

Matrix™ Harmonic Filters

SERIES B

MTE Matrix Filters solve the problem of harmonic distortion on virtually any kind of six pulse rectifier. These power supplies are commonly found in three phase electronic equipment such as adjustable speed motor drives, uninterruptible power supplies (UPS), welders, battery chargers, servo drives and other equipment.

Harmonics are a problem

Harmonic distortion has become an increasing concern for facility managers, users of automation equipment and specifying engineers alike. Harmonics not only waste energy, but they reduce equipment life, electrical system reliability, system efficiency and equipment productivity.

Guaranteed results

Unlike other harmonic filter technologies, the performance of MTE Matrix Harmonic Filters is guaranteed! On AC variable frequency, variable torque drive applications (fans & pumps), Matrix filters will meet the guaranteed maximum levels of THID (total harmonic current distortion) all the way from no load to full load. Additionally, Matrix filters will not cause power system resonance nor attract harmonics from other non-linear loads. No system analysis is required to select and apply Matrix Filters.

Convert 6-pulse Drives to Multi-pulse Harmonic Performance

Matrix filters allow users to achieve attenuation of harmonics to levels below that previously attainable only by using 12-pulse or 18-pulse rectification methods. Use standard 6-pulse drives and our M5 Series Matrix Filters in place of 18-pulse rectifiers and use our M8 Series in lieu of 12-pulse rectifiers.

UL Listed (UL-508C)

Matrix Harmonic filters are UL Listed (File E180243) for both USA and Canada.



Meets international power quality standards such as:

IEEE-519, G5/4, AS2279, EN61000

Typical uses include:

- Mission critical facilities**
- AC variable frequency drives**
- DC adjustable speed drives**
- Uninterruptible power supplies**
- Electronic welders**
- Battery chargers**
- Fans and Pumps**
- Water Treatment Facilities**
- Induction heating equipment**
- Elevator drives**
- 3-phase power supplies**
- Any 6-pulse rectifier**

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The International Power Quality Resource!

Reasons for Matrix Filters

Why Are Matrix Harmonic Filters Necessary?

They Increase Reliability

Matrix Filters reduce the burden on electrical equipment by reducing TRUE RMS (trms) current, peak current and harmonic frequency distortion. The series impedance included in the matrix filter also absorbs transient over-voltages just like a line reactor, to prevent overvoltage trips and rectifier damage. Increased system reliability means higher productivity.

They Increase Equipment Life

Matrix Filters reduce the trms current that flows through equipment feeding non-linear loads. This reduces the amount of heat generated by upstream equipment (such as transformers, disconnects, fuses, circuit breakers and conductors), thus extending their life expectancy.

They Reduce System Harmonics

Matrix Filters can reduce adjustable speed

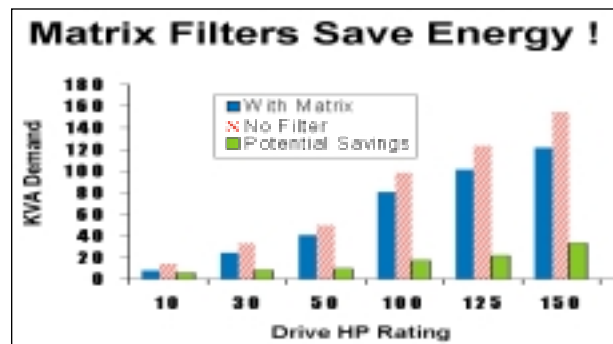
drive system harmonics to negligible levels.

They Reduce Current Waveform Distortion

Matrix Filters improve the input current waveforms of non-linear loads to nearly sinusoidal. This results in lower peak current and trms current demands while achieving a cleaner power supply.

They Save Energy!

By nearly eliminating the wasted energy associated with harmonics, Matrix Filters reduce the trms KVA demanded from a power source.



They Meet IEEE-519

Matrix Filters allow you to meet the voltage and current distortion limits of IEEE-519, EN61000, AS2279 and G5/4.

