



SECTION 9

NONLINEAR TRANSFORMERS

600 Volt Class

K-Factor, Three Phase

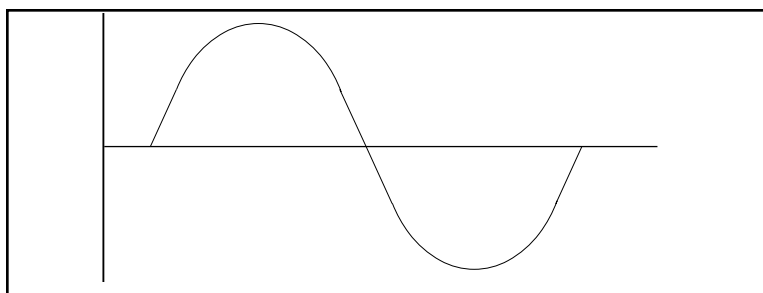
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K-FACTOR TRANSFORMERS RATED FOR NON-LINEAR LOADS

The use of electronic equipment has continued to proliferate in both offices and industrial plants. These electronic devices are powered by either switching power supplies or a rectifier circuit. Examples of these devices include computers, fax machines, copiers, printers, cash registers, UPS's and solid-state ballasts. They all contribute to the distortion of the current waveform and the generation of Harmonics.

HARMONICS AND NONLINEAR LOADS

Harmonics, in an electrical system, are currents created by non-linear loads that generate non-sinusoidal (non-linear) current waveforms. These current and voltage wave forms operate on frequencies that are in multiples of the fundamental 60 hertz frequency. That is, the fundamental frequency is at 60 hertz, the 2nd harmonic is at 120 hertz frequency (60 x 2), the 3rd at 180 hertz, and so forth.



Harmonics are principally the by-product of switch-mode power supply technology where AC is rectified to DC, and back again. In the process, a capacitor is charged in the first half-cycle, and then discharged in the next half-cycle, in supplying current to the load. This cycle is repeated. This action of recharging causes AC current to flow only during a portion of the AC voltage wave, in abrupt pulses. These abrupt pulses distort the fundamental wave shape causing distortion to the various harmonic frequencies.

Non-Linear Loads

Today, non-linear loads make up a large percentage of all electrical demand. Rectified input, switching power supplies and electronic lighting ballasts are the most common single phase non-linear loads. Harmonic currents and voltages produced by single phase, non-linear loads which are connected phase-to-neutral in a three phase four wire system, are third order, zero sequence harmonics (the third harmonic and its odd multiples - 3rd, 9th, 15th, 21st, etc., phasors displaced by zero degrees). These third order, zero sequence harmonic currents, do not cancel but add up arithmetically on the neutral bus, creating a primary source of excessive neutral current.

HARMONICS AND NON-LINEAR LOADS con't ...

General purpose transformers, most frequently used for applications such as commercial or institutional buildings, will, by definition, supply widely varied single phase loads as described. K Factor transformers are general purpose transformers but are designed to tolerate the harmonic distortion associated with these loads.

Harmonics indicate their presence in a number of ways:

- overheat electrical equipment - motors, transformers
- electronic devices malfunction
- telephone interference
- apparatus vibrates
- breakers trip below rated current
- overheated connections and bus bars

Harmonics For A 60Hz System

In a 60 HZ power system, the fundamental and harmonic frequencies are outlined in the table below.

Fundamental	60 Hz
2nd Harmonic	120 Hz
3rd Harmonic	180 Hz
4th Harmonic	240 Hz
5th Harmonic	300 Hz
6th Harmonic	360 Hz
7th Harmonic	420 Hz
8th Harmonic	480 Hz
9th Harmonic	540 Hz
10th Harmonic	600 Hz
11th Harmonic	660 Hz
12th Harmonic	720 Hz
13th Harmonic	780 Hz

14th Harmonic	840 Hz
15th Harmonic	900 Hz
16th Harmonic	960 Hz
17th Harmonic	1020 Hz
18th Harmonic	1080 Hz
19th Harmonic	1140 Hz
20th Harmonic	1200 Hz
21st Harmonic	1260 Hz
22nd Harmonic	1320 Hz
23rd Harmonic	1380 Hz
24th Harmonic	1440 Hz
25th Harmonic	1500 Hz

K Factor

K factor is defined as a ratio between the additional losses due to harmonics and the eddy current losses at 60Hz. It is used to specify transformers for non-linear loads. Transformers with a rated K factor of 4, 7, 13, 20 and 30 are available. For balanced loading, a transformer with a K factor of 4 should be specified when no more than 50% of the total load is non-linear. A transformer with K factor 13 should be specified when 100% of the load is non-linear.



ALUMINUM & COPPER WOUND FEATURES

15 to 500 kVA



THREE PHASE FEATURES

NEMA 3R

FEATURE	15 to 500 kVA
UL Listed	File: E112313
CSA Certified	File: LR3902
Frequency	60 Hz
Insulation System	220°C (150°C rise)
Electrostatic Shield	60dB Common Mode - typical
Enclosure Type	Heavy Duty Ventilated NEMA Type 3R
Enclosure Finish	ANSI 61 Grey
Standard Primary Taps	Refer to wiring diagrams for details.
Termination	Front accessible separate high and low voltage terminals; connectors (up to 165A) suitable for aluminum are provided for easy cable installation.
Conduit Knock-Outs	Standard on K-Factor 4 and K-Factor 13 from 15 to 150kVA units (15 to 112.5kVA for K-Factor 20)
Impedance	Typically 3 to 5%.
Mounting	All units are floor mount style only. (Optional wall mounting kits are available up to 75kVA)

Other voltages not listed in this section are available upon request for both aluminum and copper wound units. Please contact customer service for details, price and availability.



ALUMINUM WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

Products listed on this page are available as 'CE Mark' products. Please consult our sales office.

K FACTOR 4

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT04K015KBS	UH1	16.75	14	22	190	F or W*	SCD 22
30	MT04K030KBS	UH2	21.5	19.5	29	350	F or W*	SCD 21
45	MT04K045KBS	UH2	21.5	19.5	29	430	F or W*	SCD 21
75	MT04K075KBS	UH3	26	21	38	640	F	SCD 21
112.5	MT04K112KBS	UH4	30	24	39	920	F	SCD 21
150	MT04K150KBS	UH4	30	24	39	1050	F	SCD 21
225	MT04K225KBS	UJ1	39.5	30	50	1575	F	SCD 21
300	MT04K300KBS	UJ1	39.5	30	50	1830	F	SCD 21
500	MT04K500KBS	UJ2	48.5	34	59	3000	F	SCD 10
750	MT04K750KBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT04K015PBS	UH1	16.75	14.00	22.00	190	F or W*	SCD 22
30	MT04K030PBS	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT04K045PBS	UH2	21.50	19.50	29.00	430	F or W*	SCD 21
75	MT04K075PBS	UH3	26.00	21.00	38.00	640	F	SCD 21
112.5	MT04K112PBS	UH4	30.00	24.00	39.00	920	F	SCD 21
150	MT04K150PBS	UH4	30.00	24.00	39.00	1050	F	SCD 21
225	MT04K225PBS	UJ1	39.50	30.00	50.00	1575	F	SCD 21
300	MT04K300PBS	UJ1	39.50	30.00	50.00	1830	F	SCD 21
500	MT04K500PBS	UJ2	48.50	34.00	59.00	3000	F	SCD 10
750	MT04K750PBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

COPPER WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

K FACTOR 4

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT04K015KBK	UH1	16.75	14	22	210	F or W*	SCD 22
30	MT04K030KBK	UH2	21.5	19.5	29	350	F or W*	SCD 21
45	MT04K045KBK	UH2	21.5	19.5	29	460	F or W*	SCD 21
75	MT04K075KBK	UH3	26	21	38	665	F	SCD 21
112.5	MT04K112KBK	UH4	30	24	39	945	F	SCD 21
150	MT04K150KBK	UH4	30	24	39	1070	F	SCD 21
225	MT04K225KBK	UJ1	39.5	30	50	1725	F	SCD 21
300	MT04K300KBK	UJ1	39.5	30	50	1925	F	SCD 21
500	MT04K500KBK	UJ2	48.5	34	59	2925	F	SCD 10
750	MT04K750KBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT04K015PBK	UH1	16.75	14.00	22.00	210	F or W*	SCD 22
30	MT04K030PBK	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT04K045PBK	UH2	21.50	19.50	29.00	460	F or W*	SCD 21
75	MT04K075PBK	UH3	26.00	21.00	38.00	665	F	SCD 21
112.5	MT04K112PBK	UH4	30.00	24.00	39.00	945	F	SCD 21
150	MT04K150PBK	UH4	30.00	24.00	39.00	1070	F	SCD 21
225	MT04K225PBK	UJ1	39.50	30.00	50.00	1725	F	SCD 21
300	MT04K300PBK	UJ1	39.50	30.00	50.00	1925	F	SCD 21
500	MT04K500PBK	UJ2	48.50	34.00	59.00	2925	F	SCD 10
750	MT04K750PBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.



