

SineWave Guardian™

Product Selector



- **Increases motor life**
- **Easy to integrate, install and service**
- **Operates in high ambient temperatures**
- **High performance and reliability**
- **Three-year warranty**

For motor protection, there is nothing better.

Motor protection and power quality don't have to be a mystery. MTE makes it easy. Case in point: our SineWave Guardian™ Filter. This best-in-class filter delivers unequalled performance in cleaning the PWM waveforms generated by Variable Frequency Drives (VFDs). It virtually eliminates high frequency content and voltage peaks, thereby reducing motor heating to give you extended motor life – and less downtime. The SineWave Guardian also offers incredible reliability and durability. It is more efficient and tolerates higher ambient temperatures, making it ideal for a variety of applications from steel mills to oil fields. Its modular design and smaller footprint make it easier to integrate and install. It all adds up to the best SineWave Filter, and the best value on the market today.

Improve efficiency, improve motor life, and improve your bottom line with our new SineWave Guardian™.

SineWave Guardian™ Filters transform the output of Variable Frequency Drives (VFDs) to a near perfect sinusoidal waveform for the best level of motor protection. MTE's unique, patent-pending design offers high performance with smaller size and better efficiency than traditional LC Filters.

Increase motor life: Reduce motor heating through reduction of high frequencies associated with VFD output and also reduce motor insulation stress through reduction of motor peak voltages.

Reduce motor audible noise: Reduce audible noise through reducing high frequencies associated with VFD output.

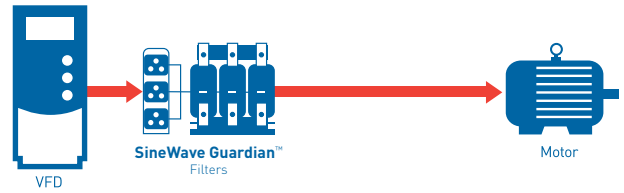
Reduce radiated emissions: Reduce emissions through reducing high frequencies associated with VFD output.

Protect your motor cable: The reduction of high frequencies associated with VFD output eliminates the need for special motor cables.

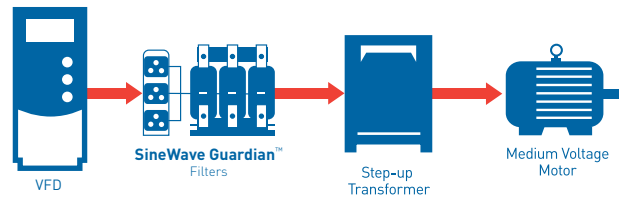
SineWave Guardian™



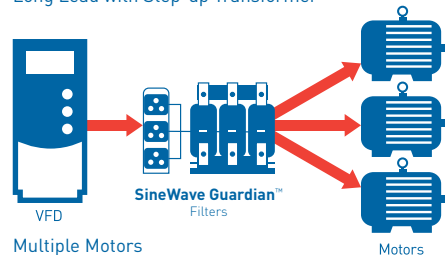
Application Configurations:



Extreme Long Lead to Motor

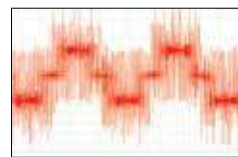


Long Lead with Step-up Transformer

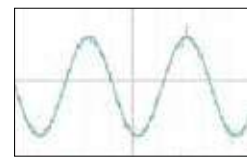


Multiple Motors

SineWave Guardian Performance:



Without SineWave Guardian



With SineWave Guardian

The SineWave Guardian is a SineWave Filter which protects motors from damage by "cleaning" the sine wave waveform that is generated by the Variable Frequency Drive.

