MPE
Quality, Reliability, Performance

Company Bulletin

for EMC, EMP & TEMPEST Protection

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MPE PEOPLE

New man at the helm

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Click for more details

Spotlight on John Parsons

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Click for more details

MPE TECHNOLOGY

MIL-STD HEMP filters that break the mould

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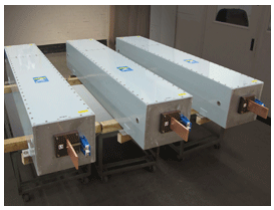
Click for more details



MP labels 5,000th line of HEMP protection for MPE!

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MPE DISTRIBUTOR NEWS

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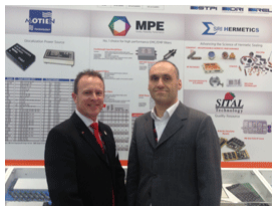

MPE APPLICATIONS

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Click for more details

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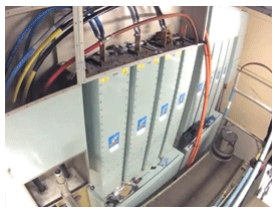

FAST FACTS ON MPE LTD

- MPE has traded since 1925 and employs over 50 people.
- MPE has designed, manufactured and shipped more than 8,000,000 high-performance EMC, EMP and TEMPEST filters and feedthrough capacitors over the past 30 years.
- Many products have been in service for over 20 years with undiminished performance.
- MPE has a portfolio of over 20,000 custom product designs to meet all possible requirements.
- The MPE factory at Knowsley, Liverpool, is certified to the quality standard ISO 9001:2008, and its products meet all applicable defence standards.

For comprehensive information about MPE's products and services, contact the Sales and Marketing Department, MPE Ltd, Hammond Road, Knowsley Industrial Park, Liverpool, L33 7UL, U.K. Tel +44 (0)151 632 9100. Fax +44 (0)151 632 9112.
Email sales@mpe.co.uk. Website www.mpe.co.uk

If you have a friend or colleague who you think might find the MPE Company Bulletin informative, then why not forward it to them?

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Paul Currie

New man at the helm

MPE has announced the promotion of Paul Currie to the position of Sales and Marketing Director. Paul joined MPE in November 2011 and since then has been instrumental in significant progress made by the company in a number of key areas. In particular, a new sales and marketing strategy has been successfully implemented, new business partnerships and distributorships have been established around the World, and a modern website developed and launched.

As an electronics engineer within the Royal Corp of Signals, Paul served with the British Army for ten years, including tours of duty in Cyprus, Germany, Iraq and Northern Ireland. Prior to joining MPE he had over 15 years of experience leading the sales and marketing teams of defence and security manufacturers and distributors, notably Norbain, QinetiQ and Teledyne Defence.

Paul is also a Fellow of the Institute of Sales and Marketing Management and, outside of MPE, an FA qualified soccer coach, currently managing an Under 13's team in the Tameside Junior Football League in Manchester.

Paul Currie lives with his wife and children in the Peak District of Derbyshire, England.

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John Parsons

Spotlight on John Parsons

An electrical and mechanical engineer, John Parsons joined the MPE team as a Production Supervisor back in 1976 armed with a BEng degree in Mechanical Engineering earned at the University of Liverpool. After 12 years fulfilling that role, he became Design and Development Engineer for three years and then Assistant Chief Engineer at the company for a further two.

Next on his career path at MPE, John took over the reins as Engineering Manager for 16 years, up to the year 2010.

At that point John Parsons moved over to key functions in Sales, initially Sales Office Manager and subsequently Account Manager. In those positions his unique skillset and experience could be channelled into technical support of customers around the World – of critical benefit for MPE's high-technology product solutions, frequently customised to meet the needs of individual applications. Accordingly his problem-solving expertise across a broad spectrum of EMC, EMP and TEMPEST environments – building and equipment installations, military vehicles and mobile tactical shelters – is arguably second-to-none in the United Kingdom.

John is an Associate Member of the Institution of Mechanical Engineers. An avid reader of non-fiction history books describing different epochs, John lives with his wife in Liverpool and has a grown-up son.

