



MPE
Quality. Reliability. Performance

HIGH PERFORMANCE EMI POWER LINE FILTERS UP TO 2400A RATING



FM00699



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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.

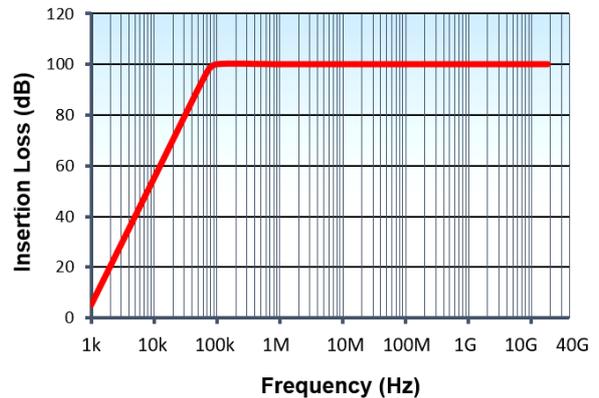
Typical Applications

- 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. |

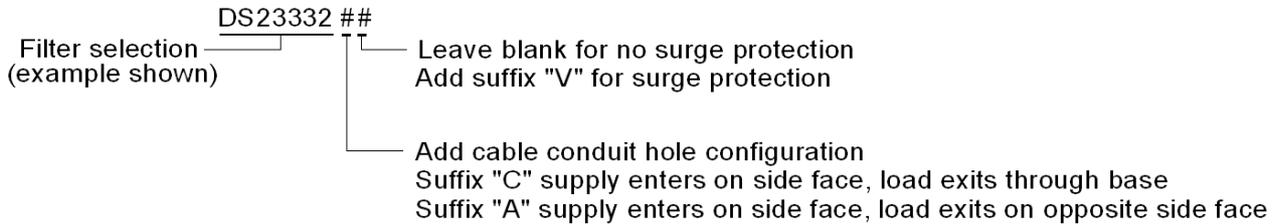
Range Available

| 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.

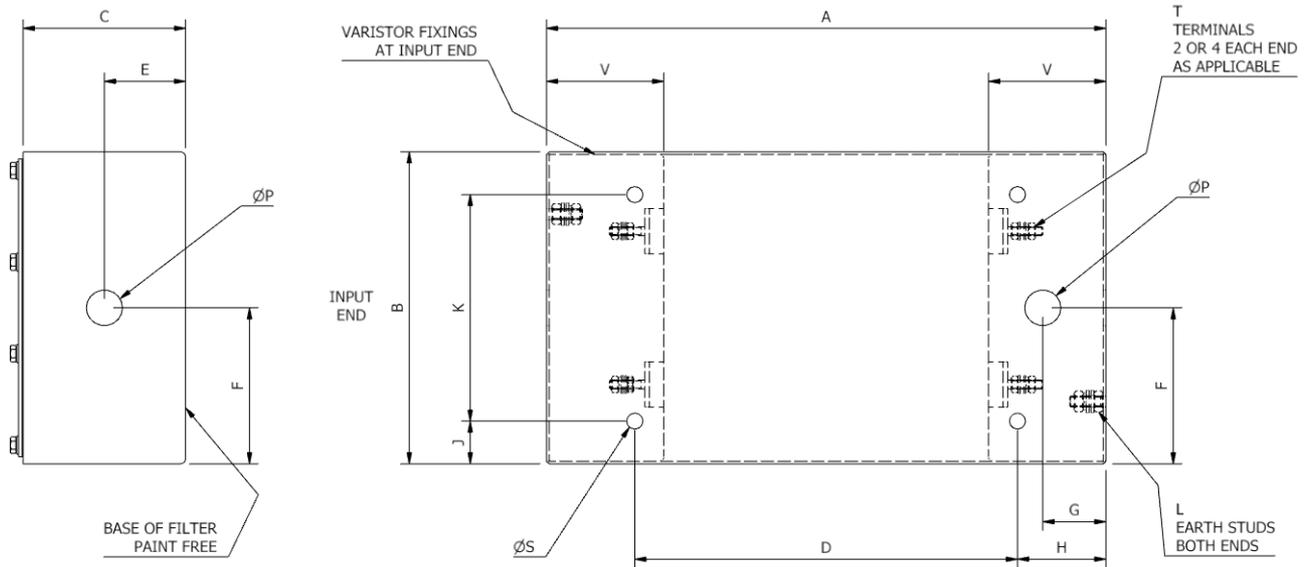
For full installation instructions please see separate application note.

