HPS Titan® Series
Encapsulated Transformers

HPS Titan® N encapsulated transformers offer an innovative design with technological improvements for industrial and hazardous applications.

The transformer core and coil is completely encapsulated in epoxy and silica, providing excellent protection from airborne contaminants and prevents the ingress of moisture.

HPS Titan N three phase design has a removable hinged door and factory installed grounding lugs, reducing installation time and money.

APPLICATIONS


Petrochemical


Marine


Industrial


Oil & Gas


Mining


Wastewater

APPROVALS

- ANSI/ISA 12.12.10 - File No. E258346 (Class 1, Division 2, Groups A, B, C, D and Class 1, Zone 2, Group IIC, T3 Hazardous Locations) - T3C/T3A Temperature Classification
- UL 5085-1 and UL5085-2 Listed - File No. E258346
- ABS Type Approval (Marine Duty Service and Offshore Applications)

c UL us LISTED

ABS TYPE APPROVAL PROGRAM

FEATURES & BENEFITS

Single Phase
- Copper winding
- Electrostatic shield
- Standard wall mounting with keyhole mounting slots
- Front accessible hinged door
- Standard Type 3R enclosure suitable for indoor or outdoor applications

Three Phase
- Higher impedance designs lower inrush and short circuit currents, allowing the use of less costly protective devices
- Completely encapsulated in epoxy and silica to prevent the ingress of moisture
- Standard 10kV BIL rating provides increased reliability and protection against critical equipment failure (including voltage spikes and other line transients)
- Copper winding
- Electrostatic shield
- Improved efficiency level that reduces energy costs
- Standard Type 4 enclosure suitable for indoor or outdoor applications
- Removable hinged door allows for easy access to terminations
- Standard integral floor and wall mounting brackets on select kVA's for faster installation
- Optional breather drains ensure that any moisture build-up due to condensation is easily eliminated without compromising Type 4/12 enclosure integrity

Temperature Code*:
- Class 1, Zone 2, Group IIC, T3
- T3A (115°C rise units) at 40°C ambient
- T3C (80°C & 95°C rise units) at 40°C ambient
- **HPS Titan N 80°C and 95°C rise units are suitable for 50°C ambient**
  80°C rise at 50°C ambient maintains T3C performance
  95°C rise at 50°C ambient maintains T3A performance
  (95°C rise unit only available in three phase)

*For three phase units only

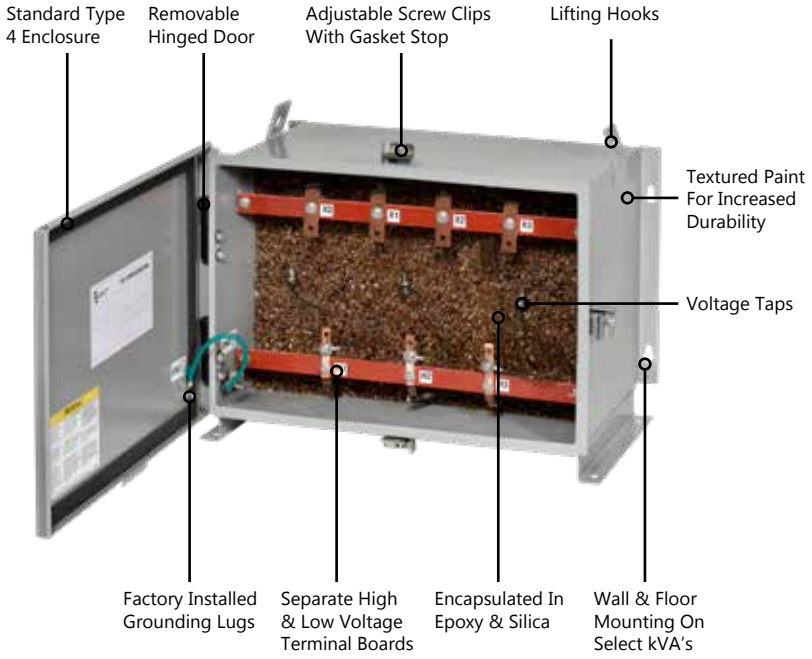
Installation made fast & easy!