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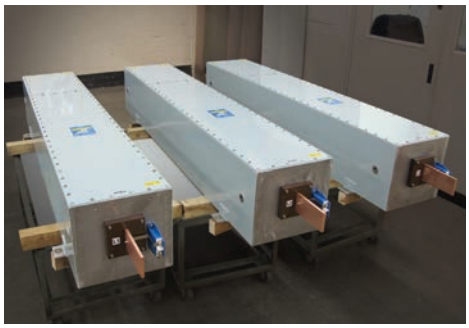
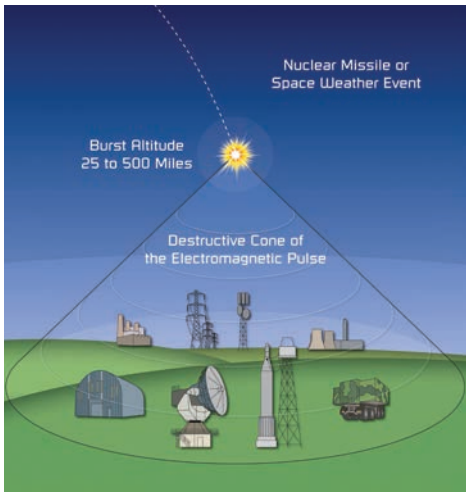


MIL-STD HEMP filters that break the mould

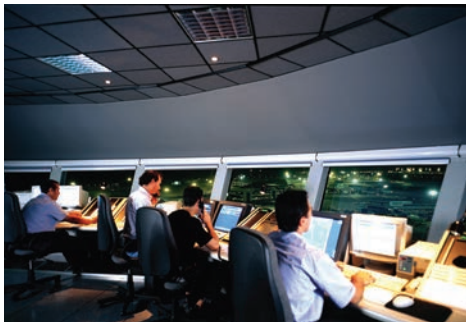
MPE has recently shipped a number of what are believed to be the World's first single-line, 1200A-rated High-Altitude Electromagnetic Pulse (HEMP) filters fully compliant with the 10A residual let-through current requirement of MIL-STD-188-125 Parts 1 and 2. These models complement MPE's existing range of MIL-STD HEMP powerline filters with current ratings from 6A to 800A.



Incorporating MPE's proprietary 1200A feedthrough capacitors for high performance to beyond 10GHz, the new 1200A filters are ideal for the HEMP protection of the incoming power cables of critical infrastructure installations. Models are available optimised for the 277/480V AC supply in the USA and 250/440V AC in Europe and other regions.

The feedthrough capacitors contain proprietary self-healing, metallised plastic film capacitor material, which has demonstrated extreme levels of reliability in field service over more than 25 years. They also utilise a solderless capacitor assembly technique to avoid heat damage.

These new MPE powerline filters consist of a single 1200A circuit with no current-sharing elements, thus avoiding the problems inherent in high-current filters that are based on the paralleling of multiple lower current filters. The paralleling of filters commonly leads to overheating and filter failures due to current imbalances.



Where a series of filters are connected in parallel, a slight mismatch in the resistance of filters will cause an imbalance in current. As an example, even a 10% difference in the resistance of filters will result in a 10% current overload in the filter with the lowest resistance.

The situation is actually much worse than this would indicate, as the 10% current overload represents a power overload of 21%, because the power dissipated is based on I^2R. This will cause significant overheating and possible failure in the lowest-resistance filter, unless it has a significant safety margin in terms of temperature rise. If a parallel element fails, then the increased load placed on the remaining interconnected filters can potentially cause a cascade failure of the entire HEMP protection system.

As filter temperature rise is a well-known factor affecting lifetime and reliability, the MPE filters also utilise a design that ensures a low internal temperature rise of capacitor elements, inductors and current-carrying busbars. This design feature contributes significantly to increased reliability.

Furthermore, as the MPE filters are specifically designed to suit the pulse performance requirements of MIL-STD-188-125, there is no unnecessary overdesign for insertion loss performance. This means the MPE filters are less susceptible to any harmonic

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content in the mains supply and, consequently, less prone to overheating introduced by harmonics.

The newly launched filters have been independently tested and certified for the early-time E1 pulse in MIL-STD-188-125 by the US Department of Defense (DoD) contractor Jaxon Engineering & Maintenance of Colorado Springs (www.jaxon-em.com). For both MPE's 250/440V AC and 277/480V AC models, Jaxon measured an E1 pulse's residual current waveforms. They fell well below the limits stated in the MIL-STD for their maximum peak, derivative and root action at seven different pulse current injection (PCI) levels, ranging from 50A to 2500A.

The fact that the MPE HEMP filters exceed the MIL-STD specification by some margin provides both the installer and the end user with an increased safety factor to counter the imperfect conditions commonly found on site and to further ensure reliability.

