



MPE
Quality, Reliability, Performance

SPECIALIST HIGH PERFORMANCE EMI POWER LINE FILTERS



FM00699



MPE Ltd
Hammond Road,
Knowsley Industrial Park,
Liverpool
L33 7UL
UK

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Web: www.mpe.co.uk
E-mail: sales@mpe.co.uk
Tel: +44 (0) 151 632 9100



This catalogue covers MPE's range of filters for use with DC power lines, AC power lines and specialist applications. These filters are to be used to remove electromagnetic interference (EMI) and unintentional transmissions from the following power supplies:

- Single line d.c.
- Two phase a.c.
- 400Hz
- Two line d.c.
- Single phase & neutral
- Single line a.c.
- Three phase & neutral

These designs offer extensive low pass suppression of common mode and differential mode EMI, using passive multi-stage components.

Construction

All capacitors are wound in house and use metallised high-grade polypropylene or polyester film. This film attains low power losses and a dielectric self-healing capacity. Our feedthrough capacitor technology provides frequency performance of 100dB of attenuation up to 10GHz and beyond. Single line filters offer multi-stage circuits with performance measured at full load conditions. Multi-line filters incorporate a high permeability current compensating inductor. This inductor again achieves low losses, reduces size & weight and maintains full frequency performance under all load conditions.

The filter components are housed in a compartmentalised, fully RF sealed enclosure. To maintain shielding effectiveness the enclosure is supplied complete with access lids, screws and a set of EMI / environmental gaskets.

Reliability & Service Life

Many products listed in this catalogue have been electrically re-tested after more than 30 years of continuous service. They have been found not to exhibit any signs of safety or performance degradation, endorsing the claims of high reliability. Customer returns of filters within this catalogue due to electrical problems have been less than 0.1% over a 30 year period.

Approvals

Our production process requires that 100% of filters are tested under ISO9001:2015 controls before dispatch.

Filter safety requirements to UL1283, LVD 2014/35/EU and UK Electrical Equipment (Safety) Regulations 2016.

Filter performance measured using Mil-F-15733, Mil-Std-220C and CISPR17:2011/BS EN 55017:2011.

All filters in this catalogue are compliant with RoHS 2011/65/EU and UK RoHS Regulations 2012.

All filters in this catalogue are proof voltage tested between each live line and earth. For multi-line filters, they are also tested between live lines. Proof voltage tests are conducted at multiple stages of the product manufacturing process.

Earth Bonding for Performance

It is important to achieve as low as possible earth bond impedance to the unpainted base or mounting flange of the filter. We normally recommend that filters be mounted on a steel surface, which has been electroplated with tin or zinc. This should be unpainted and must be flat and smooth. This type of large area connection to the box ensures that at high frequencies, inductive and capacitive values are kept small allowing a clear path to ground potential.

Earth Bonding for Safety

The installer must ensure the filter is permanently & solidly earthed. This is essential for filters with direct capacitance from phase to metal enclosure. In the event of the earth connection to the enclosure becoming disconnected, the enclosure will rise in voltage to an unsafe level. Low leakage filters are safer in this respect not having any direct capacitance (Y2) between phase and earth, and can be found in a separate MPE Power Line catalogue.

Discharging after Isolation

All filters in this catalogue contain large values of capacitance. These capacitors can store a hazardous electrical charge long after the power has been removed. Therefore as a safety measure, all filters are fitted with internal discharge resistors intended to lower the stored voltage to a safe level after removal of the power.

It is important to follow a safe disconnection procedure when working on cables and filters. Always insure the voltage between phases, between phase and neutral, and between phase and ground are safe before working on any part of the cabling connected to a filter.



Description

Single line DC power line filters packaged in a tubular case designed for bulkhead mounting. The construction style provides high performance filtering in a high packing density. Suitable for voltages up to 250VDC, they are often utilised in military power supplies where their high current ratings and high performance are very beneficial. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 500kHz to 10GHz.

Typical Applications

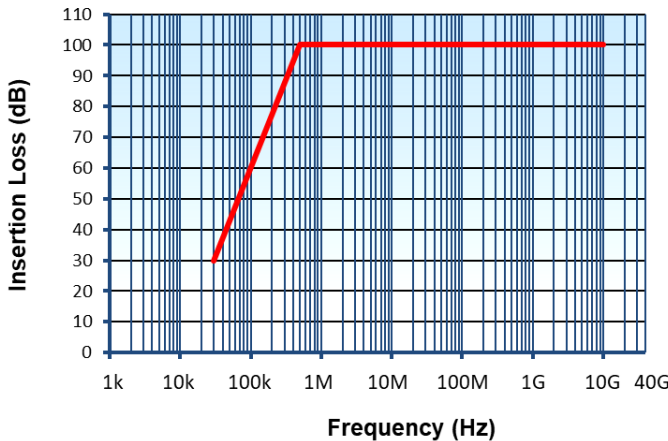
- Military power supplies
- IT & Telecomms, base stations, server supplies & racks
- Screened rooms & EMC test chambers
- Mobile shelters
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 500kHz to 10GHz.



Technical Specification

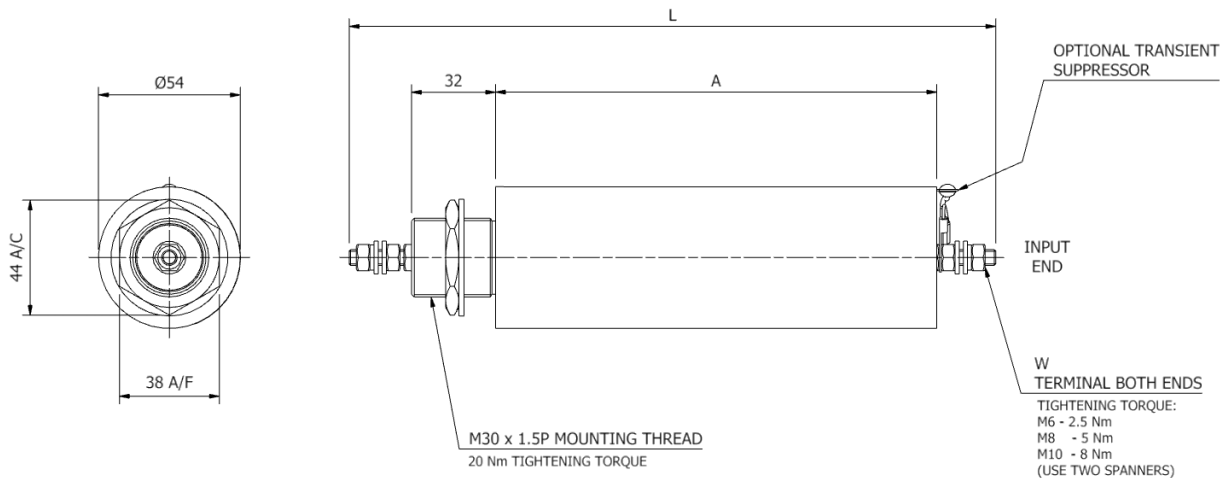
Rated Voltage	250VDC
Alternative Voltage	Also suitable for 100VAC 50Hz (Alternative surge arrestors may be required)
Rated Current	6A to 200A (see table)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 30 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>1.5 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	300VDC at 130J (8/20µs) All filters can be supplied with a leaded metal-oxide varistor fitted between the input terminal and earth (case).

Range Available

Rated Current (A)	Part Number	Volt Drop (mV)	Major Dimensions			Approx. Weight (kg)
			Case Length A (mm)	Overall Length L (mm)	Terminal Size W	
6	DS26384	325	165	245	M6	1.2
10	DS26385	200	180	260	M6	1.2
32	DS26386	200	195	275	M6	1.5
63	DS26387	200	215	295	M6	1.5
100	DS26388	125	195	290	M8	1.8
200	DS26389	125	195	300	M10	1.8

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Brass case (bright nickel plated)
Potting Compound	Epoxy based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Mechanical Fixing	M30 gland fixed with washer and nut (supplied)



Ordering Code

The filter ordering codes consist of the part number and an optional surge suppressor suffix.