The improved three phase enclosure design allows for quick and easy installation. By simply loosening the screw clips on the side of the enclosure, installers are able to access the terminations. The removable hinged door and front accessible terminations allow for easier cable installation in confined spaces.

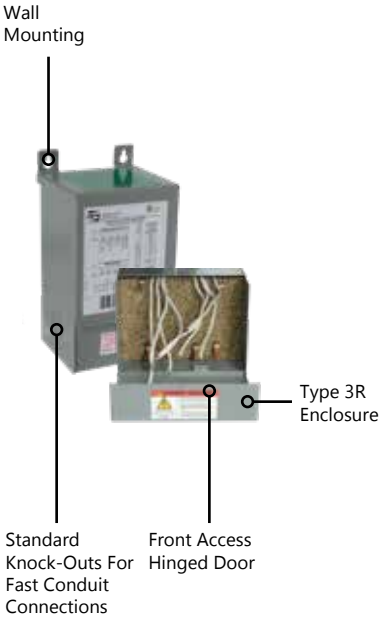
Testing

All HPS transformers are tested at HPS prior to shipment. They must meet very stringent quality criteria prior to release.

Three Phase



Single Phase



Easy access to ground*

Removable hinged door*

Quick access to terminations*

*On three phase units

Specifications & Accessories

Single Phase

STANDARD SPECIFICATIONS

kVA:	Up to 37.5kVA
UL Listed:	File: E258346
Frequency:	60 Hz (50/60Hz options available)
Insulation System:	130°C (80°C rise) up to 1 kVA 180°C (115°C rise) 1.5 to 37.5 kVA optional 180°C (80°C rise) 1.5 to 37.5 kVA
Enclosure Type:	Heavy duty enclosed Type 3R standard [optional Type 4, 12, 4X]
Enclosure Finish:	ANSI 61 Grey
Standard Primary Taps:	Refer to wiring diagrams for details
Termination:	Front accessible separated high and low voltage lead wires or copper tabs
Conduit Entry:	Rear or side entry
Impedance:	Typically 1% to 7%
Mounting:	Standard wall mounting with keyhole mounting slots. Lifting provisions standard from 5 kVA to 37.5 kVA.
Seismic:	Seismically qualified according to the International Building Code (IBC) 2018, and the American Society of Civil Engineers ASCE 7-10 specifications, with the following design parameters: Spectral acceleration: $S_{DS} \leq 2.0$ g Importance factor: $I_p = 1.5$ Attachment/height ratio: z/h =1.0" O.S.H.P.D. California Certified
Sound Level:	Meets NEMA ST-20 standards (optional low noise units available)
Warranty:	10 years

Part Numbering Guide

HPS Titan Single Phase Part Number Guide

	Family	kVA			Primary Voltage	Secondary Voltage	Winding Material/ Electrostatic Shield	Temp. Rise & Insul. Class	Enclosure
Example	Q	0	0	5	L	E	K	B	3

Family:
Q - Titan 1PH

kVA Rating:

0.5 kVA	- C50
0.75 kVA	- C75
1.5 kVA	- 1C5
2 kVA	- 002
3 kVA	- 003
5 kVA	- 005
7.5 kVA	- 007
10 kVA	- 010
15 kVA	- 015
25 kVA	- 025
37.5 kVA	- 037
50 kVA	- 050

Primary Voltage:
1PH
L - 240x480
J - 347/380
P - 600
Y - 208/240/277
X - Export

Secondary Voltage:
1PH
E - 120/240

Winding Material:
C - Copper - 500VA
K - CU + Shield - above 500VA

Temperature Rise & Insulation Class
B - 80°C[1, 3]
F - 115°C[2]

Enclosure:
3 - Type 3R*
4 - Type 4
6 - Type 4X (304SS)
7 - Type 4X (316SS)
5 - Type 12

*Default options - ignore if all following characters are default values.
[1] 80°C rise is standard on units up to and including 1kVA (130°C insulation class, T3C temperature code)
[2] 115°C rise is standard on units 1.5kVA and above (180°C insulation class, T3C temperature code)
[3] 80°C rise is optional on units 1.5kVA and above (180°C insulation class, T3C temperature code)

HPS Titan N Three Phase Part Number Guide

	Family	Appl. Type	Generation	Phase	kVA				Primary Voltage	Secondary Voltage	Winding Material/ Electrostatic Shield	Temp. Rise & Insul. Class	Frequency	Enclosure
Example	T	N	2	A	0	0	4	5	K	B	K	B	6	F

