

LVGP

By Micron Power Delivery

Advanced transformers built for the industrial environment



Catalog:
LVGP-16C-English

Supersedes: LVGP-16B-English

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OTHER MICRON PRODUCTS

Impervi**TRAN**[™]/Global**TRAN**[™] 600 Volt Class Control Transformers
From 25Va through 5Kva







DINergy[™] Industrial DIN-Mount Switching Power Supplies
Single-Phase and Three Phase from 18 watts thought 960 watts



Reactors, Medium Voltage and Custom Coils



Low Voltage General Purpose Transformers

			
UL Listed, CSA Certified Single Phase Type 1-E Encapsulated	UL Listed Three Phase Type 3-E Encapsulated	UL listed Single Phase Type 1-V Ventilated	UL Listed Three Phase Type 3-V Ventilated
Type 1-E general purpose transformers are single phase, resin encapsulated designs suitable for indoor or outdoor applications. It's totally enclosed, non-ventilated enclosure make it ideally suited for use in areas that contain dust, moisture, or corrosive fumes. Available in ratings through 25 KVA type 1-E transformers can be mounted in any position for indoor installations and in upright positions only for outdoor installations.	Type 3-E resin encapsulated, 3-phase transformers are available in ratings of 3-75 KVA. Its totally enclosed non-ventilated enclosure makes the 3-E ideally suited for outdoor as well as indoor locations. Type 3-E transformers utilize the 185°C insulation system with 115°C rise. 3-E transformers 3-15 KVA are T-T connected.	1-V general purpose transformers are single phase ventilated units designed primarily for indoor locations (also for outdoor, 600 volt class with the addition of weathershields). The 1-V utilizes a 220°C insulation system with 150°C rise and is available in ratings of 15-167 KVA. 1-V products are compliant to DOE 2016.	The 3-phase 3-V ventilated dry-type is available in ratings of 15-750 KVA. Its 220°C insulation system (150°C rise) is self-extinguishing. 3-V enclosures are designed for indoor locations (or outdoor, 600 volt class with addition of weathershields). 3-V products are compliant to DOE 2016.

Mounting

Units installed outdoors must be mounted in upright position.

Efficiency

The Micron series of ventilated, three-phase, 600 volt class general purpose distribution transformers meet the DOE 2016 efficiency requirements and federal energy efficiency laws. New distribution transformers installed in the United States are required to meet these energy efficiency requirements as of January 2016.

Winding Terminations

Primary and secondary windings are terminated in the wiring compartment. Encapsulated units have copper leads or stabs brought out for connections. Micron recommends external cables be rated 90°C (sized at 75°C ampacity) for encapsulated designs.

Series-Multiple Windings

Series-multiple windings consist of 2 similar coils in each winding which can be connected in series or parallel (multiple). Transformers with series-multiple windings are designated with an "X" or "/" between the voltage ratings. such as primary voltage of "120/240" or "240 X 480". If the series-multiple winding is designated by an "X" the winding can be connected only for a series or parallel. With the "/" designation, a mid-point also becomes available in addition to the series or parallel connection. As an example, a 120 X 240 winding can be connected for either 120 (parallel) or 240 (series), but a 120/240 winding can be connected for 120 (parallel), or 240 (series), or 240 with a 120 mid-point.

General Information

Industry Standards

All Micron dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE standards. All 600 volt class transformers are UL listed unless otherwise noted.

Seismic Qualified

The Micron family of dry-type distribution transformers is seismically tested, seismically qualified, and exceeds requirements of the Uniform Building Code (UBC) and California Code Title 24.

Frequency

Micron standard dry-type distribution transformers are designed for 60 Hz operation. Transformers required for other frequencies must be specifically designed.

Overload Capability

Short term overload is designed into transformers as required by ANSI. Basically, dry-type distribution transformers will deliver 200% nameplate load for one-half hour; 150% load for one-hour; and 125% load for four-hours without being damaged provided that a constant 50% load precedes and follows the overload. See ANSI C57 .96-01.250 for additional limitations.

Continuous overload capacity is not deliberately designed into a transformer because the design objective is to be within the allowed winding temperature rise with nameplate loading.

Insulation System & Temperature Rise

Industry standards classify insulation systems and rise as shown below:

Insulation System Classification

Ambient	+ Winding Rise	+ Hot Spot	= Temp. Class	The design life of transformers having different insulation systems is the same – the lower temperature systems are designed for the same life as the higher temperature systems.
40°C	55°C	10°C	105°C	
40°C	80°C	30°C	150°C	
40°C	115°C	30°C	185°C	

Sound Levels

KVA	NEMA Average ₁ Sound Level in dB	All Micron 600 volt class dry-type distribution transformers are designed to meet NEMA ST-20 levels as listed.
0-9	40	
10-50	45	
51-150	50	
151-300	55	
301-500	60	

1. Applies to general purpose transformers only.

Selection Guide for Single Phase Transformers

Single Phase AC Motors₁

- Determine the primary (source) voltage
-the voltage presently available.
- Determine the secondary (load) voltage
-the voltage needed at the load.
- Determine the Kva load:
 - If the load is defined in Kva, a transformer can be selected from the tabulated data.
 - If the load rating is given in amperes, determine the load Kva from the Full Load Current chart. To determine Kva when volts and amperes are known, use the formula:

$$\text{Kva} = \frac{\text{Volts} \times \text{Amperes}}{1000}$$

- If the load is an AC motor, determine the minimum transformer Kva from the chart at the right.
 - Select a transformer rating equal to or greater than the load Kva.
- Define tap arrangements needed.
 - Define temperature rise.

Using the above procedure, select the transformer from the listings in this catalog.

HORSEPOWER	Full Load Amperes				MINIMUM KVA ₂
	115V	208V	220V	230V	
1/6	4.4	2.4	2.3	2.2	0.53
1/4	5.8	3.2	3	2.9	0.70
1/3	7.2	4	3.8	3.6	0.87
1/2	9.8	5.4	5.1	4.9	1.18
3/4	13.8	7.6	7.2	6.9	1.66
1	16	8.8	8.4	8	1.92
1-1/2	20	11	10.4	10	2.40
2	24	13.2	12.5	12	2.88
3	34	18.7	17.8	17	4.10
5	56	30.8	29.3	28	6.72
7-1/2	80	44	42	40	9.60
10	100	55	52	50	12.0

EXAMPLE OF TRANSFORMER SELECTION FOR 1.5HP SINGLE-PHASE MOTOR. ALTERNATELY, MULTIPLY VOLTS (115) x AMPS (20) AND DIVIDE BY 1,000 = 2.3KVA

Full Load Current in Amperes₁ – Single Phase Circuits

Kva ₂	120 Volts	208 Volts	220 Volts	240 Volts	277 Volts	480 Volts	600 Volts	2400 Volts	4160 Volts
0.250	2	1.2	1.1	1	0.9	0.5	0.4	0.10	0.06
0.500	4.2	2.4	2.3	2.1	1.8	1	0.8	0.21	0.12
0.750	6.3	3.6	3.4	3.1	2.7	1.6	1.3	0.31	0.18
1	8.3	4.8	4.5	4.2	3.6	2.1	1.7	0.42	0.24
1.5	12.5	7.2	6.8	6.2	5.4	3.1	2.5	0.63	0.36
2	16.7	9.6	9.1	8.3	7.2	4.2	3.3	0.83	0.48
3	25	14.4	13.6	12.5	10.8	6.2	5	1.2	0.72
5	41	24	22.7	20.8	18	10.4	8.3	2.1	1.2
7.5	62	36	34	31	27	15.6	12.5	3.1	1.8
10	83	48	45	41	36	20.8	16.7	4.2	2.4
15	125	72	68	62	54	31	25	6.2	3.6
25	208	120	114	104	90	52	41	10.4	6
37.5	312	180	170	156	135	78	62	15.6	9
50	416	240	227	208	180	104	83	20.8	12
75	625	360	341	312	270	156	125	31.3	18
100	833	480	455	416	361	208	166	41.7	24
167	1391	802	759	695	602	347	278	69.6	40.1

¹ When motor service factor is greater than 1, increase Full Load amps proportionally. Example: If service factor is 1.15, increase above amp values by 15%.

² If motors are started more than once per hour, increase the minimum transformer Kva by 20%.

Selection Guide for Three Phase Transformers

Three Phase AC Motors₁

1. Determine the primary (source) voltage – the voltage available.
2. Determine the secondary (load) voltage – the voltage needed at the load.
3. Determine the KVA load.
 - If the load is defined in KVA, a transformer can be selected directly from the table.
 - If the load rating is given in amperes, determine the load Kva from the Full load Current chart. To determine Kva when volts and amperes are known, use the formula:
Kva= $\frac{\text{Volts} \times \text{Amperes} \times 1.732}{1000}$
 - If the load is an AC motor, determine the minimum transformer Kva from the chart at the right.
 - Select a transformer rating equal or greater than the load Kva.
4. Define tap arrangements needed.
5. Define temperature rise.

HORSEPOWER	FULL LOAD AMPS					MINIMUM KVA ₂
	208V	230V	380V	460V	575V	
1/2	2.2	2.0	1.2	1.0	0.8	0.9
3/4	3.1	2.8	1.7	1.4	1.1	1.2
1	4.0	3.6	2.2	1.8	1.4	1.5
1-1/2	5.7	5.2	3.1	2.6	2.1	2.1
2	7.5	6.8	4.1	3.4	2.7	2.7
3	10.7	9.6	5.8	4.8	3.9	3.8
5	16.7	15.2	9.2	7.6	6.1	6.3
7-1/2	24	22	14	11	9	9.2
10	31	28	17	14	11	11.2
15	46	42	26	21	17	16.6
20	59	54	33	27	22	21.6
25	75	68	41	34	27	26.6
30	88	80	48	40	32	32.4
40	114	104	63	52	41	43.2
50	143	130	79	65	52	52
60	170	154	93	77	62	64
75	211	192	116	96	77	80
100	273	248	150	124	99	103
125	342	312	189	156	125	130
150	396	360	218	180	144	150
200	528	480	291	240	192	200

EXAMPLE OF TRANSFORMER SELECTION FOR A 1.5HP THREE-PHASE MOTOR. ALTERNATELY, MULTIPLY VOLTS (208) x AMPS (5.7) AND THAT PRODUCT BY 1.732 THEN DIVIDE BY 1,000 = 2.05KVA

Using the above procedure, select the transformer from the listings in this catalog.

Full Load Current in Amperes₁ – Three Phase Circuits

1. When motor service factor is greater than 1, increase Full Load amps proportionally. Example: If service factor is 1.15, increase above amp values by 15%.
2. If motors are started more than once per hour, increase the minimum transformer Kva by 20%.

Kva ₂	208	240	380	480	600	2400	4160
3	8.3	7.2	4.6	3.6	2.90	0.72	0.42
6	16.6	14.4	9.1	7.2	5.8	1.4	0.83
9	25	21.6	13.7	10.8	8.6	2.2	1.2
15	41.7	36.1	22.8	18	14.4	3.6	2.1
22.5	62.4	54.1	34.2	27.1	21.6	5.4	3.1
30	83.4	72.3	45.6	36.1	28.9	7.2	4.2
37.5	104	90.3	57	45.2	36.1	9	5.2
45	124	108	68.4	54.2	43.4	10.8	6.3
50	139	120	76	60.1	48.1	12	6.9
75	208	180	114	90	72	18	10.4
112.5	312	270	171	135	108	27.1	15.6
150	416	360	228	180	144	36.1	20.8
225	624	541	342	270	216	54.2	31.3
300	832	721	456	360	288	72.2	41.6
500	1387	1202	760	601	481	120	69.4
750	2084	1806	1140	903	723	180	104
1000	2779	2408	1519	1204	963	241	139

SINGLE PHASE

KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "A": PRI: 240 X 480 SEC: 120/240 60HZ												
.050	G050A1KF1A01	-	-	1E	115	8.91	4.11	4.00	7	52	A	
.075	G075A1KF1A01	-	-	1E	115	8.91	4.11	4.00	7	54	A	
.100	G100A1KF1A01	-	-	1E	115	8.91	4.11	4.00	7	54	A	
.150	G150A1KF1A01	-	-	1E	115	8.91	4.11	4.00	8	55	A	
.250	G250A1KF1A02	-	-	1E	115	9.34	4.45	5.18	12	57P	A	
.500	G500A1KF1A02	-	-	1E	115	9.34	4.45	5.18	16	57P	A	
.750	G750A1KF1A02	-	-	1E	115	11.68	4.99	5.99	26	58AP	A	
1	G001K1KF1A02	-	-	1E	115	13.03	5.74	6.56	31	67P	A	
1.5	G1X5K1KF1A02	-	-	1E	115	13.03	5.74	6.56	42	67P	A	
2	G002K1KF1A02	-	-	1E	115	13.78	6.22	6.32	42	68P	A	
3	G003K1KF7A03	1	1	1E	115	14.25	7.69	8.00	65	176	B	
5	G005K1KF7A03	1	1	1E	115	16.00	10.38	9.89	105	177	B	
7.5	G7X5K1KF7A03	1	1	1E	115	16.00	10.38	9.89	123	178	B	
10	G010K1KF7A03	1	1	1E	115	19.00	13.38	10.52	193	179	B	
15	G015K1KF6A03	2	2	1E	115	19.00	13.38	10.52	216	180	C	
25	G025K1KF6A03	2	2	1E	115	23.31	16.35	14.12	375	182	C	
15	G015K2KF6A04	3	3	1V	150	27.00	20.00	16.50	246	816	3XA	WS11MI
25	G025K2KF6A04	3	3	1V	150	37.53	22.60	19.50	359	818	3XA	WS11MI
37.5	G037K2KF6A04	3	3	1V	150	37.53	22.60	19.50	374	818	3XA	WS11MI
50	G050K2KF9A04	3	3	1V	150	42.00	24.00	23.38	555	819	3XA	WS16MI
75	G075K2KF6A04	3	3	1V	150	42.00	24.00	23.38	740	820	3XA	WS16MI
100	G100K2KF6A04	3	3	1V	150	63.00	30.00	34.00	841	821	3XA	WS13MI

- (1) 1@+10%FCBN at 240V Primary; 2@ +5%FCBN at 480V Primary
 (2) 2@+5%FCBN at 240V Primary; 4@ +2.5% FCBN at 480V primary
 (3) 1@ +5%, 2@ -5% at 240V Primary; 2@+2.5%, 4@ -2.5% at 480V Primary

THESE ARE THE AVAILABLE ADJUSTMENT TAPS

KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "B": PRI: 190/200/208/220 X 380/400/416/440 SEC: 110/220 50/60HZ												
1	G001K1PG1A06	-	-	1E	115	13.03	5.74	6.56	42	67P	D	
1.5	G1X5K1PG1A06	-	-	1E	115	14.25	7.69	8.00	65	176	D	
2	G002K1PG1A07	-	-	1E	115	14.25	7.69	8.00	65	176	D	
3	G003K1PG1A07	-	-	1E	115	16.00	10.38	9.89	113	177	D	
5	G005K1PG1A07	-	-	1E	115	16.00	10.38	9.89	140	178	D	
7.5	G7X5K1PG1A07	-	-	1E	115	19.00	13.38	10.52	193	179	D	
10	G010K1PG1A07	-	-	1E	115	19.00	13.38	10.52	216	180	D	
15	G015K1PG1A07	-	-	1E	115	23.31	16.35	14.12	375	182	D	

DIAGRAM "A"

DIAGRAM "B"

DIAGRAM "C"

WDG	VOLTS	CONNECT	LINE	WDG	VOLTS	CONNECT	LINE	WDG	VOLTS	CONNECT	LINE		
PRI	480	H2-H3	H1-H4	PRI	480	H3-H4	H1-H6	PRI	480	H4-H5	H1-H8		
	240	H1H3-H2H4			456	H3-H5			468	H3-H5			
SEC	240	X2-X3	X1-X4		432	H2-H5			456	H3-H6		444	H2-H6
	120	X1X3-X2X4			240	H1H4-H3H6			432	H2-H7		240	H1H5-H4H8
	120/240	X2-X3*			X1-X3-X4	216			H1H5-H2H6	240		H1H6-H3H8	228
SEC	240	X2-X3	X1-X4	240	X2-X3	X1-X4	SEC		240	X2-X3		X1-X4	
	120	X1X3-X2X4		120	X1X3-X2X4				120	X1X3-X2X4			
	120/240	X2-X3*		X1-X3-X4	120/240				X2-X3*	X1-X3-X4			

EXAMPLES OF TWO 5% TAPS @ 480V AND ONE 10% TAP AT 240V

*Three wire operation

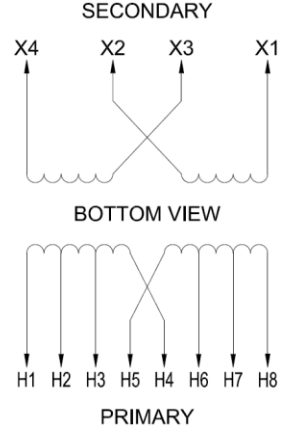
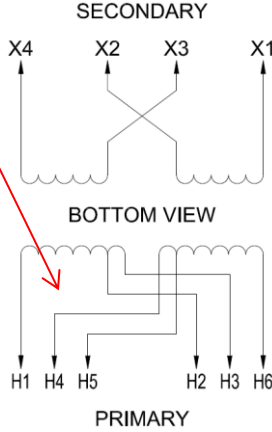
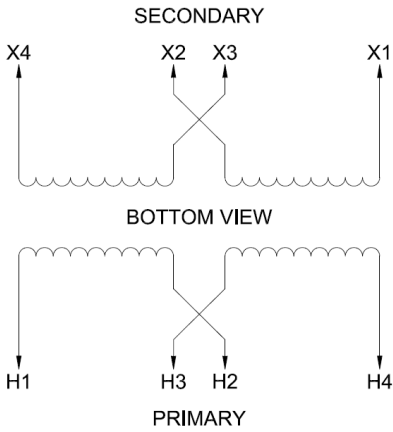
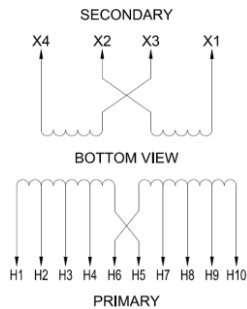
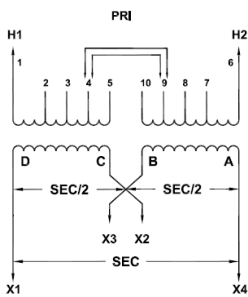


DIAGRAM "3XA"

DIAGRAM "D"

WDG	VOLTS	CONNECT	LINE	WDG	VOLTS	CONNECT	LINE		
PRI	Use both cables provided		H1-H2	PRI	440	H5-H6	H1-H10		
	504	H5-10			416	H4-H6	H1-H9		
	492	H5-9			400	H3-H6	H1-H8		
	480	H4-9			380	H2-H6	H1-H7		
	468	H4-8			220	H1H6-H5H10	H1-H10		
	456	H3-8			208	H1H6-H4H9	H1-H9		
	444	H3-7			200	H1H6-H3H8	H1-H8		
	432	H2-7			190	H1H6-H2H7	H1-H7		
	Use 1 cable per connex				X1-X4	SEC	220	X2-X3	X1-X4
	252	5 to H2-10 to H1					110	X1X3-X2X4	
240	4 to H2-9 to H1	110/220	X2-X3*	X1-X3-X4					
228	3 to H2-8 to H1								
216	2 to H2-7 to H1								

