



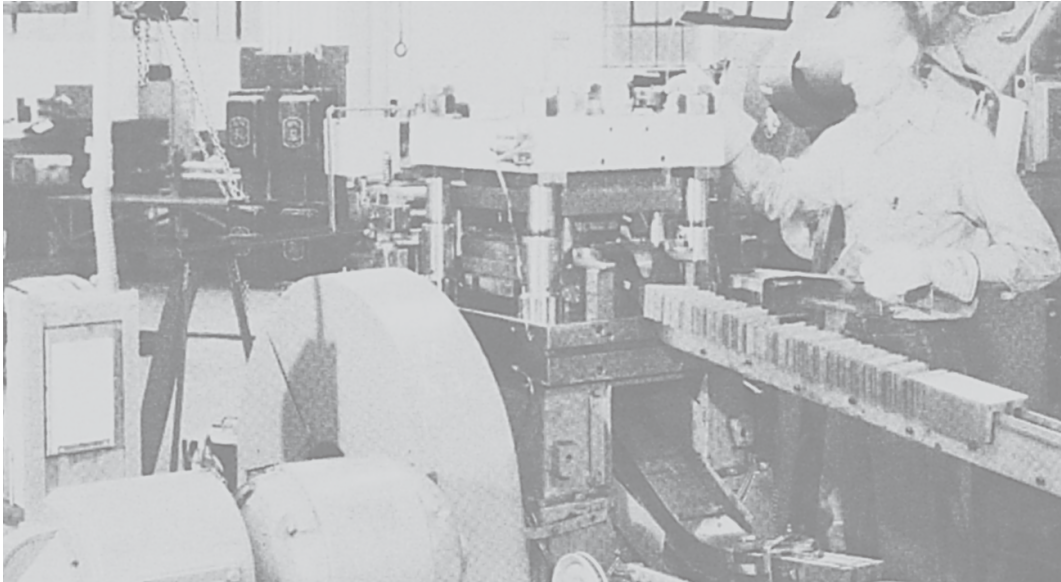
# ***Buck-Boost Transformers***



*A simple and economical way to correct offstandard voltages... from 95 to 500 volts; single and three phase, in sizes up to 360 kVA. Simplified buck-boost rating charts make proper transformer selection easy, accurate.*

EODA18-2436    Model    181051    Page 9, 17

EODA18-4860    Model    181052    Page 9, 17



Electrical/electronic equipment operate on standard supply voltage. When the supply voltage is constantly 5-20% too low ("brownout" conditions) or too high, equipment fails to operate at maximum efficiency. This can cause potentially serious problems. Acme Electric Buck-boost transformers (autotransformers) provide a simple and **ECONOMICAL** means of correcting off-standard voltages. They offer tremendous capabilities and flexibility in kVA sizes and input/output voltage combinations. You essentially get 75 different transformers... all in one convenient package. Proper voltage is critical for a variety of applications, including AC motor loads, resistive heating loads, incandescent lighting or low voltage lighting.

### Sections

- Section 1: Dry-Type Distribution Transformers
- Section 2: Medium Voltage Transformers
- Section 3: Harmonic Mitigating & Non-Linear Load Transformers
- Section 4: Drive Isolation & AC Line Reactors
- Section 5: Industrial Control Transformers
- Section 6: DIN-Rail Power Supplies/Receptacles & Low Voltage Lighting Transformers
- **Section 7: Buck-Boost Transformers**
- Section 8: Panel-Tran Zone Power Centers
- Section 9: Power Conditioning Products
- Section 10: Amveco Toroidal Solutions
- Section 11: Custom Solutions

### Table Of Contents

#### Section 7: Buck-Boost Transformers

|                                 |         |
|---------------------------------|---------|
| Description & Applications..... | 3       |
| Questions & Answers .....       | 4 - 8   |
| Selection Charts .....          | 9 - 16  |
| Wiring Diagrams .....           | 16 - 18 |
| Warranty & Index.....           | 19      |

## Section 7 | Description and Applications

### Where are buck-boost transformers used?

A typical buck-boost application is 120 volts in, 12 volts out for low voltage lighting or control circuitry. In most applications, this low voltage transformer is field connected as an autotransformer. (See question 2 for the definition of an autotransformer). Buck-boost transformers provide tremendous capabilities and flexibility in kVA sizes and input/output voltage combinations. Basically you get 75 different transformers... all in one convenient package.

Other buck-boost applications are, where (A) low supply voltage exists because equipment is installed at the end of a bus system; (B) the supply system is operating at or over its design capacity; and (C) where overall consumer demands may be so high the utility cuts back the supply voltage to the consumer causing a "brownout."

### Why use buck-boost instead of another type transformer ?

Take a look at the advantages and disadvantages of using a buck-boost transformer (autotransformer) compared to a standard isolation transformer of the proper size and voltage combination.

### Proper voltage is critical

With nearly two-thirds of all electrical loads being A.C. motor loads, maintenance of the proper voltage to that motor is very important. If the supply line voltage is not maintained, motor winding current is increased causing reduced motor torque and escalating motor temperature, all of which results in the rapid loss of insulation life expectancy.

In addition to motor loads, the detrimental effects of low voltage on both resistive heating loads and incandescent lighting output is illustrated in the chart.

Anytime you have a lower than standard voltage, equipment damage and failure can result.

Buck-boost transformers are an economical way to correct this potentially very serious problem. Anytime a line voltage change in the 5-20% range is required, a buck-boost transformer should be considered as your first line of defense.

| Advantages                   | Disadvantages                                                           |
|------------------------------|-------------------------------------------------------------------------|
| More efficient               | No circuit isolation                                                    |
| Smaller & lighter            | Cannot create a neutral                                                 |
| 5-10 times increase in kVA   | Application voltages and kVA don't match the nameplate voltages and kVA |
| Versatile, many applications |                                                                         |
| Lower cost                   |                                                                         |



### Encapsulated | Single Phase, .05 to 10.0 kVA

#### Features

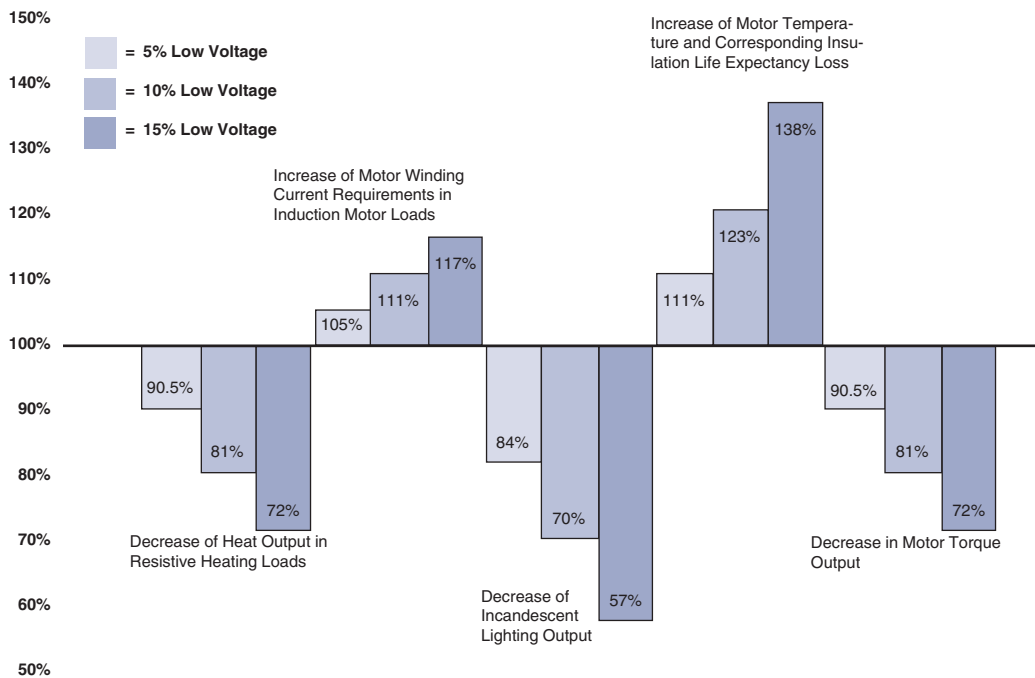
- UL and cUL listed and UL 3R enclosure, meets or exceeds all listing criteria, including NEMA, ANSI, and OSHA standards
- Flexibility, can be used in single phase and three phase configurations
- Reduce (buck) or raise (boost) line voltage from 5 - 20%
- All copper lead wire terminations
- Long Life, 80° C rise up to 0.15 kVA, and 115° C rise above 0.25 kVA
- Can be used in Three Phase applications

### Encapsulated | Three Phase, 6.0 to 150 kVA

#### Features

- UL and cUL listed and UL 3R enclosure, meets or exceeds all listing criteria, including NEMA, ANSI, and OSHA standards
- One unit, instead of multiple for 3 phase applications
- Time and installation cost savings as units come pre-wired from the factory
- Smaller footprint compared to using three individual single phase units
- Long Life, UL class 180° C insulation system, 115° C rise

### HOW LOW VOLTAGE AFFECTS VARIOUS EQUIPMENT OPERATIONS AND FUNCTIONS



### QUESTIONS AND ANSWERS ABOUT BUCK-BOOST TRANSFORMERS

#### 1. What is a buck-boost transformer?

Buck-boost transformers are small single phase transformers designed to reduce (buck) or raise (boost) line voltage from 5-20%. The most common example is boosting 208 volts to 230 volts, usually to operate a 230 volt motor such as an air-conditioner compressor, from a 208 volt supply line.

Buck-boosts are a standard type of single phase distribution transformers, with primary voltages of 120, 240 or 480 volts and secondaries typically of 12, 16, 24, 32 or 48 volts. They are available in sizes ranging from 50 volt amperes to 10 kilo-volt amperes.

Buck-boost transformers are shipped ready to be connected for a number of possible voltage combinations.

#### 2. How does a buck-boost transformer differ from an insulating transformer?

A buck-boost transformer IS an insulating type transformer when it is shipped from the factory. When it is connected at the job site, a lead wire on the primary is connected to a lead wire on the secondary – thereby changing the transformer's electrical characteristics to those of an autotransformer. The primary and secondary windings are no longer "insulated" and secondary windings are no longer "insulated" and its kVA capacity is greatly increased. Refer to figures 1, 2 and 3.

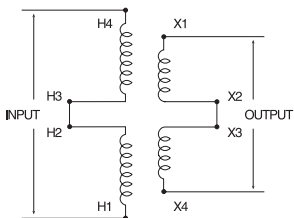


Figure 1. Buck-boost transformer connected as a low voltage insulating transformer (primary and secondary windings shown series connected).

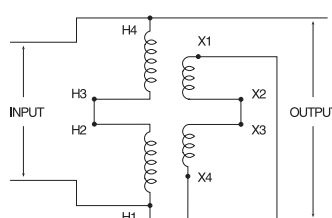


Figure 2. Same buck-boost transformer connected as a boosting autotransformer. The connection from H1 to X4 "converted" the unit to an autotransformer.

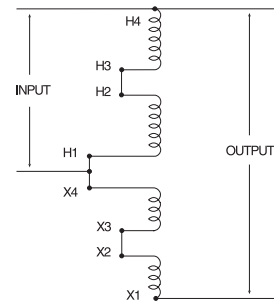


Figure 3. Illustration No. 2 shown with the primary and secondary windings "straightened".

### 3. What is the difference between a buck-boost transformer and an autotransformer?

When a primary lead wire and secondary lead wire of a buck-boost transformer are connected together electrically, in a recommended voltage bucking or boosting connection, the transformer is in all respects, an autotransformer. However, if the interconnection between the primary and secondary winding is not made, then the unit is an insulating type transformer.

### APPLICATIONS

#### 4. Why are they used?

Electrical and electronic equipment is designed to operate on standard supply voltage. When the supply voltage is constantly too high or too low, (usually more than 55%), the equipment fails to operate at maximum efficiency. A buck and boost transformer is a simple and ECONOMICAL means of correcting this off-standard voltage.

#### 5. What are the most common applications for buck-boost transformers?

Boosting 208V to 230V or 240V and vice versa for commercial and industrial air conditioning systems; boosting 110V to 120V and 240V to 277V for lighting systems; voltage correction for heating systems and induction motors of all types. Many applications exist where supply voltages are constantly above or below normal.

#### 6. Can buck-boost transformers be used to power low voltage circuits?

Yes, low voltage control, lighting circuits, or other low voltage applications requiring either 12V, 16V, 24V, 32V or 48V. The unit is connected as an insulating transformer and the nameplate kVA rating is the transformer's capacity.

#### 7. Why do buck-boost transformers have 4 windings?

To make them versatile! A four winding buck-boost transformer (2 primary and 2 secondary windings) can be connected eight different ways to provide a multitude of voltage and kVA outputs. A two winding (1 primary & 1 secondary) buck-boost transformer can be connected only one way.

#### 8. Will a buck-boost transformer stabilize voltage?

No. The output voltage is a function of the input voltage. If the input voltage varies, then the output voltage will also vary by the same percentage.

### LOAD DATA

#### 9. Are there any restrictions on the type of load that can be operated from a buck-boost transformer?

No, there are no restrictions.

#### 10. Why can a buck-boost transformer operate a kVA load many times larger than the kVA rating on its nameplate?

Since the transformer has been auto-connected in such a fashion that the 22V secondary voltage is added to the 208V primary voltage, it produces 230V output.

The autotransformer kVA is calculated:

$$\text{kVA} = \frac{\text{Output Volts} \times \text{Secondary Amps}}{1000}$$

$$\text{kVA} = \frac{230 \text{ V} \times 41.67 \text{ Amps}}{1000} = 9.58 \text{ kVA}$$

#### 11. Can buck-boost transformers be used on motor loads?

Yes, either single or three phase. Refer to the motor data charts in Section I for determining kVA and Amps required by NEMA standard motors.

#### 12. How are single phase and three phase load Amps and load kVA calculated?

$$\text{Single Phase Amps} = \frac{\text{kVA} \times 1000}{\text{Volts}}$$

$$\text{Three Phase Amps} = \frac{\text{kVA} \times 1000}{\text{Volts} \times 1.73}$$

$$\text{Single Phase kVA} = \frac{\text{Volts} \times \text{Amps}}{1000}$$

$$\text{Three Phase kVA} = \frac{\text{Volts} \times \text{Amps} \times 1.73}{1000}$$

### THREE-PHASE

#### 13. Can buck-boost transformers be used on three-phase systems as well as single phase systems?

Yes. A single unit is used to buck or boost single phase voltage — two or three units are used to buck or boost three phase voltage. The number of units to be used in a three-phase installation depends on the number of wires in the supply line. If the three-phase supply is 4 wire Y, use three buck-boost transformers. If the 3-phase supply is 3 wire Y (neutral not available), use two buck-boost transformers. Refer to three-phase selection charts.