DS26384#

Select the required filter part number from the range available (example shown)

Leave blank for no surge protection
Add suffix "V" for surge protection

Installation

The filter requires a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.



Description

Single line DC power line filters packaged in a rectangular case designed for bulkhead mounting. They are suitable for voltages up to 250VDC. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 10kHz to 10GHz.

Typical Applications

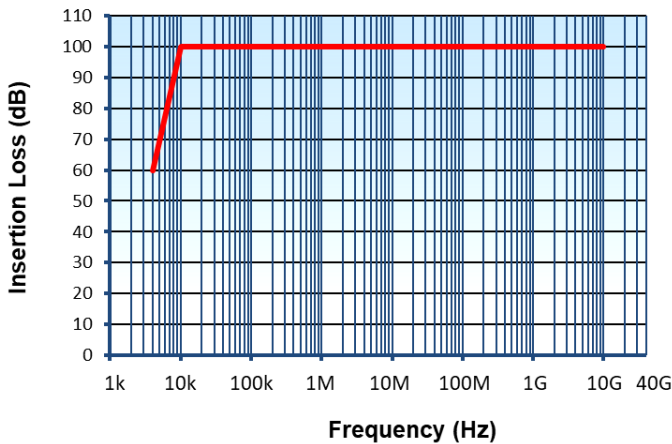
- Military power supplies
- IT & Telecomms, base stations, server supplies & racks
- Screened rooms & EMC test chambers
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 10kHz to 10GHz.



Technical Specification

Rated Voltage	250VDC
Alternative Voltage	Also suitable for 100VAC 50Hz (Alternative surge arrestors may be required)
Rated Current	6A to 200A (see table)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 60 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>0.8 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	330VDC at 130J (8/20µs) All filters can be supplied with a leaded metal-oxide varistor fitted between the input terminal and earth (case).

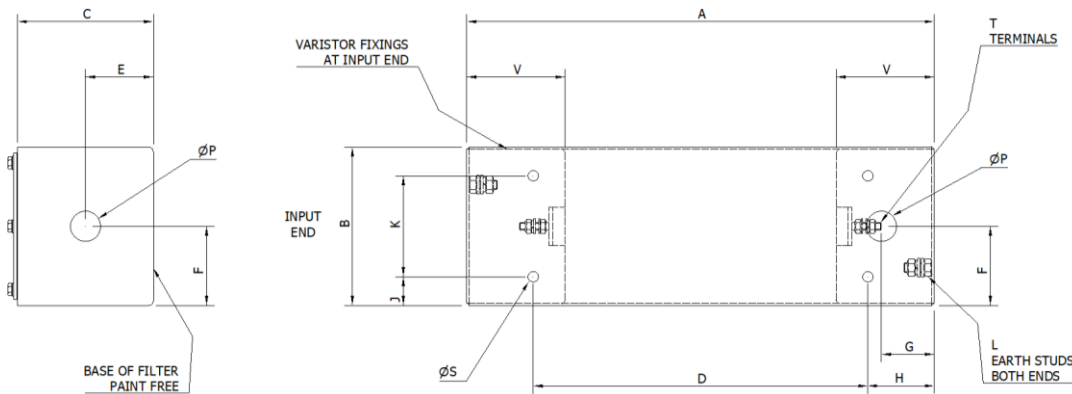
Range Available

Rated Current (A)	Part Number	Volt Drop (mV)	Major Dimensions			Approx. Weight (kg)
			Length A (mm)	Width B (mm)	Height C (mm)	
6	DS26390	1000	600	100	90	12
10	DS26391	1000	600	100	90	12
32	DS23596	1000	700	130	110	20
63	DS23597	1000	850	130	110	25
100	DS23598	1000	1000	160	130	35
200	DS23599	1000	1200	200	150	60

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Mild steel (dull tin plated)
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Enclosure Rating	IP54
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

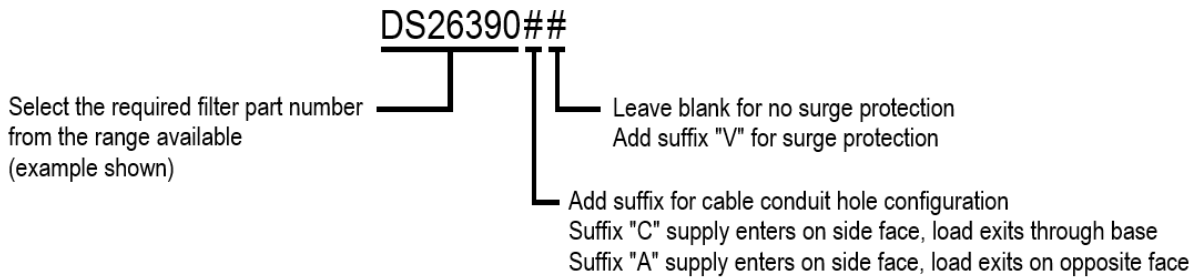
Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS26390	600	100	90	540	45	50	30	30	20	60	M6	20	9	M5	65
DS26391	600	100	90	540	45	50	30	30	20	60	M6	20	9	M5	65
DS23596	700	130	110	640	55	65	30	30	30	70	M10	25	13	M8	65
DS23597	850	130	110	770	55	65	40	40	30	70	M10	25	13	M8	85
DS23598	1000	160	130	870	65	80	65	65	30	100	M10	32	13	M8	130
DS23599	1200	200	150	1070	75	100	65	65	40	120	M12	51	17	M12	130

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.

The filters require a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.



Description

Two line DC power line filters feature a combination of feedthrough capacitors with high permeability toroidal current compensating inductors for high performance filtering in a small rectangular case, designed for mounting on a bulkhead. To achieve the full benefits of this design, it is important that the load current returns through the filter. They are suitable for voltages up to 250VDC. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 10kHz to 10GHz.

Typical Applications

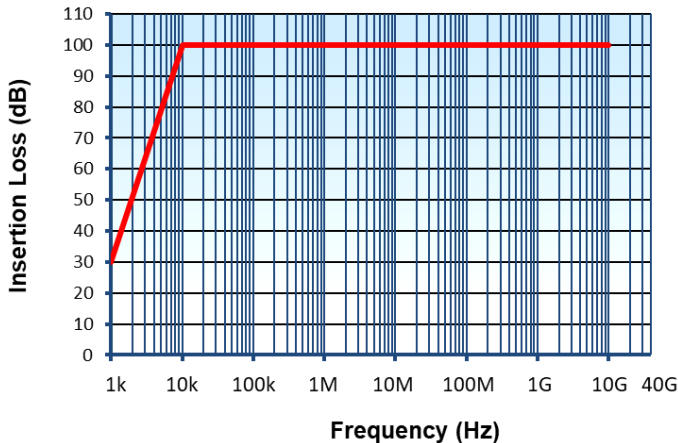
- Military power supplies
- UPS, inverters & converters
- IT & Telecomms, base stations, server supplies & racks
- Screened rooms & EMC test chambers
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 10kHz to 10GHz.



Technical Specification

Rated Voltage	250VDC
Alternative Voltage	Also suitable for 100VAC 50Hz (Alternative surge arrestors may be required)
Rated Current	6A to 200A (each individual line, see range available)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 60 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>0.5 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	369VDC at 140J (8/20µs) All filters can be supplied with a metal-oxide varistor fitted between the input terminal and earth (case).