IEEE-519 Current Distortion Limits

Isc / IL	TDD (total demand distortion)
< 20	5%
20 < 50	8%
50 < 100	12%
100 < 1000	15%
> 1000	20%

where I_{sc} = short circuit current
 I_L = load current

IEEE-519 Voltage Distortion Limits

Special applications (hospitals, airports) 3%
General systems applications 5%
Dedicated systems (100% converter load) 10%

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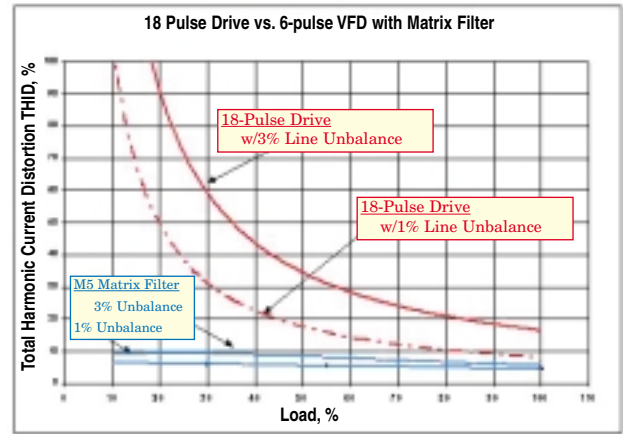
M5 Series (5% THID)

The M5 Series Matrix Filters typically achieve 5% THID at full load and guarantee worst case current distortion at any load between 0% and 100%, will be 8% THID or less at the filter input terminals. The M5 Series is typically used in applications requiring harmonic mitigation associated with 18-pulse rectifiers. The chart on the right compares the performance of Matrix Filters (M5 Series) to 18-pulse rectifiers in real world applications which include line voltage unbalance of 1% to 3% and loading conditions from 0% to 100%.

M5 Real World THID Comparison

1% & 3% Line Voltage Unbalance
0% to 100% Load conditions

Matrix vs. 18-pulse



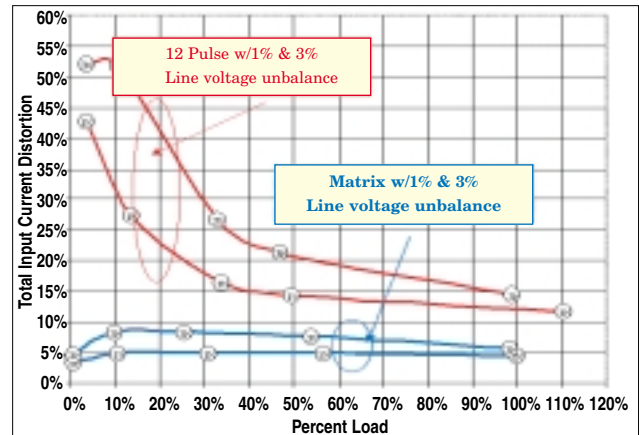
M8 Series (8% THID)

The M8 Series Matrix Filters typically achieve 8% THID at full load and guarantee worst case current distortion at any load between 0% and 100% will be 12% THID or less at the filter input terminals. The M8 Series is typically used in applications requiring harmonic mitigation associated with 12-pulse drives. The chart on the right compares the performance of Matrix Filters to 12-pulse rectifiers in real world applications which include line voltage unbalance of 1% to 3% and loading conditions from 0% to 100%.

M8 Real World THID Comparison

1% & 3% Line Voltage Unbalance
0% to 100% Load conditions

Matrix vs. 12-pulse



Performance Guarantee

Select and install the appropriate Matrix Harmonic Filter in a variable torque AC variable frequency drive application, within our published system limits and we guarantee that the input current distortion will be less than or equal to 8% THID (for M5 Series filters) or 12% THID (for M8 Series filters). This performance guarantee applies for loading conditions ranging from 0% to 100% load. If a properly sized and installed filter fails to meet its specified THID level, MTE will provide the necessary modifications or replacement filter at no charge. TDD will typically be even lower than THID.

Matrix filters can also provide similar performance in other drive applications such as constant torque, DC drives and other phase controlled rectifiers, but actual THID levels can vary by load and/or speed and therefore cannot be guaranteed. Consult factory for assistance when applying Matrix filters on these types of equipment.

MINIMUM SYSTEM REQUIREMENTS

The guaranteed performance levels of this filter will be achieved when the following system conditions are met:

Source impedance: 1.5% minimum to 6.0% max. **Frequency:** 60 Hz \pm 0.75 Hz **System voltage:** Nominal System Voltage (line to line) \pm 10% **Balanced line voltage:** within 1% **Background voltage distortion:** 0% THVD

The presence of background voltage distortion will cause motors and other linear loads to draw harmonic currents. Likewise, additional harmonic currents may flow into the Matrix filter if there is harmonic voltage distortion already on the system.

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Product Selection

Selecting Matrix™ Filters

Select Matrix Filters based on total maximum load (rms amperes) to be connected to the filter. Matrix filters can supply one or more loads up to their maximum load amps ratings.

