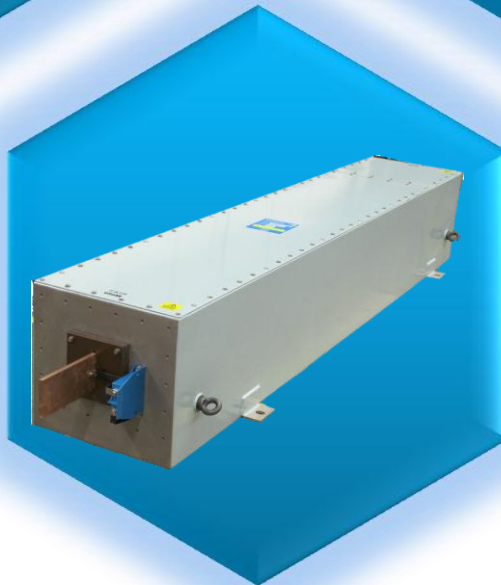
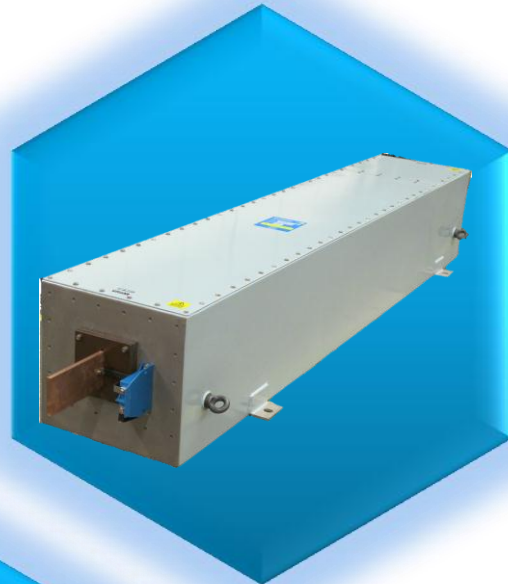
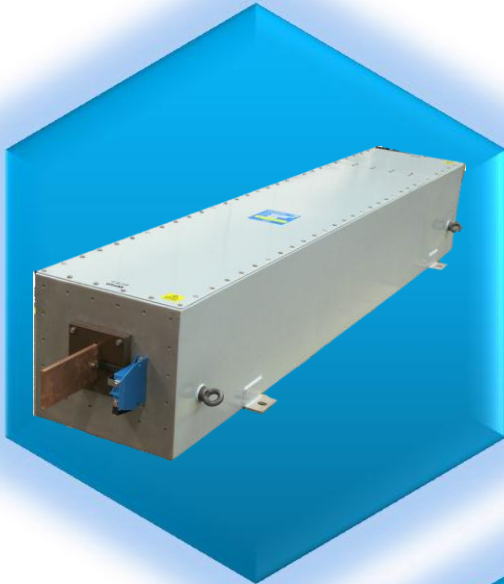




MPE
Quality, Reliability, Performance

1200A SINGLE LINE HEMP FILTER DS33738

1200A SINGLE LINE HEMP & IEMI POWER FILTER PART NUMBER DS33738



**MEETS ELECTRICAL POINT-OF-ENTRY
REQUIREMENTS OF MIL-STD-188-125-1 & -2
AND DEF STAN 59-188 PART 1 AND PART 2
FOR SHORT AND INTERMEDIATE PULSES**

