



MPE
Quality, Reliability, Performance

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Overview Brochure

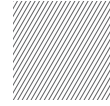


Overview



MPE
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Introduction



MPE Limited is a world leading manufacturer of high performance EMC/EMP filters and capacitor solutions for supply to the defence, ICT, specialist automotive and other professional industries.

Our history, spanning over 9 decades, is a testament to our unrelenting commitment to

**Quality,
Reliability &
Performance.**

Capacitors



Formed in 1925, MPE have the longest standing and proven heritage of design, development and manufacture of high performance EMC/EMP filters and capacitors within the industry. Throughout this heritage, MPE have gained a reputation for providing the highest levels of quality and reliability and this legacy ensures that MPE are able to offer an unparalleled range of solutions to the market place.

MPE's comprehensive standard suite of core products spans high performance feedthrough capacitors, high current power, telephone, data & control line filters, through to the latest HEMP range of protection filters. Outside of this core range, MPE have a catalogue in excess of 20,000 designs that can be drawn upon to fulfil more 'specialist' requirements. In addition, MPE's ability for rapid development and prototyping ensure that any new design requirements can be fully met.

MPE are an established member of both the EMCIA and EEF organisations, hold numerous product and industry accreditations and are ISO9001 certified.

MPE have been wholly privately owned since 2002 and are based in Liverpool, UK. With a continued growth throughout the past 10 years, MPE are a multi-million pound turnover company and employ in excess of 50 staff. MPE have a well-established, global customer base, with 50% of manufactured product being exported to many territories and markets.

Our mission

To be the number one choice for high performance EMC/EMP filter solutions.

Experience



Company Milestones

1925

Formed as Dubilier

1947

Relocated manufacturing to Knowsley, Liverpool

1980

Transferred manufacturing to the current site in Knowsley, Liverpool

1981

Renamed as MPE Limited

2002

MPE becomes privately owned





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With a steadily growing multi-million pound turnover, MPE provides solutions to many markets both within the UK and around the globe. Core to this steady growth has been MPE's ability to develop a well-established and loyal customer base, soundly based on a proven track record of delivering quality products.

Historically, this proven track record was established within the UK defence industry with MPE supplying varied products to many sectors within this market. However, over the past 25 years, MPE has expanded its supply to many other markets and also many export territories.

Currently, whilst the defence sector remains core, MPE have established customers within the specialist automotive, mass transportation, medical, telecoms and EMC test markets. Further to this, approximately 50% of products manufactured are now exported outside the UK. Territories served include most of Europe; the Far East; India; parts of Africa and the USA with new markets continually coming on line.

As a result of this, MPE have an established and knowledgeable distributor network in many territories to ensure that design requests and product requirements are met with maximum efficiency.

Defence



Defence represents MPE's longest standing market and MPE have worked and continue to work closely with many users, manufacturers and compliance authorities within this sector. MPE have a broad range of established solutions which have been designed and manufactured specifically for this market and comply with the required military standards.

Many applications have been addressed, including mobile & tactical shelters; control & command centres; along with high profile airborne and naval platforms. More recently, upon request and to meet the ever changing nature of this market, MPE have developed and manufactured a full range of HEMP protection filters all independently tested and compliant to MIL-STD-188-125.

Military Vehicle



MPE have been supplying the needs of the military vehicle market for over 40 years. This wealth of experience has enabled MPE to establish a range of MOTS (military-off-the-shelf) filters to meet the suppression requirements specific to these applications. Many designs have been developed in

conjunction with the users and manufacturers of these vehicles and meet the requirements of many military specifications, such as DEF STAN 59-411 and MIL-STD-461.

ICT



MPE have a wealth of experience and an established track record of providing bespoke product within this sector. Product has been supplied to address many disparate applications including: mobile network base stations, high end server applications; satellite ground stations and antenna arrays both within

the UK and overseas. MPE continues to supply product to many blue-chip applications with particular focus given to the repeatability and high volume nature of the designs.