M5 Series Selections (5% THID)

208-240V
60HZ

(Voltage & Frequency Code A)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M5P0006A	M5GB0006A	M5WB0006A	M5NB0006A
8	M5P0008A	M5GB0008A	M5WB0008A	M5NB0008A
11	M5P0011A	M5GB0011A	M5WB0011A	M5NB0011A
14	M5P0014A	M5GB0014A	M5WB0014A	M5NB0014A
21	M5P0021A	M5GC0021A	M5WC0021A	M5NB0021A
27	M5P0027A	M5GC0027A	M5WC0027A	M5ND0027A
34	M5P0034A	M5GC0034A	M5WC0034A	M5ND0034A
44	M5P0044A	M5GC0044A	M5WC0044A	M5ND0044A
52	M5P0052A	M5GC0052A	M5WC0052A	M5ND0052A
66	M5P0066A	M5GD0066A	M5WD0066A	M5ND0066A
83	M5P0083A	M5GD0083A	M5WD0083A	M5ND0083A
103	M5P0103A	M5GD0103A	M5WD0103A	M5ND0103A
128	M5P0128A	M5GD0128A	M5WD0128A	M5ND0128A
165	M5P0165A	M5GD0165A	M5WD0165A	M5NE0165A
208	M5P0208A	M5GD0208A	M5WD0208A	M5NE0208A
240	M5P0240A	M5GD0240A	M5WD0240A	M5NE0240A

380-415V
50HZ

(Voltage & Frequency Code C)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M5P0006C	M5GB0006C	M5WB0006C	M5NB0006C
8	M5P0008C	M5GB0008C	M5WB0008C	M5NB0008C
11	M5P0011C	M5GB0011C	M5WB0011C	M5NB0011C
14	M5P0014C	M5GB0014C	M5WB0014C	M5NB0014C
21	M5P0021C	M5GC0021C	M5WC0021C	M5NB0021C
27	M5P0027C	M5GC0027C	M5WC0027C	M5NC0027C
34	M5P0034C	M5GC0034C	M5WC0034C	M5NC0034C
44	M5P0044C	M5GC0044C	M5WC0044C	M5NC0044C
52	M5P0052C	M5GC0052C	M5WC0052C	M5ND0052C
66	M5P0066C	M5GD0066C	M5WD0066C	M5ND0066C
83	M5P0083C	M5GD0083C	M5WD0083C	M5ND0083C
103	M5P0103C	M5GD0103C	M5WD0103C	M5ND0103C
128	M5P0128C	M5GD0128C	M5WD0128C	M5ND0128C
165	M5P0165C	M5GD0165C	M5WD0165C	M5NE0165C
208	M5P0208C	M5GD0208C	M5WD0208C	M5NE0208C
240	M5P0240C	M5GD0240C	M5WD0240C	M5NE0240C
320	M5P0320C	M5GE0320C	M5WE0320C	M5NF0320C
403	M5P0403C	M5GE0403C	M5WE0403C	M5NF0403C
482	M5P0482C	M5GE0482C	M5WE0482C	M5NF0482C
636	M5P0636C	M5GF0636C	M5WF0636C	
786	M5P0786C	M5GF0786C	M5WF0786C	

480V 60HZ (Voltage & Frequency Code D)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M5P0006D	M5GB0006D	M5WB0006D	M5NB0006D
8	M5P0008D	M5GB0008D	M5WB0008D	M5NB0008D
11	M5P0011D	M5GB0011D	M5WB0011D	M5NB0011D
14	M5P0014D	M5GB0014D	M5WB0014D	M5NB0014D
21	M5P0021D	M5GC0021D	M5WC0021D	M5NB0021D
27	M5P0027D	M5GC0027D	M5WC0027D	M5NC0027D
34	M5P0034D	M5GC0034D	M5WC0034D	M5NC0034D
44	M5P0044D	M5GC0044D	M5WC0044D	M5NC0044D
52	M5P0052D	M5GC0052D	M5WC0052D	M5ND0052D
66	M5P0066D	M5GD0066D	M5WD0066D	M5ND0066D
83	M5P0083D	M5GD0083D	M5WD0083D	M5ND0083D
103	M5P0103D	M5GD0103D	M5WD0103D	M5ND0103D
128	M5P0128D	M5GD0128D	M5WD0128D	M5ND0128D
165	M5P0165D	M5GD0165D	M5WD0165D	M5NE0165D
208	M5P0208D	M5GD0208D	M5WD0208D	M5NE0208D
240	M5P0240D	M5GD0240D	M5WD0240D	M5NE0240D
320	M5P0320D	M5GE0320D	M5WE0320D	M5NF0320D
403	M5P0403D	M5GE0403D	M5WE0403D	M5NF0403D
482	M5P0482D	M5GE0482D	M5WE0482D	M5NF0482D
636	M5P0636D	M5GE0636D	M5WE0636D	
786	M5P0786D	M5GE0786D	M5WE0786D	