*Three wire operation



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "D": PRI: 600 SEC: 120/240 60HZ												
1	G001K1RF8A02	-	4	1E	115	13.03	5.74	6.56	31	67P	H	
1.5	G1X5K1RF8A02	-	4	1E	115	13.03	5.74	6.56	42	67P	H	
2	G002K1RF8A02	-	4	1E	115	13.78	6.22	6.32	42	68P	H	
3	G003K1RF8A03	-	4	1E	115	14.25	7.69	8.00	65	176	H	
5	G005K1RF8A03	-	4	1E	115	16.00	10.38	9.89	105	177	H	
7.5	G7X5K1RF8A03	-	4	1E	115	16.00	10.38	9.89	123	178	H	
10	G010K1RF8A03	-	4	1E	115	19.00	13.38	10.52	193	179	H	
15	G015K1RF5A03	-	5	1E	115	19.00	13.38	10.52	216	180	I	
25	G025K1RF2A03	6	6	1E	115	20.67	19.02	13.59	395	132	J	
25	G025K2RF2A04	6	6	1V	150	37.53	22.60	19.50	355	818	V	WS11MI
37.5	G037K2RF2A04	6	6	1V	150	37.53	22.60	19.50	375	818	V	WS11MI
50	G050K2RF2A04	6	6	1V	150	42.00	24.00	23.38	594	819	V	WS16MI
75	G075K2RF2A04	6	6	1V	150	42.00	24.00	23.38	755	820	V	WS16MI
100	G100K2RF2A04	6	6	1V	150	63.00	30.00	34.00	865	821	V	WS13MI

(4) 2@ -5%

(5) 4@ -2.5%

(6) 2@ +2.5%; 4@ -2.5%

KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "E": PRI: 208 SEC: 120/240 60HZ												
.500	G500A1HF1A02	-	-	1E	115	9.34	4.45	5.18	16	57P	L	
1	G001K1HF1A02	-	-	1E	115	13.03	5.74	6.56	31	67P	L	
1.5	G1X5K1HF1A02	-	-	1E	115	13.03	5.74	6.56	42	67P	L	
2	G002K1HF1A02	-	-	1E	115	13.78	6.22	6.32	42	68P	L	
3	G003K1HF1A03	-	-	1E	115	14.25	7.69	8.00	65	176	L	
5	G005K1HF1A03	-	-	1E	115	16.00	10.38	9.89	113	177	L	
7.5	G7X5K1HF1A03	-	-	1E	115	16.00	10.38	9.89	123	178	L	
10	G010K1HF1A03	-	-	1E	115	19.00	13.38	10.52	193	179	L	
15	G015K1HF1A03	-	-	1E	115	19.00	13.38	10.52	216	180	L	
25	G025K1HF1A03	-	-	1E	115	23.31	16.35	14.12	395	182	L	
25	G025K2HF1A04	6	6	1V	150	37.53	22.60	19.50	346	818	260A	WS11MI
37.5	G037K2HF1A04	6	6	1V	150	37.53	22.60	19.50	374	818	260A	WS11MI
50	G050K2HF1A04	6	6	1V	150	42.00	24.00	23.38	545	819	260A	WS16MI
75	G075K2HF1A04	6	6	1V	150	42.00	24.00	23.38	568	820	260A	WS16MI
100	G100K2HF1A04	7	7	1V	150	63.00	30.00	34.00	1178	821	551A	WS13MI

(6) 2@ +2.5%; 4@ -2.5%

(7) 1@ +5%; 2@ -5%

DIAGRAM "H"

WDG	VOLTS	CONNECT	LINE
PRI	600		H1-H4
	570		H1-H3
	540		H2-H3
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4

DIAGRAM "I"

WDG	VOLTS	CONNECT	LINE
PRI	600		H1-H5
	585		H1-H4
	570		H1-H3
	555		H2-H4
	540		H2-H3
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4

DIAGRAM "J"

WDG	VOLTS	CONNECT	LINE
PRI	630		H1-H6
	615		H1-H5
	600		H1-H4
	585		H2-H5
	570		H2-H4
	555		H3-H5
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4

*Three wire operation

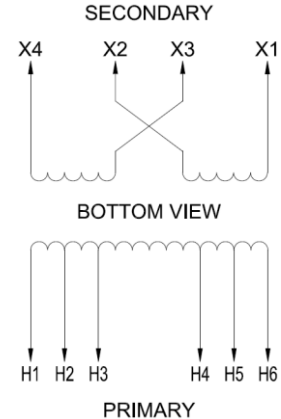
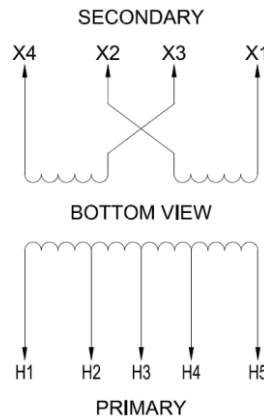
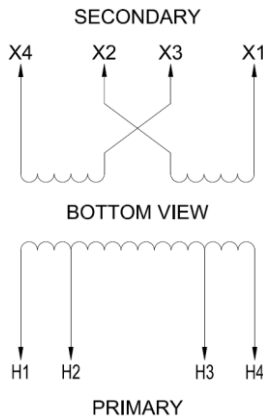


DIAGRAM "V"

VOLTS	TAP
630	1
615	2
600	3
585	4
570	5
555	6
540	7

DIAGRAM "L"

WDG	VOLTS	CONNECT	LINE
PRI	208		X1-X2
SEC	240	H2-H3	H1-H4
	120	H1H3-H2H4	
	120/240	H1-H3-H4*	H1-H3-H4

*Three wire operation

DIAGRAM "260A"

WDG	VOLTS	CONNECT	LINE
PRI		USE BOTH CABLES PROVIDED	X1-X2
	218	5 TO 10	
	213	5 TO 9	
	208	4 TO 9	
	203	4 TO 8	
	198	3 TO 8	
	192	3 TO 7	
	187	2 TO 7	
SEC	240	H2-H3	H1-H4
	120	H1H3-H2H4	
	120/240*	H2-H3	H1-H3-H4

* Three wire operation

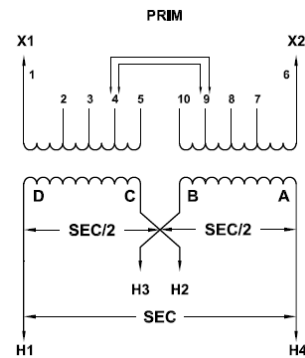
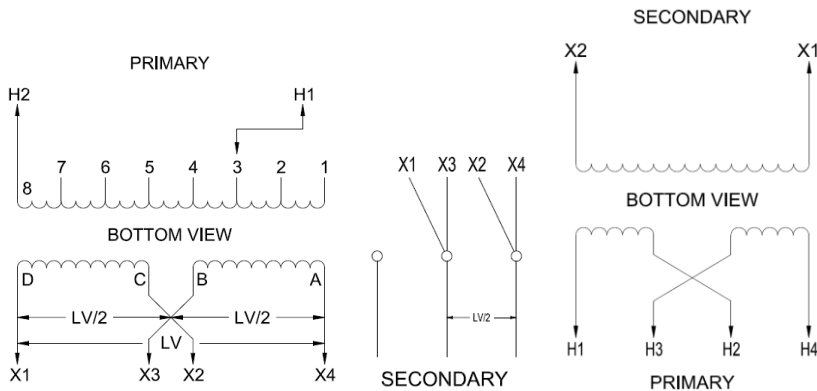


DIAGRAM "551A"

WDG	VOLTS	CONNECT	LINE
PRI		Use 1 cable per connex	X1-X2
	218	5 to X2-10 to X1	
	208	4 to X2-9 to X1	
	198	3 to X2-8 to X1	
	187	2 to X2-7 to X1	
SEC	240	H2-H3	H1-H4
	120	H1H3-H2H4	H1-H3-H4
	120/240	H2-H3*	

*Three wire operation

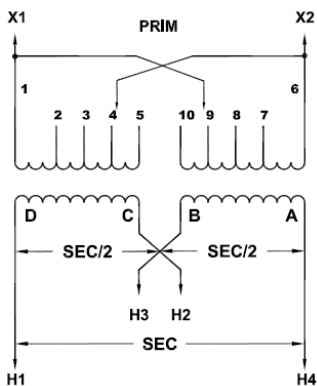
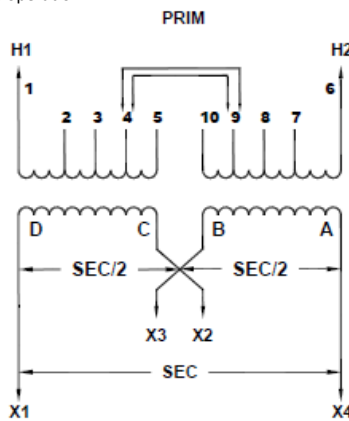


DIAGRAM "262C"

WDG	VOLTS	CONNECT	LINE
PRI		Use both cables provided	H1-H2
	291	5-10	
	284	5-9	
	277	4-9	
	270	4-8	
	263	3-8	
	256	3-7	
	249	2-7	
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4

*Three wire operation



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "F": PRI: 277 SEC: 120/240 60HZ												
3	G003K1MF1A03	-	-	1E	115	14.25	7.69	8.00	55	176	M	
5	G005K1MF1A03	-	-	1E	115	16.00	10.38	9.89	113	177	M	
7.5	G7X5K1MF1A03	-	-	1E	115	16.00	10.38	9.89	123	178	M	
10	G010K1MF1A03	-	-	1E	115	19.00	13.38	10.52	193	179	M	
15	G015K1MF1A03	-	-	1E	115	19.00	13.38	10.52	180	180	M	
25	G025K1MF1A03	-	-	1E	115	23.31	16.35	14.12	375	182	M	
25	G025K2MF1A04	6	6	1V	150	37.53	22.60	19.50	346	818	262C	WS11MI
37.5	G037K2MF1A04	6	6	1V	150	37.53	22.60	19.50	391	818	262C	WS11MI
50	G050K2MF1A04	6	6	1V	150	42.00	24.00	23.38	555	819	262C	WS16MI
75	G075K2MF1A04	6	6	1V	150	42.00	24.00	23.38	568	820	262C	WS16MI
100	G100K2MF1A04	6	6	1V	150	63.00	30.00	34.00	1178	821	262C	WS13MI

(6) 2@ +2.5%; 4@ -2.5%

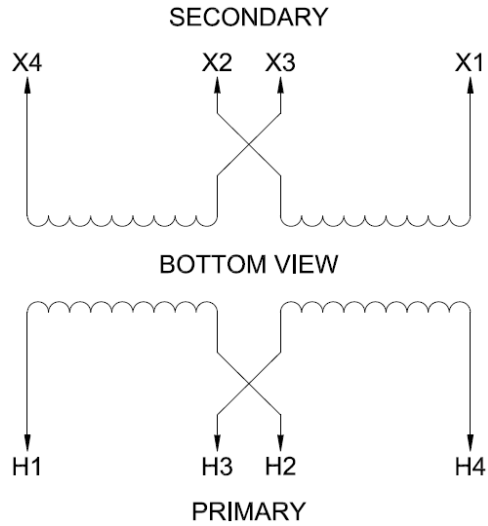
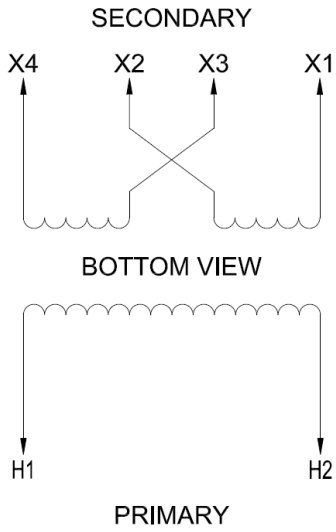
KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "G": PRI: 120 X 240 SEC: 120/240 60HZ												
1	G001K1EF1A02	-	-	1E	115	13.03	5.74	6.56	31	67P	K	
1.5	G1X5K1EF1A02	-	-	1E	115	13.03	5.74	6.56	42	67P	K	
2	G002K1EF1A02	-	-	1E	115	13.78	6.22	6.32	42	68P	K	
3	G003K1EF1A03	-	-	1E	115	14.25	7.69	8.00	55	176	K	
5	G005K1EF1A03	-	-	1E	115	16.00	10.38	9.89	113	177	K	
7.5	G7X5K1EF1A03	-	-	1E	115	16.00	10.38	9.89	123	178	K	
10	G010K1EF1A03	-	-	1E	115	19.00	13.38	10.52	193	179	K	
15	G015K1EF1A03	-	-	1E	115	19.00	13.38	10.52	216	180	K	
25	G025K1EF1A03	-	-	1E	115	23.31	16.35	14.12	375	182	K	

DIAGRAM "M"

WDG	VOLTS	CONNECT	LINE
PRI	277		H1-H2
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4
*Three wire operation			

DIAGRAM "K"

WDG	VOLTS	CONNECT	LINE
PRI	240	H2-H3	H1-H4
	120	H1H3-H2H4	
SEC	240	X2-X3	X1-X4
	120	X1X3-X2X4	
	120/240	X2-X3*	X1-X3-X4
*Three wire operation			



THREE PHASE

KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "H": PRI: 208Δ SEC: 480Y/277 60HZ DOE 2016												
15	G015K5HQ2A04	6	6	3V	150	28.00	21.88	17.75	124*	939	342B	WS57MI
30	G030K5HQ2A04	6	6	3V	150	36.88	24.88	21.13	298	940	342B	WS58MI
45	G045K5HQ2A04	6	6	3V	150	36.88	24.88	21.13	326	940	342B	WS58MI
75	G075K5HQ2A04	6	6	3V	150	43.00	30.50	24.00	445	942	342B	WS59MI
112.5	G112K5HQ2A04	7	7	3V	150	51.00	34.50	31.50	540	943	351A	WS60MI
150	G150K5HQ2A04	7	7	3V	150	51.00	34.50	31.50	931*	943	351A	WS60MI
225	G225K5HQ4A04	7	7	3V	150	60.00	38.00	33.50	1550*	944	333B	WS61MI
300	G300K5HQ4A04	7	7	3V	150	66.18	42.18	33.50	2274*	945	333B	WS62MI

(6) 2@ +2.5%; 4@ -2.5%

* EST

(7) 1@ +5%; 2@ -5%

DIAGRAM "342B"

VOLTS	TAP
218	1
213	2
208	3
203	4
198	5
192	6
187	7

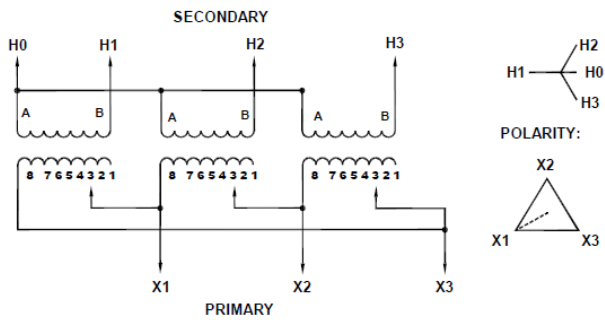


DIAGRAM "351A"

VOLTS	TAP
218	1
208	2
198	3
187	4

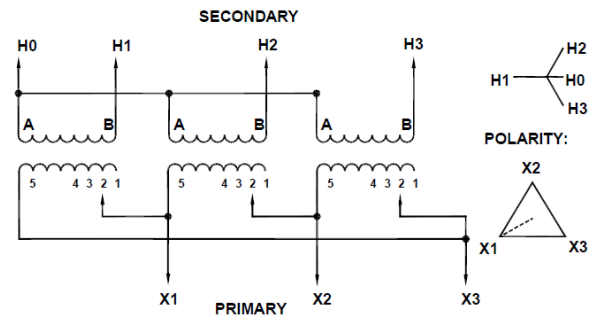
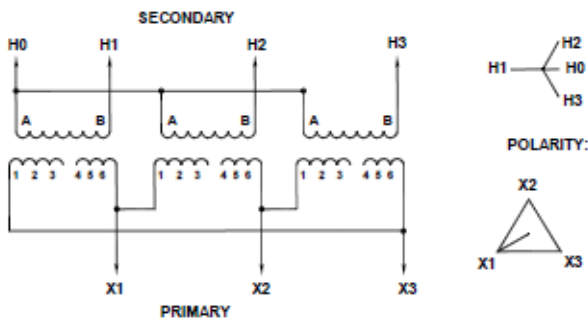


DIAGRAM "333B"

VOLTS	CONNECT
218	3 TO 4
208	3 TO 5
198	2 TO 4
187	2 TO 5



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "I": PRI: 240Δ SEC: 208Y/120 60HZ DOE 2016												
9	G009K3JH8A03	-	4	3E	115	15.90	16.93	10.00	190	103	AA	
15	G015K3JH8A03	-	4	3E	115	17.38	20.00	10.50	275	95	AA	
30	G030K3JH2A03	6	6	3E	115	26.58	21.81	11.65	422	243	BB	
45	G045K3JH2A03	6	6	3E	115	26.58	24.81	13.53	660	244	BB	
15	G015K5JH2A04	6	6	3V	150	28.00	21.88	17.75	124*	939	280C	WS57MI
30	G030K5JH2A04	6	6	3V	150	36.88	24.88	21.13	295	940	280C	WS58MI
45	G045K5JH2A04	6	6	3V	150	36.88	24.88	21.13	324	940	280C	WS58MI
75	G075K5JH2A04	6	6	3V	150	43.00	30.50	24.00	447	942	280C	WS59MI
112.5	G112K5JH2A04	6	6	3V	150	51.00	34.50	31.50	760*	943	280C	WS60MI
150	G150K5JH2A04	6	6	3V	150	51.00	34.50	31.50	974*	943	280C	WS60MI
225	G225K5JH5A04	7	7	3V	150	60.00	38.00	33.50	1460*	944	DD	WS61MI
300	G300K5JH5A04	7	7	3V	150	66.18	42.18	33.50	1650*	945	DD	WS62MI

(4) 2@ -5%, (6) 2@ +2.5%; 4@ -2.5%, (7) 1@ +5%; 2@ -5%

* EST

DIAGRAM "AA"

WDG	VOLTS	LINE
PRI	240	H1-H2-H3
	228	H4-H5-H6
	216	H7-H8-H9

DIAGRAM "BB"