Performance Specifications

Service Load Condition	Conventional 3 phase motors operating in volts per hertz mode, standard step-up transformer optional
Input Voltage	380V - 480V +/- 10%
Harmonic Voltage Distortion	5% maximum @ 2kHz
Inverter Switching Frequency	2kHz to 8kHz
Inverter Operating Frequency	6Hz to 75Hz; >75Hz to 120Hz with derating
Maximum Ambient Temperature	-40C to +60C modular filter -40C to +55C enclosed filter -40C to +90C storage
Insertion Loss (Voltage)	6% maximum @ 60Hz
Efficiency	>98%
Altitude Without Derating	3,300 feet above sea level
Maximum Motor Lead Length	15,000 feet
Relative Humidity	0% to 95% non-condensing
Current Rating	100% RMS continuous; 150% for 1 minute intermittent

Final product specifications subject to change at anytime.

How to properly size your filter

- Determine voltage and frequency requirements
- Reference motor nameplate to determine motor HP or KW and Full Load Amps
- Verify motor meets inverter duty standards per NEMA MG1 Section 31
- Select filter based on Motor Full Load Amps
 - Do not exceed filter's maximum current rating (amps)
- Specify enclosure style
 - Open (No enclosure)
 - NEMA 1/2 (General Purpose Enclosure)
 - NEMA 3R (Outdoor Enclosure)
- Determine derating requirements
 - Reference Performance Specifications table on previous page as well as derating tables listed below:
 - Table 1: Drive Output Frequency Derating
 - Table 2: Altitude Derating Curve

Derating Curves:

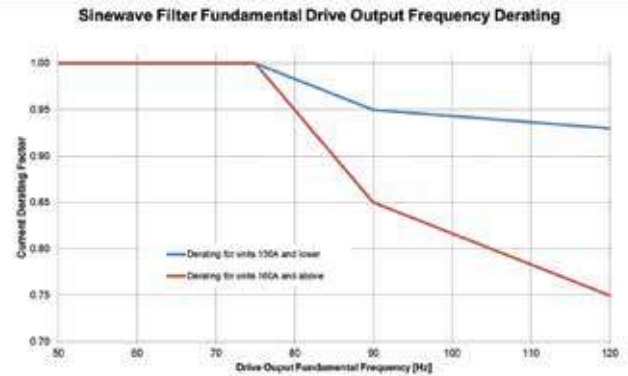


Table 1: Drive Output Frequency Derating

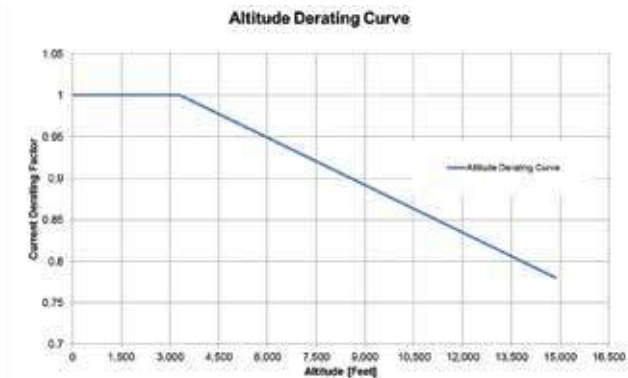
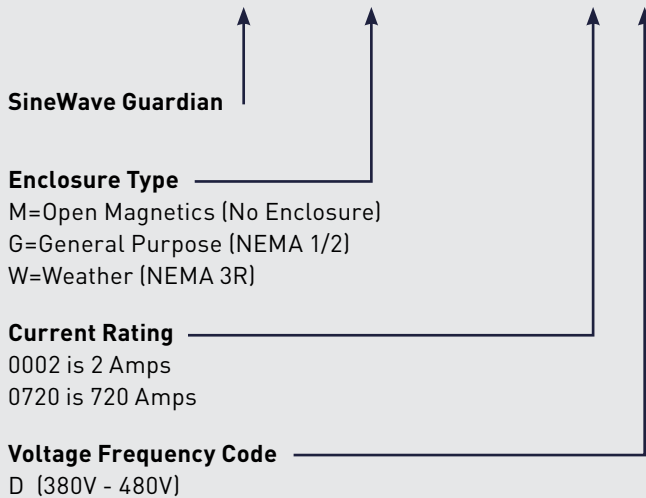