600V 60HZ (Voltage & Frequency Code E)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M5P0006E	M5GB0006E	M5WB0006E	M5NB0006E
8	M5P0008E	M5GB0008E	M5WB0008E	M5NB0008E
11	M5P0011E	M5GB0011E	M5WB0011E	M5NB0011E
14	M5P0014E	M5GB0014E	M5WB0014E	M5NB0014E
21	M5P0021E	M5GC0021E	M5WC0021E	M5NB0021E
27	M5P0027E	M5GC0027E	M5WC0027E	M5NC0027E
34	M5P0034E	M5GC0034E	M5WC0034E	M5NC0034E
44	M5P0044E	M5GC0044E	M5WC0044E	M5NC0044E
52	M5P0052E	M5GD0052E	M5WD0052E	M5ND0052E
66	M5P0066E	M5GD0066E	M5WD0066E	M5ND0066E
83	M5P0083E	M5GD0083E	M5WD0083E	M5ND0083E
103	M5P0103E	M5GD0103E	M5WD0103E	M5ND0103E
128	M5P0128E	M5GD0128E	M5WD0128E	M5ND0128E
165	M5P0165E	M5GD0165E	M5WD0165E	M5NE0165E
208	M5P0208E	M5GD0208E	M5WD0208E	M5NE0208E
240	M5P0240E	M5GD0240E	M5WD0240E	M5NE0240E
320	M5P0320E	M5GE0320E	M5WE0320E	M5NF0320E
403	M5P0403E	M5GE0403E	M5WE0403E	M5NF0403E
482	M5P0482E	M5GE0482E	M5WE0482E	M5NF0482E
636	M5P0636E	M5GE0636E	M5WE0636E	
786	M5P0786E	M5GF0786E	M5WF0786E	

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LISTED
IND. CONTROL. EQ.
34HL

Product Selection

M8 Series Selection (8% THID)

208-240V
60HZ (Voltage & Frequency Code A)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M8P0006A	M8GB0006A	M8WB0006A	M8NB0006A
8	M8P0008A	M8GB0008A	M8WB0008A	M8NB0008A
11	M8P0011A	M8GB0011A	M8WB0011A	M8NB0011A
14	M8P0014A	M8GB0014A	M8WB0014A	M8NB0014A
21	M8P0021A	M8GC0021A	M8WC0021A	M8NB0021A
27	M8P0027A	M8GC0027A	M8WC0027A	M8ND0027A
34	M8P0034A	M8GC0034A	M8WC0034A	M8ND0034A
44	M8P0044A	M8GC0044A	M8WC0044A	M8ND0044A
52	M8P0052A	M8GC0052A	M8WC0052A	M8ND0052A
66	M8P0066A	M8GD0066A	M8WD0066A	M8ND0066A
83	M8P0083A	M8GD0083A	M8WD0083A	M8ND0083A
103	M8P0103A	M8GD0103A	M8WD0103A	M8ND0103A
128	M8P0128A	M8GD0128A	M8WD0128A	M8ND0128A
165	M8P0165A	M8GD0165A	M8WD0165A	M8NE0165A
208	M8P0208A	M8GD0208A	M8WD0208A	M8NE0208A
240	M8P0240A	M8GD0240A	M8WD0240A	M8NE0240A

480V 60HZ (Voltage & Frequency Code D)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M8P0006D	M8GB0006D	M8WB0006D	M8NB0006D
8	M8P0008D	M8GB0008D	M8WB0008D	M8NB0008D
11	M8P0011D	M8GB0011D	M8WB0011D	M8NB0011D
14	M8P0014D	M8GB0014D	M8WB0014D	M8NB0014D
21	M8P0021D	M8GC0021D	M8WC0021D	M8NB0021D
27	M8P0027D	M8GC0027D	M8WC0027D	M8NC0027D
34	M8P0034D	M8GC0034D	M8WC0034D	M8NC0034D
44	M8P0044D	M8GC0044D	M8WC0044D	M8NC0044D
52	M8P0052D	M8GC0052D	M8WC0052D	M8ND0052D
66	M8P0066D	M8GD0066D	M8WD0066D	M8ND0066D
83	M8P0083D	M8GD0083D	M8WD0083D	M8ND0083D
103	M8P0103D	M8GD0103D	M8WD0103D	M8ND0103D
128	M8P0128D	M8GD0128D	M8WD0128D	M8ND0128D
165	M8P0165D	M8GD0165D	M8WD0165D	M8NE0165D
208	M8P0208D	M8GD0208D	M8WD0208D	M8NE0208D
240	M8P0240D	M8GD0240D	M8WD0240D	M8NE0240D
320	M8P0320D	M8GE0320D	M8WE0320D	M8NF0320D
403	M8P0403D	M8GE0403D	M8WE0403D	M8NF0403D
482	M8P0482D	M8GE0482D	M8WE0482D	M8NF0482D
636	M8P0636D	M8GE0636D	M8WE0636D	
786	M8P0786D	M8GE0786D	M8WE0786D	

