



HPS Millennium™ 6 Medium Voltage Distribution Transformer - up to 5kV

power to perform



HPS Millennium™ G

Medium Voltage Distribution Transformer



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Improved Efficiency For A Greener Tomorrow

Transformers have been and remain an essential part of our electrical infrastructure. Everywhere we look there is a transformer supplying power to industrial, commercial or residential applications.

Improving the energy efficiency of new transformers is a primary goal of the U.S. Department of Energy (DOE). The DOE has established new and more stringent Energy Efficiency levels for transformers in the U.S. effective January 1st, 2016.

HPS proudly supports the new legislation and the environmental benefits resulting from using higher efficiency transformers.

3.0
additional
acres of forest
in one year

DOE 2016 Environmental Benefits

Upgrading one 1000 kVA transformer at 5kV to a new DOE 2016 design translates to one of the following environmental benefits*:

408
gallons of
gasoline consumed

1.3
tons of waste
sent to the
landfill

3,893
pounds of
coal burned

*Estimated savings based on a pre TP-1 upgrade and a mix of energy sources. Calculations derived from www.epa.gov/cleanenergy/energy-resources/calculator.html

DOE 2016 Efficiency Guidelines

The latest Department of Energy (DOE) 10 CFR Part 431 ruling, originally published on April 18th, 2013, mandates new efficiency levels effective January 1st, 2016 known as DOE 2016. DOE 2016 will require all liquid filled and dry-type distribution transformers manufactured on or after January 1st, 2016 and sold into any U.S. state after this date to comply with the new energy efficiency standards. This applies to:

Medium Voltage Dry-type Distribution:



1PH 15-833kVA
3PH 15-2500kVA

* Non-ventilated and potted transformers are exempt from these efficiency requirements. Please refer to the DOE website for a full list of exemptions.



New Energy Efficiency Levels

The new energy efficiency levels for single and three phase medium voltage dry-type distribution transformers mandated as of January 1st, 2016 are as follows:

SINGLE PHASE			THREE PHASE		
	20-45kV BIL	46-95kV BIL		20-45kV BIL	46-95kV BIL
kVA	Efficiency %		kVA	Efficiency %	
15	98.10	97.86	15	97.50	97.18
25	98.33	98.12	30	97.90	97.63
37.5	98.49	98.30	45	98.10	97.86
50	98.60	98.42	75	98.33	98.13
75	98.73	98.57	112.5	98.52	98.36
100	98.82	98.67	150	98.65	98.51
167	98.96	98.83	225	98.82	98.69
250	99.07	98.95	300	98.93	98.81
333	99.14	99.03	500	99.09	98.99
500	99.22	99.12	750	99.21	99.12
667	99.27	99.18	1000	99.28	99.20
833	99.31	99.23	1500	99.37	99.30
			2000	99.43	99.36
			2500	99.47	99.41

DOE 2016 Compliant HPS Medium Voltage Transformers

The new DOE 2016 product lines from HPS are based on extensive customer input resulting in industry leading technologies and materials to meet your most demanding applications.

HPS Millennium G transformers are designed to meet the latest DOE 2016 efficiency standards.

Medium Voltage Distribution Transformers - HPS Millennium G:

With three phase ratings ratings from 15 to 1500kVA and single phase ratings from 15-333kVA, they feature the newest technology and manufacturing processes.

To service all of your medium voltage needs, HPS Millennium E is also available for applications requiring voltages up to 34.5kV. For more information on HPS Millennium™ E, please contact marketing@hammondpowersolutions.com.

Switches Unlimited
Contact: tech@switchesunlimited.com
Phone: 800-221-0487 ☐ Fax: 718-672-6370
www.switchesunlimited.com

Note: All efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Method for Measuring the Energy Consumption of Distribution Transformers under Appendix A to Subpart K of DOE 10 CFR part 431.

HPS Millennium™ G

Medium Voltage Distribution Transformer



HPS MILLENNIUM™ G

Hammond Power Solutions Inc. (HPS) is the industry leading manufacturer of standard and custom dry-type transformers in North America. Every HPS product is built with the quality and dependability you count on.

HPS Millennium™ medium voltage distribution transformers are designed for many demanding and diverse applications, while minimizing both installation and maintenance costs. Coils are precision wound with copper or aluminum conductors using either barrel or comb wound designs with a full vacuum-pressure impregnation (VPI) insulation system.

Switches Unlimited

Contact: tech@switchesunlimited.com

Phone: 800-221-0487 ☐ Fax: 718-672-6370

www.switchesunlimited.com

HPS ONLINE TOOLS

HPS offers many different tools to assist you in the selection of a HPS Transformer, these include an Energy Efficiency Calculator, a Current Calculator and a comprehensive Website.

Efficiency Calculator

Calculate the energy consumption (kWh), energy costs, and energy dollar savings using HPS energy efficient distribution transformers within a selected application profile.
www.hammondpowersolutions.com/hps-toolbox

Current Calculator

Calculates the Amps, Volts or kVA of a transformer.
www.hammondpowersolutions.com/hps-toolbox

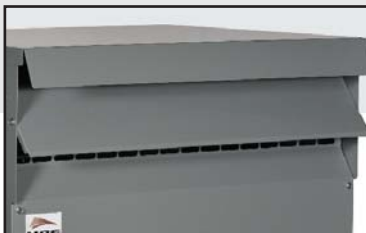
HPS Website

Our HPS website has useful information to assist you when selecting and installing a transformer. These include a competitor cross reference tool, installation manuals, typical specifications, and warranty information.
www.hammondpowersolutions.com/hps-toolbox

APPLICATIONS

HPS Millennium™ G is suitable for any commercial, industrial, or renewable energy application. They can be offered for a variety of environmental conditions and built to meet the most onerous duty.

- Industrial
- Commercial
- Renewable Energy



Standard type 3R enclosure
drip shield



Wall mounting brackets
(limited to lower kVA ratings and may
require optional hardware)



Expanded neutral bar for multiple
customer connections

Installation made fast & easy!

Tired of spending extra money on labor and material to install optional transformer features? These costs add up unless you purchase a HPS Millennium G transformer. HPS Millennium G has these optional features pre-installed as part of our standard product line.



FEATURES

Core & Coil Construction:

- Manufactured from quality non-aging, cold rolled grain oriented, silicon steel laminations
- Cores are precision cut to close tolerances which eliminates burrs and improves performance
- Core is coated to resist oxidation
- Precision wound with copper or aluminum conductors that are electrically balanced to minimize axial forces during short-circuit conditions
- Wire or foil conductors for optimum performance for the application
- Robust interface between core & coils for better short circuit performance
- Front accessible separate high and low voltage terminals with connectors suitable for either copper or aluminum cables.

