



HPS EXPRESS® L

Commercial Low Voltage
Distribution Transformers



HPS Express® L Commercial Distribution Transformer



Our Experience

HPS is the largest manufacturer of dry-type transformers in North America with over 100 years of experience. We engineer and manufacture a wide range of standard and custom transformers that are exported globally in electrical equipment and systems. We support industries such as oil and gas, mining, steel, waste and water treatment, and solar power generation.


HPS leads the industry in these markets through our technical design strength, breadth of product and manufacturing capabilities in Mexico, USA, Canada and Asia.

HPS Express™ L series, low voltage distribution transformers, offer an ideal combination of features, quality, reliability and performance to provide the most cost effective solution for your commercial applications.


For applications requiring NMX-J-351-1-ANCE-2021 compliance, please refer to the HPS Sentinel Series.

Typical Applications


HPS Express L satisfies the needs of typical electrical power distribution applications including:




Lighting




Small Power Distribution




HVAC




Shopping Plazas




Office Towers



Residential High-Rise



Commercial Buildings



Big Box Stores

Energy Efficiency

HPS Express L is a general purpose transformer line meeting the following levels:

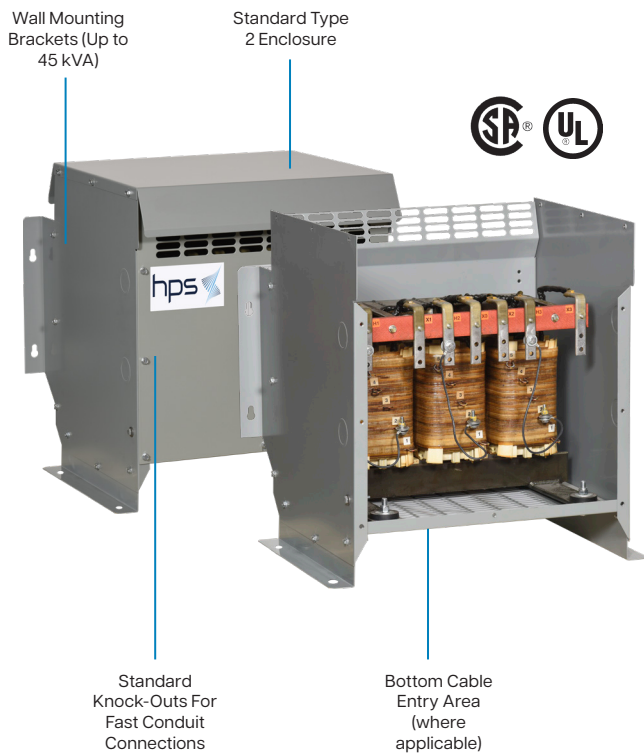
Three Phase	
kVA	Efficiency (%)
15	95.7
30	96.1
45	96.6
75	96.5
112.5	97.1
150	97.4
225	97.8
300	97.7
500	98.1

Note: These typical efficiency values are at 35% of nominal load.

Benefits

- The flexibility of these low voltage transformers supports connecting in 440, 460 and 480 volts (on the primary side) with the same equipment
- Standard Type 2 enclosure (Type 3R enclosure optional)
- Step up available with 208/220 volts on the primary side and 480 or 440 volts on the secondary side
- Available in Aluminum and Copper winding
- Standard integral floor and wall mounting brackets up to 45 kVA allow for faster installation
- Industry leading design and technology solutions
- Unmatched HPS quality and reliability
- UL Listed

Installation made fast & easy!



Specifications

kVA:	15-500 kVA	Standard Primary Taps:	440, 460, 480, 504 or 208, 220
Phase:	Three phase	Secondary Voltage:	Step Down: 220/127 or 208/120 Step Up: 440/254 or 480/277
Winding:	Aluminium or Copper	Termination:	Front accessible high and low voltage terminals
UL Listed:	File: E112313	Conduit Entry:	Side knock-outs provided where applicable
Frequency:	60 Hz	Impedance:	Typically 3% to 6.5%
Insulation System:	220°C (150°C rise)	Mounting:	Floor mounting standard / wall mounting optional Refer to selection tables for details
Enclosure Type:	Type 2 standard (Type 3R optional)	Sound Level:	Meets NEMA ST-20 standards
Enclosure Finish:	ANSI 61 Grey, UL50	Warranty:	1 year
Neutral:	Neutral terminal for field connection (on applicable units)		

