mtecorp.com

Harmonic Filters
Matrix® AP
Product Selector

The key to success: adapt.

Simply put, our Matrix® AP is the most advanced passive filter on the market today. Most traditional filters work fine at 100% power load, but severely underperform at lower loads. Matrix AP is different, because we know almost no one runs at full load all the time. Its patented Adaptive Passive Technology virtually eliminates harmonic distortion by adapting to varying power loads. It delivers better THID performance, increases energy efficiency, and allows you to meet IEEE-519 requirements. Its unique design generates less heat, and is easy to install and maintain. Plus it is generator compatible. With Matrix AP Harmonic Filters, power quality, energy efficiency and reduced downtime are easy to achieve.

Matrix® AP harmonic Filters can help ensure that your system meets the IEEE-519 requirements for harmonic current.

MTE
AN SL INDUSTRIES COMPANY

Power quality.
Solved.

Improve power quality and reduce downtime with our patented Adaptive Passive Technology.

The best-in-class Matrix® AP Harmonic Filters can be specified for use on the input of your VFD or other 6-pulse rectifier power supply to enable your system to meet the IEEE-519 requirements for harmonic distortion, regardless of power load.

Features our patented Adaptive Passive Technology for superior harmonic mitigation and better THID performance over a wider load range.

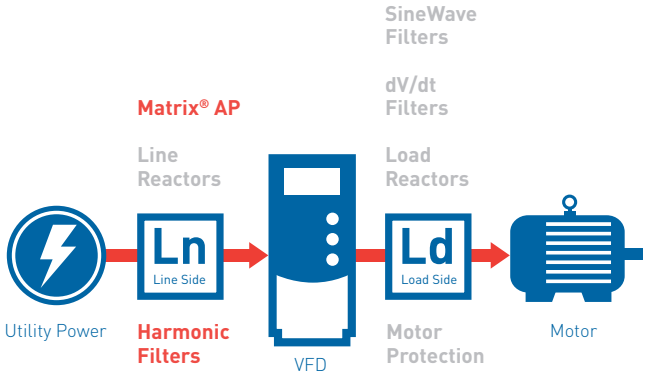
Reduces energy costs by improving system efficiency and reliability.

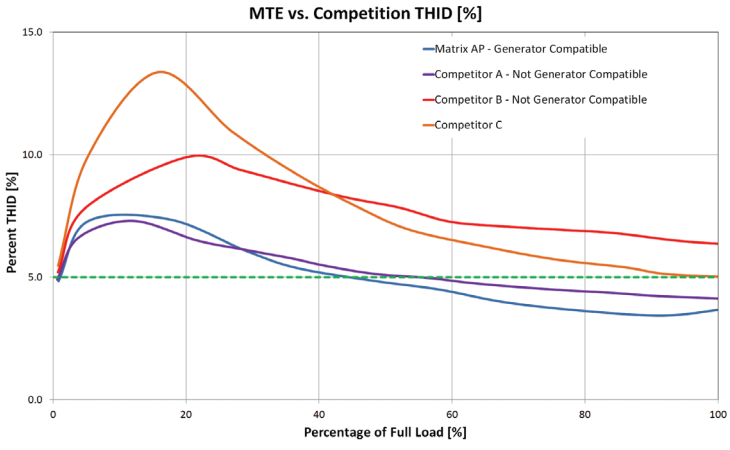
Extends service life of electrical equipment, especially transformers and motors, due to the virtual elimination of CEMF and the skin effect.

Alleviates system downtime by preventing blown fuses and tripped circuit breakers.