The picture to the left illustrates the difference in physical size between the autotransformer of 1 kVA, capable of handling a 9.58 kVA load, and an isolation transformer capable of handling a 7.5 kVA load.

To cite an example... a model T111683 buck-boost transformer has a nameplate kVA rating of 1 kVA, but when it's connected as an autotransformer boosting 208V to 230V, its kVA capacity increases to 9.58 kVA. The key to understanding the operation of buck-boost transformers lies in the fact that the secondary windings are the only parts of the transformer that do the work of transforming voltage and current. In the example above, only 22 volts are being transformed (boosted) — i.e. 208V + 22V = 230V. This 22V transformation is carried out by the secondary windings which are designed to operate at a maximum current of 41.67 amps (determined by wire size of windings).

$$\frac{\text{Maximum Secondary Amps} = \text{Volts} \times \text{Amps} \times 1.73}{\text{Secondary Volts}}$$

$$\frac{\text{Maximum Secondary Amps} = 1.0 \text{ kVA} \times 1000}{24\text{V}} = \frac{1000 \text{ VA}}{24\text{V}} = 41.67 \text{ Amps}$$

### 14. Should buck-boost transformers be used to develop a three-phase 4 wire Y circuit from a three-phase 3 wire delta circuit?

No. A three phase “wye” buck-boost transformer connection should be used only on a 4 wire source of supply. A delta to wye connection does not provide adequate current capacity to accommodate unbalanced currents flowing in the neutral wire of the 4 wire circuit.

### 15. Why isn't a closed delta buck-boost connection recommended?

A closed delta buck-boost auto transformer connection requires more transformer kVA than a “wye” or open delta connection and phase shifting occurs on the output. Consequently the closed delta connection is more expensive and electrically inferior to other three-phase connections.

| 3 Phase Connections   |                           |            |
|-----------------------|---------------------------|------------|
| Input (Supply System) | Desired Output Connection |            |
| Delta 3 Wire          | WYE 3 or 4 Wire           | Do Not Use |
| Open Delta 3 Wire     | WYE 3 or 4 Wire           | Do Not Use |
| WYE 3 or 4 Wire       | Closed Delta 3 Wire       | Do Not Use |
| WYE 4 Wire            | WYE 3 or 4 Wire           | Ok         |
| WYE 3 or 4 Wire       | Open Delta 3 Wire         | Ok         |
| Closed Delta 3 Wire   | Open Delta 3 Wire         | Ok         |

## CONNECTION AND FREQUENCY

### 16. How does the installer or user know how to connect a buck-boost transformer?

The connection chart packed with each unit shows how to make the appropriate connections. These same connection charts are also shown in this section (page 17).

### 17. Can 60 Hertz buck-boost transformers be used on a 50 Hertz service?

No. Acme buck-boost transformers should be operated only at the frequencies recommended. However, units recommended for 50 cycle operation are suitable for 60 cycle operation but not vice versa.

## SELECTION

### 18. How do you select a buck-boost transformer?

Refer to the selection steps on page 8 for easy 4-step selection, then go to the charts. Also on page 8, Table 1 and Table 2 are helpful for determining buck-boost kVA when only the H.P. rating of a motor is available.

## NAMEPLATE DATA

### 19. Why are buck-boost transformers shipped from the factory as insulating transformers and not preconnected at the factory as autotransformers?

A four winding buck-boost transformer can be auto connected eight different ways to provide a multitude of voltage and kVA output combinations. The proper transformer connection depends on the user's supply voltage, load voltage and load kVA. Consequently, it is more feasible for the manufacturer to ship the unit as an insulating transformer and allow the user to connect it on the job site in accordance with the available supply voltage and requirements of his load.

### 20. Why is the isolation transformer kVA rating shown on the nameplate instead of the autotransformer kVA rating?

The kVA rating of a buck-boost transformer when auto connected depends on the amount of voltage buck or boost. Since the amount of voltage buck or boost is different for each connection, it is physically impossible to show all of the various voltage combinations and attainable kVA ratings on the nameplate. A connection chart showing the various attainable single phase and three-phase connections is packed with each unit.

## SAFETY

### 21. Do buck-boost transformers present a safety hazard usually associated with autotransformers?

No. Most autotransformers, if they are not of the buck-boost variety, change voltage from one voltage class to another. (Example 480V to 240V) In a system where one line is grounded, the user thinks he has 240V; yet due to the primary and secondary being tied together, it is possible to have 480V to ground from the 240V output. A buck-boost transformer only changes the voltage a small amount, such as 208V to 240V. This small increase does not represent a safety hazard, as compared to a buck of 480V to 240V.

## SOUND LEVELS

### 22. Are buck-boost transformers as quiet as standard isolation transformers?

Yes. However, an auto-connected buck-boost transformer will be quieter than an isolation transformer capable of handling the same

## Section 7 | Questions and Answers

load. The isolation transformer would have to be physically larger than the buck-boost transformer, and small transformers are quieter than larger ones. (Example) 1 kVA — 40 db; 75 kVA — 50 db. (db is a unit of sound measure).

### COST AND LIFE EXPECTANCY

#### 23. How does the cost of a buck-boost transformer compare to that of an insulating transformer — both capable of handling the same load?

For the most common buck-boost applications, the dollar savings are generally greater than 75% compared to the use of an insulating type distribution transformer for the same application.

#### 24. What is the life expectancy of a buck boost transformer?

The life expectancy of a buck-boost transformer is the same as the life expectancy of other dry type transformers.

### NATIONAL ELECTRICAL CODE

#### 25. Your catalog indicates that a buck-boost transformer is suitable for connecting as an AUTOTRANS-FORMER. What is the definition of an autotransformer and how does it differ from an isolation transformer?

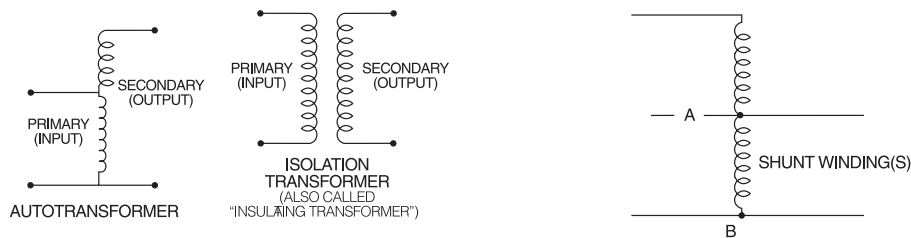
An autotransformer is a transformer in which the primary (input) and the secondary (output) are electrically connected to each other. An isolation transformer, also known as an insulating transformer, has complete electrical separation between the primary (input) and the secondary (output). This is illustrated in the drawing below.

An autotransformer changes or transforms only a portion of the electrical energy it transmits. The rest of the electrical energy flows directly through the electrical connections between the primary and secondary. An isolation transformer (insulating transformer) changes or transforms all of the electrical energy it transmits.

Consequently, an autotransformer is smaller, lighter in weight, and less costly than a comparable kVA size insulating transformer.

Please refer to Question 27 for additional information on autotransformers.

Buck-boost transformers are frequently field-connected as autotransformers.



#### 26. Buck-boost transformers are almost always installed as auto-transformers. Does the N.E.C. (National Electrical Code) permit the use of autotransformers?

Yes. Please refer to N.E.C. Article 450-4, "Autotransformers 600 Volts, Nominal, or Less." Item (a) explains how to overcurrent protect an autotransformer; item (b) explains that an insulating transformer such as a buck-boost transformer may be field connected as an autotransformer.

#### 27. When a buck-boost transformer is connected as an autotransformer such as boosting 208V to 230V, the kVA is greatly increased. What is the procedure for determining the size (ampere rating) of the overcurrent protective device such as a fuse or circuit breaker?

The National Electrical Code Article 450-4 addresses overcurrent protection of autotransformers. A copy is reproduced below for easy reference.

#### 450-4. Autotransformers 600 Volts, Nominal, or Less.

(a) Overcurrent Protection. Each autotransformer 600 volts, nominal, or less shall be protected by an individual overcurrent device installed in series with each ungrounded input conductor. Such overcurrent device shall be rated or set at not more than 125 percent of the rated full-load input current of the autotransformer. An overcurrent device shall not be installed in series with the shunt winding (the winding common to both the input and the output circuits) of the autotransformer between Points A and B as shown in Diagram 450-4.

Exception: Where the rated input current of an autotransformer is 9 amperes or more and 125 percent of this current does not correspond to a standard rating of a fuse or non-adjustable circuit breaker, the next higher standard rating described in Section 240-6 shall be permitted. When the rated input current is less than 9 amperes, an overcurrent device rated or set at not more than 167 percent of the input current shall be permitted.

(b) Transformer Field-Connected as an Autotransformer. A transformer field-connected as an autotransformer shall be identified for use at elevated voltage.

#### 28. I have noted the reprint of the N.E.C. (National Electrical Code), Article 450-4 shown in the previous question covering autotransformer overcurrent protection. Could you explain this article in detail by citing an example?

An example of an everyday application is always a good way to explain the intent of the "Code." Example: A 1 kVA transformer Catalog No. T111683 has a primary of 120 x 240V and a secondary of 12 x 24V. It is to be connected as an autotransformer at the time of installation to raise 208V to 230V single phase.

When this 1 kVA unit is connected as an autotransformer for this voltage combination, its kVA rating is increased to 9.58 kVA (may also be expressed as 9,580 VA). This is the rating to be used for determining the full load input amps and the sizing of the overcurrent protect device (fuse or breaker) on the input.

$$\text{Full Load Input Amps} = \frac{9,580 \text{ Volt Amps}}{208 \text{ Volts}} = 46 \text{ Amps}$$

When the full load current is greater than 9 amps, the overcurrent protective device (usually a fuse or non-adjustable breaker) amp rating can be up to 125 percent of the full load rating of the autotransformer input amps.

$$\text{Max. amp rating of the overcurrent device} = 46 \text{ amps} \times 125\% = 57.5 \text{ amps}$$

The National Electrical Code, Article 450-4 (a) Exception, permits the use of the next higher standard ampere rating of the overcurrent device. This is shown in Article 240-6 of the N.E.C.

$$\text{Max. size of the fuse or circuit breaker} = 60 \text{ amps}$$

### SELECTING A BUCK-BOOST TRANSFORMER

**You should have the following 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 load equipment.

**Load kVA or Load Amps** — 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 to be operated — either 50 or 60 cycles.

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

#### Four Step Selection

1. A series of LINE VOLTAGE and LOAD VOLTAGE combinations are listed across the top of each selection chart. Select a LINE VOLTAGE and LOAD VOLTAGE combination from ANY of the charts that comes closest to matching the LINE VOLTAGE and LOAD VOLTAGE of your application.
2. Read down the column you have selected until you reach either the LOAD kVA or LOAD AMPS of the equipment you want to operate. You probably will not find the exact value of LOAD kVA or LOAD AMPS so go to the next higher rating.
3. From this point, read across the column to the far left-hand side and you have found the catalog number of the exact buck-boost transformer you need. Refer to the catalog number listing on page 15 and 16 for dimensions.
4. CONNECT the transformer according to the connection diagram specified at the bottom of the column where you selected YOUR LINE VOLTAGE and LOAD VOLTAGE combination. Connection diagrams are found at the end of this section.

This same connection information is packed with each buck-boost transformer.

**Table 1**  
**Full Load Current in Amperes—Single Phase Circuits**

| kVA  | 120V | 208V | 240V | 277V | 380V | 440V | 480V | 600V |
|------|------|------|------|------|------|------|------|------|
| .050 | 0.4  | 0.2  | 0.2  | 0.2  | 0.1  | 0.1  | 0.1  | 0.1  |
| .100 | 0.8  | 0.5  | 0.4  | 0.3  | 0.2  | 0.2  | 0.2  | 0.2  |
| .150 | 1.2  | 0.7  | 0.6  | 0.5  | 0.4  | 0.3  | 0.3  | 0.3  |
| .250 | 2.0  | 1.2  | 1.0  | 0.9  | 0.6  | 0.5  | 0.5  | 0.4  |
| .500 | 4.2  | 2.4  | 2.1  | 1.8  | 1.3  | 1.1  | 1.0  | 0.8  |
| .750 | 6.3  | 3.6  | 3.1  | 2.7  | 2.0  | 1.7  | 1.6  | 1.3  |
| 1    | 8.3  | 4.8  | 4.2  | 3.6  | 2.6  | 2.3  | 2.1  | 1.7  |
| 1.5  | 12.5 | 7.2  | 6.2  | 5.4  | 3.9  | 3.4  | 3.1  | 2.5  |
| 2    | 16.7 | 9.6  | 8.3  | 7.2  | 5.2  | 4.5  | 4.2  | 3.3  |
| 3    | 25   | 14.4 | 12.5 | 10.8 | 7.9  | 6.8  | 6.2  | 5.0  |
| 5    | 41   | 24.0 | 20.8 | 18.0 | 13.1 | 11.3 | 10.4 | 8.3  |
| 7.5  | 62   | 36   | 31   | 27   | 19.7 | 17   | 15.6 | 12.5 |
| 10   | 83   | 48   | 41   | 36   | 26   | 22.7 | 20.8 | 16.7 |
| 15   | 125  | 72   | 62   | 54   | 39   | 34   | 31   | 25   |
| 25   | 208  | 120  | 104  | 90   | 65   | 57   | 52   | 41   |
| 37.5 | 312  | 180  | 156  | 135  | 98   | 85   | 78   | 62   |
| 50   | 416  | 240  | 208  | 180  | 131  | 114  | 104  | 83   |
| 75   | 625  | 360  | 312  | 270  | 197  | 170  | 156  | 125  |
| 100  | 833  | 480  | 416  | 361  | 263  | 227  | 208  | 166  |
| 167  | 1391 | 802  | 695  | 602  | 439  | 379  | 347  | 278  |
| 250  | 2083 | 1203 | 1041 | 902  | 657  | 568  | 520  | 416  |