MPE prides itself on the reliability of its filters, manufacturing all key components, carrying out the critical processes and employing a 100% final inspection of filters prior to shipment – all conducted in-house at MPE. In excess of 5,000 lines of MPE HEMP filter protection, compliant with MIL-STD-188-125, have now been installed around the world, without a single electrical failure having been reported and hence achieving a zero returns rate.

In addition to their proven electrical performance and reliability, the single-line design realised by MPE creates a far more compact and lighter unit for installation. Those size and weight advantages afford significant shipping, installation and space benefits to installer and user alike.

Full product information on MPE's standard performance, single-line, 1200A HEMP filter, including a graph of its insertion loss performance, may be downloaded via this link:
www.mpe.co.uk/products/standard-performance-1200a-single-line-hemp-filter/

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David Seabury, Managing Director, welcomes the Rt Hon George Howarth on his visit to MPE

Accompanied by the Managing Director of MPE David Seabury, the Rt Hon George Howarth MP fixes a product label to the 5,000th line of High-Altitude ElectroMagnetic Pulse (HEMP) protection manufactured at MPE, prior to its dispatch to a customer overseas.

MP labels 5,000th line of HEMP protection for MPE!

On Friday 15th February 2013 the Member of Parliament George Howarth visited MPE located in his constituency of Knowsley. He was welcomed for a tour of the 40,000 sq ft engineering, production and test facilities by three Directors, David Seabury – Managing Director, Jan Nalborczyk – Technical Director and Paul Currie – Sales and Marketing Director.

In discussing the future opportunities and challenges faced by MPE as an SME exporting over 50% of its turnover, Mr Howarth was fascinated by the wide spectrum of MPE products he saw at various stages of the manufacturing process. Among those products, he was delighted to label the 5,000th line of High-Altitude Electromagnetic Pulse (HEMP) protection manufactured by MPE prior to its dispatch that day to a customer overseas.

Mr Howarth acknowledged that British engineering companies such as MPE need to be increasingly proactive and versatile to satisfy the ever-changing needs of the global defence market, whilst providing vital links in our own Ministry of Defence's supply chain.

David Seabury later summed up the visit: "This was an important opportunity to show George Howarth our facility and the work that MPE continues to perform, particularly for the UK Ministry of Defence. It is very reassuring, too, that our Member of Parliament is taking such a keen interest in the challenges faced by manufacturing businesses and employers here in Knowsley."

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Assembling MIL-STD HEMP filters in South Korea

MPE has signed a strategic agreement with its Korean distributor Eretec, Inc that enables the assembly and test of jointly branded MIL-STD HEMP filters in the Republic of South Korea. Eretec is based in the city of Gunpo in the province of Gyeonggi.

Maximising local sourcing to meet the guidelines of the South Korean Government, these HEMP filters to well-established designs will range in current rating from 6A to 200A.

In excess of 5,000 lines of MPE HEMP filter protection, compliant with MIL-STD-188-125, have now been installed around the World, without a single electrical failure having been reported and hence achieving a zero returns rate. The fact that MPE HEMP filters exceed the MIL-STD specification by some margin provides both installers and end users with an increased safety factor to counter the imperfect conditions commonly found on site and to further ensure reliability.

Eretec is the leading supplier of EMC protection facilities in Korea and has many experienced engineers who co-operate closely with Government organisations. This close co-operation led to the MPE filters being used as an “example of excellence” at this year’s Commercialisation of Technological Innovation event for small and medium-sized enterprises hosted by the KTL (Korea Testing Laboratory).

For further information on Eretec, visit the website www.eretec.com or make contact by phone (0082) 31.436.1100, fax (0082) 31.436.1110 or email eretec@eretec.com

The image above shows Jun Sun Park, Chairman and CEO of Eretec, signing this agreement with David Seabury, Managing Director of MPE, at a ceremony at MPE in Liverpool.

ERETEC INC.

Eretec boss now Vice-Chair of Korean Institute

Jun Sun Park – Chairman and CEO of MPE’s Korean distributor, Eretec, Inc – has been elected Vice-Chairman of the KIEES (the Korea Institute of Electromagnetic Engineering and Science) for 2013. KIEES was founded in 1989 for the development of the EMC field nationwide, fostering close collaboration among academics, industries, researchers and the Korean government (see www.kiees.or.kr/english/). As Vice-Chairman of the KIEES, JS Park plans to make a positive contribution to ensure the continued growth of the EMC industry within Korea.

During a recent visit to MPE, keen Manchester United fan JS Park relished the invitation from MPE Sales and Marketing Director Paul Currie to go on a tour of the “Theatre of Dreams” stadium at Old Trafford. So they are pictured here enjoying the tour together.