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.

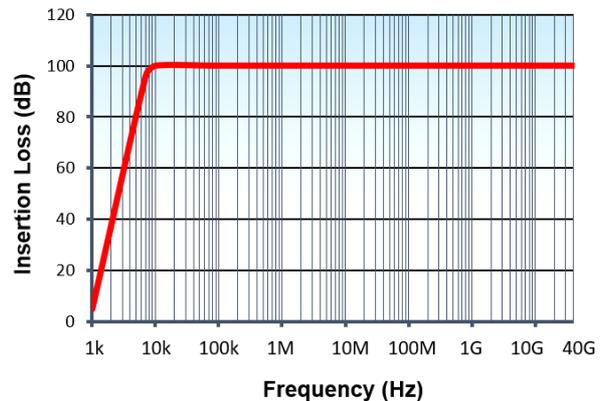
Typical Applications

- 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. |

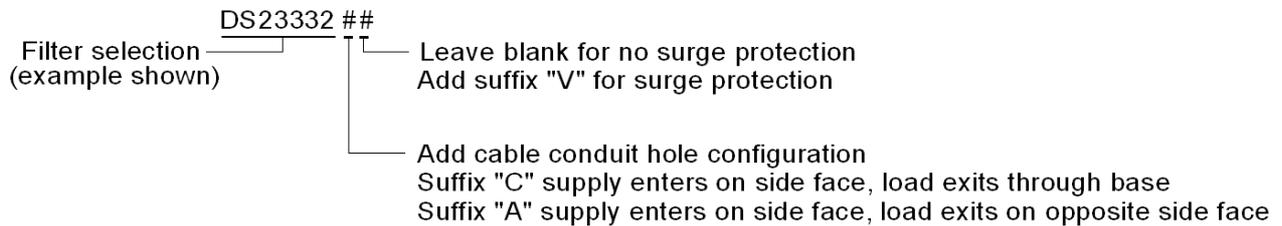
Range Available

| Rated Current | Part Number | DC Resistance | Earth Leakage* | Major Dimensions | | | Approximate Weight |
|------------------------|-------------|---------------|----------------|------------------|--------------|---------------|--------------------|
| | | | | Length A (mm) | Width B (mm) | Height C (mm) | |
| Single Phase & Neutral | | (mΩ) | (A) | | | | (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.

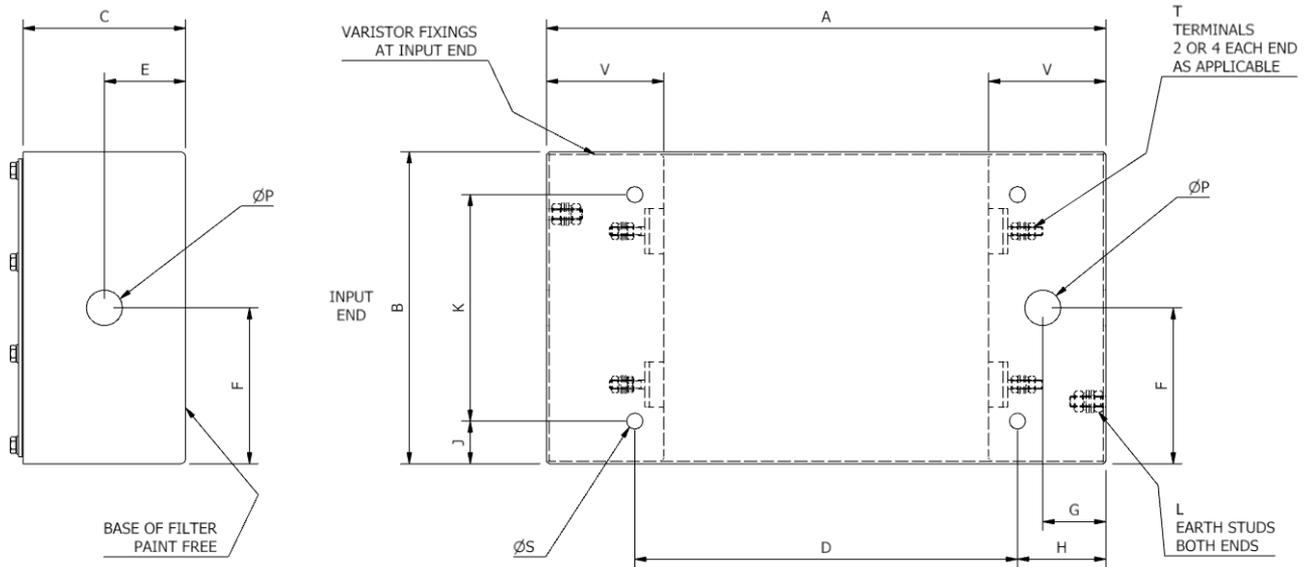
For full installation instructions please see separate application note.

