



# HIGH PERFORMANCE EMI POWER LINE FILTERS UP TO 2400A RATING



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This catalogue covers MPE's range of power line filters used to remove electromagnetic interference (EMI) and unintentional transmissions. The designs offer extensive low pass suppression of common mode and differential mode EMI, using passive multi stage components. Filters in this catalogue are designed for standard mains voltages / frequencies at current ratings up to 2400A.

### **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 40GHz and beyond. The 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 at 2250VDC and at least 1150VDC between live and neutral lines. Proof voltage tests are carried out 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. The low leakage filters in this catalogue are safer in this respect not having any direct capacitance (Y2) between phase and earth.

### **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

Standard Performance EMI filters for electrical connection to SP&N and TP&N mains distribution systems. The filters offer attenuation against electromagnetic noise present on the power lines between the ranges of 100kHz to 18GHz to 100dB. The supply should have a balanced return current and the case needs a solid low impedance connection to earth potential.

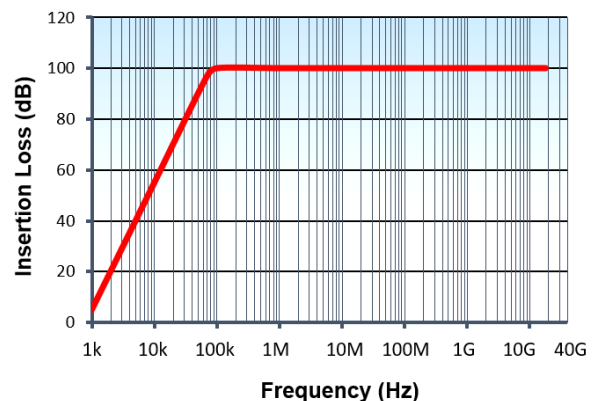
## Typical Applications

- Screened Rooms, Server Supplies & EMC Test Chambers
- Meets TEMPEST requirement for power filters to NATO SDIP 29/1
- 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.

Standard Performance Filters  
Performance curve meets 100dB attenuation from 100kHz to 18GHz.



## Technical Specification

Rated Voltage	250VAC (SP&N) 50/60Hz 440/250VAC (TP&N) 50/60Hz
Alternative Voltage	Also suitable for 208/120VAC and 480/277VAC Alternative surge arrestors may be required.  TP&N filters are also suitable for three phase supplies without neutral. In such installations, the neutral terminal should be left unconnected.
Rated Current	16A to 1200A (each individual line, see table)
Current Overload	10 x maximum rated current for 1 sec. 1.5 x max rated current for 10 minutes.
Discharge time	30 seconds to below 30V (filter incorporates discharge resistors)  If sockets or plugs are used for connection, ensure that no pins or un-insulated parts are accessible by none qualified personnel upon removal.
Temperature Rise	25°C case rise on full load
Temperature Range	-45°C to +85°C Storage -45°C to +50°C Working
MTBF	>0.8 million hours (calculated using Mil Hdbk 217D)
Surge Suppression (optional)	275VAC at 215J 10kA 8/20μs  All filters can be supplied with an integral metal-oxide varistor, fitted between each input terminal and earth. Add a suffix "V" to end of part code.

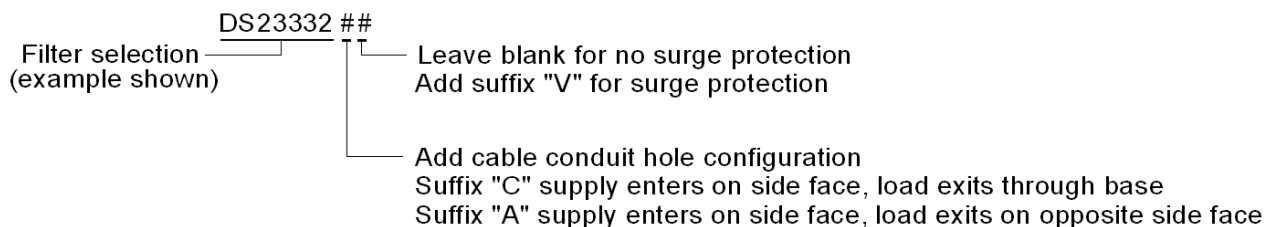
## Range Available

Rated Current	Part Number	DC Resistance	Earth Leakage*	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Single Phase & Neutral		(mΩ)	(A)	(mm)	(mm)	(mm)	(kg)
16A	DS23752	25	1.80	310	175	90	8
32A	DS23332	10	1.80	550	205	95	16
63A	DS23334	6	1.80	550	205	105	20
100A	DS23336	4	1.80	640	205	120	22
200A	DS23708	2	2.60	660	475	135	60
400A	DS26050	0.3	4.40	1250	475	150	110

Three Phase & Neutral							
32A	DS23333	10	2.20	550	410	95	22
63A	DS23335	6	2.70	550	410	110	32
100A	DS23337	4	3.15	660	410	135	45
200A	DS23709	2	6.30	660	575	150	70
250A	DS30929	0.5	6.30	1020	575	200	100
400A	DS26051	0.3	6.30	1250	575	150	120
800A	DS50026A	0.2	3.15	1800	864	285	250
800A	DS50026C	0.2	3.15	1700	864	285	250
1200A	DS50027A	0.1	3.65	2200	1000	300	300
1200A	DS50027C	0.1	3.65	1900	1000	300	300

## Ordering Code

All filters consist of a part number, conduit hole position suffix and an optional surge suppressor suffix.



## Earth Leakage

\*Measurement taken from phase line 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 application note).

## Installation Kits

Please see page 19 for penetration tubes and fixing screw kits.

For large current filters DS50026 & DS50027, end boxes and unpierced gland plates are included with the standard "A" and "C" configuration.