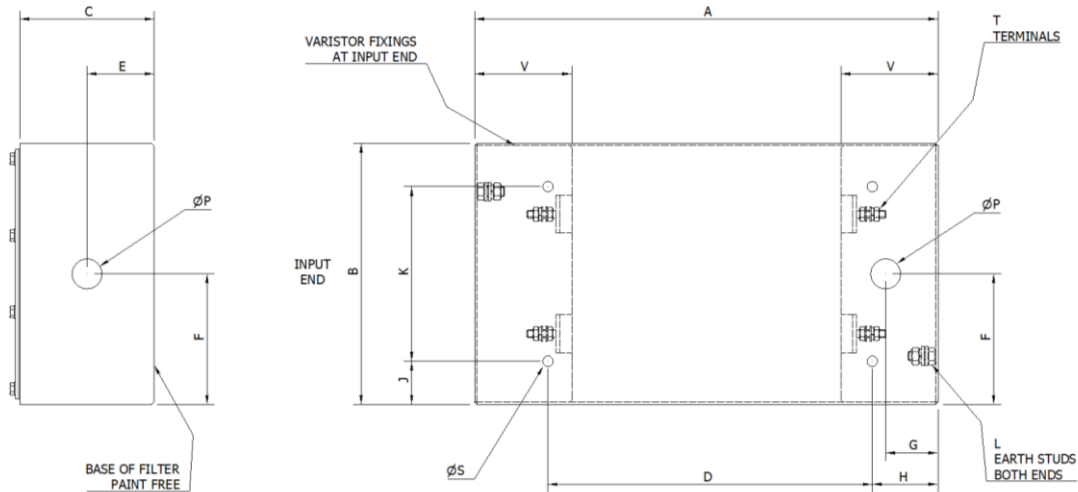
Range Available

Rated Current (A)	Part Number	Volt Drop (mV)	Major Dimensions			Approx. Weight (kg)
			Length A (mm)	Width B (mm)	Height C (mm)	
6	DS23870	500	310	175	90	8
10	DS23871	500	310	175	90	8
32	DS23872	500	550	205	95	16
63	DS23873	500	550	205	105	20
100	DS23874	500	640	205	120	25
200	DS23875	500	660	475	135	60

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Mild steel (dull tin plated)
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Enclosure Rating	IP54
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

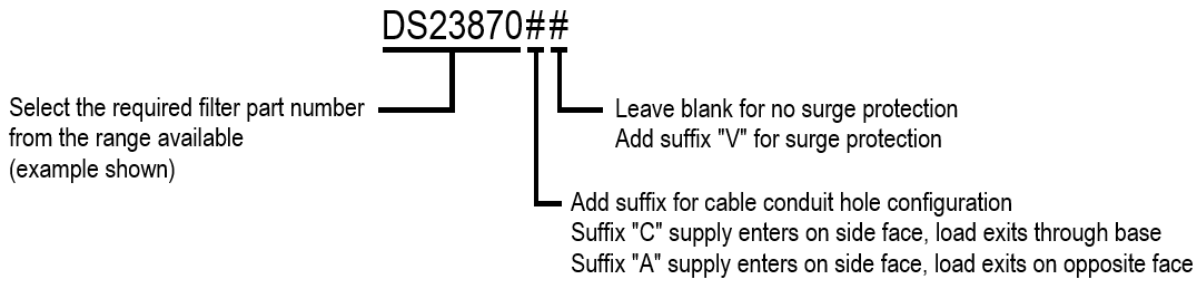
Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23870	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS23871	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS23872	550	205	95	487	48	103	45	31	61	83	M10	32	9	M8	85
DS23873	550	205	105	487	48	103	45	31	61	83	M10	32	9	M8	85
DS23874	640	205	120	537	48	103	65	52	61	83	M10	32	9	M8	110
DS23875	660	475	135	537	68	238	60	62	110	255	M12	51	13	M12	120

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.

The filters require a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.



Description

Single line AC power line filters packaged in a tubular case designed for bulkhead mounting. The construction style provides high performance filtering in a high packing density. Suitable for voltages up to 250VAC 50/60Hz, they are often utilised in military power supplies where their high current ratings and high performance are very beneficial. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 2MHz to 10GHz.

Typical Applications

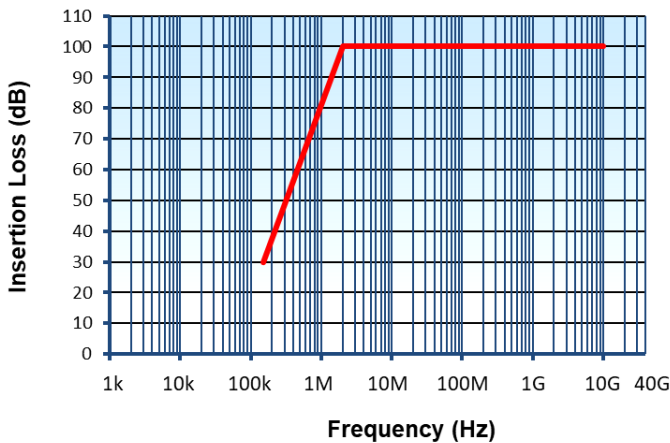
- Military power supplies
- IT & Telecomms, base stations, server supplies & racks
- Screened rooms & EMC test chambers
- Mobile shelters
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 2MHz to 10GHz.



Technical Specification

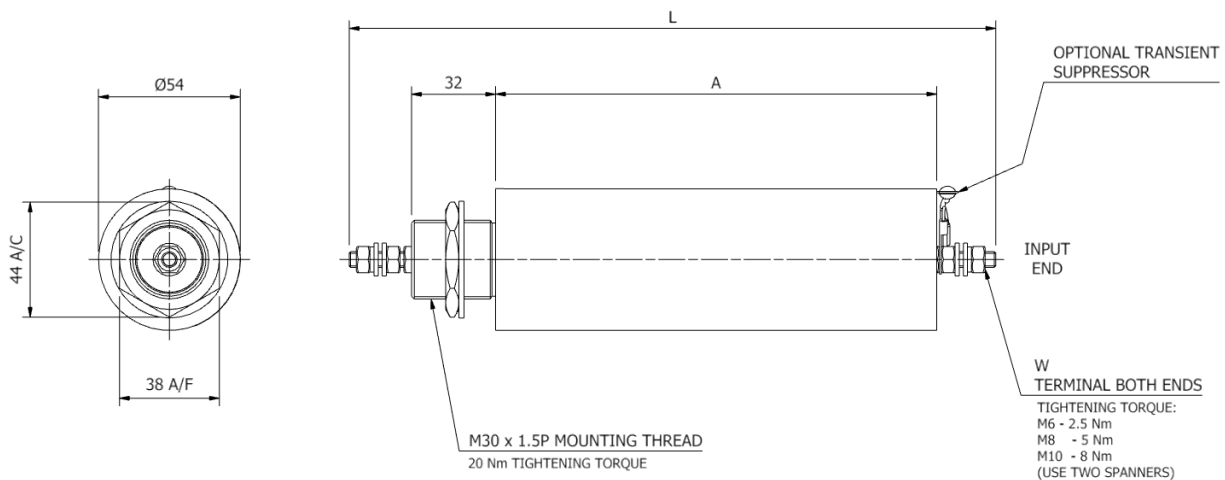
Rated Voltage	250 VAC 50/60Hz
Alternative Voltage	Also suitable for 277VAC 50/60Hz or 600VDC (Alternative surge arrestors may be required)
Rated Current	6A to 200A (see table)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 10 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>1.5 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	275VAC at 151J (8/20µs) All filters can be supplied with a leaded metal-oxide varistor fitted between the input terminal and earth (case).

