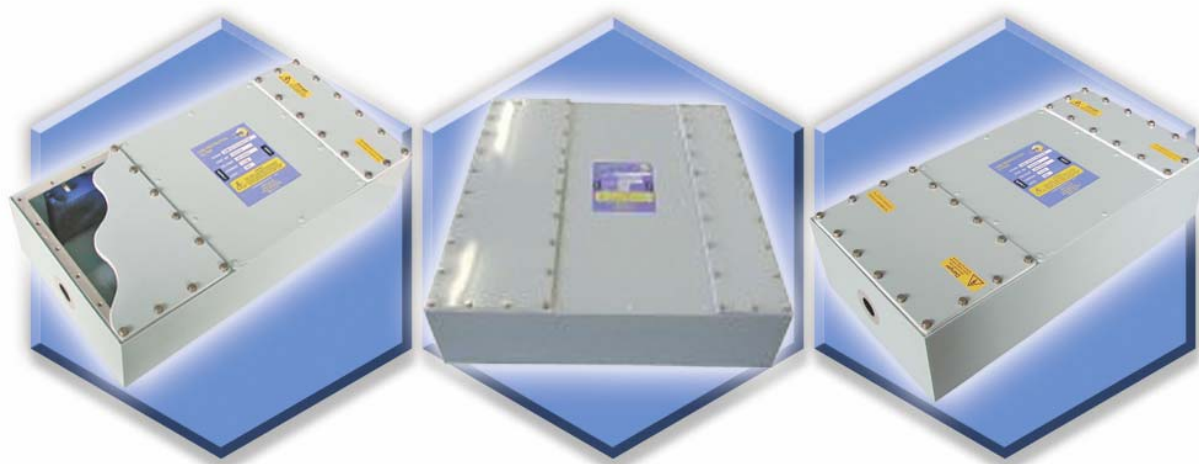


HEMP PROTECTION FILTERS FOR AC MAINS POWER LINES

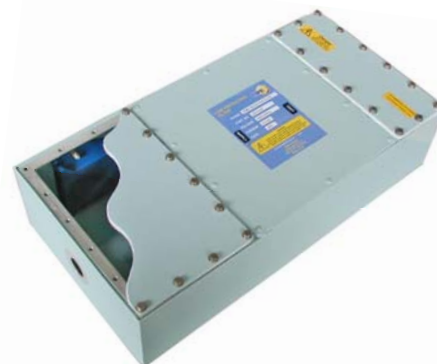
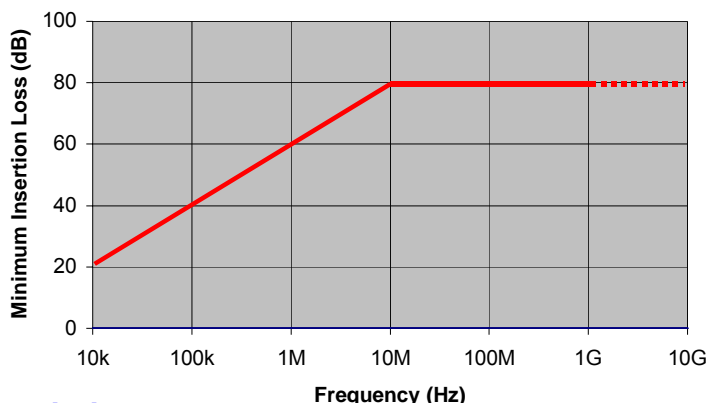


**DESIGNED TO MEET ELECTRICAL POINT-OF-ENTRY
REQUIREMENTS OF MIL-STD-188-125-1 & -2
FOR SHORT AND INTERMEDIATE PULSES**



MPE Limited
Hammond Road
Knowsley Industrial Park
Liverpool L33 7UL
UK

Standard Performance Range



Description

A range of 2 line and 4 line transient suppressed filters suitable for single and three phase mains supplies for use on shielded rooms and general installations. All lines are individually filtered and feature inductive input to offer both good continuous wave EMC performance and superior transient handling performance even on supplies which have low source impedance and which are subjected to high-energy transients. All lines feature high-energy varistor transient suppressors at the input end. This range of filters is ideally suited to EMP protection applications such as those which need to conform to MIL-STD -188-125-1 & -2.