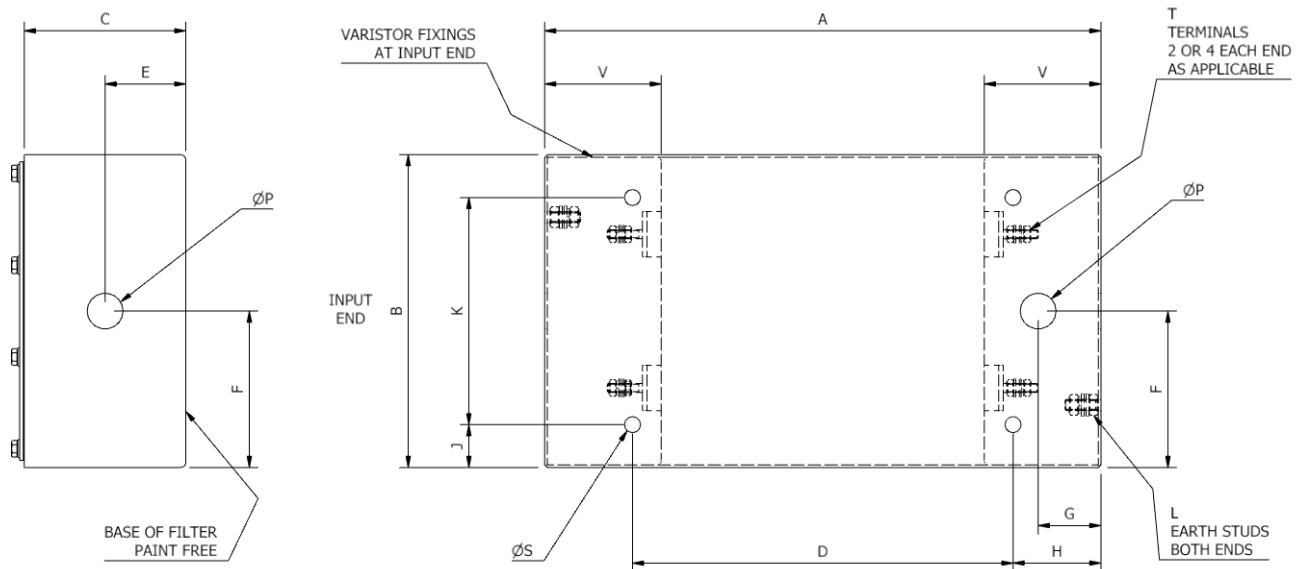
For full installation instructions please see separate application note.

## Mechanical Details

Electrical Fixing  
Enclosure Material  
Finish  
Colour  
Enclosure Rating  
Potting Compound Flammability Rating

Brass spindles (electroless bright nickel plated)  
Mild steel (electroplated dull tin plated)  
Gloss epoxy paint to DEF-STAN 80-161  
Light admiralty grey BS 381C 697  
IP 54  
UL94 V-0

## Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23752	310	175	90	212	45	88	35	49	24	127	M6	20	9	M5	65
DS23332	550	205	95	487	48	103	45	31	61	83	M10	32	9	M8	85
DS23334	550	205	105	487	48	103	45	31	61	83	M10	32	9	M8	85
DS23336	640	205	120	537	48	103	65	52	61	83	M10	32	9	M8	110
DS23708	660	475	135	537	68	238	60	62	110	255	M12	51	13	M12	120
DS26050	1250	475	150	760	75	238	75	245	110	255	M20	63	17	M20	300

Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23333	550	410	95	487	48	205	45	31	62	286	M10	32	9	M8	85
DS23335	550	410	110	487	48	205	45	31	62	286	M10	32	9	M8	110
DS23337	660	410	135	537	68	205	75	62	62	286	M10	32	9	M8	120
DS23709	660	575	150	537	75	288	60	62	110	355	M12	51	13	M12	120
DS30929	1020	575	200	870	75	288	75	75	110	355	M20	63	13	M16	300
DS26051	1250	575	150	760	75	288	75	245	110	355	M20	75	17	M20	300

For the following large current filters in configuration "A" & "C", use the detailed drawings on page 17 & 18.

Part No.	A	B	C	D	E	F	G	H	J	K	L	M	N
DS50026A	1800	864	285	450	50 x 8	180	125	14	-	-	-	-	-
DS50026C	1700	864	285	450	50 x 8	180	125	14	350	250	15 x 61.0 = 914	3 x 60.0 = 180	36
DS50027A	2200	1000	300	650	80 x 10	185	200	14	-	-	-	-	-
DS50027C	1900	1000	300	650	80 x 10	185	200	14	350	250	15 x 61.0 = 914	3 x 60.0 = 180	36



## Description

Extended Performance EMI filters for electrical connection to SP&N and TP&N mains distribution systems. The filters offer attenuation against electromagnetic noise present on the power lines between the ranges of 10kHz to 40GHz to 100dB. The supply should have a balanced return current and the case needs a solid low impedance connection to potential earth.

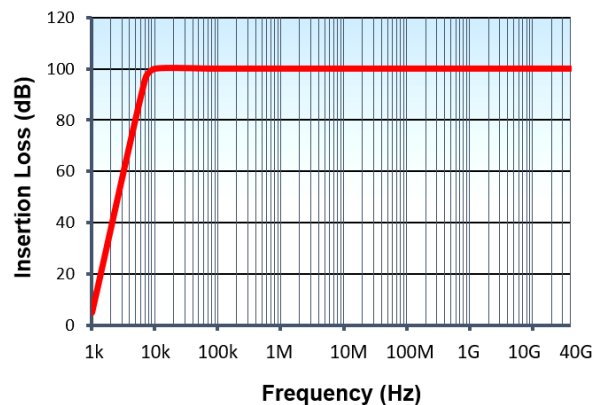
## Typical Applications

- Screened Rooms, Server Supplies & EMC Test Chambers
- Meets TEMPEST requirement for power filters to NATO SDIP 29/1
- 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.

Extended Performance Filters  
Performance curve meets 100dB attenuation from 10kHz to 40GHz.



## Technical Specification

Rated Voltage	250VAC (SP&N) 50/60Hz 440/250VAC (TP&N) 50/60Hz
Alternative Voltage	Also suitable for 208/120VAC and 480/277VAC Alternative surge arrestors may be required.  TP&N filters are also suitable for three phase supplies without neutral. In such installations, the neutral terminal should be left unconnected.
Rated Current	16A to 400A (each individual line, see table)
Current Overload	10 x maximum rated current for 1 sec. 1.5 x max rated current for 10 minutes.
Discharge time	30 seconds to below 30V (filter incorporates discharge resistors)  If sockets or plugs are used for connection, ensure that no pins or un-insulated parts are accessible by none qualified personnel upon removal
Temperature Rise	25°C case rise on full load
Temperature Range	-45°C to +85°C Storage -45°C to +50°C Working
MTBF	>0.8 million hours (calculated using Mil Hdbk 217D)
Surge Suppression (optional)	275VAC at 215J 10kA 8/20μs  All filters can be supplied with an integral metal-oxide varistor, fitted between each input terminal and earth. Add a suffix "V" to end of part code.