Range Available

Rated Current (A)	Part Number	DC Resistance (mΩ)	Earth Leakage (A)	Major Dimensions			Approx. Weight (kg)
				Case Length A (mm)	Overall Length L (mm)	Terminal Size W	
6	DS26088	50	0.5	165	245	M6	1.2
10	DS26089	20	0.5	180	260	M6	1.2
32	DS26090	6	0.5	195	275	M6	1.5
63	DS26091	3	0.5	215	295	M6	1.5
100	DS26092	1.5	0.5	195	290	M8	1.8
200	DS26093	0.5	0.5	195	300	M10	1.8

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Brass case (bright nickel plated)
Potting Compound	Epoxy based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Mechanical Fixing	M30 gland fixed with washer and nut (supplied)



Ordering Code

The filter ordering codes consist of the part number and an optional surge suppressor suffix.

DS26088#

Select the required filter part number from the range available (example shown)

Leave blank for no surge protection
Add suffix "V" for surge protection

Installation

The filters require a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.

Description

Single line AC power line filters packaged in a rectangular case designed for bulkhead mounting. Suitable for voltages up to 250VAC 50/60Hz, they are particularly suited to high current power and control line applications where the return current has to return via a different route. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 10kHz to 10GHz.

Typical Applications

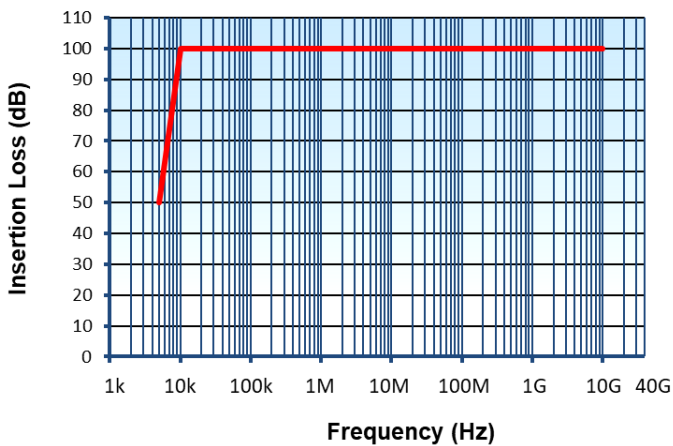
- Military power supplies
- IT & Telecomms, base stations, server supplies & racks
- Screened rooms & EMC test chambers
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 10kHz to 10GHz.



Technical Specification

Rated Voltage	250VAC 50/60Hz
Alternative Voltage	Also suitable for 277VAC 50/60Hz or 600VDC (Alternative surge arrestors may be required)
Rated Current	6A to 200A (see table)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 60 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>0.8 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	275VAC at 140J (8/20μs) All filters can be supplied with a leaded metal-oxide varistor fitted between the input terminal and earth (case).

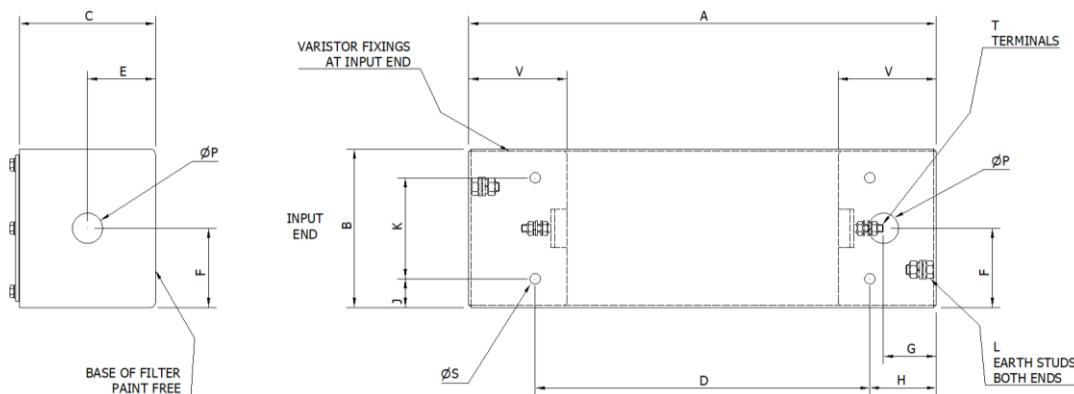
Range Available

Rated Current (A)	Part Number	DC Resistance (mΩ)	Earth Leakage (A)	Major Dimensions			Approx. Weight (kg)
				Length A (mm)	Width B (mm)	Height C (mm)	
6	DS26394	170	1.9	600	100	90	12
10	DS26395	100	2.8	600	100	90	12
32	DS26396	30	3.8	700	130	110	20
63	DS26397	15	5.7	850	130	110	25
100	DS26398	10	6.6	1000	160	130	35
200	DS26399	5	9.4	1200	200	150	60

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Mild steel (dull tin plated)
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Enclosure Rating	IP54
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

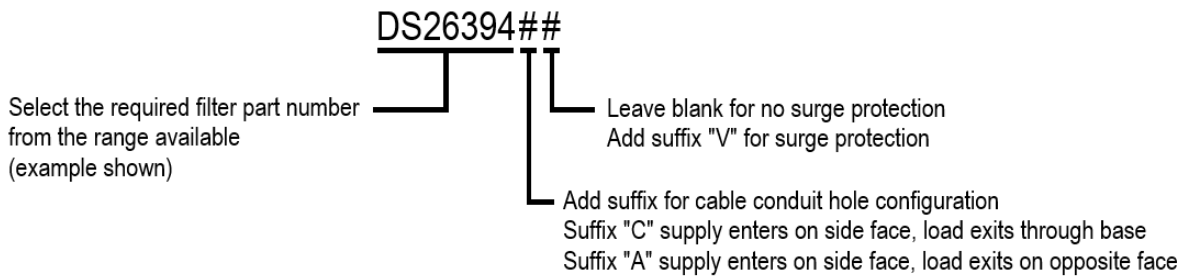
Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS26394	600	100	90	540	45	50	30	30	20	60	M6	20	9	M5	65
DS26395	600	100	90	540	45	50	30	30	20	60	M6	20	9	M5	65
DS26396	700	130	110	640	55	65	30	30	30	70	M10	25	13	M8	65
DS26397	850	130	110	770	55	65	40	40	30	70	M10	25	13	M8	85
DS26398	1000	160	130	870	65	80	65	65	30	100	M10	32	13	M8	130
DS26399	1200	200	150	1070	75	100	65	65	40	120	M12	51	17	M12	130

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.

The filters require a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.



Description

This range of filters was specifically designed to provide optimum high performance filtering on special two line mains supplies where neither line is tied to neutral. They are suitable for voltages up to 250VAC 50/60Hz phase to earth and 440VAC 50/60Hz phase to phase. They feature a combination of feedthrough capacitors with high permeability toroidal current compensating inductors for high performance filtering in a small rectangular case, designed for mounting on a bulkhead. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 100kHz to 10GHz.

Typical Applications

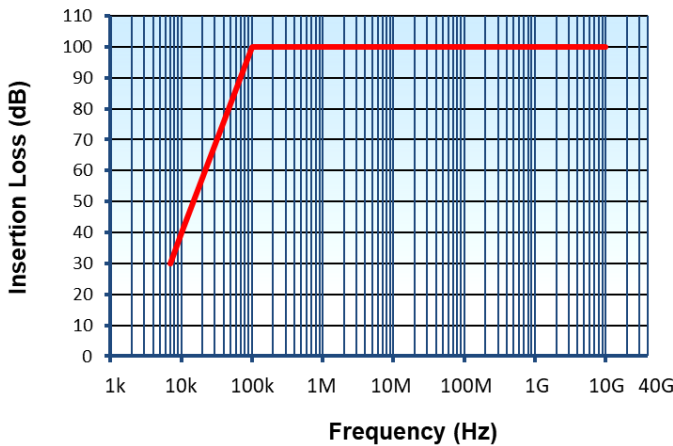
- Marine generator supplies
- Two phases derived from a three phase supply
- Transformer isolated supplies
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 100kHz to 10GHz.