Features

- 250Vac with 6A – 400A current ratings
- 2 or 4 individually filtered lines
- Utilise MPE self-healing feedthrough capacitors
- Smaller & lighter than traditional solutions
- Lower heat dissipation than traditional solutions
- Very high energy transient suppressors fitted as standard for high reliability
- UL94-V0 insulating materials used
- Complies with IEC 950 requirement
- Very low residual pulse current – high safety margin

Ratings and Characteristics

Rated Voltage	250Vac 50/60 Hz
Test Voltage	2250Vdc each line to case (Prior to fitting transient suppressors) >100MΩ (Prior to fitting discharge resistors)
Insulation Resistance	>100MΩ (Prior to fitting discharge resistors)
Discharge Resistors	Fitted internally from each line to case
Discharge Time to below 34V	<30s
Maximum Temperature Rise on Full Load	25°C
Full Load Operating Temperature Range	-25°C to +50°C
Leakage Current at 250Vac 50Hz	<1.5A for 6A - 63A Filters, <5A for 100A - 200A Filters
Peak Surge Current	70kA (8/20μs)

Insertion Loss Performance

Minimum insertion loss in 50Ω system with / without load						
Frequency	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz
Insertion loss	20dB	40dB	60dB	80dB	80dB	80dB

Transient Suppression Performance

MIL STD 188-125-1 acceptance test, short pulse current injection, wave shape 20/500ns					
Input pulse amplitude	250A	500A	1000A	1800A	2500A
MIL-STD-188-125 residual requirement	<10A	<10A	<10A	<10A	<10A
Typical filter residual let-through	<1.5A	<2A	<3A	<3.5A	<4.5A

MIL STD 188-125-1 acceptance test, intermediate pulse current injection, wave shape 1.5/3000μs	
Input pulse amplitude	250A
MIL-STD-188-125 requirement	No filter damage or performance degradation
Typical filter response	No filter damage or performance degradation