VOLTS	CONNECT	LINE
252	1-6	H1-H2-H3
246	1-5	
240	1-4	
234	2-5	
228	2-4	
222	3-5	
216	3-4	

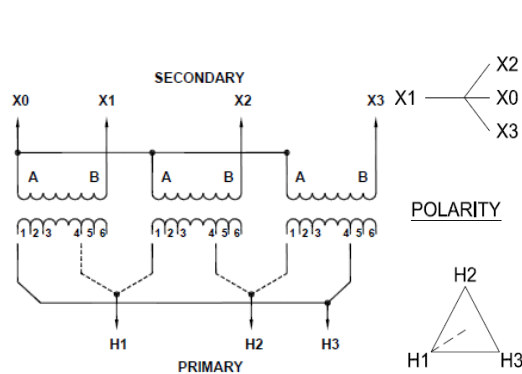
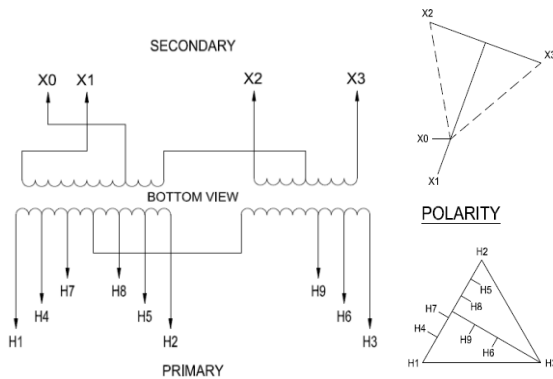
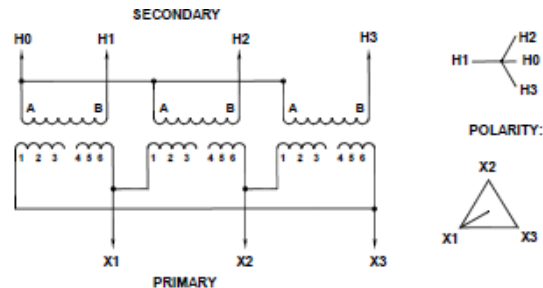
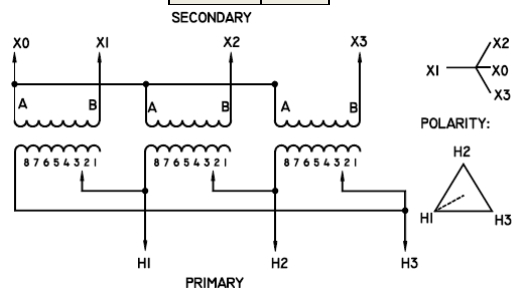


DIAGRAM "280C"

VOLTS	TAP
252	1
246	2
240	3
234	4
228	5
222	6
216	7

DIAGRAM "DD"

VOLTS	CONNECT
252	3 TO 4
240	3 TO 5
228	2 TO 4
216	2 TO 5



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "J": PRI: 480Δ SEC: 208Y/120 60HZ DOE 2016												
3	G003K3QH8A03	-	4	3E	115	13.40	15.93	8.25	116	201	FF	
6	G006K3QH8A03	-	4	3E	115	15.90	16.93	10.00	165	200	FF	
6	G006K3QH3A03	8	8	3E	115	15.90	16.93	10.00	165	200	GG	
9	G009K3QH8A03	-	4	3E	115	15.90	16.93	10.00	185	103	FF	
9	G009K3QH5A03	-	5	3E	115	15.90	16.93	10.00	185	103	HH	
9	G009K3QH3A03	8	8	3E	115	15.90	16.93	10.00	185	103	GG	
15	G015K3QH8A03	-	4	3E	115	17.38	20.00	10.50	275	95	FF	
15	G015K3QH5A03	-	5	3E	115	17.38	20.00	10.50	275	95	HH	
15	G015K3QH3A03	8	8	3E	115	17.38	20.00	10.50	275	95	GG	
30	G030K3QH2A03	6	6	3E	115	26.58	21.81	11.65	422	243	II	
45	G045K3QH2A03	6	6	3E	115	26.58	24.81	13.53	720	244	II	
75	G075K3QH2A03	6	6	3E	115	32.00	30.30	15.70	1275	245	II	
15	G015K5QH2A04	6	6	3V	150	28.00	21.88	17.75	228	939	280B	WS57MI
30	G030K5QH2A04	6	6	3V	150	36.88	24.88	21.13	405	940	280B	WS58MI
45	G045K5QH2A04	6	6	3V	150	36.88	24.88	21.13	436	940	280B	WS58MI
75	G075K5QH2A04	6	6	3V	150	43.00	30.50	24.00	609	942	280B	WS59MI
112.5	G112K5QH2A04	6	6	3V	150	51.00	34.50	31.50	970	943	280B	WS60MI
150	G150K5QH2A04	6	6	3V	150	51.00	34.50	31.50	1220	943	280B	WS60MI
225	G225K5QH2A04	6	6	3V	150	60.00	38.00	33.50	1571	944	657A	WS61MI
300	G300K5QH2A04	6	6	3V	150	66.18	42.18	33.50	2157	945	657A	WS62MI
500	G500K5QH2A04	8	8	3V	150	C/F	C/F	C/F	C/F	C/F	428B	C/F
750	G750K5QH2A04	6	6	3V	150	C/F	C/F	C/F	C/F	C/F	KK	C/F

(4) 2 @-5%; (5) 4@-2.5%; (6) 2 @+2.5%, 4@-2.5%; (8) 2@+2.5%, 2@-2.5%

DIAGRAM "FF"

WDG	VOLTS	LINE
PRI	480	H1-H2-H3
	456	H4-H5-H6
	432	H7-H8-H9

DIAGRAM "GG"

WDG	VOLTS	LINE
PRI	504	H1-H2-H3
	492	H4-H5-H6
	480	H7-H8-H9
	468	H10-H11-H12
	456	H13-H14-H15

DIAGRAM "HH"

WDG	VOLTS	LINE
PRI	480	H1-H2-H3
	468	H4-H5-H6
	456	H7-H8-H9
	444	H10-H11-H12
	432	H13-H14-H15

Three Phase 3 wire to three phase 4 wire. For step-up do not connect neutral "X0"

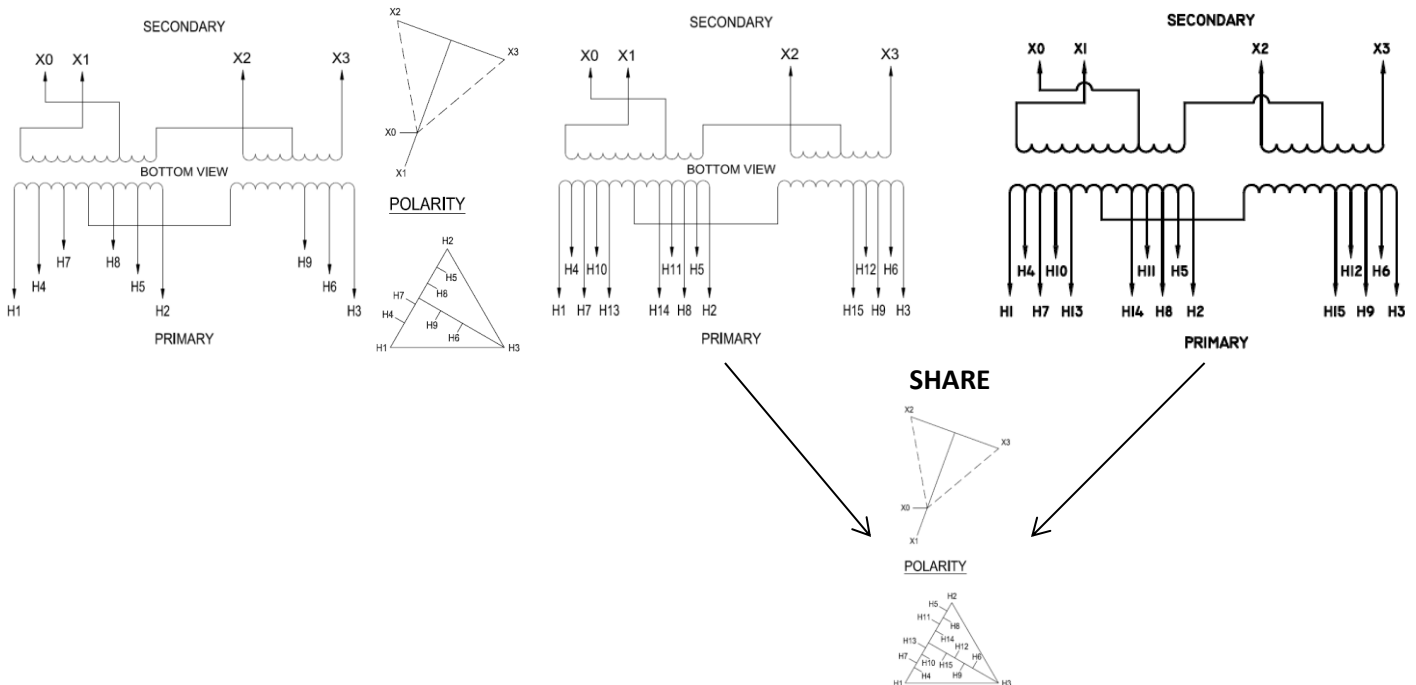
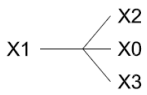
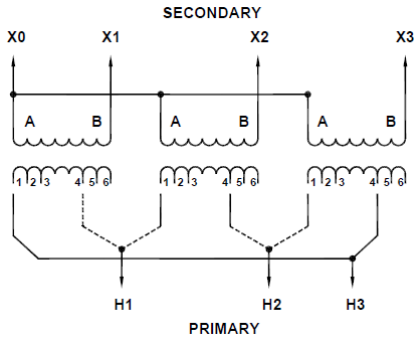


DIAGRAM "II"

VOLTS	CONNECT	LINE
504	1-6	H1-H2-H3
492	1-5	
480	1-4	
468	2-5	
456	2-4	
444	3-5	
432	3-4	



POLARITY

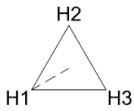
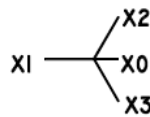
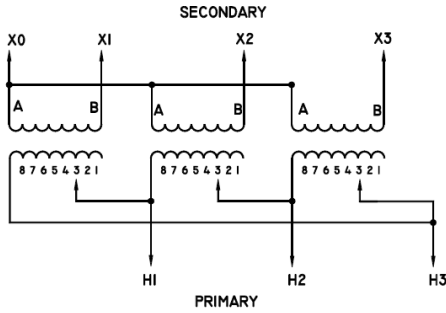


DIAGRAM "280B"

VOLTS	TAP
504	1
492	2
480	3
468	4
456	5
444	6
432	7



POLARITY:

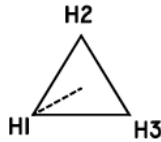
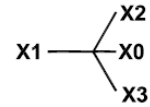
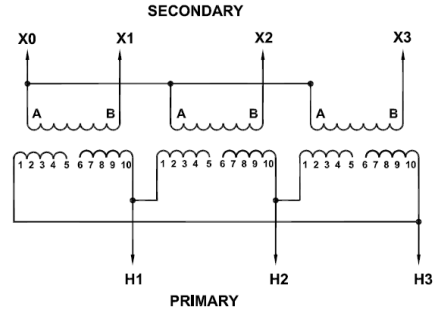


DIAGRAM "657B"

VOLTS	CONNECT
504	5 TO 6
492	6 TO 4
480	4 TO 7
468	7 TO 3
456	3 TO 8
444	8 TO 2
432	2 TO 9



POLARITY:

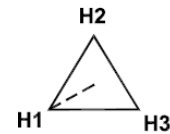
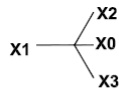
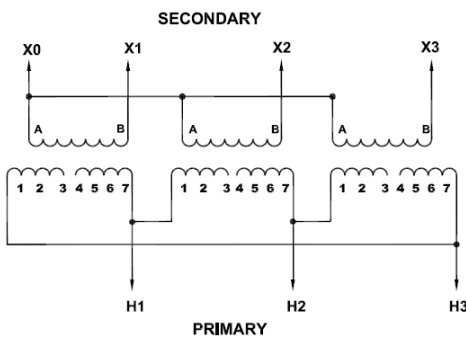


DIAGRAM "428B"

VOLTS	CONNECT
504	3 TO 4
492	3 TO 5
480	3 TO 6
468	2 TO 5
456	2 TO 6



POLARITY:

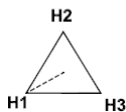
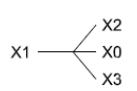
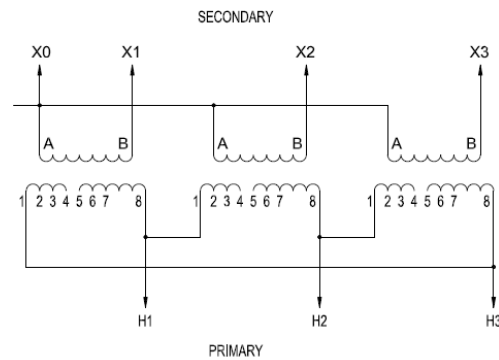
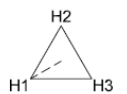


DIAGRAM "KK"

VOLTS	CONNECT
504	4 TO 5
492	4 TO 6
480	4 TO 7
468	3 TO 6
456	3 TO 7
444	2 TO 6
432	2 TO 7



POLARITY



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "L": PRI: 480Δ SEC: 240Δ/120LT 60HZ LIGHTING TAP ON 3V UNITS ONLY DOE 2016												
3	G003K4QJ8A03	-	4	3E	115	13.40	15.93	8.25	116	201	B1B	
6	G006K4QJ8A03	-	4	3E	115	15.90	16.93	10.00	165	200	B1B	
9	G009K4QJ5A03	-	5	3E	115	15.90	16.93	10.00	185	103	C1C	
15	G015K4QJ5A03	-	5	3E	115	17.38	20.00	10.50	275	95	C1C	
30	G030K4QJ2A03	6	6	3E	115	26.58	21.81	11.65	422	243	D1D	
45	G045K4QJ2A03	6	6	3E	115	26.58	24.81	13.53	660	244	D1D	
15	G015K6QJ9B02	6	6	3V	150	28.00	21.88	17.75	124	939	LL	WS57MI
30	G030K6QJ9B02	6	6	3V	150	36.88	24.88	21.13	293	940	LL	WS58MI
45	G045K6QJ9B02	6	6	3V	150	36.88	24.88	21.13	324	940	LL	WS58MI
75	G075K6QJ9B02	6	6	3V	150	43.00	30.50	24.00	445	942	LL	WS59MI
112.5	G112K6QJ9B02	6	6	3V	150	51.00	34.50	31.50	540	943	LL	WS60MI
150	G150K6QJ9B02	6	6	3V	150	51.00	34.50	31.50	820*	943	LL	WS60MI
225	G225K6QJ9B02	6	6	3V	150	60.00	38.00	33.50	1300*	944	LL	WS61MI
300	G300K6QJ9B02	6	6	3V	150	66.18	42.18	33.50	2400*	945	LL	WS62MI
500	G500K6QJ9B02	6	6	3V	150	C/F	C/F	C/F	C/F	C/F	MM	C/F

(4) 2 @-5%; (5) 4 @-2.5%; (6) 2 @+2.5%, 4@-2.5%;

* EST

DIAGRAM "B1B"

WDG	VOLTS	LINE
PRI	480	H1-H2-H3
	456	H4-H5-H6
	432	H7-H8-H9

Three phase 3 wire to three phase 3 wire

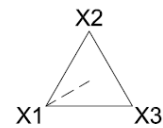
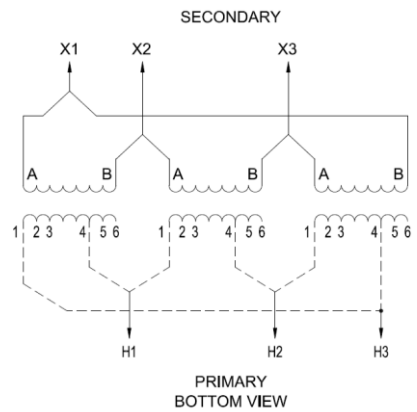
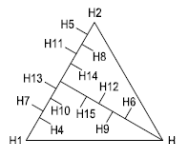
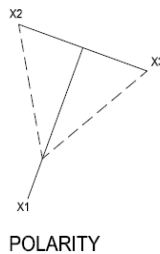
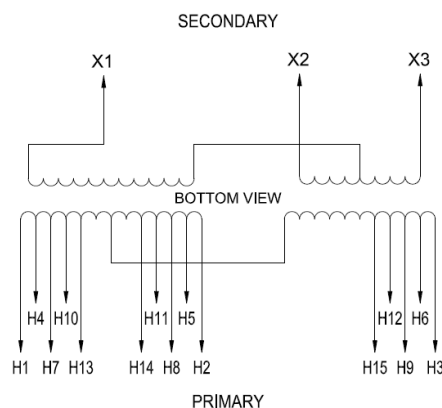
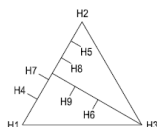
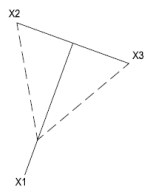
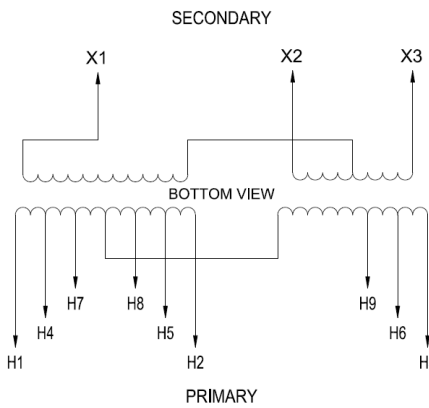
DIAGRAM "C1C"

WDG	VOLTS	LINE
PRI	480	H1-H2-H3
	468	H4-H5-H6
	456	H7-H8-H9
	444	H10-H11-H12
	432	H13-H14-H15

Three phase 3 wire to three phase 3 wire

DIAGRAM "D1D"

VOLTS	CONNECT	LINE
504	1-6	H1-H2-H3
492	1-5	
480	1-4	
468	2-5	
456	2-4	
444	3-5	
432	3-4	



POLARITY

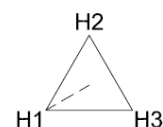


DIAGRAM "LL"

VOLTS	TAP
504	1
492	2
480	3
468	4
456	5
444	6
432	7

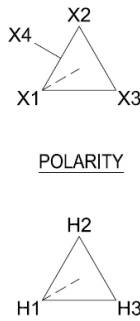
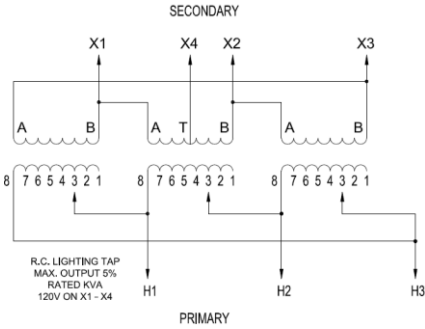
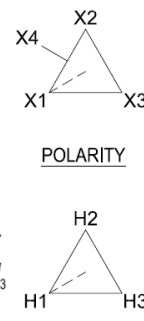
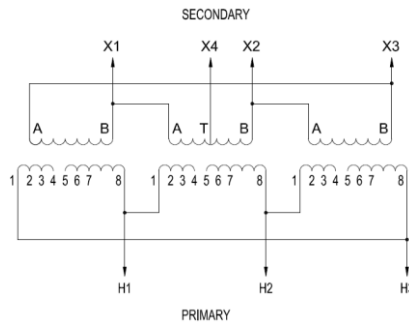


DIAGRAM "MM"

VOLTS	CONNECT
504	4 TO 5
492	4 TO 6
480	4 TO 7
468	3 TO 6
456	3 TO 7
444	2 TO 6
432	2 TO 7



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "M": PRI: 480Δ SEC: 480Y/277 60HZ DOE 2016												
9	G009K3QQ3A03	8	8	3E	115	15.90	16.93	10.00	190	103	NN	
15	G015K3QQ3A03	8	8	3E	115	17.38	20.00	10.50	275	95	NN	
30	G030K3QQ2A03	6	6	3E	115	26.58	21.81	11.65	422	243	PP	
45	G045K3QQ2A03	6	6	3E	115	26.58	24.81	13.53	660	244	PP	
15	G015K5QQ2A04	6	6	3V	150	28.00	21.88	17.75	124	939	QQ	WS57MI
30	G030K5QQ2A04	6	6	3V	150	36.88	24.88	21.13	296	940	QQ	WS58MI
45	G045K5QQ2A04	6	6	3V	150	36.88	24.88	21.13	324	940	QQ	WS58MI
75	G075K5QQ2A04	6	6	3V	150	43.00	30.50	24.00	447	942	QQ	WS59MI
112.5	G112K5QQ2A04	6	6	3V	150	51.00	34.50	31.50	650*	943	QQ	WS60MI
150	G150K5QQ2A04	6	6	3V	150	51.00	34.50	31.50	770*	943	QQ	WS60MI
225	G225K5QQ2A04	6	6	3V	150	60.00	38.00	33.50	1300*	944	QQ	WS61MI
300	G300K5QQ2A04	6	6	3V	150	66.18	42.18	33.50	2400*	945	QQ	WS62MI

