

# Buck-Boost Selection Tables

120 x 240 Volts Primary - 12/24 Volts Secondary • Buck - Boost Dry-Type Transformers

**Single-Phase**

**Table I**

Catalog Number	Line Voltage	BOOSTING								BUCKING					
		96	100	105	109	189	208	218	220	125	132	229	245	250	252
		Load Voltage	115	120	116	120	208	229	240	242	114	120	208	223	227
SB12N.050F	KVA AMPS	0.24 2.08	0.25 2.08	0.48 4.17	0.50 4.17	0.43 2.08	0.48 2.08	0.50 2.08	0.50 2.08	0.52 4.58	0.55 4.58	0.48 2.29	0.51 2.29	0.52 2.29	1.05 4.38
SB12N.100F	KVA AMPS	0.48 4.17	0.50 4.17	0.96 8.33	1.00 8.33	0.87 4.17	0.95 4.17	1.00 4.17	1.01 4.17	1.04 9.17	1.10 9.17	0.95 4.58	1.02 4.58	1.04 4.58	2.10 8.75
SB12N.150F	KVA AMPS	0.72 6.25	0.75 6.25	1.44 12.50	1.50 12.50	1.30 6.25	1.43 6.25	1.50 6.25	1.51 6.25	1.56 13.75	1.65 13.75	1.43 6.87	1.53 6.87	1.56 6.87	3.15 13.13
SB12N.250F	KVA AMPS	1.20 10.42	1.25 10.42	2.41 20.83	2.50 20.83	2.17 10.42	2.38 10.42	2.50 10.42	2.52 10.42	2.60 22.92	2.75 22.92	2.39 11.46	2.55 11.46	2.60 11.46	5.25 21.88
SB12N.500F	KVA AMPS	2.40 20.83	2.50 20.83	4.81 41.67	5.00 41.67	4.33 20.83	4.77 20.83	5.00 20.83	5.04 20.83	5.21 45.83	5.50 45.83	4.77 22.92	5.10 22.92	5.21 22.92	10.50 43.75
SB12N.750F	KVA AMPS	3.60 31.25	3.75 31.25	7.22 62.50	7.49 62.50	6.5 31.25	7.15 31.25	7.49 31.25	7.56 31.25	7.81 68.75	8.25 68.75	7.16 34.37	7.66 34.37	7.81 34.37	15.75 65.63
SB12N1F	KVA AMPS	4.80 41.67	5.00 41.67	9.63 83.33	9.99 8.33	8.66 41.67	9.53 41.67	9.99 41.67	10.08 41.67	10.42 91.67	11.00 91.67	9.54 45.83	10.21 45.83	10.42 45.83	21.00 87.50
SB12N1.5F	KVA AMPS	7.20 62.50	7.5 62.50	14.44 125.00	14.99 125.00	12.99 62.50	14.30 62.50	14.99 62.50	15.13 62.50	15.62 137.50	16.50 137.50	14.31 68.75	15.31 68.75	15.62 68.75	31.50 131.25
SB12N2F	KVA AMPS	9.60 83.33	10.00 83.33	19.25 166.67	19.98 166.67	17.32 83.33	19.07 83.33	19.98 83.33	20.17 83.33	20.83 183.33	22.00 183.33	19.08 91.67	20.42 91.67	20.83 91.67	42.00 175.00
SB12N3F	KVA AMPS	14.40 125.00	15.00 125.00	28.88 250.00	29.98 250.00	25.99 125.00	28.60 125.00	29.98 125.00	30.25 125.00	31.25 275.00	33.00 275.00	28.62 137.50	30.62 137.50	31.25 137.50	63.00 262.50
SB12N5F	KVA AMPS	24.00 208.33	25.00 208.33	48.13 416.67	49.96 416.67	43.31 208.33	47.67 208.33	49.96 208.33	50.42 208.33	52.08 458.33	55.00 458.33	47.71 229.17	51.04 229.17	52.08 229.17	105.00 437.50
*DIAGRAM		B	B	A	A	D	D	D	D	A	A	D	D	D	C