**Table 2**  
**Full Load Amperes Single Phase A.C. Motors ①**

| Horsepower | 115 V | 208 V | 230V | Minimum Transformer KVA |
|------------|-------|-------|------|-------------------------|
| 1/6        | 4.4   | 2.4   | 2.2  | .53                     |
| 1/4        | 5.8   | 3.2   | 2.9  | .70                     |
| 1/3        | 7.2   | 4.0   | 3.6  | .87                     |
| 1/2        | 9.8   | 5.4   | 4.9  | 1.18                    |
| 3/4        | 13.8  | 7.6   | 6.9  | 1.66                    |
| 1          | 16    | 8.8   | 8    | 1.92                    |
| 1.5        | 20    | 11.0  | 10   | 2.40                    |
| 2          | 24    | 13.2  | 12   | 2.88                    |
| 3          | 34    | 18.7  | 17   | 4.10                    |
| 5          | 56    | 30.8  | 28   | 6.72                    |
| 7.5        | 80    | 44    | 40   | 9.6                     |
| 10         | 100   | 55    | 50   | 12.0                    |

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%.

$$1 \text{ Phase kVA} = \frac{\text{Volts} \times \text{Amps}}{1000}$$

**Note:** If motors are started more than once per hour, increase minimum transformer kVA by 20%.

## Section 7 | Selection Charts



| Single Phase Application |      | Boosting                        |        |        |        |        |        |        |        |        | Bucking               |        |        |        |        |        |
|--------------------------|------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------------|--------|--------|--------|--------|--------|
|                          |      | Line Voltage (Available)        |        |        |        |        |        |        |        |        | Load Voltage (Output) |        |        |        |        |        |
|                          |      | 95                              | 100    | 105    | 110    | 189    | 208    | 215    | 220    |        | 125                   | 132    | 230    | 245    | 250    | 252    |
| Catalog Number           |      | 114                             | 120    | 115    | 120    | 208    | 230    | 237    | 242    |        | 113                   | 120    | 208    | 222    | 227    | 240    |
| T181047                  | Load | kVA                             | 0.24   | 0.25   | 0.48   | 0.50   | 0.43   | 0.48   | 0.49   | 0.50   | 0.52                  | 0.54   | 0.47   | 0.50   | 0.52   | 1.02   |
|                          |      | Amps                            | 2.08   | 2.08   | 4.17   | 4.17   | 2.08   | 2.08   | 2.08   | 2.08   | 4.60                  | 4.60   | 2.28   | 2.28   | 2.28   | 4.37   |
|                          |      | Maximum Size of Fuse or Breaker | 6      | 6      | 10     | 10     | 6      | 6      | 6      | 6      | 10                    | 10     | 6      | 6      | 6      | 10     |
| T181048                  | Load | kVA                             | 0.47   | 0.50   | 0.96   | 1.01   | 0.87   | 0.96   | 0.99   | 1.01   | 1.04                  | 1.08   | 0.95   | 1.00   | 1.04   | 2.04   |
|                          |      | Amps                            | 4.17   | 4.17   | 8.33   | 8.33   | 4.17   | 4.17   | 4.17   | 4.17   | 9.20                  | 9.20   | 4.56   | 4.56   | 4.58   | 8.75   |
|                          |      | Maximum Size of Fuse or Breaker | 10     | 10     | 15     | 15     | 10     | 10     | 10     | 10     | 15                    | 15     | 10     | 10     | 10     | 15     |
| T181049                  | Load | kVA                             | 0.71   | 0.75   | 1.43   | 1.51   | 1.30   | 1.43   | 1.48   | 1.51   | 1.56                  | 1.62   | 1.42   | 1.50   | 1.56   | 3.00   |
|                          |      | Amps                            | 6.25   | 6.25   | 12.50  | 12.50  | 6.25   | 6.25   | 6.25   | 6.25   | 13.80                 | 13.80  | 6.86   | 6.86   | 6.86   | 13.10  |
|                          |      | Maximum Size of Fuse or Breaker | 15     | 15     | 20     | 20     | 15     | 15     | 15     | 15     | 20                    | 20     | 15     | 15     | 15     | 15     |
| T181050                  | Load | kVA                             | 1.19   | 1.25   | 2.40   | 2.50   | 2.16   | 2.39   | 2.46   | 2.52   | 2.60                  | 2.75   | 2.37   | 2.50   | 2.60   | 5.10   |
|                          |      | Amps                            | 10.42  | 10.40  | 20.80  | 20.80  | 10.40  | 10.40  | 10.40  | 10.40  | 22.80                 | 22.80  | 11.40  | 11.40  | 11.40  | 21.80  |
|                          |      | Maximum Size of Fuse or Breaker | 25     | 25     | 40     | 30     | 15     | 15     | 15     | 15     | 30                    | 30     | 15     | 15     | 15     | 30     |
| T181051                  | Load | kVA                             | 2.37   | 2.50   | 4.80   | 5.00   | 4.33   | 4.79   | 4.93   | 5.04   | 5.20                  | 5.40   | 4.47   | 5.00   | 5.20   | 10.20  |
|                          |      | Amps                            | 20.83  | 20.83  | 41.67  | 41.67  | 20.83  | 20.83  | 20.83  | 20.83  | 46.80                 | 46.80  | 22.80  | 22.80  | 22.80  | 43.70  |
|                          |      | Maximum Size of Fuse or Breaker | 35     | 35     | 60     | 60     | 30     | 30     | 30     | 30     | 60                    | 60     | 30     | 30     | 30     | 60     |
| T181052                  | Load | kVA                             | 3.56   | 3.75   | 7.17   | 7.56   | 6.50   | 7.19   | 7.41   | 7.56   | 7.80                  | 8.15   | 7.10   | 7.50   | 7.80   | 15.30  |
|                          |      | Amps                            | 31.25  | 31.25  | 62.50  | 62.50  | 31.25  | 31.25  | 31.25  | 31.25  | 68.50                 | 69.50  | 34.40  | 34.40  | 34.40  | 65.50  |
|                          |      | Maximum Size of Fuse or Breaker | 50     | 50     | 90     | 90     | 45     | 45     | 45     | 45     | 80                    | 80     | 40     | 40     | 40     | 80     |
| T111683                  | Load | kVA                             | 4.75   | 5.00   | 9.58   | 10.00  | 8.66   | 9.58   | 9.87   | 10.00  | 10.40                 | 10.80  | 9.50   | 10.00  | 10.00  | 20.40  |
|                          |      | Amps                            | 41.67  | 41.67  | 83.31  | 83.31  | 41.67  | 41.67  | 41.67  | 41.67  | 91.50                 | 91.50  | 45.80  | 45.80  | 45.80  | 87.50  |
|                          |      | Maximum Size of Fuse or Breaker | 70     | 70     | 125    | 125    | 60     | 60     | 60     | 60     | 110                   | 110    | 60     | 60     | 50     | 110    |
| T111684                  | Load | kVA                             | 7.12   | 7.50   | 14.40  | 15.10  | 13.00  | 14.30  | 14.80  | 15.10  | 15.00                 | 16.20  | 14.24  | 15.00  | 15.60  | 30.60  |
|                          |      | Amps                            | 62.50  | 62.50  | 125.00 | 125.00 | 62.50  | 62.50  | 62.50  | 62.50  | 138.00                | 138.00 | 68.60  | 68.60  | 68.60  | 132.00 |
|                          |      | Maximum Size of Fuse or Breaker | 100    | 100    | 175    | 175    | 90     | 90     | 90     | 90     | 150                   | 175    | 80     | 80     | 80     | 175    |
| T111685                  | Load | kVA                             | 9.50   | 10.00  | 19.20  | 20.20  | 17.30  | 19.16  | 19.70  | 20.10  | 20.80                 | 21.60  | 19.00  | 20.00  | 20.30  | 40.80  |
|                          |      | Amps                            | 83.30  | 83.30  | 166.60 | 166.60 | 83.30  | 83.30  | 83.30  | 83.30  | 183.00                | 183.00 | 91.60  | 91.60  | 91.20  | 175.00 |
|                          |      | Maximum Size of Fuse or Breaker | 125    | 125    | 250    | 250    | 125    | 125    | 125    | 125    | 225                   | 225    | 110    | 110    | 110    | 225    |
| T111686                  | Load | kVA                             | 14.20  | 15.00  | 28.80  | 30.00  | 26.00  | 28.70  | 29.60  | 30.30  | 31.20                 | 32.50  | 28.50  | 30.00  | 31.20  | 61.00  |
|                          |      | Amps                            | 125.00 | 125.00 | 250.00 | 250.00 | 125.00 | 125.00 | 125.00 | 125.00 | 275.00                | 275.00 | 136.80 | 136.80 | 136.80 | 263.00 |
|                          |      | Maximum Size of Fuse or Breaker | 200    | 200    | 350    | 350    | 175    | 175    | 175    | 175    | 350                   | 350    | 175    | 175    | 175    | 350    |
| T111687                  | Load | kVA                             | 23.70  | 25.00  | 47.90  | 50.00  | 43.30  | 47.80  | 49.30  | 50.30  | 52.00                 | 54.00  | 47.40  | 50.00  | 52.00  | 102.00 |
|                          |      | Amps                            | 208.00 | 208.00 | 416.60 | 416.60 | 208.00 | 208.00 | 208.00 | 208.00 | 457.00                | 457.00 | 228.00 | 228.00 | 228.00 | 437.00 |
|                          |      | Maximum Size of Fuse or Breaker | 350    | 350    | 600    | 600    | 300    | 300    | 300    | 300    | 600                   | 600    | 300    | 300    | 300    | 600    |
| T111688 ①                | Load | kVA                             | 35.60  | 37.50  | 71.90  | 75.60  | 65.00  | 71.80  | 74.00  | 75.60  | 78.00                 | 81.00  | 71.00  | 76.00  | 78.00  | 153.00 |
|                          |      | Amps                            | 312.50 | 312.50 | 625.00 | 625.00 | 312.50 | 312.50 | 312.50 | 312.50 | 688.00                | 688.00 | 344.00 | 344.00 | 344.00 | 655.00 |
|                          |      | Maximum Size of Fuse or Breaker | 500    | 500    | 1000   | 1000   | 450    | 450    | 450    | 450    | 800                   | 800    | 400    | 400    | 400    | 800    |
| T111689 ①                | Load | kVA                             | 47.50  | 50.00  | 95.80  | 100.00 | 86.60  | 95.80  | 98.70  | 101.00 | 104.00                | 108.00 | 95.00  | 100.00 | 104.00 | 204.00 |
|                          |      | Amps                            | 416.60 | 416.60 | 833.30 | 833.30 | 416.60 | 416.60 | 416.60 | 416.60 | 915.00                | 915.00 | 458.00 | 458.00 | 458.00 | 875.00 |
|                          |      | Maximum Size of Fuse or Breaker | 700    | 700    | 1200   | 1200   | 600    | 600    | 600    | 600    | 1200                  | 1200   | 600    | 600    | 600    | 1200   |

See Page 17 for Connection Diagrams

① See chart on page 16, for number of leads per termination.

NOTE: Inputs and Outputs may be reversed; kVA capacity remains constant. All applications above bold face line are suitable for 50/60 Hz. All applications below bold face line are suitable for 60 Hz only.

With larger kVA buck-boost units, it is necessary to utilize multiple conductors on the secondary (X) terminals as shown in the chart on page 16.



### Single Phase Application

Line Voltage (Available)

Load Voltage (Output)

| Boosting |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|
| 95       | 100 | 105 | 208 | 215 | 215 | 220 | 225 |
| 120      | 114 | 119 | 240 | 244 | 230 | 235 | 240 |

| Bucking |     |     |     |     |     |
|---------|-----|-----|-----|-----|-----|
| 135     | 240 | 240 | 245 | 250 | 255 |
| 119     | 208 | 225 | 230 | 234 | 239 |