(8) 2 @+2.5%, 2 @-2.5%; (6) 2 @+2.5%, 4 @-2.5%;

* EST

DIAGRAM "NN"

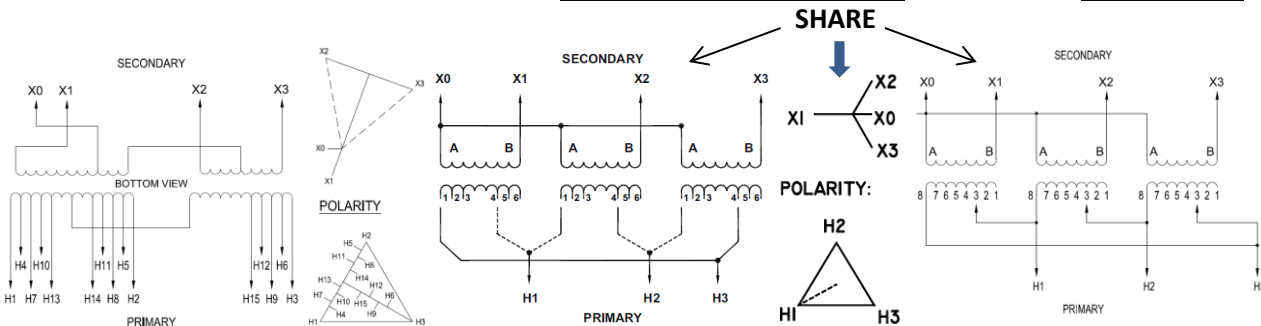
WDG	VOLTS	LINE
PRI	504	H1-H2-H3
	492	H4-H5-H6
	480	H7-H8-H9
	468	H10-H11-H12
	456	H13-H14-H15

DIAGRAM "PP"

VOLTS	CONNECT	LINE
504	1-6	H1-H2-H3
492	1-5	
480	1-4	
468	2-5	
456	2-4	
444	3-5	
432	3-4	

DIAGRAM "QQ"

VOLTS	TAP
504	1
492	2
480	3
468	4
456	5
444	6
432	7



KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "N": PRI: 600Δ SEC: 208Y/120 60HZ DOE 2016												
9	G009K3RH8A03	-	10	3E	115	15.90	16.93	10.00	185	103	SS	
15	G015K3RH8A03	-	10	3E	115	17.38	20.00	10.50	275	95	SS	
30	G030K3RH2A03	6	6	3E	115	26.58	21.81	11.65	422	243	TT	
45	G045K3RH2A03	6	6	3E	115	26.58	24.81	13.53	660	244	TT	
15	G015K5RH2A04	6	6	3V	150	28.00	21.88	17.75	196*	939	UU	WS57MI
30	G030K5RH2A04	6	6	3V	150	36.88	24.88	21.13	308*	940	UU	WS58MI
45	G045K5RH2A04	6	6	3V	150	36.88	24.88	21.13	331*	940	UU	WS58MI
75	G075K5RH2A04	6	6	3V	150	43.00	30.50	24.00	513*	942	UU	WS59MI
112.5	G112K5RH2A04	6	6	3V	150	51.00	34.50	31.50	650*	943	UU	WS60MI
150	G150K5RH2A04	6	6	3V	150	51.00	34.50	31.50	770*	943	UU	WS60MI
225	G225K5RH2A04	6	6	3V	150	60.00	38.00	33.50	1300*	944	UU	WS61MI
300	G300K5RH2A04	6	6	3V	150	66.18	42.18	33.50	2400*	945	UU	WS62MI

(10) 2 @-2.5%; (6) 2 @+2.5%, 4@ -2.5%

* EST

KVA	CATALOG NUMBER	TAPS FCAN	TAPS FCBN	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER	WIRING DIAGRAM	WEATHER SHIELD
GROUP "O": PRI: 600Δ SEC: 240Δ 60HZ												
30	G030K4RJ2A03	6	6	3E	115	26.58	21.81	11.65	422	243	WW	
45	G045K4RJ2A03	6	6	3E	115	26.58	24.81	13.53	660	244	WW	

(6) 2 @+2.5%, 4@-2.5%

DIAGRAM "SS"

WDG	VOLTS	LINE
PRI	600	H1-H2-H3
	570	H4-H5-H6
	540	H7-H8-H9

Three phase 3 wire to three phase 4 wire
For step up, do not connect neutral "X0"

DIAGRAM "TT"

VOLTS	CONNECT	LINE
630	1-6	H1-H2-H3
615	1-5	
600	1-4	
585	2-5	
570	2-4	
555	3-5	
540	3-4	

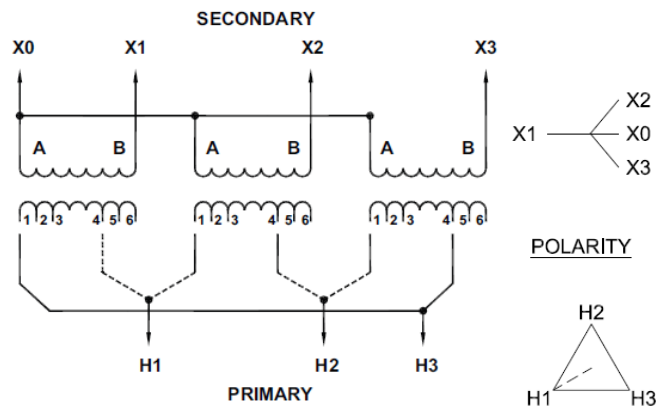
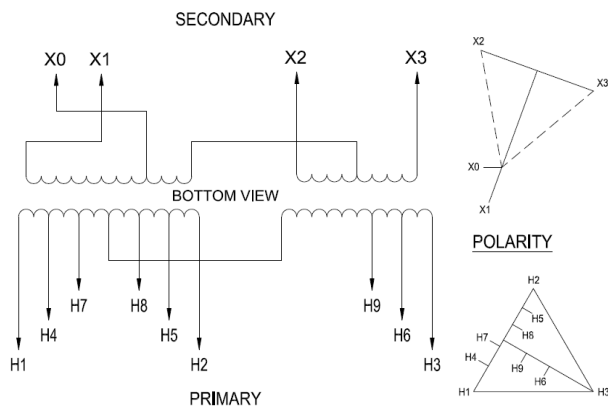


DIAGRAM "UU"

VOLTS	CONNECT
630	4 TO 5
615	4 TO 6
600	4 TO 7
585	3 TO 6
570	3 TO 7
555	2 TO 6
540	2 TO 7

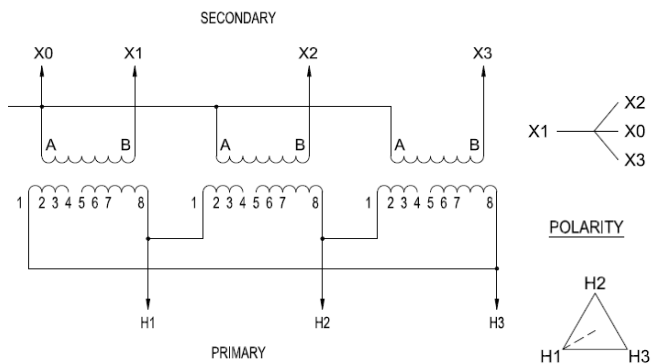
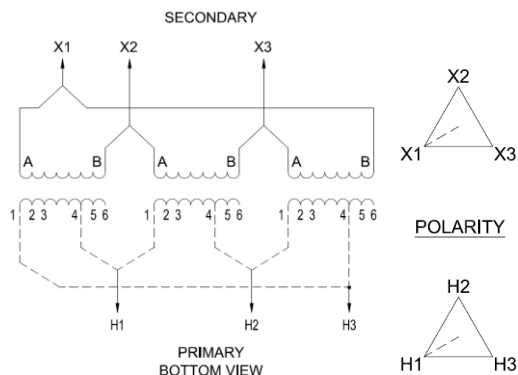


DIAGRAM "WW"

VOLTS	CONNECT	LINE
630	1-6	H1-H2-H3
615	1-5	
600	1-4	
585	2-5	
570	2-4	
555	3-5	
540	3-4	



BUCK-BOOST TRANSFORMERS

Single and Three Phase Applications – 60Hz

A Buck-Boost Transformer is used to provide an economical method of correcting a lower or higher voltage to a voltage rating more suitable for efficient operation of electrical equipment.

Buck-Boost Transformers are small Kva, single phase, 600 volt class insulating transformers with dual primary and dual secondary windings. If wired as an isolation transformer, they can be utilized to provide for applications requiring 12, 16, 24, 32 or 48 Vac up through 7.5Kva. However, they are usually connected as autotransformers by utilizing one unit for single phase applications and either two or three units banked for three phase operation. They are primarily used for motor operation and should not be used for motor control circuits, to correct fluctuating line voltage or to obtain a neutral on a delta system. These applications require transformers especially designed for these specific applications.

NOTE: When installation is to be made on a grounded system, consideration must be given to the resulting voltage. Thus, on a 208 grounded wye/120 system the voltage can be boosted to 240 volts but the voltage to ground will be 139 volts. If 240/120 volts with a midpoint ground is needed, a standard two-winding transformer must be used.

The following formula can be used to calculate specific requirements.

For Single Phase

$$\text{LOAD KVA} = \frac{\text{Load Voltage} \times \text{Full Load Amps}}{1000}$$

For Three Phase

$$\text{LOAD KVA} = \frac{\text{Load Voltage} \times \text{Full Load Amps} \times 1.732}{1000}$$

For quick selection data, refer to the tables on the following pages.

Selection Requirements

First, you should have this information before selecting a buck-boost transformer.

Line Voltage- The voltage that you want to buck (decrease) or boost (increase). This can be found by measuring the supply line voltage with a voltmeter.

Load Voltage- The voltage at which your equipment is designed to operate. This is listed on the nameplate of the equipment.

Load Amps or Load Kva- You do not need to know both – one or the other is sufficient for selection purposes. This information usually can be found on the nameplate of the equipment that you want to operate.

Frequency- The supply line frequency must be the same as the frequency of the equipment being operated. Micron Buck-Boost transformers operate at 60 Hertz only.

Phase- The supply line should be the same as the equipment to be operated – either single or three phase.

Transformer Interconnection

For three phase applications, interconnections of transformers should be made in a junction box. Two or three transformers may be used depending on an open delta (2) or wye (3) connection.

Selection Information

5-Step Selector

The tables which follow will simplify the selection of the buck-boost transformers. There are no calculations needed; simply follow these 5 steps.

1. Refer to the table having the same output voltage as the equipment that you want to operate. For example, if you are installing a 240 volt, 6Kva single phase load, use **Selection Table Number 4**.
2. Select the available line voltage across the top of the chart which is closest to the actual supply voltage. In the example, if the available line voltage is 213 volts, use the 212 volt Column.
3. Read down the column until you reach an output Kva or amps rating equal to or greater than the load requirements. Since 6Kva, in the example, is not listed, use the next higher rating or 7.5Kva.
4. Read across to the far left columns for the catalog number and quantity of transformers for your application. In the example, you will need (1) catalog number J001K1EB1A02.
5. Connect the selected buck-boost transformer(s) in accordance with the connection diagram specified at the bottom of the "Available Voltage" column. In the example, Diagram "F" would be used.

NOTE: For 1 phase connections and 3 phase open delta connections, inputs and outputs may be reversed. Kva capacity remains constant.

Buck-Boost

Product Groups

KVA	CATALOG NUMBER	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER
GROUP "A": PRI: 120 X 240 SEC: 16/32 60 HZ								
.050	J050A1EB1A01	1E	115	8.91	4.11	4.00	7	52
.100	J100A1EB1A01	1E	115	8.91	4.11	4.00	7	54
.150	J150A1EB1A01	1E	115	8.91	4.11	4.00	8	55
.250	J250A1EB1A02	1E	115	9.34	4.45	5.18	12	57P
.500	J500A1EB1A02	1E	115	9.34	4.45	5.18	13	57P
.750	J750A1EB1A02	1E	115	11.68	4.99	5.99	21	58AP
1	J001K1EB1A02	1E	115	13.03	5.74	6.56	31	67P
1.5	J1X5K1EB1A02	1E	115	13.03	5.74	6.56	40	67P
2	J002K1EB1A02	1E	115	13.78	6.22	6.32	40	68P
3	J003K1EB1A03	1E	115	14.25	7.69	8.00	65	176
5	J005K1EB1A03	1E	115	16.00	10.38	9.89	113	177
7.5	J7X5K1EB1A03	1E	115	16.00	10.38	9.89	123	178

KVA	CATALOG NUMBER	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER
GROUP "B": PRI: 240 X 480 SEC: 24/48 60 HZ								
.050	J050A1KC1A01	1E	115	8.91	4.11	4.00	7	52
.100	J100A1KC1A01	1E	115	8.91	4.11	4.00	7	54
.150	J150A1KC1A01	1E	115	8.91	4.11	4.00	8	55
.250	J250A1KC1A02	1E	115	9.34	4.45	5.18	12	57P
.500	J500A1KC1A02	1E	115	9.34	4.45	5.18	13	57P
.750	J750A1KC1A02	1E	115	11.68	4.99	5.99	21	58AP
1	J001K1KC1A02	1E	115	13.03	5.74	6.56	31	67P
1.5	J1X5K1KC1A02	1E	115	13.03	5.74	6.56	40	67P
2	J002K1KC1A02	1E	115	13.78	6.22	6.32	40	68P
3	J003K1KC1A03	1E	115	14.25	7.69	8.00	65	176
5	J005K1KC1A03	1E	115	16.00	10.38	9.89	113	177
7.5	J7X5K1KC1A03	1E	115	16.00	10.38	9.89	123	178

KVA	CATALOG NUMBER	DESIGN TYPE	TEMP RISE °C	H	W	D	WEIGHT LBS	FRAME NUMBER
GROUP "C": PRI: 120 X 240 SEC: 12/24 60 HZ								
.050	J050A1EA1A01	1E	115	8.91	4.11	4.00	7	52
.100	J100A1EA1A01	1E	115	8.91	4.11	4.00	7	54
.150	J150A1EA1A01	1E	115	8.91	4.11	4.00	8	55
.250	J250A1EA1A02	1E	115	9.34	4.45	5.18	12	57P
.500	J500A1EA1A02	1E	115	9.34	4.45	5.18	13	57P
.750	J750A1EA1A02	1E	115	11.68	4.99	5.99	21	58AP
1	J001K1EA1A02	1E	115	13.03	5.74	6.56	31	67P
1.5	J1X5K1EA1A02	1E	115	13.03	5.74	6.56	40	67P
2	J002K1EA1A02	1E	115	13.78	6.22	6.32	40	68P
3	J003K1EA1A03	1E	115	14.25	7.69	8.00	65	176
5	J005K1EA1A03	1E	115	16.00	10.38	9.89	113	177
7.5	J7X5K1EA1A03	1E	115	16.00	10.38	9.89	123	178

Need Single Phase 115 Volts, 60Hz (Table Number 1)

Units Req'd	Unit Kva	Catalog Number	Have Available Voltage Of																				
			84		91		96		100		102		105		127		130		138		146		
			Max Load																				
Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps			
1	.05	J050A1EA1A01	-	-	-	-	0.24	2.09	-	-	-	-	0.48	4.17	0.54	4.58	-	-	0.29	2.50	-	-	
1	.05	J050A1EB1A01	0.13	1.14	0.18	1.56	-	-	0.31	2.70	0.36	3.13	-	-	-	-	0.41	3.54	-	-	0.23	1.98	
1	.10	J100A1EA1A01	-	-	-	-	0.48	4.17	-	-	-	-	0.96	8.33	1.10	9.17	-	-	0.58	5.00	-	-	
1	.10	J100A1EB1A01	0.26	2.29	0.36	3.12	-	-	0.62	5.41	0.72	6.25	-	-	-	-	0.82	7.08	-	-	0.46	3.95	
1	.15	J150A1EA1A01	-	-	-	-	0.72	6.25	-	-	-	-	1.44	12.5	1.60	13.7	-	-	0.87	7.50	-	-	
1	.15	J150A1EB1A01	0.39	3.44	0.54	4.69	-	-	0.93	8.12	1.08	9.37	-	-	-	-	1.30	10.6	-	-	0.69	5.93	
1	.25	J250A1EA1A02	-	-	-	-	1.20	10.4	-	-	-	-	2.39	20.8	2.63	22.9	-	-	1.44	12.5	-	-	
1	.25	J250A1EB1A02	0.66	5.73	0.90	7.81	-	-	1.56	13.5	1.80	15.6	-	-	-	-	2.03	17.7	-	-	1.14	9.88	
1	.50	J500A1EA1A02	-	-	-	-	2.40	20.8	-	-	-	-	4.79	41.6	5.27	45.8	-	-	2.87	25	-	-	
1	.50	J500A1EB1A02	1.32	11.5	1.80	15.6	-	-	3.11	27.1	3.59	31.2	-	-	-	-	4.07	35.4	-	-	2.27	19.8	
1	.75	J750A1EA1A02	-	-	-	-	3.60	31.2	-	-	-	-	7.19	62.4	7.90	68.7	-	-	4.31	37.5	-	-	
1	.75	J750A1EB1A02	1.98	17.2	2.70	23.4	-	-	4.67	40.6	5.39	46.8	-	-	-	-	6.10	53.1	-	-	3.41	29.6	
1	1.0	J001K1EA1A02	-	-	-	-	4.79	41.7	-	-	-	-	9.58	83.3	10.5	91.7	-	-	5.75	50	-	-	
1	1.0	J001K1EB1A02	2.64	22.9	3.59	31.2	-	-	6.23	54.1	7.19	62.5	-	-	-	-	8.14	70.8	-	-	4.55	39.5	
1	1.5	J1X5K1EA1A02	-	-	-	-	7.20	62.5	-	-	-	-	14.4	125	15.8	137	-	-	8.62	75	-	-	
1	1.5	J1X5K1EB1A02	3.95	34.4	5.39	46.9	-	-	9.34	81.2	10.8	93.7	-	-	-	-	12.2	106	-	-	6.82	59.3	
1	2.0	J002K1EA1A02	-	-	-	-	9.58	83.3	-	-	-	-	19.2	16.7	21.1	183	-	-	11.5	100	-	-	
1	2.0	J002K1EB1A02	5.27	45.8	7.19	62.5	-	-	12.5	108	14.4	125	-	-	-	-	16.3	142	-	-	9.10	79.2	
1	3.0	J003K1EA1A03	-	-	-	-	14.37	125.1	-	-	-	-	28.7	249.9	31.5	275.1	-	-	17.3	150	-	-	
1	3.0	J003K1EB1A03	7.92	68.7	10.77	93.6	-	-	18.69	162.3	21.57	187.5	-	-	-	-	24.4	212.4	-	-	13.6	118.5	
1	5.0	J005K1EA1A03	-	-	-	-	23.95	208.5	-	-	-	-	47.9	416.5	52.5	458.5	-	-	28.7	250	-	-	
1	5.0	J005K1EB1A03	13.2	115	18	156	-	-	31.15	270.5	35.95	312.5	-	-	-	-	40.7	354	-	-	22.7	197.5	
1	7.5	J7X5K1EA1A03	-	-	-	-	36	312	-	-	-	-	71.9	624	79	687	-	-	43.1	357	-	-	
1	7.5	J7X5K1EB1A03	19.8	172	27	234	-	-	46.7	406	53.9	468	-	-	-	-	61	531	-	-	34.1	296	
Connection Diagram			D	B	B	C	A	A	A	A	A	B	B										