Medical



Whilst the Medical sector is probably the most disparate from MPE's defence origins and the meeting of performance criteria of the upmost importance, niches within this market, have been and continue to be addressed by MPE solutions. Prime examples are MRI or other hospital scanning departments

where any level of EMC interference cannot be tolerated.

Specialist Automotive



A market with many specific requirements, not least those of size, weight and cost-effectiveness. MPE has manufactured and supplied many suppression products to address specific inference problems established at either the vehicle trial or post launch phase. Inherently, this often means

that whilst MPE's designs must be compliant, they are also developed to fit constrained envelopes, where no allowance has been originally made for filtering and also in a form that is fit for manufacture, in high volumes.

EMC Test



MPE work closely with the EMC test communities that operate within all of the previously mentioned sectors. MPE have particularly strong relationships with the leading test houses here in the UK as well as in the USA and the emerging Far Eastern markets. MPE have acted and continue to act both in

a customer supply capacity, providing shielded room filter products and in a collaborative capacity to explore solutions to new problems arising during test phases.

Mass Transportation



Whilst a continually changing market, many of the identified needs are similar in nature to those MPE has encountered and met within other more established sectors. MPE has been able to employ the knowledge and experience gained within other sectors to deliver product to meet the bespoke interference

problems arising within both the mobile and infrastructure aspects of this sector.

MPE have an established and knowledgeable distributor network to ensure that design requests and product requirements are met with maximum efficiency.



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MPE's unparalleled range of product offering encompasses in excess of 20,000 established designs to meet a wealth of application requirements. From this catalogue, a smaller core product subset comprising the most commonly required and versatile products are available as standard, with other designs outside this core range available to utilise if applications necessitate.

Power Line Filters

Overview:

Broad range including:
High performance,
standard range, very high
current and extended
performance options
Single and three phase
ranges
AC/DC
Multi-line
Low leakage & 400Hz designs.



Current Rating: 5A to 2400A

Voltage Rating: 250V DC/115 – 440V AC

Applications: Shielded rooms, tactical & mobile shelters,
computer suites, EMC,
EMP protection systems and
TEMPEST applications

Design Benefits: High insertion loss of 100dB to >18GHz
Low heat dissipation
Ultra small footprint
Cost effective
Self-healing plastic film capacitors utilised
Variety of cable entry options available

Clean Power Filters

Overview:

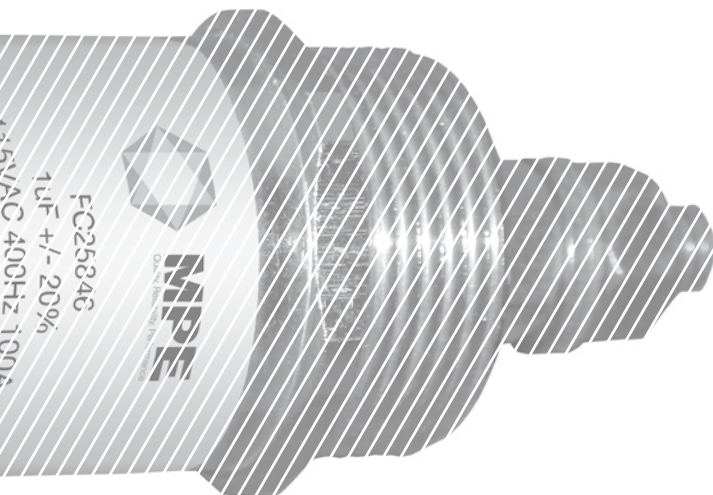
Cost effective range of single
and three phase power filters

Current Rating: 6A to 160A

Voltage Rating: 250V
DC/440V AC

Applications: Power &
equipment cabinets,
shielded rooms, computer installations

Design Benefits: Maximum cost effectiveness
High insertion loss of 100dB, to >1GHz
Compact size
Enclosed terminals
Stainless steel enclosure
Bulkhead or chassis mounting
Self-healing plastic film capacitors utilised