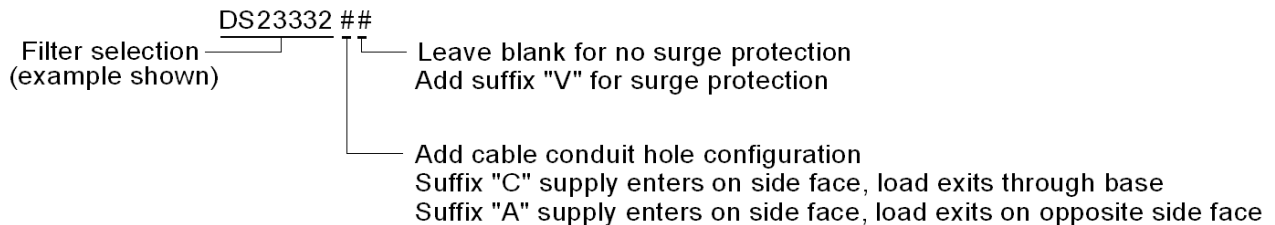
## Range Available

Rated Current	Part Number	DC Resistance	Earth Leakage*	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Single Phase & Neutral		(mΩ)	(A)	(mΩ)	(mm)	(mm)	(kg)
16A	DS25942	25	1.80	550	205	95	16
32A	DS25943	10	1.80	550	205	95	18
63A	DS25944	8	1.80	640	205	120	22
100A	DS25945	5	1.80	660	475	135	60
200A	DS26060	2	4.00	750	500	160	75
400A	DS26062	0.4	4.40	1050	525	185	110

Three Phase & Neutral							
16A	DS25948	25	2.20	550	410	95	22
32A	DS25949	10	2.20	550	410	95	24
63A	DS25950	8	3.15	660	410	135	45
100A	DS25951	5	6.30	660	575	150	70
200A	DS26061	2	7.80	750	700	170	95
250A	DS50024	1	6.30	1200	700	200	120
400A	DS26063	0.4	9.45	1700	700	170	200

## Ordering Code

All filters consist of a part number, conduit hole position suffix and an optional surge suppressor suffix.



## Earth Leakage

\*Measurement taken from phase line 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 application note).

## Installation Kits

Please see page 19 for penetration tubes and fixing screw kits.

For full installation instructions please see separate application note.



Electrical Fixing  
Enclosure Material  
Finish  
Colour  
Enclosure Rating  
Potting Compound Flammability Rating

Brass spindles (electroless bright nickel plating)  
Steel (electro dull tin plating)  
Gloss epoxy paint to DEF-STAN 80-161  
Light admiralty grey BS 381C 697  
IP 54  
UL94 V-0

Technical drawing of a filter assembly showing two views: a side view (left) and a top view (right).

**Side View (Left):**

- Dimensions:  $C$  (total width),  $E$  (width of the circular feature),  $F$  (height of the circular feature).
- Feature: A circular feature with diameter  $\varnothing P$ .
- Note: BASE OF FILTER PAINT FREE (pointing to the bottom edge).

**Top View (Right):**

- Dimensions:  $A$  (total width),  $B$  (total height),  $D$  (width of the central area),  $E$  (width of the side area),  $F$  (height of the side area),  $G$  (width of the terminal area),  $H$  (width of the terminal area),  $J$  (height of the input end area),  $K$  (height of the central area),  $L$  (width of the earth stud area).
- Features:
  - VARISTOR FIXINGS AT INPUT END (pointing to the top-left corner).
  - TERMINALS  $T$  2 OR 4 EACH END AS APPLICABLE (pointing to the top-right corner).
  - EARTH STUDS BOTH ENDS (pointing to the bottom-right corner).
  - Feature with diameter  $\varnothing S$  (pointing to the bottom-left corner).
  - Feature with diameter  $\varnothing P$  (pointing to the top-right corner).

Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS25948	550	410	95	487	48	205	45	31	62	286	M10	32	9	M8	85
DS25949	550	410	95	487	48	205	45	31	62	286	M10	32	9	M8	85
DS25950	660	410	135	537	68	205	75	62	62	286	M10	32	9	M8	120
DS25951	660	575	150	537	75	288	60	62	110	355	M12	51	13	M12	120
DS26061	750	700	170	620	85	350	60	65	150	400	M12	51	13	M12	120
DS50024	1200	700	200	1050	75	350	75	75	110	480	M16	63	13	M16	300
DS26063	1700	700	170	1210	85	350	75	245	150	400	M20	75	17	M20	300





## Description

Low Leakage Standard Performance EMI filters for electrical connection to SP&N and TP&N mains distribution systems. The filters offer attenuation against electromagnetic noise present on the power lines between the ranges of 100kHz to 18GHz to 100dB. This range of filters has been designed with the safety feature of no Y2 capacitance connected between phase and case/earth. This protects the case rising to high voltage potential if the earth is lost or a capacitor fails. This makes this range of filters more suited for mobile applications or where low earth leakage is desired. These types of filter produce earth leakage currents depending on the voltage potential between earth and neutral.

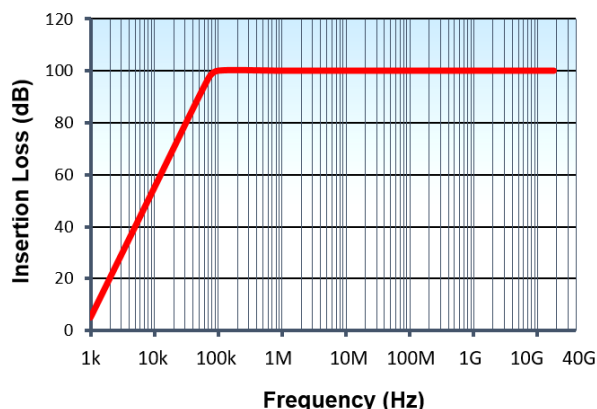
## Typical Applications

- Mobile Screened Rooms & Generator Supplies
- Screened Rooms needing low earth current leakage
- Meets TEMPEST requirement for power filters to NATO SDIP 29/1
- To achieve 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.

Low Leakage Standard Performance Filters  
Performance curve meets 100dB attenuation from 100kHz to 18GHz.



## Technical Specification

Rated Voltage	250VAC (SP&N) 50/60Hz 440/250VAC (TP&N) 50/60Hz
Alternative Voltage	Also suitable for 208/120VAC and 480/277VAC Alternative surge arrestors may be required.  TP&N filters are also suitable for three phase supplies without neutral. In such installations, the neutral terminal should be left unconnected.
Rated Current	16A to 400A (each individual line, see table)
Current Overload	10 x maximum rated current for 1 sec. 1.5 x max rated current for 10 minutes.
Discharge time	30 seconds to below 30V (filter incorporates discharge resistors)  If sockets or plugs are used for connection, ensure that no pins or un-insulated parts are accessible by none qualified personnel upon removal
Temperature Rise	25°C case rise on full load
Temperature Range	-45°C to +85°C Storage -45°C to +50°C Working
MTBF	>0.8 million hours (calculated using Mil Hdbk 217D)
Surge Suppression (optional)	275VAC at 215J 10kA 8/20μs  All filters can be supplied with an integral metal-oxide varistor, fitted between each input terminal and earth. Add a suffix "V" to end of part code.