Family:
T - Titan

Type:
N - Hazardous Location
(North America Classification)

Generation:
2 - Current

Phase (Pri-Sec):
A - 3PH Delta-Wye-N
B - 3PH Wye-N-Delta
C - 3PH Delta-Delta/CT
D - 3PH Delta-Delta

kVA Rating:

2 kVA	- 0002
3 kVA	- 0003
6 kVA	- 0006
9 kVA	- 0009
15 kVA	- 0015
30 kVA	- 0030
45 kVA	- 0045
75 kVA	- 0075
112.5 kVA	- 0112
150 kVA	- 0150

Primary Voltage:
3PH
K - 480D
P - 600D, 600Y
Q - 600D, 480D
H - 400D[1]
G - 380D[1]

Secondary Voltage:
3PH
B - 208Y/120
C - 230Y/133
D - 240D, 240Y/139, or 240D/120CT
G - 380Y/220
H - 400Y/231
K - 480Y/277
P - 600Y/347

Winding Material:
K - CU + Shield

Temperature Rise & Insulation Class**
A - 80°C Rise (130°C Class)
B - 80°C Rise (180°C Class)
C - 95°C Rise (180°C Class)
F - 115°C Rise (180°C Class)

Frequency:
5 - 50/60Hz
6 - 60Hz*

Enclosure:
F - Type 4*[2]
G - Type 4X (304SS)
H - Type 4X (316SS)

[1]Units with primary voltage code "G" & "H" come standard as 50/60Hz and are CE marked. All others are 60Hz only.
*Default options are not listed if chosen
**2 & 3 kVA are 130°C Class
[2]Type 4 enclosure is also Type 12.

COPPER WOUND, SINGLE PHASE

*208/240/277 Primary Volts 120/240 Secondary Volts 60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			°C Temp. Rise	Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height				
0.5	**QC50YECB**	NQ2	5.06	4.56	9.30	80	19	W	SCD 3.1
0.75	**QC75YEKB**	NQ2	5.06	4.56	9.30	80	21	W	SCD 3.1
1	**Q1C0YEKB**	NQ3	5.88	5.19	10.56	80	28	W	SCD 3.1
1.5	**Q1C5YEKF**	NQ3	5.88	5.19	10.56	115	36	W	SCD 3.1
2	**Q002YEKF**	NQ4	7.06	6.25	11.75	115	44	W	SCD 3.1
3	**Q003YEKF**	NQ4	7.06	6.25	11.75	115	56	W	SCD 3.1
5	**Q005YEKF**	NQ5	10.00	7.75	17.25	115	134	W	SCD 3.1
7.5	**Q007YEKF**	NQ5	10.00	7.75	17.25	115	160	W	SCD 3.1
10	**Q010YEKF**	NQ6	12.25	9.25	20.88	115	204	W	SCD 3.1
15	**Q015YEKF**	NQ6	12.25	9.25	20.88	115	248	W	SCD 3.1
25	**Q025YEKF**	NQ7	14.50	10.75	21.38	115	345	W	SCD 3.1
37.5	**Q037YEKF**	NQ8	14.50	10.75	27.38	115	476	W	SCD 3.1

*347/380 Primary Volts 120/240 Secondary Volts CE 50/60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			°C Temp. Rise	Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height				
0.5	**QC50FECB**	NQ2	5.06	4.56	9.30	80	18	W	SCD 5.1
0.75	**QC75FEKB**	NQ2	5.06	4.56	9.30	80	20	W	SCD 5.1
1	**Q1C0FEKB**	NQ3	5.88	5.19	10.56	80	26	W	SCD 5.1
1.5	**Q1C5FEKF**	NQ3	5.88	5.19	10.56	115	36	W	SCD 5.1
2	**Q002FEKF**	NQ4	7.06	6.25	11.75	115	55	W	SCD 5.1
3	**Q003FEKF**	NQ5	10.00	7.75	17.25	115	88	W	SCD 5.1
5	**Q005FEKF**	NQ5	10.00	7.75	17.25	115	130	W	SCD 5.1
7.5	**Q007FEKF**	NQ6	12.25	9.25	20.88	115	185	W	SCD 5.1
10	**Q010FEKF**	NQ6	12.25	9.25	20.88	115	155	W	SCD 5.1
15	**Q015FEKF**	NQ6	12.25	9.25	20.88	115	248	W	SCD 5.1
25	**Q025FEKF**	NQ7	14.50	10.75	21.38	115	345	W	SCD 5.1
37.5	**Q037FEKF**	NQ8	14.50	10.75	27.38	115	476	W	SCD 5.1

