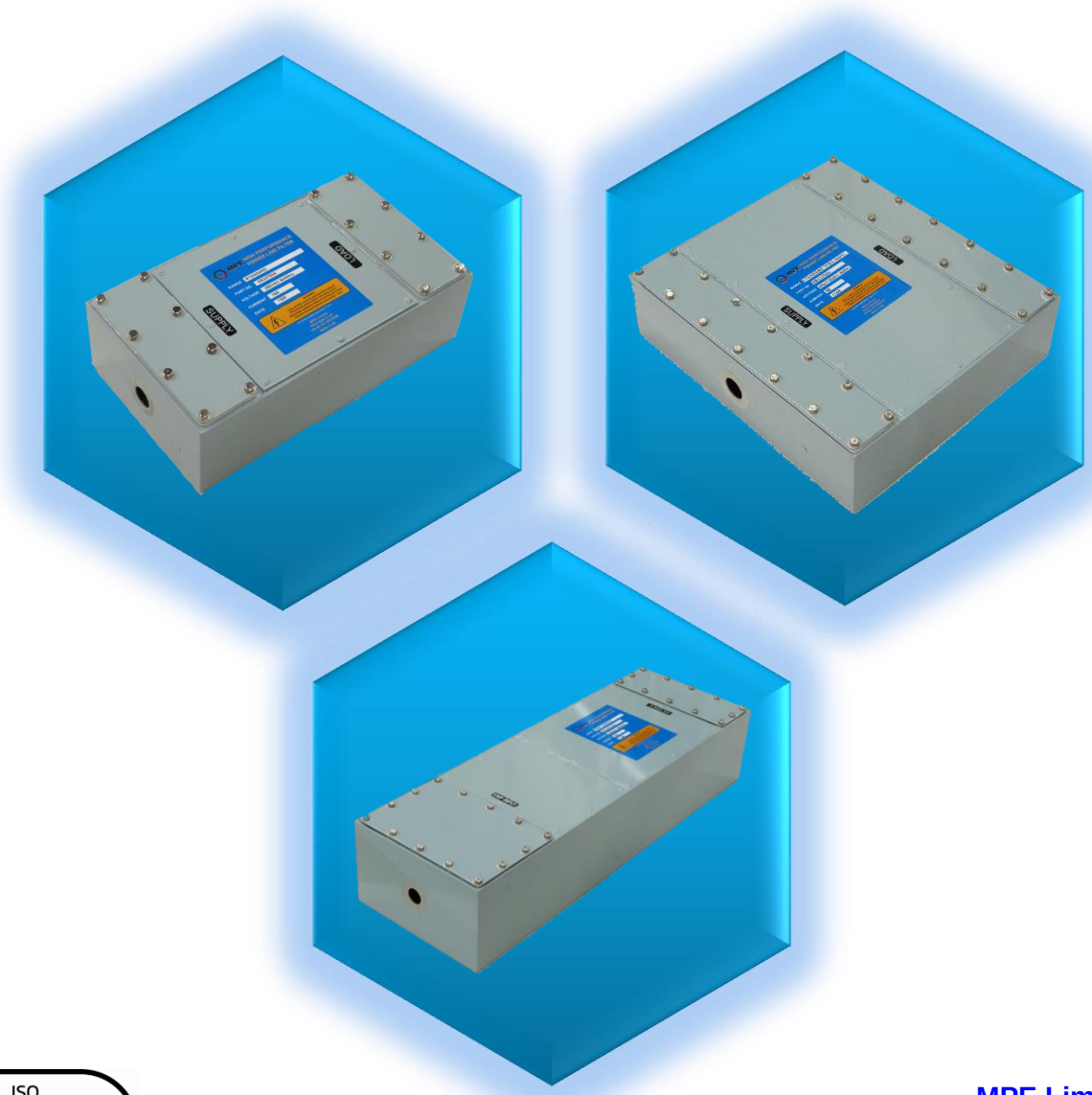
HIGH VOLTAGE
HIGH PERFORMANCE
1500VDC POWER LINE FILTERS



ISO 9001 Quality Management
FM00699

MPE Limited
Hammond Road
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UK

1500VDC Power Line Filter Range Issue 5
13th May 2024

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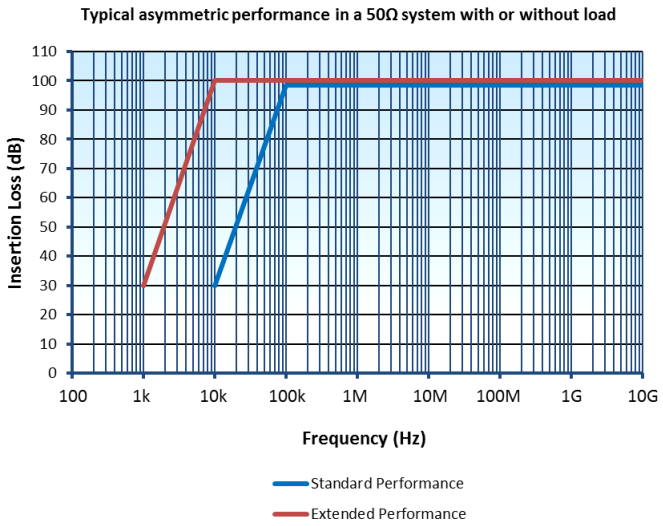
1500VDC POWER LINE FILTER RANGE

Insertion Loss Performance



Features

- 2 line applications
- 1500VDC voltage ratings
- Utilises MPE self-healing feedthrough capacitors
- Reliable capacitor technology proven over 25 years
- Two performance ranges available for either
  100dB across 100kHz to 10GHz or
  100dB across 10kHz to 10GHz
- Coupled inductor for high insertion loss
- UL94-V0 insulating materials used
- Smaller and lighter than traditional solutions
- Low heat dissipation
- RoHS compliant

Description

From screened rooms to industrial power equipment, uncontrolled radio interference presents a common hazard. This range of filters is designed specifically for use on DC supplies up to 1500VDC. Applications include secure communications systems, computer installations, portable screened enclosures, and electric drive test chambers. These filters have the same robust and reliable construction as MPE's Power Line AC filter designs providing a long service life and exceptional filtering.

Ratings and Characteristics

Rated Voltage	1500VDC
Test Voltage	3000VDC each line to case
Rated Current per Line @ 50°C*	As tabulated
Insertion Loss	see graph and table
Standard Performance	Curve 1 meets 100dB across 100kHz to >10GHz
Extended Performance	Curve 2 meets 100dB across 10kHz to >10GHz
Full Load Maximum Temperature Rise	25°C (16 °C for filters rated >800A)
Full Load Operating Temperature Range	-45°C to +50°C
No Load Operating / Storage Temperature Range	-45ºC to +85ºC
Maximum Full Load Heat Dissipation	As tabulated below
Discharge Resistors	Fitted internally from each line to case
Discharge Time to below 34V	< 1 minute
Maximum Continuous Earth Leakage Current	Dependent upon voltage ripple
Maximum Overload Current Rating	1.25 times rated current for 15 minutes
Maximum Short Circuit Fault Current Rating	20,000A for 1 second (for filters rated >800A)

Mechanical and Environmental Details

Enclosure Material	Mild steel, stannate plated
Terminals	Brass, nickel plated
Earth Studs	Mild steel, stannate plated
Potting Flammability Rating	UL94-V0
Finish	Gloss epoxy paint DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Mounting Hardware	None provided