### Catalog Number

|              |      |                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------|------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| T181054      | Load | kVA                             | 0.19   | 0.36   | 0.37   | 0.38   | 0.38   | 0.72   | 0.73   | 0.75   | 0.42   | 0.37   | 0.75   | 0.77   | 0.78   | 0.80   |
|              |      | Amps                            | 1.56   | 3.13   | 3.13   | 1.56   | 1.56   | 3.13   | 3.13   | 3.13   | 3.54   | 1.77   | 3.33   | 3.33   | 3.33   | 3.33   |
|              |      | Maximum Size of Fuse or Breaker | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 3      | 6      | 6      | 6      | 6      |
| T181055      | Load | kVA                             | 0.38   | 0.71   | 0.74   | 0.75   | 0.76   | 1.44   | 1.47   | 1.50   | 0.84   | 0.74   | 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   |
|              |      | Maximum Size of Fuse or Breaker | 10     | 15     | 6      | 6      | 15     | 15     | 15     | 15     | 15     | 6      | 15     | 15     | 15     | 15     |
| T181056      | Load | kVA                             | 0.56   | 1.07   | 1.12   | 1.13   | 1.14   | 2.16   | 2.20   | 2.25   | 1.26   | 1.11   | 2.25   | 2.30   | 2.34   | 2.39   |
|              |      | Amps                            | 4.69   | 9.38   | 9.38   | 4.69   | 4.69   | 9.38   | 9.38   | 9.38   | 10.63  | 5.31   | 10.00  | 10.00  | 10.00  | 10.00  |
|              |      | Maximum Size of Fuse or Breaker | 10     | 15     | 15     | 10     | 10     | 15     | 15     | 15     | 15     | 6      | 15     | 15     | 15     | 15     |
| T181057      | Load | kVA                             | 0.94   | 1.78   | 1.86   | 1.88   | 1.91   | 3.59   | 3.67   | 3.75   | 2.11   | 1.84   | 3.75   | 3.83   | 3.90   | 3.98   |
|              |      | Amps                            | 7.81   | 15.63  | 15.63  | 7.81   | 7.81   | 15.63  | 15.63  | 15.63  | 17.71  | 8.85   | 16.67  | 16.67  | 16.67  | 16.67  |
|              |      | Maximum Size of Fuse or Breaker | 15     | 25     | 25     | 15     | 15     | 25     | 25     | 25     | 20     | 15     | 20     | 20     | 20     | 20     |
| T181058      | Load | kVA                             | 1.88   | 3.56   | 3.72   | 3.75   | 3.81   | 7.19   | 7.34   | 7.50   | 4.21   | 3.68   | 7.50   | 7.67   | 7.80   | 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  |
|              |      | Maximum Size of Fuse or Breaker | 25     | 45     | 45     | 25     | 25     | 45     | 45     | 45     | 40     | 20     | 40     | 40     | 40     | 40     |
| T181059      | Load | kVA                             | 2.81   | 5.34   | 5.58   | 5.63   | 5.72   | 10.78  | 11.02  | 11.25  | 6.32   | 5.53   | 11.25  | 11.50  | 11.70  | 11.95  |
|              |      | Amps                            | 23.44  | 46.88  | 46.88  | 23.44  | 23.44  | 46.88  | 46.88  | 46.88  | 53.13  | 26.56  | 50.00  | 50.00  | 50.00  | 50.00  |
|              |      | Maximum Size of Fuse or Breaker | 40     | 70     | 70     | 40     | 40     | 70     | 70     | 70     | 60     | 30     | 60     | 60     | 60     | 60     |
| T113073      | Load | kVA                             | 3.75   | 7.13   | 7.44   | 7.50   | 7.63   | 14.38  | 14.69  | 15.00  | 8.43   | 7.37   | 15.00  | 15.33  | 15.60  | 15.93  |
|              |      | 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  |
|              |      | Maximum Size of Fuse or Breaker | 50     | 90     | 90     | 50     | 50     | 90     | 90     | 90     | 80     | 40     | 80     | 80     | 80     | 80     |
| T113074      | Load | kVA                             | 5.63   | 10.69  | 11.16  | 11.25  | 11.44  | 21.56  | 22.03  | 22.50  | 12.64  | 11.05  | 22.50  | 23.00  | 23.40  | 23.90  |
|              |      | Amps                            | 46.90  | 93.80  | 93.80  | 46.90  | 46.90  | 93.80  | 93.80  | 93.80  | 106.30 | 53.10  | 100.00 | 100.00 | 100.00 | 100.00 |
|              |      | Maximum Size of Fuse or Breaker | 80     | 150    | 150    | 70     | 70     | 125    | 125    | 125    | 125    | 60     | 125    | 125    | 125    | 125    |
| T113075      | Load | kVA                             | 7.50   | 14.25  | 14.88  | 15.00  | 15.25  | 28.75  | 29.38  | 30.00  | 16.86  | 14.73  | 30.00  | 30.67  | 31.20  | 31.87  |
|              |      | Amps                            | 62.50  | 125.00 | 125.00 | 62.50  | 62.50  | 125.00 | 125.00 | 125.00 | 141.70 | 70.80  | 133.30 | 133.30 | 133.30 | 133.30 |
|              |      | Maximum Size of Fuse or Breaker | 100    | 200    | 200    | 90     | 90     | 175    | 175    | 175    | 175    | 80     | 175    | 175    | 175    | 175    |
| T113076      | Load | kVA                             | 11.25  | 21.38  | 22.31  | 22.50  | 22.88  | 43.13  | 44.06  | 45.00  | 25.29  | 22.10  | 45.00  | 46.00  | 46.80  | 47.80  |
|              |      | Amps                            | 93.80  | 187.50 | 187.50 | 93.80  | 93.80  | 187.50 | 187.50 | 187.50 | 212.50 | 106.30 | 200.00 | 200.00 | 200.00 | 200.00 |
|              |      | Maximum Size of Fuse or Breaker | 150    | 300    | 300    | 150    | 150    | 250    | 250    | 250    | 250    | 125    | 250    | 250    | 250    | 250    |
| T113077      | Load | kVA                             | 18.75  | 35.63  | 37.19  | 37.50  | 38.13  | 71.88  | 73.44  | 75.00  | 42.15  | 36.83  | 75.00  | 76.67  | 78.00  | 79.67  |
|              |      | Amps                            | 156.30 | 312.50 | 312.50 | 156.30 | 156.30 | 312.50 | 312.50 | 312.50 | 354.20 | 177.10 | 333.30 | 333.30 | 333.30 | 333.30 |
|              |      | Maximum Size of Fuse or Breaker | 250    | 450    | 450    | 225    | 225    | 450    | 450    | 450    | 400    | 200    | 400    | 400    | 400    | 400    |
| T213078<br>① | Load | kVA                             | 28.10  | 53.40  | 55.80  | 56.30  | 57.20  | 107.80 | 110.20 | 112.50 | 63.20  | 55.30  | 112.50 | 115.00 | 117.00 | 119.50 |
|              |      | Amps                            | 234.40 | 468.80 | 468.80 | 234.40 | 234.40 | 468.80 | 468.80 | 468.80 | 531.30 | 265.60 | 500.00 | 500.00 | 500.00 | 500.00 |
|              |      | Maximum Size of Fuse or Breaker | 400    | 700    | 700    | 350    | 350    | 700    | 700    | 700    | 600    | 300    | 600    | 600    | 600    | 600    |
| T213079<br>① | Load | kVA                             | 37.50  | 71.30  | 74.40  | 75.00  | 76.30  | 143.80 | 146.90 | 150.00 | 84.30  | 73.70  | 150.00 | 153.30 | 156.00 | 159.30 |
|              |      | Amps                            | 312.50 | 625.00 | 625.00 | 312.50 | 312.50 | 625.00 | 625.00 | 625.00 | 708.30 | 354.20 | 666.70 | 666.70 | 666.70 | 666.70 |
|              |      | Maximum Size of Fuse or Breaker | 500    | 1000   | 1000   | 450    | 450    | 1000   | 1000   | 1000   | 800    | 400    | 800    | 800    | 800    | 800    |

See Page 17 for Connection Diagrams

D C C H H G G G F I E E E E

① See chart on page 16, for number of leads per termination.

NOTE: Inputs and Outputs may be reversed; kVA capacity remains constant. All applications above bold face line are suitable for 50/60 Hz. All applications below bold face line are suitable for 60 Hz only.

With larger kVA buck-boost units, it is necessary to utilize multiple conductors on the secondary (X) terminals as shown in the chart on page 16.

## Section 7 | Selection Charts



| Single Phase Application |      |                                 | Boosting                 |        |        |        |        |        |        |        |        |        | Bucking |        |        |        |     |     |     |
|--------------------------|------|---------------------------------|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|-----|-----|-----|
|                          |      |                                 | Line Voltage (Available) |        |        |        |        |        |        |        |        |        | 277     |        |        |        | 480 | 480 | 504 |
|                          |      |                                 | 230                      | 380    | 416    | 425    | 430    | 435    | 440    | 440    | 450    | 460    | 230     | 436    | 456    | 480    |     |     |     |
| Load Voltage (Output)    |      |                                 | 277                      | 420    | 457    | 467    | 473    | 457    | 462    | 484    | 472    | 483    |         |        |        |        |     |     |     |
| Catalog Number           |      |                                 |                          |        |        |        |        |        |        |        |        |        |         |        |        |        |     |     |     |
| T181061                  | Load | kVA                             | 0.29                     | 0.44   | 0.48   | 0.49   | 0.49   | 0.95   | 0.96   | 0.50   | 0.98   | 1.01   | 0.29    | 0.50   | 1.05   | 1.10   |     |     |     |
|                          |      | Amps                            | 1.04                     | 1.04   | 1.04   | 1.04   | 1.04   | 2.08   | 2.08   | 1.04   | 2.08   | 2.08   | 1.25    | 1.15   | 2.29   | 2.29   |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 3                        | 3      | 3      | 3      | 3      | 6      | 6      | 3      | 6      | 6      | 3       | 3      | 6      | 6      |     |     |     |
| T181062                  | Load | kVA                             | 0.58                     | 0.87   | 0.95   | 0.97   | 0.99   | 1.90   | 1.93   | 1.01   | 1.97   | 2.01   | 0.58    | 1.00   | 2.09   | 2.20   |     |     |     |
|                          |      | Amps                            | 2.08                     | 2.08   | 2.08   | 2.08   | 2.08   | 4.17   | 4.17   | 2.08   | 4.17   | 4.17   | 2.50    | 2.29   | 4.58   | 4.58   |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 6                        | 6      | 6      | 6      | 6      | 10     | 10     | 6      | 10     | 10     | 6       | 6      | 10     | 10     |     |     |     |
| T181063                  | Load | kVA                             | 0.87                     | 1.31   | 1.43   | 1.46   | 1.48   | 2.86   | 2.89   | 1.51   | 2.95   | 3.02   | 0.86    | 1.50   | 3.14   | 3.30   |     |     |     |
|                          |      | Amps                            | 3.13                     | 3.13   | 3.13   | 3.13   | 3.13   | 6.25   | 6.25   | 3.13   | 6.25   | 6.25   | 3.75    | 3.44   | 6.88   | 6.88   |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 10                       | 6      | 6      | 6      | 6      | 15     | 15     | 6      | 15     | 15     | 6       | 6      | 15     | 15     |     |     |     |
| T181064                  | Load | kVA                             | 1.44                     | 2.19   | 2.38   | 2.43   | 2.46   | 4.76   | 4.81   | 2.52   | 4.92   | 5.03   | 1.44    | 2.50   | 5.23   | 5.50   |     |     |     |
|                          |      | Amps                            | 5.21                     | 5.21   | 5.21   | 5.21   | 5.21   | 5.21   | 10.42  | 5.21   | 10.42  | 10.42  | 6.25    | 5.73   | 11.46  | 11.46  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 15                       | 10     | 10     | 10     | 10     | 15     | 15     | 10     | 15     | 15     | 10      | 10     | 15     | 15     |     |     |     |
| T181065                  | Load | kVA                             | 2.89                     | 4.38   | 4.76   | 4.86   | 4.93   | 9.52   | 9.62   | 5.04   | 9.83   | 10.06  | 2.88    | 5.00   | 10.45  | 11.00  |     |     |     |
|                          |      | Amps                            | 10.42                    | 10.42  | 10.42  | 10.42  | 10.42  | 20.83  | 20.83  | 10.42  | 20.83  | 20.83  | 12.50   | 11.46  | 22.92  | 22.92  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 20                       | 15     | 15     | 15     | 15     | 30     | 30     | 15     | 30     | 30     | 15      | 15     | 30     | 30     |     |     |     |
| T181066                  | Load | kVA                             | 4.33                     | 6.56   | 7.14   | 7.30   | 7.39   | 14.28  | 14.44  | 7.56   | 14.75  | 15.09  | 4.31    | 7.49   | 15.68  | 16.50  |     |     |     |
|                          |      | Amps                            | 15.63                    | 15.63  | 15.63  | 15.63  | 15.63  | 31.25  | 31.25  | 15.63  | 31.25  | 31.25  | 18.75   | 17.19  | 34.38  | 34.38  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 25                       | 25     | 25     | 25     | 25     | 45     | 45     | 25     | 45     | 45     | 20      | 20     | 45     | 45     |     |     |     |
| T137920                  | Load | kVA                             | 5.77                     | 8.57   | 9.52   | 9.73   | 9.85   | 19.04  | 19.25  | 10.08  | 19.67  | 20.13  | 5.75    | 9.99   | 20.90  | 22.00  |     |     |     |
|                          |      | Amps                            | 20.83                    | 20.83  | 20.83  | 20.83  | 20.83  | 41.67  | 41.67  | 20.83  | 41.67  | 41.67  | 25.00   | 22.92  | 45.83  | 45.83  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 35                       | 30     | 30     | 30     | 30     | 60     | 60     | 30     | 60     | 60     | 30      | 30     | 60     | 60     |     |     |     |
| T137921                  | Load | kVA                             | 8.66                     | 13.13  | 14.28  | 14.59  | 14.78  | 28.56  | 28.88  | 15.13  | 29.50  | 30.19  | 8.63    | 14.99  | 31.35  | 33.00  |     |     |     |
|                          |      | Amps                            | 31.25                    | 31.25  | 31.25  | 31.25  | 31.25  | 62.50  | 62.50  | 31.25  | 62.50  | 62.50  | 37.50   | 34.38  | 68.75  | 68.75  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 50                       | 50     | 45     | 45     | 45     | 90     | 90     | 45     | 90     | 90     | 40      | 40     | 90     | 90     |     |     |     |
| T137922                  | Load | kVA                             | 11.54                    | 17.50  | 19.04  | 19.46  | 19.71  | 38.08  | 38.50  | 20.17  | 39.33  | 40.25  | 11.50   | 19.98  | 41.80  | 44.00  |     |     |     |
|                          |      | Amps                            | 41.67                    | 41.67  | 41.67  | 41.67  | 41.67  | 83.33  | 83.33  | 41.67  | 83.33  | 83.33  | 50.00   | 45.83  | 91.67  | 91.67  |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 70                       | 60     | 60     | 60     | 60     | 110    | 110    | 60     | 110    | 110    | 60      | 60     | 110    | 110    |     |     |     |
| T137923                  | Load | kVA                             | 17.31                    | 26.25  | 28.56  | 29.19  | 29.56  | 57.13  | 57.75  | 30.25  | 59.00  | 60.38  | 17.25   | 29.98  | 62.70  | 66.00  |     |     |     |
|                          |      | Amps                            | 62.50                    | 62.50  | 62.50  | 62.50  | 62.50  | 125.00 | 125.00 | 62.50  | 125.00 | 125.00 | 75.00   | 68.80  | 137.50 | 137.50 |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 100                      | 90     | 90     | 90     | 90     | 175    | 175    | 90     | 175    | 175    | 80      | 80     | 175    | 175    |     |     |     |
| T137924                  | Load | kVA                             | 28.90                    | 43.80  | 47.60  | 48.60  | 49.30  | 95.20  | 96.20  | 50.40  | 98.30  | 100.60 | 28.80   | 50.00  | 104.50 | 110.00 |     |     |     |
|                          |      | Amps                            | 104.20                   | 104.20 | 104.20 | 104.20 | 104.20 | 208.30 | 208.30 | 104.20 | 208.30 | 208.30 | 125.00  | 114.60 | 229.20 | 229.20 |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 175                      | 150    | 150    | 150    | 150    | 300    | 300    | 150    | 300    | 300    | 150     | 150    | 300    | 300    |     |     |     |
| T243570①                 | Load | kVA                             | 43.30                    | 65.60  | 71.40  | 73.00  | 73.90  | 142.80 | 144.40 | 75.60  | 147.50 | 150.90 | 43.10   | 74.90  | 156.80 | 165.00 |     |     |     |
|                          |      | Amps                            | 156.30                   | 156.30 | 156.30 | 156.30 | 156.30 | 312.50 | 312.50 | 156.30 | 312.50 | 312.50 | 187.50  | 171.90 | 343.80 | 343.80 |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 250                      | 225    | 225    | 225    | 225    | 450    | 450    | 225    | 450    | 450    | 200     | 200    | 450    | 450    |     |     |     |
| T243571①                 | Load | kVA                             | 57.70                    | 87.50  | 95.20  | 97.30  | 98.50  | 190.40 | 192.50 | 100.80 | 196.70 | 201.30 | 57.50   | 99.90  | 209.00 | 220.00 |     |     |     |
|                          |      | Amps                            | 208.30                   | 208.30 | 208.30 | 208.30 | 208.30 | 416.70 | 416.70 | 208.30 | 416.70 | 416.70 | 250.00  | 229.20 | 458.30 | 458.30 |     |     |     |
|                          |      | Maximum Size of Fuse or Breaker | 350                      | 300    | 300    | 300    | 300    | 600    | 600    | 300    | 600    | 600    | 300     | 300    | 600    | 600    |     |     |     |

See Page 17 for Connection Diagrams

① See chart on page 16, for number of leads per termination.