ALUMINUM WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

Products listed on this page are available as 'CE Mark' products. Please consult our sales office.

K FACTOR 13

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style (Pages 254-257)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (Pages 258-269)
			Width	Depth	Height			
15	MT13K015KBS	UH1	16.75	14.00	22.00	240	F or W*	SCD 22
30	MT13K030KBS	UH2	21.50	19.50	29.00	340	F or W*	SCD 21
45	MT13K045KBS	UH2	21.50	19.50	29.00	420	F or W*	SCD 21
75	MT13K075KBS	UH3	26.00	21.00	38.00	660	F	SCD 21
112.5	MT13K112KBS	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT13K150KBS	UH4	30.00	24.00	39.00	1050	F	SCD 21
225	MT13K225KBS	UJ1	39.50	30.00	50.00	1750	F	SCD 21
300	MT13K300KBS	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT13K500KBS	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT13K750KBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style (Pages 254-257)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (Pages 258-269)
			Width	Depth	Height			
15	MT13K015PBS	UH1	16.75	14.00	22.00	240	F or W*	SCD 22
30	MT13K030PBS	UH2	21.50	19.50	29.00	340	F or W*	SCD 21
45	MT13K045PBS	UH2	21.50	19.50	29.00	420	F or W*	SCD 21
75	MT13K075PBS	UH3	26.00	21.00	38.00	660	F	SCD 21
112.5	MT13K112PBS	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT13K150PBS	UH4	30.00	24.00	39.00	1050	F	SCD 21
225	MT13K225PBS	UJ1	39.50	30.00	50.00	1750	F	SCD 21
300	MT13K300PBS	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT13K500PBS	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT13K750PBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

COPPER WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

K FACTOR 13

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style (Pages 254-257)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (Pages 258-269)
			Width	Depth	Height			
15	MT13K015KBK	UH1	16.75	14.00	22.00	210	F or W*	SCD 22
30	MT13K030KBK	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT13K045KBK	UH2	21.50	19.50	29.00	470	F or W*	SCD 21
75	MT13K075KBK	UH3	26.00	21.00	38.00	660	F	SCD 21
112.5	MT13K112KBK	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT13K150KBK	UH4	30.00	24.00	39.00	1200	F	SCD 21
225	MT13K225KBK	UJ1	39.50	30.00	50.00	1850	F	SCD 21
300	MT13K300KBK	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT13K500KBK	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT13K750KBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style (Pages 254-257)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (Pages 258-269)
			Width	Depth	Height			
15	MT13K015PBK	UH1	16.75	14.00	22.00	210	F or W*	SCD 22
30	MT13K030PBK	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT13K045PBK	UH2	21.50	19.50	29.00	470	F or W*	SCD 21
75	MT13K075PBK	UH3	26.00	21.00	38.00	660	F	SCD 21
112.5	MT13K112PBK	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT13K150PBK	UH4	30.00	24.00	39.00	1200	F	SCD 21
225	MT13K225PBK	UJ1	39.50	30.00	50.00	1850	F	SCD 21
300	MT13K300PBK	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT13K500PBK	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT13K750PBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.



ALUMINUM WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

Products listed on this page are available as 'CE Mark' products. Please consult our sales office.

K FACTOR 20

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT20K015KBS	UH1	16.75	14.00	22.00	240	F or W*	SCD 21
30	MT20K030KBS	UH2	21.50	19.50	29.00	340	F or W*	SCD 21
45	MT20K045KBS	UH3	26.00	21.00	38.00	630	F or W*	SCD 21
75	MT20K075KBS	UH3	26.00	21.00	38.00	730	F	SCD 21
112.5	MT20K112KBS	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT20K150KBS	UJ1	39.50	30.00	50.00	1500	F	SCD 21
225	MT20K225KBS	UJ1	39.50	30.00	50.00	1750	F	SCD 21
300	MT20K300KBS	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT20K500KBS	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT20K750KBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT20K015PBS	UH1	16.75	14.00	22.00	240	F or W*	SCD 21
30	MT20K030PBS	UH2	21.50	19.50	29.00	340	F or W*	SCD 21
45	MT20K045PBS	UH3	26.00	21.00	38.00	630	F or W*	SCD 21
75	MT20K075PBS	UH3	26.00	21.00	38.00	730	F	SCD 21
112.5	MT20K112PBS	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT20K150PBS	UJ1	39.50	30.00	50.00	1500	F	SCD 21
225	MT20K225PBS	UJ1	39.50	30.00	50.00	1750	F	SCD 21
300	MT20K300PBS	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT20K500PBS	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT20K750PBS	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

COPPER WOUND, THREE PHASE, NEMA 3R STYLE ENCLOSURE

K FACTOR 20

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT20K015KBK	UH1	16.75	14.00	22.00	210	F or W*	SCD 21
30	MT20K030KBK	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT20K045KBK	UH3	26.00	21.00	38.00	600	F or W*	SCD 21
75	MT20K075KBK	UH3	26.00	21.00	38.00	730	F	SCD 21
112.5	MT20K112KBK	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT20K150KBK	UJ1	39.50	30.00	50.00	1500	F	SCD 21
225	MT20K225KBK	UJ1	39.50	30.00	50.00	1850	F	SCD 21
300	MT20K300KBK	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT20K500KBK	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT20K750KBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.

600 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style <small>(Pages 254-257)</small>	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram <small>(Pages 258-269)</small>
			Width	Depth	Height			
15	MT20K015PBK	UH1	16.75	14.00	22.00	210	F or W*	SCD 21
30	MT20K030PBK	UH2	21.50	19.50	29.00	350	F or W*	SCD 21
45	MT20K045PBK	UH3	26.00	21.00	38.00	600	F or W*	SCD 21
75	MT20K075PBK	UH3	26.00	21.00	38.00	730	F	SCD 21
112.5	MT20K112PBK	UH4	30.00	24.00	39.00	970	F	SCD 21
150	MT20K150PBK	UJ1	39.50	30.00	50.00	1500	F	SCD 21
225	MT20K225PBK	UJ1	39.50	30.00	50.00	1850	F	SCD 21
300	MT20K300PBK	UJ2	48.50	34.00	59.00	2350	F	SCD 10
500	MT20K500PBK	UJ3	51.50	39.00	66.00	3600	F	SCD 10
750	MT20K750PBK	CONSULT FACTORY						

*OPTIONAL WALL MOUNTING KIT REQUIRED.



