Buck-Boost Transformers

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.

HUBBELL®

Acme Electric®

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.

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.

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. 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.

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	

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.

Alternatively, 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.

T211688

T111683

For help selecting the correct Buck-Boost Transformer, check out our catalog or our selection tool, both available on our website.

Single Phase, .05 to 10.0 kVA
Encapsulated

Features

- UL listed, CSA certified 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 pase 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

Three Phase, 6.0 to 45 kVA
Encapsulated

Features

- UL listed, CSA certified 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

SPECIFICATIONS ① - SINGLE PHASE

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

Catalog Number	Insulating Transformer Rating	Secondary Maximum Current Output 12 V	24 V	Height (Inches)(Cm.)	Width (Inches)(Cm.)	Depth (Inches)(Cm.)	Weight (Lbs.)(Kg.)	Dimensional Drawings
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 16 V	32 V	Height (Inches)(Cm.)	Width (Inches)(Cm.)	Depth (Inches)(Cm.)	Weight (Lbs.)(Kg.)	Dimensional Drawings
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.

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

Catalog Number	Insulating Transformer Rating	Secondary Maximum Current Output 24 V	48 V	Height (Inches)(Cm.)	Width (Inches)(Cm.)	Depth (Inches)(Cm.)	Weight (Lbs.)(Kg.)	Dimensional Drawings
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