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Range Available

Part Number	Current Rating (A) @ 50°C*	Performance Curve	Volt Drop per line @ Full Load (mV)	Heat Dissipation (W)	Major Dimensions			Approx. Weight (kg)
					Length	Width	Height	
Standard Performance 100dB @ 100kHz								
DS30946	16	1	500	15	425	175	90	12
DS30947	32	1	500	20	550	205	95	16
DS30948	63	1	350	50	725	205	105	23
DS30917	100	1	250	60	760	205	120	28
DS30918	200	1	200	120	820	475	150	80
DS30919	400	1	150	150	1250	475	150	110
DS30920	800	1	100	250	1554	500	285	175
DS30921	1200	1	75	350	1600	500	300	210
DS30922	1600	1	65	400	1800	500	350	350
DS30923	2400	1	60	500	2000	500	400	450
Extended Performance 100dB @ 10kHz								
DS30942	16	2	1200	35	725	175	90	15
DS30943	32	2	1200	55	820	350	120	42
DS30944	63	2	1000	115	970	350	120	62
DS30910	100	2	900	200	1206	350	150	100
DS30911	200	2	750	400	1206	573	162	150
DS30912	400	2	250	400	1750	650	180	240
DS30913	800	2	150	375	2400	500	285	280
DS30914	1200	2	115	550	2500	500	300	360
DS30915	1600	2	100	600	2900	500	350	440
DS30916	2400	2	90	750	Please consult Sales department			

*Current derating between 40°C and 85°C is given by $I_\theta = I_R\sqrt{(85-\theta)/35}$

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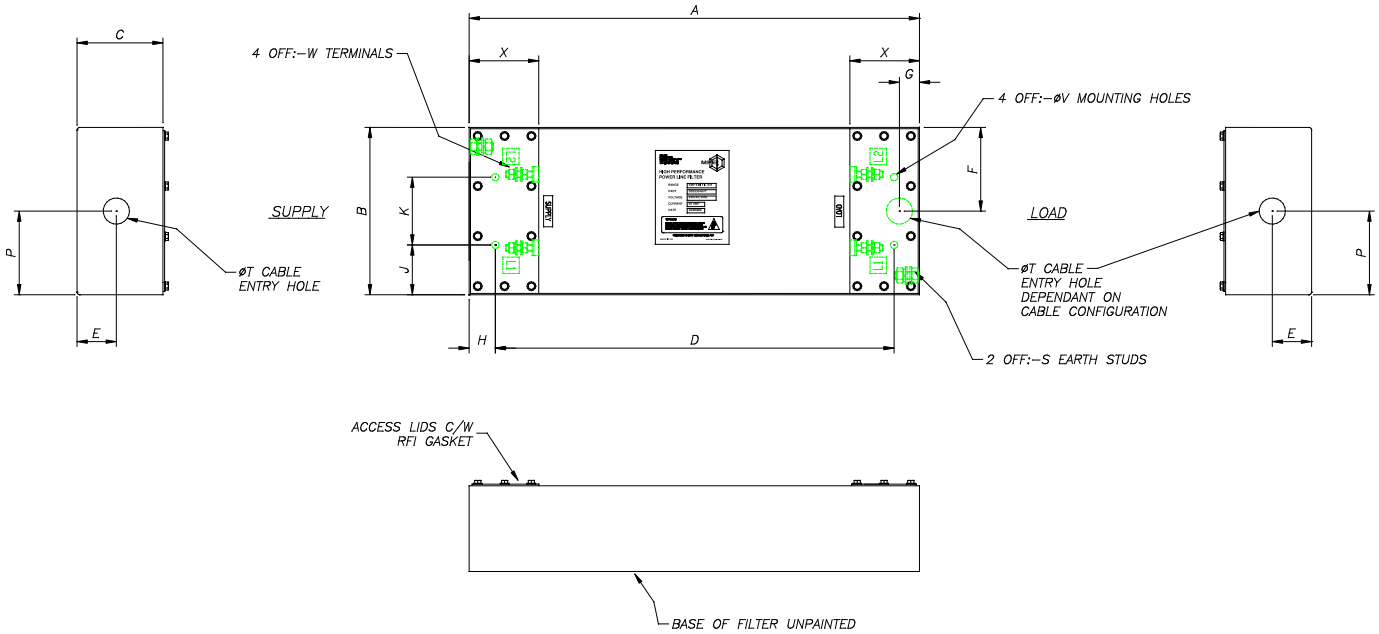
Dimensions and Mechanical Details - 16A to 400A