Conductor material: Copper or Aluminum

Temperature rise: 150°C typical (low rise options available)

Insulation system: 220°C

BENEFITS

- Meets the minimum efficiency standards mandated in DOE 10 CFR Part 431 (levels as of Jan. 1st 2016) and exceeds CSA C802.2 resulting in increased dollar savings and positive societal/environmental payback
- Designed for indoor or outdoor applications
- VPI windings are mechanically durable for the most demanding environments
- Minimal maintenance required beyond removing surface contaminants, such as dust
- Ease of installation
- Excellent resistance to short circuits
- Self-extinguishing in the unlikely event of fire
- Environmentally friendly



Factory installed main grounding lugs



Bottom cable entry area where applicable



Offset outward facing floor installation holes for easy power tool access

HPS Millennium™ G

Medium Voltage Distribution Transformer



Specifications & Accessories - Copper or Aluminum



DH2 Enclosure



DH3 Enclosure



DH5 Enclosure

STANDARD SPECIFICATIONS

kVA:	15-1500 kVA	Termination:	Front accessible separate high and low voltage terminals; connectors suitable for aluminum and copper are provided for easy cable installation.
High Voltage (Primary):	Up to 5kV Class Up to 45 kV BIL	Conduit Entry:	Knockouts standard on all lower kVA units; conduit entry zone defined for larger kVA units.
Low Voltage (Secondary):	208Y/120V to 600Y/347V, 10kV BIL (3 phase units only) Options available upon request	Impedance:	Single Phase: Typically 2-5% Three Phase: Typically 3-6%
Frequency:	60 Hz, others available upon request	Mounting:	Floor or wall/ceiling mounting available. Refer to selection tables for details.
Insulation System:	220°C (180°C or 200°C for some units)	Seismic:	Seismically qualified according to the International Building Code (IBC) 2012, and the American Society of Civil Engineers ASCE 7-10 specifications, with the following design parameters (valid for floor mounting of enclosures only): Spectral acceleration: $S_{DS} \leq 2.0$ g Importance factor: $I_p = 1.5$ Attachment/height ratio: $z/h = 1.0$ "
Enclosure Type:	Type 3/3R standard (other enclosure options available). Enhanced Type 3R option available for improved outdoor performance).	Sound Level:	Meets IEEE C57.12.01 (optional low noise units available)
Enclosure Finish:	ANSI 61 Grey Compliant with UL 50	Altitude:	Standard up to 1000 meters (de-rated above 1000 meters)
Neutral:	Neutral terminal for field connection (on applicable units)	Ambient:	-20 to 40°C (with de-rating from 40° to 60°C)
Standard Primary Taps:	Refer to wiring diagrams for details		
Temperature Rise:	150°C temperature rise, 115°C or 130°C rise for some lower kVA units (optional 115°C & 80°C rise available)		

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Optional Accessories:

- Thermal sensing & indication
- Thermocouples
- Thermometers (analog/digital)
- Thermostat alarm / trip (N.O. /N.C. contacts)
- Electrostatic shielding

HPS Millennium Part Number Guide

Example

Family	Type	Efficiency	Phase	kVA Rating				Primary Voltage	Secondary Voltage	BIL	Winding Material/ Electrostatic Shield/ Thermostat - options incl.	Temp. Rise & Insul. Class	Enclosure	Sound Level
M	G	3	A	0	0	4	5	R	B	S	K	F	C	3

Family:

M - HPS Millennium

Type:

G- General Distribution

Efficiency:

1- Non EE/Legacy prod.
2- TP1/CSA C802.2
3 - DOE 2016

Phase (Pri-Sec):

A- 3PH - Delta - Wye
C- 3PH - Delta - Delta/CT
D- 3PH - Delta - Delta
K- 1PH - Single - Single
L - 1PH - Single - Dual

kVA:

kVA Rating

Primary Voltage:

1PH 3PH
R 2400 2400
S 4160 4160
T 4800 4800

Secondary Voltage:

1PH 3PH
A 120 120
B 208D or 208Y/120
D 240 240
E 120/240 120/240
K 480 480D or 480Y/277
P 600 600D or 600Y/347

BIL:

S - Standard
20kV for 2400V Pri. & 10kV for LV
30kV for 4160-4800V Pri. & 10kV for LV
P - Premium
30kV for 2400V Pri. & 10kV for LV
45kV for 4160-4800V Pri. & 10kV for LV

Winding Material/Electrostatic Shield:

A - Aluminum
S - Aluminum + Shield
T - Aluminum + Thermostat
U - Aluminum + Shield + Thermostat
R - Aluminum + Double Shield
C - Copper
K - Copper + Shield
L - Copper + Thermostat
M - Copper + Shield + Thermostat
J - Copper + Double Shield

Temperature Rise & Insulation Class:

B - 80°C
F - 115°C
G - 130°C
H - 150°C

Enclosure:

A - Type 1 F - Type 4
B - Type 2 G - Type 4X (304SS)
C - Type 3R H - Type 4X (316SS)
D - Type 3RE K - Type 12
E - Type 3RX X - None (Core & Coil)

Sound Level:

0 = Standard
3 = -3dB
5 = -5dB
8 = -8dB

TESTING

All VPI Power transformers are tested at HPS prior to shipment. They must meet stringent criteria to be certified for release. The following tests are performed on each power transformer:

- Resistance Measurement*
- Voltage Ratio
- Polarity & Phase-Relation Test
- No-Load Loss and Excitation Current Test
- Induced Voltage
- Impedance, Voltage & Load Loss Test*
- Power frequency voltage-withstand each winding
- Other testing available upon customer request

* typically not performed for units ≤ 500kVA



COMPLIANCE & APPROVALS

HPS Millennium™ is CSA certified and UL Listed to the following standards:

- CSA C22.2 No. 47
- CSA C9-02
- U.L. 1562



Compliant to the following industry standards:

- IEEE-C57.12.01
- IEEE-C57.12.51
- IEEE-C57.12.70
- IEEE-C57.12.91
- DOE 10 CFR Part 431: 2010 or 2016
- NRCAN SOR/94-651
- IEC 60076 (upon request)
- California OSHPD

Selection Tables

Aluminum, Single Phase



ALUMINUM WOUND, SINGLE PHASE



2400 Primary Volts

120/240 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG2L0015RESAFC0	180	NH6	23.90	25.00	28.75	290	F or W	SCD 6
25	MG2L0025RESAHC0	220	NH6	23.90	25.00	28.75	350	F or W	SCD 6
37.5	MG2L0037RESAHC0	220	NH6	23.90	25.00	28.75	420	F or W	SCD 6
50	MG2L0050RESAHC0	220	NH3	26.00	25.00	38.00	570	F or W	SCD 6
75	MG2L0075RESAHC0	220	NH3	26.00	25.00	38.00	660	F or W	SCD 6
100	MG2L0100RESAHC0	220	NH4	32.00	29.50	41.00	810	F	SCD 6
150	MG2L0150RESAHC0	220	NJ4	32.00	32.50	50.00	1280	F	SCD 6
167	MG2L0167RESAHC0	220	NJ4	32.00	32.50	50.00	1320	F	SCD 6
250	MG2L0250RESAHC0	220	NJ4	32.00	32.50	50.00	1560	F	SCD 6
333	MG2L0333RESAHC0	220	NJ2	48.50	38.40	59.00	1980	F	SCD 6

*These units have a 115°C temperature rise.

4160 Primary Volts

120/240 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG2L0015SESAFC0	180	NH6	23.90	25.00	28.75	290	F or W	SCD 6
25*	MG2L0025SESAFC0	180	NH6	23.90	25.00	28.75	350	F or W	SCD 6
37.5	MG2L0037SESAHC0	220	NH6	23.90	25.00	28.75	420	F or W	SCD 6
50	MG2L0050SESAHC0	220	NH3	26.00	25.00	38.00	570	F or W	SCD 6
75	MG2L0075SESAHC0	220	NH3	26.00	25.00	38.00	660	F or W	SCD 6
100	MG2L0100SESAHC0	220	NH4	32.00	29.50	41.00	810	F	SCD 6
150	MG2L0150SESAHC0	220	NJ4	32.00	32.50	50.00	1280	F	SCD 6
167	MG2L0167SESAHC0	220	NJ4	32.00	32.50	50.00	1320	F	SCD 6
250	MG2L0250SESAHC0	220	NJ4	32.00	32.50	50.00	1560	F	SCD 6
333	MG2L0333SESAHC0	220	NJ2	48.50	38.40	59.00	1980	F	SCD 6

*These units have a 115°C temperature rise.