TERMINATION DETAILS

Three Phase, Aluminum K-Factor

kVA	Aluminum HV - 480V			Aluminum LV - 208V		
	K Factor 4	K Factor 13	K Factor 20	K Factor 4	K Factor 13	K Factor 20
15	#6-#14	#6-#14	#6-#14	#4-#14	#4-#14	#4-#14
30	#4-#14	#4-#14	#4-#14	#2/0	#2/0	#2/0
45	#2	#2	#2/0	#250-#6	#250-#6	Diagram 1C
75	#2/0	#2/0	#250-#6	Diagram 1C	Diagram 1C	Diagram 1C
112.5	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C
150	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1D
225	Diagram 1D	Diagram 1D	Diagram 1D	Diagram 2	Diagram 2	Diagram 2
300	Diagram 1D	Diagram 1D	Diagram 1D	Diagram 2	Diagram 2	Diagram 2
500	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2
750	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2

Three Phase, Copper K-Factor

kVA	Copper HV - 480V			Copper LV - 208V		
	K Factor 4	K Factor 13	K Factor 20	K Factor 4	K Factor 13	K Factor 20
15	#6-#14	#6-#14	#6-#14	Diagram 1A	#4-#14	#4-#14
30	Diagram 1A	Diagram 1A	Diagram 1A	Diagram 1A	Diagram 1B	Diagram 1B
45	Diagram 1A	Diagram 1A	Diagram 1A	Diagram 1B	Diagram 1B	Diagram 1C
75	Diagram 1A	Diagram 1A	Diagram 1B	Diagram 1C	Diagram 1C	Diagram 1C
112.5	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C
150	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 1C	Diagram 2
225	Diagram 1D	Diagram 1D	Diagram 1D	Diagram 2	Diagram 2	Diagram 2
300	Diagram 1D	Diagram 1D	Diagram 1D	Diagram 2	Diagram 2	Diagram 2
500	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2
750	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2	Diagram 2

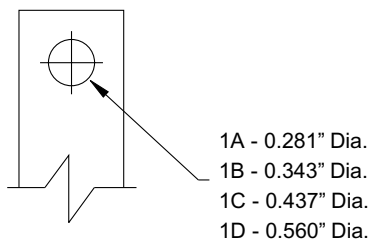


DIAGRAM 1

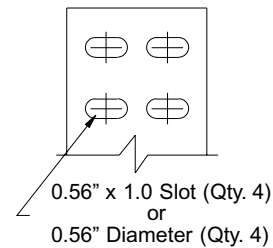


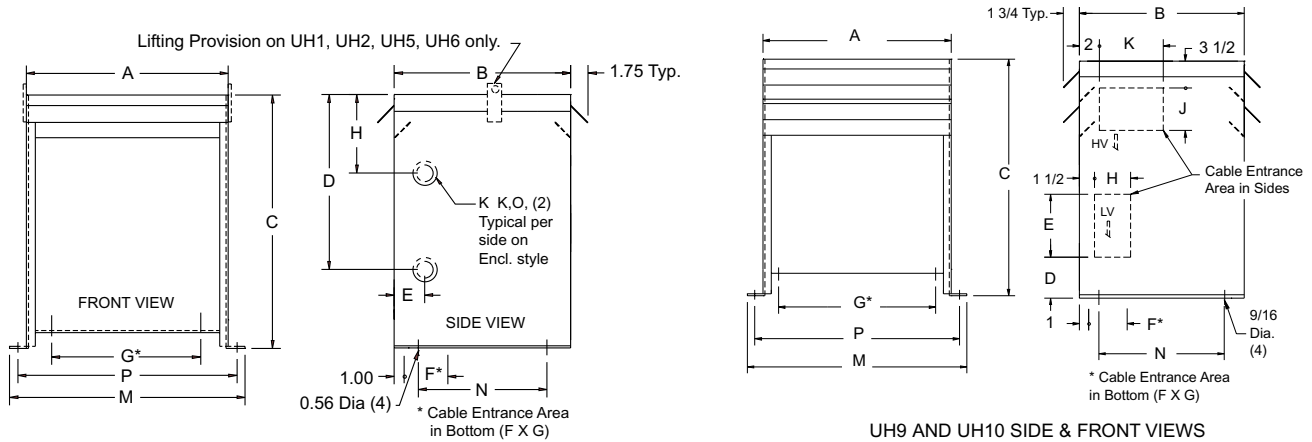
DIAGRAM 2



GENERAL INFORMATION

DIMENSIONAL DRAWINGS

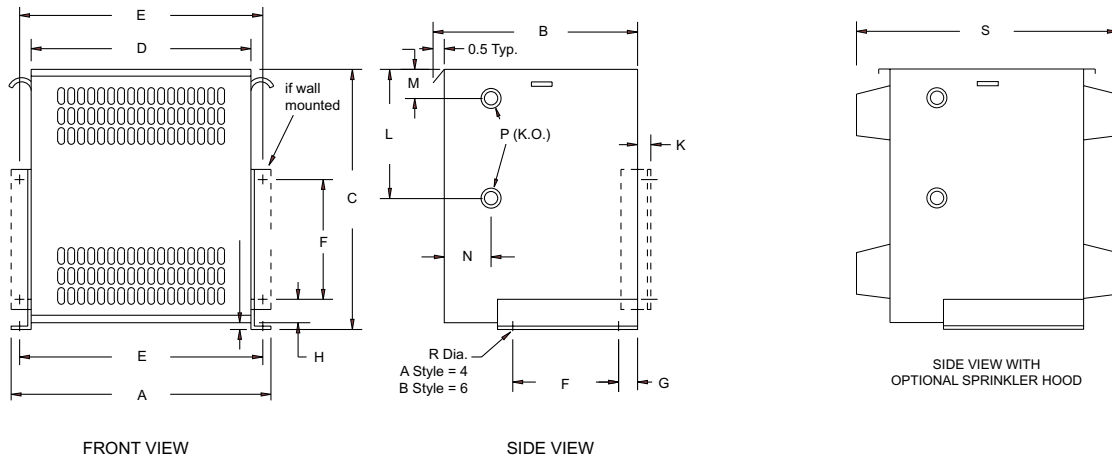
'UH' SERIES ENCLOSURES



Case Style	Dimensions in Inches											
	A	B	C	D	E	F	G	H	K	M	N	P
UH1	16.75	14.00	22.00	11.00	2.50	2.25	9.00	6.00	1.38 X 1.75	19.25	9.00	18.25
UH2	21.50	19.50	29.00	15.00	2.50	3.25	14.00	6.00	1.38 X 2.50	24.00	14.50	23.00
UH3	26.00	21.00	38.00	24.00	3.00	4.75	18.00	8.00	2.00 X 3.00	28.50	16.00	27.50
UH4	30.00	24.00	39.00	24.00	3.00	3.75	20.00	9.00	2.00 X 3.00	32.50	19.00	31.50
UH5	13.00	14.00	23.00	10.00	2.50	2.25	6.00	6.00	1.38 X 1.75	15.50	9.00	14.50
UH6	16.00	19.00	31.00	15.00	2.50	2.75	7.00	6.00	2.00 X 3.00	18.50	14.00	17.50
UH7	19.50	21.00	35.00	20.00	3.00	5.25	10.00	8.00	2.00 X 3.00	22.00	16.00	21.00
UH8	24.00	25.00	39.00	24.00	3.00	4.75	11.00	9.00	2.00 X 3.00	26.50	20.00	25.50
UH9	26.50	26.00	44.00	5.00	4.00	5.00	22.50	4.50	10.00	28.50	21.50	27.50
UH10	34.00	30.00	44.00	5.00	6.00	6.00	26.50	5.00	10.00	32.50	29.00	31.50

Note: J dimension for UH9 = 3.50". J dimension for UH10 = 4.00"