NOTE: Inputs and Outputs may be reversed; kVA capacity remains constant. All applications above bold face line are suitable for 50/60 Hz. All applications below bold face line are suitable for 60 Hz only. With larger kVA buck-boost units, it is necessary to utilize multiple conductors on the secondary (X) terminals as shown in the chart on page 16.



### Three Phase Application

Line Voltage (Available)

Load Voltage (Output)

### Boosting

| 189Y<br>109 | 196Y<br>113 | 201Y<br>116 | 208Y<br>120 | 189 | 208 | 220 |
|-------------|-------------|-------------|-------------|-----|-----|-----|
| 208         | 234         | 240         | 230         | 208 | 230 | 242 |

### Bucking

| 219 | 230 | 250 | 255 | 264 |
|-----|-----|-----|-----|-----|
| 208 | 208 | 227 | 232 | 240 |

### Catalog Number

|           |      |                                 |        |        |        |        |        |        |        |
|-----------|------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|
| T181047   | Load | kVA                             | 1.50   | 0.84   | 0.87   | 1.66   | 0.75   | 0.83   | 0.87   |
|           |      | Amps                            | 4.17   | 2.08   | 2.08   | 4.17   | 2.08   | 2.08   | 2.08   |
|           |      | Maximum Size of Fuse or Breaker | 10     | 6      | 6      | 10     | 6      | 6      | 6      |
| T181048   | Load | kVA                             | 3.00   | 1.69   | 1.73   | 3.32   | 1.50   | 1.66   | 1.75   |
|           |      | Amps                            | 8.33   | 4.17   | 4.17   | 8.33   | 4.17   | 4.17   | 4.17   |
|           |      | Maximum Size of Fuse or Breaker | 15     | 10     | 10     | 15     | 10     | 10     | 10     |
| T181049   | Load | kVA                             | 4.50   | 2.53   | 2.60   | 4.98   | 2.25   | 2.49   | 2.62   |
|           |      | Amps                            | 12.50  | 6.25   | 6.25   | 12.50  | 6.25   | 6.25   | 6.25   |
|           |      | Maximum Size of Fuse or Breaker | 20     | 15     | 15     | 20     | 15     | 15     | 15     |
| T181050   | Load | kVA                             | 7.51   | 4.22   | 4.33   | 8.30   | 3.75   | 4.15   | 4.37   |
|           |      | Amps                            | 20.83  | 10.42  | 10.42  | 20.83  | 10.42  | 10.42  | 10.42  |
|           |      | Maximum Size of Fuse or Breaker | 30     | 20     | 20     | 30     | 15     | 15     | 15     |
| T181051   | Load | kVA                             | 15.01  | 8.44   | 8.66   | 16.60  | 7.51   | 8.30   | 8.73   |
|           |      | Amps                            | 41.67  | 20.83  | 20.83  | 41.67  | 20.83  | 20.83  | 20.83  |
|           |      | Maximum Size of Fuse or Breaker | 60     | 35     | 35     | 60     | 30     | 30     | 30     |
| T181052   | Load | kVA                             | 22.52  | 12.67  | 12.99  | 24.90  | 11.26  | 12.45  | 13.10  |
|           |      | Amps                            | 62.50  | 31.25  | 31.25  | 62.50  | 31.25  | 31.25  | 31.25  |
|           |      | Maximum Size of Fuse or Breaker | 90     | 50     | 50     | 90     | 45     | 45     | 45     |
| T111683   | Load | kVA                             | 30.02  | 16.89  | 17.32  | 33.20  | 15.01  | 16.60  | 17.46  |
|           |      | Amps                            | 83.33  | 41.67  | 41.67  | 83.33  | 41.67  | 41.67  | 41.67  |
|           |      | Maximum Size of Fuse or Breaker | 125    | 70     | 70     | 125    | 60     | 60     | 60     |
| T111684   | Load | kVA                             | 45.03  | 25.33  | 25.98  | 49.80  | 22.52  | 24.90  | 26.20  |
|           |      | Amps                            | 125.00 | 62.50  | 62.50  | 125.00 | 62.50  | 62.50  | 62.50  |
|           |      | Maximum Size of Fuse or Breaker | 175    | 100    | 100    | 175    | 90     | 90     | 90     |
| T111685   | Load | kVA                             | 60.04  | 33.77  | 34.64  | 66.40  | 30.02  | 33.20  | 34.93  |
|           |      | Amps                            | 166.67 | 83.33  | 83.33  | 167.67 | 83.33  | 83.33  | 83.33  |
|           |      | Maximum Size of Fuse or Breaker | 250    | 125    | 125    | 250    | 125    | 125    | 125    |
| T111686   | Load | kVA                             | 90.07  | 50.66  | 51.96  | 99.59  | 45.03  | 49.80  | 52.39  |
|           |      | Amps                            | 250.00 | 125.00 | 125.00 | 250.00 | 125.00 | 125.00 | 125.00 |
|           |      | Maximum Size of Fuse or Breaker | 350    | 200    | 200    | 350    | 175    | 175    | 175    |
| T111687   | Load | kVA                             | 150.11 | 84.44  | 86.60  | 165.99 | 75.06  | 82.99  | 87.32  |
|           |      | Amps                            | 416.67 | 208.33 | 208.33 | 416.67 | 208.33 | 208.33 | 208.33 |
|           |      | Maximum Size of Fuse or Breaker | 600    | 350    | 350    | 600    | 300    | 300    | 300    |
| T211688 ① | Load | kVA                             | 225.17 | 126.66 | 129.90 | 248.98 | 112.58 | 124.49 | 130.99 |
|           |      | Amps                            | 625.00 | 312.50 | 312.50 | 625.00 | 312.50 | 312.50 | 312.50 |
|           |      | Maximum Size of Fuse or Breaker | 1000   | 500    | 500    | 1000   | 450    | 450    | 450    |
| T211689 ① | Load | kVA                             | 300.22 | 168.87 | 173.21 | 331.98 | 150.11 | 165.99 | 174.65 |
|           |      | Amps                            | 833.33 | 416.67 | 416.67 | 833.33 | 416.67 | 416.67 | 416.67 |
|           |      | Maximum Size of Fuse or Breaker | 1200   | 700    | 700    | 1200   | 600    | 600    | 600    |

|        |        |        |        |        |
|--------|--------|--------|--------|--------|
| 1.58   | 0.83   | 0.90   | 0.92   | 0.95   |
| 4.39   | 2.30   | 2.29   | 2.29   | 2.29   |
| 10     | 6      | 6      | 6      | 6      |
| 3.16   | 1.66   | 1.80   | 1.84   | 1.91   |
| 8.77   | 4.61   | 4.59   | 4.58   | 4.58   |
| 15     | 10     | 10     | 10     | 10     |
| 4.74   | 2.49   | 2.71   | 2.76   | 2.86   |
| 13.16  | 6.91   | 6.88   | 6.87   | 6.88   |
| 20     | 15     | 15     | 15     | 15     |
| 7.90   | 4.15   | 4.51   | 4.60   | 4.76   |
| 21.94  | 11.52  | 11.47  | 11.45  | 11.46  |
| 30     | 15     | 15     | 15     | 15     |
| 15.80  | 8.30   | 9.02   | 9.20   | 9.53   |
| 43.87  | 23.04  | 22.94  | 22.90  | 22.92  |
| 60     | 30     | 30     | 30     | 30     |
| 23.71  | 12.45  | 13.53  | 13.80  | 14.29  |
| 65.81  | 34.56  | 34.42  | 34.35  | 34.38  |
| 80     | 40     | 40     | 40     | 40     |
| 31.61  | 16.60  | 18.04  | 18.40  | 19.05  |
| 87.74  | 46.07  | 45.89  | 45.80  | 45.83  |
| 110    | 60     | 60     | 60     | 60     |
| 47.41  | 24.90  | 27.06  | 27.60  | 28.58  |
| 131.61 | 69.11  | 68.83  | 68.70  | 68.75  |
| 175    | 80     | 80     | 80     | 80     |
| 63.22  | 33.20  | 36.08  | 36.81  | 38.11  |
| 175.48 | 92.15  | 91.78  | 91.59  | 91.67  |
| 225    | 110    | 110    | 110    | 110    |
| 94.83  | 49.80  | 54.13  | 55.21  | 57.16  |
| 263.22 | 138.22 | 137.67 | 137.39 | 137.50 |
| 350    | 175    | 175    | 175    | 175    |
| 158.05 | 82.99  | 90.21  | 92.02  | 95.26  |
| 438.70 | 230.37 | 229.44 | 228.99 | 229.17 |
| 600    | 300    | 300    | 300    | 300    |
| 237.07 | 124.49 | 135.32 | 138.02 | 142.89 |
| 658.05 | 345.55 | 344.16 | 343.48 | 343.75 |
| 800    | 400    | 400    | 400    | 400    |
| 316.10 | 165.99 | 180.42 | 184.03 | 190.53 |
| 877.40 | 460.74 | 458.88 | 457.97 | 458.33 |
| 1200   | 600    | 600    | 600    | 600    |

Quantity Required

3 3 3 3 2 2 2

2 2 2 2 2

See Page 17 for Connection Diagrams

A-A F-F F-F A-A B-B B-B B-B

C-C E-E E-E E-E E-E

① See chart on page 16, for number of leads per termination.



## Section 7 | Selection Charts



| Three Phase Application  |      |                                 | Boosting    |             |        |        |        |
|--------------------------|------|---------------------------------|-------------|-------------|--------|--------|--------|
| Line Voltage (Available) |      |                                 | 183Y<br>106 | 208Y<br>120 | 195    | 208    | 225    |
| Load Voltage (Output)    |      |                                 | 208         | 236         | 208    | 240    | 240    |
| Catalog Number           |      |                                 |             |             |        |        |        |
| T181054                  | Load | kVA                             | 1.13        | 1.28        | 1.13   | 0.63   | 1.30   |
|                          |      | Amps                            | 3.13        | 3.13        | 3.13   | 1.56   | 3.13   |
|                          |      | Maximum Size of Fuse or Breaker | 6           | 6           | 6      | 3      | 6      |
| T181055                  | Load | kVA                             | 2.25        | 2.55        | 2.25   | 1.27   | 2.60   |
|                          |      | Amps                            | 6.25        | 6.25        | 6.25   | 3.13   | 6.25   |
|                          |      | Maximum Size of Fuse or Breaker | 15          | 15          | 15     | 6      | 15     |
| T181056                  | Load | kVA                             | 3.38        | 3.83        | 3.38   | 1.90   | 3.90   |
|                          |      | Amps                            | 9.38        | 9.38        | 9.38   | 4.69   | 9.38   |
|                          |      | Maximum Size of Fuse or Breaker | 15          | 15          | 15     | 10     | 15     |
| T181057                  | Load | kVA                             | 5.63        | 6.39        | 5.63   | 3.17   | 6.50   |
|                          |      | Amps                            | 15.63       | 15.63       | 15.63  | 7.81   | 15.63  |
|                          |      | Maximum Size of Fuse or Breaker | 25          | 25          | 25     | 15     | 25     |
| T181058                  | Load | kVA                             | 11.26       | 12.77       | 11.26  | 6.33   | 12.99  |
|                          |      | Amps                            | 31.25       | 31.25       | 31.25  | 15.63  | 31.25  |
|                          |      | Maximum Size of Fuse or Breaker | 45          | 45          | 45     | 25     | 45     |
| T181059                  | Load | kVA                             | 16.89       | 19.16       | 16.89  | 9.50   | 19.49  |
|                          |      | Amps                            | 46.88       | 46.88       | 46.88  | 23.44  | 46.88  |
|                          |      | Maximum Size of Fuse or Breaker | 70          | 70          | 70     | 35     | 70     |
| T113073                  | Load | kVA                             | 22.52       | 25.55       | 22.52  | 12.67  | 25.98  |
|                          |      | Amps                            | 62.50       | 62.50       | 62.50  | 31.25  | 62.50  |
|                          |      | Maximum Size of Fuse or Breaker | 90          | 90          | 90     | 45     | 90     |
| T113074                  | Load | kVA                             | 33.77       | 38.32       | 33.77  | 19.00  | 38.97  |
|                          |      | Amps                            | 93.75       | 93.75       | 93.75  | 46.88  | 93.75  |
|                          |      | Maximum Size of Fuse or Breaker | 150         | 150         | 125    | 70     | 125    |
| T113075                  | Load | kVA                             | 45.03       | 51.10       | 45.03  | 25.33  | 51.96  |
|                          |      | Amps                            | 125.00      | 125.00      | 125.00 | 62.50  | 125.00 |
|                          |      | Maximum Size of Fuse or Breaker | 200         | 200         | 175    | 90     | 175    |
| T113076                  | Load | kVA                             | 67.55       | 76.64       | 67.55  | 38.00  | 77.94  |
|                          |      | Amps                            | 187.50      | 187.50      | 187.50 | 93.75  | 187.50 |
|                          |      | Maximum Size of Fuse or Breaker | 300         | 300         | 250    | 150    | 250    |
| T113077                  | Load | kVA                             | 112.58      | 127.74      | 112.58 | 63.33  | 129.90 |
|                          |      | Amps                            | 312.50      | 312.50      | 312.50 | 156.25 | 312.50 |
|                          |      | Maximum Size of Fuse or Breaker | 450         | 450         | 450    | 225    | 450    |
| T213078<br>①             | Load | kVA                             | 166.87      | 191.61      | 166.87 | 94.99  | 194.86 |
|                          |      | Amps                            | 468.75      | 468.75      | 468.75 | 234.38 | 468.75 |
|                          |      | Maximum Size of Fuse or Breaker | 700         | 700         | 700    | 350    | 700    |
| T213079<br>①             | Load | kVA                             | 225.17      | 255.48      | 225.17 | 126.66 | 259.81 |
|                          |      | Amps                            | 625.00      | 625.00      | 625.00 | 312.50 | 625.00 |
|                          |      | Maximum Size of Fuse or Breaker | 1000        | 1000        | 1000   | 450    | 1000   |

