MPE
Quality, Reliability, Performance

MPE 90th Anniversary 1925 – 2015

Company Bulletin

for EMC, EMP & TEMPEST Protection

Issue 5

MPE PEOPLE

MPE Customer Satisfaction Survey – the actions taken

In the last Company Bulletin, MPE undertook to report back on progress in the three areas pinpointed in the responses to its recent Customer Satisfaction Survey as having room for most improvement.

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Spotlight on David Seabury

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MPE TECHNOLOGY

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MPE DISTRIBUTOR NEWS

Experienced North American distributor meets all State Department & DoD requirements

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MPE APPLICATIONS

MPE's product reliability is a key driver in the latest weaponisation solutions from motion control specialist Moog

Moog's expertise in fire control, gun control, weapon stabilisation and weapons integration can be found on

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MPE powerline and control line filters have been incorporated in numerous applications on the new and futuristic Visby Class of stealth ships. Built at the Saab Group's Kockums shipyard at Karlskrona, the corvettes have been

over 30 of the world's leading military vehicle platforms, including manned and unmanned turrets and remote weapon stations.

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designed and equipped for multiple combat roles, including anti-surface warfare, anti-submarine warfare, mine countermeasures and patrol duties.

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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 in excess of 8,000,000 high-performance EMC, EMP and TEMPEST filters and feedthrough capacitors in the last 30 years.
- Many products have been in service for more than 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 9001:2015, 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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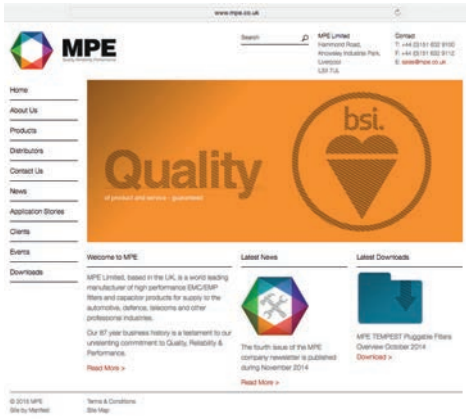
Many of the more popular lines of CleanPower and TEMPEST pluggable filters are now being held in stock at MPE to reduce product lead-times from the time of order



The new website combines essential product information with topical news alongside current and future developments

MPE Customer Satisfaction Survey – the actions taken

In the last Company Bulletin, MPE undertook to report back on progress in the three areas pinpointed in the responses to its recent Customer Satisfaction Survey as having room for most improvement. These were: increased feedback on new product developments, product lead-times from the time of order, and pricing.

Having listened carefully to its customers, MPE has acted, so that now all three points are being addressed, as described below.

Increased feedback on new product developments

The first area to address was a wish for increased feedback regarding what is being developed at MPE.

Accordingly, in 2014 MPE launched a totally new website at www.mpe.co.uk incorporating a News section including press releases and the latest information on products, people and applications. Whilst the previous MPE website had focussed heavily on existing product information, the new website combines this essential product information with topical news alongside current and future developments.

Other sections now include quality assurance certification, the worldwide MPE network of distributors and information on key MPE personnel. Of course you can also download the latest set of product literature and familiar datasheets, test certificates and applications notes.

So MPE is utilising its newly launched online medium to full effect to communicate its capabilities in design, manufacturing and maintenance support among many other aspects of its business and activities.

Furthermore the Technology section of this quarterly Company Bulletin e-newsletter reports widely on MPE's new products and technical innovations, manufacturing resources, maintenance, testing and training services, co-operative projects with industry partners, and so forth.

Product lead-times from the time of order

As a direct response to customer feedback, MPE has now implemented a finished goods stockholding of some commonly sold products which the company manufactures, such as CleanPower, general powerline and TEMPEST pluggable filters.

In addition, stockholdings of common constituent sub-assemblies are also being held prior to the assembly stage.

Among those sub-assemblies of the most popular products held at different stages of readiness are, for example, punched metal

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sheets required for the fabrication of filter enclosures. They are produced on MPE's new Safan E-Brake servo-electronic press brake, as discussed in the last Issue of the MPE Company Bulletin e-newsletter.