*240 X 480 Primary Volts 120/240 Secondary Volts 60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			°C Temp. Rise	Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height				
0.5	**QC50LECB**	NQ2	5.06	4.56	9.30	80	23	W	SCD 1.1
0.75	**QC75LEKB**	NQ2	5.06	4.56	9.30	80	24	W	SCD 1.1
1	**Q1C0LEKB**	NQ3	5.88	5.19	10.56	80	28	W	SCD 1.1
1.5	**Q1C5LEKF**	NQ3	5.88	5.19	10.56	115	35	W	SCD 1.1
2	**Q002LEKF**	NQ4	7.06	6.25	11.75	115	47	W	SCD 1.1
3	**Q003LEKF**	NQ4	7.06	6.25	11.75	115	62	W	SCD 1.1
5	**Q005LEKF**	NQ5	10.00	7.75	17.25	115	131	W	SCD 1.1
7.5	**Q007LEKF**	NQ5	10.00	7.75	17.25	115	155	W	SCD 1.1
10	**Q010LEKF**	NQ6	12.25	9.25	20.88	115	220	W	SCD 1.1
15	**Q015LEKF**	NQ6	12.25	9.25	20.88	115	248	W	SCD 1.1
25	**Q025LEKF**	NQ7	14.50	10.75	21.38	115	345	W	SCD 1.1
37.5	**Q037LEKF**	NQ8	14.50	10.75	27.38	115	476	W	SCD 1.1

Typical Performance Data

Single Phase

Voltage Range 120V to 600V
80°C to 115°C Temp. Rise

kVA	Impedance	Peak Inrush Current Multiple of RMS Current
0.5	4-7%	Consult HPS
0.75		
1		
1.5		
2	1-2%	
3		
5		
7.5		
10	2-4%	30 to 40
15		
25		
37.5		

Three Phase

Voltage Range 120V to 600V
80°C to 115°C Temp. Rise

kVA	Impedance	Peak Inrush Current Multiple of RMS Current
2	3.5-6.5%	15 to 20
3		
6	2-5%	
9		
15		
30	1.8-4%	
45		10 to 18
75		
112.5	1.8-2.5%	6-12
150		

Efficiency (% rated load)

kVA	100%	50%	35%
2	95.02%	95.97%	94.37%
3	95.96%	97.44%	96.71%
6	95.24%	95.75%	94.67%
9	97.38%	98.23%	97.93%
15	97.79%	98.41%	98.15%*
30	98.28%	98.85%	98.75%*
45	98.60%	98.97%	98.84%*
75	98.93%	99.03%	98.82%*
112.5	99.08%	99.03%	98.82%
150	99.15%	99.13%	98.96%

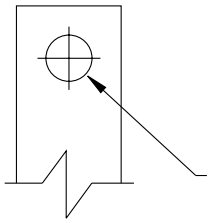
- Efficiencies are approximate, and not guaranteed
- All efficiencies are based on 75°C reference temperature
- Applies only to 115°C rise, with the exception of 2 & 3 kVA
- *Items from 15-75kVA meet the current minimum efficiency levels in North America (DOE 2016 & NRCan 2019) for ventilated transformers. Note that these effciency levels are not required for this non-ventilated offering.

Termination Details

Copper Termination, Leads or Pads

Hammond Power Solutions

kVA	Single Phase Voltages (Primary or Secondary)							
	208	240	277	347	380	400	480	600
0.5	Lead Wire							
0.75								
1								
1.5								
2								
3								
5								
7.5								
10	1A	1A	1A					
15	1A	1A	1A	1A	1A	1A	1A	1A
25	1B	1B	1B	1A	1A	1A	1A	1A
37.5	1D	1C	1C	1C	1C	1C	1C	1B

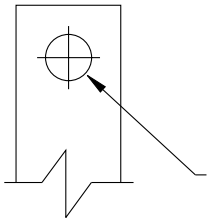


1A = 0.22" Dia.
1B = 0.28" Dia.
1C = 0.34" Dia.
1D = 0.44" Dia.