Enclosure Options

Matrix Harmonic Filters are available in a variety of enclosure options. The standard enclosure meets the requirements of both Nema 1 & Nema 2, while another option meets Nema 3R. For maximum flexibility, Matrix filters are also offered as open panel construction for integration into customer panels and enclosures.

380-415V
50HZ (Voltage & Frequency Code C)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M8P0006C	M8GB0006C	M8WB0006C	M8NB0006C
8	M8P0008C	M8GB0008C	M8WB0008C	M8NB0008C
11	M8P0011C	M8GB0011C	M8WB0011C	M8NB0011C
14	M8P0014C	M8GB0014C	M8WB0014C	M8NB0014C
21	M8P0021C	M8GC0021C	M8WC0021C	M8NB0021C
27	M8P0027C	M8GC0027C	M8WC0027C	M8NC0027C
34	M8P0034C	M8GC0034C	M8WC0034C	M8NC0034C
44	M8P0044C	M8GC0044C	M8WC0044C	M8NC0044C
52	M8P0052C	M8GC0052C	M8WC0052C	M8ND0052C
66	M8P0066C	M8GD0066C	M8WD0066C	M8ND0066C
83	M8P0083C	M8GD0083C	M8WD0083C	M8ND0083C
103	M8P0103C	M8GD0103C	M8WD0103C	M8ND0103C
128	M8P0128C	M8GD0128C	M8WD0128C	M8ND0128C
165	M8P0165C	M8GD0165C	M8WD0165C	M8NE0165C
208	M8P0208C	M8GD0208C	M8WD0208C	M8NE0208C
240	M8P0240C	M8GD0240C	M8WD0240C	M8NE0240C
320	M8P0320C	M8GE0320C	M8WE0320C	M8NF0320C
403	M8P0403C	M8GE0403C	M8WE0403C	M8NF0403C
482	M8P0482C	M8GE0482C	M8WE0482C	M8NF0482C
636	M8P0636C	M8GF0636C	M8WF0636C	
786	M8P0786C	M8GF0786C	M8WF0786C	

600V 60HZ (Voltage & Frequency Code E)

MAXIMUM LOAD AMPS	OPEN PANEL	GENERAL PURPOSE ENCLOSURE STYLE		INDUSTRIAL GRADE ENCLOSURE
		NEMA 1 & NEMA 2 Drip proof	NEMA 3R Weather resistant	NEMA 1 Hinged door
6	M8P0006E	M8GB0006E	M8WB0006E	M8NB0006E
8	M8P0008E	M8GB0008E	M8WB0008E	M8NB0008E
11	M8P0011E	M8GB0011E	M8WB0011E	M8NB0011E
14	M8P0014E	M8GB0014E	M8WB0014E	M8NB0014E
21	M8P0021E	M8GC0021E	M8WC0021E	M8NB0021E
27	M8P0027E	M8GC0027E	M8WC0027E	M8NC0027E
34	M8P0034E	M8GC0034E	M8WC0034E	M8NC0034E
44	M8P0044E	M8GC0044E	M8WC0044E	M8NC0044E
52	M8P0052E	M8GD0052E	M8WD0052E	M8ND0052E
66	M8P0066E	M8GD0066E	M8WD0066E	M8ND0066E
83	M8P0083E	M8GD0083E	M8WD0083E	M8ND0083E
103	M8P0103E	M8GD0103E	M8WD0103E	M8ND0103E
128	M8P0128E	M8GD0128E	M8WD0128E	M8ND0128E
165	M8P0165E	M8GD0165E	M8WD0165E	M8NE0165E
208	M8P0208E	M8GD0208E	M8WD0208E	M8NE0208E
240	M8P0240E	M8GD0240E	M8WD0240E	M8NE0240E
320	M8P0320E	M8GE0320E	M8WE0320E	M8NF0320E
403	M8P0403E	M8GE0403E	M8WE0403E	M8NF0403E
482	M8P0482E	M8GE0482E	M8WE0482E	M8NF0482E
636	M8P0636E	M8GE0636E	M8WE0636E	
786	M8P0786E	M8GF0786E	M8WF0786E	