'A' & 'H' SERIES ENCLOSURES



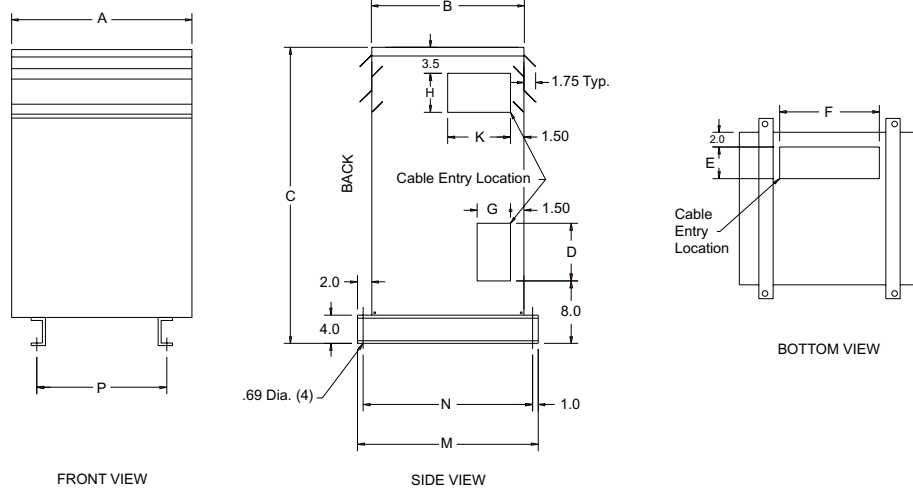
Case Style	Dimensions in Inches														
	A	B	C	D	E	F	G	H	K	L	M	N	P	R	S
A1*	12.00	7.00	10.20	10.00	11.40	5.00	0.50	0.50	0.60	5.50	1.60	1.00	0.5 X 0.75	0.31	10.00
A2*	17.25	11.25	14.00	14.75	16.50	7.00	0.90	0.90	0.40	9.50	2.00	1.00	0.75 X 1.0	0.40	13.25
H1	19.50	16.50	19.00	16.50	18.50	10.00	2.00	3.25	2.50	10.00	2.00	2.50	1.0 X 1.25	0.56	22.50
H2	24.50	20.50	24.50	21.50	23.50	10.00	2.00	3.25	2.50	12.00	2.50	2.50	1.0 X 2.0	0.56	26.50
H3	30.00	24.00	32.50	27.00	29.00	16.00	2.00	3.25	2.50	13.00	3.00	3.00	1.5 X 2.5	0.56	30.00
H4	33.00	26.00	36.00	30.00	32.00	16.00	2.00	3.25	2.50	13.00	3.00	3.00	1.5 X 2.5	0.56	32.00
H5	16.00	16.50	18.00	13.00	15.00	10.00	2.00	3.25	2.50	7.50	2.00	2.50	1.0 X 1.25	0.56	22.50
H6	21.25	20.00	28.00	18.25	20.25	10.00	2.00	3.25	2.50	12.50	3.00	2.50	1.5 X 2.5	0.56	26.00
H7	24.00	26.00	30.00	21.00	23.00	16.00	2.00	3.25	2.50	13.00	3.00	3.00	1.5 X 2.5	0.56	32.00
H8	27.00	26.00	36.00	24.00	26.00	16.00	2.00	3.25	2.50	13.00	3.00	3.00	1.5 X 2.5	0.56	32.00

* No ventilation slots in rear.

GENERAL INFORMATION

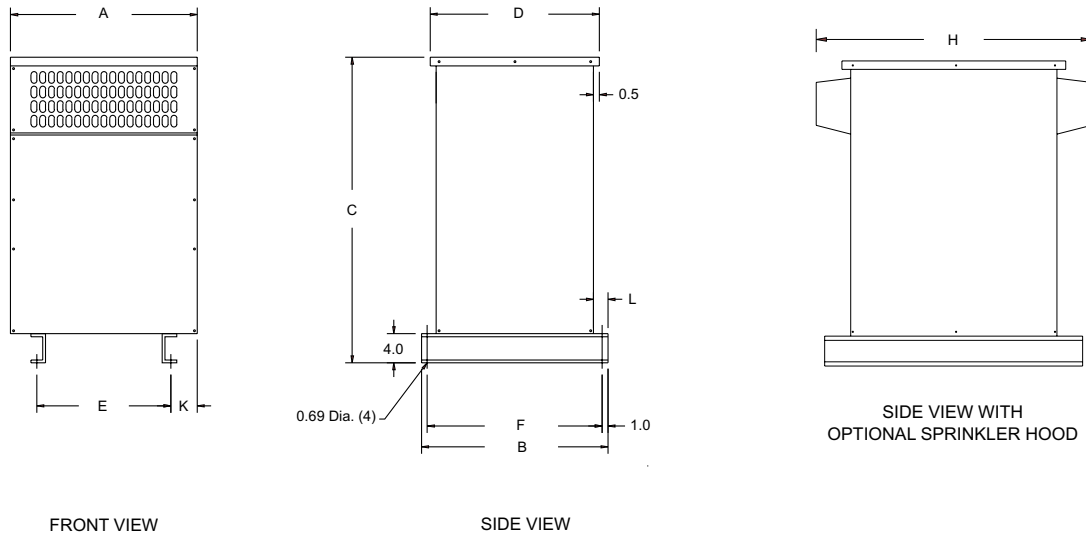
DIMENSIONAL DRAWINGS

'UJ' SERIES ENCLOSURES



Case Style	Dimensions in Inches											
	A	B	C	D	E	F	G	H	K	M	N	P
UJ1	39.50	30.00	50.00	10.00	7.50	21.50	8.00	6.50	13.50	34.00	32.00	24.00
UJ2	48.50	34.00	59.00	13.00	8.50	25.00	9.00	8.50	15.50	38.00	36.00	27.50
UJ3	51.50	39.00	66.00	16.00	9.50	31.50	10.00	11.50	18.00	43.00	41.00	34.00
UJ4	32.00	28.50	50.00	10.00	8.50	19.50	9.00	6.50	12.75	32.50	30.50	22.00
UJ5	36.00	29.50	44.00	5.00	6.50	21.50	10.00	6.50	12.75	33.00	31.00	24.00
UJ6	64.00	40.00	68.00	16.00	10.50	37.50	11.00	11.50	18.00	43.50	41.50	40.00

'J' SERIES ENCLOSURES



Case Style	Dimensions in Inches								
	A	B	C	D	E	F	H	K	L
J1	39.72	37.00	50.00	34.25	24.00	35.00	40.00	7.75	2.00
J2	48.75	41.00	59.00	38.25	27.50	39.00	44.00	10.50	2.00
J3	51.75	46.00	66.00	43.25	34.00	44.00	49.00	8.75	2.00
J4	32.25	35.00	50.00	32.25	22.00	33.00	38.00	5.00	2.00
J5	36.00	33.00	44.00	29.50	24.00	31.00	35.50	6.00	2.25
J6	64.00	43.50	68.00	40.00	40.00	41.50	46.00	12.00	2.25