Performance Specifications:

Input Voltages	**480V 60Hz** **380V/400V/415V 50Hz** **600V 60Hz** **690V 50Hz**
Total Harmonic Current Distortion	**8% Max at 30% Load** **5% Max at Full Load**
Load	**6 pulse rectifier**
Input Voltage	**Nominal voltage VAC +/- 10%, 3 Phase**
Frequency	**Nominal Frequency +0.75 Hz**
Insertion loss at full load	**<4%**
Efficiency	**97% - 99%**
Operating Temperature	**-40C to +50C Open Panel Filters** **-40C to +40C-45C Enclosed Filters** **-40C to +90C Storage**
Altitude Without Derating	**3,300 feet**

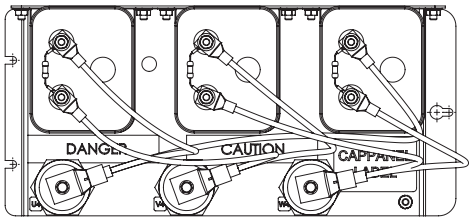


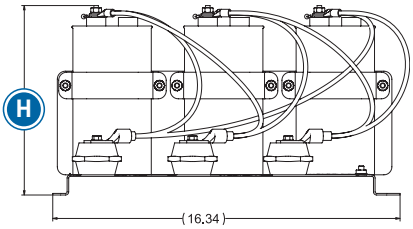


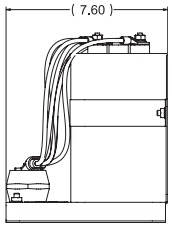
Matrix AP Harmonic Filters can help ensure that your system meets the IEEE-519 requirements for harmonic current.

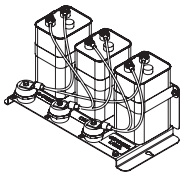
CAPACITOR PANEL

FIGURE 1









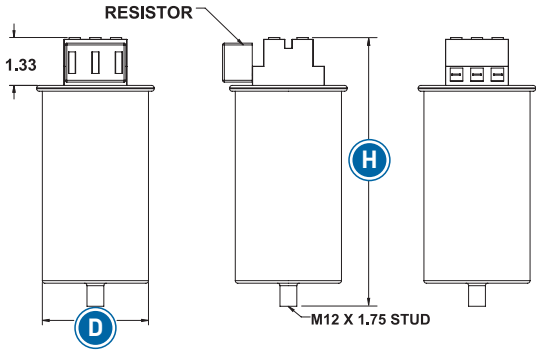
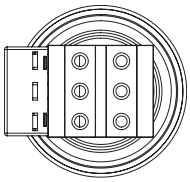
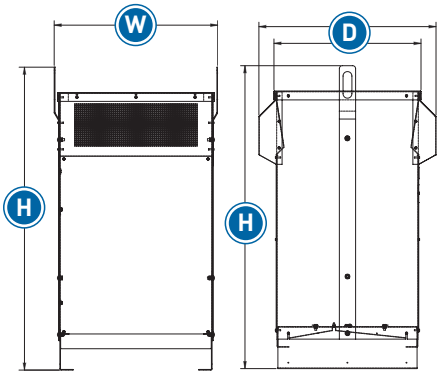


FIGURE 2

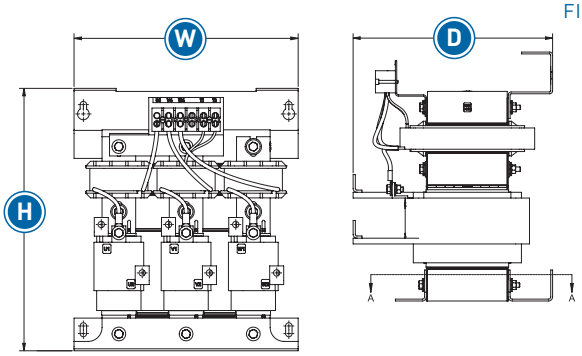


ENCLOSURES



OPEN MAGNETICS

FIGURE 3



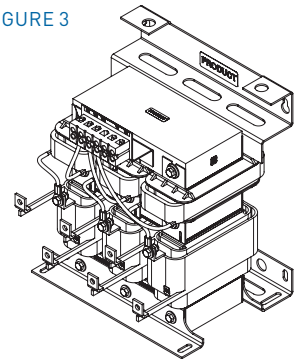
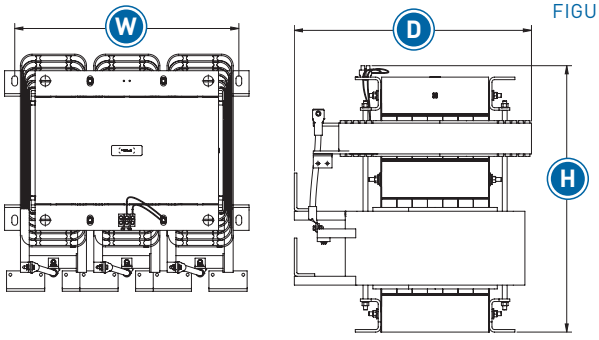