Pricing

85% of respondents to the Customer Satisfaction Survey stated that MPE gave value-for-money, and almost 60% of customers thought that MPE provided a good price in comparison to competition.

No different to other companies worldwide engaged in engineering and manufacturing, MPE is subject to ongoing inflationary cost pressures from the materials supply chain and from its other overheads.

Yet, as a direct result of the feedback received from the Customer Survey, MPE has absorbed 100% of all these increases for its many standard catalogue product ranges, so that, in those cases, 2014 prices are being held throughout 2015 to the benefit of MPE's customers.

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David Seabury

Spotlight on David Seabury

David Seabury, the Managing Director of MPE Ltd, was born and brought up in Liverpool. 1986 saw him graduate from Imperial College, London University with an Honours degree in Mechanical Engineering. Upon graduation, David took a position at the London office of KPMG, the global network of professional services firms providing audit, tax and advisory services. He moved on later to the company's Liverpool office, where he worked across a wide range of industry sectors and fulfilled accounting functions in their audit, corporate recovery and management consultancy units. In 1990 he became a Chartered Accountant.

After joining MPE in 1995 as Financial Controller, he became Financial Director in 1997 and was subsequently one of the four-man Management Buy-Out (MBO) team, which included the present Technical Director Jan Nalborczyk. The external investors exited in 2002, and MPE became a privately owned company. The factory premises in Knowsley, Liverpool was purchased the following year. In 2007 David became Managing Director.

Observing the progressive budgetary cutbacks by the UK Ministry of Defence, David has been targeting growth in overseas markets, as well as actively pursuing business opportunities in sectors beyond the company's traditional defence marketplace. In order to realize these objectives, the Sales and Marketing and Engineering Departments have been reorganized and strengthened considerably. Progress has been achieved with significant overseas growth in a relatively short space of time and over half of total exports going to the target territories of USA, South Korea and Turkey.

MPE are also moving ahead on other fronts, for example investing major resources in research and development for innovative, new product lines and working on the International Electrotechnical Commission (IEC) SC77C committee – developing standards for protecting civil installations against high-power electromagnetic (HPEM) transients.

David Seabury sums up: "MPE's strong balance sheet gives the company the necessary stability to facilitate such long-term planning as a platform for commercial growth and profitability. We are very proud to be a British company competing successfully in world markets in a highly specialised field of technology."

David lives at Formby on the Lancashire coast with his wife and young daughter. Outside of work, he enjoys cycling and regular visits to the local gym. Hobbies include support since childhood for Liverpool Football Club and visiting various parts of the UK in his touring caravan with his family.

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Custom mounting solutions make installation that much easier

Having pioneered the design, manufacture and assembly of feedthrough capacitor technology half-a-century ago, MPE continues to offer arguably the World's most comprehensive standard range of DC and AC, high-performance, multi-line, feedthrough capacitor units.

Compact and robust designs have always enabled their quick, simple mounting to equipment systems or installation within military vehicles, to provide a completely reliable and effective solution for EMC.

However, nowadays more and more important considerations are the practicalities of installation and the economics of that process. To accommodate those requirements, standard multi-line feedthroughs from MPE are frequently mounted onto a customised plate or bulkhead to significantly reduce installation time and cost. Cable terminations and enclosures are also readily tailored to meet customers' on-site requirements.

An extensive range of DC variants are available giving typical insertion loss performances of 50dB to 70dB at 1MHz rising to 90dB through to more than 1GHz, with typical capacitance values from 2µF to 40µF and rated voltage from 400V down to 30V DC. Typical applications for MPE's DC feedthrough capacitors are found in military vehicles, equipment and subsystems, including power management, motors, fans, hvac and NBC / CBRN threat detection and protection technologies.

The many AC ranges available from MPE provide typical insertion loss performances of 25dB to 45dB at 1MHz rising to 90dB through to over 1GHz, with typical capacitance values from 0.1 to 1µF and a rated voltage of 250V 50/60Hz or 600V DC. A wide spread of commercial and industrial uses for the AC versions include base stations for telecommunications as well as power supplies and IT servers.