Table 2: Altitude Derating Curve

Understanding the SineWave Guardian Part Number:

SWG X _ _ _ X



SINEWAVE GUARDIAN™ SELECTION TABLES

380 - 480V 75Hz														
Motor (Ref Only)		Filter Amps Rating	MTE Part Number	Enclosure Type	Filter Dimensions (H x W x D)		Approx Weight		Ref Fig	Watts Loss	Capacitor/Capacitor Panel Assembly Dimensions (H x W x D)		Qty Req'd	Ref Fig
380V KW	480V HP				Inches	Millimeters	Lbs	Kgs			Inches	Millimeters		
0.55	0.75	2	SWG0002D	OPEN	4.9 x 4.4 x 2.6	124 x 112 x 66	5	2	7	25	7.5 x 3.0	191 x 76	1	1
			SWG0002D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	19	9	3		Preinstalled in cabinet			
			SWG0002D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	62	28	5		Preinstalled in cabinet			
0.75	15.5	3	SWG0003D	OPEN	4.9 x 4.4 x 3.3	124 x 112 x 84	7	3	7	45	7.5 x 3.0	191 x 76	1	1
			SWG0003D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	21	10	3		Preinstalled in cabinet			
			SWG0003D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	64	29	5		Preinstalled in cabinet			
2.2	3	5	SWG0005D	OPEN	6.6 x 8.0 x 4.8	168 x 203 x 122	11	5	7	75	7.5 x 3.0	191 x 76	1	1
			SWG0005D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	25	11	3		Preinstalled in cabinet			
			SWG0005D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	68	31	5		Preinstalled in cabinet			
3	4	7	SWG0007D	OPEN	6.7 x 8.0 x 5.1	170 x 203 x 130	13	6	7	91	7.5 x 3.0	191 x 76	1	1
			SWG0007D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	27	12	3		Preinstalled in cabinet			
			SWG0007D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	61	28	5		Preinstalled in cabinet			
4	5.5	9	SWG0009D	OPEN	6.7 x 8.0 x 5.1	170 x 203 x 130	14	6	7	97	7.5 x 3.0	191 x 76	1	1
			SWG0009D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	28	13	3		Preinstalled in cabinet			
			SWG0009D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	54	24	5		Preinstalled in cabinet			
5.5	7.5	12	SWG0012D	OPEN	6.7 x 8.0 x 5.4	170 x 203 x 137	15	7	7	127	7.5 x 3.0	191 x 76	1	1
			SWG0012D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	29	13	3		Preinstalled in cabinet			
			SWG0012D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	70	32	5		Preinstalled in cabinet			
7.5	10	17	SWG0017D	OPEN	7.5 x 9.0 x 4.8	191 x 229 x 122	20	9	7	130	7.5 x 3.0	191 x 76	1	1
			SWG0017D	NEMA 1/2	13.2 x 13.0 x 13.1	335 x 330 x 333	34	15	3		Preinstalled in cabinet			
			SWG0017D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	76	34	5		Preinstalled in cabinet			
11	15	22	SWG0022D	OPEN	8.7 x 10.5 x 6.7	221 x 267 x 170	32	15	7	135	7.5 x 3.0	191 x 76	1	1
			SWG0022D	NEMA 1/2	24.0 x 17.0 x 18.5	610 x 432 x 470	79	36	4		Preinstalled in cabinet			
			SWG0022D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	87	39	5		Preinstalled in cabinet			
-	20	27	SWG0027D	OPEN	8.7 x 10.5 x 6.7	221 x 267 x 170	35	16	8	140	7.5 x 3.0	191 x 76	1	1
			SWG0027D	NEMA 1/2	24.0 x 17.0 x 18.5	610 x 432 x 470	82	37	4		Preinstalled in cabinet			
			SWG0027D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	90	41	5		Preinstalled in cabinet			
18.5	25	35	SWG0035D	OPEN	8.9 x 10.5 x 0.0	226 x 267 x 0	39	18	8	210	7.5 x 3.9	191 x 99	1	1
			SWG0035D	NEMA 1/2	24.0 x 17.0 x 18.5	610 x 432 x 470	87	39	4		Preinstalled in cabinet			
			SWG0035D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	94	43	5		Preinstalled in cabinet			
22	30	45	SWG0045D	OPEN	8.8 x 10.5 x 7.2	224 x 267 x 183	40	18	8	225	7.5 x 3.9	191 x 99	1	1
			SWG0045D	NEMA 1/2	24.0 x 17.0 x 18.5	610 x 432 x 470	90	41	4		Preinstalled in cabinet			
			SWG0045D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	98	44	5		Preinstalled in cabinet			
-	40	55	SWG0055D	OPEN	8.8 x 10.5 x 0.0	224 x 267 x 0	54	24	9	301	8.0 x 3.9	203 x 99	1	1
			SWG0055D	NEMA 1/2	24.0 x 17.0 x 18.5	610 x 432 x 470	101	46	4		Preinstalled in cabinet			
			SWG0055D	NEMA 3R	24.0 x 12.5 x 22.9	610 x 318 x 582	109	49	5		Preinstalled in cabinet			
30	50	65	SWG0065D	OPEN	10.7 x 12.0 x 8.6	272 x 305 x 218	59	27	9	310	8.0 x 3.9	203 x 99	1	1
			SWG0065D	NEMA 1/2	33.9 x 17.8 x 20.9	861 x 452 x 531	136	62	6		Preinstalled in cabinet			
			SWG0065D	NEMA 3R	33.9 x 17.8 x 26.0	861 x 452 x 660	143	65			Preinstalled in cabinet			
37	60	80	SWG0080D	OPEN	10.8 x 12.0 x 9.0	274 x 305 x 229	73	33	9	387	8.3 x 4.6	211 x 117	1	1
			SWG0080D	NEMA 1/2	33.9 x 17.8 x 20.9	861 x 452 x 531	148	67	6		Preinstalled in cabinet			
			SWG0080D	NEMA 3R	33.9 x 17.8 x 26.0	861 x 452 x 660	154	70			Preinstalled in cabinet			
55	75	110	SWG0110D	OPEN	10.7 x 12.0 x 10.5	272 x 305 x 267	105	48	9	395	8.3 x 4.6	211 x 117	1	1
			SWG0110D	NEMA 1/2	33.9 x 17.8 x 20.9	861 x 452 x 531	180	82	6		Preinstalled in cabinet			
			SWG0110D	NEMA 3R	33.9 x 17.8 x 26.0	861 x 452 x 660	187	85			Preinstalled in cabinet			