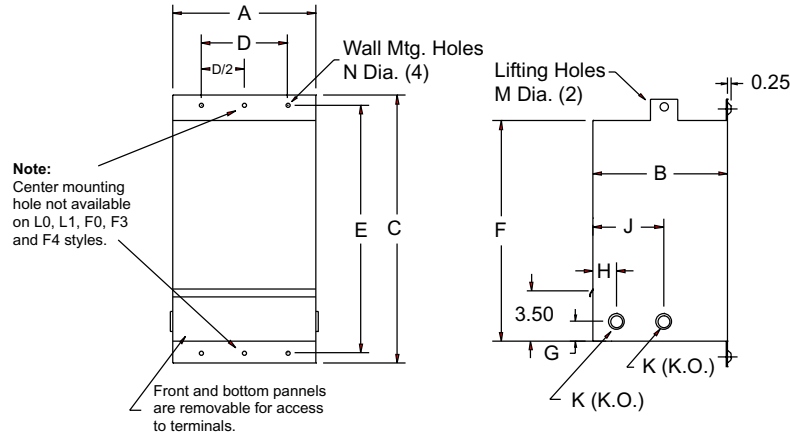
GENERAL
INFORMATION



GENERAL INFORMATION

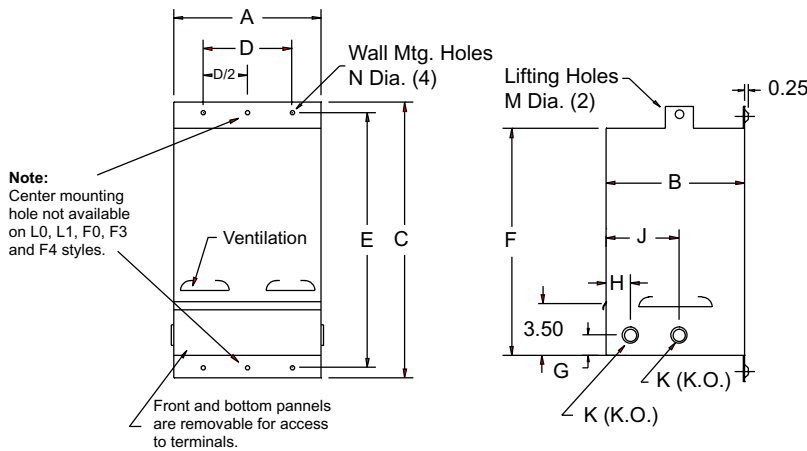
DIMENSIONAL DRAWINGS

'F' & 'L' SERIES ENCLOSURES



Case Style	Dimensions in Inches											
	A	B	C	D	E	F	G	H	J	K	M	N
L0	7.00	7.00	14.75	4.50	13.00	11.13	1.50	2.50	-	.50 X .75	0.75	0.265
L1	9.00	8.50	17.50	5.50	15.75	13.88	2.00	1.50	7.00	.75 X 1.0	0.75	0.265
L2	12.50	8.00	23.00	9.00	21.25	19.38	2.00	1.50	6.88	.75 X 1.0	0.75	0.265
L3	12.50	6.00	16.50	9.00	14.75	12.88	2.00	1.50	4.50	.75 X 1.0	0.75	0.265
L4	16.50	6.00	19.00	13.00	17.25	15.38	1.50	2.00	4.50	1.0 X 1.25	0.75	0.265
L5	7.50	7.75	15.94	5.50	14.20	12.80	1.50	2.50	-	0.5 X 0.75	0.75	0.265
F0	8.00	7.50	15.00	5.50	14.20	12.50	1.50	2.75	-	.75 X 1.0	0.75	0.312
F1	8.75	9.00	15.50	5.75	14.68	13.13	2.00	3.50	-	.75 X 1.0	0.75	0.312
F2	10.75	8.50	16.50	7.50	15.68	14.13	2.00	3.50	-	.75 X 1.0	0.75	0.312
F3	11.75	8.13	19.50	8.75	18.68	17.13	2.00	3.50	-	1.0 X 2.0	0.75	0.375
F4	13.50	9.44	21.75	10.50	21.00	19.38	2.00	4.00	-	1.0 X 2.0	0.75	0.437

'L6 to L13' SERIES ENCLOSURES



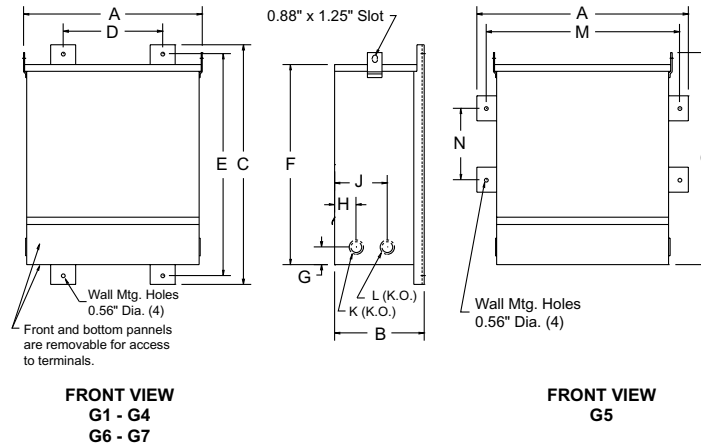
Case Style	Dimensions in Inches											
	A	B	C	D	E	F	G	H	J	K	M	N
L6	6.75	4.75	14.38	4.00	13.63	12.00	1.38	1.50	-	0.5 X 0.75	0.75	0.312
L7	6.75	6.25	14.38	4.00	13.63	12.00	1.38	1.50	-	0.5 X 0.75	0.75	0.312
L8	9.00	7.25	17.25	6.25	16.50	15.00	2.38	1.25	-	0.5 X 0.75	0.75	0.312
L9	9.00	8.50	18.25	6.25	17.50	16.00	2.75	2.25	-	0.5 X 0.75	0.75	0.312
L10	11.50	7.50	20.75	8.75	20.00	18.44	-	-	-	-	0.75	0.312
L11	11.50	9.00	20.75	8.75	20.00	18.44	-	-	-	-	0.75	0.312
L12	13.00	12.00	20.50	10.28	19.44	17.44	-	-	-	-	0.75	0.406
L13	15.00	12.00	25.00	12.50	23.94	21.92	-	-	-	-	0.75	0.406

GENERAL INFORMATION

GENERAL INFORMATION

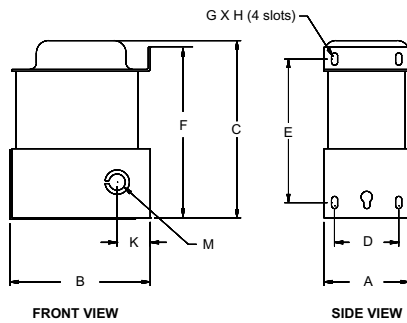
DIMENSIONAL DRAWINGS

'G' SERIES ENCLOSURES

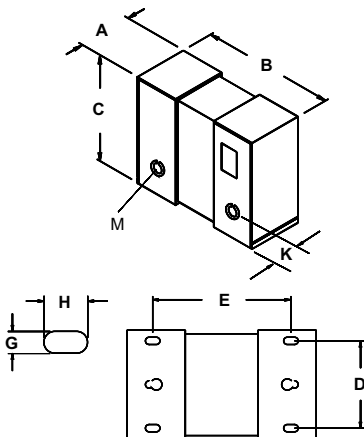


Case Style	Dimensions in Inches												
	A	B	C	D	E	F	G	H	J	K	L	M	N
G1	17.44	7.00	21.50	8.31	20.00	17.50	2.25	1.63	4.88	1.0 X 1.25	0.75 X 1.0	-	-
G2	17.44	8.50	21.50	8.50	20.00	17.50	2.25	1.88	5.63	1.0 X 1.25	0.75 X 1.0	-	-
G3	19.44	9.50	26.50	10.00	25.00	22.50	2.50	2.63	6.88	1.5 X 2.0	1.0 X 1.25	-	-
G4	22.94	10.25	30.00	13.81	28.50	25.00	2.75	2.63	7.38	1.5 X 2.0	1.0 X 1.25	-	-
G5	16.50	12.75	27.50	-	-	24.40	1.50	2.50	8.50	1.0 X 1.25	1.0 X 1.25	14.60	12.50
G6	18.00	14.00	35.00	10.00	32.50	30.00	2.75	3.25	9.25	1.5 X 2.0	1.0 X 1.25	-	-
G7	33.75	13.00	35.00	20.00	32.75	30.00	2.75	2.25	8.75	1.0 X 1.25	2.0 X 2.0	-	-

'M' SERIES ENCLOSURES



Case Style	Dimensions in Inches									Knockout	
	A	B	C	D	E	F	G X H	K	M		
M01	2.5	3.37	4.06	2.00	3.16	4.19"	.20 X .56	1.25	.50		
M02	2.5	3.37	4.56	2.00	3.66	4.69	.20 X .56	1.25	.50		
M11	3.13	4.00	4.63	2.25	3.88	4.50	.25 X .50	1.25	.50		
M12	3.13	4.00	4.88	2.25	4.13	4.50	.25 X .50	1.25	.50		
M13	3.13	4.00	5.38	2.25	4.63	5.25	.25 X .50	1.25	.50		
M21	3.75	4.75	4.56	2.75	3.56	4.28	.25 X .50	1.25	.50 X .75		
M22	3.75	4.75	4.81	2.75	3.81	4.28	.25 X .50	1.25	.50 X .75		
M23	3.75	4.75	5.56	2.75	4.56	5.28	.25 X .50	1.25	.50 X .75		
M24	3.75	4.75	6.06	2.75	4.81	5.28	.25 X .50	1.25	.50 X .75		
M31	4.31	5.50	7.41	3.25	5.58	6.75	.31 X .63	1.00	.50 X .75		
M32	4.31	5.50	7.91	3.25	6.08	7.25	.31 X .63	1.25	.50 X .75		