HPS Express L Part Number Guide

Example

Family		Generation	Phase	kVA				Pri. Volt	Sec. Volt.	Winding Material	Enclosure
E	L	1	A	0	0	4	5	M	C	A	C
Family				kVA Rating				Primary Voltage		Winding Material	
E - Low Efficiency				0015 0150 0030 0225 0045 0300 0075 0500 0112				3PH: M 440/460/480 U 208/220		A - Aluminum* C - Copper	
Generation								Secondary Voltage		Enclosure	
Gen 1								3PH: C 220/127 B 208/120 M 440/254 K 480/227		B - Type 2* C - Type 3R	
Phase (Pri-Sec)											
A - 3PH Delta-Wye-N											

* Default option - ignore if all following characters are default values.

SELECTION TABLES

Aluminum Wound, Three Phase



480D PRIMARY VOLTS 220Y/127 SECONDARY VOLTS 60 HZ

kVA	Catalog Number	Case Style	Approx. Dimensions - Inches [mm]			Full Capacity Taps	°C Temp. Rise	Approx. Weight Lbs [kg]	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height					
15	EL1A0015MC	DH1-N2	21.50 [546]	20.10 [511]	22.00 [559]	4 - 1 FCAN, 3 FCBN	150	160 [75]	F or W/C	SCD A
30	EL1A0030MC	DH2-N2	25.80 [655]	23.80 [605]	28.80 [732]	4 - 1 FCAN, 3 FCBN	150	280 [127]	F or W/C	SCD A
45	EL1A0045MC	DH2-N2	25.80 [655]	23.80 [605]	28.80 [732]	4 - 1 FCAN, 3 FCBN	150	320 [145]	F or W/C	SCD A
75	EL1A0075MC	DH3-N2	28.30 [719]	27.00 [686]	36.00 [914]	4 - 1 FCAN, 3 FCBN	150	545 [247]	F (Opt W/C)	SCD A
112.5	EL1A0112MC	DH3-N2	28.30 [719]	27.00 [686]	36.00 [914]	4 - 1 FCAN, 3 FCBN	150	690 [313]	F (Opt W/C)	SCD A
150	EL1A0150MC	DH4-N2	31.50 [800]	29.50 [749]	44.50 [1130]	4 - 1 FCAN, 3 FCBN	150	950 [431]	F	SCD A
225	EL1A0225MC	DH5-N2	38.00 [965]	34.00 [864]	52.00 [1321]	4 - 1 FCAN, 3 FCBN	150	1350 [612]	F	SCD A
300	EL1A0300MC	DH5-N2	38.00 [965]	34.00 [864]	52.00 [1321]	4 - 1 FCAN, 3 FCBN	150	1450 [658]	F	SCD A
500	EL1A0500MC	DH6-N2	49.00 [1245]	42.00 [1067]	64.00 [1626]	4 - 1 FCAN, 3 FCBN	150	2700 [1225]	F	SCD B



480D PRIMARY VOLTS 208Y/120 SECONDARY VOLTS 60 HZ

kVA	Catalog Number	Case Style	Approx. Dimensions - Inches [mm]			Full Capacity Taps	°C Temp. Rise	Approx. Weight Lbs [kg]	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height					
15	EL1A0015MB	DH1-N2	21.50 [546]	20.10 [511]	22.00 [559]	4 - 1 FCAN, 3 FCBN	150	160 [75]	F or W/C	SCD A
30	EL1A0030MB	DH2-N2	25.80 [655]	23.80 [605]	28.80 [732]	4 - 1 FCAN, 3 FCBN	150	280 [127]	F or W/C	SCD A
45	EL1A0045MB	DH2-N2	25.80 [655]	23.80 [605]	28.80 [732]	4 - 1 FCAN, 3 FCBN	150	320 [145]	F or W/C	SCD A
75	EL1A0075MB	DH3-N2	28.30 [719]	27.00 [686]	36.00 [914]	4 - 1 FCAN, 3 FCBN	150	545 [247]	F (Opt W/C)	SCD A
112.5	EL1A0112MB	DH3-N2	28.30 [719]	27.00 [686]	36.00 [914]	4 - 1 FCAN, 3 FCBN	150	690 [313]	F (Opt W/C)	SCD A
150	EL1A0150MB	DH4-N2	31.50 [800]	29.50 [749]	44.50 [1130]	4 - 1 FCAN, 3 FCBN	150	950 [431]	F	SCD A
225	EL1A0225MB	DH5-N2	38.00 [965]	34.00 [864]	52.00 [1321]	4 - 1 FCAN, 3 FCBN	150	1350 [612]	F	SCD A
300	EL1A0300MB	DH5-N2	38.00 [965]	34.00 [864]	52.00 [1321]	4 - 1 FCAN, 3 FCBN	150	1450 [658]	F	SCD A
500	EL1A0500MB	DH6-N2	49.00 [1245]	42.00 [1067]	64.00 [1626]	4 - 1 FCAN, 3 FCBN	150	2700 [1225]	F	SCD B