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 |
|----------|------|-----|-----|-----|----|-----|----|-----|-----|-----|-----|----|----|-----|-----|
| DS25942 | 550 | 205 | 95 | 487 | 48 | 103 | 45 | 31 | 61 | 83 | M10 | 32 | 9 | M8 | 85 |
| DS25943 | 550 | 205 | 95 | 487 | 48 | 103 | 45 | 31 | 61 | 83 | M10 | 32 | 9 | M8 | 85 |
| DS25944 | 640 | 205 | 120 | 537 | 48 | 103 | 65 | 52 | 61 | 83 | M10 | 32 | 9 | M8 | 110 |
| DS25945 | 660 | 475 | 135 | 537 | 68 | 238 | 60 | 62 | 110 | 255 | M12 | 51 | 13 | M12 | 120 |
| DS26060 | 750 | 500 | 160 | 620 | 80 | 250 | 60 | 65 | 130 | 240 | M12 | 40 | 13 | M12 | 120 |
| DS26062 | 1050 | 525 | 185 | 660 | 93 | 263 | 60 | 195 | 130 | 265 | M20 | 51 | 13 | M20 | 250 |

| 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.

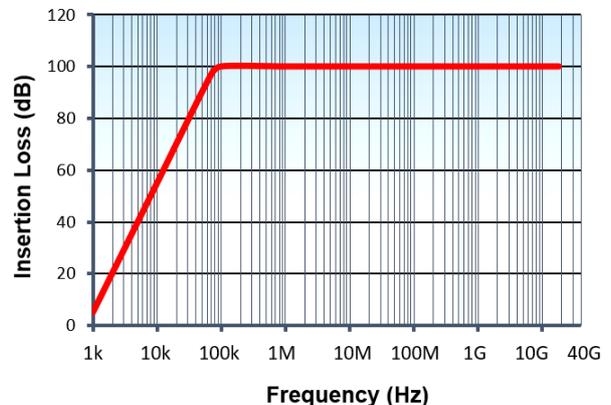
Typical Applications

- 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. |

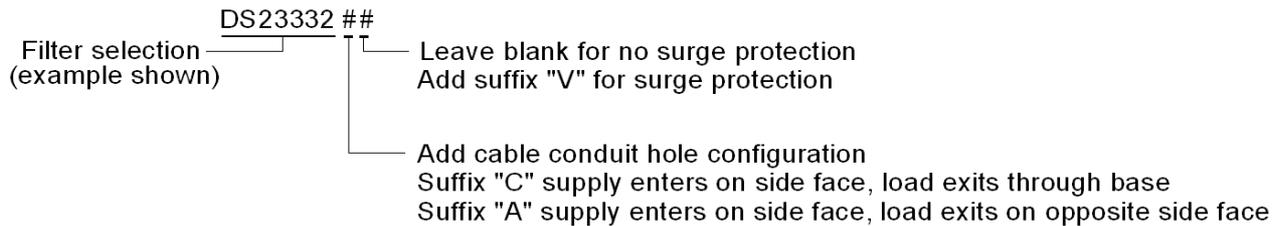
Range Available

| 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.