Part Number	Dimensions (mm)															
	A	B	C	D	E	F	G	H	J	K	P	S	T	V	W	X
DS30946	425	175	90	327	45	88	45	49	24	127	88	M6	20	9	M5	85
DS30947	550	205	95	487	48	103	45	31	61	83	103	M10	32	9	M8	85
DS30948	725	205	105	621	48	103	55	52	61	83	103	M10	32	9	M8	110
DS30917	760	205	120	656	48	103	55	52	61	83	103	M10	32	9	M8	110
DS30918	820	475	150	680	75	238	70	70	110	255	238	M12	51	13	M12	140
DS30919	1250	475	150	760	75	238	75	245	110	255	238	M20	63	17	M20	300
DS30942	725	175	90	627	45	88	45	49	24	127	88	M6	20	9	M5	85
DS30943	820	350	120	710	60	175	55	55	110	130	175	M10	32	13	M8	110
DS30944	970	350	120	860	60	175	55	55	110	130	175	M10	32	13	M8	110
DS30910	1206	350	150	1130	75	175	60	38	110	130	175	M10	32	13	M8	120
DS30911	1206	573	162	1130	81	286	75	38	110	353	286	M12	51	13	M12	135
DS30912	1750	650	180	1260	90	325	75	245	150	350	325	M20	63	17	M20	300

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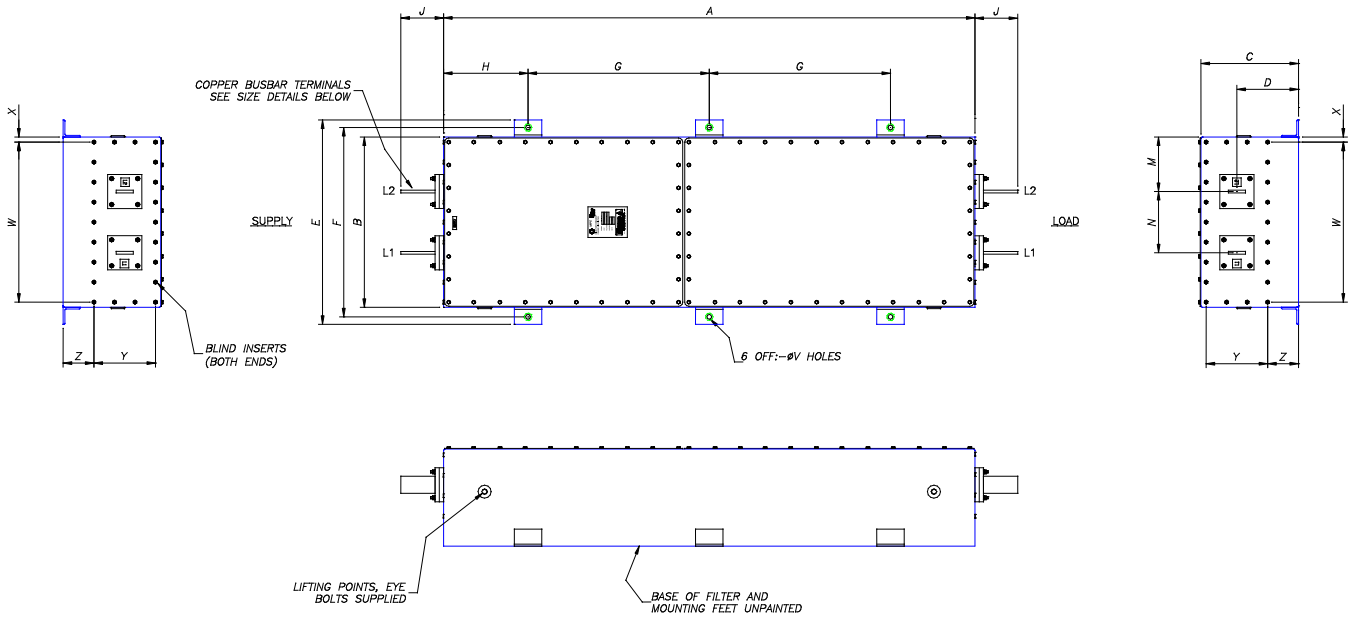
Dimensions and Mechanical Details - 800A to 2400A

Standard Performance



"A" entry configuration shown. See page 7 for other options.