Technical Specification

Rated Voltage	250VAC 50/60Hz phase to earth 440VAC 50/60Hz phase to phase
Alternative Voltage	Also suitable for 480VAC 50/60Hz phase to phase Also suitable for two line d.c. supplies up to 600VDC (Alternative surge arrestors may be required)
Rated Current	6A to 200A (each individual line, see range available)
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes
Discharge time	Max. 30 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise	25°C on filter case at full load
Storage Temperature Range	-45°C to +85°C
Operating Temperature Range	-45°C to +50°C
MTBF	>0.5 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)	275VAC at 140J (8/20µs) All filters can be supplied with a metal-oxide varistor fitted between the input terminal and earth (case).

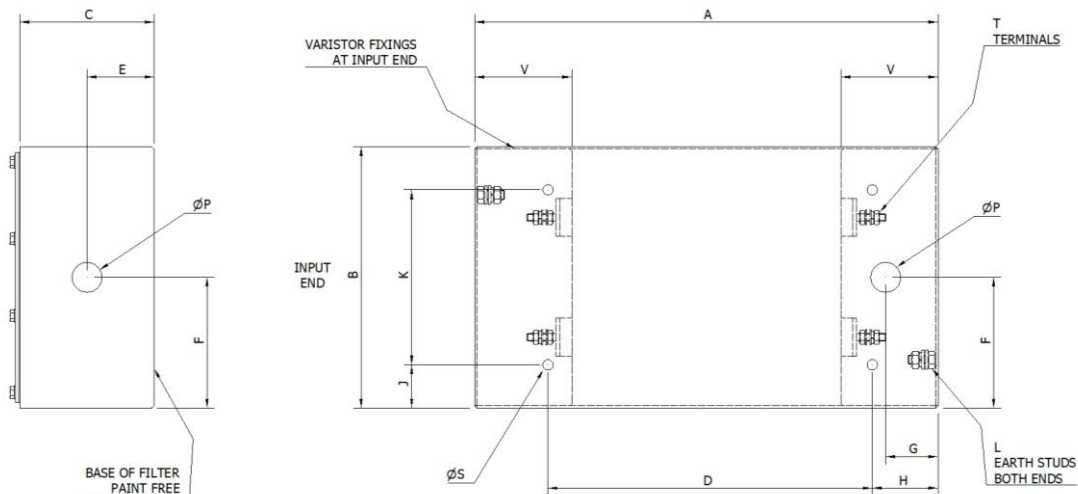
Range Available

Rated Current (A)	Part Number	DC Resistance (mΩ)	Earth Leakage (A)	Major Dimensions			Approx. Weight (kg)
				Length A (mm)	Width B (mm)	Height C (mm)	
6	DS26365	80	0.9	310	175	90	8
10	DS26366	50	0.9	310	175	90	8
16	DS26367	30	0.9	310	175	90	8
32	DS26368	15	1.4	550	205	95	16
63	DS26369	10	1.4	550	205	105	20
100	DS26370	5	2.2	640	205	120	22
200	DS26371	2.5	3.9	660	475	135	60
400	DS26372	1.2	3.9	1250	475	150	110

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Mild steel (dull tin plated)
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Enclosure Rating	IP54
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

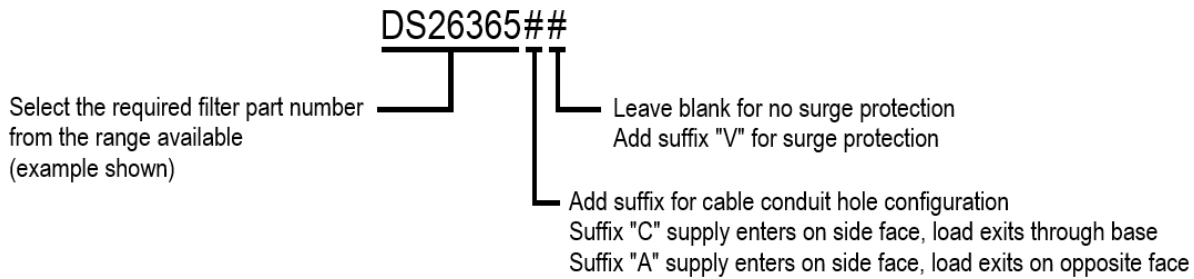
Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS26365	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS26366	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS26367	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS26368	550	205	95	487	48	103	45	31	61	83	M10	32	9	M8	85
DS26369	550	205	105	487	48	103	45	31	61	83	M10	32	9	M8	85
DS26370	640	205	120	537	48	103	65	52	61	83	M10	32	9	M8	110
DS26371	660	475	135	537	68	238	60	62	110	255	M12	51	13	M12	120
DS26372	1250	475	150	760	75	238	75	245	110	255	M20	63	17	M20	300

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.

The filter requires a solid low impedance connection between the case and potential earth. For full installation instructions, please see separate application note.



Description

The CleanPower range of filters for electrical connection to SP&N and TP&N mains distribution systems, are designed for use in industrial applications or EMC installations where very high frequency performance is not required. The filters are housed in a rugged stainless steel rectangular case, designed for mounting on a bulkhead. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 100kHz to 1GHz.

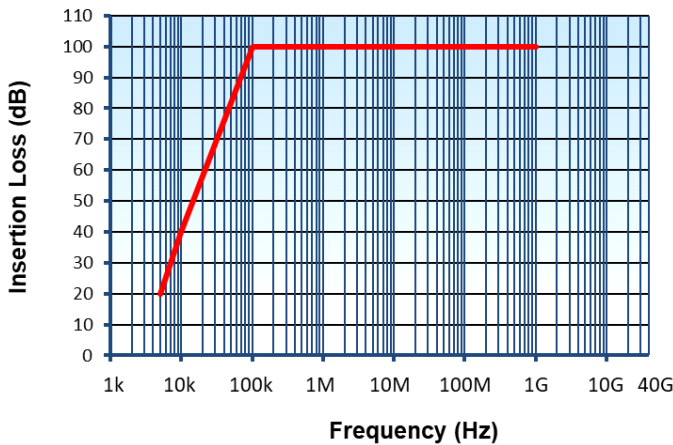
Typical Applications

- Industrial power and equipment supplies
- Screened rooms, enclosures, cabinets and server supplies
- Supports compliance to MIL-STD-461 & DEF STAN 59-411

Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 100kHz to 1GHz.