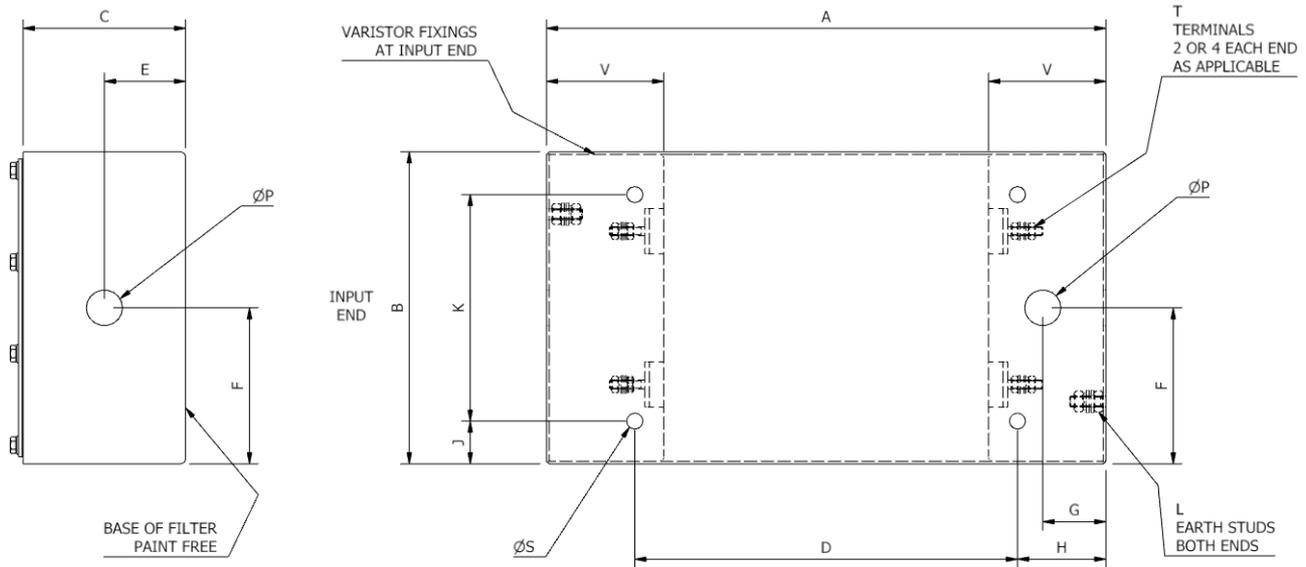
For full installation instructions please see separate application note.

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 |
|----------|------|-----|-----|-----|----|-----|----|-----|-----|-----|-----|----|----|-----|-----|
| 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.

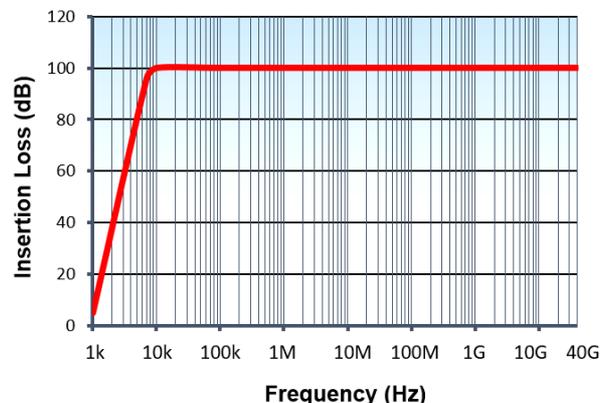
Typical Applications

- 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. |

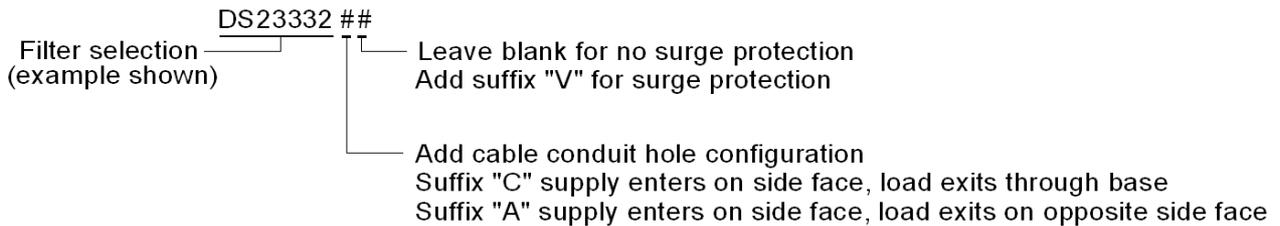
Range Available

| 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.