Selection Tables

Copper, Single Phase



Hammond
Power Solutions

COPPER WOUND, SINGLE PHASE



2400 Primary Volts

120/240 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG2L0015RESCFC0	180	NH6	23.90	25.00	28.75	320	F or W	SCD 6
25*	MG2L0025RESCFC0	180	NH6	23.90	25.00	28.75	390	F or W	SCD 6
37.5*	MG2L0037RESCFC0	180	NH6	23.90	25.00	28.75	480	F or W	SCD 6
50*	MG2L0050RESCFC0	180	NH3	26.00	25.00	38.00	660	F or W	SCD 6
75	MG2L0075RESCFC0	220	NH3	26.00	25.00	38.00	770	F	SCD 6
100	MG2L0100RESCFC0	220	NH4	32.00	29.50	41.00	970	F	SCD 6
150	MG2L0150RESCFC0	220	NJ4	32.00	32.50	50.00	1300	F	SCD 6
167	MG2L0167RESCFC0	220	NJ4	32.00	32.50	50.00	1440	F	SCD 6
250	MG2L0250RESCFC0	220	NJ4	32.00	32.50	50.00	1800	F	SCD 6
333	MG2L0333RESCFC0	220	NJ2	48.50	38.40	59.00	2280	F	SCD 6

*These units have a 115°C temperature rise.

4160 Primary Volts

120/240 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG2L0015SESCFC0	180	NH6	23.90	25.00	28.75	320	F or W	SCD 6
25*	MG2L0025SESCFC0	180	NH6	23.90	25.00	28.75	390	F or W	SCD 6
37.5*	MG2L0037SESCFC0	180	NH6	23.90	25.00	28.75	480	F or W	SCD 6
50*	MG2L0050SESCFC0	180	NH3	26.00	25.00	38.00	660	F or W	SCD 6
75	MG2L0075SESCFC0	220	NH3	26.00	25.00	38.00	770	F	SCD 6
100	MG2L0100SESCFC0	220	NH4	32.00	29.50	41.00	970	F	SCD 6
150	MG2L0150SESCFC0	220	NJ4	32.00	32.50	50.00	1300	F	SCD 6
167	MG2L0167SESCFC0	220	NJ4	32.00	32.50	50.00	1440	F	SCD 6
250	MG2L0250SESCFC0	220	NJ4	32.00	32.50	50.00	1800	F	SCD 6
333	MG2L0333SESCFC0	220	NJ2	48.50	38.40	59.00	2280	F	SCD 6

*These units have a 115°C temperature rise.

Selection Tables

Aluminum, Three Phase



ALUMINUM WOUND, THREE PHASE



2400 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RBSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30	MG3A0030RBSAHC0	220	DH2	25.8	23.8	28.8	500	F or W/C	SCD 10
45	MG3A0045RBSAHC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075RBSAHC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112RBSAHC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150RBSAHC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225RBSAHC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300RBSAHC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500RBSAHC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750RBSAHC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000RBSAHC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250RBSAHC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500RBSAHC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise.

2400 Delta Primary Volts

480Y/277 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RKSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30	MG3A0030RKSAGC0	220	DH2	25.8	23.8	28.8	500	F or W/C	SCD 10
45	MG3A0045RKSAGC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075RKSAGC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112RKSAGC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150RKSAGC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225RKSAGC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300RKSAGC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500RKSAGC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750RKSAGC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000RKSAGC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250RKSAGC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500RKSAGC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise.

2400 Delta Primary Volts

600Y/347 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RPSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30	MG3A0030RPSAHC0	220	DH2	25.8	23.8	28.8	500	F or W/C	SCD 10
45	MG3A0045RPSAHC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075RPSAHC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112RPSAHC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150RPSAHC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225RPSAHC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300RPSAHC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500RPSAHC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750RPSAHC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000RPSAHC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250RPSAHC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500RPSAHC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise



4160 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SBSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30*	MG3A0030SBSAGC0	200	DH2	25.8	23.8	28.8	500	F or W/C	SCD 10
45	MG3A0045SBSAHC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075SBSAHC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112SBSAHC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150SBSAHC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225SBSAHC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300SBSAHC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500SBSAHC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750SBSAHC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000SBSAHC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250SBSAHC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500SBSAHC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise.

4160 Delta Primary Volts

480Y/277 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SKSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30*	MG3A0030SKSAGC0	200	DH2	25.8	23.8	28.8	500	F or W/C	SCD 10
45	MG3A0045SKSAHC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075SKSAHC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112SKSAHC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150SKSAHC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225SKSAHC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300SKSAHC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500SKSAHC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750SKSAHC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000SKSAHC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250SKSAHC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500SKSAHC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise.

4160 Delta Primary Volts

600Y/347 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SPSAGC0	200	DH2	25.8	23.8	28.8	350	F or W/C	SCD 8
30*	MG3A0030SPSAGC0	200	DH2	25.8	23.8	28.8	490	F or W/C	SCD 10
45	MG3A0045SPSAHC0	220	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75	MG3A0075SPSAHC0	220	DH4	31.5	29.5	44.5	800	F	SCD 10
112.5	MG3A0112SPSAHC0	220	DH4	31.5	29.5	44.5	900	F	SCD 10
150	MG3A0150SPSAHC0	220	DH5	37.5	34.0	52.0	1200	F	SCD 10
225	MG3A0225SPSAHC0	220	DH5	37.5	34.0	52.0	1700	F	SCD 10
300	MG3A0300SPSAHC0	220	DH6	49.0	41.5	64.0	2300	F	SCD 10
500	MG3A0500SPSAHC0	220	DH7	54.0	46.5	72.0	3200	F	SCD 10
750	MG3A0750SPSAHC0	220	DH9	68.0	49.5	72.0	6000	F	SCD 10
1000	MG3A1000SPSAHC0	220	DH10	78.0	54.5	78.0	7000	F	SCD 10
1250	MG3A1250SPSAHC0	220	DH10	78.0	54.5	78.0	8500	F	SCD 10
1500	MG3A1500SPSAHC0	220	DH10	78.0	54.5	78.0	9200	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise.

Selection Tables

Copper, Three Phase



COPPER WOUND, THREE PHASE



2400 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RBSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030RBSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045RBSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075RBSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5	MG3A0112RBSCGCO	220	DH4	31.5	29.5	44.5	950	F	SCD 10
150	MG3A0150RBSCGCO	220	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225RBSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300RBSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500RBSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 10
750	MG3A0750RBSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 10
1000	MG3A1000RBSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250RBSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500RBSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise

2400 Delta Primary Volts

480Y/277 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RKSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030RKSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045RKSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075RKSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5	MG3A0112RKSCGCO	220	DH4	31.5	29.5	44.5	950	F	SCD 10
150	MG3A0150RKSCGCO	220	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225RKSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300RKSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500RKSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 10
750	MG3A0750RKSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 10
1000	MG3A1000RKSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250RKSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500RKSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise

2400 Delta Primary Volts

600Y/347 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015RPSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030RPSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045RPSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075RPSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5	MG3A0112RPSCGCO	220	DH4	31.5	29.5	44.5	950	F	SCD 10
150	MG3A0150RPSCGCO	220	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225RPSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300RPSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500RPSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 10
750	MG3A0750RPSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 10
1000	MG3A1000RPSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250RPSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500RPSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise



4160 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SBSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030SBSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045SBSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075SBSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5*	MG3A0112SBSCGCO	200	DH4	31.5	29.5	44.5	950	F	SCD 10
150*	MG3A0150SBSCGCO	200	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225SBSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300SBSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500SBSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 10
750	MG3A0750SBSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 10
1000	MG3A1000SBSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250SBSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500SBSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise

4160 Delta Primary Volts

480Y/277 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SKSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030SKSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045SKSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075SKSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5*	MG3A0112SKSCGCO	200	DH4	31.5	29.5	44.5	950	F	SCD 10
150*	MG3A0150SKSCGCO	200	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225SKSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300SKSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500SKSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 20
750	MG3A0750SKSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 20
1000	MG3A1000SKSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250SKSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500SKSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise

4160 Delta Primary Volts

600Y/347 Secondary Volts

60 Hz

kVA	Catalog Number	Insul. Temp Class (°C)	Enclosure Style (pg 18-21)	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram (pg 25)
				Width	Depth	Height			
15*	MG3A0015SPSCGCO	200	DH2	25.8	23.8	28.8	330	F or W/C	SCD 8
30*	MG3A0030SPSCGCO	200	DH2	25.8	23.8	28.8	390	F or W/C	SCD 10
45*	MG3A0045SPSCGCO	200	DH3	28.3	27.0	36.0	600	F (Opt W/C)	SCD 10
75*	MG3A0075SPSCGCO	200	DH3	28.3	27.0	36.0	750	F (Opt W/C)	SCD 10
112.5*	MG3A0112SPSCGCO	200	DH4	31.5	29.5	44.5	950	F	SCD 10
150*	MG3A0150SPSCGCO	200	DH4	31.5	29.5	44.5	1100	F	SCD 10
225	MG3A0225SPSCGCO	220	DH5	37.5	34.0	52.0	1900	F	SCD 10
300	MG3A0300SPSCGCO	220	DH6	49.0	41.5	64.0	2600	F	SCD 10
500	MG3A0500SPSCGCO	220	DH6	49.0	41.5	64.0	3100	F	SCD 10
750	MG3A0750SPSCGCO	220	DH8	60.0	49.5	82.0	5500	F	SCD 10
1000	MG3A1000SPSCGCO	220	DH9	68.0	49.5	72.0	6600	F	SCD 10
1250	MG3A1250SPSCGCO	220	DH10	78.0	54.5	78.0	8100	F	SCD 10
1500	MG3A1500SPSCGCO	220	DH10	78.0	54.5	78.0	9100	F	SCD 10

W/C: Built-in Wall/Ceiling Mounting

Opt W/C: Wall/Ceiling Mounting Kit "DW3" Available

OSHPD Certified for Floor Mounting Only

*These units have a 130°C temperature rise

Typical Performance Data



5kV, 30kV BIL - Aluminum

Loss & Efficiency Data

High Voltage 5kV, 30kV BIL, Low Voltage - 600V Class, Aluminum

kVA	No Load Losses (W)	Full Load Losses* (W)	Total Losses (W)	Efficiency* (% load for unity PF)					
				25%	50%*	75%	100%	125%	133%
15	Consult HPS								
30									
45									
75									
112.5									
150									
225	625	3650	4275	98.51	98.82	98.44	98.14	97.80	97.69
300	750	4400	5150	98.65	98.93	98.59	98.31	98.01	97.91
500	1050	6325	7375	98.86	99.09	98.79	98.55	98.28	98.19
750	1425	7650	9075	99.00	99.21	98.99	98.80	98.59	98.52
1000	1775	9275	11050	99.07	99.28	99.08	98.91	98.72	98.65
1500	2200	13000	15200	99.20	99.37	99.16	99.00	98.81	98.75

*Full load losses & efficiencies are at a reference temperature of 170°C in accordance with IEEE Standard C57.12.91

The efficiencies of transformers rated 225-2500kVA at 50% load is calculated per DOE test procedure 10 CFR, Part 431, Subpart K, Appendix A
Performance data is subject to change.

5kV, 30kV BIL - Copper

Loss & Efficiency Data

High Voltage 5kV, 30kV BIL, Low Voltage - 600V Class, Copper

kVA	No Load Losses (W)	Full Load Losses* (W)	Total Losses (W)	Efficiency* (% load for unity PF)					
				25%	50%*	75%	100%	125%	133%
15	Consult HPS								
30									
45									
75									
112.5									
150									
225	575	3800	4375	98.58	98.82	98.42	98.09	97.74	97.62
300	700	4750	5450	98.69	98.93	98.52	98.22	97.88	97.77
500	900	6950	7850	98.94	99.09	98.73	98.45	98.15	98.05
750	1400	7950	9350	99.00	99.21	98.97	98.77	98.55	98.47
1000	1675	10025	11700	99.09	99.28	99.03	98.84	98.63	98.56
1500	1900	14400	16300	99.26	99.37	99.12	98.93	98.72	98.65

*Full load losses & efficiencies are at a reference temperature of 170°C in accordance with IEEE Standard C57.12.91

The efficiencies of transformers rated 225-2500kVA at 50% load is calculated per DOE test procedure 10 CFR, Part 431, Subpart K, Appendix A
Performance data is subject to change.

Termination Details



TERMINATION DETAILS - TYPE 3R

For standard 150°C temperature rise units.

SINGLE PHASE, ALUMINUM AND COPPER TERMINATION - LUGS OR PADS

kVA	VOLTAGE											
	120	120/240	208	240	277	347	380	416	480	600	2400	4160
0.25	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
0.5	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
0.75	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
1	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
1.5	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
2	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
3	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
5	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
7.5	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	-	-
10	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	-	-
15	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
25	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
37.5	Dia. 2	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
50	Dia. 2	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
75	Dia. 3	Dia. 2	Dia. 2	Dia. 2	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
100	Dia. 3	Dia. 2	Dia. 2	Dia. 2	Dia. 2	Dia. 2	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
150	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Dia. 2	Dia. 2	Dia. 2	Dia. 2	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
167	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Lugs (Dia. 1A)	Lugs (Dia. 1A)
250	Dia 6	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Lugs (Dia. 1B)	Lugs (Dia. 1A)
333	Dia 6	Dia.4	Dia.4	Dia.4	Dia.4	Dia.4	Dia.3	Dia.3	Dia.3	Dia.3	Lugs (Dia. 1B)	Lugs (Dia. 1A)

THREE PHASE, ALUMINUM AND COPPER TERMINATION - LUGS OR PADS

kVA	VOLTAGE									
	208	230	240	277	380	416	480	600	2400	4160
2	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
3	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
6	Leads	Leads	Leads	Leads	Leads	Leads	Leads	Leads	-	-
9	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	-	-
15	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
30	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
45	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
75	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
112.5	Lugs**	Dia. 1B	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
150	Dia. 1B	Dia. 1B	Dia. 1B	Dia. 1B	Lugs	Lugs	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
225	Dia. 2	Dia. 1B	Dia. 1B	Dia. 1B	Dia. 1B	Dia. 1B	Lugs	Lugs	Lugs (Dia. 1A)	Lugs (Dia. 1A)
300	Dia. 2	Dia. 2	Dia. 2	Dia. 2	Dia. 1B	Dia. 1B	Dia. 1B	Dia. 1B	Lugs (Dia. 1A)	Lugs (Dia. 1A)
500	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Dia. 2	Dia. 1B	Lugs (Dia. 1A)	Lugs (Dia. 1A)
600	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Dia. 2	Dia. 1B	Lugs (Dia. 1A)	Lugs (Dia. 1A)
750	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 3	Dia. 2	Lugs (Dia. 1B)	Lugs (Dia. 1A)
1000	Dia.4	Dia.4	Dia.4	Dia.4	Dia.3	Dia.3	Dia.3	Dia.3	Lugs (Dia. 1B)	Lugs (Dia. 1B)
1250	Dia 5	Dia 5	Dia 5	Dia 5	Dia.4	Dia.4	Dia.4	Dia.4	Dia. 1B	Lugs (Dia. 1B)
1500	Dia 6	Dia 6	Dia 6	Dia 6	Dia.4	Dia.4	Dia.4	Dia.4	Dia. 2	Lugs (Dia. 2)

** Lugs only supplied standard on 600V primary to 208Y/120V secondary units.(excluding K-Factor transformers)

All other voltages supplied standard with Diagram 1B pads.