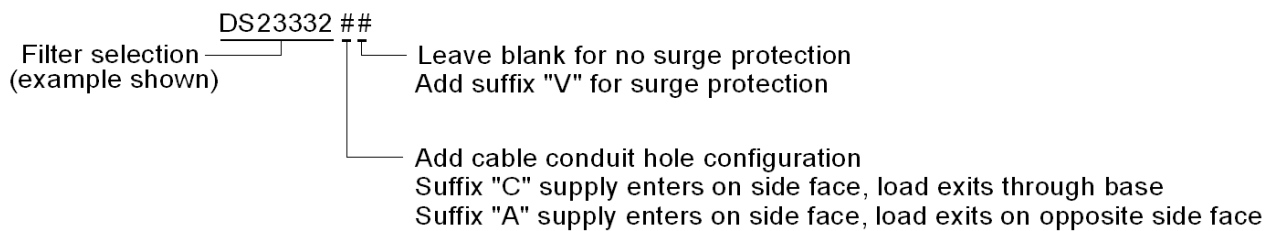
## Range Available

Rated Current	Part Number	DC Resistance	Earth Leakage*	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Single Phase & Neutral		(mΩ)	(mA)	(mm)	(mm)	(mm)	(kg)
16A	DS26231	25	15	425	175	90	12
32A	DS23552	10	25	550	205	95	16
63A	DS23553	6	25	725	205	105	23
100A	DS23554	4	30	760	205	120	28
200A	DS25915	3	50	820	475	150	80
400A	DS25917	2	100	1250	475	150	110

Three Phase & Neutral							
32A	DS23556	10	45	590	410	95	24
63A	DS23557	6	55	725	410	110	42
100A	DS23558	4	95	780	410	135	55
200A	DS25916	3	150	820	575	150	85
400A	DS25918	2	150	1250	575	150	120

## Ordering Code

All filters consist of a part number, conduit hole position suffix and an optional surge suppressor suffix.



## Earth Leakage

\*Measurement taken from neutral to earth at 1V 50Hz as there is no direct capacitance from phase line to earth.

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 application note).

## Installation Kits

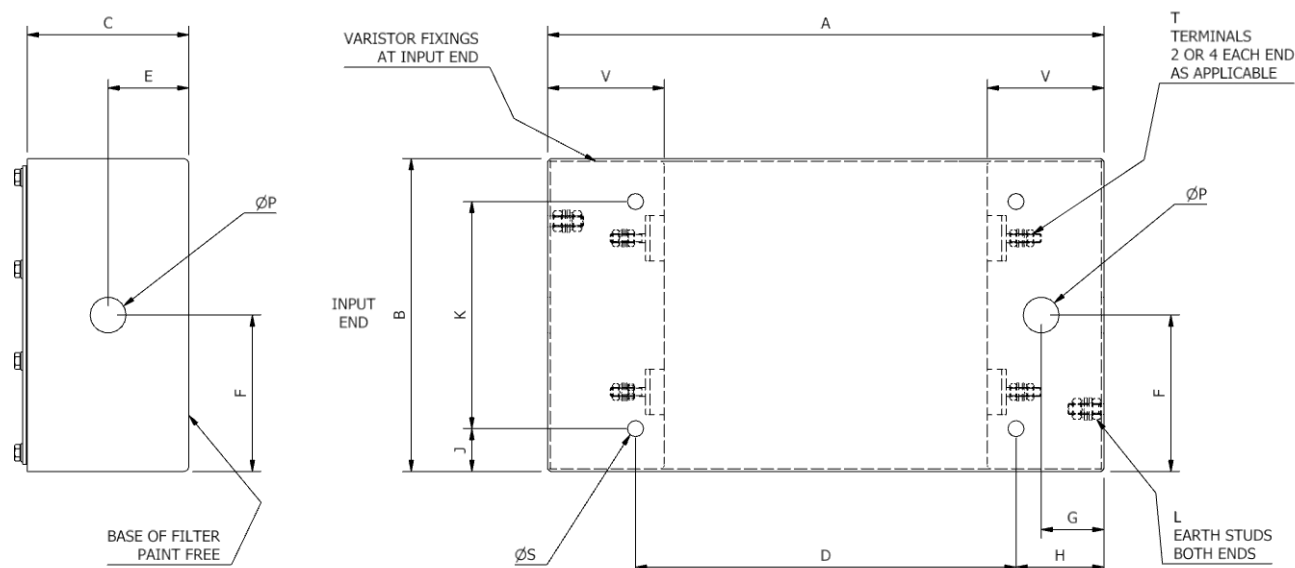
Please see page 19 for penetration tubes and fixing screw kits.

For full installation instructions please see separate application note.

Electrical Fixing  
Enclosure Material  
Finish  
Colour  
Enclosure Rating  
Potting Compound Flammability Rating

Brass spindles (electroless bright nickel plating)  
Steel (electro dull tin plating)  
Gloss epoxy paint to DEF-STAN 80-161  
Light admiralty grey BS 381C 697  
IP 54  
UL94 V-0

## Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS26231	425	175	90	327	45	88	45	49	24	127	M6	20	9	M5	85
DS23552	550	205	95	487	48	103	45	31	61	83	M10	32	9	M8	85
DS23553	725	205	105	621	48	103	55	52	61	83	M10	32	9	M8	110
DS23554	760	205	120	656	48	103	55	52	61	83	M10	32	9	M8	110
DS25915	820	475	150	680	75	238	70	70	110	255	M12	51	13	M12	140
DS25917	1250	475	150	760	75	238	75	245	110	255	M20	63	17	M20	300

Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23556	590	410	95	527	48	205	45	31	62	286	M10	32	9	M8	85
DS23557	725	410	110	663	48	205	55	31	62	286	M10	32	9	M8	110
DS23558	780	410	135	656	68	205	60	62	62	286	M10	32	9	M8	120
DS25916	820	575	150	680	75	288	70	70	110	355	M12	51	13	M12	140
DS25918	1250	575	150	760	75	288	75	245	110	355	M20	75	17	M20	300



## Description

Low Leakage Standard Performance EMI filters for electrical connection to SP&N and TP&N mains distribution systems. The filters offer attenuation against electromagnetic noise present on the power lines between the ranges of 10kHz to 40GHz to 100dB. This range of filters has been designed with the safety feature of no Y2 capacitance connected between phase and case/earth. This protects the case rising to high voltage potential if the earth is lost or a capacitor fails. This makes this range of filters more suited for mobile applications or where low earth leakage is desired. These types of filter produce earth leakage currents depending on the voltage potential between earth and neutral.