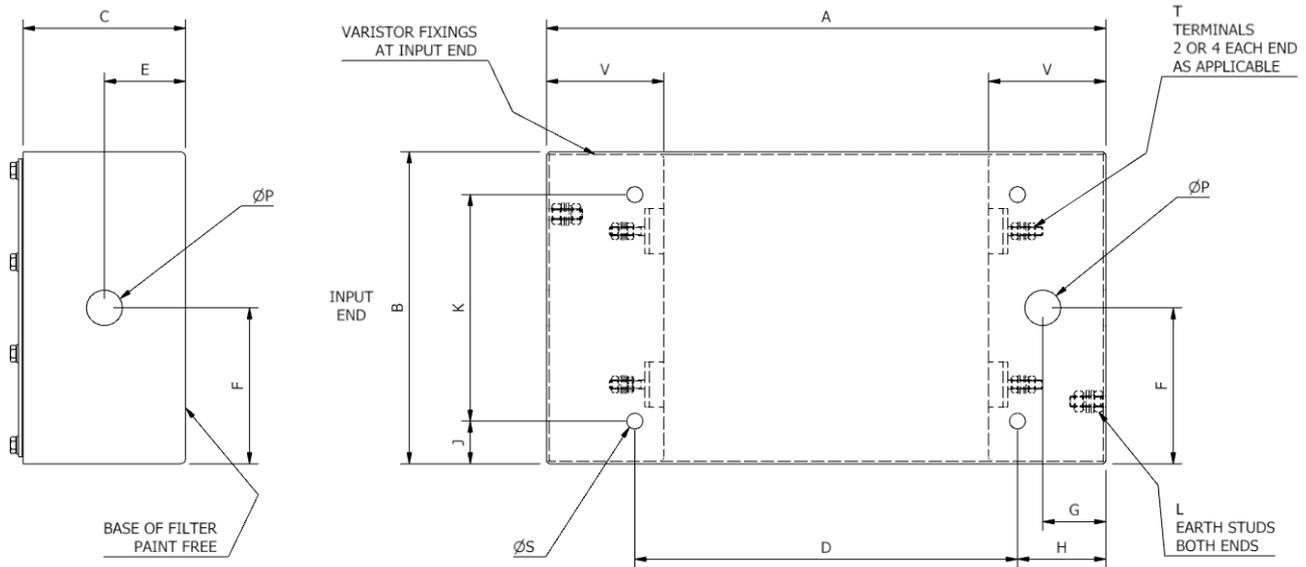
For full installation instructions please see separate application note.

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.

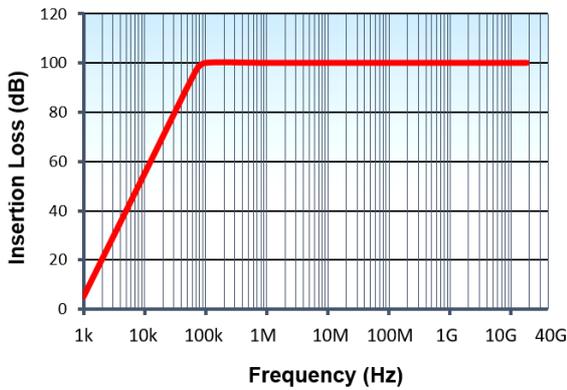
Typical Applications

- 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

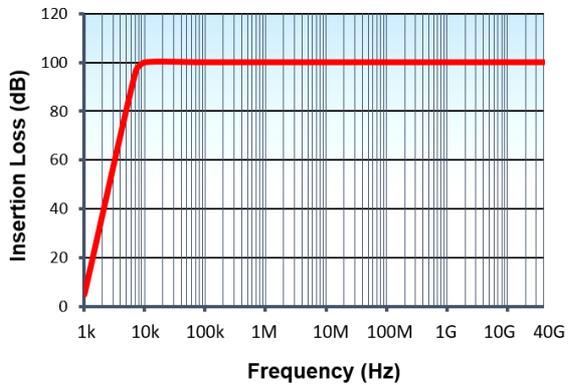
Insertion Loss Performance

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

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.