Quantity Required

3      3      2      2      2

See Page 17 for Connection Diagrams

A-A      A-A      G-G      B-B      G-G

① See chart on page 16, for number of leads per termination.

| Bucking |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| 240     | 245    | 250    | 256    | 265    | 272    |
| 208     | 230    | 234    | 240    | 234    | 240    |
| 0.56    | 1.33   | 1.35   | 1.39   | 0.72   | 0.74   |
| 1.56    | 3.33   | 3.34   | 3.33   | 1.77   | 1.77   |
| 3       | 6      | 6      | 6      | 3      | 3      |
| 1.13    | 2.65   | 2.71   | 2.77   | 1.43   | 1.47   |
| 3.13    | 6.66   | 6.68   | 6.67   | 3.54   | 3.54   |
| 6       | 15     | 15     | 15     | 6      | 6      |
| 1.69    | 3.98   | 4.06   | 4.16   | 2.15   | 2.21   |
| 4.69    | 9.99   | 10.02  | 10.00  | 5.31   | 5.31   |
| 10      | 15     | 15     | 15     | 10     | 10     |
| 2.81    | 6.63   | 6.77   | 6.93   | 3.59   | 3.68   |
| 7.81    | 16.64  | 16.69  | 16.67  | 8.85   | 8.85   |
| 15      | 20     | 20     | 20     | 15     | 15     |
| 5.63    | 13.26  | 13.53  | 13.86  | 7.17   | 7.36   |
| 15.63   | 33.29  | 33.39  | 33.33  | 17.69  | 17.71  |
| 20      | 40     | 40     | 40     | 20     | 20     |
| 8.44    | 19.89  | 20.30  | 20.78  | 10.76  | 11.04  |
| 23.44   | 49.93  | 50.08  | 50.00  | 26.54  | 26.56  |
| 30      | 60     | 60     | 60     | 30     | 30     |
| 11.26   | 26.52  | 27.06  | 27.71  | 14.34  | 14.72  |
| 31.25   | 66.58  | 66.67  | 66.67  | 35.39  | 35.42  |
| 35      | 80     | 80     | 80     | 40     | 40     |
| 16.89   | 39.87  | 40.59  | 41.57  | 21.52  | 22.08  |
| 46.88   | 99.86  | 100.16 | 100.00 | 53.08  | 53.13  |
| 60      | 125    | 125    | 125    | 60     | 60     |
| 22.52   | 53.04  | 54.13  | 55.43  | 28.69  | 29.44  |
| 62.50   | 133.15 | 133.55 | 133.33 | 70.78  | 70.83  |
| 70      | 175    | 175    | 175    | 80     | 80     |
| 33.77   | 79.57  | 81.19  | 83.14  | 43.03  | 44.17  |
| 93.75   | 199.73 | 200.32 | 200.00 | 106.17 | 106.25 |
| 110     | 250    | 250    | 250    | 125    | 125    |
| 56.29   | 132.61 | 135.32 | 138.56 | 71.72  | 73.50  |
| 156.25  | 332.88 | 333.87 | 333.33 | 176.95 | 176.80 |
| 175     | 400    | 400    | 400    | 200    | 200    |
| 84.44   | 198.92 | 202.97 | 207.85 | 107.58 | 110.42 |
| 234.38  | 499.32 | 500.80 | 500.00 | 265.42 | 265.63 |
| 300     | 600    | 600    | 600    | 300    | 300    |
| 112.58  | 265.22 | 270.63 | 277.13 | 143.44 | 147.22 |
| 312.50  | 665.76 | 667.74 | 666.67 | 353.90 | 354.17 |
| 350     | 800    | 800    | 800    | 400    | 400    |

2      2      2      2      2      2

D-D      C-C      C-C      C-C      E-E      E-E





### Three Phase Application

Line Voltage (Available)

Load Voltage (Output)

| Boosting    |     |     |     |     |     |     |     |  |
|-------------|-----|-----|-----|-----|-----|-----|-----|--|
| 399Y<br>230 | 380 | 430 | 440 | 460 | 460 | 480 | 480 |  |
| 480Y<br>277 | 420 | 473 | 462 | 506 | 483 | 528 | 504 |  |

| Bucking |     |     |     |     |     |     |     |
|---------|-----|-----|-----|-----|-----|-----|-----|
| 440     | 440 | 460 | 460 | 480 | 480 | 500 | 500 |
| 400     | 419 | 438 | 418 | 457 | 436 | 455 | 477 |

| Catalog Number    |      |                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------------------|------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| T181061           | Load | kVA                             | 0.86   | 0.76   | 0.85   | 1.66   | 0.91   | 1.74   | 0.95   | 1.82   | 0.79   | 1.58   | 1.66   | 0.83   | 1.73   | 0.86   | 0.90   | 1.80   |
|                   |      | Amps                            | 1.04   | 1.04   | 1.04   | 2.08   | 1.04   | 2.08   | 1.04   | 2.08   | 1.14   | 2.18   | 2.18   | 1.14   | 2.18   | 1.14   | 1.14   | 2.18   |
|                   |      | Maximum Size of Fuse or Breaker | 3      | 3      | 3      | 6      | 3      | 6      | 3      | 6      | 3      | 6      | 6      | 3      | 6      | 3      | 3      | 6      |
| T181062           | Load | kVA                             | 1.73   | 1.51   | 1.70   | 3.33   | 1.82   | 3.48   | 1.90   | 3.63   | 1.59   | 3.17   | 3.31   | 1.66   | 3.46   | 1.73   | 1.80   | 3.61   |
|                   |      | Amps                            | 2.08   | 2.08   | 2.08   | 4.16   | 2.08   | 4.16   | 2.08   | 4.16   | 2.29   | 4.37   | 4.37   | 2.29   | 4.37   | 2.29   | 2.29   | 4.37   |
|                   |      | Maximum Size of Fuse or Breaker | 6      | 6      | 6      | 10     | 6      | 10     | 6      | 10     | 6      | 10     | 10     | 6      | 10     | 6      | 6      | 10     |
| T181063           | Load | kVA                             | 2.60   | 2.27   | 2.56   | 4.99   | 2.73   | 5.22   | 2.85   | 5.45   | 2.38   | 4.75   | 4.97   | 2.48   | 5.19   | 2.59   | 2.70   | 5.41   |
|                   |      | Amps                            | 3.12   | 3.12   | 3.12   | 6.24   | 3.12   | 6.25   | 3.12   | 6.24   | 3.43   | 6.55   | 6.55   | 3.43   | 6.55   | 3.43   | 3.43   | 6.55   |
|                   |      | Maximum Size of Fuse or Breaker | 10     | 6      | 6      | 15     | 6      | 15     | 6      | 15     | 6      | 15     | 15     | 6      | 15     | 6      | 6      | 15     |
| T181064           | Load | kVA                             | 4.33   | 3.78   | 4.26   | 8.32   | 4.56   | 8.70   | 4.76   | 9.08   | 3.96   | 7.92   | 8.28   | 4.14   | 8.64   | 4.32   | 4.51   | 9.02   |
|                   |      | Amps                            | 5.20   | 5.20   | 5.20   | 10.40  | 5.20   | 10.40  | 5.20   | 10.40  | 5.72   | 10.92  | 10.92  | 5.72   | 10.92  | 5.72   | 5.72   | 10.92  |
|                   |      | Maximum Size of Fuse or Breaker | 15     | 10     | 10     | 15     | 10     | 15     | 10     | 15     | 10     | 15     | 15     | 10     | 15     | 10     | 10     | 15     |
| T181065           | Load | kVA                             | 8.60   | 7.56   | 8.52   | 16.64  | 9.11   | 17.40  | 9.51   | 18.16  | 7.93   | 15.85  | 16.57  | 8.28   | 17.29  | 8.64   | 9.02   | 18.04  |
|                   |      | Amps                            | 10.40  | 10.40  | 10.40  | 20.80  | 10.40  | 20.80  | 10.40  | 20.80  | 11.44  | 21.84  | 21.84  | 11.44  | 21.84  | 11.44  | 11.44  | 21.84  |
|                   |      | Maximum Size of Fuse or Breaker | 20     | 15     | 15     | 30     | 15     | 30     | 15     | 30     | 15     | 30     | 30     | 15     | 30     | 15     | 15     | 30     |
| T181066           | Load | kVA                             | 12.90  | 11.34  | 12.77  | 24.97  | 13.67  | 26.10  | 14.27  | 27.24  | 11.89  | 23.77  | 24.85  | 12.42  | 25.93  | 12.96  | 13.52  | 27.07  |
|                   |      | Amps                            | 15.60  | 15.60  | 15.60  | 31.20  | 15.60  | 31.20  | 15.60  | 31.20  | 17.16  | 32.76  | 32.76  | 17.16  | 32.76  | 17.16  | 17.16  | 32.76  |
|                   |      | Maximum Size of Fuse or Breaker | 25     | 25     | 25     | 45     | 25     | 45     | 25     | 45     | 20     | 40     | 40     | 20     | 40     | 20     | 20     | 40     |
| T137920           | Load | kVA                             | 17.30  | 15.12  | 17.03  | 33.29  | 18.23  | 34.80  | 19.02  | 36.31  | 15.85  | 31.70  | 33.14  | 16.57  | 34.57  | 17.28  | 18.03  | 36.09  |
|                   |      | Amps                            | 20.80  | 20.80  | 20.80  | 41.60  | 20.80  | 41.60  | 20.80  | 41.60  | 22.88  | 43.68  | 43.68  | 22.88  | 43.68  | 22.88  | 22.88  | 43.68  |
|                   |      | Maximum Size of Fuse or Breaker | 35     | 30     | 30     | 60     | 30     | 60     | 30     | 60     | 30     | 60     | 60     | 30     | 60     | 30     | 30     | 60     |
| T137921           | Load | kVA                             | 25.90  | 22.69  | 25.55  | 49.93  | 27.34  | 52.20  | 28.53  | 54.47  | 23.78  | 47.55  | 49.71  | 24.85  | 51.86  | 25.92  | 27.05  | 54.13  |
|                   |      | Amps                            | 31.20  | 31.20  | 31.20  | 62.40  | 31.20  | 62.40  | 31.20  | 62.40  | 34.32  | 65.52  | 65.52  | 34.32  | 65.52  | 34.32  | 34.32  | 65.52  |
|                   |      | Maximum Size of Fuse or Breaker | 50     | 45     | 45     | 90     | 45     | 90     | 45     | 90     | 40     | 80     | 80     | 40     | 80     | 40     | 40     | 80     |
| T137922           | Load | kVA                             | 34.60  | 30.25  | 34.07  | 66.58  | 36.46  | 69.60  | 38.04  | 72.63  | 31.70  | 63.40  | 66.27  | 33.13  | 69.15  | 34.56  | 36.06  | 72.18  |
|                   |      | Amps                            | 41.60  | 41.60  | 41.60  | 83.20  | 41.60  | 83.20  | 41.60  | 83.20  | 45.76  | 87.36  | 87.36  | 45.76  | 87.36  | 45.76  | 45.76  | 87.36  |
|                   |      | Maximum Size of Fuse or Breaker | 70     | 60     | 60     | 110    | 60     | 110    | 60     | 110    | 60     | 110    | 110    | 60     | 110    | 60     | 60     | 110    |
| T137923           | Load | kVA                             | 52.00  | 45.45  | 51.18  | 100.03 | 54.69  | 104.57 | 57.07  | 109.12 | 47.63  | 95.25  | 99.57  | 49.77  | 103.89 | 51.92  | 54.18  | 108.44 |
|                   |      | Amps                            | 62.50  | 62.50  | 62.50  | 125.00 | 62.50  | 125.00 | 62.50  | 125.00 | 68.75  | 131.25 | 131.25 | 68.75  | 131.25 | 68.75  | 68.75  | 131.25 |
|                   |      | Maximum Size of Fuse or Breaker | 100    | 90     | 90     | 175    | 90     | 175    | 90     | 175    | 80     | 175    | 175    | 80     | 175    | 80     | 80     | 175    |
| T137924           | Load | kVA                             | 86.10  | 75.62  | 85.17  | 166.44 | 91.15  | 174.01 | 95.11  | 181.57 | 79.26  | 158.50 | 165.69 | 82.83  | 172.87 | 86.39  | 90.16  | 180.44 |
|                   |      | Amps                            | 104.00 | 104.00 | 104.00 | 208.00 | 104.00 | 208.00 | 104.00 | 208.00 | 114.40 | 218.40 | 218.40 | 114.40 | 218.40 | 114.40 | 114.40 | 218.40 |
|                   |      | Maximum Size of Fuse or Breaker | 175    | 150    | 150    | 300    | 150    | 300    | 150    | 300    | 150    | 300    | 300    | 150    | 300    | 150    | 150    | 300    |
| T243570           | Load | kVA                             | 129.30 | 113.43 | 127.75 | 249.66 | 136.72 | 261.01 | 142.67 | 272.36 | 118.89 | 237.75 | 248.53 | 124.24 | 259.31 | 129.59 | 135.23 | 270.66 |
|                   |      | Amps                            | 156.00 | 156.00 | 156.00 | 312.00 | 156.00 | 312.00 | 156.00 | 312.00 | 171.60 | 327.60 | 327.60 | 171.60 | 327.60 | 171.60 | 171.60 | 327.60 |
|                   |      | Maximum Size of Fuse or Breaker | 250    | 225    | 225    | 450    | 225    | 450    | 225    | 450    | 200    | 400    | 400    | 200    | 400    | 200    | 200    | 400    |
| T243571<br>①      | Load | kVA                             | 173.10 | 151.25 | 170.33 | 332.89 | 182.29 | 348.02 | 190.22 | 363.15 | 158.52 | 317.00 | 331.37 | 165.65 | 345.75 | 172.78 | 180.31 | 360.88 |
|                   |      | Amps                            | 208.00 | 208.00 | 208.00 | 416.00 | 208.00 | 416.00 | 208.00 | 416.00 | 228.80 | 436.80 | 436.80 | 228.80 | 436.80 | 228.80 | 228.80 | 436.80 |
|                   |      | Maximum Size of Fuse or Breaker | 350    | 300    | 300    | 600    | 300    | 600    | 300    | 600    | 300    | 600    | 600    | 300    | 600    | 300    | 300    | 600    |
| Quantity Required |      | 3                               | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      |

① See chart on page 16, for number of leads per termination.