FIGURE 4



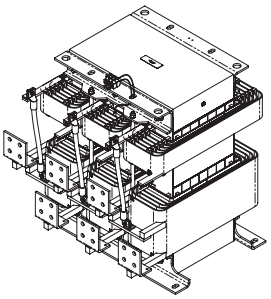
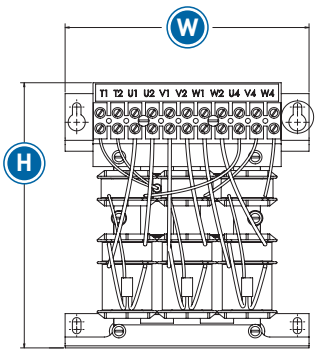
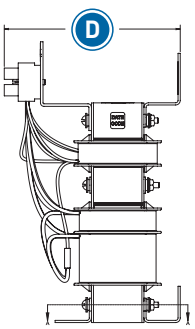
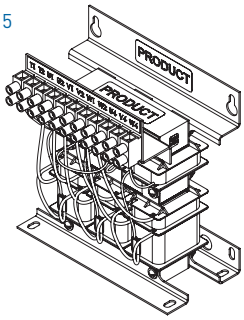


FIGURE 5







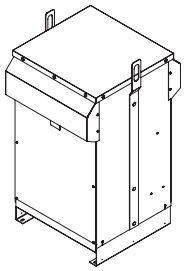


FIGURE 6

NOTE: HOODS ONLY ON NEMA 3R ENCLOSURES

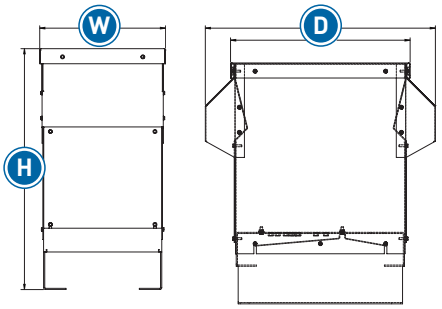
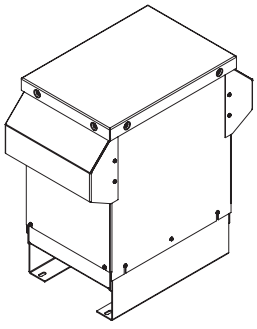


FIGURE 7



NOTE: HOODS ONLY ON NEMA 3R ENCLOSURES

Selection Tables:

The Matrix AP is available in Open Panel, NEMA 1/2 and NEMA 3R

Note: MAPxxxxxC is 400V, 50Hz and MAPxxxxxD is 480V, 60Hz.