'E' SERIES ENCLOSURES

Case Style	Dimensions in Inches									Knockout	
	A	B	C	D	E	F	G X H	K	M		
E01	5.31	9.50	6.75	4.25	7.50	-	.31 X .63	1.25	.50 X .75		
E02	5.31	10.50	6.75	4.25	8.50	-	.31 X .63	1.25	.50 X .75		
E11	6.25	10.50	8.00	5.00	9.00	-	.31 X .63	1.25	.50 X .75		
E21	7.5	10.75	9.50	6.00	9.25	-	.38 X .75	1.25	.75 X 1.00		

GENERAL INFORMATION



GENERAL INFORMATION

ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 1

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		480 416 240 208	H1, H4 H1, H4	H2-H3 H1-H3, H2-H4
		Secondary Volts	Connect lines to	Inter-connect
		240 120/240 120	X1, X4 X1, X2, X4 X1, X4	X2-X3 X2-X3 X2-X4, X1-X3

SCD 2

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		480 468 456 240 228	H1, H2 H1, H2 H1, H2 H1, H2 H1, H2	1-2 2-3 3-4 H1-2, H2-1 H1-4, H2-3
		Secondary Volts	Connect lines to	Inter-connect
		240 120/240 120	X1, X4 X1, X2, X4 X1, X4	X2-X3 X2-X3 X2-X4, X1-X3

SCD 3

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		504 492 480 468 456 252 240 228	H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4	1-H2, 2-H3, H2-H3 2-H3, 3-H2, H2-H3 3-H2, 4-H3, H2-H3 4-H3, 5-H2, H2-H3 5-H2, 6-H3, H2-H3 1-H2, 2-H3, H1-H3, H2-H4 3-H2, 4-H3, H1-H3, H2-H4 5-H2, 6-H3, H1-H3, H2-H4
		Secondary Volts	Connect lines to	Inter-connect
		240 120/240 120	X1, X4 X1, X2, X4 X1, X4	X2-X3 X2-X3 X2-X4, X1-X3

SCD 4

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		208 277 347 380 416 600	H1, H2	---
		Secondary Volts	Connect lines to	Inter-connect
		240 120/240 120	X1, X4 X1, X2, X4 X1, X4	X2-X3 X2-X3 X2-X4, X1-X3

GENERAL
INFORMATION

GENERAL INFORMATION

ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 5

SCHEMATIC		CONNECTIONS		
	Primary Volts		Connect lines to	Inter-connect
	208 240 277 416 480 600	H1, H2	1-2	
	198 228 263 395 456 570	H1, H2	2-3	
187 216 249 374 432 540	H1, H2	3-4		
120 208 240	H1, H2	H1-2, H2-1		
108 187 216	H1, H2	H1-4, H2-3		
Secondary Volts		Connect lines to	Inter-connect	
240		X1, X4	X2-X3	
120/240		X1, X2, X4	X2-X3	
120		X1, X4	X2-X4, X1-X3	

SCD 6

SCHEMATIC		CONNECTIONS		
	Primary Volts		Connect lines to	Inter-connect
	218 291 437 504 630 2520 4368	H1, H2	1-2	
	213 284 426 492 615 2460 4264	H1, H2	2-3	
208 277 416 480 600 2400 4160	H1, H2	3-4		
203 270 406 468 585 2340 4056	H1, H2	4-5		
198 263 395 456 570 2280 3952	H1, H2	5-6		
Secondary Volts		Connect lines to	Inter-connect	
240		X1, X4	X2-X3	
120/240		X1, X2, X4	X2-X3	
120		X1, X4	X2-X4, X1-X3	

SCD 7

SCHEMATIC		CONNECTIONS		
	Primary Volts		Connect lines to	Inter-connect
	218 252 437 483 504 630	H1, H2, H3	1	
	208 240 416 460 480 600	H1, H2, H3	2	
198 228 395 437 456 570	H1, H2, H3	3		
Secondary Volts		Connect lines to		
208 230 240 380 416 460 480 600		X1, X2, X3		
120 133 139 220 240 265 277 347		X1, X0 X2, X0 X3, X0		

SCD 8

SCHEMATIC		CONNECTIONS		
	Primary Volts		Connect lines to	Inter-connect
	218 252 437 483 504 630 2520 4368	H1, H2, H3	1-2	
	208 240 416 460 480 600 2400 4160	H1, H2, H3	2-3	
198 228 395 437 456 570 2280 3952	H1, H2, H3	3-4		
Secondary Volts		Connect lines to		
208 230 240 380 416 460 480 600		X1, X2, X3		
120 133 139 220 240 265 277 347		X1, X0 X2, X0 X3, X0		

GENERAL INFORMATION



GENERAL INFORMATION

ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 9

SCHEMATIC		CONNECTIONS			
		Primary Volts		Connect lines to	Inter-connect
		218 252 437 483 504 630 2520 4368	H1, H2, H3	1	
		213 246 426 574 492 615 2460 4264	H1, H2, H3	2	
		208 240 416 460 480 600 2400 4160	H1, H2, H3	3	
		203 234 406 449 468 585 2340 4056	H1, H2, H3	4	
		198 228 395 437 456 570 2280 3952	H1, H2, H3	5	
		Secondary Volts		Connect lines to	Inter-connect
208 380 416 480 600	X1, X2, X3	-			
120 220 240 277 347	X1, X0	-			
	X2, X0	-			
	X3, X0	-			

SCD 10

SCHEMATIC		CONNECTIONS			
		Primary Volts		Connect lines to	Inter-connect
		218 252 437 483 504 630 2520 4368	H1, H2, H3	1-2	
		213 246 426 574 492 615 2460 4264	H1, H2, H3	2-3	
		208 240 416 460 480 600 2400 4160	H1, H2, H3	3-4	
		203 234 406 449 468 585 2340 4056	H1, H2, H3	4-5	
		198 228 395 437 456 570 2280 3952	H1, H2, H3	5-6	
		Secondary Volts		Connect lines to	Inter-connect
208 380 416 480 600	X1, X2, X3	-			
120 220 240 277 347	X1, X0	-			
	X2, X0	-			
	X3, X0	-			

SCD 11

SCHEMATIC		CONNECTIONS		
		Primary Volts		Inter-connect
		252 504	H1, H2, H3	1
		240 480	H1, H2, H3	2
		228 456	H1, H2, H3	3
		Secondary Volts		Inter-connect
240	X1, X2, X3	-		

SCD 12

SCHEMATIC		CONNECTIONS		
		Primary Volts		Inter-connect
		480 600	H1, H2, H3	1-2
		456 570	H1, H2, H3	2-3
		432 540	H1, H2, H3	3-4
		Secondary Volts		Inter-connect
240	X1, X2, X3	-		

GENERAL INFORMATION

ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 13

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	480 600	H1, H2, H3	1-2	
	456 570	H1, H2, H3	2-3	
	432 540	H1, H2, H3	3-4	
	Secondary Volts	Connect lines to	Inter-connect	
	240	X1, X2, X3	-	
	120	X1, X6	-	
		X3, X6	-	

SCD 14

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	504	H1, H2, H3	1	
	492	H1, H2, H3	2	
	480	H1, H2, H3	3	
	468	H1, H2, H3	4	
	456	H1, H2, H3	5	
	Secondary Volts	Connect lines to	Inter-connect	
	240	X1, X2, X3	-	
	120	X1, X6	-	
		X3, X6	-	

SCD 15

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	504	H1, H2, H3	1-2	
	492	H1, H2, H3	2-3	
	480	H1, H2, H3	3-4	
	468	H1, H2, H3	4-5	
	456	H1, H2, H3	5-6	
		Secondary Volts	Connect lines to	Inter-connect
240		X1, X2, X3	-	
120		X1, X6	-	
		X3, X6	-	

SCD 16

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	218 504 504 630	H1, H2, H3	1	
	208 480 480 600	H1, H2, H3	2	
	198 456 456 570	H1, H2, H3	3	
	Secondary Volts	Connect lines to	Inter-connect	
	240	X1, X2, X3	-	