TYPICAL IMPEDANCE & TYPICAL PERFORMANCE DATA

Three Phase

Inrush Current Range

VOLTAGE RANGE 120V TO 600V

150°C TEMP. RISE

kVA	Efficiency at 35% of Rated Load, @75°C	Peak Inrush Current Multiple of RMS Current
15	95.7%	10 to 14
30	96.1%	
45	96.6%	
75	96.5%	
112.5	97.1%	
150	97.4%	6 to 11
225	97.8%	
300	97.7%	
500	98.1%	



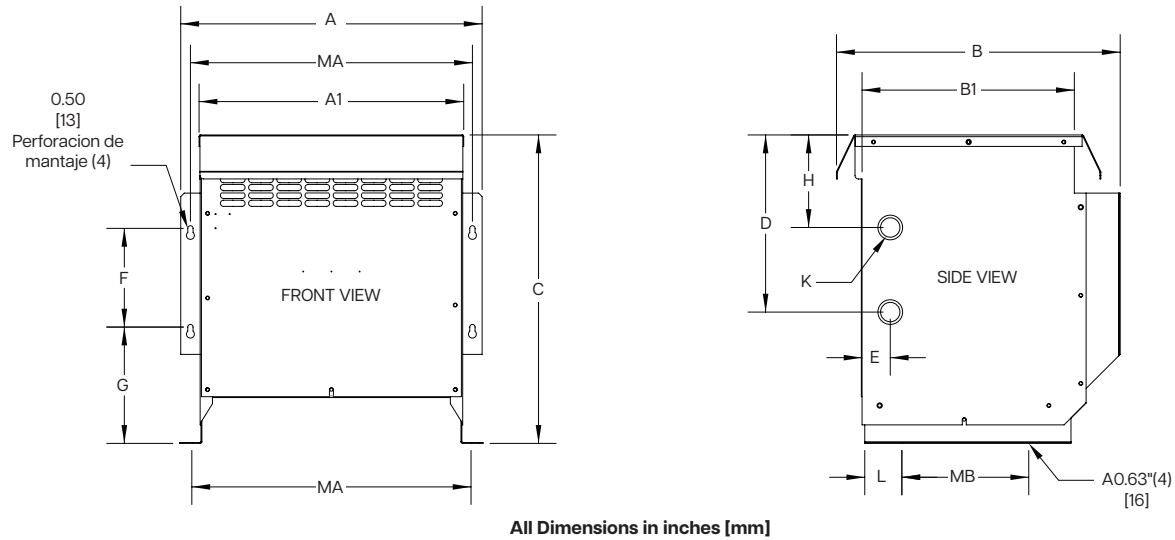
TYPICAL PERFORMANCE DATA

kVA	No Load Losses (W)	Full Load Losses* (W)	Impedance	Regulation				% Efficiency at different % of rated load						
				at 35% load @ 60°C		at 100%* load @ 170°C								
				pf=1	pf=0.8	pf=1	pf=0.8	15%	25%	35%	50%	65%	75%	100%*
15	160	700	5-5.5%	1.2	1.6	4.6	5.5	92.5%	94.9%	95.7%	96.1%	96.0%	95.7%	94.6%
30	290	1360	5-5.5%	1.2	1.5	4.6	5.2	93.3%	95.4%	96.1%	96.4%	96.2%	95.9%	94.8%
45	360	1800	4.8-5.5%	1	1.4	4	4.9	94.2%	96.0%	96.6%	96.8%	96.6%	96.4%	95.4%
75	660	2700	6-6.5%	1	1.9	3.8	6.1	93.9%	95.8%	96.5%	96.9%	96.9%	96.8%	96.4%
