



## BUCK-BOOST TRANSFORMERS



Buck-boost transformers represent an economical way to both raise supply voltage caused by line drop or equipment demand on the distribution system; or lower voltage caused by increased system voltages due to supply line adjustments. Some loads including lighting and resistive loads, require a stable supply to maintain performance. The detrimental effects of incorrect supply line voltage can cause equipment failure.

### Key Features:

- Ratings from 50VA to 5000VA
- Primary Voltage 120/240, 240/480
- 50/60 Hz frequency
- Single & three phase
- UL listed
- CSA certified
- 10 year warranty

*For more information, click one of the links below:*

- [Buck-Boost Catalog Section \(HTP-08 Catalog Sec. 2\)](#)
- [Enclosure Drawings, Electrical Connection Diagrams, Termination Details \(HTP-08 Catalog Sec. General Info\)](#)
- [Buck-Boost Installation Manual \(IOMGE Installation Manual\)](#)

## Why Use Buck-Boost Transformers?

The advantages of using a buck-boost transformer over an equivalent standard isolation transformer are as follows:

### Advantages

- 1) Used in a variety of applications
- 2) Inexpensive
- 3) Smaller and lighter
- 4) More efficient
- 5) 5-10 times increase in kVA

### Disadvantages

- 1) No circuit isolation
- 2) Cannot create a neutral
- 3) KVA and voltages do not match what's on the nameplate kVA and voltages.



## Buck-Boost Application

Buck-boost transformers offer an economical solution to the adjustment of line voltages that are slightly above or below normal. When a buck-boost transformer is connected as an autotransformer, only a portion of the load kVA is actually transformed. The majority of the load kVA is passed directly through to the source. For this reason a buck-boost transformer may be used to supply a much larger load kVA than is indicated on the nameplate.

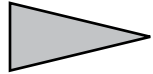
Buck-boost transformers can be used to adjust **stable** voltages only. Fluctuating line voltages should be regulated with a Line Voltage Conditioner. Refer to 'Section 6' for details.

### BUCK-BOOST STANDARD SPECIFICATIONS

|                           | 50 to 1000 VA                                                                                                                                                                          | 1500 to 5000 VA                                                                                                                                                                               |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UL Listed</b>          | File: E50394                                                                                                                                                                           | File: E50394                                                                                                                                                                                  |
| <b>CSA Certified</b>      | File: LR3902                                                                                                                                                                           | File: LR3902                                                                                                                                                                                  |
| <b>Frequency</b>          | 50/60 Hz                                                                                                                                                                               | 50/60 Hz                                                                                                                                                                                      |
| <b>Insulation System</b>  | 130°C (80°C rise)                                                                                                                                                                      | 180°C (115°C rise)                                                                                                                                                                            |
| <b>Standard Design</b>    | Single Phase, welded core construction made with high quality, high permeability silicon steel laminations. Computer designed coils, accurately wound from high quality magnetic wire. | Single Phase, welded core construction made with high quality, high permeability silicon steel laminations. Computer designed coils, accurately wound from high quality copper magnetic wire. |
| <b>Encapsulation</b>      | All units from 50VA to 5kVA are encapsulated with electrical grade silica sand and resin compounds.                                                                                    | All units from 50VA to 5kVA are encapsulated with electrical grade silica sand and resin compounds.                                                                                           |
| <b>Enclosure Type</b>     | Heavy Duty Encapsulated NEMA Type 3R (optional NEMA 4, 4X and 12 available)                                                                                                            | Heavy Duty Encapsulated NEMA Type 3R (optional NEMA 4, 4X and 12 available)                                                                                                                   |
| <b>Enclosure Finish</b>   | ANSI 61 Grey, UL50                                                                                                                                                                     | ANSI 61 Grey, UL50                                                                                                                                                                            |
| <b>Termination</b>        | Front accessible separate high and low voltage lead wires or copper tabs.                                                                                                              | Front accessible separate high and low voltage lead wires or copper tabs.                                                                                                                     |
| <b>Conduit Knock-Outs</b> | Side and rear standard on all units.                                                                                                                                                   | Side and rear standard on all units.                                                                                                                                                          |
| <b>Mounting</b>           | Standard Wall Mounting.                                                                                                                                                                | Standard Wall Mounting.                                                                                                                                                                       |