All MPE feedthrough capacitor designs incorporate self-healing, metallised plastic film capacitor material and utilise a solderless capacitor assembly technique to ensure maximum lifespan and maximum reliability. Cases are made of stainless steel, terminals are of nickel-plated brass for excellent conductivity, whilst the potting is flame-retardant epoxy resin rated to specification UL 94V-0 and compliant with RoHS (Restriction of Hazardous Substances) regulations.

For fuller details, you can download from here the four-page product overview brochure on the MPE range of feedthrough capacitors, or visit the Feedthroughs section of the MPE website www.mpe.co.uk/category/feedthroughs/

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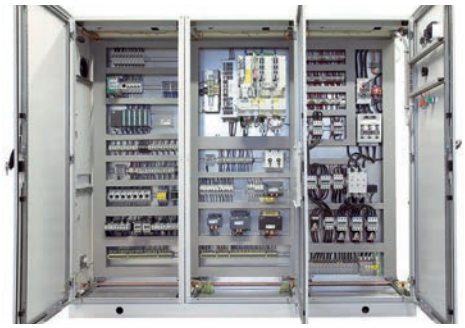
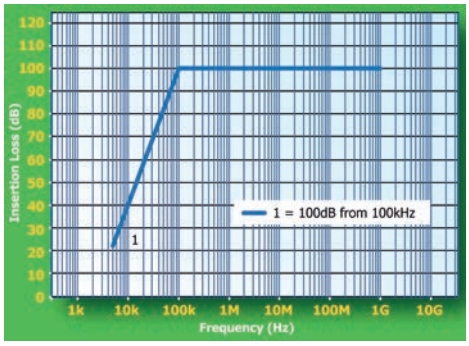


A 250V AC, 50 Hz, high-performance, two-line CleanPower filter featuring a 16A line current rating at 50°C



CleanPower range of EMI filters – insertion loss performance

Compact EMI filter solution for high-performance applications

The MPE CleanPower range of EMI filters have been designed to provide the most practical and cost-effective solution where suppression is required to very high frequencies. Their impressive insertion loss performance is 100dB from 100kHz up to 1GHz.

These powerline filters are bidirectional, having been designed both to minimise the leakage of equipment-generated EMI into the surrounding environment and to protect the integrity of the installation against invasive EMI. The terminal compartments of the filter are fully gasketed and sealed against EMI and are designed to allow the filter to be mounted either internally or externally to the equipment boundary.

High reliability and safety characteristics are inherent in the CleanPower range. The filters utilise MPE's proprietary self-healing metallised plastic film feedthrough capacitors and come in a corrosion-resistant stainless steel enclosure for either bulkhead or chassis mounting.

The small size, light weight and low heat dissipation of CleanPower filters make them ideal for integrating into electrical power cabinets and equipment, shielded rooms and computer installations.

For such applications many equipment manufacturers have in the past purchased off-the-shelf, lower performance, commercial filters and external two-terminal capacitors to try to solve their EMI compliance problems, but have found that these products offer little or no suppression performance at frequencies above a few MHz. This has resulted in the need to add feedthrough capacitors to provide high-frequency suppression performance, and include extra mounting and screening to suit.

In contrast MPE CleanPower filters give a complete solution within a single package. With their enclosed terminals they maximise the safety of personnel, are easy to install and require no extra ventilation or cooling.

For further information on the MPE CleanPower filter range – single-phase and three-phase at current ratings of 16A, 32A and 63A – you can download the current page from the MPE website www.mpe.co.uk/products/clean-power-filters/

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Terry Murch

Leo Miller

Tom Griffin

Experienced North American distributor meets all State Department & DoD requirements

Incorporated in 2008, Technical Sales Solutions, LLC (TSS) has been MPE's North American distributor and business partner right from the start. The company has its headquarters at Gibsonia, north of Pittsburgh, Pennsylvania, and another office at Atlantic Highlands, New Jersey.