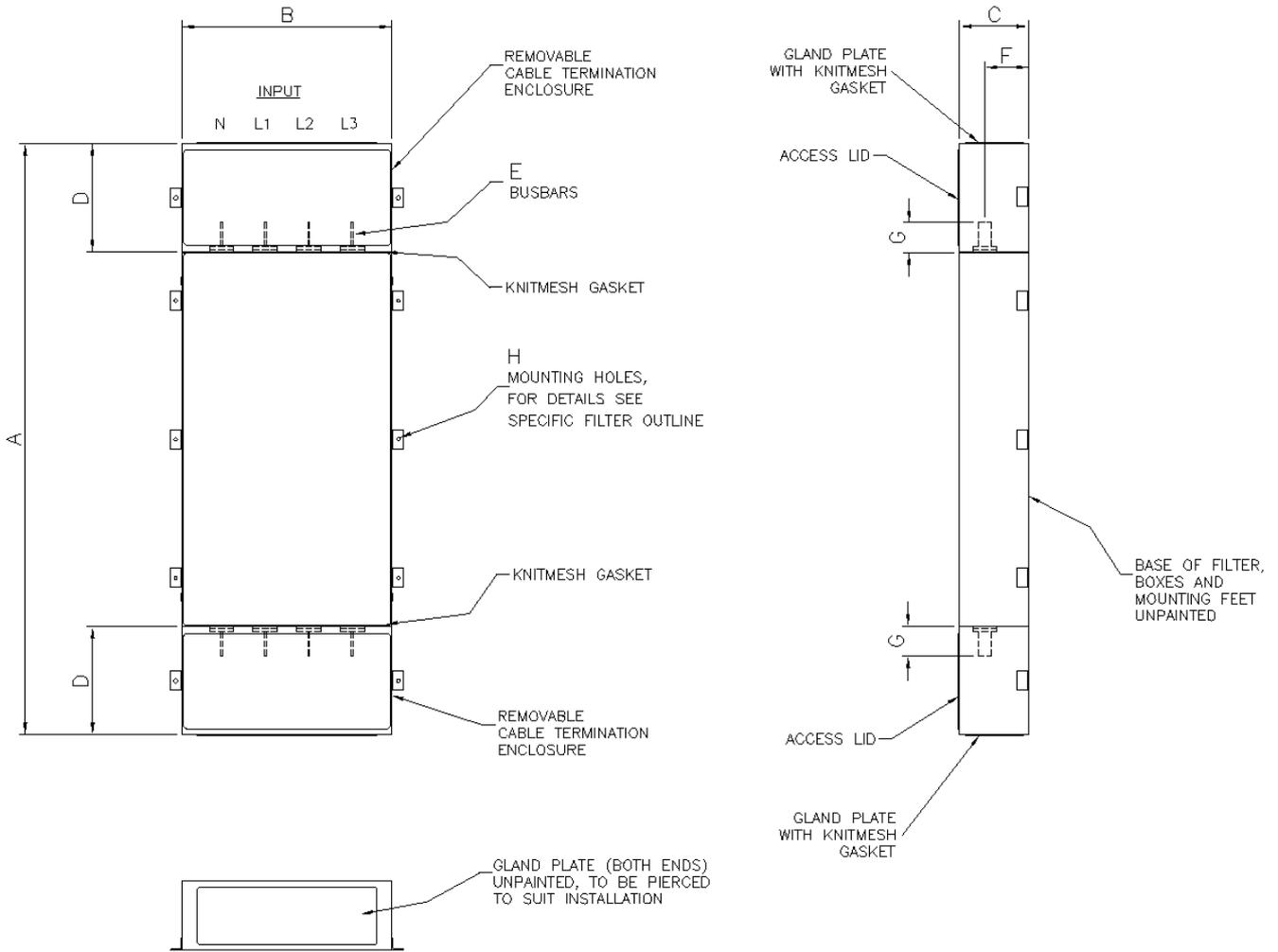
End Enclosures

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



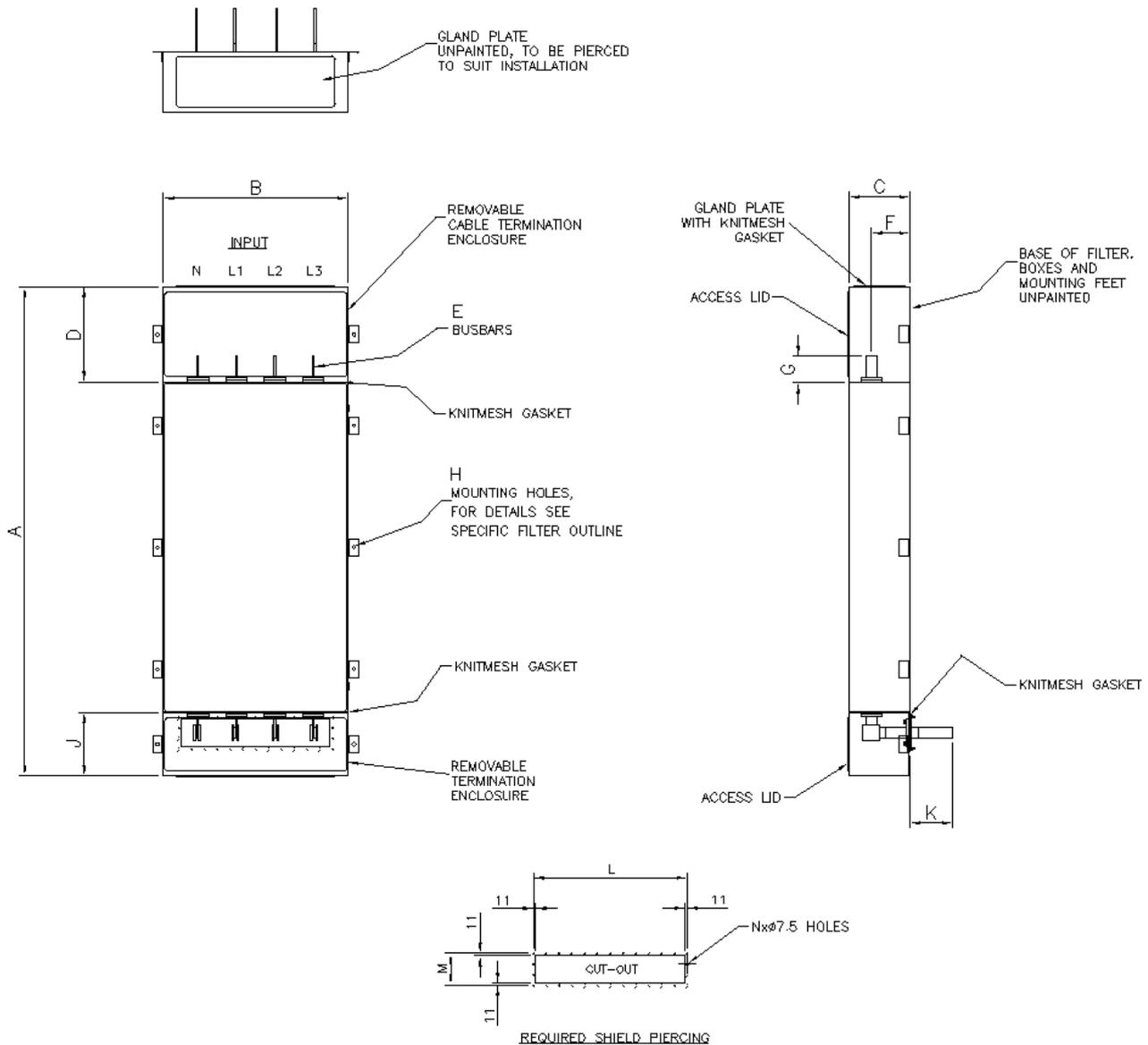
High Current (Low Leakage) Standard Performance Range, A Configuration

| 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 |



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 |



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.

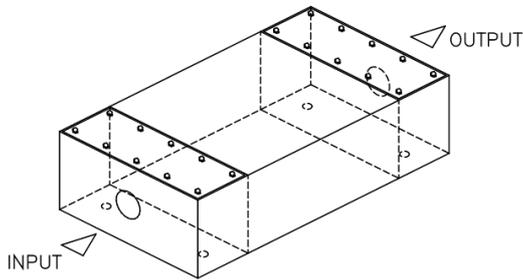
| Part Number (Kits for use with Mounting Surface Thickness of up to 20mm) | Fixing Hole Diameter (mm) | Screw Thread Size |
|---|---------------------------|-------------------|
| 30/806951 | 6 | M5 |
| 30/806952 | 7 | M6 |
| 30/806953 | 9 | M8 |
| 30/806954 | 11 | M10 |
| 30/806955 | 13 | M12 |
| 30/806956 | 17 | M16 |
| 30/806957 | 21 | M20 |



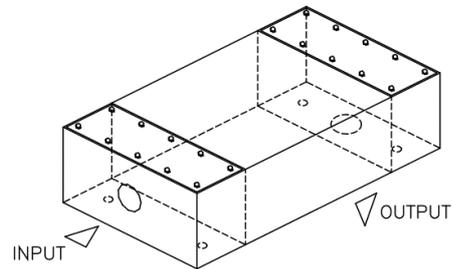


CABLE ENTRY OPTIONS

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 |
| | M16 | 20 |
| | M20 | 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
- 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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