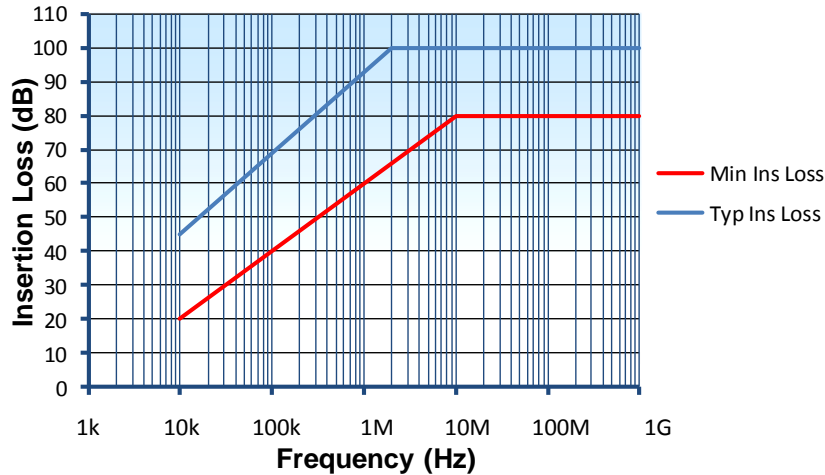


FM00699

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



Insertion Loss



Description

1200A Single Line Power Line HEMP filter independently tested and certified by Jaxon Engineering & Maintenance as meeting the pci requirements of Mil-Std-188-125-1 and -2 and Def Stan 59-188 parts 1 and 2 for E1 and E2 pulses. The filter has no internal parallel filter circuits and features inductive input to offer both good continuous wave EMC performance and superior transient handling performance even on supplies with low source impedance. The filter is fitted with high-energy transient suppressors. Filters are supplied as single line units for ease of handling and installation but four filters are normally used together for filtering three phase plus neutral supplies. Customised end enclosures are normally fitted to provide screening of input and output terminals, and to interface with the customer's connection requirements.

All MPE HEMP filters are tested using the test methods defined within the following standards and meet or exceed the relevant performance and/or safety criteria defined within these standards:

Mil-Std-188-125
Mil-F-15733
Mil-Std-220C
CISPR17:2011/BS EN 55017:2011
UL1283
EN60950/IEC60950/UL60950

Features

- 250Vac and 277Vac versions
- Use 3 or 4 lines for three phase supplies (250/440Vac or 277/480Vac)
- Utilise MPE self-healing feedthrough capacitors
- Smaller & lighter than traditional solutions
- Lower heat dissipation than traditional solutions
- High energy transient suppressors for high reliability
- No internal paralleling of filter components
- Complies with IEC 950 requirements
- Reliable capacitor technology proven over 25 years
- Low residual pulse current – high safety margin
- Low temperature rise



Ratings and Characteristics

Rated Voltage	250Vac 50/60 Hz or 277Vac 50/60Hz
Test Voltage	2250Vdc each line to case (Prior to fitting transient suppressors)
Rated Current per Line @40°C *	1200A
Insulation Resistance	>100MΩ (Prior to fitting discharge resistors)
Discharge Resistors	Fitted internally from each line to case
Discharge Time to below 34V	<60s
Maximum Temperature Rise on Full Load	25°C (typically <20 °C)
Full Load Operating Temperature Range	-40°C to +40°C
No Load Operating / Storage Temperature Range	-40°C to +85°C
Leakage Current at 250Vac 50Hz	<14A
Maximum DC Volt drop per line at 1200Adc	60mV
Peak Surge Current of Transient Suppressors	70kA (8/20μs)
Varistor Voltage Rating: 250V versions	275Vac
277V versions	480Vac

* Current derating between 40°C and 85°C $I_{\theta} = I_R \sqrt{(85 - \theta)/45}$

Insertion Loss Performance

Insertion loss In 50Ω system with / without load						
Frequency	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz
Minimum insertion loss	20dB	40dB	60dB	80dB	80dB	80dB
Typical insertion loss	45dB	68dB	92dB	100dB	100dB	100dB