Suitable for any 6-pulse rectifier

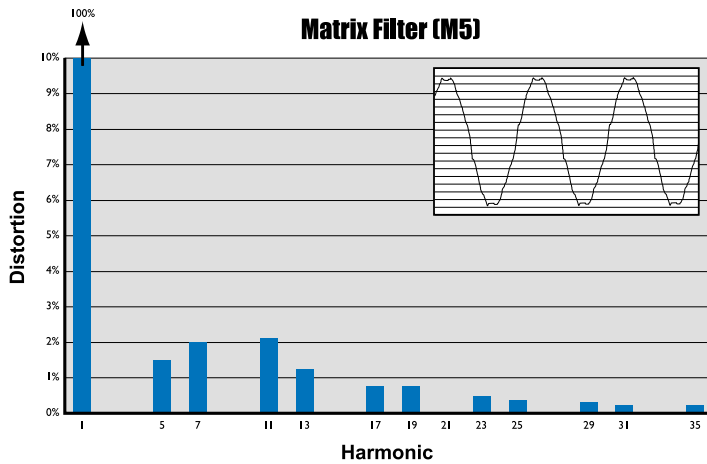
Matrix filters are compatible with either diode or SCR type rectifiers and can be used with or without internal impedance such as line reactors or dc bus chokes

Matrix Filters Outperform Alternatives

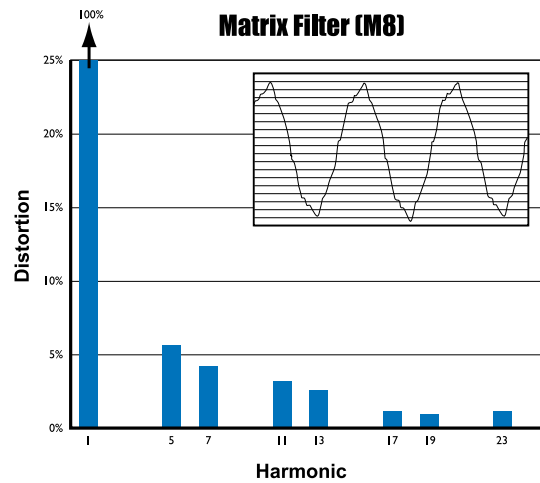
Matrix Harmonic Filters can meet or exceed the harmonic mitigation performance of other common filtration methods. Unlike alternative solutions, Matrix Filters come with a performance guarantee. Compare the difference in waveform and harmonic spectrum for real life tests performed at full load conditions.

MTE Matrix Filter Performance

M5 Matrix Filters

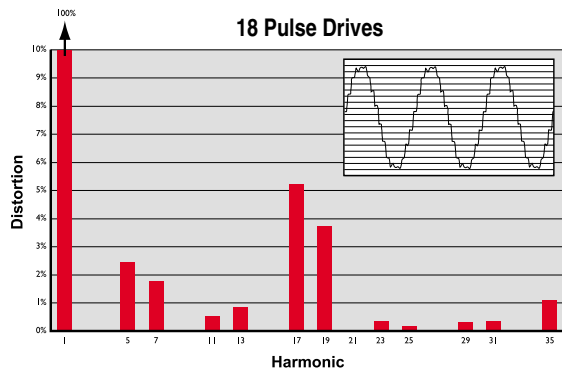
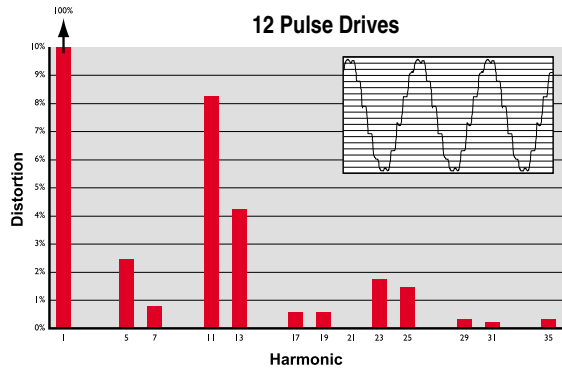
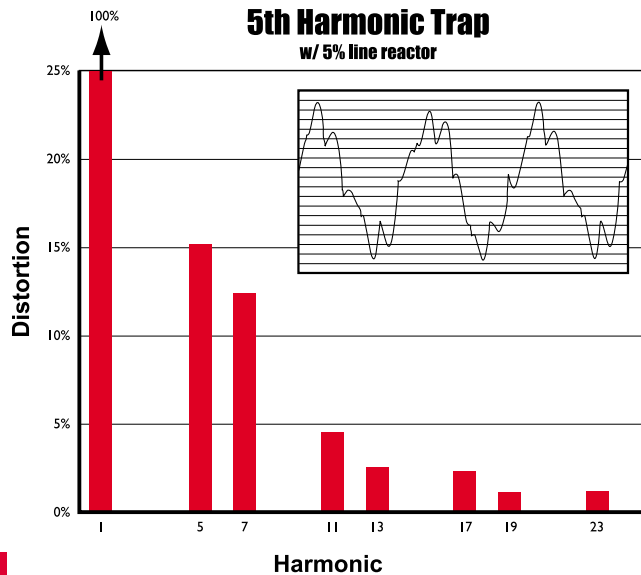