Note: Weights and dimensions are for reference only. Please visit mtecorp.com for detail information.

380 - 480V 75Hz

Motor (Ref Only)		Filter Amps Rating	MTE Part Number	Enclosure Type	Filter Dimensions (H x W x D)		Approx Weight		Ref Fig	Watts Loss	Capacitor/Capacitor Panel Assembly Dimensions (H x W x D)		Qty Req'd	Ref Fig
380V KW	480V HP				Inches	Millimeters	Lbs	Kgs			Inches	Millimeters		
-	100	130	SWG0130D	OPEN	10.7 x 12.0 x 11.5	272 x 305 x 292	108	49	10	720	8.3 x 4.6	211 x 117	1	1
			SWG0130D	NEMA 1/2	33.9 x 17.8 x 20.9	861 x 452 x 531	182	83	6		Preinstalled in cabinet			
			SWG0130D	NEMA 3R	33.9 x 17.8 x 26.0	861 x 452 x 660	189	86	Preinstalled in cabinet					
75	125	160	SWG0160D	OPEN	14.5 x 15.3 x 11.3	368 x 389 x 287	160	73	10	595	6.7 x 16.4 x 7.6	170 x 417 x 193	1	2
			SWG0160D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	327	148	6		Preinstalled in cabinet			
			SWG0160D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	340	154	Preinstalled in cabinet					
110	150	200	SWG0200D	OPEN	14.5 x 15.3 x 14.8	368 x 389 x 376	166	75	10	650	6.7 x 16.4 x 7.6	170 x 417 x 193	1	2
			SWG0200D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	336	152	6		Preinstalled in cabinet			
			SWG0200D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	349	158	Preinstalled in cabinet					
132	200	250	SWG0250D	OPEN	14.5 x 15.3 x 13.8	368 x 389 x 351	220	100	10	775	6.9 x 16.4 x 7.6	175 x 417 x 193	1	2
			SWG0250D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	381	173	6		Preinstalled in cabinet			
			SWG0250D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	395	179	Preinstalled in cabinet					
160	250	305	SWG0305D	OPEN	14.6 x 15.3 x 14.8	371 x 389 x 376	260	118	11	945	7.4 x 16.4 x 7.6	188 x 417 x 193	1	2
			SWG0305D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	430	195	6		Preinstalled in cabinet			
			SWG0305D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	443	201	Preinstalled in cabinet					
200	300	365	SWG0365D	OPEN	14.6 x 15.3 x 15.2	371 x 389 x 386	310	141	11	1,050	8.3 x 16.4 x 7.6	211 x 417 x 193	1	2
			SWG0365D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	480	218	6		Preinstalled in cabinet			
			SWG0365D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	493	224	Preinstalled in cabinet					
220	350	415	SWG0415D	OPEN	14.6 x 15.3 x 15.2	371 x 389 x 386	326	148	11	1,137	8.3 x 16.4 x 7.6	211 x 417 x 193	1	2