Ln
Line Side

Amps Rating	Open Panel						Capacitor/Capacitor Assemblies Size (included) (in.) (H X W X D)	Capacitor Ref. Figure
	Catalog PN.		Weight (lbs.)	Open Magnetics (in.) (H X W X D)	Ref. Fig.	Watts Loss		
6	MAPP0006C	MAPP0006D	16	8.7 X 8 X 5.5	5	122	7.5 X 2.9	2
8	MAPP0008C	MAPP0008D	17	8.7 X 8 X 5.5	5	158	7.5 X 2.9	2
11	MAPP0011C	MAPP0011D	26	9.9 X 9 X 4.8	5	192	7.5 X 2.9	2
14	MAPP0014C	MAPP00 14D	30	9.8 X 9 X 5.25	5	220	7.5 X 2.9	2
21	MAPP0021C	MAPP0021D	47	11.7 X 10.5 X 6.6	5	251	7.5 X 3.9	2
27	MAPP0027C	MAPP0027D	52	11.7 X 10.5 X 7	5	283	7.5 X 3.9	2
34	MAPP0034C	MAPP0034D	62	11.7 X 10.5 X 7.6	5	318	7.5 X 3.9	2
44	MAPP0044C	MAPP0044D	74	11.7 X 10.5 X 8	5	379	7.5 X 4.6	2
52	MAPP0052C	MAPP0052D	94	14 X 12 X 9	3	413	9.2 X 4.6	2
66	MAPP0066C	MAPP0066D	107	14 X 12 X 9	3	488	9.2 X 4.6	2
83	MAPP0083C	MAPP0083D	135	14 X 12 X 10.9	3	600	9.2 X 4.6	2
103	MAPP0103C	MAPP0103D	145	14 X 12 X 10.82	3	702	9.2 X 4.6	2
128	MAPP0128C	MAPP0128D	165	20 X 15.25 X 10.7	3	1,035	6.9 X 16.3 X 7.6	1
165	MAPP0165C	MAPP0165D	223	20 X 15.25 X 11.75	3	1,096	6.9 X 16.3 X 7.6	1
208	MAPP0208C	MAPP0208D	237	20 X 15.25 X 11.85	3	1,343	7.9 X 16.3 X 7.6	1
240	MAPP0240C	MAPP0240D	327	20 X 15.25 X 12.75	3	1,514	7.9 X 16.3 X 7.6	1
320	MAPP0320C	MAPP0320D	390	20 X 15.25 X 14.8	3	1,543	8.9 X 16.3 X 7.6	1
403	MAPP0403C	MAPP0403D	433	23.25 X 15.25 X 13.86	3	1,932	10.7 X 16.3 X 7.6	1
482	MAPP0482C	MAPP0482D	483	23.25 X 15.25 X 14.77	3	2,137	7.9 X 16.3 X7.6 (2)	1
636	MAPP0636C	MAPP0636D	736	26 X 24 X 16.5	4	2,509	8.9 X 16.3 X 7.6 (2)	1
786	MAPP0786C	MAPP0786D	911	26 X 24 X 17.8	4	2,771	10.7 X 16.3 X 7.6 (2)	1
850	MAPP0850C	MAPP0850D	983	26 X 24 X 20.3	4	3,163	8.9 X 16.3 X 7.6 (2) 7.9 X 16.3 X 7.6	1
1000	MAPP1000C	MAPP1000 D	1137	26 X 24 X 21.7	4	4,206	8.9 X 16.3 X 7.6 (2) 10.7 X 16.3 X 7.6	1
1200	MAPP1200C	MAPP1200D	1297	26 X 24 X 22.2	4	4,400	10.7 X 16.3 X 7.6 (3)	1
1600	-	MAPP1600D	1970	34.7 X 36 X 29.2	4	4,500	10.7 X 16.3 X 7.6 (4)	1
2000	-	MAPP2000D	2347	35 X 36 X 30.95	4	5,050	10.7 X 16.3 X 7.6 (5)	1
2300	-	MAPP2300D	2541	34.5 X 36 X 32.25	4	6,100	10.7 X 16.3 X 7.6 (6)	1

Note: Information is for reference only. Consult www.mtecorp.com for detailed information.