**Three-Phase**

**Table II**

Catalog Number	Line Voltage	BOOSTING							BUCKING						
		189Y/109	195Y/113	200Y/115	208Y/120	416Y/240	416Y/240	189	208	220	218	229	250	255	264
		Load Voltage	208Y/120	234Y/135	240Y/139	229Y/132	458Y/264	437Y/252	208	229	242	208	208	227	232
SB12N.050F	KVA AMPS	1.50 4.17	0.84 2.08	0.87 2.08	1.65 4.17	1.65 2.08	3.15 4.17	0.75 2.08	0.83 2.08	0.87 2.08	1.57 4.38	0.83 2.29	0.90 2.29	0.92 2.29	0.95 2.29
SB12N.100F	KVA AMPS	3.00 8.33	1.69 4.17	1.73 4.17	3.30 8.33	3.30 4.17	6.30 8.33	1.50 4.17	1.65 4.17	1.75 4.17	3.15 8.75	1.65 4.58	1.80 4.58	1.84 4.58	1.91 4.58
SB12N.150F	KVA AMPS	4.5 12.50	2.53 6.25	2.60 6.25	4.95 12.50	4.95 6.25	9.46 12.50	2.25 6.25	2.48 6.25	2.62 6.25	4.72 13.13	2.48 6.87	2.71 6.87	2.76 6.88	2.86 6.88
SB12N.250F	KVA AMPS	7.50 20.83	4.22 10.42	4.33 10.42	8.26 20.83	8.26 10.42	15.76 20.83	3.75 10.42	4.13 10.42	4.37 10.42	7.87 21.88	4.13 11.46	4.51 11.46	4.60 11.46	4.76 11.46
SB12N.500F	KVA AMPS	15.00 41.67	8.44 20.83	8.66 20.83	16.51 41.67	16.51 20.83	31.52 41.67	7.50 20.83	8.26 20.83	8.73 20.83	15.73 43.75	8.26 22.92	9.02 22.92	9.20 22.92	9.53 22.92
SB12N.750F	KVA AMPS	22.51 62.50	12.67 31.25	12.99 31.25	24.77 62.50	24.77 31.25	47.28 62.50	11.25 31.25	12.38 31.25	13.1 31.25	23.60 65.63	12.39 34.37	13.53 34.37	13.80 34.37	14.29 34.38
SB12N1F	KVA AMPS	30.01 83.33	16.89 41.67	17.32 41.67	33.02 83.33	33.02 41.67	63.05 83.33	15.00 41.67	16.51 41.67	17.46 41.67	31.47 87.50	16.53 45.83	18.04 45.83	18.40 45.83	19.05 45.83
SB12N1.5F	KVA AMPS	45.01 125.00	25.33 62.50	25.98 62.50	49.54 125.00	49.54 62.50	94.57 125.00	22.51 62.50	24.77 62.50	26.20 62.50	47.20 131.25	24.79 68.75	27.06 68.75	27.60 68.75	28.58 68.75
SB12N2F	KVA AMPS	60.02 166.67	33.77 83.33	34.64 83.33	66.05 166.67	66.05 83.33	126.09 166.67	30.01 83.33	33.02 83.33	34.93 83.33	62.93 175.00	33.05 91.67	36.08 91.67	36.81 91.67	38.11 91.67
SB12N3F	KVA AMPS	90.02 250.00	50.66 125.00	51.96 125.00	99.07 250.00	99.07 125.00	189.14 250.00	45.01 125.00	49.54 125.00	52.39 125.00	94.40 262.50	49.58 137.50	54.13 137.50	55.21 137.50	57.16 137.50
SB12N5F	KVA AMPS	150.04 416.67	84.44 208.33	86.60 208.33	165.12 416.67	165.12 208.33	315.23 416.67	75.02 208.33	82.56 208.33	87.32 208.33	157.33 437.50	82.63 229.17	90.21 229.17	92.02 229.17	95.26 229.17
Number of Transformers		3	3	3	3	3	3	2	2	2	2	2	2	2	2
*DIAGRAM		F	E	E	F	J	K	G	G	G	H	G	G	G	G

\* See Page 40 and 41

Output voltage for lower input voltage can be found by:  $\frac{\text{Rated Output Voltage}}{\text{Rated Input Voltage}} \times \text{Input Actual Voltage} = \text{Output New Voltage}$ .

Output KVA available at reduced input voltage can be found by:  $\frac{\text{Actual Input Voltage}}{\text{Rated Input Voltage}} \times \text{Output KVA} = \text{New KVA Rating}$ .