DIAGRAM 1 - Single Phase

kVA	Three Phase Voltages (Primary or Secondary)							
	208	230	240	277	380	400	480	600
2	Lead Wire							
3								
6								
9*	1A	1A	1A	1A	1A			
15	1A	1A	1A	1A	1A	1A	1A	1A
30	1A	1A	1A	1A	1A	1A	1A	1A
45	1B	1A	1A	1A	1A	1A	1A	1A
75	1B	1B	1B	1B	1A	1A	1A	1A
112.5	1B	1B	1B	1B	1B	1B	1B	1A
150	1B	1B	1B	1B	1B	1B	1B	1B

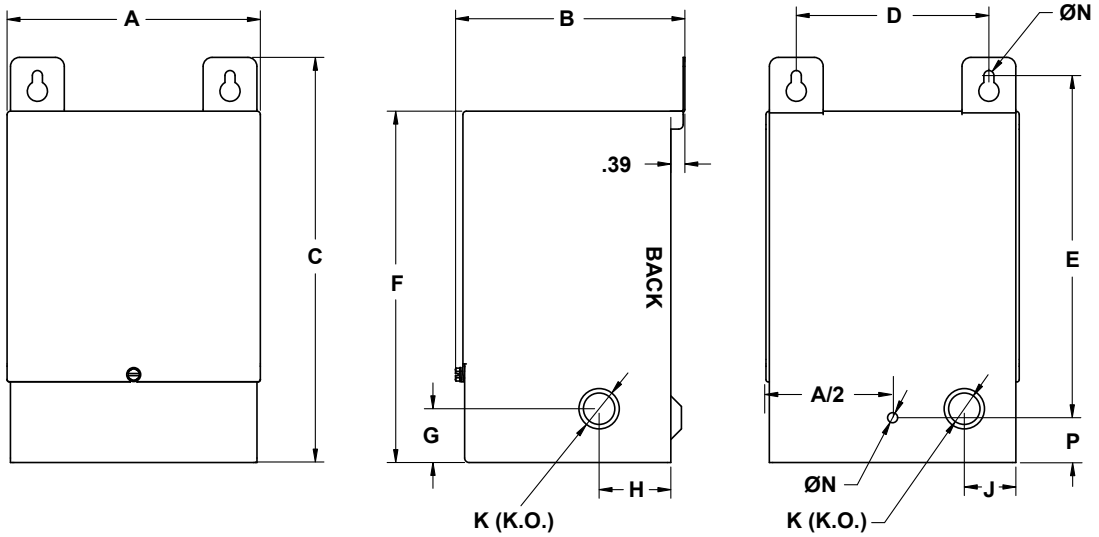
* Termination Tab 1A provided on 9 kVA 80°C, and 95°C rise only.
Otherwise, 115°C rise have lead wire terminations.



1A = 0.28" Dia.
1B = 0.44" Dia.