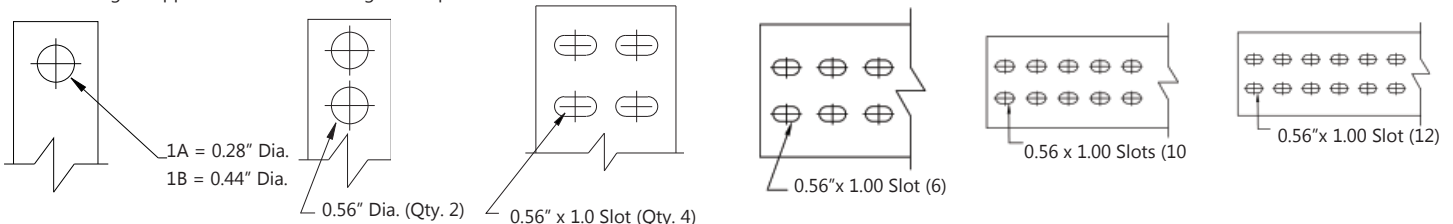


DIAGRAM 1

DIAGRAM 2

DIAGRAM 3

DIAGRAM 4

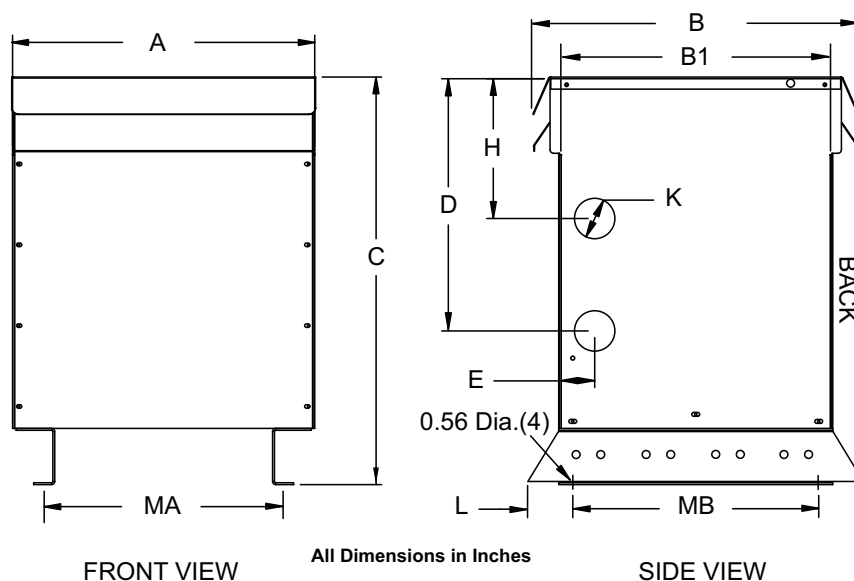
DIAGRAM 5

DIAGRAM 6

Data subject to change without notice.

Enclosure Drawings

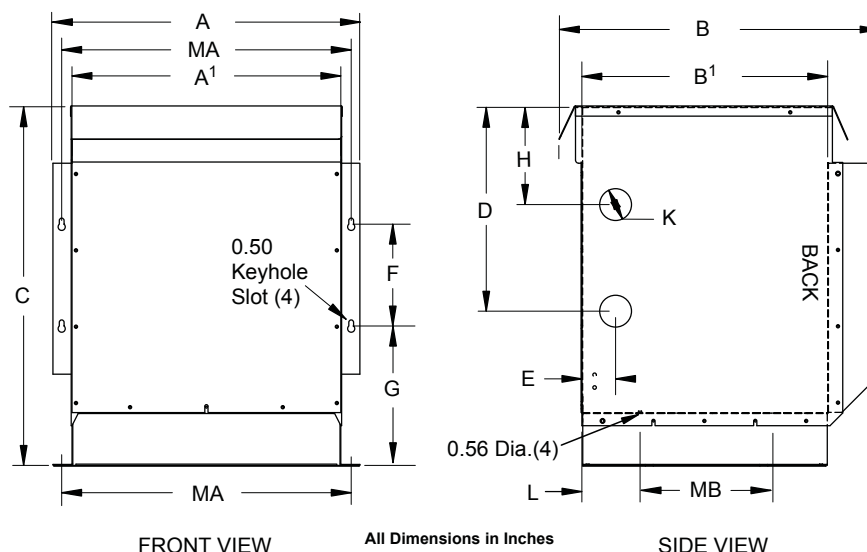
NH, NJ Series



Case Style	Dimensions in Inches										
	A	B	B1	C	D	E	H	K ¹	L	MA	MB
NH3	26.00	25.00	24.00	38.00	24.00	2.50	14.00	2.00 X 3.00	2.50	21.50	19.00
NH4	32.00	29.50	28.50	41.00	24.00	2.50	12.00	2.00 X 3.00	2.50	23.50	23.50

Note: Mounting hole dimension is 0.56" diameter.

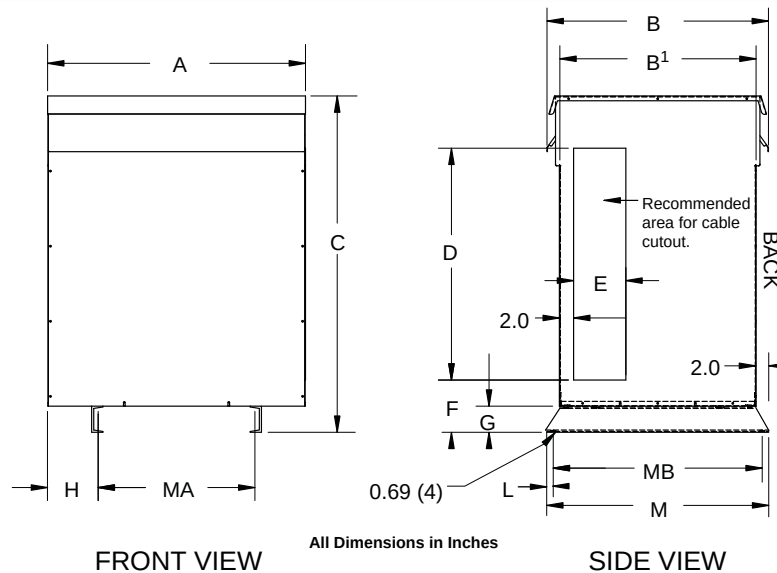
¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



Case Style	Dimensions in Inches													
	A	A1	B	B1	C	D	E	F	G	H	K ¹	L	MA	MB
NH6	23.90	21.50	25.00	19.50	28.75	17.00	2.00	8.00	10.29	8.50	1.38 X 2.50	5.20	22.75	9.00

Note: Mounting hole dimension is 0.56" diameter.

¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.