Ln
Line Side

Amps Rating	NEMA 1/2					NEMA 3R				
	Catalog PN.	Wt. (lbs.)	Enclosure	Ref. Fig.	Size (in.) (H X W X D)	Catalog PN.	Wt. (lbs.)	Enclosure	Ref. Fig.	Size (in.) (H X W X D)
6	**MAPG0006C MAPG0006D**	64	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0006C MAPW0006D**	72	CAB-12AP3	7	24 X 12.5 X 22.9
8	**MAPG0008C MAPG0008D**	65	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0008C MAPW0008D**	73	CAB-12AP3	7	24 X 12.5 X 22.9
11	**MAPG0011C MAPG0011D**	74	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0011C MAPW0011D**	82	CAB-12AP3	7	24 X 12.5 X 22.9
14	**MAPG0014C MAPG0014D**	79	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0014C MAPW0014D**	87	CAB-12AP3	7	24 X 12.5 X 22.9
21	**MAPG0021C MAPG0021D**	97	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0021C MAPW0021D**	105	CAB-12AP3	7	24 X 12.5 X 22.9
27	**MAPG0027C MAPG0027D**	101	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0027C MAPW0027D**	109	CAB-12AP3	7	24 X 12.5 X 22.9
34	**MAPG0034C MAPG0034D**	112	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0034C MAPW0034D**	120	CAB-12AP3	7	24 X 12.5 X 22.9
44	**MAPG0044C MAPG0044D**	125	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0044C MAPW0044D**	133	CAB-12AP3	7	24 X 12.5 X 22.9
52	**MAPG0052C MAPG0052D**	172	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0052C MAPW0052D**	179	CAB-17AP3	6	34 X 17.8 X 26
66	**MAPG0066C MAPG0066D**	185	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0066C MAPW0066D**	192	CAB-17AP3	6	34 X 17.8 X 26
83	**MAPG0083C MAPG0083D**	209	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0083C MAPW0083D**	217	CAB-17AP2	6	34 X 17.8 X 26
103	**MAPG0103C MAPG0130D**	313	CAB-17AP2	6	34 X 17.8 X21	**MAPW0103C MAPW0103D**	321	CAB-17AP3	6	34 X 17.8 X 26
128	**MAPG0128C MAPG0128D**	333	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0128C MAPW0128D**	347	CAB-26AP3	6	51.3 X 27.7 X 30
165	**MAPG0165C MAPG0165D**	392	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0135C MAPW0135D**	406	CAB-26AP3	6	51.3 X 27.7 X 30
208	**MAPG0208C MAPG0208D**	405	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0208C MAPW0208D**	419	CAB-26AP3	6	51.3 X 27.7 X 30
240	**MAPG0240C MAPG0240D**	489	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0240C MAPW0240D**	503	CAB-26AP3	6	51.3 X 27.7 X 30
320	**MAPG0320C MAPG0320D**	630	CAB-26APD2	6	76 X 27.7 X 22	**MAPW0320C MAPW0320D**	656	CAB-26APD3	6	76. X 27.7 X 34
403	**MAPG0403C MAPG0403D**	673	CAB-26APD2	6	76 X 27.7 X 22	**MAPW0403C MAPW0403D**	700	CAB-26APD3	6	76 X 27.7 X 34
482	**MAPG0482C MAPG0482D**	702	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0482C MAPW0482D**	710	CAB-42AP3	6	87.6 X 43.7 X 40.1
636	**MAPG0636C MAPG0636D**	1077	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0636C MAPW0636D**	1084	CAB-42AP3	6	87.6 X 43.7 X 40.1
786	**MAPG0786C MAPG0786D**	1252	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0786C MAPW0786D**	1260	CAB-42AP3	6	87.6 X 43.7 X 40.1
850	**MAPG0850C MAPG0850D**	1386	CAB-48AP2	6	84 X 49.2 X 36.5	**MAPW0850C MAPW0850D**	1393	CAB-48AP3	6	84 X 49.2 X 45.5
1000	**MAPG1000C MAPG1000D**	1640	CAB-48AP2	6	84 X 49.2 X 36.5	**MAPW1000C MAPW1000D**	1647	CAB-48AP3	6	84 X 49.2 X 45.5
1200	**MAPG1200C MAPG1200D**	1700	CAB-48AP2	6	84 X 49.2 X 36.5	**MAPW1200C MAPW1200D**	1707	CAB-48AP3	6	84 X 49.2 X 45.5

Note: Information is for reference only. Consult www.mtecorp.com for detailed information.

Selection Tables:

The Matrix AP is available in Open Panel, NEMA 1/2 and NEMA 3R

Note: MAPxxxxxE is 600V, 60Hz.