Need Single Phase 120 Volts, 60Hz (Selection Table Number 2)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																				
			88		95		100		104		106		109		132		136		144		152		
			Max Load																				
		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps			
1	.05	J050A1EA1A01	-	-	-	-	0.25	2.09	-	-	-	-	0.50	4.17	0.55	4.58	0.30	2.50	-	-	-	-	
1	.05	J050A1EB1A01	0.14	1.15	0.19	1.56	-	-	0.33	2.70	0.38	3.13	-	-	-	-	0.43	3.54	-	-	0.24	1.98	
1	.10	J100A1EA1A01	-	-	-	-	0.50	4.17	-	-	-	-	1.00	8.33	1.10	9.17	-	-	0.60	5.00	-	-	
1	.10	J100A1EB1A01	0.29	2.29	0.38	3.12	-	-	0.65	5.41	0.75	6.25	-	-	-	-	0.85	7.08	-	-	0.48	3.95	
1	.15	J150A1EA1A01	-	-	-	-	0.75	6.25	-	-	-	-	1.50	12.5	1.60	13.7	-	-	0.90	7.50	-	-	
1	.15	J150A1EB1A01	0.41	3.44	0.56	4.69	-	-	0.98	8.12	1.12	9.37	-	-	-	-	1.27	10.6	-	-	0.71	5.93	
1	.25	J250A1EA1A02	-	-	-	-	1.25	10.4	-	-	-	-	2.50	20.8	2.75	22.9	-	-	1.50	12.5	-	-	
1	.25	J250A1EB1A02	0.69	5.73	0.94	7.81	-	-	1.62	13.5	1.87	15.6	-	-	-	-	2.12	17.7	-	-	1.19	9.88	
1	.50	J500A1EA1A02	-	-	-	-	2.50	20.8	-	-	-	-	5.00	41.6	5.50	45.8	-	-	3.00	25	-	-	
1	.50	J500A1EB1A02	1.37	11.5	1.87	15.6	-	-	3.25	27.1	3.75	31.2	-	-	-	-	4.25	35.4	-	-	2.37	19.8	
1	.75	J750A1EA1A02	-	-	-	-	3.75	31.2	-	-	-	-	7.50	62.4	8.25	68.7	-	-	4.50	37.5	-	-	
1	.75	J750A1EB1A02	2.06	17.2	2.82	23.4	-	-	4.87	40.6	5.62	46.8	-	-	-	-	6.37	53.1	-	-	3.56	29.6	
1	1.0	J001K1EA1A02	-	-	-	-	5.00	41.7	-	-	-	-	10	83.3	11	91.7	-	-	6.00	50	-	-	
1	1.0	J001K1EB1A02	2.75	22.9	3.75	31.2	-	-	6.50	54.1	7.50	62.5	-	-	-	-	8.50	70.8	-	-	4.75	39.5	
1	1.5	J1X5K1EA1A02	-	-	-	-	7.50	62.5	-	-	-	-	15	125	16.5	137	-	-	9.00	75	-	-	
1	1.5	J1X5K1EB1A02	4.12	34.4	5.62	46.9	-	-	9.75	81.2	11.2	93.7	-	-	-	-	12.7	106	-	-	7.12	59.3	
1	2.0	J002K1EA1A02	-	-	-	-	10	83.3	-	-	-	-	20	167	22	183	-	-	12	100	-	-	
1	2.0	J002K1EB1A02	5.50	45.8	7.50	62.5	-	-	13	108	15	125	-	-	-	-	17	142	-	-	9.50	79.2	
1	3.0	J003K1EA1A03	-	-	-	-	15	125.1	-	-	-	-	30	249.9	33	275.1	-	-	18	150	-	-	
1	3.0	J003K1EB1A03	8.25	68.7	11.25	93.6	-	-	19.5	162.3	22.5	187.5	-	-	-	-	25.5	212.4	-	-	14.25	118.5	
1	5.0	J005K1EA1A03	-	-	-	-	25	208.5	-	-	-	-	50	416.5	55	458.5	-	-	30	250	-	-	
1	5.0	J005K1EB1A03	13.75	114.5	18.75	156	-	-	32.5	270.5	37.5	312.5	-	-	-	-	42.5	354	-	-	23.7	197.5	
1	7.5	J7X5K1EA1A03	-	-	-	-	37.5	312	-	-	-	-	75	624	82.5	687	-	-	45	375	-	-	
1	7.5	J7X5K1EB1A03	20.6	172	28.2	234	-	-	48.7	406	56.2	468	-	-	-	-	63.7	531	-	-	35.6	296	
Connection Diagram			D	B	B	C	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B		

DIAGRAM "A"

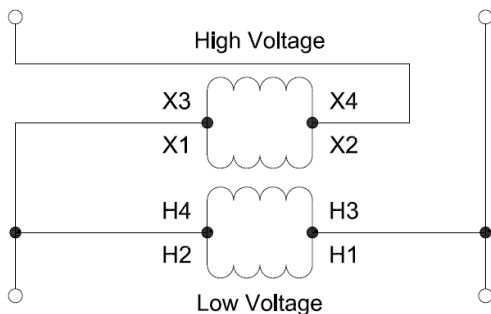


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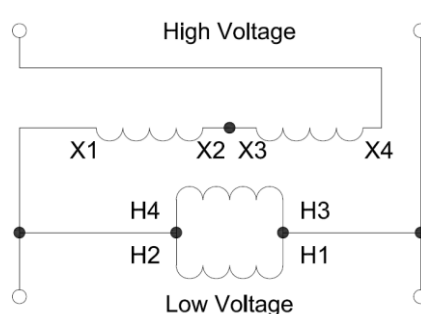


DIAGRAM "C"

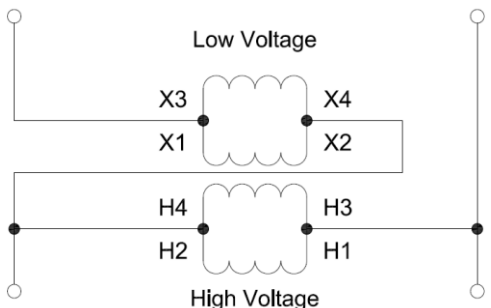
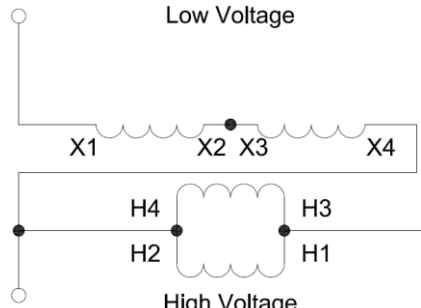


DIAGRAM "D"



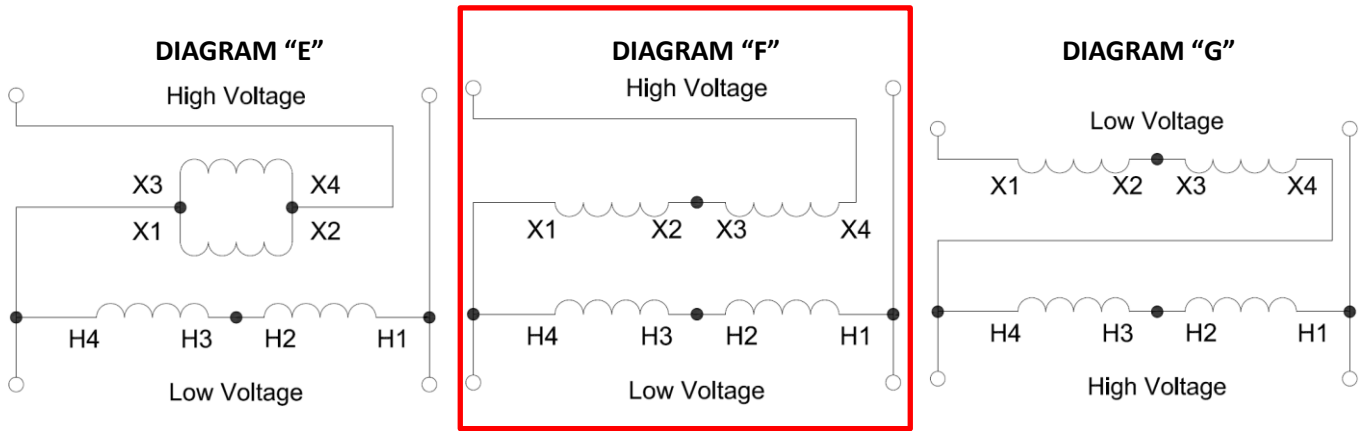
Need Single Phase 230Volts, 60Hz (Selection Table Number 3)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			199		203		207		209		216		219		242		246		253		260	
			Max Load																			
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps		
1	.05	J050A1EA1A01	-	-	-	-	0.43	1.88	0.48	2.08	-	-	0.96	4.16	1.00	4.38	-	-	0.53	2.29	-	-
1	.05	J050A1EB1A01	0.31	1.36	0.36	1.56	-	-	-	-	0.72	3.12	-	-	-	-	0.77	3.34	-	-	0.41	1.77
1	.10	J100A1EA1A01	-	-	-	-	0.86	3.75	0.96	4.17	-	-	1.92	8.33	2.01	8.75	-	-	1.05	4.58	-	-
1	.10	J100A1EB1A01	0.62	2.71	0.72	3.12	-	-	-	-	1.44	6.25	-	-	-	-	1.53	6.67	-	-	0.82	3.54
1	.15	J150A1EA1A01	-	-	-	-	1.29	5.62	1.44	6.25	-	-	2.87	12.5	3.02	13.1	-	-	1.58	6.87	-	-
1	.15	J150A1EB1A01	0.93	4.06	1.08	4.69	-	-	-	-	2.16	9.37	-	-	-	-	2.30	10	-	-	1.22	5.31
1	.25	J250A1EA1A02	-	-	-	-	2.15	9.37	2.39	10.4	-	-	4.79	20.8	5.03	21.9	-	-	2.63	11.5	-	-
1	.25	J250A1EB1A02	1.55	6.77	1.80	7.81	-	-	-	-	3.59	15.6	-	-	-	-	3.83	16.7	-	-	2.04	8.85
1	.50	J500A1EA1A02	-	-	-	-	4.31	18.7	4.79	20.8	-	-	9.58	41.6	10.1	43.7	-	-	5.27	22.9	-	-
1	.50	J500A1EB1A02	3.11	13.5	3.60	15.6	-	-	-	-	7.19	31.2	-	-	-	-	7.67	33.3	-	-	4.07	17.7
1	.75	J750A1EA1A02	-	-	-	-	6.46	28.2	7.19	31.2	-	-	14.4	62.4	15.1	65.6	-	-	7.90	34.4	-	-
1	.75	J750A1EB1A02	4.66	20.3	5.40	23.4	-	-	-	-	10.8	46.8	-	-	-	-	11.5	50	-	-	6.11	26.6
1	1.0	J001K1EA1A02	-	-	-	-	8.62	37.5	9.58	41.7	-	-	19.2	83.3	20.1	87.5	-	-	10.5	45.8	-	-
1	1.0	J001K1EB1A02	6.23	27.1	7.2	31.2	-	-	-	-	14.4	62.5	-	-	-	-	15.3	66.7	-	-	8.15	35.4
1	1.5	J1X5K1EA1A02	-	-	-	-	12.9	56.2	14.4	62.5	-	-	28.7	125	30.2	131	-	-	15.8	68.7	-	-
1	1.5	J1X5K1EB1A02	9.34	40.6	10.8	46.9	-	-	-	-	21.6	93.7	-	-	-	-	23	100	-	-	12.2	53.1
1	2.0	J002K1EA1A02	-	-	-	-	17.2	75	19.2	83.3	-	-	38.3	167	40.2	175	-	-	21.1	91.7	-	-
1	2.0	J002K1EB1A02	12.5	54.2	14.4	62.5	-	-	-	-	28.7	125	-	-	-	-	30.7	133	-	-	16.3	70.8
1	3.0	J003K1EA1A03	-	-	-	-	25.8	112.5	28.7	125.1	-	-	57.6	249.9	60.3	262.5	-	-	31.5	137.4	-	-
1	3.0	J003K1EB1A03	18.6	81.3	21.6	93.6	-	-	-	-	43.2	187.5	-	-	-	-	45.9	200.1	-	-	24.4	106.2
1	5.0	J005K1EA1A03	-	-	-	-	43.1	187.5	47.9	208.5	-	-	96	416.5	100.5	437.5	-	-	52.5	229	-	-
1	5.0	J005K1EB1A03	31.1	135.5	36	156	-	-	-	-	72	312.5	-	-	-	-	76.5	333.5	-	-	40.7	177
1	7.5	J7X5K1EA1A03	-	-	-	-	64.6	282	71.9	312	-	-	144	624	151	656	-	-	79	344	-	-
1	7.5	J7X5K1EB1A03	46.6	203	54	234	-	-	-	-	108	468	-	-	-	-	115	500	-	-	61.1	266
Connection Diagram			G	F	G	F	E	E	E	E	E	E	E	F	F							

FROM EXAMPLE OF BUCK-BOOST SELECTION PROCESS

Need Single Phase 240 Volts, 60Hz (Selection Table Number 4)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			208		212		216		218		225		229		252		256		264		272	
			Max Load																			
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps		
1	.05	J050A1EA1A01	-	-	-	-	0.45	1.88	0.50	2.08	-	-	1.00	4.16	1.05	4.38	-	-	0.55	2.29	-	-
1	.05	J050A1EB1A01	0.32	1.35	0.38	1.56	-	-	-	-	0.75	3.12	-	-	-	-	0.80	3.33	-	-	0.42	1.77
1	.10	J100A1EA1A01	-	-	-	-	0.90	3.75	1.00	4.17	-	-	2.00	8.33	2.10	8.75	-	-	1.10	4.58	-	-
1	.10	J100A1EB1A01	0.65	2.71	0.75	3.12	-	-	-	-	1.50	6.25	-	-	-	-	1.60	6.67	-	-	0.85	3.54
1	.15	J150A1EA1A01	-	-	-	-	1.35	5.62	1.50	6.25	-	-	3.00	12.5	3.15	13.1	-	-	1.65	6.87	-	-
1	.15	J150A1EB1A01	0.98	4.06	1.12	4.69	-	-	-	-	2.25	9.37	-	-	-	-	2.40	10	-	-	1.27	5.31
1	.25	J250A1EA1A02	-	-	-	-	2.25	9.37	2.50	10.4	-	-	5.00	20.8	5.25	21.9	-	-	2.75	11.5	-	-
1	.25	J250A1EB1A02	1.62	6.77	1.87	7.81	-	-	-	-	3.75	15.6	-	-	-	-	4.00	16.7	-	-	2.12	8.85
1	.50	J500A1EA1A02	-	-	-	-	4.50	18.7	5.00	20.8	-	-	10	41.6	10.5	43.7	-	-	5.50	22.9	-	-
1	.50	J500A1EB1A02	3.25	13.5	3.75	15.6	-	-	-	-	7.50	31.2	-	-	-	-	8.00	33.3	-	-	4.25	17.7
1	.75	J750A1EA1A02	-	-	-	-	6.75	28.2	7.5	31.2	-	-	15	62.4	15.7	65.6	-	-	8.25	34.4	-	-
1	.75	J750A1EB1A02	4.87	20.3	5.62	23.4	-	-	-	-	11.2	46.8	-	-	-	-	12	50	-	-	6.37	26.6
1	1.0	J001K1EA1A02	-	-	-	-	9.00	37.5	10	41.7	-	-	20	83.3	21	87.5	-	-	11	45.8	-	-
1	1.0	J001K1EB1A02	6.50	27.1	7.50	31.2	-	-	-	-	15	62.5	-	-	-	-	16	66.7	-	-	8.5	35.4
1	1.5	J1X5K1EA1A02	-	-	-	-	13.5	56.2	15	62.5	-	-	30	125	31.5	131	-	-	16.5	68.7	-	-
1	1.5	J1X5K1EB1A02	9.75	40.6	11.2	46.9	-	-	-	-	22.5	93.7	-	-	-	-	24	100	-	-	12.7	53.1
1	2.0	J002K1EA1A02	-	-	-	-	18	75	20	83.3	-	-	40	167	42	175	-	-	22	91.7	-	-
1	2.0	J002K1EB1A02	13	54.2	15	62.5	-	-	-	-	30	125	-	-	-	-	32	133	-	-	17	70.8
1	3.0	J003K1EA1A03	-	-	-	-	27	112.5	30	125.1	-	-	60	249.9	63	262.5	-	-	33	137.4	-	-
1	3.0	J003K1EB1A03	19.5	81.3	22.5	93.6	-	-	-	-	45	187.5	-	-	-	-	48	200.1	-	-	25.5	106.2
1	5.0	J005K1EA1A03	-	-	-	-	45	187	50	208	-	-	100	416.5	105	437.5	-	-	55	229	-	-
1	5.0	J005K1EB1A03	32.5	135	37.5	156	-	-	-	-	75	312	-	-	-	-	80	333	-	-	42.5	177
1	7.5	J7X5K1EA1A03	-	-	-	-	67.5	282	75	312	-	-	150	624	157	656	-	-	82.5	344	-	-
1	7.5	J7X5K1EB1A03	48.7	203	56.2	234	-	-	-	-	112	468	-	-	-	-	120	500	-	-	63.7	266
Connection Diagram			G	F	G	F	E	E	E	E	E	E	E	F	F							



THREE PHASE APPLICATIONS

WARNING! THREE PHASE AUTOTRANSFORMERS SHOULD NEVER BE USED TO OBTAIN 4-WIRE OUTPUT WITH 3-WIRE INPUT. 4-WIRE OUTPUT REQUIRES 4-WIRE WYE INPUT.