Transient Suppression Performance

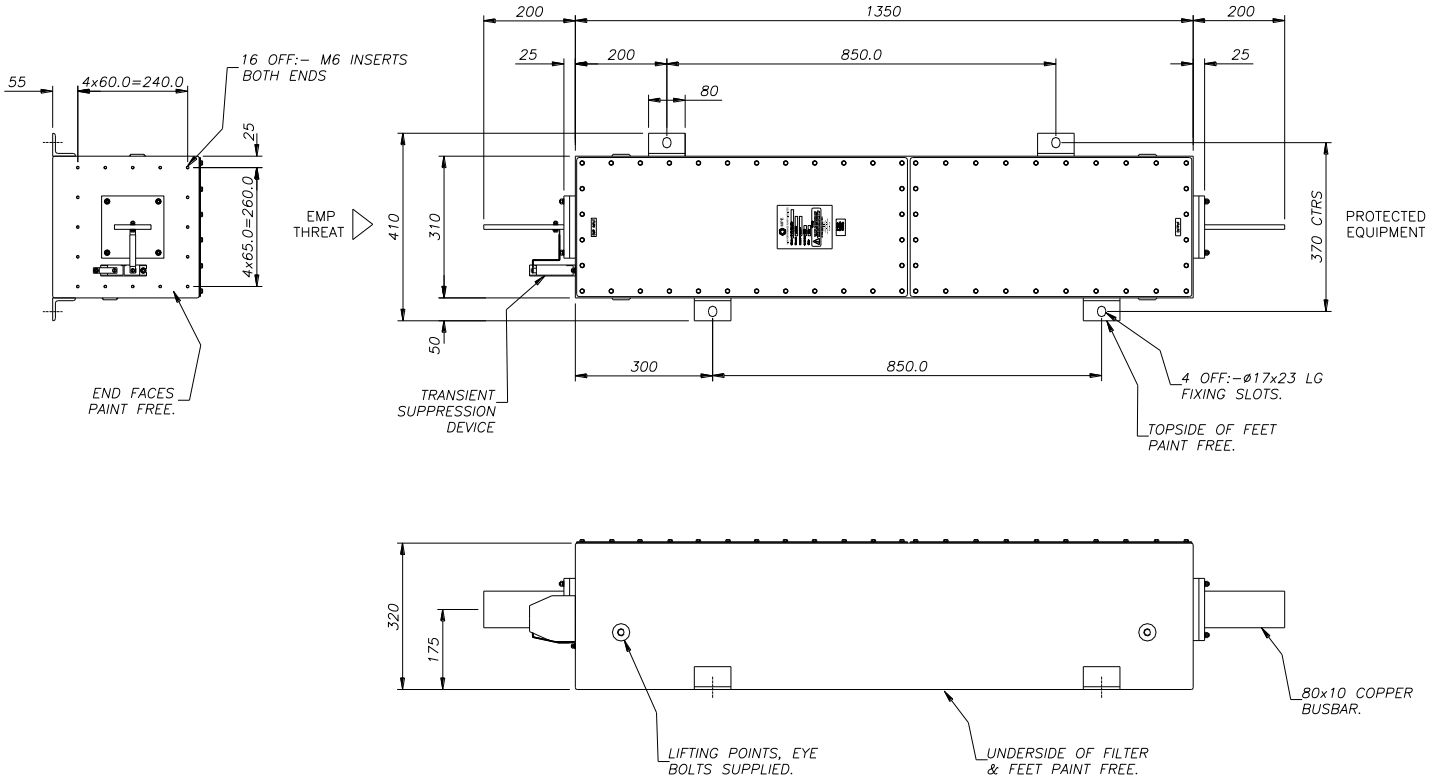
MIL STD 188-125-1 acceptance test, short pulse current injection, wave shape 20/500ns					
Input pulse amplitude	250A	500A	1000A	1800A	2500A
MIL-STD-188-125 residual requirement	<10A	<10A	<10A	<10A	<10A
Typical filter residual let-through (277/480V version) (250/440V version is less)	<3	<4.5	<6.5	<7	<7.5A