MPE Part Number	Dimensions (mm)													
	A	B	C	D	E	F	G	H	J	K*	M	N	R*	V
DS30920	1554	500	285	180	600	556	530	247	125	1420	160	180	125	14
DS30921	1600	500	300	185	600	556	600	200	155	1450	125	250	155	14
DS30922	1800	500	350	212	600	556	700	200	200	-	125	250	-	14
DS30923	2000	500	400	230	600	556	800	200	200	-	125	250	-	17

*Only for "C" configuration. See detail drawing on page 7.

Busbar Terminal Details

MPE Part Number	Busbar Size (mm)
DS30920	50 x 8
DS30921	80 x 10
DS30922	125 x 10
DS30923	127 x 16

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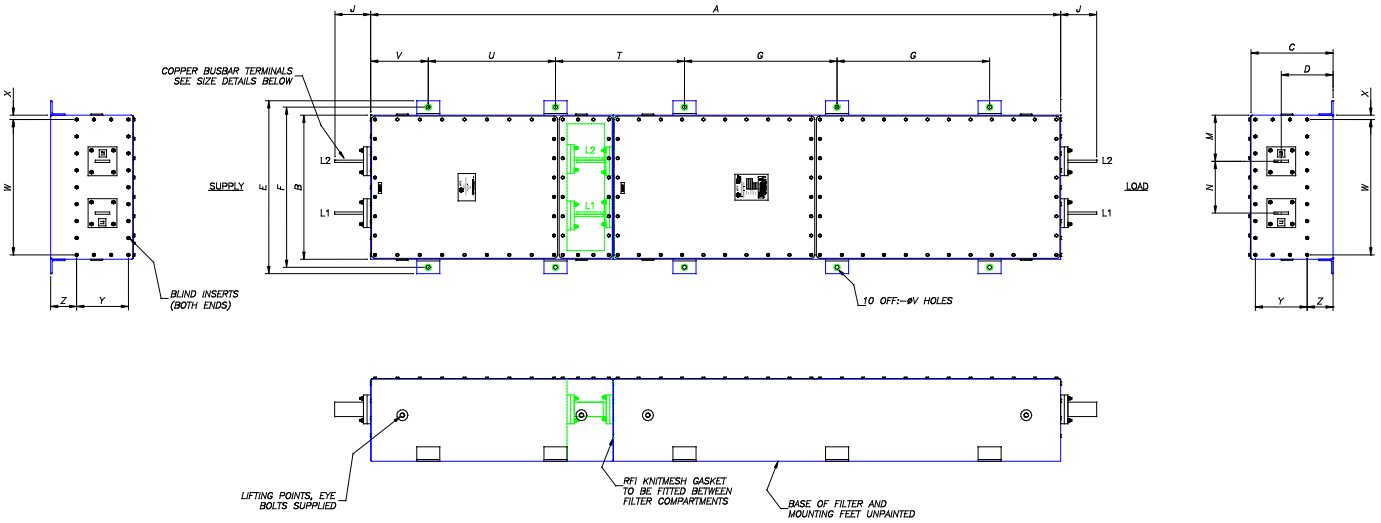
Dimensions and Mechanical Details - 800A to 2400A

Extended Performance



"A" entry configuration shown. See page 7 for other options.

Note: Extended performance filters are supplied as two interlocking parts for ease of handling and installation. An RFI interface gasket is supplied to join the two sections.