# Buck-Boost Selection Tables

120 x 240 Volts Primary - 16/32 Volts Secondary • Buck - Boost Dry-Type Transformers

**Single-Phase**

**Table III**

Catalog Number	Line Voltage	BOOSTING								BUCKING					
		95	100	105	208	215	215	220	225	135	240	240	245	250	255
		Load Voltage	120	113	119	236	244	229	235	240	120	212	225	230	234
SB16N.050F	KVA	0.19	0.35	0.37	0.37	0.38	0.72	0.73	0.75	0.42	0.38	0.75	0.77	0.78	0.80
	AMPS	1.56	3.13	3.13	1.56	1.56	3.12	3.13	3.12	3.54	1.77	3.33	3.33	3.33	3.33
SB16N.100F	KVA	0.38	0.71	0.74	0.74	0.76	1.43	1.47	1.50	0.84	0.75	1.50	1.53	1.56	1.59
	AMPS	3.13	6.25	6.25	3.13	3.13	6.25	6.25	6.25	7.08	3.54	6.67	6.67	6.67	6.67
SB16N.150F	KVA	0.56	1.06	1.12	1.11	1.14	2.15	2.20	2.25	1.27	1.13	2.25	2.30	2.34	2.39
	AMPS	4.69	9.38	9.38	4.69	4.69	9.37	9.37	9.37	10.63	5.31	10.00	10.00	10.00	10.00
SB16N.250F	KVA	0.94	1.77	1.86	1.84	1.90	3.58	3.67	3.75	2.11	1.88	3.75	3.83	3.91	3.98
	AMPS	7.81	15.63	15.63	7.81	7.81	15.62	15.62	15.62	17.71	8.85	16.67	16.67	16.67	16.67
SB16N.500F	KVA	1.88	3.54	3.72	3.68	3.81	7.17	7.33	7.50	4.22	3.75	7.50	7.66	7.81	7.97
	AMPS	15.63	31.25	31.25	15.63	15.63	31.25	31.25	31.25	35.42	17.71	33.33	33.33	33.33	33.33
SB16N.750F	KVA	2.82	5.31	5.58	5.53	5.71	10.75	11.00	11.25	6.33	5.63	11.25	11.48	11.72	11.95
	AMPS	23.44	46.88	46.88	23.44	23.44	46.87	46.87	46.87	53.13	26.56	50.00	50.00	50.00	50.00
SB16N1F	KVA	3.76	7.08	7.44	7.37	7.61	14.33	14.67	15.00	8.44	7.50	15.00	15.31	15.62	15.94
	AMPS	31.25	62.50	62.50	31.25	31.25	62.50	62.50	62.50	70.83	35.42	66.67	66.67	66.67	66.67
SB16N1.5F	KVA	5.64	10.63	11.16	11.05	11.42	21.50	22.00	22.50	12.66	11.25	22.50	22.97	23.44	23.91
	AMPS	46.88	93.75	93.75	46.88	46.88	93.75	93.75	93.75	106.25	53.13	100.00	100.00	100.00	100.00
SB16N2F	KVA	7.52	14.71	14.88	14.73	15.23	28.67	29.33	30.00	16.88	15.00	30.00	30.62	31.25	31.87
	AMPS	62.50	125.00	125.00	62.50	62.50	125.00	125.00	125.00	141.67	70.83	133.33	133.33	133.33	133.33
SB16N3F	KVA	11.28	21.25	22.31	22.1	22.84	43.00	44.00	45.00	25.31	22.50	45.00	45.94	46.87	47.81
	AMPS	93.75	187.50	187.50	93.75	93.75	187.50	187.50	187.50	212.50	106.25	200.00	200.00	200.00	200.00
SB16N5F	KVA	18.80	35.42	37.19	36.83	38.07	71.67	73.33	75.00	42.19	37.50	75.00	76.56	78.12	79.69
	AMPS	156.25	312.50	312.50	156.25	156.25	312.50	312.50	312.50	354.17	177.08	333.33	333.33	333.33	333.33
*DIAGRAM		B	A	A	D	D	C	C	C	A	D	C	C	C	C