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



Dimensions and Mechanical Details

Dimensions in mm

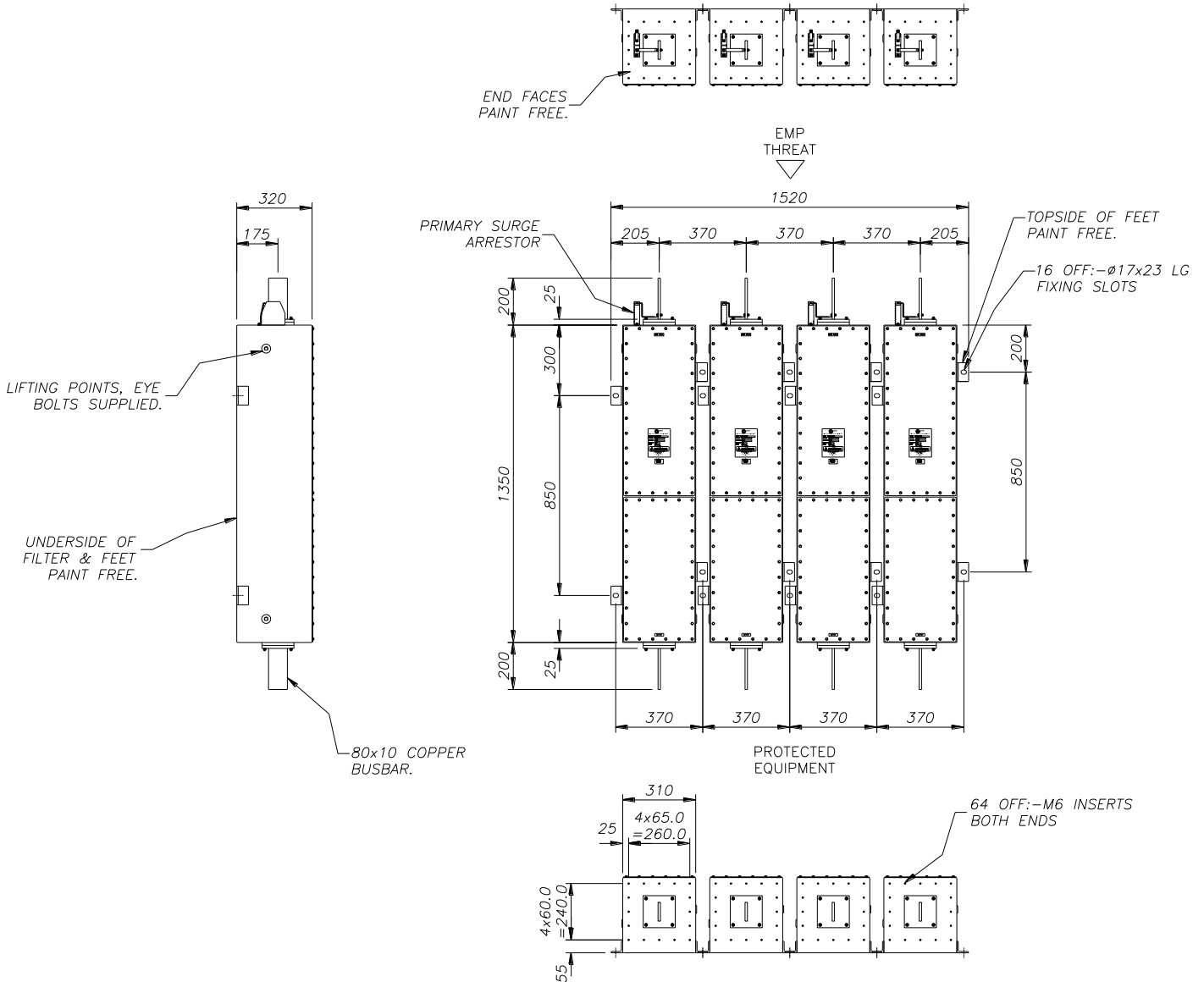


Material: Stainless steel
Finish: Paint (base & ends paint free)
Approx. Weight: 300kg



Typical Installation Details

Three or four filters are normally used together for use on three phase systems. Filters are ordered and supplied as single lines for ease of shipping and installation, and are designed for mounting in close proximity as shown below. Filters should be mounted on clean unpainted mounting surface to ensure a good low-impedance earth bond and RF connection is made to the underside of the filter.



Because every installation of such high current filters tends to be different, they all generally need customised shielded termination enclosures to interface with the cables or busbars used for power connections.