GENERAL INFORMATION



GENERAL INFORMATION

ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 17

SCHEMATIC	CONNECTIONS			
	Primary Volts		Connect lines to	Inter-connect
	504	630	H1, H2, H3	1
	492	615	H1, H2, H3	2
	480	600	H1, H2, H3	3
	468	585	H1, H2, H3	4
	456	570	H1, H2, H3	5
Secondary Volts		Connect lines to	Inter-connect	
240		X1, X2, X3		

SCD 18

SCHEMATIC	CONNECTIONS			
	Primary Volts		Connect lines to	Inter-connect
	218	437 504 630	H1, H6	-
	213	426 492 615	H1, H5	-
	208	416 480 600	H1, H4	-
	203	406 468 585	H1, H3	-
	198	395 456 570	H1, H2	-
Secondary Volts		Connect lines to	Inter-connect	
240		X1, X4	X2-X3	
120/240		X1, X2, X4	X2-X3	
120		X1, X4	X2-X4, X1-X3	

SCD 19

SCHEMATIC	CONNECTIONS				
	Primary Volts		Connect lines to	Inter-connect	
	504		H1, H4	1-H2, 2-H3, H2-H3	
	492		H1, H4	3-H2, 2-H3, H2-H3	
	480		H1, H4	3-H2, 4-H3, H2-H3	
	468		H1, H4	5-H2, 4-H3, H2-H3	
	456		H1, H4	5-H2, 6-H3, H2-H3	
	444		H1, H4	7-H2, 6-H3, H2-H3	
	432		H1, H4	7-H2, 8-H3, H2-H3	
	252		H1, H4	1-H2, 2-H3, H1-H3, H2-H4	
	240		H1, H4	3-H2, 4-H3, H1-H3, H2-H4	
	228		H1, H4	5-H2, 6-H3, H1-H3, H2-H4	
	216		H1, H4	7-H2, 8-H3, H1-H3, H2-H4	
	Secondary Volts		Connect lines to	Inter-connect	
	240		X1, X4	X2- X3	
120		X1, X2	X1-X3, X2-X4		
120/240		X1, X2, X4	X2-X3		

SCD 20

SCHEMATIC	CONNECTIONS			
	Primary Volts		Connect lines to	Inter-connect
	218	252 291 437 504 630	H1, H4	-
	208	240 277 416 480 600	H1, H3	-
	198	228 263 395 456 570	H1, H2	-
	188	216 249 374 432 540	H1, H2	-
	Secondary Volts		Connect lines to	Inter-connect
240		X1, X4	X2-X3	
120		X1, X2	X1-X3, X2-X4	
120/240		X1, X2, X4	X2-X3	

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ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 21

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	218 504 630	H1, H2, H3	1-H1, 1-H2, 1-H3
	213 492 615	H1, H2, H3	2-H1, 2-H2, 2-H3
	208 480 600	H1, H2, H3	3-H1, 3-H2, 3-H3
	203 468 585	H1, H2, H3	4-H1, 4-H2, 4-H3
	198 456 570	H1, H2, H3	5-H1, 5-H2, 5-H3
	193 444 556	H1, H2, H3	6-H1, 6-H2, 6-H3
	188 432 542	H1, H2, H3	7-H1, 7-H2, 7-H3
	Secondary Volts	Connect lines to	Inter-connect
	208 480	X1, X2, X3	-
	120 277	X1, X0	-
	X2, X0	-	
	X3, X0	-	

SCD 22

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	218 504	H1, H2, H3	1-2
	213 492	H1, H2, H3	2-3
	208 480	H1, H2, H3	3-4
	203 468	H1, H2, H3	4-5
	198 456	H1, H2, H3	5-6
	193 444	H1, H2, H3	6-7
	188 432	H1, H2, H3	7-8
	Secondary Volts	Connect lines to	Inter-connect
	208	X1, X2, X3	-
	120	X1, X0	-
	X2, X0	-	
	X3, X0	-	

SCD 23

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	504	H1, H2, H3	1-H1, 1-H2, 1-H3
	492	H1, H2, H3	2-H1, 2-H2, 2-H3
	480	H1, H2, H3	3-H1, 3-H2, 3-H3
	468	H1, H2, H3	4-H1, 4-H2, 4-H3
	456	H1, H2, H3	5-H1, 5-H2, 5-H3
	444	H1, H2, H3	6-H1, 6-H2, 6-H3
	432	H1, H2, H3	7-H1, 7-H2, 7-H3
	Secondary Volts	Connect lines to	Inter-connect
	240	X1, X2, X3	-
	120	X1, X6	-
	X3, X6	-	

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ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 24

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	504	H1, H2, H3	1-2
	492	H1, H2, H3	2-3
	480	H1, H2, H3	3-4
	468	H1, H2, H3	4-5
	456	H1, H2, H3	5-6
	444	H1, H2, H3	6-7
	432	H1, H2, H3	7-8
	Secondary Volts	Connect lines to	Inter-connect
	240	X1, X2, X3	-
	120	X1, X6 X3, X6	- -

SCD 25

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	208 230 240	X1, X2, X3	1-X1, 1-X2, 1-X3
	198 218 228	X1, X2, X3	2-X1, 2-X2, 2-X3
	188 207 216	X1, X2, X3	3-X1, 3-X2, 3-X3
	Secondary Volts	Connect lines to	
	230 260 460 480	H1, H2, H3	
	133 139 265 277	H1, H0 H2, H0 H3, H0	

SCD 26

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	208 240	X1, X2, X3	1-2
	198 228	X1, X2, X3	2-3
	188 216	X1, X2, X3	3-4
	Secondary Volts	Connect lines to	
	230 260 460 480	H1, H2, H3	
	133 139 265 277	H1, H0 H2, H0 H3, H0	

SCD 27

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	218	X1, X2, X3	1-X1, 1-X2, 1-X3
	213	X1, X2, X3	2-X1, 2-X2, 2-X3
	208	X1, X2, X3	3-X1, 3-X2, 3-X3
	203	X1, X2, X3	4-X1, 4-X2, 4-X3
	198	X1, X2, X3	5-X1, 5-X2, 5-X3
	193	X1, X2, X3	6-X1, 6-X2, 6-X3
	188	X1, X2, X3	7-X1, 7-X2, 7-X3
	Secondary Volts	Connect lines to	
	208 230 240 480	H1, H2, H3	
	120 133 133 277	H1, H0 H2, H0 H3, H0	

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ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 28

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	218	X1, X2, X3	1-2
	213	X1, X2, X3	2-3
	208	X1, X2, X3	3-4
	203	X1, X2, X3	4-5
	198	X1, X2, X3	5-6
	193	X1, X2, X3	6-7
	188	X1, X2, X3	7-8
	Secondary Volts	Connect lines to	
	208 240 480	H1, H2, H3	
	120 133 277	H1, H0 H2, H0 H3, H0	

SCD 29

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	504	H1, H2, H3	1-H1, 1-H2, 1-H3
	492	H1, H2, H3	2-H1, 2-H2, 2-H3
	480	H1, H2, H3	3-H1, 3-H2, 3-H3
	468	H1, H2, H3	4-H1, 4-H2, 4-H3
	456	H1, H2, H3	5-H1, 5-H2, 5-H3
	444	H1, H2, H3	6-H1, 6-H2, 6-H3
	432	H1, H2, H3	7-H1, 7-H2, 7-H3
	Secondary Volts	Connect lines to	Inter-connect
240	X1, X2, X3	-	

SCD 30

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	504	H1, H2, H3	1-2
	492	H1, H2, H3	2-3
	480	H1, H2, H3	3-4
	468	H1, H2, H3	4-5
	456	H1, H2, H3	5-6
	444	H1, H2, H3	6-7
	432	H1, H2, H3	7-8
	Secondary Volts	Connect lines to	Inter-connect
240	X1, X2, X3	-	

SCD 31

SCHEMATIC	CONNECTIONS		
	Connect to	Step Down	Step Up
	Lines from Supply	H1, H2, H3	X1, X2, X3
	Lines to Load Neutral	X1, X2, X3 X0	H1, H2, H3 H0

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ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 32