Technical Specification

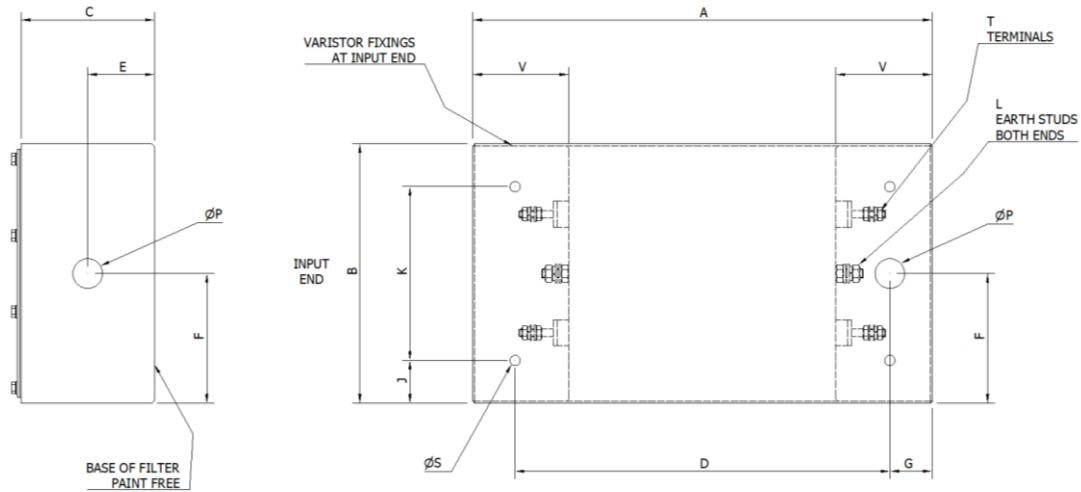
Rated Voltage	SP&N Filters	250VAC 50/60Hz
Alternative Voltage	SP&N Filters	Also suitable for 520/300VAC 50/60Hz two phase Also suitable for 2 line d.c. supplies up to 400VDC (Alternative surge arrestors may be required)
Rated Voltage	TP&N Filters	440/250VAC 50/60Hz
Alternative Voltage	TP&N Filters	Also suitable for 480/277VAC 50/60Hz Also suitable for 520/300VAC 50/60Hz (Alternative surge arrestors may be required)
Rated Current		6A to 160A (each individual line, see range available)
Current Overload		10 x maximum rated current for 1 second 1.5 x max rated current for 15 minutes
Discharge time		Max. 30 seconds to below 34V (filter incorporates discharge resistors)
Temperature Rise		20°C on filter case at full load
Storage Temperature Range		-45°C to +85°C
Operating Temperature Range		-45°C to +50°C
MTBF		>0.2 million hours (calculated using Mil Hdbk 217F)
Surge Suppression (optional)		320VAC at 255J (8/20µs) All filters can be supplied with a metal-oxide varistor fitted between the input terminal and earth (case).

Range Available

Rated Current	Part Number	DC Resistance (mΩ)	Earth Leakage (A)	Major Dimensions			Approximate Weight (kg)
				Length A (mm)	Width B (mm)	Height C (mm)	
Single Phase & Neutral							
6A	DS41006	65	0.1	220	80	50	2
16A	DS41016	20	0.2	250	110	55	3
32A	DS41032	6	0.3	350	120	65	5
63A	DS41063	2	0.4	400	140	80	8
100A	DS41100	0.8	0.6	500	200	95	18
160A	DS41160	0.5	0.8	600	210	110	25
Three Phase & Neutral							
6A	DS43006	50	0.2	220	150	50	3
16A	DS43016	12	0.3	250	180	55	4
32A	DS43032	5	0.5	350	200	65	8
63A	DS43063	1.5	0.7	400	230	80	12
100A	DS43100	0.5	1	500	240	95	20
160A	DS43160	0.2	1.3	600	250	110	30

Full Dimensions

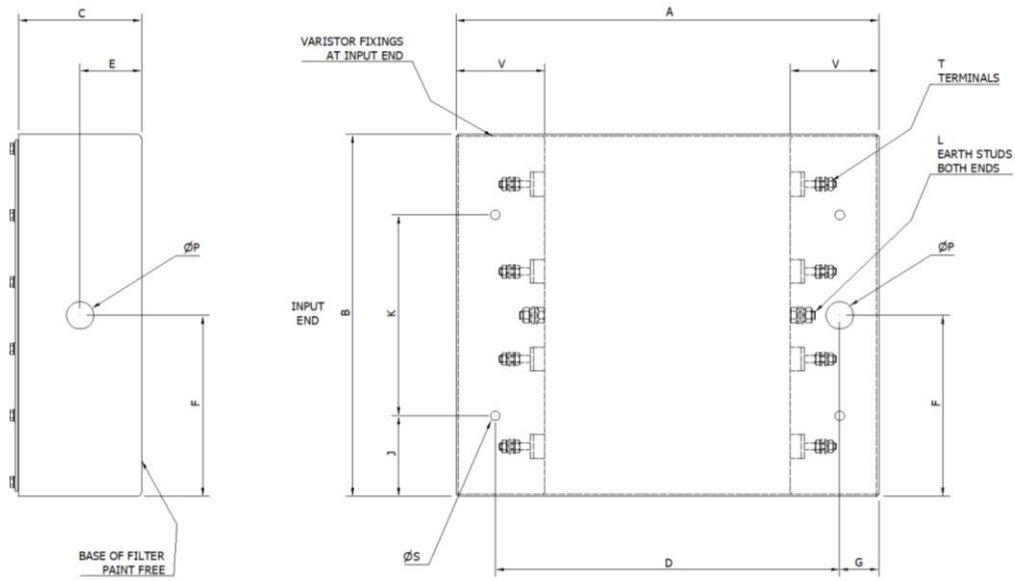
Single Phase & Neutral



Part No.	A	B	C	D	E	F	G	J	K	L	P	S	T	V
DS41006	220	80	50	180	20	40	20	15	50	M5	16	7	M4	60
DS41016	250	110	55	200	25	55	25	25	60	M5	20	7	M4	60
DS41032	350	120	65	290	30	60	30	25	70	M6	20	9	M5	70
DS41063	400	140	80	330	35	70	35	25	90	M8	25	9	M6	80
DS41100	500	200	95	420	45	100	40	25	150	M10	32	11	M8	100
DS41160	600	210	110	510	50	105	45	25	160	M12	32	11	M10	110

Full Dimensions

Three Phase & Neutral



Part No.	A	B	C	D	E	F	G	J	K	L	P	S	T	V
DS43006	220	150	50	180	20	75	20	25	100	M5	16	7	M4	60
DS43016	250	180	55	200	25	90	25	25	130	M5	20	7	M4	60
DS43032	350	200	65	290	30	100	30	25	150	M6	25	9	M5	70
DS43063	400	230	80	330	35	115	35	25	180	M8	32	9	M6	80
DS43100	500	240	95	420	45	120	40	25	190	M10	32	11	M8	100
DS43160	600	250	110	510	50	125	45	25	200	M12	40	11	M10	110

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Ferromagnetic stainless steel
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Natural, dressed
Enclosure Rating	IP44
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

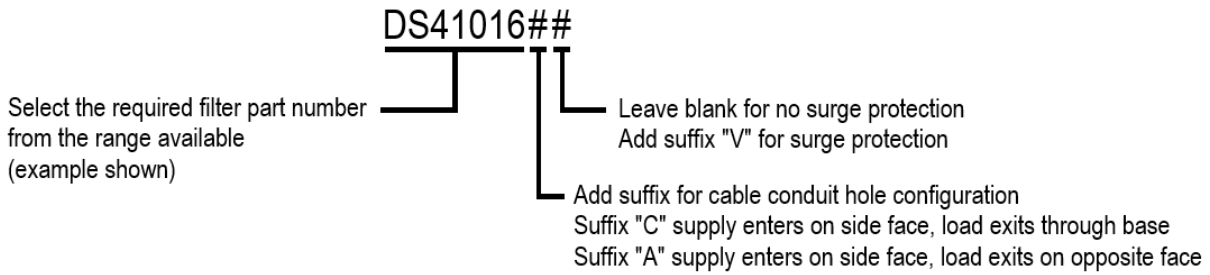
Earth Leakage

Measurement taken from phase to earth at 250V 50Hz.

Important, all filters in this catalogue can NOT be protected by a standard 30mA residual circuit breaker (RCCB). However, a RCCB protection device can be placed down line / load side of filter (see separate application note).

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.
For full installation instructions, please see separate application note.