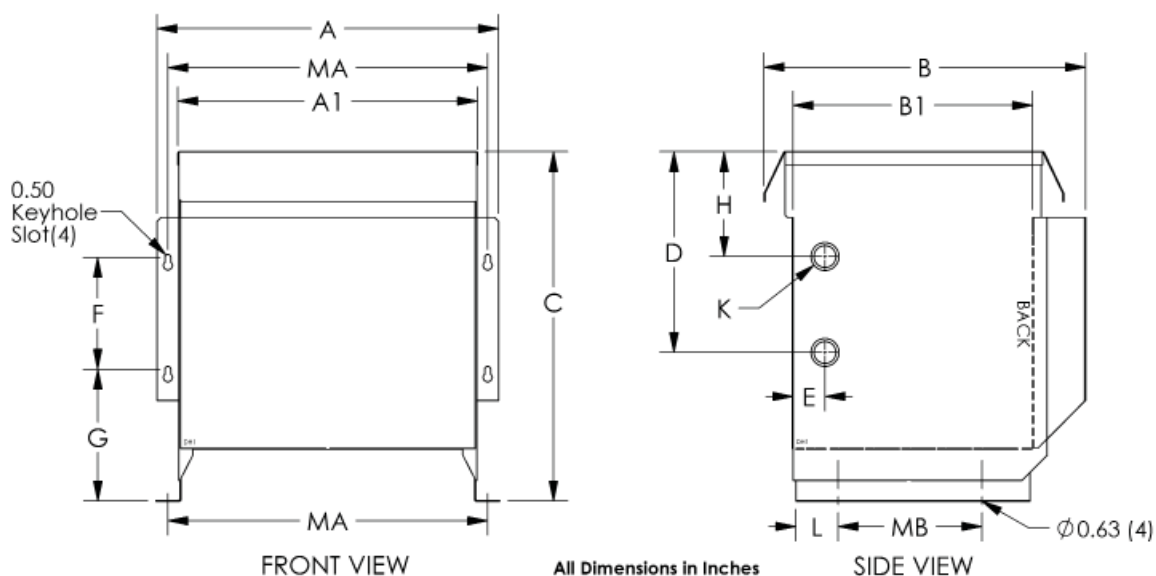


Case Style	Dimensions in Inches												
	A	B	B1	C	D	E	F	G	H	L	M	MA	MB
NJ2	48.50	38.40	34.00	59.00	40.00	8.00	8.00	4.00	10.50	1.00	38.00	27.50	36.00
NJ4	32.00	32.50	28.50	50.00	34.00	8.00	8.00	4.00	5.00	1.00	32.50	22.00	30.50

Note: Mounting hole dimension is 0.69" diameter.

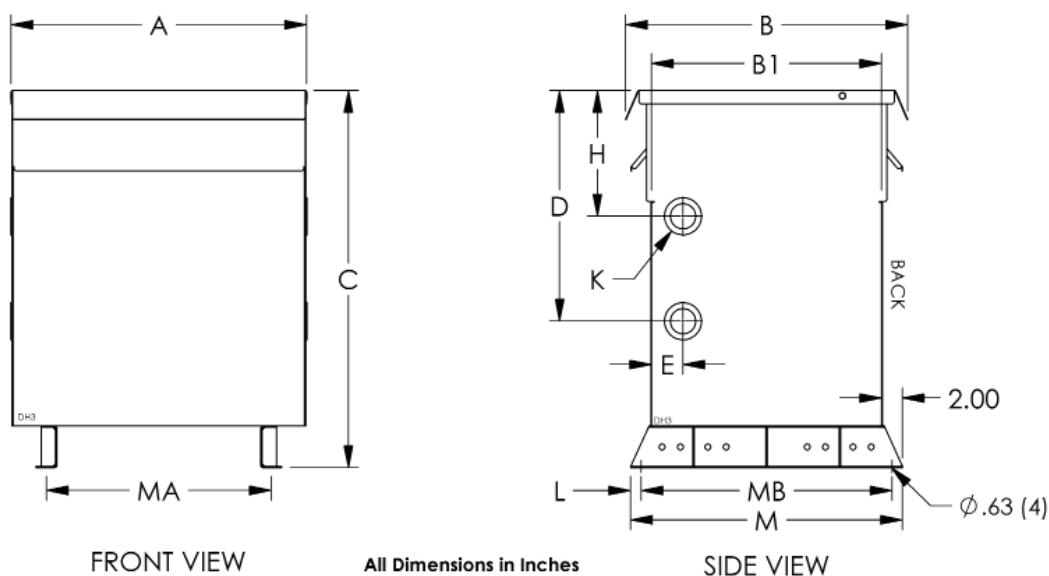
Enclosure Drawings

DH Series



Case Style	Dimensions in Inches														
	A	A1	B	B1	C	D	E	F	G	H	K	L	MA	MB	
DH2	25.8	23.3	23.8	18	28.8	17	2	8	10.3	8.6	1.75 X 2.50 K.O.	3.8	24.6	9	

¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



Case Style	Dimensions in Inches											
	A	B	B1	C	D	E	H	K	L	M	MA	MB
DH3	28.3	27	22	36	22	3	12	2.00 X 3.00 K.O.	1	26	21.5	24
DH4	31.5	29.5	24.5	44.5	27.5	3	14.5	2.00 X 3.00 K.O.	1	28.5	23.5	26.5

¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.

ENCLOSURE MOUNTING KITS

If wall and/or ceiling mounting is desired for a transformer, optional mounting kits can be ordered separately. These mounting kits are NOT available for all enclosure case styles. Therefore, it is important that you confirm your enclosure case style, then use the selection table to the right to determine if A) a mounting kit is available and B) determine the correct HPS "Mounting Kit" part number that you must order. One kit is required for each transformer. NOTE: Seismic qualification available for floor mounting only.

Note: Some of the mounting kits can be used for both wall and ceiling mount, while others are for wall mounting only. The table indicates which mounting methods are available for each kit. The NW2 and DW3 wall/ceiling mounting kit also includes a drip plate.

The NW2 and DW3 wall/ceiling mounting kit is only designed for units up to 800 pounds (341 kg) maximum.

If it is intended to wall and/or ceiling mount an enclosure that does not have a wall/ceiling mount kit available, considerations must be made to mechanically support the transformer safely and to install per the local building code. A drip plate must be provided beneath the enclosure per UL 1562 and CSA C22.2 No. 47.

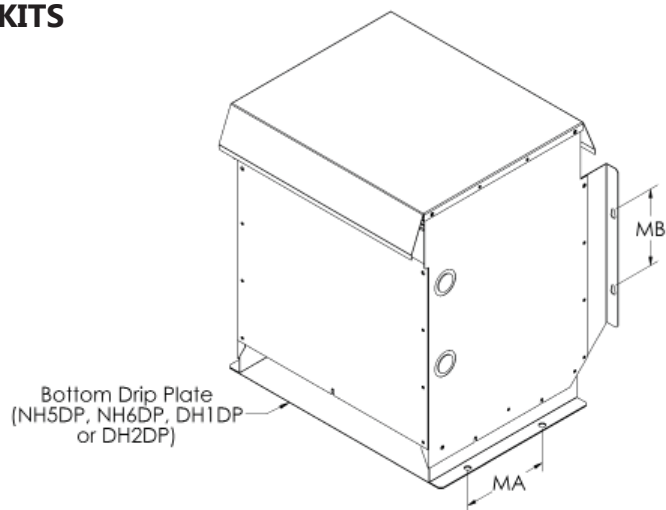
Enclosure Case Style	Wall Mount Available	Ceiling Mount Available	HPS Mounting Kit P/N
DH2	Yes	Yes	DH2DP
DH3	Yes	Yes	DW3
DH4	No	No	N/A
DH5	No	No	N/A
DH6	No	No	N/A
DH7	No	No	N/A
DH8	No	No	N/A
DH9	No	No	N/A
DH10	No	No	N/A
NJ2	No	No	N/A
NJ4	No	No	N/A
NH3	Yes	Yes	NW2
NH4	No	No	N/A
NH6	Yes	Yes	NH6DP

DH2DP, NH6DP WALL/CEILING MOUNTING KITS

The DH2 and NH6 enclosures are designed with integral wall mounting capabilities. However, when you wall mount them, you must also install the bottom drip plate as shown below. The "MB" dimensions listed in the table below indicate the location for the wall mounting hardware.

For ceiling mounting of the DH2 and NH6, refer to the "MA" dimensions listed in the table below and hang the enclosure using appropriate sized ceiling hanger rods. However, you must be sure to install the bottom drip plate to the bottom of the enclosure, then bring the hanger rod down through both the enclosure bottom mounting holes, through the drip plate mounting holes, and install mounting hardware.

Note: Do not ceiling mount either the DH2 or NH6 enclosures without installing the bottom drip plate. All mounting hardware should be rated Grade 8 or higher.