M8 Matrix Filters



Performance of Alternative Methods

Matrix Filters attenuate harmonics better than these alternative filtering techniques. (Based on actual tests at full load)



MODEL CODE AND DIMENSIONS

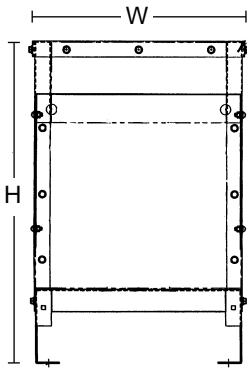
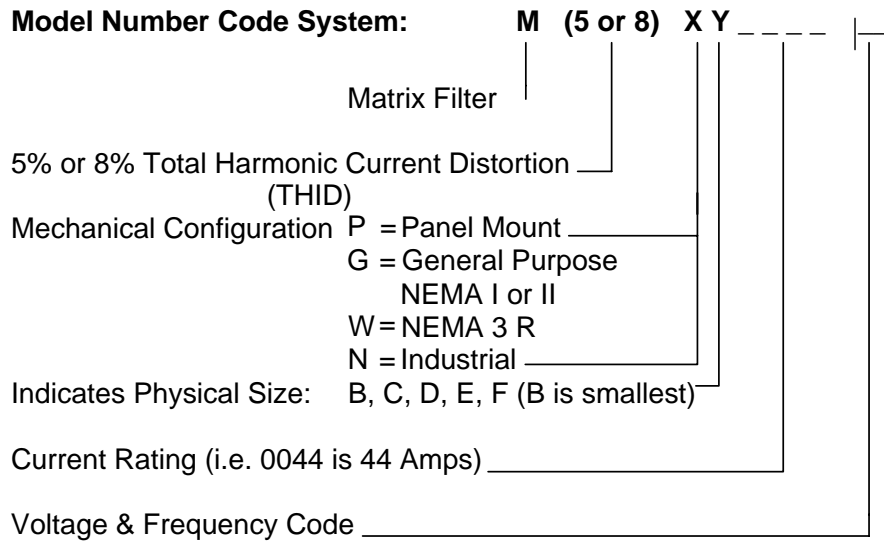


Fig. 1

GENERAL PURPOSE ENCLOSURE
NEMA 1,2,& 3R

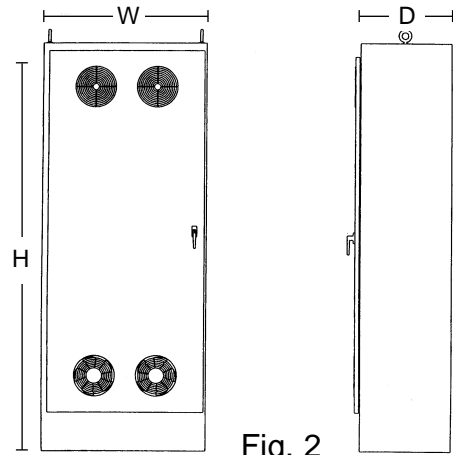
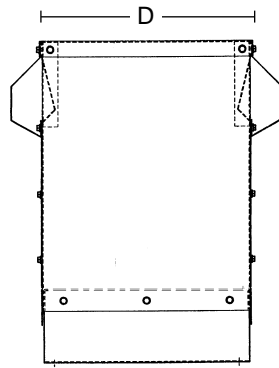