NOTE: (1) Inputs and Outputs may be reversed; kVA capacity remains constant. All applications above bold face line are suitable for 50/60 Hz. All applications below bold face line are suitable for 60 Hz only. (2) Connection Diagrams A-A and F-F cannot be reverse connected.



### SPECIFICATIONS ① - SINGLE PHASE

#### 120 X 240 PRIMARY VOLTS — 12/24 SECONDARY VOLTS — 60 Hz

| Catalog Number | Insulating Transformer Rating | Secondary Maximum Current Output |        | Height (Inches)(Cm.) | Width (Inches)(Cm.) | Depth (Inches)(Cm.) | Weight (Lbs.)(Kg.) | Dimensional Drawings |
|----------------|-------------------------------|----------------------------------|--------|----------------------|---------------------|---------------------|--------------------|----------------------|
|                |                               | 12 V                             | 24 V   |                      |                     |                     |                    |                      |
| T181047        | 0.05 kVA                      | 4.16                             | 2.08   | 6.41 (16.3)          | 3.14 (8.0)          | 3.05 (7.7)          | 4 (1.8)            | A                    |
| T181048        | 0.10 kVA                      | 8.32                             | 4.16   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 5 (2.3)            | A                    |
| T181049        | 0.15 kVA                      | 12.52                            | 6.25   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 7 (3.2)            | A                    |
| T181050        | 0.25 kVA                      | 20.80                            | 10.40  | 8.68 (22.0)          | 4.08 (10.4)         | 3.88 (9.9)          | 10 (4.5)           | B                    |
| T181051        | 0.50 kVA                      | 41.60                            | 20.80  | 9.06 (23.0)          | 4.37 (11.1)         | 4.20 (10.7)         | 15 (6.8)           | B                    |
| T181052        | 0.75 kVA                      | 62.50                            | 31.25  | 9.68 (24.6)          | 4.75 (12.1)         | 4.51 (11.5)         | 19 (8.6)           | B                    |
| T111683        | 1.00 kVA                      | 83.20                            | 41.60  | 10.50 (26.7)         | 5.50 (14.0)         | 5.13 (13.0)         | 24 (10.9)          | B                    |
| T111684        | 1.50 kVA                      | 125.00                           | 62.50  | 11.62 (29.5)         | 5.50 (14.0)         | 5.13 (13.0)         | 30 (13.6)          | B                    |
| T111685        | 2.00 kVA                      | 166.00                           | 83.20  | 13.00 (33.0)         | 5.50 (14.0)         | 5.13 (13.0)         | 38 (17.2)          | B                    |
| T111686        | 3.00 kVA                      | 250.00                           | 125.00 | 11.50 (29.2)         | 10.31 (26.2)        | 7.13 (18.1)         | 55 (24.9)          | C                    |
| T111687        | 5.00 kVA                      | 416.60                           | 208.00 | 14.38 (36.5)         | 10.31 (26.2)        | 7.13 (18.1)         | 75 (34.0)          | C                    |
| T211688        | 7.50 kVA                      | 625.00                           | 312.50 | 20.81 (52.9)         | 11.12 (28.2)        | 10.84 (27.5)        | 125 (56.7)         | D                    |
| T211689        | 10.00 kVA                     | 833.00                           | 416.60 | 20.81 (52.9)         | 11.75 (29.8)        | 11.59 (29.4)        | 160 (72.6)         | D                    |

#### 120 X 240 PRIMARY VOLTS — 16/32 SECONDARY VOLTS — 60 Hz

| Catalog Number | Insulating Transformer Rating | Secondary Maximum Current Output |        | Height (Inches)(Cm.) | Width (Inches)(Cm.) | Depth (Inches)(Cm.) | Weight (Lbs.)(Kg.) | Dimensional Drawings |
|----------------|-------------------------------|----------------------------------|--------|----------------------|---------------------|---------------------|--------------------|----------------------|
|                |                               | 16 V                             | 32 V   |                      |                     |                     |                    |                      |
| T181054        | 0.05 kVA                      | 3.12                             | 1.56   | 6.41 (16.3)          | 3.14 (8.0)          | 3.05 (7.7)          | 4 (1.8)            | A                    |
| T181055        | 0.10 kVA                      | 6.25                             | 3.12   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 5 (2.3)            | A                    |
| T181056        | 0.15 kVA                      | 9.38                             | 4.69   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 7 (3.2)            | A                    |
| T181057        | 0.25 kVA                      | 15.60                            | 7.80   | 8.68 (22.0)          | 4.08 (10.4)         | 3.88 (9.9)          | 10 (4.5)           | B                    |
| T181058        | 0.50 kVA                      | 31.20                            | 15.60  | 9.06 (23.0)          | 4.37 (11.1)         | 4.20 (10.7)         | 15 (6.8)           | B                    |
| T181059        | 0.75 kVA                      | 46.90                            | 23.40  | 9.68 (24.6)          | 4.75 (12.1)         | 4.51 (11.5)         | 19 (8.6)           | B                    |
| T113073        | 1.00 kVA                      | 62.50                            | 31.20  | 10.50 (26.7)         | 5.50 (14.0)         | 5.13 (13.0)         | 24 (10.9)          | B                    |
| T113074        | 1.50 kVA                      | 93.70                            | 46.90  | 11.62 (29.5)         | 5.50 (14.0)         | 5.13 (13.0)         | 30 (13.6)          | B                    |
| T113075        | 2.00 kVA                      | 125.00                           | 62.50  | 13.00 (33.0)         | 5.50 (14.0)         | 5.13 (13.0)         | 38 (17.2)          | B                    |
| T113076        | 3.00 kVA                      | 187.50                           | 93.80  | 11.50 (29.2)         | 10.31 (26.2)        | 7.13 (18.1)         | 55 (24.9)          | C                    |
| T113077        | 5.00 kVA                      | 312.00                           | 156.00 | 14.38 (36.5)         | 10.31 (26.2)        | 7.13 (18.1)         | 75 (34.0)          | C                    |
| T213078        | 7.50 kVA                      | 468.00                           | 234.00 | 20.81 (52.9)         | 11.12 (28.2)        | 10.84 (27.5)        | 125 (56.7)         | D                    |
| T213079        | 10.00 kVA                     | 625.00                           | 312.00 | 20.81 (52.9)         | 11.75 (29.8)        | 10.84 (27.5)        | 160 (72.6)         | D                    |

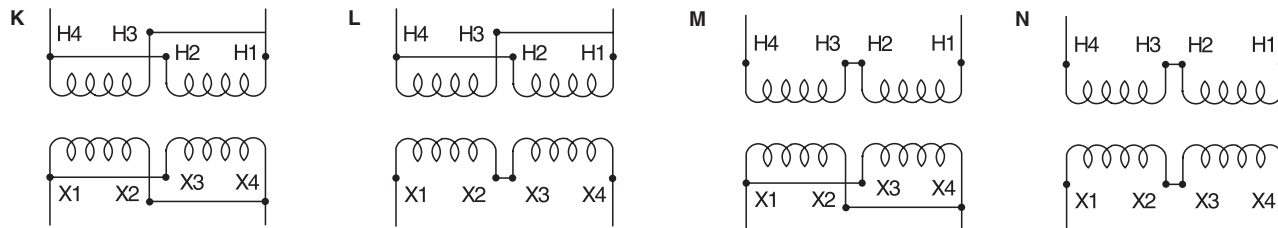
① All units have ground studs for use with non-metallic conduit. All sizes of 0.75 kVA and less are suitable for 50/60 Hertz. Additional field wiring box may be required when using units as autotransformers. Dimensional Drawings page 16.



### 240 X 480 PRIMARY VOLTS — 24/48 SECONDARY VOLTS — 60 Hz

| Catalog Number | Insulating Transformer Rating | Secondary Maximum Current Output |        | Height (Inches)(Cm.) | Width (Inches)(Cm.) | Depth (Inches)(Cm.) | Weight (Lbs.)(Kg.) | Dimensional Drawings |
|----------------|-------------------------------|----------------------------------|--------|----------------------|---------------------|---------------------|--------------------|----------------------|
|                |                               | 24 V                             | 48 V   |                      |                     |                     |                    |                      |
| T181061        | 0.05 kVA                      | 2.08                             | 1.04   | 6.41 (16.3)          | 3.14 (8.0)          | 3.05 (7.7)          | 4 (1.8)            | A                    |
| T181062        | 0.10 kVA                      | 4.16                             | 2.08   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 5 (2.3)            | A                    |
| T181063        | 0.15 kVA                      | 6.24                             | 3.12   | 7.16 (18.2)          | 3.89 (9.9)          | 3.67 (9.3)          | 7 (3.2)            | A                    |
| T181064        | 0.25 kVA                      | 10.40                            | 5.20   | 8.68 (22.0)          | 4.08 (10.4)         | 3.88 (9.9)          | 10 (4.5)           | B                    |
| T181065        | 0.50 kVA                      | 20.80                            | 10.40  | 9.06 (23.0)          | 4.37 (11.1)         | 4.20 (10.7)         | 15 (6.8)           | B                    |
| T181066        | 0.75 kVA                      | 31.20                            | 15.60  | 9.68 (24.6)          | 4.75 (12.1)         | 4.51 (11.5)         | 19 (8.6)           | B                    |
| T137920        | 1.00 kVA                      | 41.60                            | 20.80  | 10.50 (26.7)         | 5.50 (14.0)         | 5.13 (13.0)         | 24 (10.9)          | B                    |
| T137921        | 1.50 kVA                      | 62.40                            | 31.20  | 11.62 (29.5)         | 5.50 (14.0)         | 5.13 (13.0)         | 30 (13.6)          | B                    |
| T137922        | 2.00 kVA                      | 83.20                            | 41.60  | 13.00 (33.0)         | 5.50 (14.0)         | 5.13 (13.0)         | 38 (17.2)          | B                    |
| T137923        | 3.00 kVA                      | 125.00                           | 62.50  | 11.50 (29.2)         | 10.31 (26.2)        | 7.13 (18.1)         | 55 (24.9)          | C                    |
| T137924        | 5.00 kVA                      | 208.00                           | 104.00 | 14.38 (36.5)         | 10.31 (26.2)        | 7.13 (18.1)         | 75 (34.0)          | C                    |
| T243570        | 7.50 kVA                      | 312.00                           | 156.00 | 20.81 (52.9)         | 11.12 (28.2)        | 10.84 (27.5)        | 135 (61.2)         | D                    |
| T243571        | 10.00 kVA                     | 416.00                           | 208.00 | 20.81 (52.9)         | 11.75 (29.8)        | 11.59 (29.4)        | 160 (72.6)         | D                    |

### LOW VOLTAGE LIGHTING WIRING DIAGRAMS



#### Units Rated 120 x 240 V Input: 12/24 V Output

| Input | Output | Connection Diagram |
|-------|--------|--------------------|
| 120   | 12     | K                  |
| 120   | 24     | L                  |
| 240   | 12     | M                  |
| 240   | 24     | N                  |

#### Units Rated 120 x 240 V Input: 16/32 V Output

| Input | Output | Connection Diagram |
|-------|--------|--------------------|
| 120   | 16     | K                  |
| 120   | 32     | L                  |
| 240   | 16     | M                  |
| 240   | 32     | N                  |

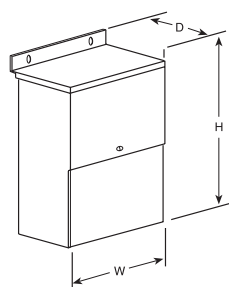
#### Units Rated 240 x 480 V Input: 24/48 V Output

| Input | Output | Connection Diagram |
|-------|--------|--------------------|
| 240   | 24     | K                  |
| 240   | 48     | L                  |
| 480   | 24     | M                  |
| 480   | 48     | N                  |

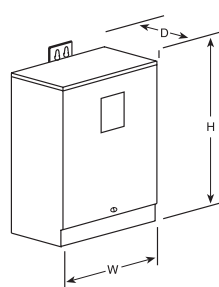
#### Number of Leads per Termination

|         | H1 | H2 | H3 | H4 | X1 | X2 | X3 | X4 |
|---------|----|----|----|----|----|----|----|----|
| T213078 | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 2  |
| T213079 | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 2  |
| T243571 | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 2  |
| T211688 | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 2  |
| T211689 | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 2  |

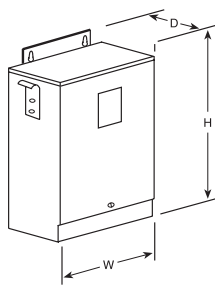
### BUCK-BOOST DIMENSIONAL DRAWINGS - SINGLE PHASE