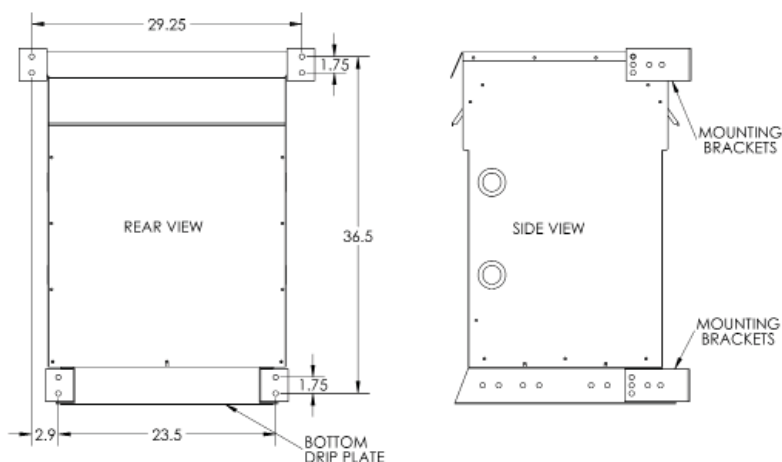


Mounting Kit P/N	Enclosure Style	MA Dimension	MB Dimension
NH6DP	NH6	9.00	8.00
DH2DP	DH2	9.00	8.00

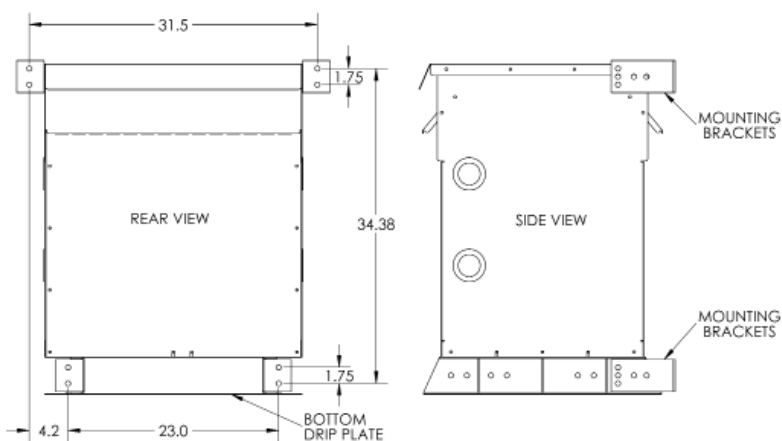
NW2, DW3 WALL MOUNTING KIT DIMENSIONS

The following drawings detail the wall mounting dimensions required and method by which the NW2 and DW3 kits are installed on the NH3 and DH3 enclosures. The NW2 and DW3 wall mounting kit also includes a drip plate.

NW2 Wall Mount Dimensions



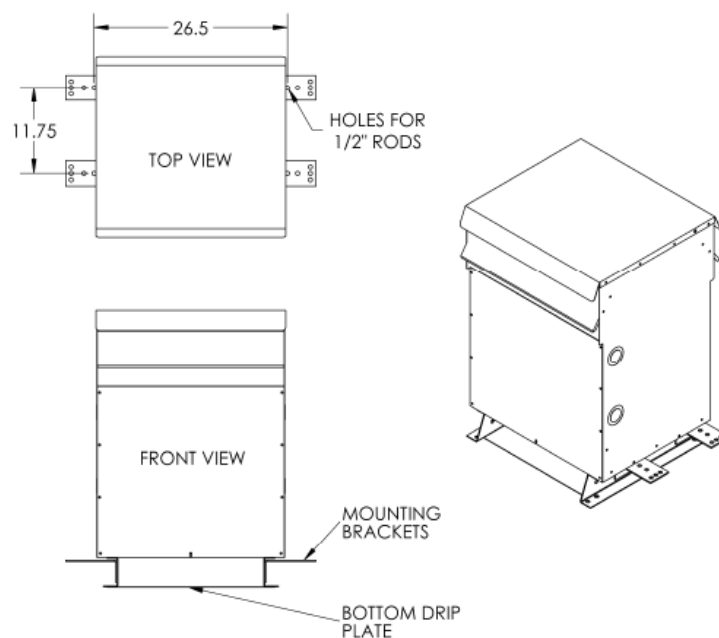
DW3 Wall Mount Dimensions



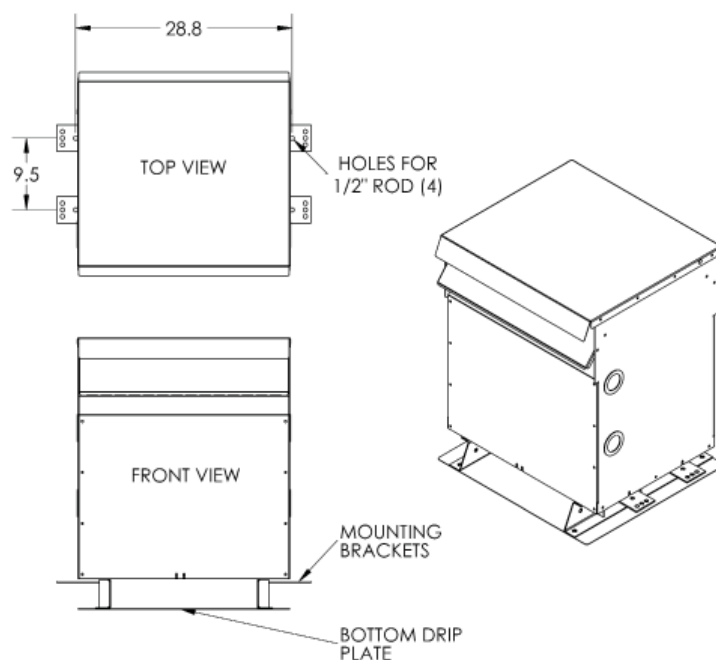
NW2, DW3 CEILING MOUNTING KIT DIMENSIONS

The following drawings detail the ceiling mounting dimensions required and method by which the NW2 and DW3 kits are installed on the NH3 and DH3 enclosures

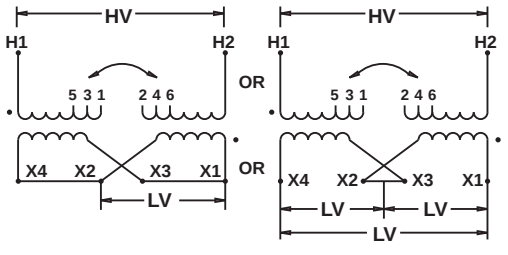
NW2 Ceiling Mount - Mounting Dimensions for NH3 Enclosure



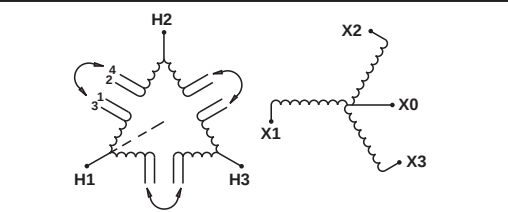
DW3 Ceiling Mount - Mounting Dimensions for DH3 Enclosures



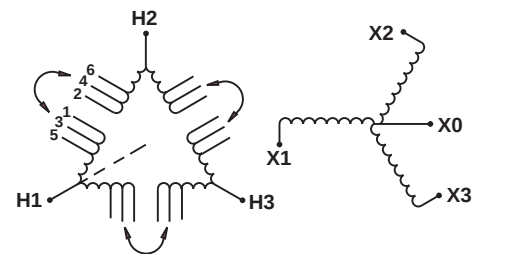
SCD 6

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

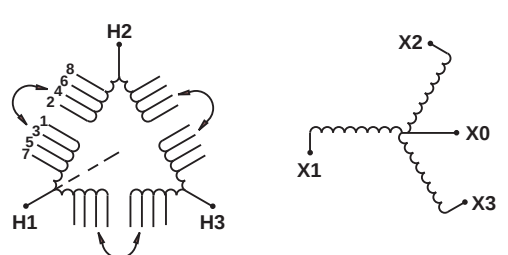
SCD 8

SCHEMATIC	CONNECTIONS		
	% Voltage		Connect lines to
	Primary Volts		Inter-connect
	105.0% 218 242 252 437 483 504 604 630 2520 4368		H1, H2, H3
	100.0% 208 230 240 416 460 480 575 600 2400 4160		H1, H2, H3
	95.0% 198 219 228 395 437 456 546 570 2280 3952		H1, H2, H3
	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 10