Fig. 2

INDUSTRIAL ENCLOSURE
ILLUSTRATION ONLY

* Enclosure Dimensions

Enclosure Indicator	Width	Height	Depth
GB	17.5	24	18
GC	20.5	31	21
GD	30.5	47	25
GE	42.5	72	25
GF	48.5	72	30
WB	17.5	24	23
WC	20.5	31	26
WD	30.5	47	30
WE	42.5	72	34
WF	48.5	72	40
NB	17	22.5	12
NC	21	22.5	14
ND	31	38.5	18
NE	37	50.5	18
NF	36	90	23

*Note: Dimensions May Change Without Notice

FOR CERTIFIED DIMENSION DRAWINGS CONSULT FACTORY

Consult Website
For other dimensional information

*** Filter Panel Dimensions (208-240V 60Hz)**

Amp Rating	Magnetics Panel	Capacitor Ass'y
6 - 21	9W x 17H x 8.25D	N/A
27	13W x 17H x 8.25D	6.5W x 12H x 11.65D
34 - 66	13W x 17H x 9.75 D	6.5W x 12H x 11.65D
83 - 128	17W x 17H x 10.5D	6.5W x 15H x 11.65D
165	21W x 21H x 11D	(2pc) 6.5W x 12H x 11.65D
208-240	21W x 21H x 11D	(1pc) 6.5W x 15H x 11.65D (2pc) 6.5W x 12H x 11.65D

*** Filter Panel Dimensions (480V 60Hz)**

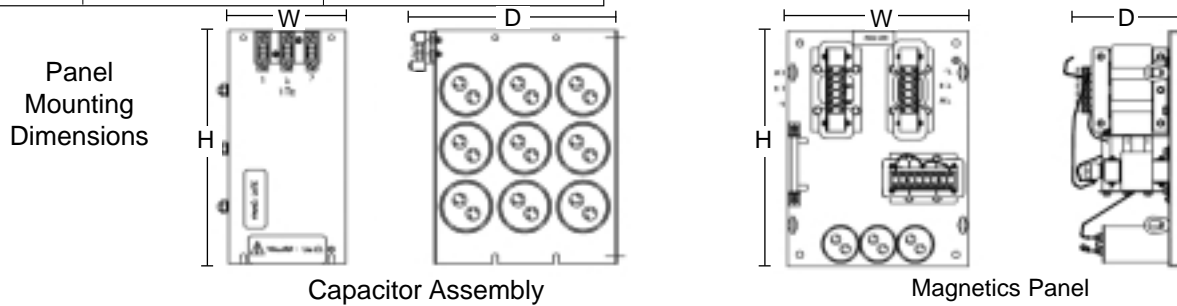
Amp Rating	Magnetics Panel	Capacitor Ass'y
6 - 21	9W x 17H x 8.25D	N/A
27	13W x 17H x 8.25D	N/A
34 - 44	13W x 20H x 10.5 D	N /A
52 - 66	13W x 17H x 9.75D	6.5W x 12H x 11.65D
83 - 128	17W x 17H x 10.5D	6.5W x 12H x 11.65D
165	21W x 21H x 11D	6.5W x 12H x 11.65D
208 - 240	21W x 21H x 11D	(2pcs) 6.5W x 12H x 11.65D
320 - 482	24W x 38H x 16D	24W x 38H x 16D

*** Filter Panel Dimensions (380-415V 50Hz)**

Amp Rating	Magnetics Panel	Capacitor Ass'y
6 - 21	9W x 17H x 8.25D	N/A
27	13W x 17H x 8.25D	N/A
34 - 66	13W x 17H x 9.75 D	6.5W x 12H x 11.65D
83 - 128	17W x 17H x 10.5D	6.5W x 15H x 11.65D
165	21W x 21H x 11D	(2pc) 6.5W x 12H x 11.65D
208	21W x 21H x 11D	(2pc) 6.5W x 12H x 11.65D
240	21W x 21H x 11D	(1pc) 6.5W x 15H x 11.65D
320 - 482	24W x 38H x 16D	24W x 38H x 16D

*** Filter Panel Dimensions (600V 60Hz)**

Amp Rating	Magnetics Panel	Capacitor Ass'y
6 - 21	9W x 17H x 8.25D	N/A
27	13W x 17H x 8.25D	N/A
34 - 44	13W x 20H x 10.5 D	N /A
52 - 66	13W x 17H x 9.75D	6.5W x 12H x 11.65D
83 - 128	17W x 17H x 10.5D	6.5W x 12H x 11.65D
165	21W x 21H x 11D	6.5W x 12H x 11.65D
208 - 240	21W x 21H x 11D	6.5W x 15H x 11.65D
320 - 482	24W x 38H x 16D	24W x 38H x 16D



*Note: Dimensions May Change Without Notice

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User Manual.