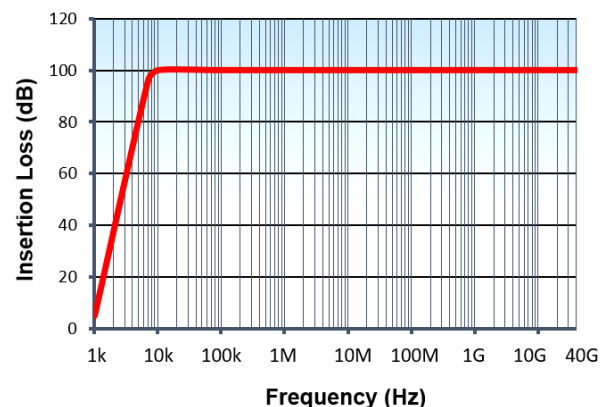
## Typical Applications

- Mobile Screened Rooms & Generator Supplies
- Screened Rooms needing low earth current leakage
- Meets TEMPEST requirement for power filters to NATO SDIP 29/1
- To achieve 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.

Low Leakage Extended Performance Filters  
Performance curve meets 100dB attenuation from 10kHz to 40GHz.



## Technical Specification

Rated Voltage	250VAC (SP&N) 50/60Hz 440/250VAC (TP&N) 50/60Hz
Alternative Voltage	Also suitable for 208/120VAC and 480/277VAC  Alternative surge arrestors may be required.  TP&N filters are also suitable for three phase supplies without neutral. In such installations, the neutral terminal should be left unconnected.
Rated Current	16A to 400A (each individual line, see table)
Current Overload	10 x maximum rated current for 1 sec. 1.5 x max rated current for 10 minutes.
Discharge time	30 seconds to below 30V (filter incorporates discharge resistors)  If sockets or plugs are used for connection, ensure that no pins or un-insulated parts are accessible by none qualified personnel upon removal
Temperature Rise	25°C case rise on full load
Temperature Range	-45°C to +85°C Storage -45°C to +50°C Working
MTBF	>0.8 million hours (calculated using Mil Hdbk 217D)
Surge Suppression (optional)	275VAC at 215J 10kA 8/20µs  All filters can be supplied with an integral metal-oxide varistor, fitted between each input terminal and earth. Add a suffix "V" to end of part code.

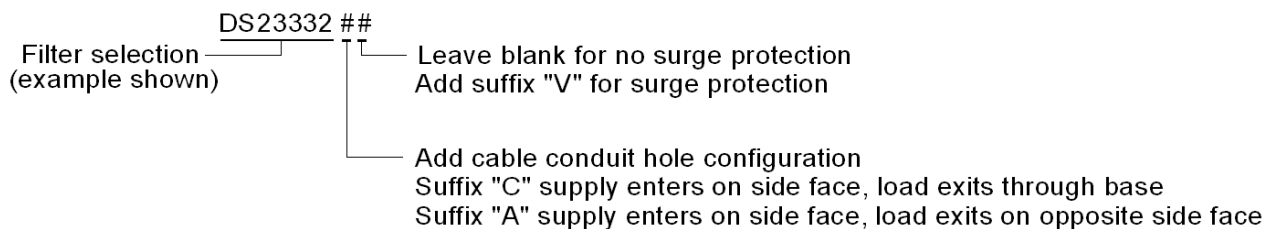
## Range Available

Rated Current	Part Number	DC Resistance	Leakage Current*	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Single Phase & Neutral		(mΩ)	(mA)	(mm)	(mm)	(mm)	(kg)
16A	DS26232	70	20	725	175	90	15
32A	DS23403	30	60	820	350	120	42
63A	DS23425	15	60	970	350	120	62
100A	DS23466	10	80	1206	350	150	100
200A	DS23467	5	120	1206	573	162	150
400A	DS26056	1	150	1750	650	180	240

Three Phase & Neutral							
32A	DS23854	30	120	820	700	120	85
63A	DS23855	15	200	970	700	150	130
100A	DS23856	10	270	1206	700	162	170
200A	DS23857	5	500	1206	930	170	230
400A	DS23858	1	500	1750	1000	180	320

## Ordering Code

All filters consist of a part number, conduit hole position suffix and an optional surge suppressor suffix.



## Earth Leakage

\*Measurement taken from neutral to earth at 1V 50Hz as there is no direct capacitance from phase line to earth.

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 application note).

## Installation Kits

Please see page 19 for penetration tubes and fixing screw kits.

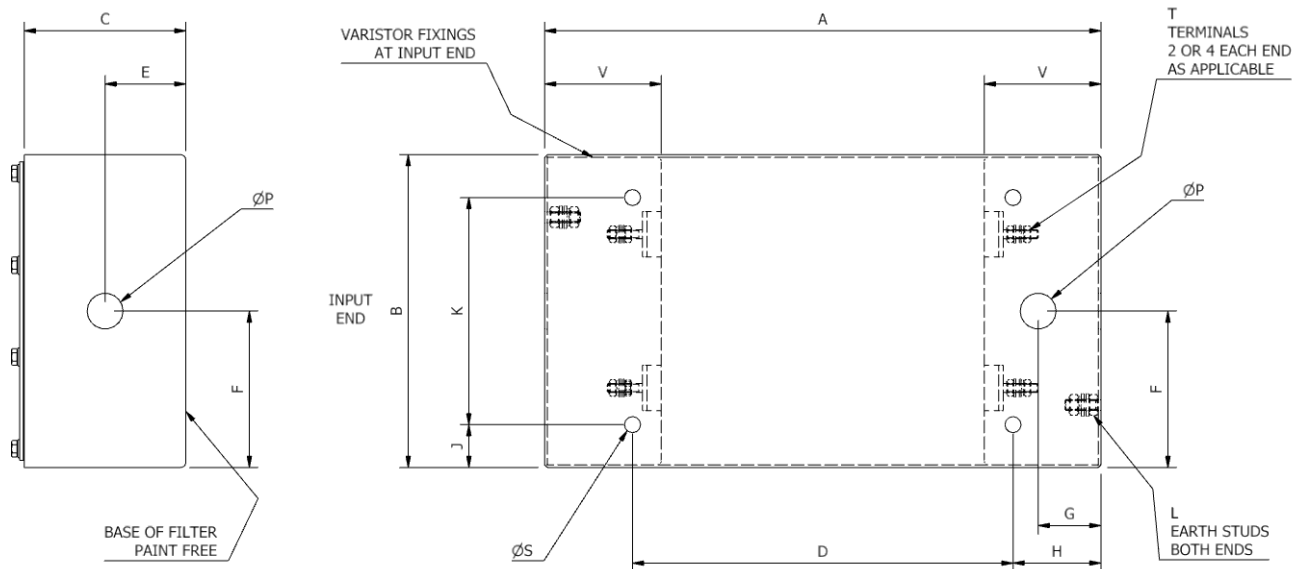
For full installation instructions please see separate application note.