MPE Part Number	Dimensions (mm)													
	A	B	C	D	E	F	G	H	J	K*	M	N	R*	V
DS30913	2400	500	285	180	600	556	530	247	125	1420	160	180	125	14
DS30914	2500	500	300	185	600	556	600	200	155	1450	125	250	155	14
DS30915	2900	500	350	212	600	556	700	200	200	-	125	250	-	14
DS30916	Please consult the Sales department													

*Only for "C" configuration. See detail drawing on page 7.

Busbar Terminal Details

MPE Part Number	Busbar Size (mm)
DS30913	50 x 8
DS30914	80 x 10
DS30915	125 x 10
DS30916	127 x 16

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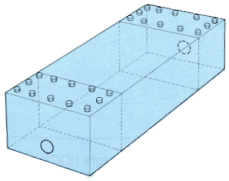
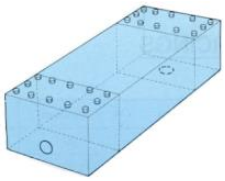
Cable Entry Options

The following standard cable entry hole positions are available on all 6 to 400A filters with terminal compartments. The required cable entry is simply specified by adding the appropriate suffix to the filter part number. Other cable entry configurations can be provided on special order.

A configuration – end entry & end exit
For example



C configuration – end entry & end exit
For example

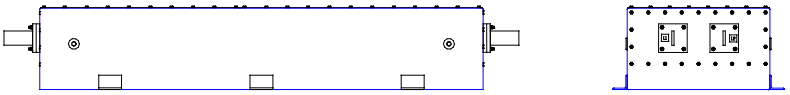


Busbar Terminal Entry Options

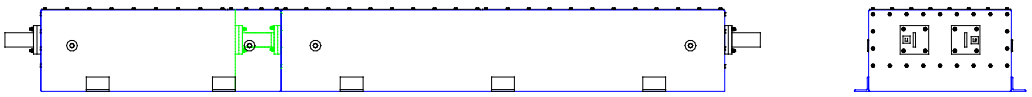
The following standard busbar entry hole positions are available on all 800 to 2400A filters. The required cable entry is simply specified by adding the appropriate suffix to the filter part number. Other busbar entry configurations can be provided on special order.

A CONFIGURATION – END ENTRY & END EXIT

STANDARD PERFORMANCE

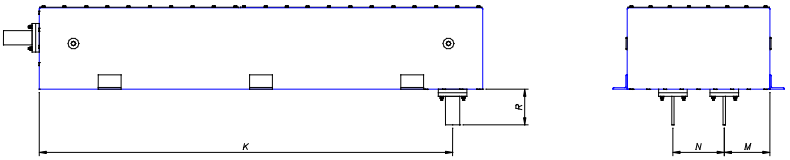


EXTENDED PERFORMANCE

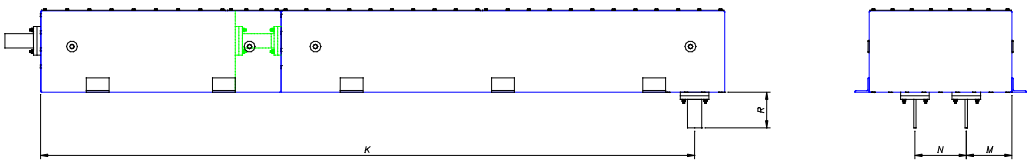


C CONFIGURATION – END ENTRY & BASE EXIT

STANDARD PERFORMANCE



EXTENDED PERFORMANCE



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Ordering Information

Step 1 Choose current rating and the number of lines required
Step 2 Select filter performance required
Step 3 Select part number
Step 4 Add cable entry suffix A or C as detailed above

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:	1 N-m
M5 terminals:	2 N-m
M6 terminals:	2.5 N-m
M8 terminals:	5 N-m
M10 terminals:	8 N-m
M12 terminals:	11N-m
M16 terminals:	20N-m
M20 terminals:	32N-m

Safety

Relevant safety standards have been adhered to in the design and manufacture of these filters. 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 these 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, test voltage and safety labelling requirements, which may be applicable to their particular installation. These filters must be solidly and permanently earthed, both for safe operation and to achieve optimum EMC performance.

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