			SWG0415D	NEMA 1/2	51.3 x 27.7 x 24.9	1303 x 704 x 632	496	225	6		Preinstalled in cabinet			
			SWG0415D	NEMA 3R	51.3 x 27.7 x 30.0	1303 x 704 x 762	509	231	Preinstalled in cabinet					
280	450	515	SWG0515D	OPEN	15.0 x 15.3 x 16.2	381 x 389 x 411	355	161	12	1,235	9.9 x 16.4 x 7.6	251 x 417 x 193	1	2
			SWG0515D	NEMA 1/2	87.6 x 43.7 x 31.1	2225 x 1110 x 790	764	347	6		Preinstalled in cabinet			
			SWG0515D	NEMA 3R	87.6 x 43.7 x 40.1	2225 x 1110 x 1019	800	363	Preinstalled in cabinet					
335	500	600	SWG0600D	OPEN	18.3 x 24.0 x 14.6	465 x 610 x 371	483	219	12	2,225	9.9 x 16.4 x 7.6	251 x 417 x 193	1	2
			SWG0600D	NEMA 1/2	87.6 x 43.7 x 31.1	2225 x 1110 x 790	896	406	6		Preinstalled in cabinet			
			SWG0600D	NEMA 3R	87.6 x 43.7 x 40.1	2225 x 1110 x 1019	932	423	Preinstalled in cabinet					
375	600	720	SWG0720D	OPEN	18.2 x 24.0 x 17.5	462 x 610 x 445	711	323	12	2,300	8.3 x 16.4 x 7.6	211 x 417 x 193	1	2
			SWG0720D	NEMA 1/2	87.6 x 43.7 x 31.1	2225 x 1110 x 790	1,127	511	6		9.9 x 16.4 x 7.6	251 x 417 x 193	1	
			SWG0720D	NEMA 3R	87.6 x 43.7 x 40.1	2225 x 1110 x 1019	1,164	528	Preinstalled in cabinet					
450	700	850	SWG0850D	OPEN	18.2 x 24.0 x 19.0	462 x 610 x 483	835	379	12	2,556	7.7 x 16.4 x 7.6	196 x 417 x 193	1	2
			SWG0850D	NEMA 1/2	84.0 x 52.0 x 36.5	2134 x 1321 x 927	1,473	668	6		9.9 x 16.4 x 7.6	251 x 417 x 193	2	
			SWG0850D	NEMA 3R	84.0 x 52.0 x 45.5	2134 x 1321 x 1156	1,514	687	Preinstalled in cabinet					
560	850	1000	SWG1000D	OPEN	18.1 x 24.0 x 20.6	460 x 610 x 523	942	427	12	2,850	7.4 x 16.4 x 7.6	188 x 417 x 193		2
			SWG1000D	NEMA 1/2	84.0 x 52.0 x 36.5	2134 x 1321 x 927	1,580	717	6		9.9 x 16.4 x 7.6	251 x 417 x 193	1	
			SWG1000D	NEMA 3R	84.0 x 52.0 x 45.5	2134 x 1321 x 1156	1,621	735	Preinstalled in cabinet					
675	1000	1200	SWG1200D	OPEN	25.7 x 24.0 x 20.3	653 x 610 x 516	1,272	577	13	3,000	9.9 x 16.4 x 7.6	251 x 416.6 x 193	1	2
			SWG1200D	NEMA 1/2	84.0 x 52.0 x 36.5	2134 x 1321 x 927	1,921	871	6		Preinstalled in cabinet			
			SWG1200D	NEMA 3R	84.0 x 52.0 x 45.5	2134 x 1321 x 1156	1,962	890	Preinstalled in cabinet					
800	1200	1500	SWG1500D	OPEN	25.9 x 24.0 x 20.0	658 x 610 x 508	1,296	588	13	3,210	9.9 x 16.4 x 7.6	251 x 417 x 193	1	2
			SWG1500D	NEMA 1/2	84.0 x 52.0 x 36.5	2134 x 1321 x 927	1,945	882	6		Preinstalled in cabinet			
			SWG1500D	NEMA 3R	84.0 x 52.0 x 45.5	2134 x 1321 x 1156	1,986	901	Preinstalled in cabinet					