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Cemal Alpay, Managing Director of IMCA Elektronik

Paul Currie of MPE with Cemal Alpay on the IMCA stand at the 2013 IDEF International Defence Industry Fair in Istanbul

An ideal distributor signed up in Turkey

MPE is pleased to announce the signing of an agreement with IMCA Elektronik of Istanbul, for the distribution of its product range and bespoke solutions in Turkey (www.imca.com.tr).

Formed in 2002, IMCA is a well-established distributor to the Turkish defence and aerospace markets. Specialising in the supply of high-technology and niche products, IMCA focuses on meeting the customer's technical requirements, whether this be with an off-the-shelf solution or a custom design.

Paul Currie, MPE Sales & Marketing Director, commented: "MPE have been looking to appoint a distributor for Turkey for some time, but it was right that MPE took the time to find a company with a fit and approach that suited the MPE product range. I am confident that the MPE product will ideally complement IMCA's current portfolio, and I am looking forward to this new relationship."

Cemal Alpay, IMCA's Managing Director, remarked: "IMCA have been looking to extend our product offering with a range of high-quality and reliable EMC and EMP filters. In MPE I feel that we have found the ideal partner, and I look forward to all the future opportunities this will bring."

IMCA exhibited at the 11th IDEF International Defence Industry Fair, running from 7th to 10th May 2013 in Istanbul (www.idef13.com), displaying on its stand a selection of the MPE product range.

imca electronics
demand generation based distribution

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Safe passage through the minefield

MPE's EMC filter solutions for specialist equipment to meet the latest defence challenges have included threat detection and protection technologies to deal with explosives such as roadside IEDs and mines. To quote an example, high-performance feedthrough capacitors from MPE are installed in the power supply unit (psu) of the Self-Protection Adaptive Roller Kit, known as SPARK.

Accordingly, SPARK equipment is fitted as an IED countermeasure system to many of the Mine Resistant Ambush Protected (MRAP) all-terrain armoured vehicles deployed by the US Army in Afghanistan as a lighter, multi-functional alternative to armoured bulldozers. Fixed to the front of the vehicle, SPARK takes the full brunt of the blast. Soldiers are protected from injury, and their vehicle is left intact, so they can drive away from the "hit zone" rather than suffer further attacks by insurgents.

The MPE products suppress noise interference from motors, pumps and thermal switches to the UK MOD's EMC suppression standards DEF STAN 59-411 Land Class A and B, whether for specific mechanisms or as an overarching specification across the whole apparatus.

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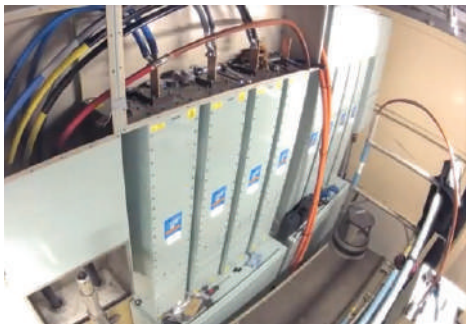

High-current MPE HEMP filters installed in UK by US contractor

A complete suite of HEMP filters fully compliant to MIL-STD-188-125, including power line up to 800A and also control and telephone line filters, has been recently installed at a site in the UK by the US Department of Defense (DoD) contractor and specialist test house Jaxon Engineering & Maintenance of Colorado Springs (www.jaxon-em.com).

Comprising current ratings up to and including MPE 800A HEMP solutions, the filters were installed as part of an upgrade programme to the existing HEMP shield, to ensure that the installation complies fully with MIL-STD-188-125. The entire suite of MPE HEMP filters is now commissioned and has been working under load for a number of weeks.

These MPE HEMP powerline filters consist of a single circuit with no current-sharing elements, thus avoiding the problems inherent in high-current filters that are based on the paralleling of multiple lower current filters. The paralleling of filters may lead to significant overheating and possible failure in the lowest-resistance filter, unless it has a significant safety margin in terms of temperature rise. If a parallel element fails, then the increased load placed on the remaining interconnected filters can potentially cause a cascade failure of the entire HEMP protection system. With MPE's single-circuit design there is no danger of that happening.

So, clicking on the following link will take you to a brief time-lapse video showing the installation at this UK site of one of two four-line 800A MPE HEMP filters, with all accompanying installation hardware.

www.youtube.com/watch?v=umwz1C7FqQM&feature=youtu.be