## Mechanical Details

Electrical Fixing  
Enclosure Material  
Finish  
Colour  
Enclosure Rating  
Potting Compound Flammability Rating

Brass spindles (electroless bright nickel plating)  
Steel (electro dull tin plating)  
Gloss epoxy paint to DEF-STAN 80-161  
Light admiralty grey BS 381C 697  
IP 54  
UL94 V-0

## Full Dimensions



Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS26232	725	175	90	627	45	88	45	49	24	127	M6	20	9	M5	85
DS23403	820	350	120	710	60	175	55	55	110	130	M10	32	13	M8	110
DS23425	970	350	120	860	60	175	55	55	110	130	M10	32	13	M8	110
DS23466	1206	350	150	1130	75	175	60	38	110	130	M10	32	13	M8	120
DS23467	1206	573	162	1130	81	286	75	38	110	353	M12	51	13	M12	135
DS26056	1750	650	180	1260	90	325	75	245	150	350	M20	63	17	M20	300

Part No.	A	B	C	D	E	F	G	H	J	K	L	P	S	T	V
DS23854	820	700	120	710	60	350	55	55	175	350	M10	32	13	M8	110
DS23855	970	700	150	860	75	350	55	55	175	350	M10	32	13	M8	110
DS23856	1206	700	162	1086	81	350	60	60	175	350	M10	32	17	M8	120
DS23857	1206	930	170	1070	85	465	68	68	230	470	M12	51	17	M12	135
DS23858	1750	1000	180	1260	90	500	75	245	250	500	M20	75	17	M20	300



## Description

This range of filters has been developed for use on high current three phase and neutral mains supplies. These filters employ MPE's proprietary feedthrough filter design incorporating current compensating inductors to provide very low losses and heat dissipation, hence low running costs.

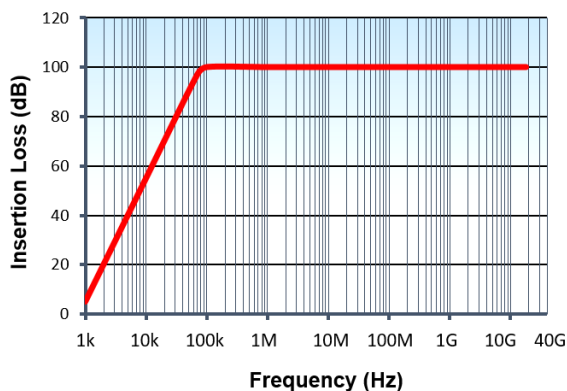
## Typical Applications

- Screened Rooms requiring low earth current leakage
- Meets TEMPEST requirement for power filters to NATO SDIP 29/1
- To achieve compliance to MIL STD 461 & DEF STAN 59 411

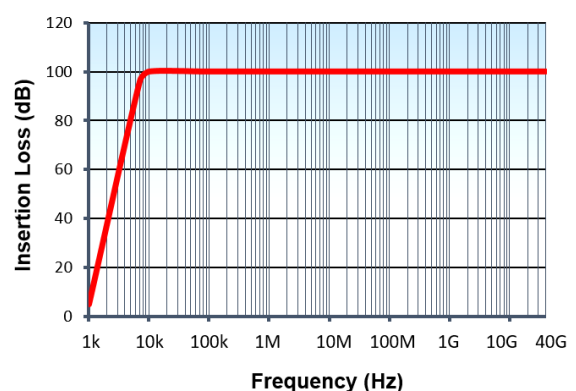
## Insertion Loss Performance

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

High Current (Low Leakage) Standard Performance  
100dB from 100 kHz to 18GHz



High Current Extended Performance Filters  
100dB from 10kHz to 40GHz



## Technical Specification

Rated Voltage	440/250VAC (TP&N) 50/60Hz
Alternative Voltage	Also suitable for 480/277VAC Alternative surge arrestors may be required.
Rated Current	800A to 2400A (each individual line, see table)
Current Overload	1.25 x max rated current for 15 minutes.
Short Circuit Fault	Maximum 20,000A for 1 second
Discharge time	30 seconds to below 30V (filter incorporates discharge resistors)
Temperature Rise	25°C case rise on full load
Temperature Range	-45°C to +85°C Storage -45°C to +50°C Working
MTBF	>0.6 million hours (calculated using Mil Hdbk 217D)
Surge Suppression (optional)	275VAC at 70kA 8/20μs  All filters can be supplied with an integral metal-oxide varistor, fitted between each input terminal and earth. Add a suffix "V" to end of part code.



## High Current (Low Leakage) Standard Performance Range

Rated Current	Part Number	DC Resistance	Leakage Current*	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Three Phase & Neutral		(mΩ)	(mA)	(mm)	(mm)	(mm)	(kg)
800A	DS23973A	0.13	250	2454	864	285	250
800A	DS23973C	0.13	250	2304	864	285	250
1200A	DS26310A	0.07	250	2900	1000	300	300
1200A	DS26310C	0.07	250	2600	1000	300	300
1600A	DS26320A	0.04	250	3400	1000	350	350
1600A	DS26320C	0.04	250	3000	1000	350	350
2400A	DS26330A	0.03	250	3800	1000	400	450
2400A	DS26330C	0.03	250	3300	1000	400	450

## High Current Extended Performance Range

Rated Current	Part Number	DC Resistance	Leakage Current**	Major Dimensions			Approximate Weight
				Length A	Width B	Height C	
Three Phase & Neutral		(mΩ)	(A)	(mm)	(mm)	(mm)	(kg)
800A	DS26307A	0.2	4.35	3300	864	285	350
800A	DS26307C	0.2	4.35	3150	864	285	350
1200A	DS26314A	0.1	4.35	3800	1000	300	450
1200A	DS26314C	0.1	4.35	3500	1000	300	450
1600A	DS26324A	0.06	4.35	4500	1000	350	550
1600A	DS26324C	0.06	4.35	4100	1000	350	550
2400A	DS26334A	0.04	4.35	5200	1000	400	650
2400A	DS26334C	0.04	4.35	4700	1000	400	650

## Ordering Code

Choose Part Number from table according to performance, current and conduit configuration. Add a suffix V for varistors to be added to the input/supply (EMP protection). For C versions requiring an end termination box on the opposite wall side please enquire to [sales@mpe.co.uk](mailto:sales@mpe.co.uk)

## Earth Leakage

\*The standard performance range follows the low leakage circuit design in that there is no direct capacitance (Y2), between phase lines and earth. However, there is a large capacitance value between neutral and earth, therefore the "Leakage Current" stated in the table is for a single volt difference between neutral and earth case. Thus, earth leakage can vary depending on the installation. Measurement is taken from neutral to earth at 1V 50Hz.