Telephone Line Filters

Overview:

Options from 2 line through to 240 lines; high and extended performance designs available

Current Rating: 125mA to 300mA

Voltage Rating: 95V to 250V AC/DC

Applications: Shielded rooms, communications hubs, signal lines, EMP protection systems and TEMPEST applications

Design Benefits: Low pass circuits
300/600 ohm & complex impedance circuits
Self-healing plastic film capacitors utilised
Matched pairs
Transient protection options
BT approved



Control Line Filters

Overview:

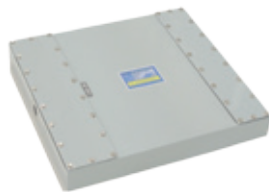
Single-line feedthrough & multi-line AC/DC control line filter range

Current Rating: 1A to 10A AC/DC

Voltage Rating: 250V AC (600V DC), 28V DC to 100V DC

Applications: Shielded rooms, low current power lines, fire & intruder systems, control indicator applications, EMP protection systems and TEMPEST applications

Design Benefits: Optimum performance
Ultra small footprint
Up to 200 line designs available
Transient protection options
EMP protection options
Self-healing plastic film capacitors utilised
Variety of cable entry options available



An unparalleled product offering, encompassing over 20,000 designs to meet a wealth of application requirements.





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Data Line Filters

Overview:

High performance range for digital and analogue circuits including Gigabit Ethernet

Current Rating:
100mA

Voltage Rating:
100V AC/DC

Applications: Shielded rooms, data security, computer hubs, signal lines, EMP protection systems and TEMPEST applications

Design Benefits: Various data rate options available to suit different data protocols
Very high performance
Transient protection options
Self-healing plastic film capacitors utilised
Variety of package styles available



Feedthrough Capacitors & Filters

Overview:

AC/DC, various performance options, high current, Y2 & Y4 options, single-line and multi-line options available

Current Rating:
Up to 1000A

Voltage Rating: Up to
300V AC &
1000V DC

Applications: Telecoms, base stations, IT equipment, servers, medical, process control, defence, power supplies, military vehicles

Design Benefits: Minimal footprint
Self-healing plastic film capacitors utilised
Threaded terminals for bulkhead or chassis mounting
High capacitance value
Cost effectiveness



Equipment Filters

Overview:

High performance, general purpose, single and three phase designs

Current Rating:
1A to 100A

Voltage Rating:
250V AC, 100V DC

Applications: Switched mode power supplies, communications systems

Design Benefits: Very wide frequency performance range
Self-healing plastic film capacitors utilised
Bulkhead or chassis mounting
Feedthrough capacitors utilised for high frequency performance



EMP EMI Tempest Filters

Overview:

Very high performance, EMP pulse protection, power, data telephone & control line variants available

Current Rating: 1A to 2400A

Voltage Rating: 250V AC,
DC to 440V

Applications: Lightning, MP, Nuclear and high power microwave EMP, TEMPEST shelters, shielded rooms, public service utilities, homeland security applications

Design Benefits: Multi-stage
Full frequency spectrum protection
High pulse energy capability
Self-healing plastic film capacitors utilised
Enclosed terminals
Corrosion resistant
Tested with NATO standard EMP pulses

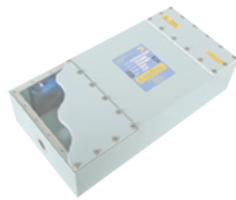




HEMP Filters

Overview:

High performance range of single phase & three phase power, telephone and control line filters, designed for pulse performance and fully compliant to MIL-STD-188-125



Current Rating: 6A to 1200A (power)
1A (control)
100mA (telephone)

Voltage Rating: Up to 277V AC, 250V DC

Applications: Any military, homeland security, public service utility or commercial applications where HEMP protection is a requirement