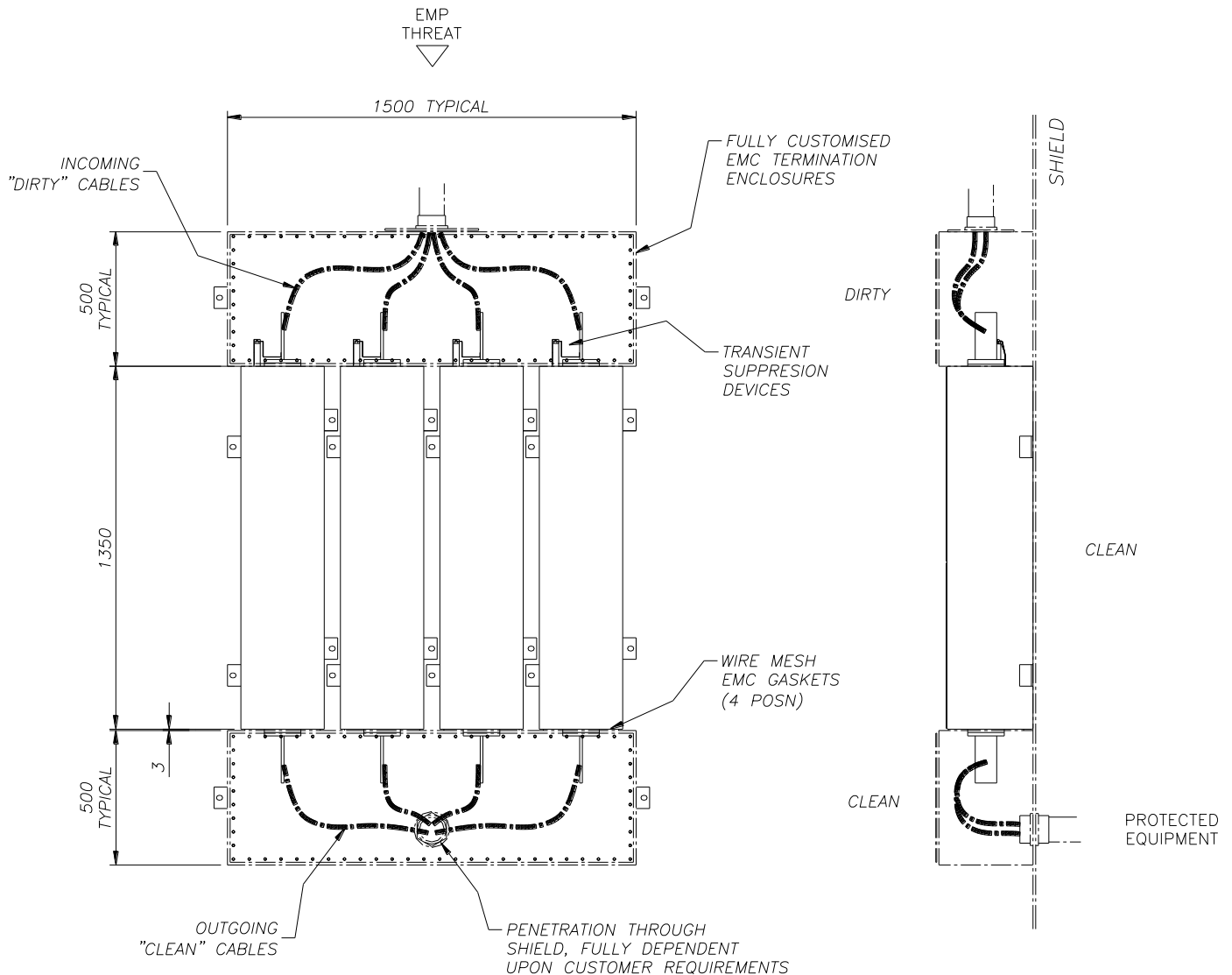
A typical cabled installation is shown below.



Both ends of the filter are provided with blind inserts to make a good quality shielded interface to external terminal chambers. Wire mesh EMI gaskets are needed between the filters and the terminal chambers at the protected end of the filters. One gasket is provided with each filter, and additional gaskets can be ordered, if required, for use at the other end of the filter.

MPE can provide standard or customised terminal compartments to interface with these filters, or alternatively, the user can provide his own, but must ensure that clean unpainted and flat mating surfaces are used to interface to the filter via the wire mesh gasket. The interface fixing bolts (M6) should be tightened to a maximum torque of 2.5N-m. (22lbf-in).