\*\*The high current extended performance range follows the conventional circuit of capacitance directly connected between phase lines and earth, hence the larger value. Measurement is taken from phase line to earth at 250V 50Hz.

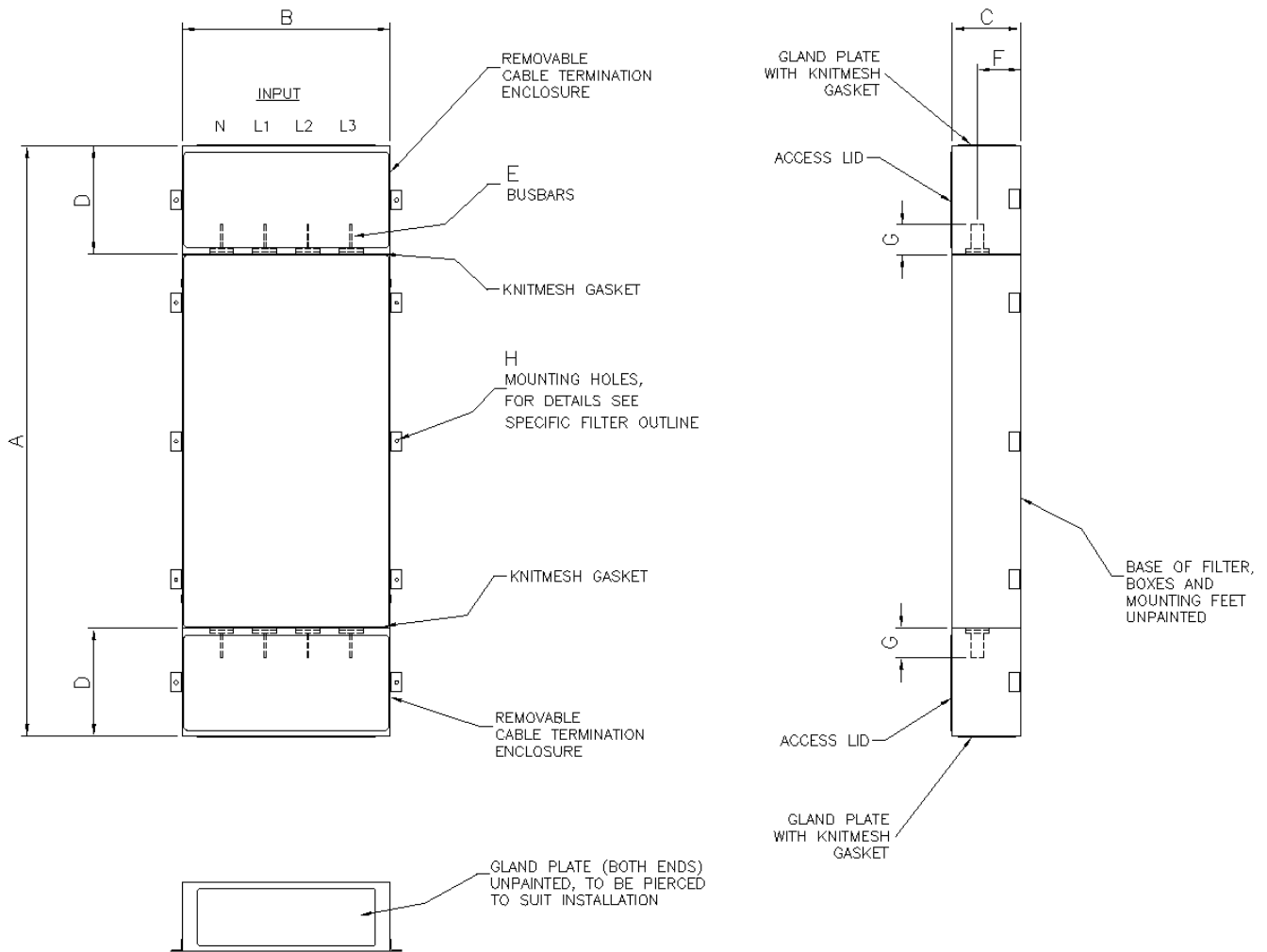
## End Enclosures

To facilitate installation of these very high current filters, standard end boxes and blank gland plates are included with this range.

## Mechanical Details

Electrical Fixing	Copper Busbar (natural finish see table for size)
Finish	Gloss epoxy paint to DEF-STAN 80-161
Colour	Light admiralty grey BS 381C 697