HEMP PROTECTION FILTERS – STANDARD RANGE



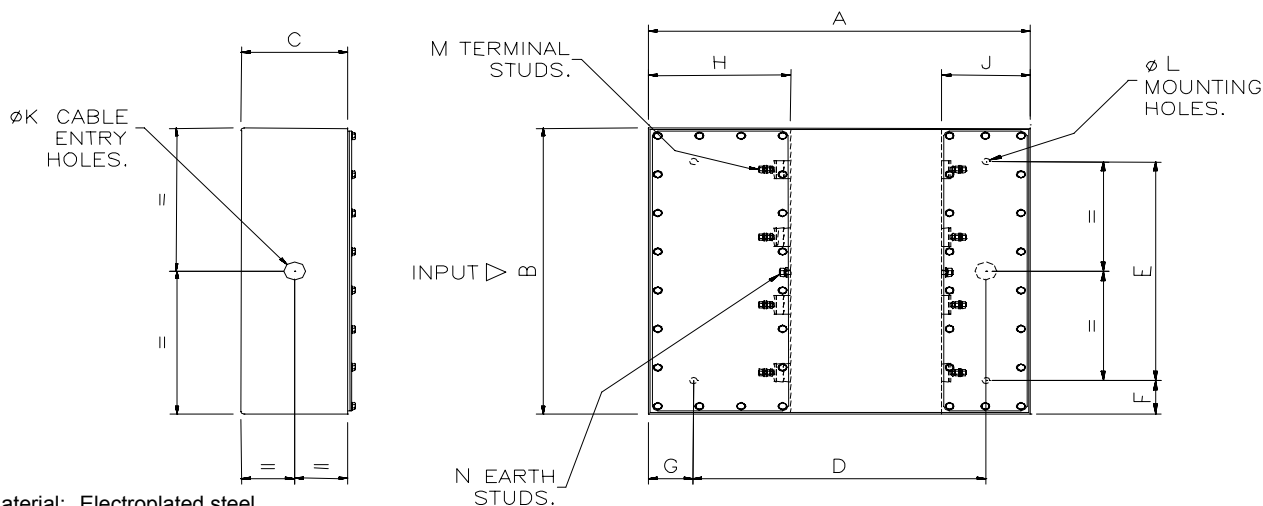
www.mpe.co.uk

Product Range

Part Number	Current Rating per Line @ 50°C (A) *	Number of Lines	DC Volt Drop per Line max (V)	Maximum Heat Dissipation (W)	Major Dimensions (mm)			Weight Approx (kg)	
					Length A	Width B	Depth C		
DS33330	6	2	0.1	5	420	200	120	10	
DS33331	16	2	0.2	10	420	200	120	10	
DS33332	32	2	0.2	20	500	250	120	14	
DS33333	63	2	0.3	40	620	320	170	30	
DS33334	100	2	0.2	65	740	350	230	40	
DS33335	200	2	0.1	80	860	450	250	70	
DS33336	400	FOR FUTURE RELEASE: DETAILS ON REQUEST							
DS33340	6	4	0.1	10	420	400	120	20	
DS33341	16	4	0.2	20	420	400	120	20	
DS33342	32	4	0.2	40	500	500	120	30	
DS33343	63	4	0.3	75	620	640	170	55	
DS33344	100	4	0.2	125	740	700	230	80	
DS33345	200	4	0.1	140	860	900	250	130	
DS33346	400	FOR FUTURE RELEASE: DETAILS ON REQUEST							

* Current derating between 50°C and 85°C $I_{\theta} = I_{R} \sqrt{(85 - \theta) / 35}$

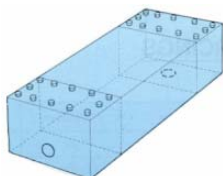
Dimensions and Mechanical Details



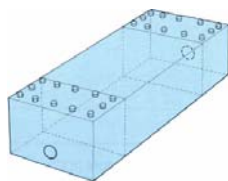
Material: Electroplated steel
Finish: Paint (base paint free)

Part Number	Dimensions (mm)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
DS33330	420	200	120	340	110	45	40	140	80	20	9	M5	M6
DS33331	420	200	120	340	110	45	40	140	80	20	9	M5	M6
DS33332	500	250	120	410	140	55	45	160	100	25	9	M8	M10
DS33333	620	320	170	530	210	55	45	160	100	32	11	M8	M10
DS33334	740	350	230	630	240	55	55	160	120	32	11	M8	M10
DS33335	860	450	250	710	300	75	75	200	150	51	17	M12	M16
DS33336	FOR FUTURE RELEASE: DETAILS ON REQUEST												
DS33340	420	400	120	340	310	45	40	140	80	20	9	M5	M6
DS33341	420	400	120	340	310	45	40	140	80	20	9	M5	M6
DS33342	500	500	120	410	390	55	45	160	100	25	9	M8	M10
DS33343	620	640	170	530	530	55	45	160	100	32	11	M8	M10
DS33344	740	700	230	630	590	55	55	160	120	32	11	M8	M10
DS33345	860	900	250	710	750	75	75	200	150	51	17	M12	M16
DS33346	FOR FUTURE RELEASE: DETAILS ON REQUEST												

Cable Entry Options



Part No DS XXXXX / C
End entry base exit
(standard cable entry configuration)



Part No DS XXXXX / A
End entry end exit
(alternative cable entry)

Two different cable entry options are available as shown.

Standard configuration is suffix C for shielded room mounting, i.e. end entry, base exit.

For end entry and end exit, substitute suffix C with suffix A in the part number.

Installation Details



Typical Installation

The mounting surface should be clean and unpainted to ensure a low impedance earth bond and good RF seal.

Fixing screws and gland tubes can be supplied as an optional extra.

Recommended tightening torque figures:

M5 lid fixings:	1N-m
M5 terminals:	2N-m
M6 terminals:	2.5N-m
M8 terminals:	5N-m
M10 terminals:	8N-m
M12 terminals:	11N-m
M16 terminals:	20N-m

Safety

Relevant safety standards have been adhered to in the design and manufacture of these products. However, all capacitors will store charge after power has been removed and must be treated with respect as a shock can be lethal if the voltage and charge are high enough.

Even though discharge resistors are fitted to this range of filters, terminals should always be shorted to earth prior to touching to ensure the capacitors are fully discharged.

The user should ensure he is familiar with restrictions on capacitance value, earth leakage current, test voltage, and safety labelling requirements, which may be applicable to his particular installation.

These filters must be solidly and permanently earthed, both for safe operation and to achieve optimum EMC and pulse performance.

Custom Designs

MPE offers a rapid design service for custom designs where special packaging, mounting, terminations, or multiple lines are required. Over 50% of the filters manufactured by MPE are custom designs and this can offer a very cost effective installation solution. Please ask to see examples of previously offered solutions.

Filter Selection Guide

Step 1 Choose current and number of lines required

Step 2 Select part number and cable entry suffix