Need Three Phase Open Delta 230 Volts, 60Hz (Selection Table Number 5)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																				
			199	203	207	209	216	219	242	246	253	260											
			Max Load																				
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps								
2	.05	J050A1EA1A01	-	-	-	0.75	1.87	0.83	2.08	-	-	1.66	4.17	1.74	4.37	-	-	0.91	2.29	-	-		
2	.05	J050A1EB1A01	0.54	1.35	0.62	1.56	-	-	-	-	1.24	3.12	-	-	-	-	1.33	3.33	-	-	0.70	1.77	
2	.10	J100A1EA1A01	-	-	-	-	1.49	3.75	1.66	4.17	-	-	3.32	8.33	3.48	8.75	-	-	1.83	4.58	-	-	
2	.10	J100A1EB1A01	1.08	2.71	1.24	3.12	-	-	-	-	2.49	6.25	-	-	-	-	2.65	6.67	-	-	1.41	3.54	
2	.15	J150A1EA1A01	-	-	-	-	2.24	5.62	2.49	6.25	-	-	4.98	12.5	5.23	13.1	-	-	2.74	6.87	-	-	
2	.15	J150A1EB1A01	1.62	4.06	1.87	4.69	-	-	-	-	3.73	9.37	-	-	-	-	3.98	10	-	-	2.12	5.13	
2	.25	J250A1EA1A02	-	-	-	-	3.30	9.37	4.15	10.4	-	-	8.30	20.8	8.71	21.9	-	-	4.56	11.5	-	-	
2	.25	J250A1EB1A02	2.70	6.77	3.11	7.81	-	-	-	-	6.22	15.6	-	-	-	-	6.64	16.7	-	-	3.52	8.85	
2	.50	J500A1EA1A02	-	-	-	-	7.47	18.7	8.30	20.8	-	-	16.6	41.7	17.4	43.7	-	-	9.73	22.9	-	-	
2	.50	J500A1EB1A02	5.39	13.5	6.22	15.6	-	-	-	-	12.4	31.2	-	-	-	-	13.3	33.3	-	-	7.05	17.7	
2	.75	J750A1EA1A02	-	-	-	-	11.2	28.2	12.4	31.2	-	-	24.9	62.4	26.1	65.6	-	-	13.7	34.4	-	-	
2	.75	J750A1EB1A02	8.09	20.3	9.33	23.4	-	-	-	-	18.7	46.8	-	-	-	-	19.9	50	-	-	10.6	26.6	
2	1.0	J001K1EA1A02	-	-	-	-	14.9	37.5	16.6	41.7	-	-	33.2	83.3	34.8	87.5	-	-	18.3	45.8	-	-	
2	1.0	J001K1EB1A02	10.8	27.1	12.4	31.2	-	-	-	-	24.9	62.5	-	-	-	-	26.5	66.7	-	-	14.1	35.4	
2	1.5	J1X5K1EA1A02	-	-	-	-	22.4	56.2	24.9	62.5	-	-	49.8	125	52.3	131	-	-	27.4	68.7	-	-	
2	1.5	J1X5K1EB1A02	16.2	40.6	18.7	46.9	-	-	-	-	37.3	93.7	-	-	-	-	39.8	100	-	-	21.2	53.1	
2	2.0	J002K1EA1A02	-	-	-	-	29.9	75	33.2	83.3	-	-	66.4	167	69.7	175	-	-	36.5	91.7	-	-	
2	2.0	J002K1EB1A02	21.6	54.2	24.9	62.5	-	-	-	-	49.8	125	-	-	-	-	53.1	133	-	-	28.2	70.8	
2	3.0	J003K1EA1A03	-	-	-	-	44.7	112.5	49.8	125.1	-	-	99.6	249.9	104.4	262.5	-	-	54.9	137.4	-	-	
2	3.0	J003K1EB1A03	32.4	81.3	32.7	93.6	-	-	-	-	74.7	187.5	-	-	-	-	79.5	200	-	-	42.3	106.2	
2	5.0	J005K1EA1A03	-	-	-	-	74.7	187	83	208	-	-	166	417	174	437	-	-	91.3	229	-	-	
2	5.0	J005K1EB1A03	53.9	135	62.2	156	-	-	-	-	124	312.5	-	-	-	-	133	333	-	-	70.5	177	
2	7.5	J7X5K1EA1A03	-	-	-	-	112	282	124	312	-	-	249	624	261	656	-	-	137	344	-	-	
2	7.5	J7X5K1EB1A03	80.9	203	93.3	234	-	-	-	-	187	468	-	-	-	-	199	500	-	-	106	266	
Connection Diagram			L	K	L	K	I	I	I	I	I	I	I	I	K	K							

Need Three Phase Open Delta 240 Volts, 60 Hz (Selection Table Number 6)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			208	212	216	218	225	229	252	256	264	272										
			Max Load																			
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps							
2	.05	J050A1EA1A01	-	-	-	-	0.73	1.87	0.87	2.08	-	-	1.73	4.16	1.82	4.37	-	-	0.95	2.29	-	-
2	.05	J050A1EB1A01	0.56	1.35	0.65	1.56	-	-	-	-	1.30	3.12	-	-	-	-	1.38	3.33	-	-	0.74	1.77
2	.10	J100A1EA1A01	-	-	-	-	1.56	3.75	1.73	4.17	-	-	3.46	8.33	3.64	8.75	-	-	1.91	4.58	-	-
2	.10	J100A1EB1A01	1.13	2.71	1.30	3.12	-	-	-	-	2.60	6.25	-	-	-	-	2.77	6.67	-	-	1.47	3.54
2	.15	J150A1EA1A01	-	-	-	-	2.34	5.62	2.60	6.25	-	-	5.19	12.5	5.45	13.1	-	-	2.86	6.87	-	-
2	.15	J150A1EB1A01	1.69	4.06	1.95	4.69	-	-	-	-	3.90	9.37	-	-	-	-	4.15	10	-	-	2.21	5.31
2	.25	J250A1EA1A02	-	-	-	-	3.90	9.37	4.33	10.4	-	-	8.66	20.8	9.09	21.9	-	-	4.76	11.5	-	-
2	.25	J250A1EB1A02	2.81	6.77	3.25	7.81	-	-	-	-	6.49	15.6	-	-	-	-	6.92	16.7	-	-	3.68	8.85
2	.50	J500A1EA1A02	-	-	-	-	7.79	18.7	8.66	20.8	-	-	17.3	41.6	18.2	43.7	-	-	9.53	22.9	-	-
2	.50	J500A1EB1A02	5.63	13.5	6.50	15.6	-	-	-	-	13	31.2	-	-	-	-	13.8	33.3	-	-	7.36	17.7
2	.75	J750A1EA1A02	-	-	-	-	11.7	28.2	13	31.2	-	-	26	62.4	27.3	65.6	-	-	14.3	34.4	-	-
2	.75	J750A1EB1A02	8.44	20.3	9.75	23.4	-	-	-	-	19.5	46.8	-	-	-	-	20.8	50	-	-	11	26.6
2	1.0	J001K1EA1A02	-	-	-	-	15.6	37.5	17.3	41.7	-	-	34.6	83.3	36.4	87.5	-	-	19.1	45.8	-	-
2	1.0	J001K1EB1A02	11.3	27.1	13	31.2	-	-	-	-	26	62.5	-	-	-	-	27.7	66.7	-	-	14.7	35.4
2	1.5	J1X5K1EA1A02	-	-	-	-	23.4	56.2	26	62.5	-	-	51.9	125	54.5	131	-	-	28.6	68.7	-	-
2	1.5	J1X5K1EB1A02	16.9	40.6	19.5	46.9	-	-	-	-	39	93.7	-	-	-	-	41.5	100	-	-	22.1	53.1
2	2.0	J002K1EA1A02	-	-	-	-	31.2	75	34.6	83.3	-	-	69.3	167	72.7	175	-	-	38.1	91.7	-	-
2	2.0	J002K1EB1A02	22.5	54.2	26	62.5	-	-	-	-	25	125	-	-	-	-	55.4	133	-	-	29.4	70.8
2	3.0	J003K1EA1A03	-	-	-	-	46.8	112.5	51.9	125.1	-	-	103.8	249.9	109.2	262.5	-	-	57.3	137.4	-	-
2	3.0	J003K1EB1A03	33.9	81.3	39	93.6	-	-	-	-	78	187.5	-	-	-	-	83.1	200	-	-	44.1	106.2
2	5.0	J005K1EA1A03	-	-	-	-	77.9	187	86.6	208	-	-	173	416	182	437	-	-	95.3	229	-	-
2	5.0	J005K1EB1A03	56.3	135	65	156	-	-	-	-	130	312	-	-	-	-	138	333	-	-	73.6	177
2	7.5	J7X5K1EA1A03	-	-	-	-	117	282	130	312	-	-	260	624	273	656	-	-	143	344	-	-
2	7.5	J7X5K1EB1A03	84.4	203	97.5	234	-	-	-	-	195	468	-	-	-	-	208	500	-	-	110	266
Connection Diagram			L	K	L	K	I	I	I	I	I	I	I	I	I	I	I	I	K	K	K	K

DIAGRAM "I"
High Voltage

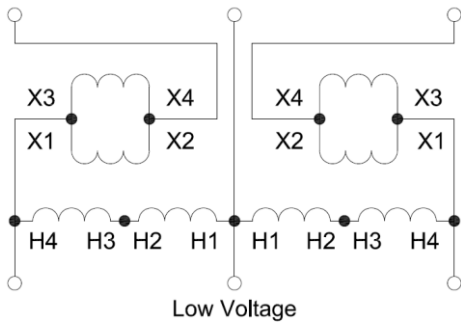


DIAGRAM "K"

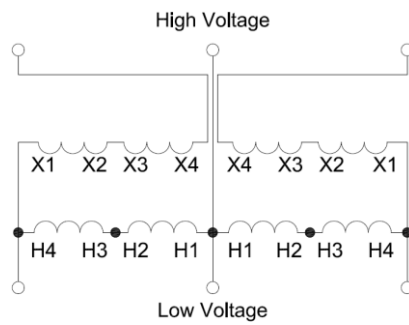
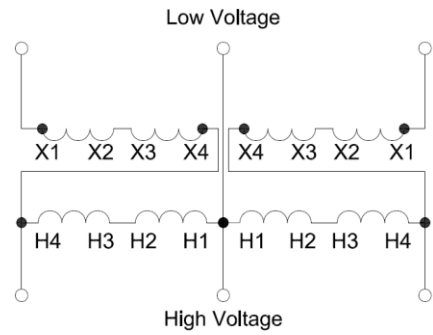


DIAGRAM "L"



Need Three Phase Wye 208 Volts, 60Hz (Selection Table Number 7)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			152	265	173	180	184	189	229	236	250	264										
			Max Load																			
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps								
3	.05	J050A1EA1A01	-	-	-	-	0.75	2.08	-	-	-	-	1.50	4.16	1.65	4.58	-	-	-	-		
3	.05	J050A1EB1A01	0.41	1.15	0.56	1.56	-	-	0.98	2.71	1.12	3.12	-	-	-	-	1.27	3.54	-	-	0.71	1.98
3	.10	J100A1EA1A01	-	-	-	-	1.50	4.17	-	-	-	-	3.00	8.33	3.30	9.17	-	-	1.80	5.00	-	-
3	.10	J100A1EB1A01	0.82	2.29	1.12	3.12	-	-	1.95	5.41	2.25	6.25	-	-	-	-	2.55	7.08	-	-	1.42	3.95
3	.15	J150A1EA1A01	-	-	-	-	2.25	6.25	-	-	-	-	4.50	12.5	4.95	13.7	-	-	2.70	7.50	-	-
3	.15	J150A1EB1A01	1.24	3.44	1.69	4.69	-	-	2.92	8.12	3.73	9.37	-	-	-	-	3.82	10.6	-	-	2.14	5.93
3	.25	J250A1EA1A02	-	-	-	-	3.75	104	-	-	-	-	7.50	20.8	8.25	22.9	-	-	4.50	12.5	-	-
3	.25	J250A1EB1A02	2.06	5.73	2.81	7.81	-	-	4.87	13.5	5.62	15.6	-	-	-	-	6.35	17.7	-	-	3.56	9.88
3	.50	J500A1EA1A02	-	-	-	-	7.50	20.8	-	-	-	-	15	41.6	16.5	45.8	-	-	9.0	25	-	-
3	.50	J500A1EB1A02	4.12	11.5	5.62	15.6	-	-	9.75	27.1	11.2	31.2	-	-	-	-	12.7	35.4	-	-	7.12	19.3
3	.75	J750A1EA1A02	-	-	-	-	11.2	31.2	-	-	-	-	22.5	62.4	24.7	68.7	-	-	13.5	37.5	-	-
3	.75	J750A1EB1A02	6.19	17.2	8.44	23.4	-	-	14.6	40.6	16.8	46.8	-	-	-	-	19	53.1	-	-	10.7	29.3
3	1.0	J001K1EA1A02	-	-	-	-	15	41.7	-	-	-	-	30	83.3	33	91.7	-	-	18	50	-	-
3	1.0	J001K1EB1A02	8.25	22.9	11.2	31.2	-	-	19.5	54.1	22.5	62.5	-	-	-	-	25.5	70.8	-	-	14.2	39.5
3	1.5	J1X5K1EA1A02	-	-	-	-	22.5	62.5	-	-	-	-	45	125	49.5	137	-	-	27	75	-	-
3	1.5	J1X5K1EB1A02	12.4	34.4	16.9	46.9	-	-	29.2	81.2	33.7	93.7	-	-	-	-	38.2	106	-	-	21.4	59.3
3	2.0	J002K1EA1A02	-	-	-	-	30	83.3	-	-	-	-	60	167	66	183	-	-	361	100	-	-
3	2.0	J002K1EB1A02	16.5	45.8	22.5	62.5	-	-	39	108	45	125	-	-	-	-	51	142	-	-	28.5	79.2
3	3.0	J003K1EA1A03	-	-	-	-	45	125	-	-	-	-	90	249.9	99	275.1	-	-	54	150	-	-
3	3.0	J003K1EB1A03	24.7	68.7	33.6	93.6	-	-	58.5	162.3	67.5	187.5	-	-	-	-	76.5	212.4	-	-	46.2	118.5
3	5.0	J005K1EA1A03	-	-	-	-	75	208	-	-	-	-	150	416	165	458	-	-	90	250	-	-
3	5.0	J005K1EB1A03	41.2	115	56.2	156	-	-	97.5	271	112	312	-	-	-	-	127	354	-	-	71.2	198
3	7.5	J7X5K1EA1A03	-	-	-	-	112	312	-	-	-	-	225	624	274	687	-	-	135	375	-	-
3	7.5	J7X5K1EB1A03	61.9	172	84.4	234	-	-	146	406	168	468	-	-	-	-	190	531	-	-	107	293
Connection Diagram			P	N	N	O	M	M	M	M	M	M	M	M	N	N						

DIAGRAM "M"

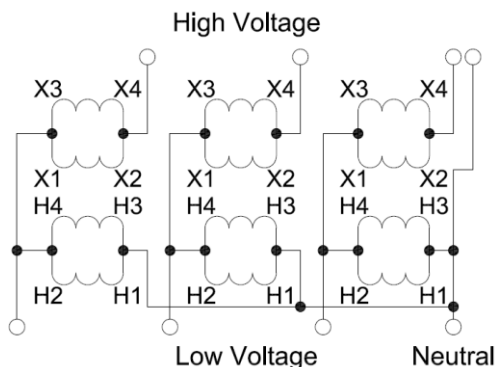


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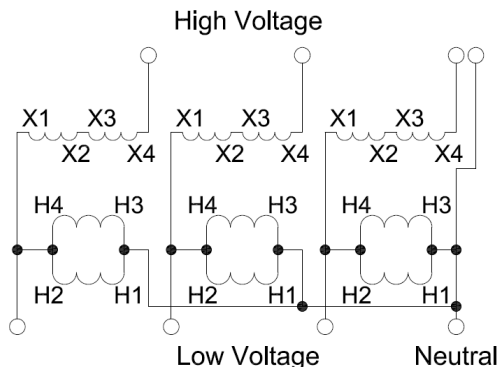


DIAGRAM "O"

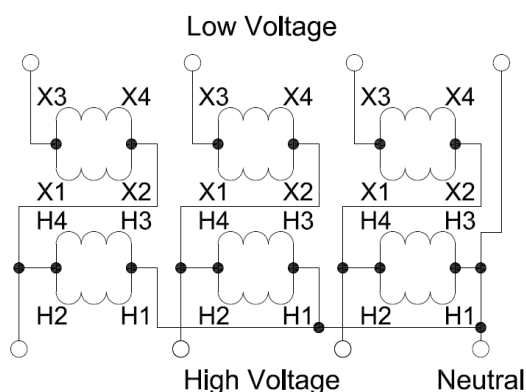
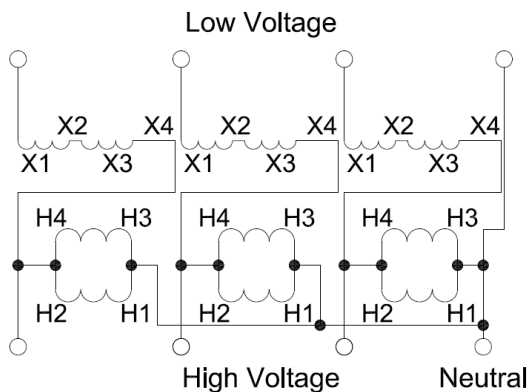


DIAGRAM "P"



Need Three Phase Wye 230 Volts, 60Hz (Selection Table Number 8)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			183		192		199		208		218		241		245		253		260		265	
			Max load																			
Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		
3	.05	J050A1EA1A01	-	-	.083	2.08	-	-	0.54	1.35	-	-	1.66	4.17	1.74	4.37	-	-	0.91	2.29	-	-
3	.05	J050A1EB1A01	0.62	1.56	-	-	0.54	1.35	-	-	-	-	-	-	-	-	1.33	3.33	-	-	0.70	1.77
3	.10	J100A1EA1A01	-	-	1.66	4.17	-	-	3.30	9.17	3.32	8.35	3.48	8.75	-	-	1.83	4.58	-	-	-	-
3	.10	J100A1EB1A01	1.25	3.12	-	-	1.08	2.71	-	-	-	-	-	-	-	-	2.65	6.67	-	-	1.41	3.54
3	.15	J150A1EA1A01	-	-	2.49	6.25	-	-	4.95	13.7	4.98	12.5	5.23	13.1	-	-	2.74	6.87	-	-	-	-
3	.15	J150A1EB1A01	1.87	4.69	-	-	1.62	4.06	-	-	-	-	-	-	-	-	3.98	10	-	-	2.12	5.31
3	.25	J250A1EA1A02	-	-	4.15	10.4	-	-	8.20	22.9	8.30	20.9	8.71	21.9	-	-	4.56	11.5	-	-	-	-
3	.25	J250A1EB1A02	3.11	7.81	-	-	2.70	6.77	-	-	-	-	-	-	-	-	6.63	16.7	-	-	3.52	8.85
3	.50	J500A1EA1A02	-	-	8.30	20.8	-	-	16.5	45.8	16.6	41.7	17.4	43.7	-	-	9.31	22.9	-	-	-	-
3	.50	J500A1EB1A02	6.22	15.6	-	-	5.39	13.5	-	-	-	-	-	-	-	-	13.3	33.3	-	-	7.05	17.7
3	.75	J750A1EA1A02	-	-	12.4	31.2	-	-	24.7	68.8	24.9	62.6	26.1	65.5	-	-	13.7	34.4	-	-	-	-
3	.75	J750A1EB1A02	9.33	23.4	-	-	8.09	20.3	-	-	-	-	-	-	-	-	19.9	50	-	-	10.6	26.6
3	1.0	J001K1EA1A02	-	-	16.6	41.7	-	-	33	91.7	33.2	83.5	34.8	87.5	-	-	18.3	45.8	-	-	-	-
3	1.0	J001K1EB1A02	12.5	31.2	-	-	10.8	27.1	-	-	-	-	-	-	-	-	26.5	66.7	-	-	14.1	35.4
3	1.5	J1X5K1EA1A02	-	-	24.9	62.5	-	-	49.5	137	49.8	125	52.3	131	-	-	27.4	68.7	-	-	-	-
3	1.5	J1X5K1EB1A02	18.7	46.9	-	-	16.2	40.6	-	-	-	-	-	-	-	-	39.8	100	-	-	21.2	53.1
3	2.0	J002K1EA1A02	-	-	33.2	83.3	-	-	66	183	66.4	167	69.7	175	-	-	36.6	91.6	-	-	-	-
3	2.0	J002K1EB1A02	24.9	62.5	-	-	21.6	54.2	-	-	-	-	-	-	-	-	53.1	133	-	-	28.2	70.8
3	3.0	J003K1EA1A03	-	-	49.8	125.1	-	-	99	275	99.6	250.5	104.4	262.5	-	-	54.9	137.4	-	-	-	-
3	3.0	J003K1EB1A03	37.5	93.6	-	-	32.4	81.3	-	-	-	-	-	-	-	-	79.5	200	-	-	42.3	106.2
3	5.0	J005K1EA1A03	-	-	83	208	-	-	165	458	166	417	174	437	-	-	91.3	229	-	-	-	-
3	5.0	J005K1EB1A03	62.2	156	-	-	53.9	135	-	-	-	-	-	-	-	-	133	333	-	-	70.5	177
3	7.5	J7X5K1EA1A03	-	-	124	312	-	-	247	688	249	626	261	656	-	-	137	344	-	-	-	-
3	7.5	J7X5K1EB1A03	93.3	234	-	-	80.9	203	-	-	-	-	-	-	-	-	199	500	-	-	106	266
Connection Diagram			N	N	S	M	Q	Q	Q	Q	R	R	R	S								