112.5	750	3980	5-6.5%	0.9	1.7	3.6	5.6	95.1%	96.6%	97.1%	97.3%	97.1%	96.9%	95.9%
150	1050	4250	4-5%	0.8	1.3	2.9	4.4	95.5%	96.9%	97.4%	97.6%	97.5%	97.4%	96.6%
225	1300	5560	4-5%	0.7	1.3	2.5	4.1	96.1%	97.4%	97.8%	97.9%	97.9%	97.7%	97.1%
300	1600	7850	4-6%	0.7	1.7	2.8	5.3	95.9%	97.2%	97.7%	97.8%	97.7%	97.6%	96.9%
500	2300	11500	4-6.5%	0.6	1.7	2.5	5.4	96.8%	97.8%	98.1%	98.2%	98.1%	98.0%	97.3%

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

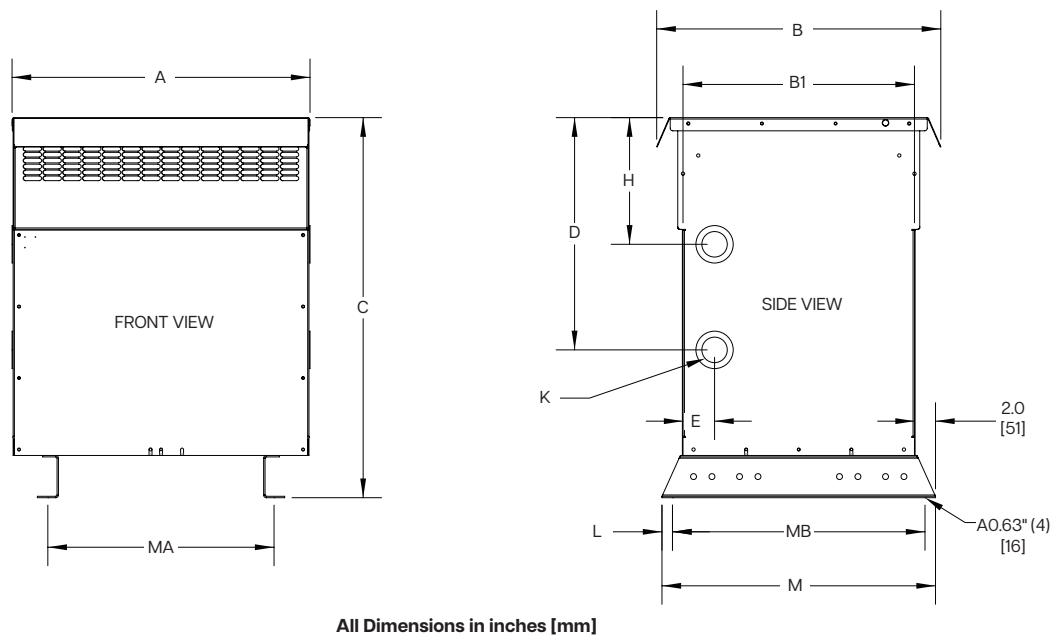
ENCLOSURE DRAWINGS

DH SERIES



Case Style	Dimensions in Inches [Millimeter]														
	A	A1	B	B1	C	D	E	F	G	H	K¹	L	MA	MB	
DH1-N2	21.5 [546]	18.8 [478]	20.1 [511]	15 [381]	22 [559]	12.6 [320]	2 [51]	7 [178]	8.3 [211]	6.6 [168]	1.4 X 1.8 K.O. [35 x 44 K.O.]	2.6 [66]	20 [508]	9 [229]	
DH2-N2	25.8 [655]	23.3 [592]	23.8 [605]	18 [457]	28.8 [732]	17.1 [434]	2 [51]	8 [203]	10.3 [262]	8.6 [218]	1.8 X 2.5 K.O. [44 X 64 K.O.]	3.8 [96]	24.60 [625]	9 [229]	