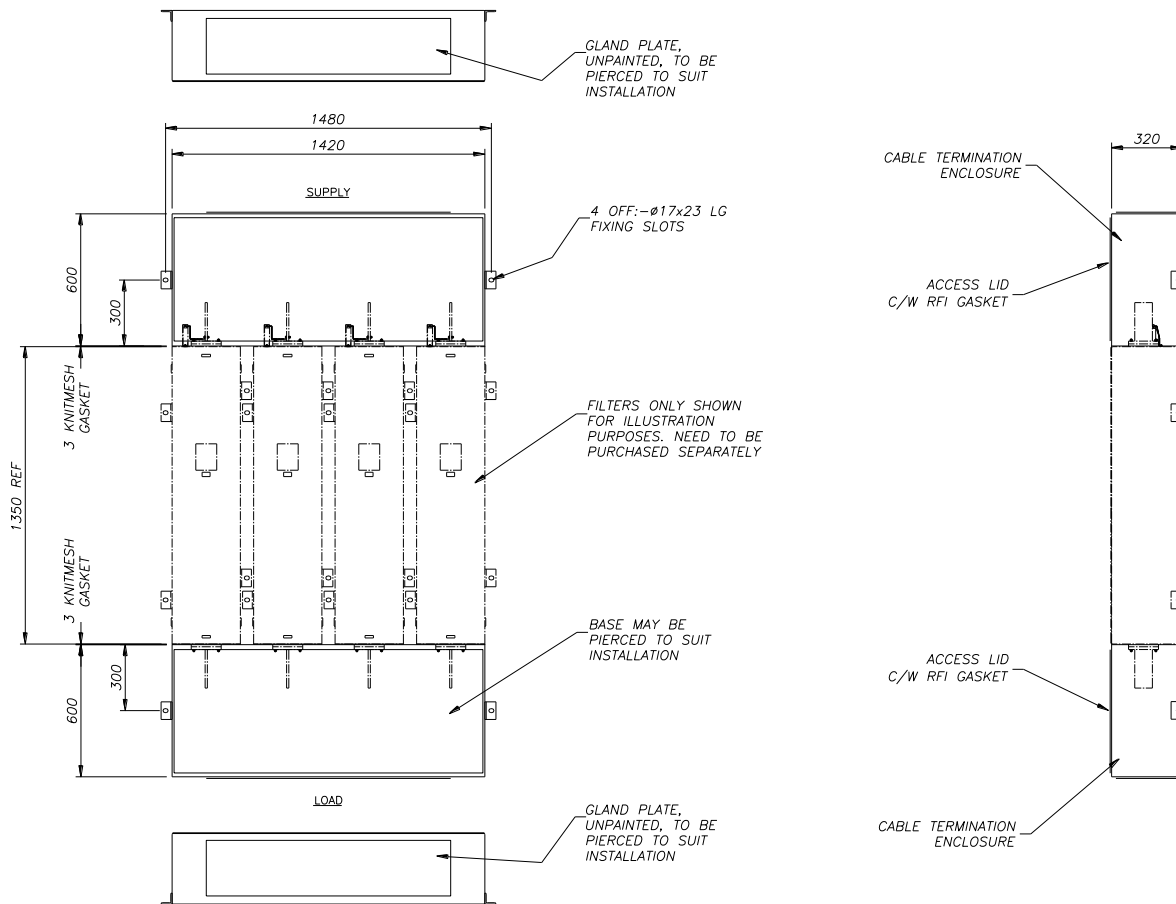
Note that to avoid eddy current heating in the shield and/or termination boxes, all four (or three) power cables in a three phase installation should be passed through a single cable entry hole and shield penetration hole as shown, rather than through separate holes for each phase.



A standard terminal compartment kit with removable gland plates for customisation by the customer is available from MPE is detailed below.



Standard Terminal Compartment Kit Details



The kit comprises two terminal compartment enclosures to interface to 4 filters, 4 knitmash gaskets (one is supplied with each filter so four more are needed for two enclosures), removable gland plates and access lids. Part number for the kit is 99/831141

Safety

Relevant safety standards have been adhered to in the design and manufacture of these filters. However, all capacitors will store charge after power has been removed and must be treated with respect as a shock can be lethal if the voltage and charge are high enough. Even though discharge resistors are fitted to these filters, terminals should always be shorted to earth prior to touching to ensure the capacitors are fully discharged.

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

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

Ordering Information

Single line 250V 1200A filter for use up to 250Vac 50/60Hz
 For three phase, three wire supply up to 250/440Vac 50/60Hz
 For three phase + N supply up to 250/440Vac 50/60Hz

Order 1 x DS33738
 Order 3 x DS33738
 Order 4 x DS33738

Single line 277V 1200A filter for use up to 277Vac 50/60Hz
 For three phase, three wire supply up to 277/480Vac 50/60Hz
 For three phase + N supply up to 277/480Vac 50/60Hz

Order 1 x DS33738/480
 Order 3 x DS33738/480
 Order 4 x DS33738/480

Additional / spare wire mesh interface gasket
 Terminal Compartment kit (2 terminal compartments for interfacing 4 filters)

Order part no. 99/829712
 Order part no. 99/831141