SCHEMATIC	CONNECTIONS		
	% Voltage		Connect lines to
	Primary Volts		Inter-connect
	105.0% 218 242 252 437 483 504 604 630 2520 4368		H1, H2, H3
	102.5% 213 236 246 426 472 492 589 615 2460 4264		H1, H2, H3
	100.0% 208 230 240 416 460 480 575 600 2400 4160		H1, H2, H3
	97.5% 203 224 234 406 449 468 561 585 2340 4056		H1, H2, H3
	95.0% 198 219 228 395 437 456 546 570 2280 3952		H1, H2, H3
	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 20

SCHEMATIC	CONNECTIONS		
	% Voltage		Connect lines to
	Primary Volts		Inter-connect
	105.0% 218 504 630		H1, H2, H3
	102.5% 213 492 615		H1, H2, H3
	100.0% 208 480 600		H1, H2, H3
	97.5% 203 468 585		H1, H2, H3
	95.0% 198 456 570		H1, H2, H3
	92.5% 193 444 556		H1, H2, H3
	90.0% 188 432 542		H1, H2, H3
	Secondary Volts		Connect lines to
	208 480		X1, X2, X3
	120 277		X1, X0 X2, X0 X3, X0

ANTI-VIBRATION PAD AND VIBRATION ISOLATOR KITS

All standard transformers come with installed internal vibration absorbing pads to minimize noise during operation. Optional external "anti-vibration" pad and "vibration isolator" (for higher noise dampening) kits can be used to reduce operating noise even further. All are resistant to industrial contaminants like oil, acids and alkalines.

Anti-Vibration Pad Kits

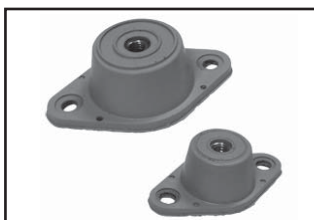
Part No.	Case Style	Description
P1	NH Series	Set of four (4) rubber anti-vibration pads which replace the standard steel enclosure washers.
P2	NJ Series	
PD1	DH1-DH5	
PD2	DH6-DH8	



All anti-vibration pad kits and vibration isolator kits contain a set of four (4) pads or isolators. Therefore only one kit is required per transformer.

Vibration Isolator Kits

Part No.	Transformer Weight (Lb)	Description
NMP1	Up to 340 lbs	Set of four (4) molded neoprene and steel plate assemblies that virtually eliminate vibration noise between the transformer and the mounting surface.
NMP2	341 to 680 lbs	
NMP3	681 to 1040 lbs	
NMP4	1041 to 1740 lbs	
NMP5	1741 to 2330 lbs	
NMP6	2331 to 3450 lbs	
NMP7	3451 to 4690 lbs	



All vibration isolator kits and anti-vibration pad kits contain a set of four (4) pads or isolators. Therefore only one kit is required per transformer.

ALTITUDE DERATING FACTOR

Altitude (FT)	kVA Correction	BIL Correction
3300	1.00	1.00
4000	0.994	0.98
5000	0.985	0.95
6000	0.975	0.92
7000	0.966	0.89
8000	0.957	0.86
9000	0.948	0.83
10,000	0.939	0.80
11,000	0.930	0.77
12,000	0.921	0.75
13,000	0.912	0.72
14,000	0.903	0.70
15,000	0.894	0.67

Per IEEE 100m = 330 ft



ENERGY EFFICIENT GENERAL PURPOSE DISTRIBUTION TRANSFORMERS

Generally used for supplying appliance, lighting, heating, motorized machine and power loads from electrical distribution systems.

Standard features include:

HPS Sentinel®

- Meets C802.2 efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® G

- Meets new DOE 2016 efficiency standards
- 10kV BIL on all three phase transformers



ENERGY EFFICIENT K-FACTOR TRANSFORMERS

The use of K-factor distribution transformers has become a popular means of supplying power for non-linear loads such as electronic ballasts, drives, personal computers, telecommunications equipment, broadcasting equipment and other similar power electronics. These non-linear loads generate harmonic currents which can substantially increase transformer losses. Our K-rated transformers have been specifically designed to prevent failure due to overheating.

Standard features include:

HPS Synergy®

- K-Factor ratings of K4, K9, K13 and K20
- Meets C802.2 efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® K

- K-Factor ratings of K4, K9, K13 and K20
- Meets new DOE 2016 efficiency standards
- 10kV BIL on all transformers



ENERGY EFFICIENT HARMONIC MITIGATING TRANSFORMERS

HPS Harmonic Mitigating transformers reduce voltage distortion (flat-topping) and power losses due to current harmonics created by single-phase, non-linear loads such as computer equipment. They treat sequence harmonics (3rd, 9th and 15th) within the secondary windings and 5th and 7th harmonics upstream with appropriate phase shifting. Typical applications of severe non-linear loading conditions include data centers, internet-service providers, telecom sites, call centers, broadcast centers, etc.

Standard features include:

HPS Centurion®

- Meets C802.2 efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® H

- K-Factor rating of K13 (others available on request)
- Meets new DOE 2016 efficiency standards
- 10kV BIL on all transformers





ENERGY EFFICIENT DRIVE ISOLATION TRANSFORMERS

HPS Tribune™ drive isolation transformers are suitable for both AC and DC variable speed drives. They are sized to match standard motor horsepower and voltage ratings.

Standard features include:

- Meets TP1 and C802.2 at 35% of rated load
- Three phase ratings from 7 kVA to 660 kVA
- Available in aluminum, copper and optional shield
- UL Listed and CSA Certified
- Type 3R enclosure (optional Type 4, 12 or stainless)



HPS ENDURACOIL™ CAST RESIN TRANSFORMERS

HPS EnduraCoil™ is a high-performance cast resin product designed for many demanding and diverse applications. Coils are precision wound with copper or aluminum conductors that are electrically balanced to minimize axial forces during short-circuit conditions.

Standard features include:

- kVA ratings from 300 to 3000 ANN, 4000 AFN, up to 34.5 kV Class
- Enclosure options (Type 1, 2, 3R, 3RE, 4, 12; other paint colors or stainless steel)
- Multiple standard options
- UL listed and CSA certified

HPS EnduraCoil™

- Meets Canadian Energy Efficiency Regulations SOR/94-651 efficiency levels at 50% of rated load

HPS EnduraCoil™ E

- Meets new DOE 2016 efficiency standards



DRY-TYPE MEDIUM VOLTAGE (POWER) DISTRIBUTION TRANSFORMERS

Our medium voltage (power) distribution transformers are regarded for their high level of quality and service reliability that has become synonymous with HPS transformer products. These transformers are suitable for any commercial, industrial, or renewable energy application within the most demanding of environments.

Standard features include:

- Ratings up to 34 MVA and 46 kV class
- Enclosure options (Type 1, 2, 3R, 3RE, 4, 12; other paint colors or stainless steel)
- Multiple standard options

HPS Power Transformers

- Meets Canadian Energy Efficiency Regulations SOR/94-651 efficiency levels at 50% of rated load

HPS Millennium E™

- Meets DOE 2016 efficiency standards