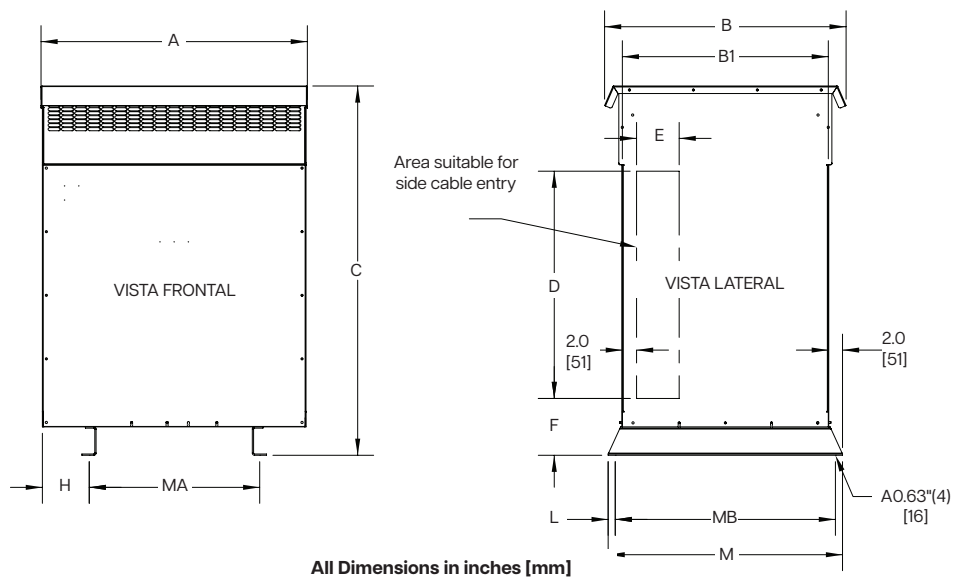
¹ Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



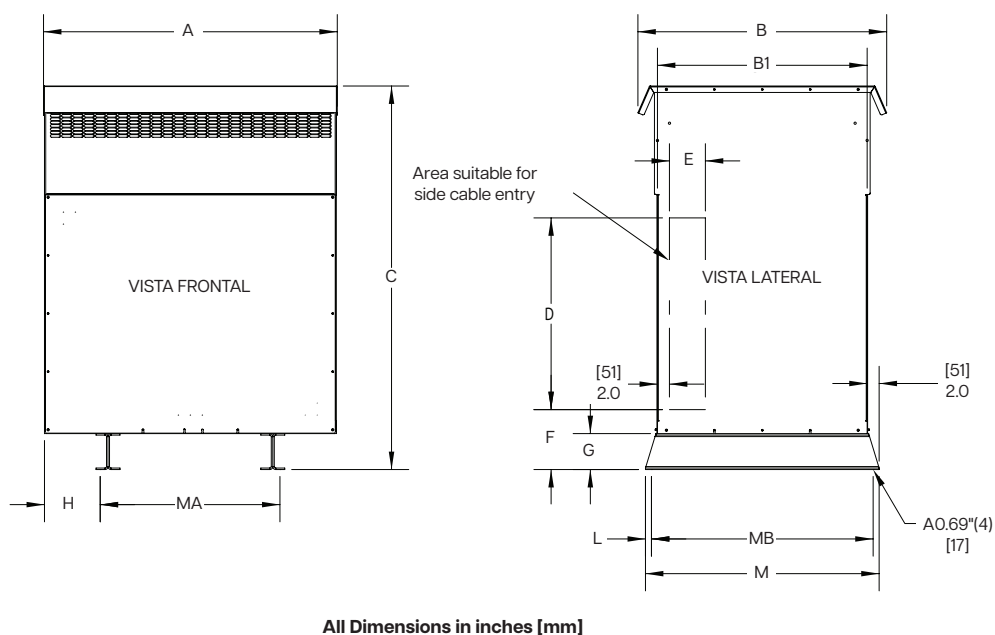
Case Style	Dimensions in Inches [Millimeter]											
	A	B	B1	C	D	E	H	K ¹	L	M	MA	MB
DH3-N2	28.3	27	22	36	22	3	12	2.00 X 3.00 K.O.	1	26	21.5	24
	[719]	[686]	[559]	[914]	[559]	[76]	[305]	[51 X 76 K.O.]	[25]	[660]	[546]	[610]
DH4-N2	31.5	29.5	24.5	44.5	27.5	3	14.5	2.00 X 3.00 K.O.	1	28.5	23.5	26.5
	[800]	[749]	[622]	[1130]	[699]	[76]	[368]	[51 X 76 K.O.]	[25]	[724]	[597]	[673]