**Three-Phase**

**Table IV**

Catalog Number	Line Voltage	BOOSTING					BUCKING					
		183Y/106	208Y/120	195	208	225	240	245	250	256	265	272
		Load Voltage	208Y/120	236Y/136	208	236	240	208	230	234	240	234
SB16N.050F	KVA	1.12	1.28	1.13	0.64	1.30	0.65	1.33	1.35	1.39	0.72	0.74
	AMPS	3.13	3.13	3.12	1.56	3.12	1.80	3.33	3.33	3.33	1.77	1.77
SB16N.100F	KVA	2.25	2.55	2.25	1.28	2.60	1.30	2.65	2.71	2.77	1.43	1.47
	AMPS	6.25	6.25	6.25	3.13	6.25	3.61	6.67	6.67	6.67	3.54	3.54
SB16N.150F	KVA	3.37	3.83	3.38	1.91	3.90	1.95	3.98	4.06	4.16	2.15	2.21
	AMPS	9.38	9.38	9.37	4.69	9.37	5.41	10.00	10.00	10.00	5.31	5.31
SB16N.250F	KVA	5.61	6.38	5.63	3.19	6.50	3.25	6.63	6.77	6.93	3.59	3.68
	AMPS	15.63	15.62	15.62	7.81	15.62	9.01	16.67	16.67	16.67	8.85	8.85
SB16N.500F	KVA	11.23	12.76	11.26	6.38	12.99	6.50	13.26	13.53	13.86	7.17	7.36
	AMPS	31.25	31.25	31.25	15.63	31.25	18.03	33.33	33.33	33.33	17.71	17.71
SB16N.750F	KVA	16.84	19.14	16.89	9.58	19.49	9.74	19.89	20.30	20.78	10.76	11.04
	AMPS	46.88	46.88	46.87	23.44	46.87	27.04	50.00	50.00	50.00	26.56	26.56
SB16N1F	KVA	22.45	25.52	22.52	12.76	25.98	12.99	26.52	27.06	27.71	14.34	14.72
	AMPS	62.50	62.50	62.50	31.25	62.50	36.06	66.67	66.67	66.67	35.42	35.42
SB16N1.5F	KVA	33.68	38.28	33.77	19.14	38.97	19.49	39.78	40.59	41.57	21.52	22.08
	AMPS	93.75	93.75	93.75	46.88	93.75	54.09	100.00	100.00	100.00	53.13	53.13
SB16N2F	KVA	44.90	51.04	45.03	25.52	51.96	25.98	53.04	54.13	55.43	28.69	29.44
	AMPS	125.00	125.00	125.00	62.50	125.00	72.12	133.33	133.33	133.33	70.83	70.83
SB16N3F	KVA	67.36	76.56	67.55	38.28	77.94	38.97	79.57	81.19	83.14	43.03	44.17
	AMPS	187.50	187.50	187.50	93.75	187.50	108.17	200.00	200.00	200.00	106.25	106.25
SB16N5F	KVA	112.26	127.59	112.58	63.80	129.90	64.95	132.61	135.32	138.56	71.72	73.61
	AMPS	312.50	312.50	312.50	156.25	312.50	180.29	333.33	333.33	333.33	177.08	177.08
No. of Transformers		3	3	2	2	2	2	2	2	2	2	2
*DIAGRAM		F	F	H	G	H	L	H	H	H	G	G

\* See Page 40 and 41

Output voltage for lower input voltage can be found by:  $\frac{\text{Rated Output Voltage}}{\text{Rated Input Voltage}} \times \text{Input Actual Voltage} = \text{Output New Voltage}$ .

Output KVA available at reduced input voltage can be found by:  $\frac{\text{Actual Input Voltage}}{\text{Rated Input Voltage}} \times \text{Output KVA} = \text{New KVA Rating}$ .