## Dimensions for A configuration



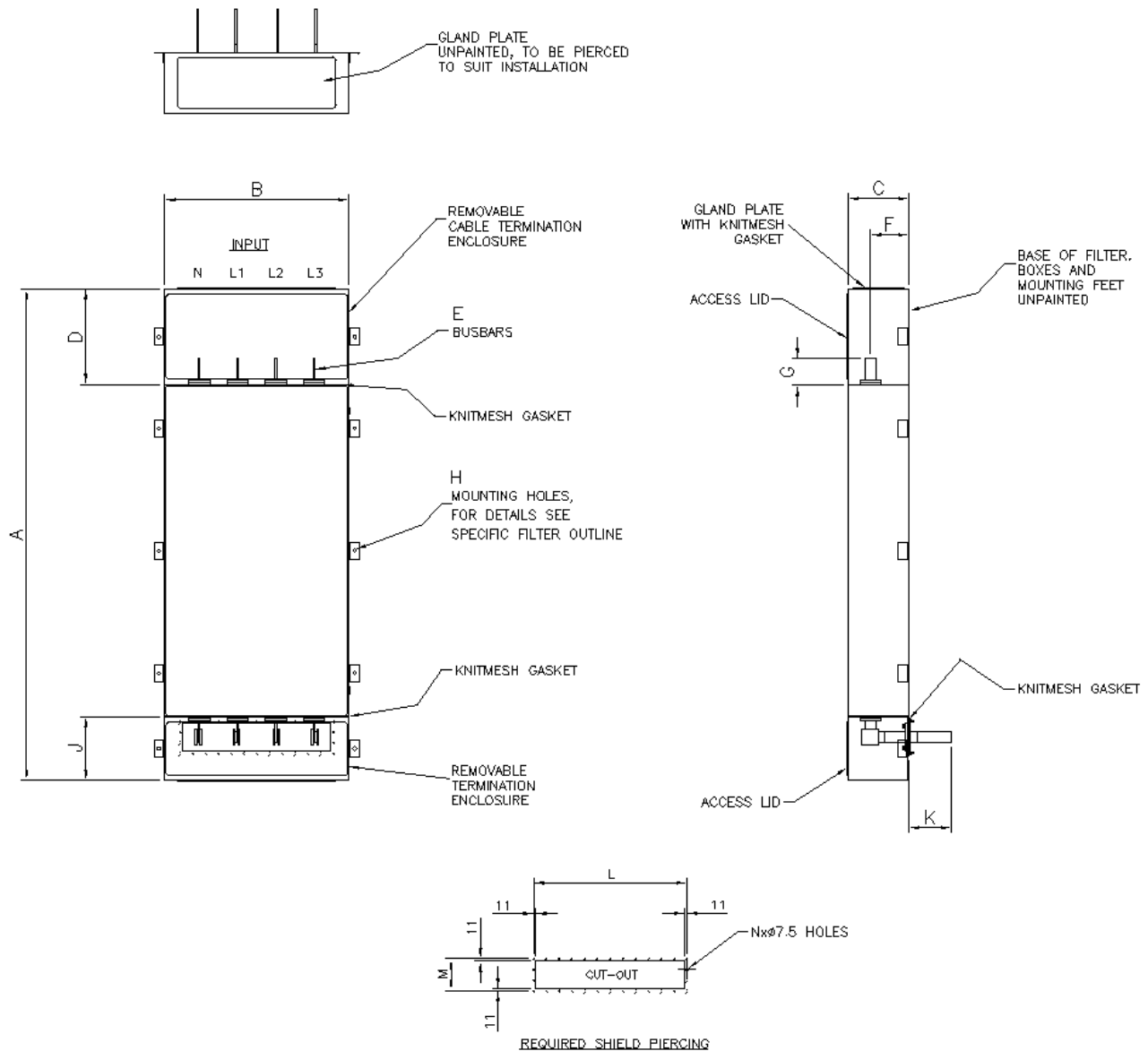
## High Current (Low Leakage) Standard Performance Range, A Configuration

Part No.	A	B	C	D	E	F	G
DS23973A	2454	864	285	450	50 x 8	180	125
DS26310A	2900	1000	300	650	80 x 10	185	155
DS26320A	3400	1000	350	800	125 x 10	212	200
DS26330A	3800	1000	400	900	127 x 16	230	200

## High Current Extended Performance Range, A Configuration

Part No.	A	B	C	D	E	F	G
DS26307A	3300	864	285	450	50 x 8	180	125
DS26314A	3800	1000	300	650	80 x 10	185	155
DS26324A	4500	1000	350	800	125 x 10	212	200
DS26334A	5200	1000	400	900	127 x 16	230	200

## Dimensions for C Configuration



## High Current (Low Leakage) Standard Performance Range, C Configuration

Part No.	A	B	C	D	E	F	G	H	J	K	L	M	N
DS23973C	2304	864	285	450	50 x 8	180	125	14	300	200	12 x 60.0 = 720	3 x 50.0 = 150	30
DS26310C	2600	1000	300	650	80 x 10	185	155	14	350	250	15 x 61.0 = 914	3 x 60.0 = 180	36
DS26320C	3000	1000	350	800	125 x 10	212	200	14	400	300	15 x 61.0 = 914	4 x 57.5 = 230	38
DS26330C	3300	1000	400	900	127 x 16	230	200	18	400	300	15 x 61.0 = 914	4 x 57.5 = 230	38

## High Current Extended Performance Range, C Configuration

Part No.	A	B	C	D	E	F	G	H	J	K	L	M	N
DS26307C	3150	864	285	450	50 x 8	180	125	14	300	200	12 x 60.0 = 720	3 x 50.0 = 150	30
DS26314C	3500	1000	300	650	80 x 10	185	155	14	350	250	15 x 61.0 = 914	3 x 60.0 = 180	36
DS26324C	4100	1000	350	800	125 x 10	212	200	14	400	300	15 x 61.0 = 914	4 x 57.5 = 230	38
DS26334C	4700	1000	400	900	127 x 16	230	200	18	400	300	15 x 61.0 = 914	4 x 57.5 = 230	38



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## BULKHEAD PENETRATION KITS

Optional bulkhead penetration kits can be provided for filters up to 400A. 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
30/807147	20	M20
30/807148	25	M25
30/807149	32	M32
30/807150	40	M40
30/807151	50	M50
30/807152	63	M63
30/807153	75	M75



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## FIXING SCREW KITS

Optional fixing screw kits can be provided for filter sizes up to 400A. 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
30/806951	6	M5
30/806952	7	M6
30/806953	9	M8
30/806954	11	M10
30/806955	13	M12
30/806956	17	M16
30/806957	21	M20

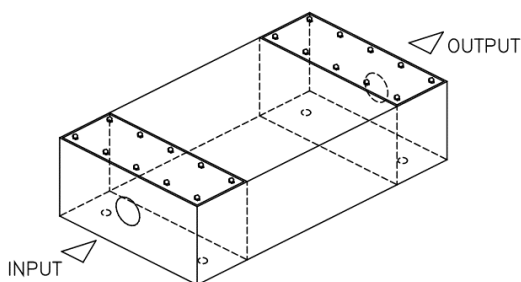




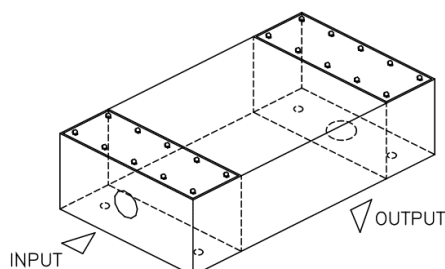
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## CABLE ENTRY OPTIONS

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](mailto: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



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## 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
	M16	20
	M20	32



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## OTHER PRODUCTS FROM MPE

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
-  Control Line Filters
-  Data Line Filters
-  Equipment Filters
-  Feedthrough Capacitors & Filters
-  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

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