Description

This range of filters has been specifically designed for use on 400Hz systems and utilises capacitors with low loss dielectric material to minimise heat dissipation. By using coupled choke designs, it has been possible to provide a good performance with comparatively low capacitance values and hence reactive current. However, it must be noted that at 400Hz, reactive current can be significant and this current has to be supplied by the generator as well as the load current. The filters offer 100dB attenuation against electromagnetic noise present on the power lines from a frequency range of 100kHz to 10GHz.

Many 400Hz supplies have high levels of harmonic content. This can cause additional heating within filters, so if this is known to be the case, it is better to select a filter of higher current rating than would otherwise be required.

Typical Applications

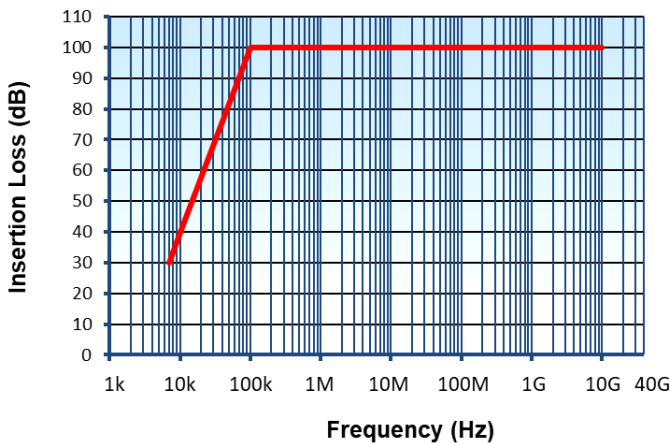
- Military power supplies
- Aircraft ground power supplies
- 400Hz computer power supplies
- Supports compliance to MIL-STD-461 & DEF STAN 59-411



Insertion Loss Performance

Asymmetric attenuation shown as measured in 50Ω system, at all loading conditions, in accordance with CISPR-17.

Performance curve meets 100dB from 100kHz to 10GHz.



Technical Specification

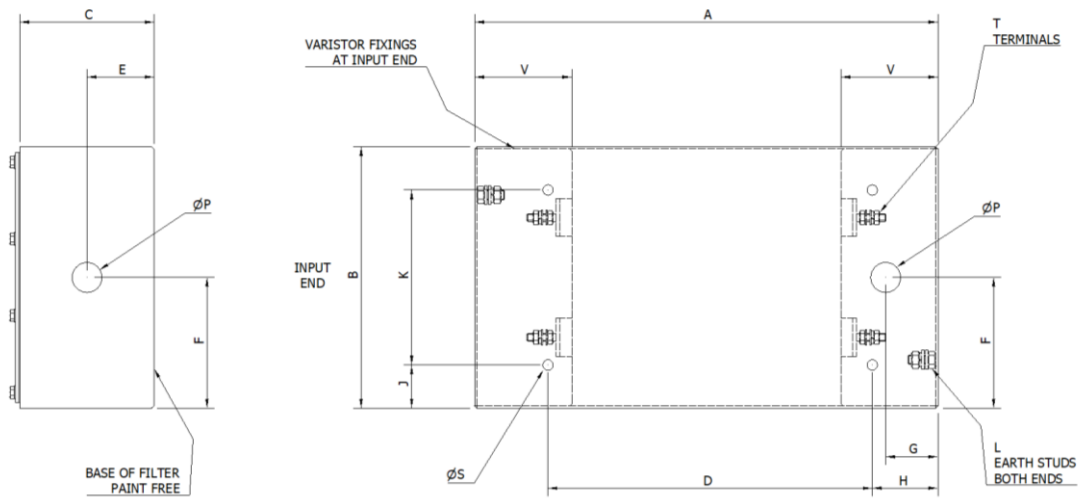
Rated Voltage	SP&N Filters	115VAC 400Hz
	TP&N Filters	200/115VAC 400Hz
Rated Current	6A to 200A (each individual line, see range available)	
Current Overload	10 x maximum rated current for 1 second 1.5 x max rated current for 10 minutes	
Discharge time	Max. 30 seconds to below 34V (filter incorporates discharge resistors)	
Temperature Rise	25°C on filter case at full load	
Storage Temperature Range	-45°C to +85°C	
Operating Temperature Range	-45°C to +50°C	
MTBF	>0.3 million hours (calculated using Mil Hdbk 217F)	
Surge Suppression (optional)	150VAC at 100J (8/20µs) All filters can be supplied with a metal-oxide varistor fitted between the input terminal and earth (case).	

Range Available

Rated Current	Part Number	DC Resistance (mΩ)	Earth Leakage (A)	Major Dimensions			Approximate Weight (kg)
				Length A (mm)	Width B (mm)	Height C (mm)	
Single Phase & Neutral							
6A	DS25900	80	0.4	310	175	90	8
10A	DS25901	50	0.4	310	175	90	8
32A	DS25902	15	1	550	205	95	16
63A	DS25903	10	1	550	205	105	20
100A	DS25904	5	1.8	640	205	120	22
200A	DS25905	2.5	7	660	475	135	60
Three Phase & Neutral							
6A	DS23700	80	1.7	310	350	90	16
10A	DS23605	50	1.7	310	350	90	16
32A	DS23606	15	3.5	550	410	95	22
63A	DS23607	10	3.5	550	410	110	32
100A	DS23608	5	7	660	410	135	45
200A	DS25907	2.5	14	660	575	150	70

Full Dimensions

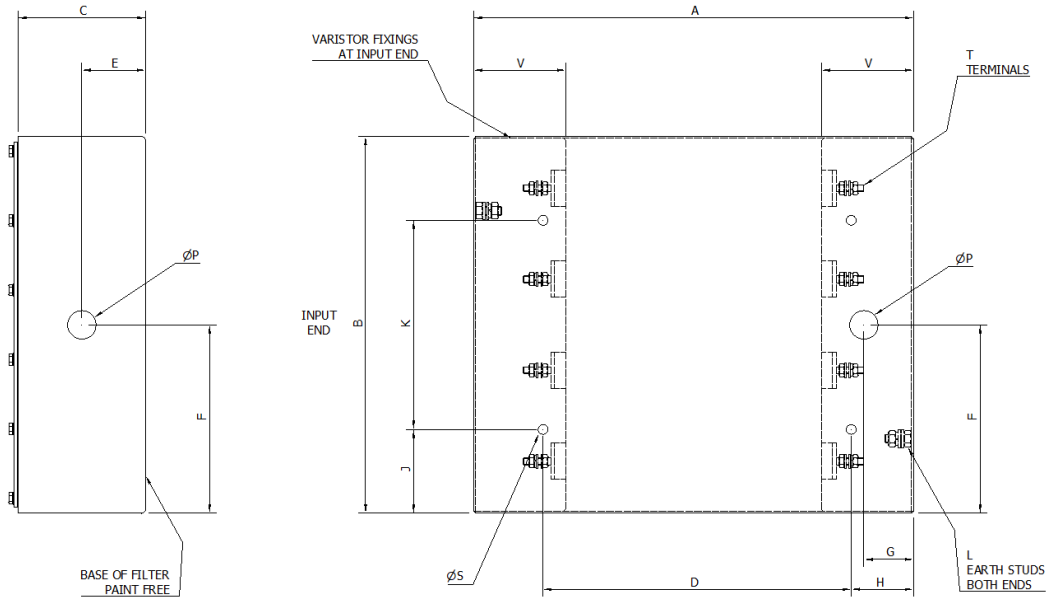
Single Phase & Neutral



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS25900	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS25901	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS25902	550	205	95	487	48	103	45	31	61	83	M10	32	9	M8	85
DS25903	550	205	105	487	48	103	45	31	61	83	M10	32	9	M8	85
DS25904	640	205	120	537	48	103	65	52	61	83	M10	32	9	M8	110
DS25905	660	475	135	537	68	238	60	62	110	255	M12	51	13	M12	120