Need Three Phase Wye 240 Volts, 60Hz (Selection Table Number 9)

Units Req'd	Unit Kva	Use Catalog Number	Have Available Voltage Of																			
			190		200		208		218		228		252		256		264		272		277	
			Max Load																			
Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		Kva-Amps		
3	.05	J050A1EA1A01	-	-	0.86	2.08	-	-	0.86	2.08	1.73	4.17	1.85	4.37	-	-	0.95	2.29	-	-	-	-
3	.05	J050A1EB1A01	0.65	1.65	-	-	1.27	3.05	-	-	-	-	-	-	1.39	3.33	-	-	0.74	1.77	0.65	1.56
3	.10	J100A1EA1A01	-	-	1.73	4.17	-	-	1.73	4.17	3.46	8.34	3.64	8.75	-	-	1.91	4.58	-	-	-	-
3	.10	J100A1EB1A01	1.30	3.12	-	-	2.55	6.12	-	-	-	-	-	-	2.77	6.67	-	-	1.47	3.54	1.30	3.12
3	.15	J150A1EA1A01	-	-	2.59	6.25	-	-	2.59	6.25	5.20	12.50	5.46	13.10	-	-	2.86	6.87	-	-	-	-
3	.15	J150A1EB1A01	1.95	4.69	-	-	3.82	9.16	-	-	-	-	-	-	4.16	10	-	-	2.21	5.31	1.95	4.69
3	.25	J250A1EA1A02	-	-	4.32	10.40	-	-	4.32	10.40	8.66	20.90	9.09	21.90	-	-	4.76	11.50	-	-	-	-
3	.25	J250A1EB1A02	3.25	7.81	-	-	6.30	15.10	-	-	-	-	-	-	6.93	16.70	-	-	3.68	8.85	3.25	7.81
3	.50	J500A1EA1A02	-	-	8.65	20.80	-	-	8.65	20.80	17.30	41.70	18.20	43.70	-	-	9.53	22.90	-	-	-	-
3	.50	J500A1EB1A02	6.50	15.60	-	-	12.70	30.40	-	-	-	-	-	-	13.90	33.30	-	-	7.36	17.70	6.50	15.60
3	.75	J750A1EA1A02	-	-	13.0	31.20	-	-	13.0	31.20	26.0	62.60	27.30	65.60	-	-	14.30	34.40	-	-	-	-
3	.75	J750A1EB1A02	9.75	23.40	-	-	19.2	46	-	-	-	-	-	-	20.8	50	-	-	11	26.6	9.75	23.40
3	1.0	J001K1EA1A02	-	-	17.3	41.7	-	-	17.3	41.7	34.6	83.4	36.4	87.5	-	-	19.1	45.8	-	-	-	-
3	1.0	J001K1EB1A02	13	31.2	-	-	25.5	61.2	-	-	-	-	-	-	27.7	66.7	-	-	14.7	35.4	13	31.2
3	1.5	J1X5K1EA1A02	-	-	25.9	62.5	-	-	25.9	62.5	52	125	54.6	131	-	-	28.6	68.7	-	-	-	-
3	1.5	J1X5K1EB1A02	19.5	46.9	-	-	38.2	91.6	-	-	-	-	-	-	41.6	100	-	-	22.1	53.1	19.5	46.9
3	2.0	J002K1EA1A02	-	-	34.6	83.3	-	-	34.6	83.3	69.3	167	72.8	175	-	-	38.1	91.7	-	-	-	-
3	2.0	J002K1EB1A02	26	62.5	-	-	51	122.4	-	-	-	-	-	-	55.4	133	-	-	29.5	70.8	26	62.5
3	3.0	J003K1EA1A03	-	-	51.9	125.1	-	-	51.9	125.1	103.8	250.2	109.2	262.5	-	-	57.3	137.4	-	-	-	-
3	3.0	J003K1EB1A03	39	93.6	-	-	76.5	183.6	-	-	-	-	-	-	83.1	200	-	-	44.1	106.2	39	93.6
3	5.0	J005K1EA1A03	-	-	86.5	208	-	-	86.5	208	173	417	182	437	-	-	95.3	229	-	-	-	-
3	5.0	J005K1EB1A03	65	156	-	-	127.2	305.2	-	-	-	-	-	-	139	333	-	-	73.6	177	65	156
3	7.5	J7X5K1EA1A03	-	-	130	312	-	-	130	312	260	626	273	656	-	-	143	344	-	-	-	-
3	7.5	J7X5K1EB1A03	97.5	234	-	-	192	460	-	-	-	-	-	-	208	500	-	-	110	266	97.5	234
Connection Diagram			N	N	M	R	Q	Q	Q	Q	R	R	R	S								

Need Three Phase Wye

460 Volts, 60Hz (Selection Table Number 10)

Need Three Phase Wye

480 Volts, 60Hz (Selection Table Number 11)

# Units	Unit Kva	Use Catalog Number	Have Available Voltage Of							# Units	Unit Kva	Use Catalog Number	Have Available Voltage Of						
			406		418		432		438				424		436		450		
			Max Load										Max Load						
Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps					
3	.05	J050A1EA1A01	-	-	1.66	2.08	-	-	3.22	4.04	3	.05	J050A1EA1A01	-	-	1.7	2.1	-	-
3	.05	J050A1EB1A01	1.25	1.57	-	-	2.49	3.12	-	-	3	.05	J050A1EB1A01	1.3	1.56	-	-	2.6	3.13
3	.10	J100A1EA1A01	-	-	3.31	4.15	-	-	6.62	8.31	3	.10	J100A1EA1A01	-	-	3.5	4.2	-	-
3	.10	J100A1EB1A01	2.49	3.12	-	-	4.97	6.24	-	-	3	.10	J100A1EB1A01	2.6	3.12	-	-	5.2	6.25
3	.15	J150A1EA1A01	-	-	4.97	6.24	-	-	9.94	12.48	3	.15	J150A1EA1A01	-	-	5.2	6.25	-	-
3	.15	J150A1EB1A01	3.73	4.68	-	-	7.46	9.36	-	-	3	.15	J150A1EB1A01	3.9	4.68	-	-	7.8	9.38
3	.25	J250A1EA1A02	-	-	8.28	10.39	-	-	16.6	20.84	3	.25	J250A1EA1A02	-	-	8.7	10.4	-	-
3	.25	J250A1EB1A02	6.22	7.81	-	-	12.4	15.56	-	-	3	.25	J250A1EB1A02	6.5	7.82	-	-	13	15.6
3	.50	J500A1EA1A02	-	-	16.6	20.84	-	-	33.2	41.67	3	.50	J500A1EA1A02	-	-	17.4	20.9	-	-
3	.50	J500A1EB1A02	12.5	15.69	-	-	24.69	31.25	-	-	3	.50	J500A1EB1A02	13	15.6	-	-	26	31.2
3	.75	J750A1EA1A02	-	-	24.8	31.12	-	-	49.6	62.25	3	.75	J750A1EA1A02	-	-	26	31.2	-	-
3	.75	J750A1EB1A02	18.7	23.47	-	-	37.3	46.82	-	-	3	.75	J750A1EB1A02	19.5	23.4	-	-	39	46.9
3	1.0	J001K1EA1A02	-	-	33.1	41.54	-	-	66.2	83.09	3	1.0	J001K1EA1A02	-	-	35	42	-	-
3	1.0	J001K1EB1A02	24.9	31.25	-	-	49.7	62.38	-	-	3	1.0	J001K1EB1A02	26	31.2	-	-	52	62.5
3	1.5	J1X5K1EA1A02	-	-	49.7	62.38	-	-	99.4	124.75	3	1.5	J1X5K1EA1A02	-	-	52	62.5	-	-
3	1.5	J1X5K1EB1A02	37.3	46.94	-	-	74.6	93.63	-	-	3	1.5	J1X5K1EB1A02	39	46.8	-	-	78	93.8
3	2.0	J002K1EA1A02	-	-	66.3	83.22	-	-	133	166.93	3	2.0	J002K1EA1A02	-	-	69	82.9	-	-
3	2.0	J002K1EB1A02	49.7	62.38	-	-	99.5	124.88	-	-	3	2.0	J002K1EB1A02	52	62.5	-	-	104	125
3	3.0	J003K1EA1A03	-	-	99.3	124.64	-	-	198.6	249.27	3	3.0	J003K1EA1A03	-	-	104	125	-	-
3	3.0	J003K1EB1A03	74.6	93.93	-	-	149	187.01	-	-	3	3.0	J003K1EB1A03	78	93.8	-	-	156	187.6
3	5.0	J005K1EA1A03	-	-	166	208.35	-	-	322	404.16	3	5.0	J005K1EA1A03	-	-	174	209.2	-	-
3	5.0	J005K1EB1A03	125	156.89	-	-	249	312.53	-	-	3	5.0	J005K1EB1A03	130	156.3	-	-	260	312.7
3	7.5	J7X5K1EA1A03	-	-	248	311	-	-	496	622	3	7.5	J7X5K1EA1A03	-	-	260	312	-	-
3	7.5	J7X5K1EB1A03	187	235	-	-	373	468	-	-	3	7.5	J7X5K1EB1A03	195	234	-	-	390	469
Connection Diagram			R		R		Q		Q					R		R		Q	

DIAGRAM "M"

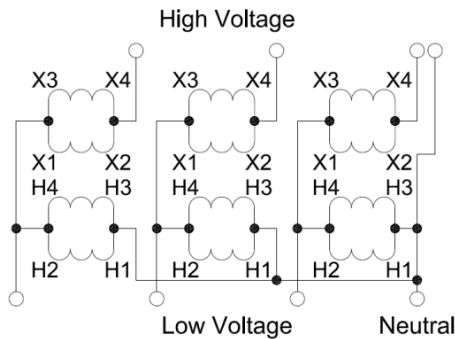


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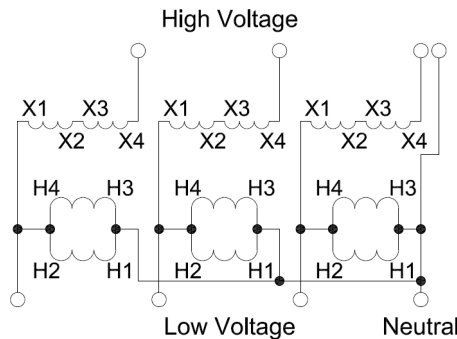


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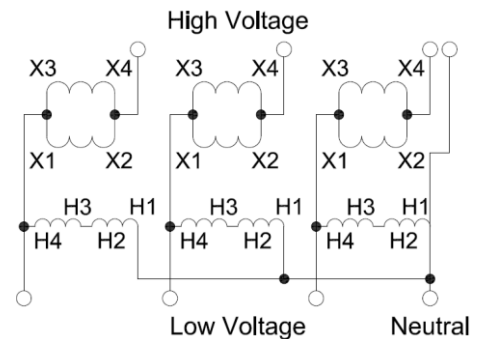


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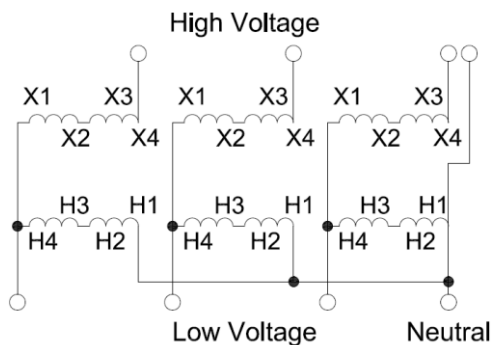
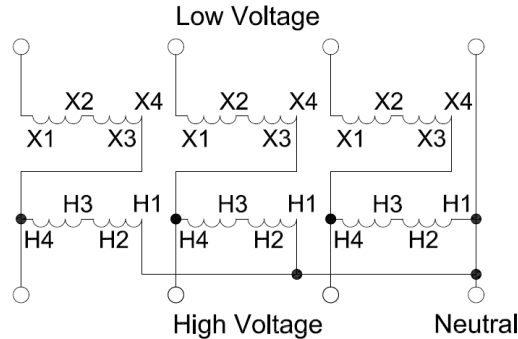
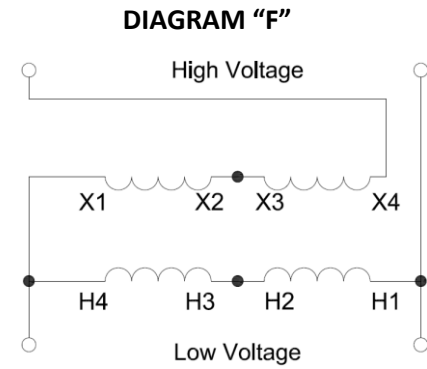
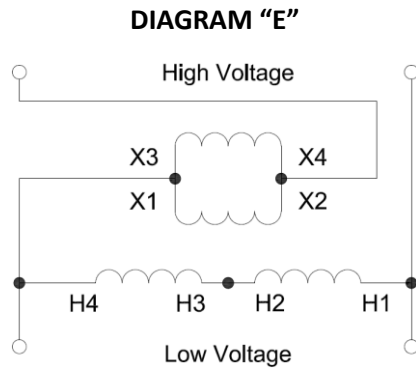
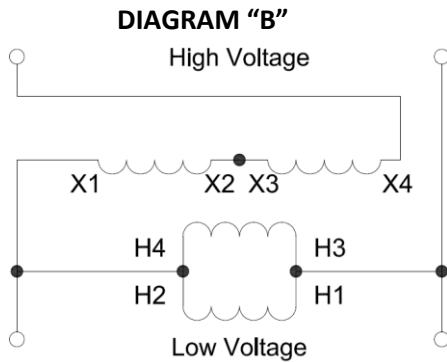


DIAGRAM "S"



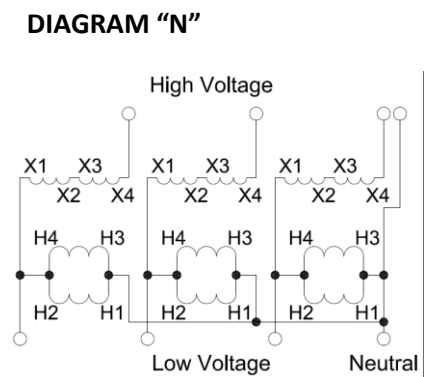
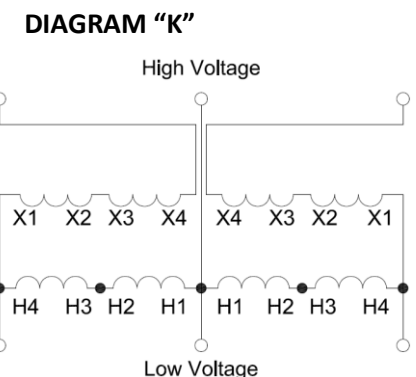
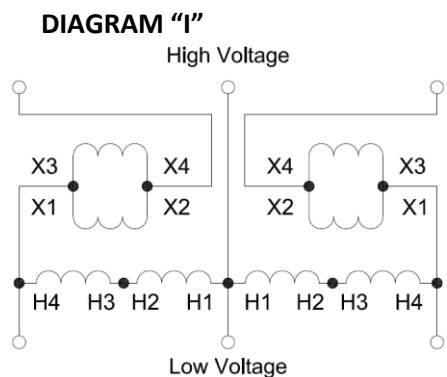
Single Phase Group "B" Applications, 60Hz (Selection Table Number 12)

# Units	Unit Kva	Use Catalog Number	Available Voltage/Output Voltage																							
			200/240		230/277		346/380		362/380		378/416		416/457		436/480		458/480		277/230		480/456		504/480		528/480	
			Max load																							
			Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps		
1	.25	J250A1KC1A02	1.25	5.2	1.44	5.2	1.98	5.2	3.95	10.4	2.16	5.2	2.38	5.2	2.5	5.2	4.99	10.4	1.44	6.26	5.23	11.4	5.47	11.4	2.75	5.72
1	.50	J500A1KC1A02	2.5	10.4	2.88	10.4	3.95	10.4	7.9	20.8	4.33	10.4	4.76	10.4	4.99	10.4	9.98	20.8	2.88	12.5	10.4	22.8	10.9	22.8	5.49	11.4
1	.75	J750A1KC1A02	3.75	15.6	4.32	15.6	5.93	15.6	11.9	31.2	6.49	15.6	7.14	15.6	7.49	15.6	15	31.2	4.33	18.8	15.7	34.2	16.4	34.2	8.24	17.2
1	1.0	J001K1KC1A02	5.0	20.8	5.76	20.8	7.9	20.8	15.8	41.6	8.65	20.8	9.52	20.8	9.98	20.8	20	41.6	5.76	25	20.9	45.6	21.8	45.6	11	22.9
1	1.5	J1X5K1KC1A02	7.5	31.2	8.64	31.2	11.9	31.2	23.8	62.5	13	31.2	14.3	31.2	15	31.2	30	62.5	8.64	37.6	31.3	68.4	32.8	68.4	16.5	34.3
1	2.0	J002K1KC1A02	10	41.6	11.5	41.6	15.8	41.6	31.6	83.3	17.3	41.6	19	41.6	20	41.6	40	83.3	11.5	50.1	41.8	91.2	43.7	91.2	22	45.8
1	3.0	J003K1KC1A03	15	62.5	17.3	62.5	23.8	62.5	47.5	125	26	62.5	28.6	62.5	30	62.5	60	125	17.3	75.3	62.7	136	65.2	136	33	68.8
1	5.0	J005K1KC1A03	25	104	28.8	104	39.5	104	79	208	43.3	104	47.6	104	49.9	104	99.8	208	28.8	125.3	104.5	227	108	227	54.9	114.4
1	7.5	J7X5K1KC1A03	37.5	156	43.2	156	59.3	156	118.6	312	64.9	156	71.4	156	74.9	156	149.8	312	43.2	187.9	156.8	341	163	341	82.4	171.6
Connection Diagram			B		B		F		E		F		F		F		E		B		E		E		F	



Three Phase Group "B" Applications, 60Hz (Selection Table Number 13)