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	208 240 416 480 600	H1, H2, H3	1	
	198 228 395 456 570	H1, H2, H3	2	
187 216 374 432 540	H1, H2, H3	3		
	Secondary Volts	Connect lines to		
208 230 240 380 416 460 480 600		X1, X2, X3		
120 133 139 220 240 265 277 347		X1, X0 X2, X0 X3, X0		

SCD 33

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	208 240 416 480 600	H1, H2, H3	1-2	
	198 228 395 456 570	H1, H2, H3	2-3	
187 216 374 432 540	H1, H2, H3	3-4		
	Secondary Volts	Connect lines to		
208 380 416 480 600		X1, X2, X3		
120 220 240 277 347		X1, X0 X2, X0 X3, X0		

SCD 34

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	218 252	H1, H2, H3	1	
	213 246	H1, H2, H3	2	
	208 240	H1, H2, H3	3	
	203 234	H1, H2, H3	4	
	198 228	H1, H2, H3	5	
	Secondary Volts	Connect lines to		
460 480 600		X1, X2, X3		
265 277 347		X1, X0 X2, X0 X3, X0		

SCD 35

SCHEMATIC		CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect	
	218 252	H1, H2, H3	1-2	
	213 246	H1, H2, H3	2-3	
	208 240	H1, H2, H3	3-4	
	203 234	H1, H2, H3	4-5	
	198 228	H1, H2, H3	5-6	
	Secondary Volts	Connect lines to		
460 480 600		X1, X2, X3		
265 277 347		X1, X0 X2, X0 X3, X0		



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ELECTRICAL SCHEMATICS AND CONNECTION DIAGRAMS

SCD 36

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		218 252	X1, X2, X3	1-X1, 1-X2, 1-X3
		208 240	X1, X2, X3	2-X1, 2-X2, 2-X3
		198 228	X1, X2, X3	3-X1, 3-X2, 3-X3
		Secondary Volts	Connect lines to	Inter-connect
		480	H1, H2, H3	-
		277	H1, H0	-
			H2, H0	-
		H3, H0	-	

SCD 37

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		218 252	X1, X2, X3	1-2
		208 240	X1, X2, X3	2-3
		198 228	X1, X2, X3	3-4
		Secondary Volts	Connect lines to	Inter-connect
		480	H1, H2, H3	-
		277	H1, H0	-
			H2, H0	-
		H3, H0	-	

SCD 38

SCHEMATIC		CONNECTIONS		
		Connect to	Step Down	Step Up
		Lines from Supply	H1, H2, H3	X1, X2, X3
		Lines to Load Neutral	X1, X2, X3 X0	H1, H2, H3 H0

SCD 39

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		120	H1, H2	---
		Secondary Volts	Connect lines to	Inter-connect
		120	X1, X2	---

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SCD 40

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	208	H1, H2	---
	Secondary Volts	Connect lines to	Inter-connect
	120	X1, X2	---

SCD 41

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	240	H1, H2	---
	Secondary Volts	Connect lines to	Inter-connect
	120	X1, X2	---

SCD 42

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	630	H1, H2, H3	1-2
	600	H1, H2, H3	2-3
	570	H1, H2, H3	3-4
Secondary Volts	Connect lines to	Inter-connect	
240	X1, X2, X3	---	

SCD 43

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	480	H1, H2	---
	Secondary Volts	Connect lines to	Inter-connect
	120	X1, X2	---

SCD 44

SCHEMATIC	CONNECTIONS		
	Primary Volts	Connect lines to	Inter-connect
	600	H1, H2	---
	Secondary Volts	Connect lines to	Inter-connect
	120	X1, X2	---

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SCD 45

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		440 416 400 380 220 208 200 120	H1, H10 H1, H9 H1, H8 H1, H7 H1, H10 H1, H9 H1, H8 H1, H7	H5-H6 H4-H6 H3-H6 H2-H6 H1-H6, H5-H10 H1-H6, H4-H9 H1-H6, H3-H8 H1-H6, H2-H7
		Secondary Volts	Connect lines to	Inter-connect
		240 120/240 120	X1, X4 X1, X2, X4 X1, X4	X2-X3 X2-X3 X2-X4, X1-X3

SCD 46

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		440 416 400 380 220 208 200 190	H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4 H1, H4	1-H2, 2-H3, H2-H3 3-H2, 4-H3, H2-H3 5-H2, 6-H3, H2-H3 7-H2, 8-H3, H2-H3 1-H2, 2-H3, H1-H3, H2-H4 3-H2, 4-H3, H1-H3, H2-H4 5-H2, 6-H3, H1-H3, H2-H4 7-H2, 8-H3, H1-H3, H2-H4
		Secondary Volts	Connect lines to	Inter-connect
		240 120 120/240	X1, X4 X1, X2 X1, X2, X4	X2- X3 X1-X3, X2-X4 X2-X3

SCD 47

SCHEMATIC		CONNECTIONS		
		Primary Volts	Connect lines to	Inter-connect
		630 504 615 492 600 480 585 468 570 456	H1, H2, H3 H1, H2, H3 H1, H2, H3 H1, H2, H3 H1, H2, H3	1-2 2-3 3-4 4-5 5-6
		Secondary Volts	Connect lines to	Inter-connect
		240	X1, X2, X3	

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ACCESSORIES - GENERAL PURPOSE TRANSFORMERS

SPRINKLER HOODS

(NEMA TYPE 2 ENCLOSURE)

Sprinkler hoods can easily be field installed to protect a transformer from water falling at an angle up to 75° from vertical. A NEMA Type 1 enclosure with a properly installed sprinkler hood will meet NEMA Type 2 requirements.

Use the selection table to the right to select the appropriate sprinkler hood kit. Each kit comes with either 2 or 4 hoods, depending on the case style, to fit on transformer enclosure.

For overall dimensions of the enclosures with a sprinkler hood installed, please refer to the enclosure dimensional drawings on pages 254 thru 257.

Factory installed NEMA Type 2 enclosures are also available. Please contact the nearest Hammond Sales Office for details.

Note: UH style enclosures do not require sprinkler hood kits.

ANTI-VIBRATION PADS AND ISOLATORS

All standard transformers are supplied with installed internal vibration absorbing pads to minimize noise during operation.

Optional external “anti-vibration pads” and “vibration isolators” (for higher noise dampening) are available, and can be used to reduce operating noise even further.

Both kits are resistant to industrial contaminants like oils, acids and alkalis.

WALL MOUNTING KITS

(Used with Sprinkler Hoods)

If wall mounting is desired for a transformer fitted with sprinkler hoods, optional wall mounting brackets can be ordered separately.

Use the selection table to the right to select the appropriate kit. One kit is required for each transformer.



SPRINKLER HOOD KIT AND WALL MOUNTING BRACKET KIT PART NO.'S

Sprinkler Hood Kit Part No.	Wall Mounting Part No.	Case Style
DHA1	WB2	A1
DHA2	WB2	A2
DHH1	WB2	H1
DHH2	WB2	H2
DHH3	N/A	H3
DHH4	N/A	H4
DHH5	WB2	H5
DHH6	WB2	H6
DHH7	N/A	H7
DHH8	N/A	H8
DHJ1	N/A	J1
DHJ2	N/A	J2
DHJ3	N/A	J3
DHJ4	N/A	J4
DHJ5	N/A	J5
DHJ6	N/A	J6
N/A	W1	UH1
N/A	W2	UH2&3
N/A	W1	UH5
N/A	W2	UH6

ANTI-VIBRATION PADS

Part No.	Case Style	Description
P1	A1 - A2	Rubber and steel washer assemblies which replace the standard steel washers
	H1 - H8	
	UH1 - UH8	
P2	J1 - J6	
	UJ1-UJ6	

VIBRATION ISOLATORS

Part No.	Transformer Weight (lb)	Description
NMP1	up to 380	Moulded neoprene and steel plate assemblies to virtually eliminate vibration noise from the transformer to the mounting surface.
NMP2	381 - 760	
NMP3	761 - 1040	
NMP4	1041 - 1880	
NMP5	1881 - 2880	
NMP6	2881 - 4880	



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