Ln
Line Side

Amps Rating	Open Panel					Capacitor/Capacitor Assemblies Size (included) (in.) (H X W X D)	Capacitor Ref. Figure
	Catalog PN.	Weight (lbs.)	Open Magnetics (in.) (H X W X D)	Ref. Fig.	Watts Loss		
6	**MAPP0006E**	17	8.7 X 8 X 5.5	5	150	7.5 X 2.9	2
8	**MAPP0008E**	26	9.8 X 9 X 4.8	5	183	7.5 X 2.9	2
11	**MAPP0011E**	30	9.8 X 9 X 5.3	5	205	7.5 X 2.9	2
14	**MAPP0014E**	47	11.7 X 10.5 X 6.6	5	250	7.5 X 2.9	2
21	**MAPP0021E**	52	11.7 X 10.5 X 7.1	5	285	7.5 X 3.9	2
27	**MAPP0027E**	62	11.7 X 10.5 X 7.6	5	304	7.5 X 3.9	2
34	**MAPP0034E**	74	11.7 X 10.5 X 8.1	5	366	7.5 X 4.6	2
44	**MAPP0044E**	94	14 X 12 X 9.89	3	395	9.14 X 4.6	2
52	**MAPP0052E**	107	14 X 12 X 10.3	3	494	9.2 X 4.6	2
66	**MAPP0066E**	135	14 X 12 X 11	3	655	10.6 X 4.6	2
83	**MAPP0083E**	140	14.1 X 12 X 11	3	718	10.6 X 4.6	2
103	**MAPP0103E**	165	20 X 15.3 X 10.7	3	1085	6.9 X 16.3 X 7.6	1
128	**MAPP0128E**	223	20 X 15.3 X 11.7	3	1090	6.9 X 16.3 X 7.6	1
165	**MAPP0165E**	237	20.1 X 15.3 X 11.9	3	1285	6.9 X 16.3 X 7.6	1
208	**MAPP0208E**	327	20.1 X 15.3 X 13.4	3	1431	7.9 X 16.3 X7.6	1
240	**MAPP0240E**	433	20 X 15.3 X 16.1	3	1624	8.9 X 16.3 X 7.6	1
320	**MAPP0320E**	477	23.3 X 15.3 X 15.7	3	2021	10.7 X 16.3 X 7.6	1
403	**MAPP0403E**	483	23.3 X 15.3 X 16.1	3	2208	11.5 X 16.3 X 7.6	1
482	**MAPP0482E**	736	25.8 X 24 X 16.7	4	2481	(2) 8.9 X 16.3 X 7.6	1
636	**MAPP0636E**	911	25.9 X 24 X 18.2	4	2884	(2) 10.7 X 16.3 X 7.6	1
786	**MAPP0786E**	1137	25 X 24 X 19.5	4	3368	(2) 11.5 X 16.3 X 7.6	1

The Matrix AP is also available in 690V, 50Hz (part number MAPxxxxxF).
Please consult MTE's website, www.mtecorp.com, for details.

Note: Information is for reference only. Consult www.mtecorp.com for detailed information.