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

DH SERIES



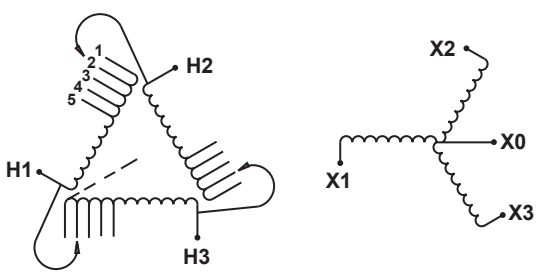
Case Style	Dimensions in Inches [Millimeter]											
	A	B	B1	C	D	E	F	H	L	M	MA	MB
DH5-N2	37.5 [953]	34 [864]	29 [737]	52 [1321]	32 [812]	6 [152]	8 [203]	6.6 [168]	1 [25]	33 [838]	24 [610]	31 [787]



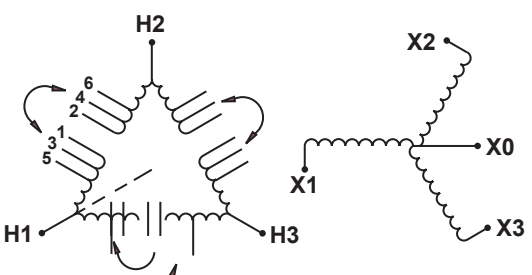
Case Style	Dimensions in Inches [Millimeter]												
	A	B	B1	C	D	E	F	G	H	L	M	MA	MB
DH6-N2	49	41.5	35	64	32	6	10	6	9.3	1	39	30	37
	[1245]	[1054]	[889]	[1626]	[813]	[152]	[254]	[152]	[236]	[25]	[991]	[762]	[940]

ELECTRICAL SCHEMATICS & TERMINATION DETAILS

SCD A

Schematic	Connections			
	% Voltage	Primary Volts	Connect lines to	Inter-connect
	105%	504	H1, H2, H3	1
	100%	480	H1, H2, H3	2
	96%	460	H1, H2, H3	3
	92%	440	H1, H2, H3	4
	87%	418	H1, H2, H3	5
	Secondary Volts		Connect lines to	Inter-connect
	220		X1, X2, X3	-
	127		X1, X0 X2,X0 X3,X0	-
	208		X1, X2, X3	-
	120		X1,X0 X2,X0 X3,X0	-

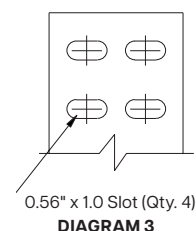
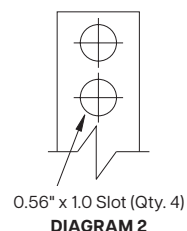
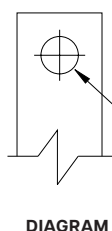
SCD B

Schematic	Connections			
	% Voltage	Primary Volts	Connect lines to	Inter-connect
	105%	504	H1, H2, H3	1-2
	100%	480	H1, H2, H3	2-3
	96%	460	H1, H2, H3	3-4
	92%	440	H1, H2, H3	4-5
	87%	418	H1, H2, H3	5-6
	Secondary Volts		Connect lines to	Inter-connect
	220		X1, X2, X3	-
	127		X1, X0 X2,X0 X3,X0	-
	208		X1, X2, X3	-
	120		X1,X0 X2,X0 X3,X0	-

TERMINATION DETAILS - TYPE 3R

THREE PHASE, ALUMINUM TERMINATION LUGS OR PADS

kVA	Voltage	
	480	220Y/127
15	Dia. 1A	Dia. 1A
30	Dia. 1A	Dia. 1A
45	Dia. 1A	Dia. 1A
75	Dia. 1A	Dia. 1B
112.5	Dia. 1B	Dia. 1B
150	Dia. 1B	Dia. 1B
225	Dia. 1B	Dia. 2
300	Dia. 1B	Dia. 2
500	Dia. 2	Dia. 3



Wall 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: 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 DW3 wall/ceiling mounting kit also includes a drip plate. The DW3 wall/ceiling mounting kit is only designed for units up to 1000 pounds (453 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 1561 and CSA C22.2 No. 47.