TSS specializes in the international sourcing, sales and marketing of military and aerospace products, including detailed market research and strategic product differentiation. A wide-ranging customer base encompasses the major US defense contractors such as Boeing, General Dynamics, Lockheed Martin, Northrop Grumman and Raytheon, to name but a few.

There are three partners at Technical Sales Solutions. Leo Miller is a veteran and an experienced pilot, whose long and distinguished career has included 20 years' service as an Air Traffic Controller in the USAF, followed by a period at Lockheed Martin. Then Terry Murch and Tom Griffin have both had extensive sales and marketing experience of over 25 years in the electronics and defense industries as well as managing successful businesses.

The company is ITAR registered and licensed by the ATF (https://www.atf.gov) to import defense products. Vitally TSS understands the necessity and importance of meeting all State Department and Department of Defense (DoD) requirements.

As an ITAR company, TSS is able to satisfy all State Department conditions for information sharing, technical data, imports and exports, and so on. This takes the burden off the customer to fulfil ITAR requirements and ensures that all relevant transactions are compliant. Accordingly TSS will process any ITAR Technical Assistance Agreements (TAAs) or other licenses which may be needed. Then, should any questions arise regarding a license, TSS will address the issues with the State Department to ensure compliance with the law.

Pictured here, Terry Murch, Director and majority shareholder of TSS, comments: "Our relationship with MPE has always been very positive, and MPE filters have been excellent lines for us over the years. We have successfully put over their unique features and benefits, enabling us to sell MPE's HEMP filters for example into the US Army and US Air Force as far superior replacements for entrenched incumbent brands.

"For instance, the ground-breaking MIL-STD single-line 1200A HEMP filters from MPE consist of a single 1200A circuit with no current-sharing elements, thus avoiding the problems inherent in conventional 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.

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"What is more, MPE units are generally far more compact and of lighter weight for installation purposes. Those size and weight advantages afford significant shipping, installation and space benefits to installer and user alike.

"At the end of the day, such benefits speak for themselves, and MPE products have proved consistently more reliable than their competitors in the North American defense and aerospace markets.

"MPE's superior technology, quality and service, combined with TSS's long-term relationships with major customers in the USA and its ITAR license, have created the framework for an extremely successful partnership."

For more information, contact Technical Sales Solutions, LLC, 5528 William Flynn Highway, Gibsonia, Pennsylvania, PA 15044, USA. Call (001) 732.977.6674, visit the website http://mytechnicalsalessolutions.com or contact Terry Murch via email terry@techsalesolutions.com

tss
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Pictured here during a recent project meeting in Seoul are, from left to right: Jun Sun Park – Chairman and CEO of Eretec, Kelly Cho – Eretec, David Seabury – Managing Director of MPE Ltd and Jacky Kim – Eretec.

MPE celebrates major project success in Korea

MPE distribution partner Eretec Inc has won the contract for a prestigious and significant HEMP protection project in the Republic of South Korea. Eretec has been engaged to advise on the overall effectiveness of the shielding protection and will be supplying not only its own EMP protection doors but also an extensive suite from MPE's HEMP filter range.

The MPE filters will be providing protection for all the powerline, signal line and telephone line applications in the project, spanning a wide range of currents up to 1200A.

Hundreds of MPE filters are scheduled for manufacture and delivery to South Korea in a single shipment for installation and testing, so that this major turnkey defence project can be fully operational by July 2015.

MPE filters have been specified because of their well-established track record of quality and zero failure rate to date, whilst Eretec has been awarded the contract on the basis of its technical capability and impressive history of successful EMP projects.