Note: Weights and dimensions are for reference only. Please visit mtecorp.com for detail information.

SINEWAVE GUARDIAN™ SELECTION TABLES

3-PHASE CAPACITOR

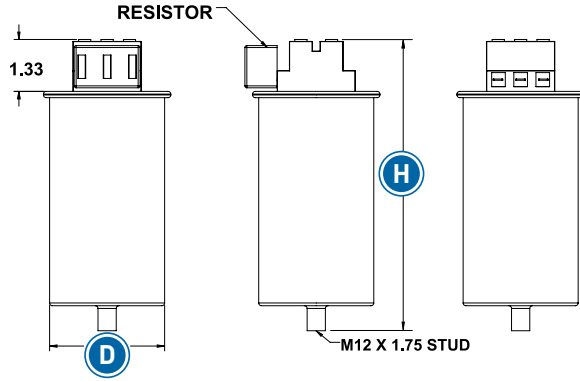
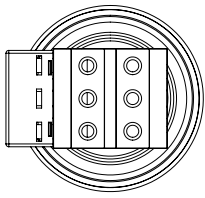
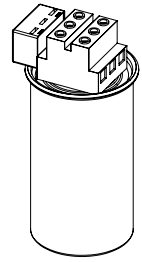


FIGURE 1



CAPACITOR PANEL

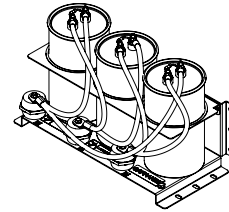
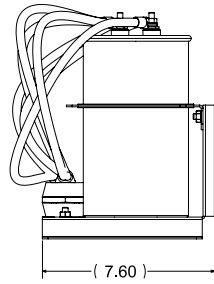
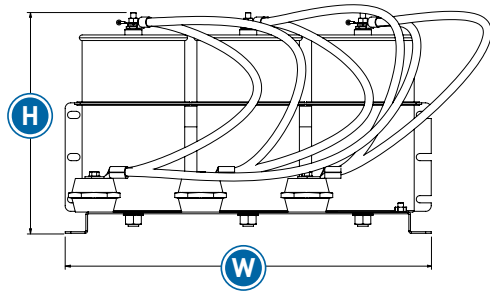