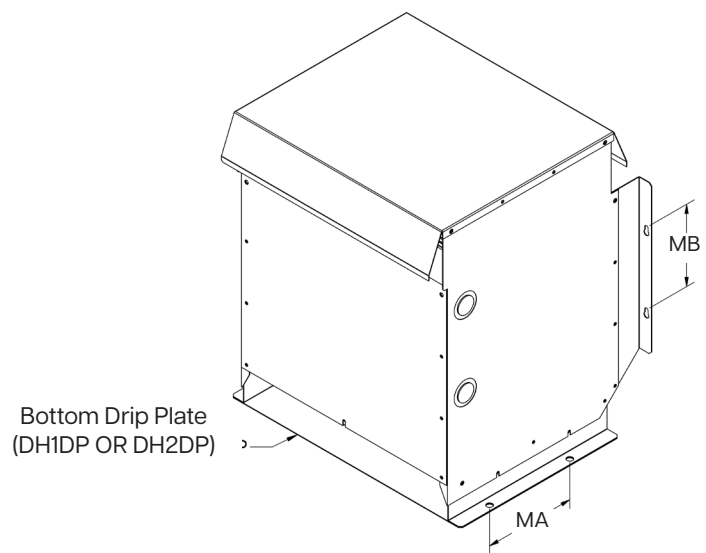
DH1DP And DH2DP Wall/Ceiling Mounting Kits

The DH1-N2 and DH2-N2 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 DH1-N2 and DH2-N2, 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 DH1-N2 and DH2-N2 enclosures without installing the bottom drip plate. All mounting hardware should be rated Grade 8 or higher.

Enclosure Case Style	Wall Mount Available	Ceiling Mount Available	HPS Mounting Kit P/N
DH1 -N1	Yes	Yes	DH1DP
DH2-N2	Yes	Yes	DH2DP
DH3-N2	Yes	Yes	DW3
DH4-N2	No	No	N/A
DH5-N2	No	No	N/A
DH6-N2	No	No	N/A

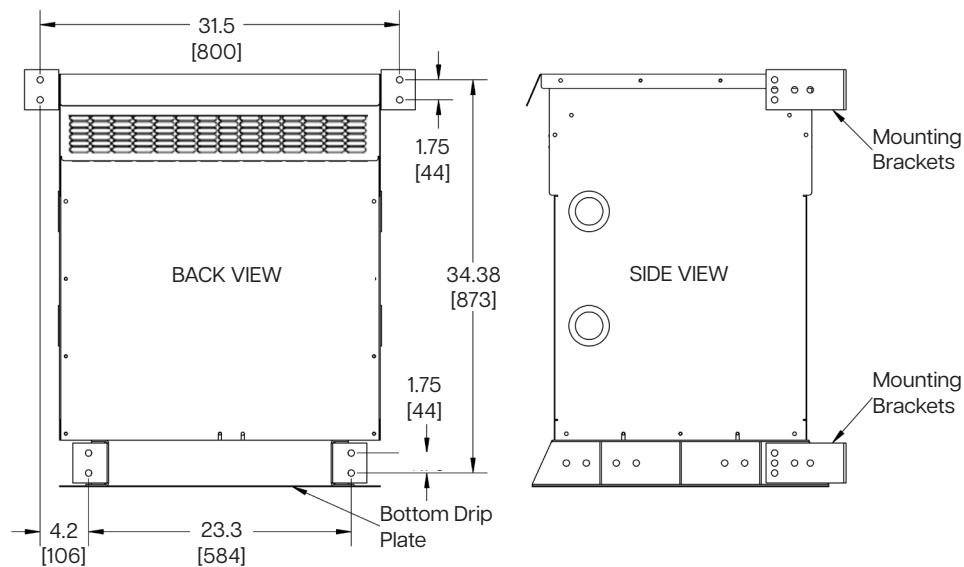


Mounting Kit P/N	Enclosure Style	MA Dimension Inches [mm]	MB Dimension Inches [mm]
DH1DP	DH1-N2	9.00 [229]	7.00 [178]
DH2DP	DH2-N2	9.00 [229]	8.00 [203]