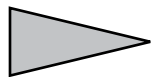
## Single Phase Specification Tables



### Group A

|                          |         |
|--------------------------|---------|
| <b>Primary Voltage</b>   | 120/240 |
| <b>Secondary Voltage</b> | 12/24   |
| <b>50/60 Hertz</b>       |         |

| VA   | Catalog Number | Case Style<br>(Page 249) | Approx. Dimensions<br>(Inches) |       |        | Approx. Weight<br>(Lbs.) | Mtg Type<br>W - Wall |
|------|----------------|--------------------------|--------------------------------|-------|--------|--------------------------|----------------------|
|      |                |                          | Width                          | Depth | Height |                          |                      |
| 50   | QC05ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 6                        | W                    |
| 100  | QC10ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 7                        | W                    |
| 150  | QC15ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 8                        | W                    |
| 200  | QC20ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 11                       | W                    |
| 250  | QC25ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 13                       | W                    |
| 350  | QC35ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 14                       | W                    |
| 500  | QC50ERCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 15                       | W                    |
| 750  | QC75ERCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 18                       | W                    |
| 1000 | Q1C0ERCB       | NQ3                      | 5.88                           | 5.50  | 10.00  | 25                       | W                    |
| 1500 | Q1C5ERCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 36                       | W                    |
| 2000 | Q002ERCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 46                       | W                    |
| 3000 | Q003ERCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 65                       | W                    |
| 5000 | Q005ERCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 105                      | W                    |



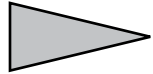
### Group B

|                          |         |
|--------------------------|---------|
| <b>Primary Voltage</b>   | 120/240 |
| <b>Secondary Voltage</b> | 16/32   |
| <b>50/60 Hertz</b>       |         |

| VA   | Catalog Number | Case Style<br>(Page 249) | Approx. Dimensions<br>(Inches) |       |        | Approx. Weight<br>(Lbs.) | Mtg Type<br>W - Wall |
|------|----------------|--------------------------|--------------------------------|-------|--------|--------------------------|----------------------|
|      |                |                          | Width                          | Depth | Height |                          |                      |
| 50   | QC05ESCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 6                        | W                    |
| 100  | QC10ESCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 7                        | W                    |
| 150  | QC15ESCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 8                        | W                    |
| 200  | QC20ESCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 11                       | W                    |
| 250  | QC25ESCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 13                       | W                    |
| 350  | QC35ESCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 14                       | W                    |
| 500  | QC50ESCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 15                       | W                    |
| 750  | QC75ESCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 18                       | W                    |
| 1000 | Q1C0ESCB       | NQ3                      | 5.88                           | 5.50  | 10.00  | 25                       | W                    |
| 1500 | Q1C5ESCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 36                       | W                    |
| 2000 | Q002ESCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 46                       | W                    |
| 3000 | Q003ESCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 65                       | W                    |
| 5000 | Q005ESCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 105                      | W                    |



## Single Phase Specification Tables

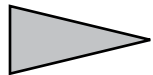


### Group C

|                          |         |
|--------------------------|---------|
| <b>Primary Voltage</b>   | 240/480 |
| <b>Secondary Voltage</b> | 24/48   |
| <b>50/60 Hertz</b>       |         |

| VA   | Catalog Number | Case Style<br>(Page 249) | Approx. Dimensions<br>(Inches) |       |        | Approx. Weight<br>(Lbs.) | Mtg Type<br>W - Wall |
|------|----------------|--------------------------|--------------------------------|-------|--------|--------------------------|----------------------|
|      |                |                          | Width                          | Depth | Height |                          |                      |
| 50   | QC05DTCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 6                        | W                    |
| 100  | QC10DTCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 7                        | W                    |
| 150  | QC15DTCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 8                        | W                    |
| 200  | QC20DTCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 11                       | W                    |
| 250  | QC25DTCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 13                       | W                    |
| 350  | QC35DTCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 14                       | W                    |
| 500  | QC50DTCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 15                       | W                    |
| 750  | QC75DTCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 18                       | W                    |
| 1000 | Q1C0DTCB       | NQ3                      | 5.88                           | 5.50  | 10.00  | 25                       | W                    |
| 1500 | Q1C5DTCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 36                       | W                    |
| 2000 | Q002DTCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 46                       | W                    |
| 3000 | Q003DTCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 65                       | W                    |
| 5000 | Q005DTCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 105                      | W                    |