Design Benefits: Designed for pulse performance
Compact footprint
Minimal weight
Modular designs available
No paralleling

Military Vehicle Filters

Overview:

Standard 2 line, multi-line filters & high current feedthrough capacitors

Current Rating: 3A to 300A

Voltage Rating: 28V DC to 1000V DC

Applications: Military vehicle equipment where compliance to DEF STAN 59-41 & MIL-STD-461 EMC is required

Design Benefits: Multi-line variants available
Integral screened flying leads
Ultra compact enclosures
Self-healing plastic film capacitors utilised
Screw and bulkhead mounting



An unparalleled product offering, encompassing over 20,000 designs to meet a wealth of application requirements.



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A programme of continuous investment in a 40,000 sq ft manufacturing facility, specialist test equipment and design software enables MPE to manufacture and supply products that satisfy the most demanding customer requirements, often in harsh environments. MPE manufacture all critical components in house ensuring quality of the highest standard is achieved and maintained.

MPE's precision engineering capabilities range from unique capacitor designs to complex EMC/EMI filter products for ground, naval and airborne applications.

The Company is certified to ISO9001:2008 and employs in excess of 50 people, including 5 experienced design engineers with over 100 combined design years' experience.

Engineering

MPE has been designing high performance EMC filters and specialist capacitors for more than 50 years.

All designs are carried out using bespoke software and strict design rules to ensure quality, reliability and maximum production efficiencies. Latest materials and techniques are continually evaluated and optimised to provide the best practical performance and deliver the greatest purchase economy benefits to the customer.

Metallised plastic film was adopted by MPE as a standard capacitor technology more than 30 years ago due to its many significant advantages over more traditional oil filled paper designs. This plastic film technology is well proven in the field and is now accepted as the industry preferred technology largely due to its superior longevity and reliability coupled with its increased safety.

MPE specialise in the design and manufacture of feedthrough capacitors which are essential component parts of filters required to operate at a frequency above a few tens of MHz. These are incorporated into many state of the art filter designs used to satisfy the latest high performance HEMP and TEMPEST requirements.

All design is carried out in house at MPE which permits prototypes to be developed and produced rapidly and with great flexibility. Custom designs form a significant part of the MPE capability and with over 20,000 designs on file, a wealth of experience can be called upon when addressing new and challenging requirements.

MPE's design laboratory has a number of specialist test capabilities to allow in house evaluations of new designs. Tests which can be carried out at MPE include: EMC pre-compliance; pulse injection; insertion loss DC – 4GHz; shielding effectiveness and high current.



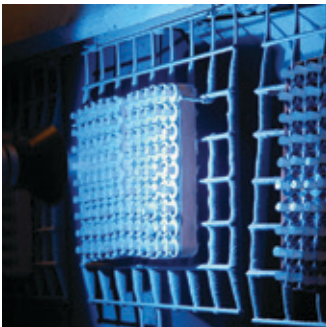
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Manufacturing

MPE embraces and fully utilises current processes and techniques to enhance the quality of our manufactured products whilst optimising cost efficiency.

MPE's assembly and test team operate in a cell based structure with dedicated areas for feedthrough capacitor manufacture; coil winding; fabrication; machining; resin encapsulation; paint finishing and high voltage testing. Collectively these teams have many hundreds of years' experience of manufacturing complex, high reliability, bespoke components and products to the exacting performance and environmental requirements of the military marketplace. All MPE products are 100% tested prior to despatch.



Reliability

During the last 30 years, MPE has designed manufactured and shipped in excess of 8 million filter and capacitor products. Many of these products have been in field service for over 20 years.

Having interrogated and analysed customer return data of power line filters, the product return level is minimal at 0.012%.

During 2011, following an installation upgrade, MPE had the opportunity to analyse 40 power line filters that had remained in continuous service with the UK MOD for 20 years. Following test, all 40 filters were found to be operating within their original specification.

All our critical components are manufactured in house, ensuring quality of the highest standard.





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