Unit Kva	Use Catalog Number	Available Voltage/Output Voltage																	
		362/380		346/416		430/473		400/480		436/380		460/483		457/380		504/480		528/480	
		Max Load																	
		Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps
.25	J250A1KC1A02	6.52	10.4	3.75	5.2	4.26	5.2	4.33	5.2	4.33	5.2	8.7	10.4	4.12	6.25	9.08	10.9	4.76	5.72
.50	J500A1KC1A02	13.0	20.8	7.5	10.4	8.52	10.4	8.65	10.4	8.65	10.4	17.4	20.8	8.23	12.5	18.2	21.8	9.51	11.4
.75	J750A1KC1A02	19.6	31.2	11.2	15.6	12.8	15.6	13	15.6	13	15.6	26.1	31.2	12.3	18.8	27.2	32.8	14.3	17.2
1.0	J001K1KC1A02	26.1	41.6	15	20.8	17	20.8	17.3	20.8	17.3	20.8	34.8	41.6	16.5	25	36.3	43.7	19	22.9
1.5	J1X5K1KC1A02	39.1	62.4	22.5	31.2	25.5	31.2	26	31.2	26	31.2	52.2	62.4	24.7	37.5	54.5	65.5	28.5	34.3
2.0	J002K1KC1A02	52.2	83.2	30	41.6	34.1	41.6	34.6	41.6	34.6	41.6	69.6	83.2	32.9	50	72.6	87.4	38	45.8
3.0	J003K1KC1A03	78.4	125	45	62.5	51.2	62.5	52	62.5	52	62.5	104.6	125	49.5	75.2	109.7	131.3	57.2	68.8
5.0	J005K1KC1A03	130.4	208	75.1	104	85.2	104	86.6	104	86.6	104	174	208	82.3	125.1	181.6	218.4	95.1	114.4
7.5	J7X5K1KC1A03	195.6	312	112.6	156	127.8	156	129.9	156	129.9	156	261	312	123.5	187.6	272.4	327.6	142.7	171.6
Connection Diagram		I		N		K		N		K		I		N		I		K	
Units Required		2		3		2		3		2		2		3		2		2	



**Need Three Phase Open Delta 480 Volts, 60Hz
(Selection Table Number 14)**

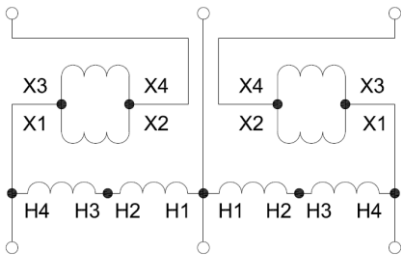
**Need Single Phase 480 Volts, 60Hz
(Selection Table Number 15)**

Units Req'd	Use Catalog Number	Have Available Volts Of					
		600		575		575	
		Max Load					
		Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps
2	G500A1KF1A02	4.3	5.1	-	-	-	-
2	G001K1RF8A02	-	-	-	-	4.1	4.9
2	G750A1KF1A02	6.5	7.8	-	-	-	-
2	G001K1RF8A02	-	-	-	-	6.2	7.4
2	G001K1KF1A02	8.6	10.3	-	-	-	-
2	G001K1RF8A02	-	-	-	-	8.3	9.9
2	G1X5K1KF1A02	13	15.6	-	-	-	-
2	G1X5K1RF8A02	-	-	-	-	12.4	14.9
2	G002K1KF1A02	17.2	20.6	-	-	-	-
2	G002K1RF8A02	-	-	-	-	16.5	19.8
2	G003K1KF7A03	25.8	31	-	-	-	-
2	G003K1RF8A03	-	-	-	-	24.8	29.8
2	G005K1KF7A03	43.2	51.9	-	-	-	-
2	G005K1RF8A03	-	-	-	-	41	49.3
2	G7X5K1KF7A03	65	78.1	-	-	-	-
2	G7X5K1RF8A03	-	-	-	-	62	74.5
2	G010K1KF7A03	86	103.4	-	-	-	-
2	G010K1RF8A03	-	-	83	99.8	-	-
2	G015K1KF6A03	130	156.3	-	-	-	-
2	G015K1RF8A03	-	-	124	149.1	-	-
Connection Diagram		I	J	T			

Units Req'd	Use Catalog Number	Have Available Volts Of					
		600		575		575	
		Max Load					
		Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps	Kva-Amps
1	G500A1KF1A02	2.5	5.2	-	-	-	-
1	G001K1RF8A02	-	-	-	-	2.4	5.0
1	G750A1KF1A02	3.7	7.7	-	-	-	-
1	G001K1RF8A02	-	-	-	-	3.6	7.5
1	G001K1KF1A02	5.0	10.4	-	-	-	-
1	G001K1RF8A02	-	-	-	-	4.8	10
1	G1X5K1KF1A02	7.5	15.6	-	-	-	-
1	G1X5K1RF8A02	-	-	-	-	7.2	15
1	G002K1KF1A02	10	20.8	-	-	-	-
1	G002K1RF8A02	-	-	-	-	9.6	20
1	G003K1KF7A03	15	31.2	-	-	-	-
1	G003K1RF8A03	-	-	-	-	14.3	29.7
1	G005K1KF7A03	25	52	-	-	-	-
1	G005K1RF8A03	-	-	-	-	24	50
1	G7X5K1KF7A03	37.5	78.1	-	-	-	-
1	G7X5K1RF8A03	-	-	-	-	36	75
1	G010K1KF7A03	50	104.1	-	-	-	-
1	G010K1RF8A03	-	-	48	100	-	-
1	G015K1KF6A03	75	156.2	-	-	-	-
1	G015K1RF8A03	-	-	72	150	-	-
Connection Diagram		E	H	U			

DIAGRAM "I"

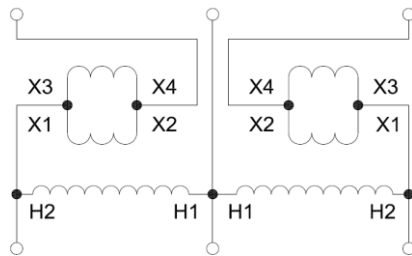
High Voltage



Low Voltage

DIAGRAM "J"

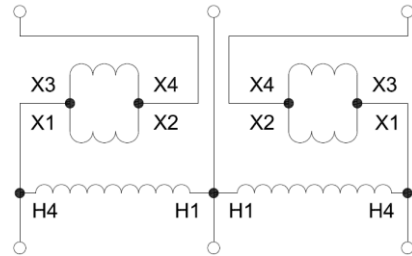
High Voltage



Low Voltage

DIAGRAM "T"

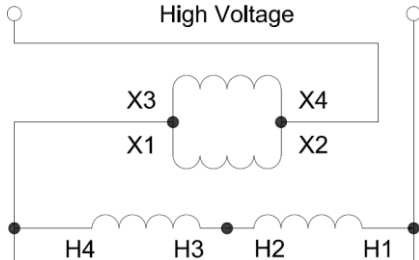
High Voltage



Low Voltage

DIAGRAM "E"

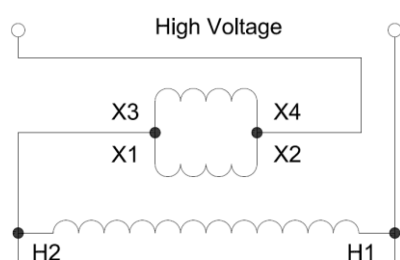
High Voltage



Low Voltage

DIAGRAM "H"

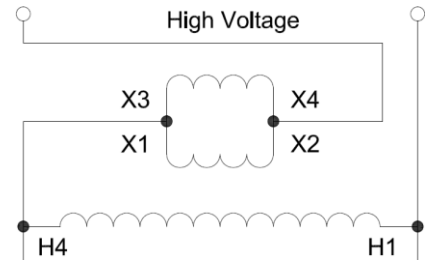
High Voltage



Low Voltage

DIAGRAM "U"

High Voltage



Low Voltage

Transformer Accessories

Wall Mounting Brackets are used to wall mount most 15 through 75Kva and some 100 and 112.5Kva Type 1-V and 3-V transformers. this bracket allows for 6" Clearance from the wall as recommended by Micron.

A Weathershield Kit consisting of a front and rear cover shield must be installed on all ventilated dry-type transformers when the unit is located outdoors. The shields protect the transformer top ventilation openings against rain but allow for proper ventilation. Field installation hardware is not required. Proper installation provides a NEMA 3R rating.

Refer to the specific transformer listing for selection of the proper kit.

Rodent Screens deter small animals and birds from entering the transformer enclosure.

Frame	Weathershield	Rodent Screen	Wallmount Brkt
816	WS11MI	RS13MI	WMB01MI
818	WS11MI	RS14MI	WMB01MI
819	WS16MI	RS15MI	WMB01MI
820	WS16MI	RS15MI	WMB01MI
821	WS13MI	RS11MI	WMB01MI
939	WS57MI	RS57MI	WMB05MI
940	WS58MI	RS58MI	WMB05MI
942	WS59MI	RS59MI	WMB04MI
943	WS60MI	RS60MI	WMB04MI
944	WS61MI	RS61MI	N/A
945	WS62MI	RS62MI	N/A

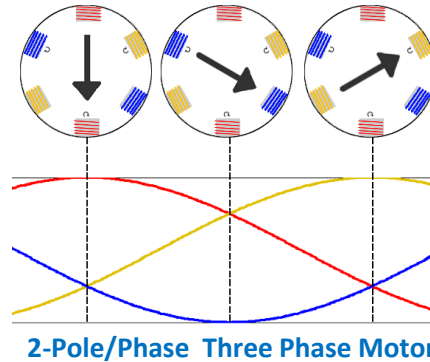
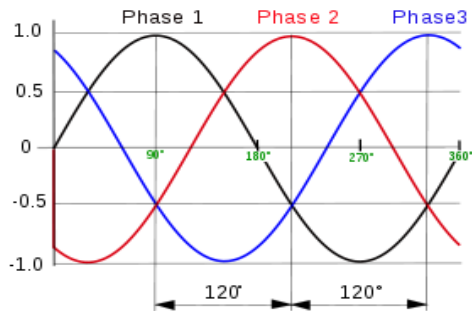
What is an LVGP Transformer:

Transformers are AC to AC devices. You cannot transform DC
Enclosed Power Transformers can be either single or three phase. They are also called "LVGPs" or "Dry Types". These are always in a potted or ventilated enclosure.

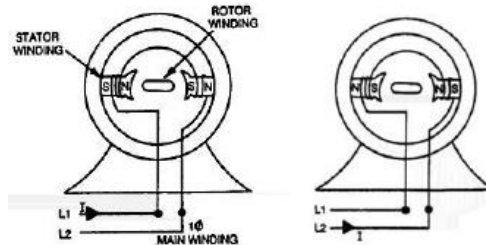
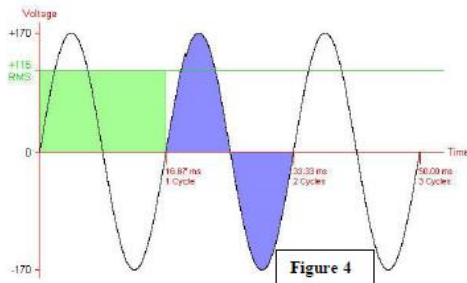
TERMS:

Sinusoidal: Or sine wave. A mathematical function that describes a smooth repetitive oscillation. The phase is defined where in the cycle the oscillation begins. See following depiction.

Three Phase: The common method of electrical power generation and transmission. The generator at the power station converts mechanical power into a set of alternating electrical currents, one from each electromagnetic coil or winding of the generator. The currents are sinusoidal functions of time, all at the same frequency but with different phases. The phases are equally spaced and separated from each other by 120 degrees. 3 cycles 120° apart = 360° or one revolution of the generator. It is the revolving magnetic field caused by the three phases that causes an electric motor to start turning.



Single Phase: Single phase power is produced from a three phase source by connecting either between a phase and neutral or connecting phase-to-phase. Interestingly, single phase cannot produce necessary revolving magnetic field to start an electric motor turning. All single phase motors need additional circuits for starting. A single-phase sine wave is depicted as is a 2-Pole Single-Phase motor. as opposed to the rotating field produced by three phase, the single phase fields merely oscillates. Once rotation begins the momentum of the rotor allows rotation through the "dead areas". A phase-leading current is necessary to begin rotation and is developed by the added resistance of a start winding or by a capacitor.



Neutral: The neutral is the point on a three phase system where each of the phase points are equal in magnitude and equally spaced in phase. It is the mathematical center of an equilateral triangle formed by the three phase points. Because of this, the phase-to-phase voltage is $\sqrt{3}$ (1.732) times the phase-to-neutral voltage.

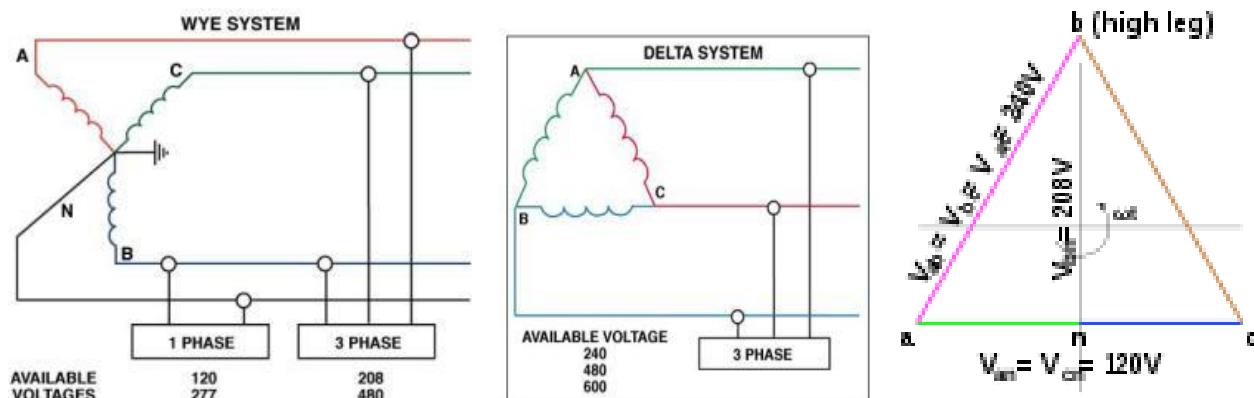
Example: 120V phase-to-neutral X 1.732 = 208V phase-to-phase. G015K5QH2A04 has a secondary of 208Y/120. The neutral allows the balancing of single phase loads between any/all of the individual three phase legs and the neutral point while still allowing for normal three phase loading. The neutral is also a grounded conductor which typically ties to the system's earth ground at the breaker panel.

FCAN/FCBN: An acronym for Full Capacity Above Normal and Full Capacity Below Normal. These are taps on the primary side to adjust for slightly low or high line voltage. Expressed in % of adjustment.

Example: FCAN: 2 @ +2.5% / FCBN: 4 @ -2.5%

Phase-to-Phase: Voltage measured between any two "corners" of a Delta connection or between any two "legs" of a Wye connection.

Wye: Also called "Star". All phase windings are connected at a common point (resembles a star) which is typically where a fourth wire (neutral) and a ground is connected. Three phase loads are connected to the "A", "B" and "C" (line-to-line) terminations while single phase loads are typically connected line-to-neutral. Unless they are light, connecting single phase loads line-to-line unevenly loads two windings, may unbalance the phases and derates the transformer more than connecting line-to-neutral.



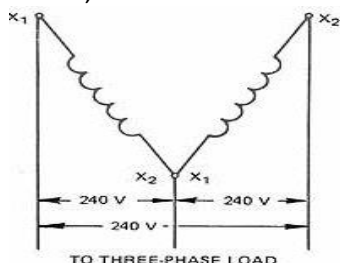
Delta: A common three-wire, three phase system in which the voltage potential between each pair of wires is the actual transformer voltage. Although typically ungrounded, a "grounded reference" can be developed by center-tapping the "A" - "C" winding (see High Leg) allowing for more load flexibility.

High Leg: Also called a "Wild Leg" or "Stinger". On a three phase Delta system, a mid-point or center tap of the "A" to "C" phase winding is labeled "N" and becomes a grounded reference (sometimes referenced to as neutral). Voltage measurements between possible connection points on the above diagram are as follows:

Phase-to-Phase	Phase-to-Neutral
"A"- "B" = 240V	"A"- "N" = 120V (240/2)
"B"- "C" = 240V	"B"- "N" = 208V (240/2 X $\sqrt{3}$)
"C"- "A" = 240V	"C"- "N" = 120V (240/2)

High Leg Delta systems provide increased voltage flexibility over similar Wye systems because, in addition to a ground and 120 volt single phase, they offer a higher (240V) three phase connection. The disadvantage is that no single phase 120 volt load can be connected to the "B" leg and this may unbalance the total load.

Open Delta: A three phase transformer bank using two transformers. Although one side of the Delta is physically not there, an electrical measurement is possible across the missing side (diagram below)



An Open Delta is not as efficient as a three transformer system and is normally reserved for smaller loads. An Open Delta is capable of 57.7% of a true Delta load. Many three phase buck-boost applications are wired in Open Delta configuration.

What is DOE 2016: The new US Department of Energy (DOE) efficiency standards for distribution transformers, effective January 1st, 2016 require an increase in the electrical efficiency of certain categories of power distribution equipment. Understanding the standard and its impact will help ensure a seamless transition to compliant designs.

Benefit of Greater Efficiency: Small increases in transformer efficiency can result in substantial savings because transformers typically operate continuously. The primary benefit to this increase of efficiency will be seen as a reduction in overall greenhouse gas emissions.

Over the next 30 years, the national benefits of increasing transformer efficiency are expected to eliminate the need for in excess of 3 quadrillion Btu of energy. This can be roughly equated to the energy consumed by 40 million American households in one year. Approximately 265 million metric tons of carbon dioxide emissions will also be avoided; comparable to the removal of 51 million passenger vehicles from the roads for one year. Additional benefits include:

The removal of 200,000 metric tons of nitrogen oxides

The removal of 183,000 metric tons of sulfur dioxide

The Department of Energy estimates that the new efficiency standards will reduce equipment operating costs in the US by \$581M - \$983M per year.

What is Affected: The DOE 2016 standards will impact distribution transformers manufactured for sale in or imported into the US. It is notable that single-phase transformers will meet the DOE 2016 mandate by meeting the TP-1 standards and that product existing in local inventories can also be sold beyond January 1st, 2016 as long as it was manufactured prior to that date. This includes both medium and low-voltage dry type and liquid immersed medium-voltage distribution transformers. The required efficiencies vary by transformer type and voltage rating. The following tables depict the exemptions from DOE 2016 and typical efficiency upgrades over TP-1 for common 600 volt class three-phase dry type distribution transformers. The typical loading assumed to meet this level of efficiency is 35% of full load.

Applicable to DOE 2016	Exempt from DOE 2016
MFD/Imported > Jan. 1, 2016	Autotransformers
Low Voltage Dry Type	Drive Isolation
K-Factor	Grounding
Medium Voltage Dry Type	CPT
Liquid Filled Distribution	Non-Ventilated
Single-Phase 15-333kVA	Rectifier
Three-Phase 15-2500kVA	Regulating
Input Voltage ≤34.5kV	Testing
Output Voltage ≤600V	Tap Range >20%
	Rebuilt/Refurbished
	UPS
	Welding

Three-Phase kVA	TP-1 Standard	DOE 2016 Standard
15	97.00	97.89
30	97.50	98.23
45	97.70	98.40
75	98.00	98.60
112.5	98.20	98.74
150	98.30	98.83
225	98.50	98.94
300	98.60	99.02
500	98.70	99.14
750	98.80	99.23



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