## Three Phase Specification Tables

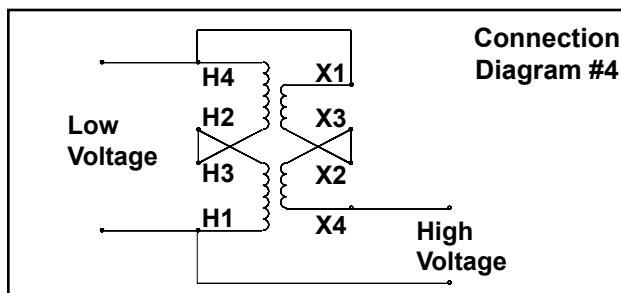
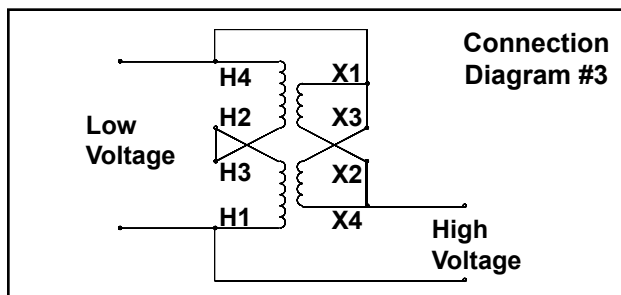
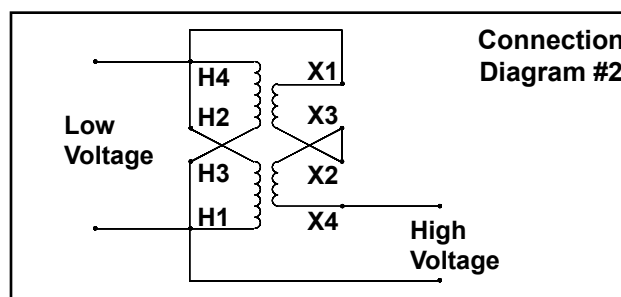
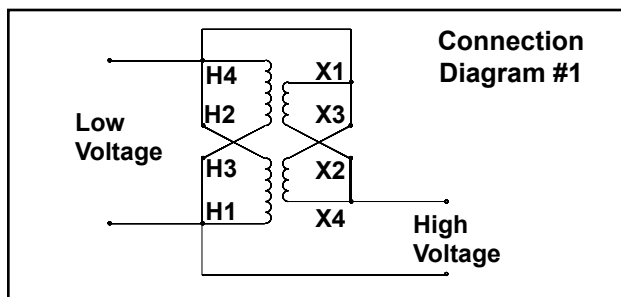


### Group A

|                          |         |
|--------------------------|---------|
| <b>Primary Voltage</b>   | 120/240 |
| <b>Secondary Voltage</b> | 12/24   |
| <b>50/60 Hertz</b>       |         |

| VA   | Catalog Number | Case Style<br>(Page 249) | Approx. Dimensions<br>(Inches) |       |        | Approx. Weight<br>(Lbs.) | Mtg Type<br>W - Wall |
|------|----------------|--------------------------|--------------------------------|-------|--------|--------------------------|----------------------|
|      |                |                          | Width                          | Depth | Height |                          |                      |
| 50   | QC05ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 6                        | W                    |
| 100  | QC10ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 7                        | W                    |
| 150  | QC15ERCB       | NQ0                      | 3.75                           | 5.25  | 7.25   | 8                        | W                    |
| 200  | QC20ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 11                       | W                    |
| 250  | QC25ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 13                       | W                    |
| 350  | QC35ERCB       | NQ1                      | 4.50                           | 5.75  | 7.25   | 14                       | W                    |
| 500  | QC50ERCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 15                       | W                    |
| 750  | QC75ERCB       | NQ2                      | 5.00                           | 4.75  | 9.25   | 18                       | W                    |
| 1000 | Q1C0ERCB       | NQ3                      | 5.88                           | 5.50  | 10.00  | 25                       | W                    |
| 1500 | Q1C5ERCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 36                       | W                    |
| 2000 | Q002ERCF       | NQ4                      | 7.00                           | 6.50  | 11.25  | 46                       | W                    |
| 3000 | Q003ERCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 65                       | W                    |
| 5000 | Q005ERCF       | NQ5                      | 10.00                          | 7.75  | 17.25  | 105                      | W                    |

## Single Phase Connection Diagrams



## Three Phase Connection Diagrams