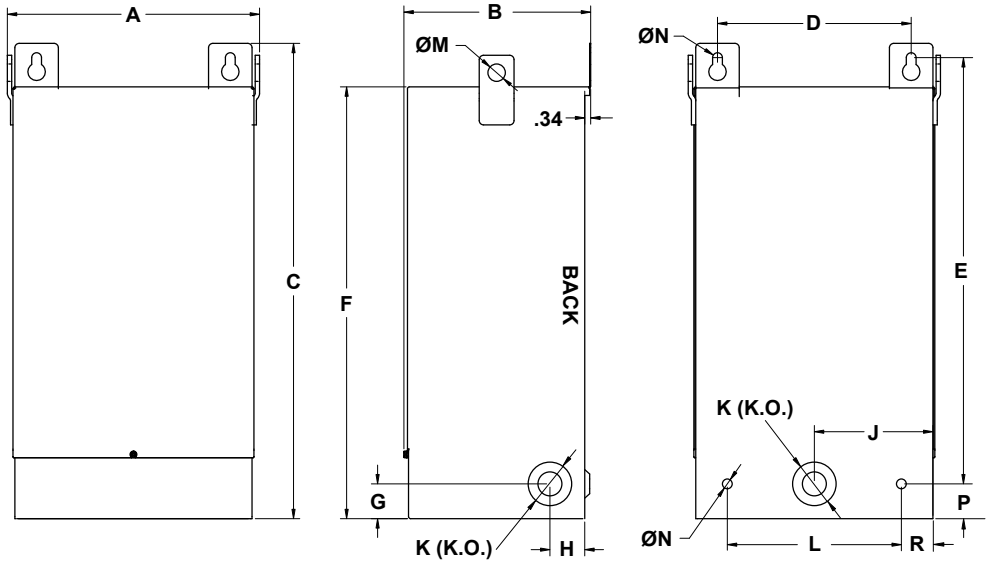
DIAGRAM 1 - Three Phase

Figure 1



FRONT VIEW | SIDE VIEW | REAR VIEW

Figure 2



FRONT VIEW | SIDE VIEW | REAR VIEW

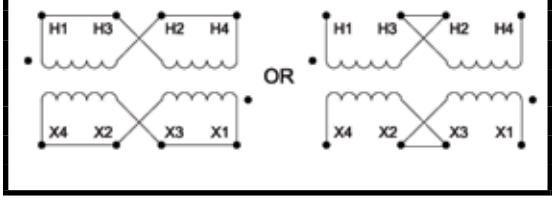
Case Style	Dimensions in Inches															
	Fig. #	A	B	C	D	E	F	G	H	J	K[1]	L	M	N	P	R
NQ0	1	3.69	5.06	7.19	2.50	5.63	6.19	1.50	2	--	0.88	--	--	0.22	1.25	--
NQ1	1	4.31	5.56	7.19	3.13	5.63	6.13	1.50	2	0.81	0.88	--	--	0.22	1.25	--
NQ2	1	5.06	4.56	9.30	3.88	7.75	8.30	1.50	2	1	0.88 X 1.13 X 1.38	--	--	0.22	1.25	--
NQ3	1	5.88	5.19	10.56	4.13	8.31	9.06	1.50	2	1.25	0.88 X 1.13 X 1.38	--	--	0.28	1.25	--
NQ4	1	7.06	6.25	11.75	5.38	10.00	10.30	1.25	2	1.5	0.88 X 1.13 X 1.38	--	--	0.28	1.25	--
NQ5	2	10	7.75	17.25	7.38	15.38	15.25	2.375	2	4	1.13 X 1.38	6	0.75	0.44	1.25	1.68
NQ6	2	12.25	9.25	20.88	9.38	18.13	18.88	2.00	2	5	1.38 X 2.50	8	0.75	0.44	2	1.68
NQ7	2	14.5	10.75	21.38	11.63	18.63	19.38	2.00	2	6	1.38 X 2.50	10	0.75	0.44	2	1.81
NQ8	2	14.5	10.75	27.38	11.13	24.50	24.88	2.00	2	6	1.38 X 2.50	10	0.75	0.56	2	1.81

[1]Knockout (K) sizes are actual diameter of knockout, not conduit sizes

Electrical Schematics & Connection Drawings - Single Phase

SCD 1.1

SCHEMATIC



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

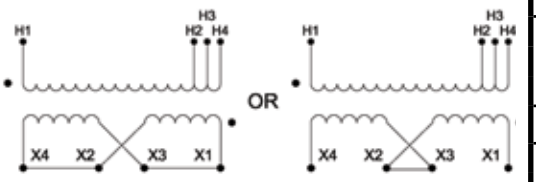
SCD 2.1

SCHEMATIC

Primary Volts	Connect lines to	Inter-connect
600	H1, H2	-
Secondary Volts	**Connect lines to**	**Inter-connect**
240	X1, X4	X2-X3
120/240	X1, X2, X4	X2-X3
120	X1, X4	X1-X3, X2-X4

SCD 3.1

SCHEMATIC



Primary Volts	Connect lines to	Inter-connect
208	H1, H2	-
240	H1, H3	-
277	H1, H4	-
Secondary Volts	**Connect lines to**	**Inter-connect**
240	X1, X4	X2-X3
120/240	X1, X2, X4	X2-X3
120	X1, X4	X1-X3, X2-X4

Tap arrangements shown are for standard products only. May not be applicable for other products.