# Buck-Boost Connection Diagram

## SINGLE PHASE

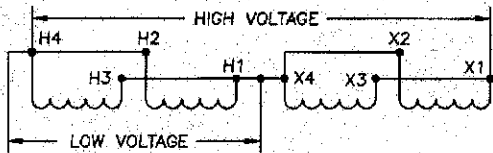


FIGURE A

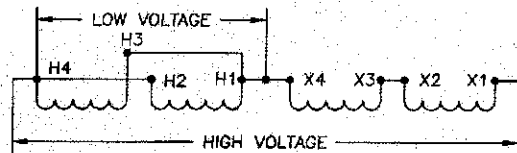


FIGURE B

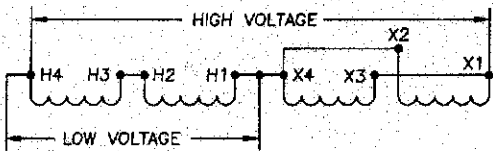


FIGURE C

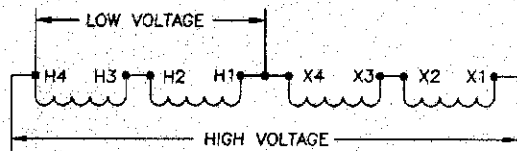


FIGURE D

## THREE PHASE

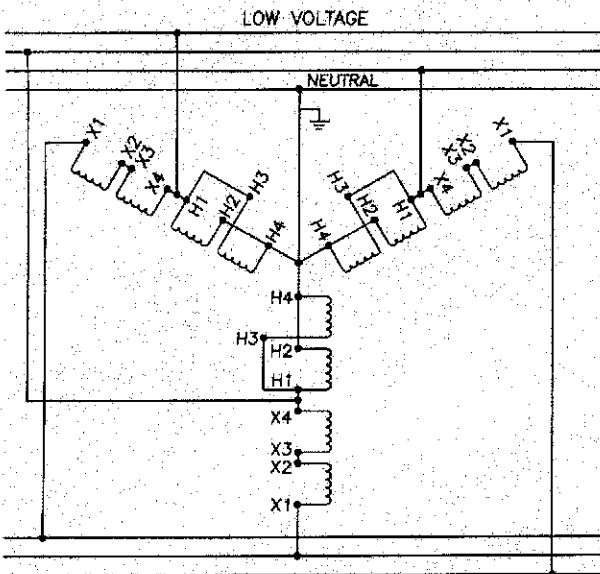


FIGURE E

WYE

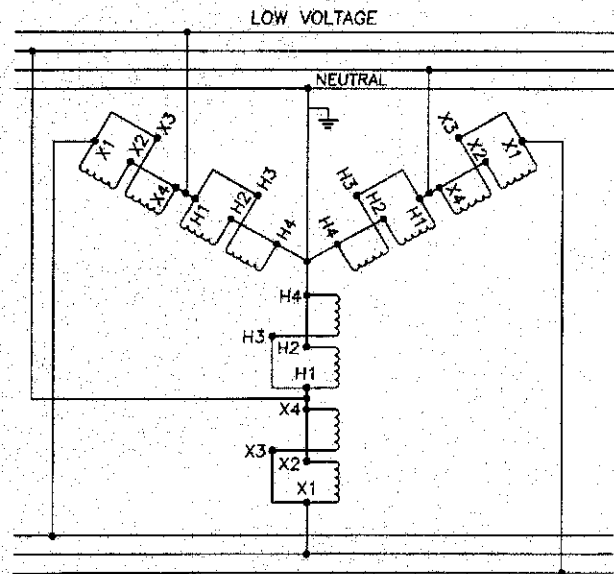


FIGURE F

WYE

**NOTE: FIGURES E AND F CAN ONLY BE USED WHEN THE SOURCE IS A FOUR WIRE SUPPLY SYSTEM.**

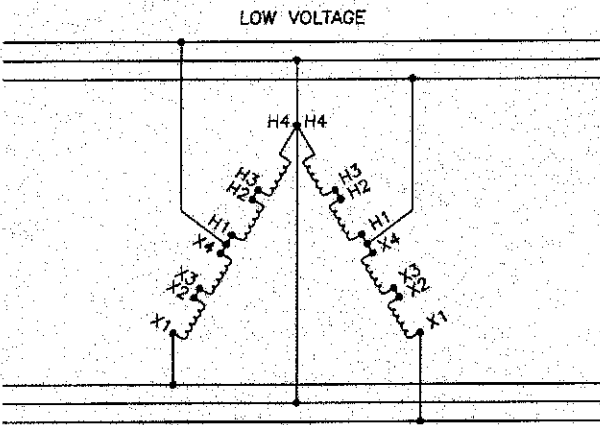


FIGURE G

OPEN DELTA

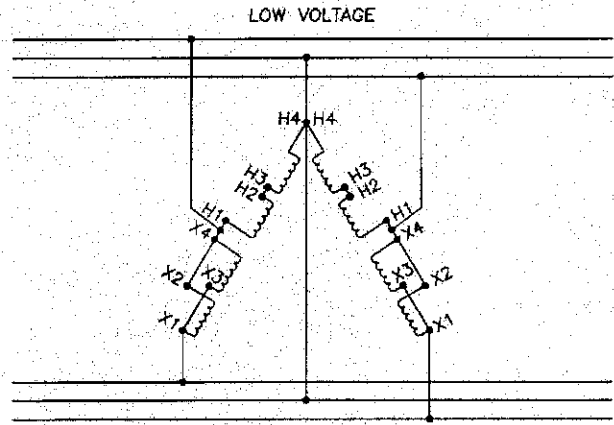


FIGURE H

OPEN DELTA