So, for more information on Eretec, visit the company's website www.eretec.com, call (0082) 31.436.1100, fax (0082) 31.436.1110 or email eretec@eretec.com

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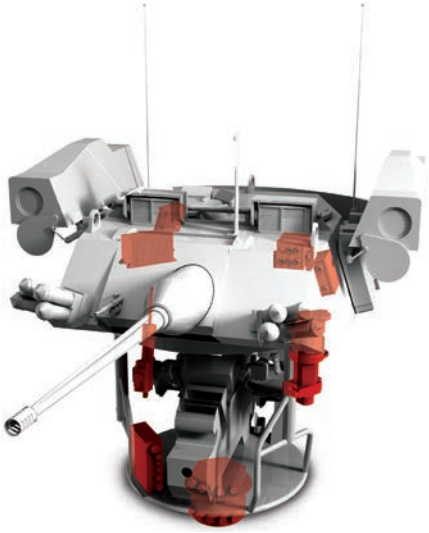

Moog designs, manufactures and integrates weapon sub-systems for military vehicle platforms. The mobile positioner design enables simple integration into existing systems and allows for various platform mounting applications. Here the Moog components are highlighted in red or red tint.

Moog grenade launcher and turret system

The standard MPE 100A DC military filter supplied to Moog

MPE's product reliability is a key driver in the latest weaponisation solutions from motion control specialist Moog

Moog supplies sub-systems and components for mission-critical systems on the latest generation of military vehicles. The company's heritage is in electrohydraulic and electromechanical actuation systems and, through acquisitions and internal development, Moog is now delivering expert solutions in the design, manufacture and integration of weapon sub-systems for military ground vehicles too.

Moog's expertise in fire control, gun control, weapon stabilisation and weapons integration can be found on over 30 of the world's leading military vehicle platforms, including manned and unmanned turrets and remote weapon stations.

Moog's mobile positioner design enables simple integration into existing systems and allows for various platform mounting applications. The mobile positioner also supports radar or other payloads that can be positioned independently from the pan-and-tilt. Sensor integration includes antenna, camera, illuminator, range-finding and acoustic systems.

For over 20 years MPE has been a trusted supplier to Moog of high-performance, high-reliability, feedthrough capacitors, delivering over 25 different designs.

These MPE filters are proving vital for preventing the electrical interference naturally produced by Moog's latest ruggedised, brushless motor controllers – which need to comply with EMC standard MIL-STD-461E – from affecting the operation of surrounding weapon sub-systems on military vehicles.

Among two standard MPE feedthrough capacitors and a customised unit currently shipped in high volumes to Moog, the standard product pictured here is a 100A DC feedthrough capacitor.

The product performance, quality, reliability and support provided by MPE have been the key drivers in the specification of the company's capacitors for Moog's mission-critical motion control systems on European and American military vehicles.

www.moog.com

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Mikael Klasson – Managing Director of Jolex AB

MPE provides EMC protection on Visby Class stealth ships

MPE powerline and control line filters have been incorporated in numerous applications on the new and futuristic Visby Class of stealth ships. Built at the Saab Group's Kockums shipyard at Karlskrona, the 73m x 10.4m corvettes – with 640t displacement and 2.4m draught – have been designed and equipped for multiple combat roles, including anti-surface warfare, anti-submarine warfare, mine countermeasures and patrol duties.

The powerline and control line filters have been supplied through MPE's Swedish distributors Jolex AB based at Värmdö, east of Stockholm (www.jolex.se): their Managing Director is Mikael Klasson, pictured here.

Stealth technology aims to minimize a vessel's transmitted and reflected footprints – heat, light, sound, electrical and electromagnetic radiation – to deny an enemy the opportunity to locate, identify, track and attack it.

Accordingly, on the Visby Class stealth corvette, flat surfaces and concealed equipment reduce the radar signature to a minimum. The hull is designed on stealth principles with large, flat-angled surfaces. Every feature which does not have to be located outside the hull has been either built in or tucked away under specially designed hatches. The gas turbine exhausts have been concealed in hidden outlets close to water level at the stern of the vessel.

The vessel is built of carbon fibre reinforced plastic (CFRP) of sandwich construction. That provides high strength and rigidity, low weight, good shock resistance, low radar footprint and low magnetic signature. The material of construction dramatically reduces the structural weight, typically 50% of that of a conventional steel hull, facilitating a greater carrying capacity, higher speed – over 35 knots and longer range.

www.saabgroup.com/en/Naval/Kockums-Naval-Solutions/Naval-Surface-Ships/Visby-Class-Corvette

www.youtube.com/watch?v=MVRuGO6VeaI

Jolex