FIGURE 2

ENCLOSURES

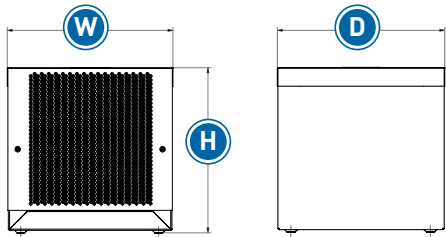


FIGURE 3

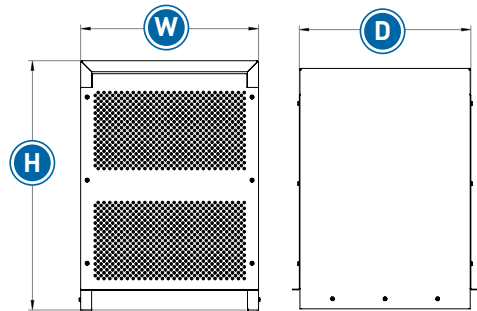
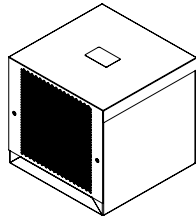
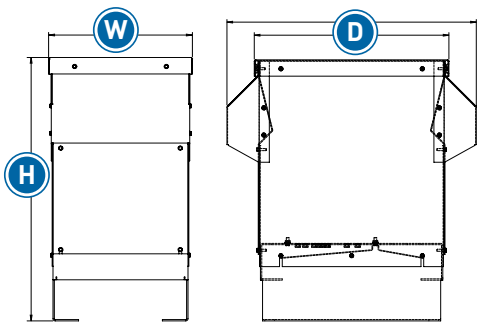
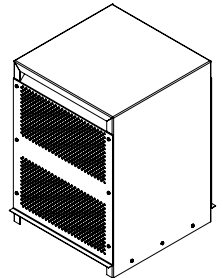
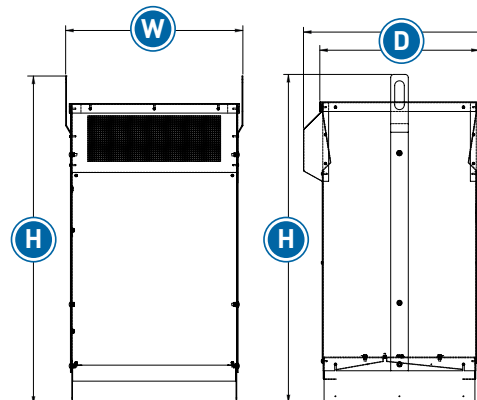
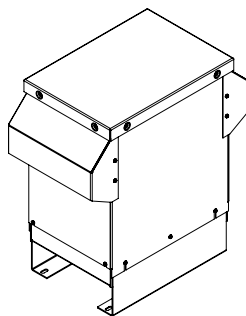


FIGURE 4



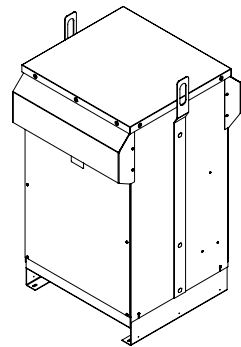
NOTE: HOODS ONLY ON NEMA 3R ENCLOSURES

FIGURE 5



NOTE: HOODS ONLY ON NEMA 3R ENCLOSURES

FIGURE 6



OPEN MAGNETICS

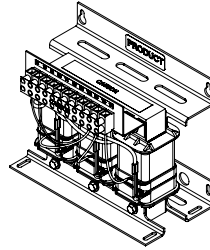
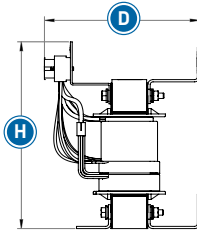
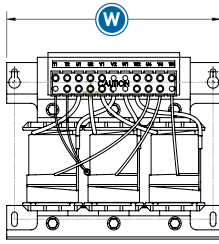