ENCLOSURE WALL MOUNTING DIMENSIONS

DW3 Wall Mounting Kit Dimensions

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

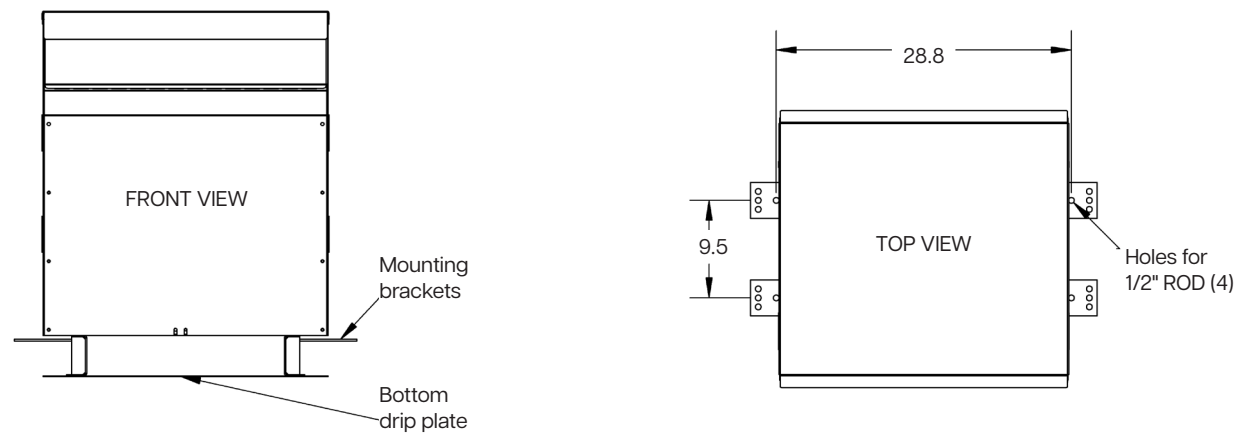


All dimensions in inches [mm]

DW3 Wall Mount Dimensions

DW3 Ceiling Mounting Kit Dimensions

The following drawings detail the ceiling mounting dimensions required and method by which the DW3 kit are installed on the DH3 enclosure.



All dimensions in inches [mm]

ANTI-VIBRATION PAD & VIBRATION ISOLATOR KITS

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 pads are resistant to industrial contaminants like oil, acids and alkalines.

ANTI-VIBRATION PAD KITS

Part No.	Case Style	Description
PD1	DH1-DH5 - DH5-N2	Set of four (4) rubber anti-vibration pads which replace the standard steel enclosure washers.
PD2	DH6-N2	



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 Lbs [kg]	Description
NMP1	Up to 340 lbs [153]	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 [154 to 307]	
NMP3	681 to 1040 lbs [308 to 470]	
NMP4	1041 to 1740 lbs [472 to 789]	
NMP5	1741 to 2330 lbs [788 to 1055]	
NMP6	2331 to 3450 lbs [1056 to 1563]	
NMP7	3451 to 4690 lbs [1564 to 2127]	



All 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.



CANADA

Hammond Power Solutions

595 Southgate Drive
Guelph, Ontario N1G 3W6
Tel: (519) 822-2441 | Fax: (519) 822-9701
Toll Free: 1-888-798-8882

sales@hammondpowersolutions.com



UNITED STATES

Hammond Power Solutions

1100 Lake Street
Baraboo, Wisconsin 53913-2866
Tel: (608) 356-3921 | Fax: (608) 355-7623
Toll Free: 1-866-705-4684

sales@hammondpowersolutions.com



MEXICO

Hammond Power Solutions Latin America S.

Av. No. 800,
Parque Industrial Guadalupe
Guadalupe, NL, Mexico, C.P. 67190.
Tel: (819) 690-8000

sales@hammondpowersolutions.com



ASIA

Hammond Power Solutions Pvt. Ltd.

Plot No 6A, Phase -1, IDA,
Pashamylaram, Patancheru (M)
Sangareddy, 502 307, India
Tel: +91-994-995-0009

marketing-india@hammondpowersolutions.com

EMEA (SALES OFFICE)

Hammond Power Solutions SpA

Tel: +49 (152) 08800468

sales-emea@hammondpowersolutions.com