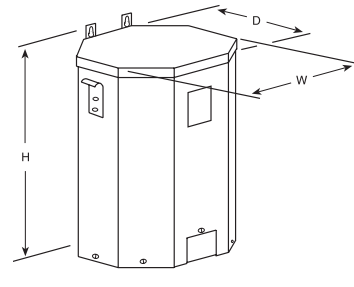
Design A



Design B



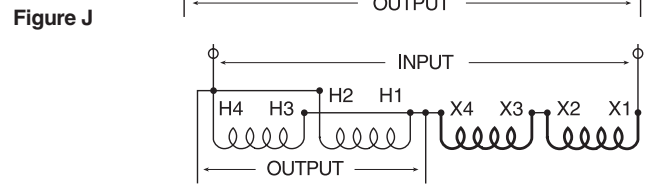
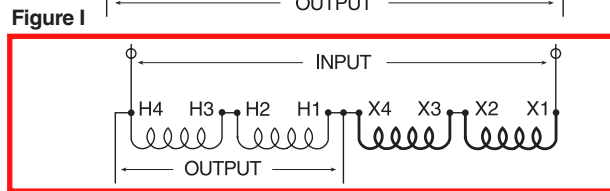
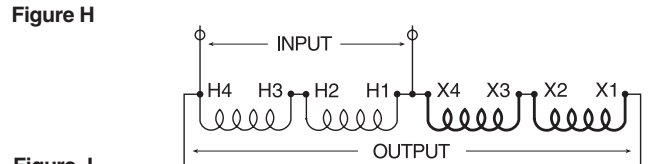
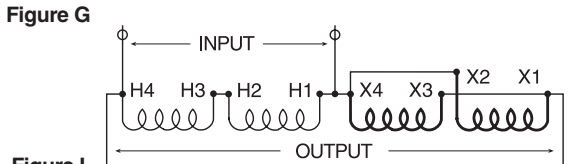
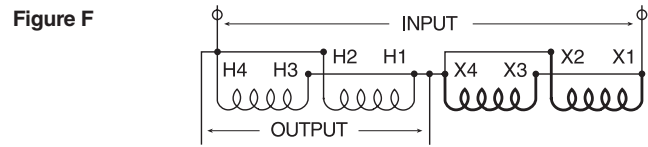
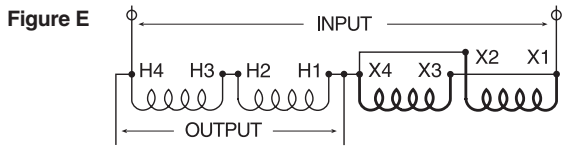
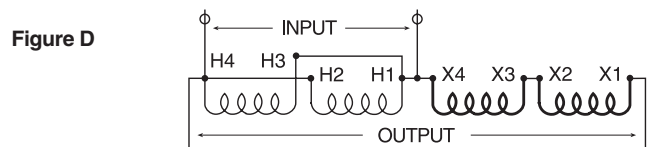
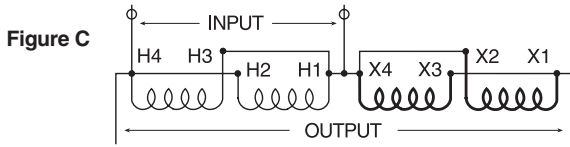
Design C



Design D

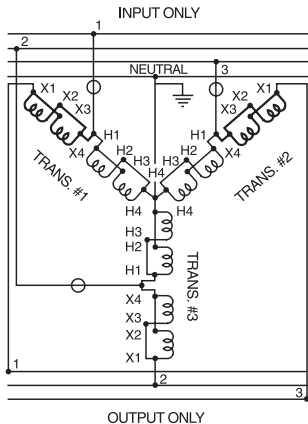
## Section 7 | Wiring Diagrams

### BUCK-BOOST WIRING DIAGRAMS ① - SINGLE PHASE

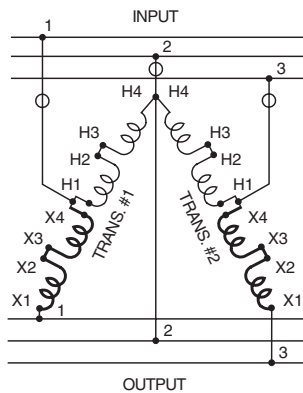


① The symbol O used in these connection diagrams indicates where to field install the over-current protective device, typically a fuse or circuit breaker.

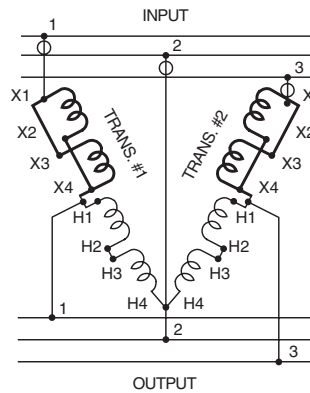
### BUCK-BOOST WIRING DIAGRAMS ① - SINGLE PHASE FOR THREE PHASE APPLICATIONS



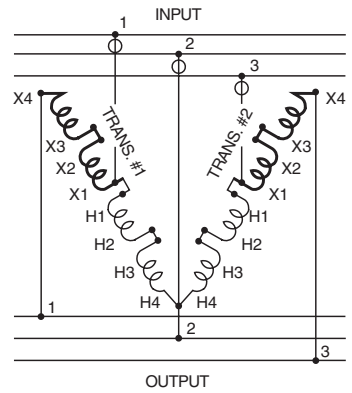
WYE



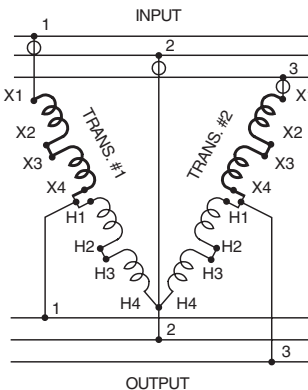
OPEN DELTA



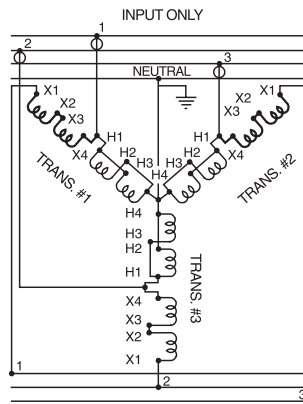
OPEN DELTA



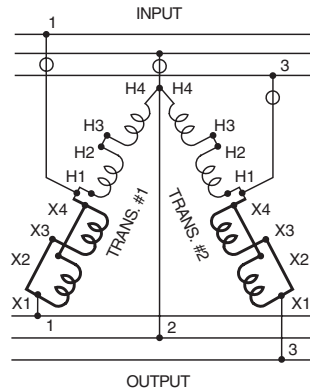
OPEN DELTA



OPEN DELTA



WYE



OPEN DELTA

① The symbol O used in these connection diagrams indicates where to field install the over-current protective device, typically a fuse or circuit breaker.

② Cannot be reverse connected.

**IMPORTANT: Refer to the N.E.C. (National Electrical Code) Article 450-4 for overcurrent protection of an autotransformer. These connection diagrams are packed with each buck-boost transformer. Do not use connections other than those shown above.**

### THREE PHASE BUCK-BOOST

Buck Boost transformers are the ideal solution anytime a line voltage change in the 5-15% range is required in single phase or three phase applications.

Until now, three phase applications required multiple separate single phase Buck Boost Transformers to be wired and mounted together. Acme Electric's **NEW 3 Phase Auto Buck Boost Transformers** remove the need for multiple separate units and provide the same great electrical advantages standard Buck Boost Transformers offer in one simple and convenient package.

**Acme Electric's NEW 3 Phase Auto Buck Boost Transformers** are the best economical solutions available for three phase applications, requiring only one transformer and reducing the overall footprint. Additionally, the transformers are assembled and prewired at the factory, a considerable time and installation cost savings.

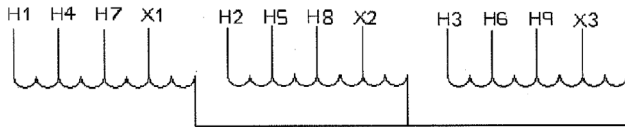
Acme Electric's **NEW 3 Phase Auto Buck Boost Transformers** are UL Listed with a 10 year warranty and are currently being offered in Type 3R enclosures.



#### 240 PRIMARY VOLTS — 208 SECONDARY VOLTS

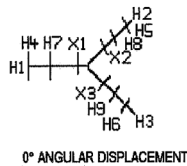
| kVA   | Catalog Number | Height<br>(Inches)(Cm.) | Width<br>(Inches)(Cm.) | Depth<br>(Inches)(Cm.) | Weight<br>(Lbs.)(Kg.) | Dimensional Drawing |
|-------|----------------|-------------------------|------------------------|------------------------|-----------------------|---------------------|
| 6     | A3006K0310B    | 10.38(26.4)             | 12.37(31.4)            | 7.47(19.0)             | 75(34.0)              | F                   |
| 9     | A3009K0310B    | 10.38(26.4)             | 12.37(31.4)            | 7.47(19.0)             | 85(38.6)              | F                   |
| 15    | A3015K0310B    | 15.21(38.6)             | 19.25(48.9)            | 7.37(18.7)             | 180(81.6)             | F                   |
| 30    | A3030K0310B    | 15.21(38.6)             | 19.25(48.9)            | 7.37(18.7)             | 180(81.6)             | F                   |
| 45    | A3045K0310B    | 15.21(38.6)             | 19.25(48.9)            | 7.37(18.7)             | 180(81.6)             | F                   |
| 75    | A3075K0310B    | 24.81(63.0)             | 27.13(68.9)            | 11.14(28.3)            | 300(136.0)            | I                   |
| 112.5 | A3112K0310B    | 25.50(64.8)             | 24.39(61.9)            | 19.37(49.2)            | 375(170.0)            | E                   |
| 150   | A3150K0310B    | 25.50(64.8)             | 24.39(61.9)            | 19.37(49.2)            | 450(204.0)            | E                   |

### CONNECTION DIAGRAM

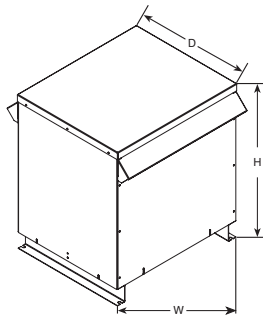


| PRIMARY VOLTS | %   | CONNECT LEADS TO TAP NO. |
|---------------|-----|--------------------------|
| 252           | 105 | H1-H2-H3                 |
| 240           | 100 | H4-H5-H6                 |
| 228           | 95  | H7-H8-H9                 |

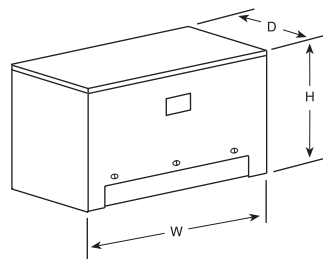
SECONDARY LINES TO X1-X2-X3



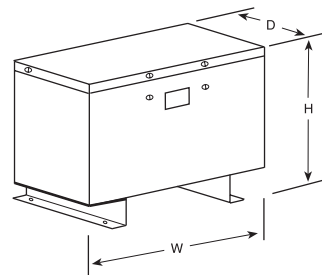
### BUCK-BOOST DIMENSIONAL DRAWINGS - THREE PHASE



Design E



Design F



Design I

# Warranty Certificate

## Acme Electric 10-Year Limited\* Warranty

Acme Electric (Acme) warrants to the original purchaser to correct by repair, replacement or refund of original purchase price, at Acme's option, products manufactured and sold by its Power Distribution Products Division, that may fail in service within the applicable period as set forth below, from the date of manufacture provided however, that conditions of operation have been normal at all times, and that the equipment has not been subjected to abnormal stress from such causes as incorrect primary voltage or frequency, improper ventilation or improper use. This warranty is made on the condition that prompt notice of defect is given to Acme in writing within the warranty period, and that Acme's inspection reveals to its satisfaction that the original purchaser's claim is valid under the terms of this warranty. Acme's obligation under this warranty, which is in lieu of all other warranties, express or implied, including the implied warranty of fitness for a particular purpose and merchantability, is limited to replacing or repairing defective products or parts, free of charge, provided they are returned to the factory, or refund of original purchase price, at Acme's option. However, purchased components (except for timers and photocells used in low voltage lighting power supplies) including but not limited to capacitors, circuit breakers, terminal blocks, batteries, fuses and tubes shall not be covered under this warranty. Repairs or replacement deliveries shall not interrupt or prolong the term of this warranty. Acme will not be liable for any special, indirect, consequential or incidental damages, including, without limitation, from loss of use, data, function or profits deriving out of or in connection with the use or performance of the product and shall have no liability for payment of any other damages whether in an action of contract, strict liability or tort. The remedy provided herein states Acme Electric's entire liability and buyer's sole and exclusive remedy here under. Rights may vary in certain states.

### \*Warranty Period:

Standard Catalog Transformers — 10-year limited; Medium Voltage Transformer — 3-year limited, Custom products — 1 year.



|             |    |         |    |         |    |         |    |
|-------------|----|---------|----|---------|----|---------|----|
| A3006K0310B | 18 | T111687 | 15 | T181048 | 15 | T181062 | 16 |
| A3009K0310B | 18 | T113073 | 15 | T181049 | 15 | T181063 | 16 |
| A3015K0310B | 18 | T113074 | 15 | T181050 | 15 | T181064 | 16 |
| A3030K0310B | 18 | T113075 | 15 | T181051 | 15 | T181065 | 16 |
| A3045K0310B | 18 | T113076 | 15 | T181052 | 15 | T181066 | 16 |
| A3075K0310B | 18 | T113077 | 15 | T181054 | 15 | T211688 | 16 |
| A3112K0310B | 18 | T137920 | 16 | T181055 | 15 | T211689 | 16 |
| A3150K0310B | 18 | T137921 | 16 | T181056 | 15 | T213078 | 16 |
| T111683     | 15 | T137922 | 16 | T181057 | 15 | T213079 | 16 |
| T111684     | 15 | T137923 | 16 | T181058 | 15 | T243570 | 16 |
| T111685     | 15 | T137924 | 16 | T181059 | 15 | T243571 | 16 |
| T111686     | 15 | T181047 | 15 | T181061 | 16 |         |    |



**Acme Electric®**

*Our history is strong,  
engaging and dedicated...  
just like our people.*



### ***The Acme Electric Legacy***

Acme Electric provides power quality and conversion equipment to OEM, industrial and commercial markets. Founded in 1917 in Cleveland, Ohio as the Acme Electric and Machine Company, the company has a legacy of providing innovative electrical products. Acme is now part of Hubbell Incorporated, one of the largest electrical manufacturers in North America. Hubbell's history of innovation extends back to 1888 and the invention of the pull chain light switch and the electric plug.

Acme's original product line of motor-driven battery chargers, electrical appliances and electrical generators has transformed to a diversified mix of high-quality low voltage, medium voltage and 3 phase transformers and power supplies.

Learn more about us at [www.hubbell.com/acmeelectric/en](http://www.hubbell.com/acmeelectric/en)



**COMMERCIAL  
CONSTRUCTION**

A Division of Hubbell Incorporated (Delaware)

ACME ELECTRIC  
Menomonee Falls, WI 53051  
[www.hubbell.com/acmeelectric/en](http://www.hubbell.com/acmeelectric/en)  
800-334-5214



AE\_CAT\_7\_001  
3/2019