Morgan Electro Ceramics](#)
 - [Impact Sensors - Morgan Electro Ceramics](#)
- [Morgan Electro Ceramics Case Studies](#)
 - [Smiths Aerospace - Piezoelectric Ceramic Fuel-level Sensors](#)
 - [Deltex Medical - Ultrasonic sensors reduce patient recovery time](#)
- [High Intensity Transducer Drive Circuits](#)
- [Application Note Bonding MORGAN ultrasonic cleaning transducers to tanks](#)
- [Application Note Coin Verification Using Piezoelectric Materials](#)
- [Transducer and Sensor Manufacturing - Morgan Electro Ceramics](#)
- [Transducer Design - Morgan Electro Ceramics](#)
- [Transducer Testing - Morgan Electro Ceramics](#)
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- [Sensoren & Ultraschallwandler - Ultraschallwandler](#)
 - [Ultraschallreinigung](#)
 - [Ultraschalltherapie](#)
 - [Keramikröhrchen mit vorgespannten Fasern](#)
- [Sensoren und Ultraschallwandler](#)
 - [Ultraschallsensoren](#)
 - [Beschleunigungsmessgeräte](#)
 - [Ultraschallwandler zur Messung von arteriellem Druck](#)
 - [Sensoren zum Auswuchten von Reifen](#)
 - [Drucksensoren](#)
- [Die Herstellung von Ultraschallwandlern und Sensoren](#)
- [Entwicklung unserer Ultraschallwandler](#)
- [Tests an Ultraschallwandlern](#)

[Ultrasonic Transducers](#) | [Sensors](#) | [Manufacture](#) | [Design](#) | [Testing](#) | [Contact](#) | [Home](#) |
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our transducers are designed to
perform reliably in the most demanding
and hostile environments?

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- ▶ Pre-stressed Tubes

▶ Ultrasonic Sensors

- ▶ Accelerometers
- ▶ Blood Pressure Sensors
- ▶ Air-in-line sensors
(bubble detectors)
- ▶ Integrated sensors
- ▶ Fuel level sensors

▶ Passive Piezo Sensors

- ▶ Wheel balancing
- ▶ Impact Sensors

▶ Transducer and Sensor
Manufacture

▶ Transducer and Sensor
Design

▶ Transducer and Sensor
Testing

▶ Contact Us

▶ Latest News

▶ Vacancies

▶ Morgan Electro Ceramics

▶  Deutsch

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Our technical ceramics are used to house and protect semiconductor chips from harsh environments?



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- ▶ Key Markets
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- ▶ New Technologies
- ▶ Materials
- ▶ Technical Data Sheets
- ▶ Process Animations
- ▶ Glossary of Terms
- ▶ Quality / Environment
- ▶ News & Information
- ▶ Careers & Vacancies
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MorganTechnicalCeramics is a Global Business Unit of the [Morgan Crucible Company plc](#). It comprises [Morgan Advanced Ceramics](#) and [Morgan Electro Ceramics](#) and manufactures products from a comprehensive range of ceramic, piezoelectric and dielectric materials, glass and precious metals.

With manufacturing sites located in the USA, UK, Netherlands, Germany and China, we have established an enviable reputation for providing value-added solutions through world-class research and development, innovative design and, perhaps most important of all, applications engineering.

This website will introduce you to the company, the markets we address and the products and services we offer. We welcome the opportunity to discuss any specific requirements you have and our contact details are included for this purpose.

We trust that you will enjoy using this Website and look forward to utilising our materials and applications engineering expertise to provide you with elegant solutions to your problems.

Morgan Technical Ceramics was formed in 2003 when two former businesses units of The Morgan Crucible Company plc, Morgan Advanced Ceramics and Morgan Electro Ceramics, were combined. More information about the products offered from the company can be found on their respective websites:



[Morgan Advanced Ceramics](#)

(MAC) products include basic bare and engineered ceramic components, braze alloys, ceramic/metal assemblies, metal injection moulded components and hard coatings



[Morgan Electro Ceramics](#) (MEC)

products include Piezoelectric Ceramics; Transducers, Sensors, Actuators and Materials, Microwave Ceramics and High Voltage & RF capacitors

Information in other languages:



[Apply for The Free MTC Interactive Presentation CD-ROM V2.2](#)



Free CD-ROM offers design engineers a guide to ceramic components manufacture and application

Morgan Technical Ceramics has produced a new Interactive Presentation CD-ROM designed to educate and inform design engineers and component specifiers about the many and varied uses of today's modern technical ceramic materials.



The informative CD Rom, which will be sent free of charge to qualifying designers and materials specialists, includes interactive presentations on opportunities for manufacturers in a wide range of industries such as aerospace, defence, automotive, medical, electronics, telecommunications, scientific equipment and semiconductor processing. It shows how and when ceramic can provide a cost-effective, high performance alternative to traditional materials such as metals and plastics.

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[UK and Eire:](#) Morgan Technical Ceramics, Bewdley Road, Stourport, Worc DY13 8QR, England

[Middle East:](#) Morgan Karbon Grafit Sanayi AS, Ikitelli OSB, Eskoop Sanayi Sitesi, B2 Blok, N.156, 34670 Ikitelli, Istanbul, Turkey

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- ▶ Contact Us
- ▶ Manufacturing Sites
- ▶ Quality
- ▶ Sitemap
- ▶ Useful Links
- ▶ Home

Innovation in Materials Technology



Morgan Advanced Ceramics (MAC) has

a comprehensive range of materials, from which its products are manufactured. Supplying to a variety of demanding markets, MAC has established an enviable reputation for providing value-added solutions through world-class research and development, innovative design and, perhaps most important of all, application engineering.

A subsidiary of [The Morgan Crucible Company](#), MAC forms part of the Morgan Technical Ceramics (MTC) Group. The Group includes Morgan Electro Ceramics and from manufacturing locations in North America, Europe and Asia, an extensive range of products, including ceramic components; braze alloys; ceramic/metal assemblies and engineered coatings are supplied.

An extensive sales and technical support network exists to provide the structure and capability to work with global businesses at national

For more information:



Morgan ElectroCeramics
www.morganelectroceramics.com



Morgan TechnicalCeramics
morgantechnicalceramics.co.uk

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and international level.

[Morgan Technical Ceramics](#) is a Global Business Unit of the [Morgan Crucible Company](#) plc.

It comprises [Morgan Advanced Ceramics](#) and [Morgan Electro Ceramics](#)

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Sales Offices/Customer Service:

[Europe](#): Morgan Technical Ceramics, Teplitzerstr.27, D-84478 Waldkraiburg, Germany

[UK and Eire](#): Morgan Technical Ceramics, Bewdley Road, Stourport, Worc DY13 8QR, England

[USA](#): Morgan Technical Ceramics, 26 Madison Road, Fairfield, NJ 07004, USA

[Asia](#): Morgan Technical Ceramics, 158 Jiajian Road, Jiading, Shanghai 201818, China

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