FIGURE 7

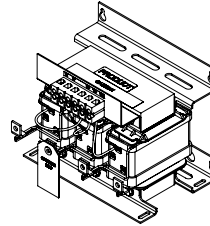
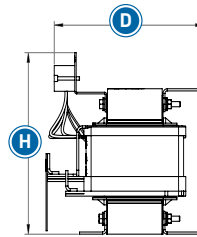
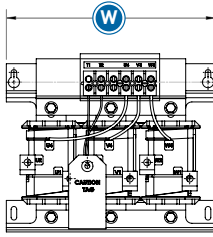


FIGURE 8

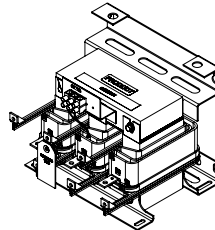
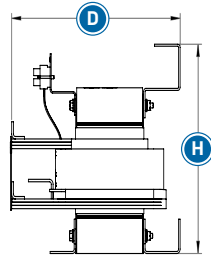
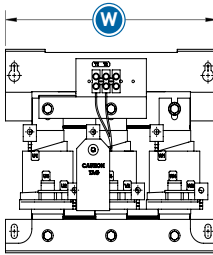


FIGURE 9

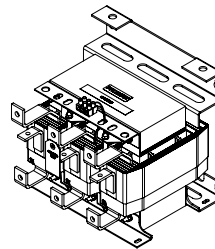
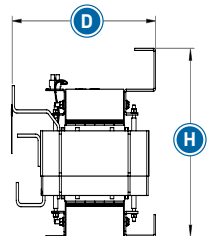
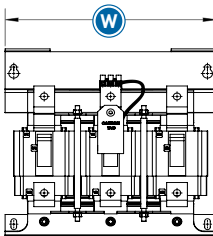


FIGURE 10

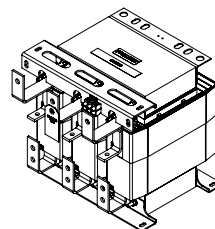
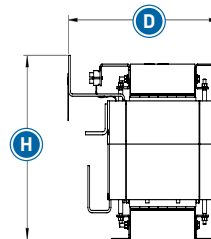
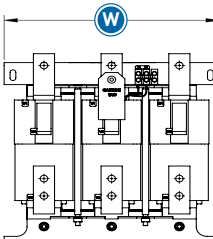


FIGURE 11

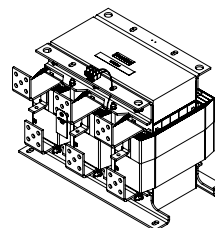
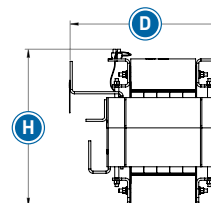
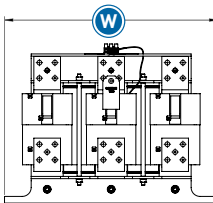


FIGURE 12

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Now with the addition of TEAL Electronics in 2016, MTE brings a continuum of power quality solutions unmatched in the industry. Building on TEAL's reputation of high-efficiency transformers and durable power conditioning and distribution units for demanding applications, MTE is building the best power quality company by capitalizing on the individual strength of each while bringing a new dimension in management, marketing, and quality.

Our team of professional design engineers has well over 100 years of collective experience in the industry and is complemented by as much experience in operations. Our engineers utilize state-of-the-art platforms and best-in-class simulation/modeling tools so that new designs meet your needs and the latest compliance standards while improving your bottom line.

At MTE, we know power quality because power quality is all we do.

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Handy & Harman Ltd. (NASDAQ:HNH) is a diversified manufacturer of engineered niche industrial products with leading market positions in many of the markets it serves. Through its wholly-owned operating subsidiaries, HNH focuses on high margin products and innovative technology and serves customers across a wide range of end markets. HNH's diverse product offerings are marketed throughout the United States and internationally.



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