Ln
Line Side

Amps Rating	NEMA 1/2					NEMA 3R				
	Catalog PN.	Wt. (lbs.)	Enclosure	Ref. Fig.	Size (in.) (H X W X D)	Catalog PN.	Wt. (lbs.)	Enclosure	Ref. Fig.	Size (in.) (H X W X D)
6	**MAPG0006E**	65	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0006E**	73	CAB-12AP3	7	24 X 12.5 X 22.9
8	**MAPG0008E**	74	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0008E**	82	CAB-12AP3	7	24 X 12.5 X 22.9
11	**MAPG0011E**	79	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0011E**	87	CAB-12AP3	7	24 X 12.5 X 22.9
14	**MAPG0014E**	97	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0014E**	105	CAB-12AP3	7	24 X 12.5 X 22.9
21	**MAPG0021E**	101	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0021E**	109	CAB-12AP3	7	24 X 12.5 X 22.9
27	**MAPG0027E**	112	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0027E**	120	CAB-12AP3	7	24 X 12.5 X 22.9
34	**MAPG0034E**	125	CAB-12AP2	7	24 X 12.5 X 17.9	**MAPW0034E**	133	CAB-12AP3	7	24 X 12.5 X 22.9
44	**MAPG0044E**	172	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0044E**	179	CAB-17AP3	6	34 X 17.8 X 26
52	**MAPG0052E**	185	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0052E**	192	CAB-17AP3	6	34 X 17.8 X 26
66	**MAPG0066E**	209	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0066E**	217	CAB-17AP3	6	34 X 17.8 X 26
83	**MAPG0083E**	313	CAB-17AP2	6	34 X 17.8 X 21	**MAPW0083E**	338	CAB-17AP3	6	34 X 17.8 X 26
103	**MAPG0103E**	333	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0103E**	358	CAB-26AP3	6	51.3 X 27.7 X 30
128	**MAPG0128E**	392	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0128E**	417	CAB-26AP3	6	51.3 X 27.7 X 30
165	**MAPG0165E**	405	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0165E**	430	CAB-26AP3	6	51.3 X 27.7 X 30
208	**MAPG0208E**	489	CAB-26AP2	6	51.3 X 27.7 X 24.9	**MAPW0208E**	514	CAB-26AP3	6	51.3 X 27.7 X 30
240	**MAPG0240E**	630	CAB-26APD2	6	76 X 27.7 X 22	**MAPW0240E**	656	CAB-26APD3	6	76 X 27.7 X 34
320	**MAPG0320E**	673	CAB-26APD2	6	76 X 27.7 X 22	**MAPW0320E**	700	CAB-26APD3	6	76 X 27.7 X 34
403	**MAPG0403E**	702	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0403E**	710	CAB-42AP3	6	87.6 X 43.7 X 40.1
482	**MAPG0482E**	1077	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0482E**	1085	CAB-42AP3	6	87.6 X 43.7 X 40.1
636	**MAPG0636E**	1252	CAB-42AP2	6	87.6 X 43.7 X 31	**MAPW0636E**	1260	CAB-42AP3	6	87.6 X 43.7 X 40.1
786	**MAPG0786E**	1640	CAB-48AP2	6	84 X 49.2 X 36.5	**MAPW0786E**	1647	CAB-48AP3	6	84 X 49.2 X 45.5

Note: Information is for reference only. Consult www.mtecorp.com for detailed information.

PERFORMANCE GUARANTY

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 5% THID for Matrix AP filters at full load, and less than 8% at 30% 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.

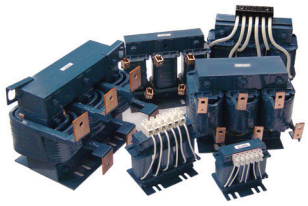
Matrix filters can also provide similar performance in other drive applications such as constant torque, DC drives and other phase controlled rectifiers, but actual THID levels can vary by load and/or speed and therefore cannot be guaranteed. Consult factory for assistance when applying Matrix filters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

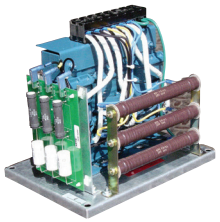
Frequency:	Nominal Frequency ± 0.75Hz
System Voltage:	Nominal System Voltage (line to line) ±10%
Balanced Line Voltage:	Within 1%
Background Voltage Distortion:	0% THVD

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



Ln Line Side Ld Load Side

RL and RLW line/load Reactors help keep your equipment running longer by absorbing many of the power line disturbances which otherwise damage or shut down your inverters, variable speed controllers, or other sensitive equipment.

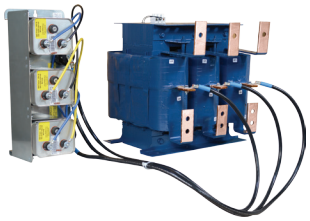


Ld Load Side

dV/dt Filters reduce peak voltages and high frequency content of your VFD output to provide a better level of motor protection.

Ln Line Side

Matrix® AP harmonic Filters can help ensure that your system meets the IEEE-519 requirements for harmonic current.



Ld Load Side

SineWave Filters transform the output of your VFD to a near perfect sinusoidal waveform for the best level of motor protection.

MTE AN SL INDUSTRIES COMPANY

Power quality. Solved.

MTE Corporation
N83 W13330 Leon Road • Menomonee Falls, WI 53051
(800) 455-4MTE • (262) 253-8200 • **mtecorp.com**

Final product specifications subject to change.

Form MAP-PSL-E 07/14
Supersedes MAP-PSL-E 02/14

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