Full Dimensions

Three Phase & Neutral



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23700	310	350	90	212	45	175	35	49	67	216	M6	25	9	M5	65
DS23605	310	350	90	212	45	175	35	49	67	216	M6	25	9	M5	65
DS23606	550	410	95	487	48	205	45	31	62	286	M10	32	9	M8	85
DS23607	550	410	110	487	48	205	45	31	62	286	M10	32	9	M8	110
DS23608	660	410	135	537	68	205	75	62	62	286	M10	32	9	M8	120
DS25907	660	575	150	537	75	288	60	62	110	355	M12	51	13	M12	120

Mechanical Details

Terminal Conductor	Brass spindles (bright nickel plated)
Enclosure Material	Mild steel (dull tin plated)
Potting Compound	Polyurethane based resin
Potting Compound Flammability Rating	UL94 V-0
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697
Enclosure Rating	IP54
Mechanical Fixing	Mounting hole provisions in input and output compartments (Mounting hardware supplied separately – see page 27)

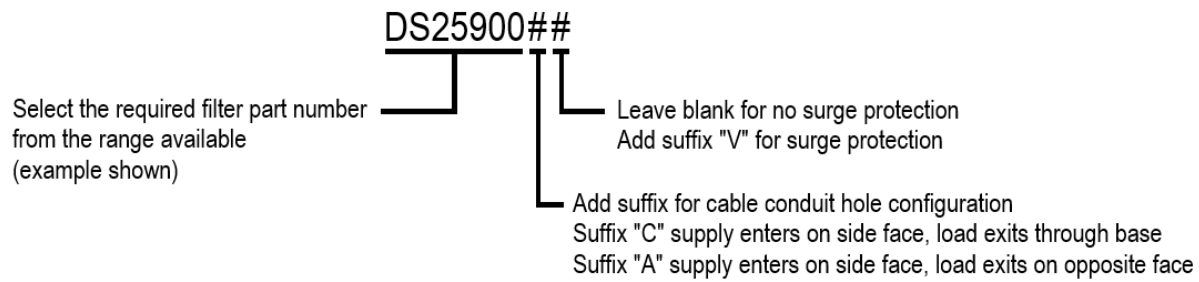
Earth Leakage

Measurement taken from phase to earth at 115V 400Hz.

Important, all filters in this catalogue can NOT be protected by a standard 30mA residual circuit breaker (RCCB). However, a RCCB protection device can be placed down line / load side of filter (see separate application note).

Ordering Code

The filter ordering codes consist of the part number, a conduit hole suffix and an optional surge suppressor suffix.



Installation

Please see page 27 for bulkhead penetration kits and fixing screw kits.
For full installation instructions, please see separate application note.



BULKHEAD PENETRATION KITS

Optional bulkhead penetration kits can be provided for rectangular case style filters. The tube thread size should be chosen to match the pre-pierced end compartment conduit holes.

These high quality bulkhead penetration kits have been designed to provide an RFI tight bulkhead penetration for cables to facilitate fixing of rectangular filters to bulkheads or walls of shielded enclosures. They make it easier to achieve a full RFI seal between filter case and bulkhead up to the highest frequencies, which is not usually achievable with standard electrical conduit fittings due to badly fitting threads.

The bulkhead penetration kits can be used with a bulkhead thickness up to 20mm. They comprise a penetration tube complete with nuts, heavy duty washers, RF gaskets, and end bushes for cable protection. The main components are made from electroplated steel and the RF gaskets are made from copper sheet.

Part Number (Kits for use with Bulkhead Thickness of up to 20mm)	Cable Entry Hole Diameter (mm)	Conduit Thread Size
807146	16	M16
807147	20	M20
807148	25	M25
807149	32	M32
807150	40	M40
807151	50	M50
807152	63	M63



FIXING SCREW KITS

Optional fixing screw kits can be provided for rectangular case style filters. The screw thread size should be chosen to match the pre-pierced end compartment fixing holes.

Fixing screw kits enable the filter to be securely fastened to the mounting surface. They can be used with a mounting surface thickness up to 20mm. They comprise a set of four screws each with washers, spring washers, nuts and lock nuts and are all made from electroplated steel with the exception of the spring washers which are stainless steel.

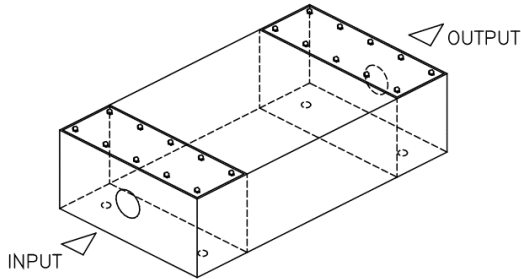
Part Number (Kits for use with Mounting Surface Thickness of up to 20mm)	Fixing Hole Diameter (mm)	Screw Thread Size
806952	7	M6
806953	9	M8
806954	11	M10
806955	13	M12
806956	17	M16



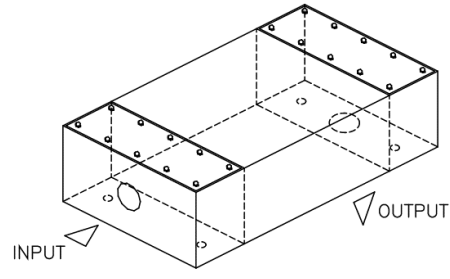


CABLE ENTRY OPTIONS

Rectangular case style filters can be supplied with different cable entry hole positions to suit alternative mounting arrangements. The cable entry option can be identified by the suffix in the part number. See the illustrations below showing the standard cable entry positions. For alternative entry options as well as un-pierced boxes please contact sales@mpe.co.uk



Configuration "A"
e.g. Part Number DS23332A
End Entry / End Exit



Configuration "C"
e.g. Part Number DS23332C
End Entry / Base Exit



RECOMMENDED TORQUE TIGHTENING FIGURES

Always use two spanners when tightening terminal, earth stud and mounting screw fasteners.

Fixing Type	Size	Recommended Tightening Torque (N-m)
Access Lid Screws	M5	1
Terminals, Earth Studs & Mounting Screws	M5	2
	M6	2.5
	M8	5
	M10	8
	M12	11
	M30	32



MPE have designed and manufactured EMC solutions in the UK for over 95 years and have a proud reputation as one of the world's leading capacitor and filter specialists.

With a proven heritage of design, development and manufacture of high performance capacitors and filters, MPE are the first choice for companies who require the most cost effective EMC solution, quality products and technical support.

MPE's unrivalled capability and experience of many defence, telecoms, industrial and commercial applications enables MPE to supply capacitors and filters to satisfy the most exacting customer requirements from military vehicles, IT servers and telecoms base stations to EMP, NEMP, LEMP, HEMP and TEMPEST commercial and military installations.

MPE's comprehensive standard product range includes high performance feedthrough capacitors to high current power, telephone, data and control line filters with wide frequency spectrum characteristics in a choice of enclosure styles:

-  Audio, Public Address & Building Management Services Filters
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-  Equipment Filters
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-  High Voltage DC Power Line Filters – 1500VDC
-  HEMP Control Line Filters
-  HEMP Public Address Filters
-  HEMP Power Line Filters
-  HEMP Power Line Filters – Modular Option
-  HEMP Telephone Line Filters
-  Low Leakage TEMPEST EMI Filters
-  Military Vehicle Filters
-  Power Line Filters
-  Specialist EMI Power Line Filters
-  Telephone Line Filters
-  TEMPEST Pluggable EURO Filters
-  TEMPEST Pluggable UK Filters
-  Ultra Low Leakage Power Line Filters

MPE Ltd
Hammond Road,
Knowsley Industrial Park,
Liverpool
L33 7UL
UK