Section 14
Transformers

General Purpose Dry Type
600 Volts and Below

Type T and Type TF

Medium Voltage
Distribution Transformer

LV Transformers EZ Selector

Steps to select an LV transformer.

1. Select product type:
   - Three Phase – Energy Efficient – EX (DOE 2016)
   - Three Phase – Energy Efficient – EX, K-13 Rated (DOE 2016)
   - Three Phase – Energy Efficient – EX, Watchdog Low Temperature Rise (DOE 2016)
   - Single Phase – Energy Efficient – EE (DOE 2016)
   - Three Phase – Resin Encapsulated
   - Single Phase – Resin Encapsulated
2. Select kVA Rating – 15, 30, 45, 75, 112.5, 150, 225, 300, 500, or 750 kVA
3. Select Primary Voltage – 208, 240, 480, or 600 Vac Delta
4. Select Secondary Voltage – 208Y/120, 240 Vac Delta 120 V CT, 480Y/277
5. Select Mounting – Floor, Wall
6. Select Enclosure – Indoor (Type 1), Indoor (Type 2), Indoor/Outdoor (Type 3R), Indoor/Outdoor (Type 4X)
7. Select Temperature Rise – 55°C, 80°C, 115°C, 150°C
8. Select Material – Aluminum, Copper
9. Select Sound Level – 39 dB (6 dB below), 44 dB (6 dB below), 47 dB (3 dB below), 49 dB (6 dB below), 54 dB (6 dB below), 58 dB (6 dB below)

Additional Information

Search for "LV Transformers" from our technical FAQs page: www.se.com/us/en/faqs

View all **Low Voltage Transformer** Ranges and Documentation online: se.com/us/en/product-subcategory/80396.

The Energy Policy and Conservation Act of 1975 (EPCA), update in the Energy Policy Act of 2005, authorized the Department of Energy (DOE) to evaluate and set minimum efficiency levels for Low Voltage Distribution Transformers. The DOE published a final rule prescribing new energy conservation standards for distribution transformers. 78 FR 23335 (April 18, 2013).

10 CFR 431.196: The efficiency of a low-voltage dry-type distribution transformer manufactured on or after January 1, 2016, shall be no less than that required for their kVA rating in the table below. Low-voltage dry-type distribution transformers with kVA ratings not appearing in the table shall have their minimum efficiency level determined by linear interpolation of the kVA and efficiency values immediately above and below that kVA rating. All efficiency values are at thirty-five percent of nameplate-rated load temperature corrected to 75°C, determined according to the DOE Test Method for Measuring the Energy Consumption of Distribution Transformers under Appendix A to Subpart K of 10 CFR part 431. https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=55&action=viewcurrent.

Energy Conservation Standards for Low-Voltage Dry-Type Distribution Transformers			
Single phase		Three phase	
kVA	Efficiency %[1]	kVA	Efficiency %[1]
15	97.70	15	97.89
25	98.00	30	98.23
37.5	98.20	45	98.40
50	98.30	75	98.60
75	98.50	112.5	98.74
100	98.60	150	98.83
167	98.70	225	98.94
250	98.80	300	99.02
333	98.90	500	99.14
—	—	750	99.23
—	—	1000	99.28

Distribution transformer means a transformer that (1) has an input voltage of 34.5 kV or less; (2) has an output voltage of 600 V or less; (3) is rated for operation at a frequency of 60 Hz; and (4) has a capacity of 10 to 2500 kVA for liquid-immersed units and 15 to 2500 kVA for dry-type units.

Low voltage dry-type distribution transformer means a distribution transformer that: has an input voltage of 600 V or less, is air-cooled, and not used oil as a coolant.

The following product offering must comply with the table above:

- Three- and single-phase
- Step up and step down transformers
- General purpose ventilated transformers (isolation transformers)
- Watchdog general purpose ventilated transformers (low temperature rise)
- Transformers designed for harmonic applications (K-rated, data center transformers, etc.)
- General purpose open core and coil transformers

The following low voltage transformers do not need to comply with the table above:

- Auto-transformers
- Drive isolation transformers
- Non-ventilated transformers
- Resin encapsulated transformers
- Buck boost transformers
- Control transformers (machine tool)
- Medical isolation panel transformers compliance with UL 1047 (Tables 30.1 and 30.2) (SPECIAL IZ — LOW LEAKAGE)

New Three-Phase Offering from Square D — DOE 2016 EX

- Exceed the efficiency levels from 10 CFR 431.196
- Terminals sized to handle wire ranges to match Square D circuit breakers, switches, panelboards, etc. Located to meet NEC bending radius and layout to simplify connections
- IZ Levels to allow for designing with the minimum AIC Panels available
- In-rush current limited to expand the Square D circuit breaker options at both 125 and 250% sizing
- Sound level at 3 dB for all designs, but up to 6–10 dB below on certain units—QUIET QUALITY
- 1/2 in. clearance from the rear and side, **UL 1561alcove testing all enclosures to not exceed 90°C on adjacent walls**
- Four product families of the DOE 2016 EX: General purpose, aluminum and copper windings, 150°C rise; Watchdog, low temperature rise, aluminum and cover windings, 115 or 80°C rise; K-rated transformers for harmonic applications

[1] Efficiencies are determined at the following reference conditions: 1. for no-load losses, at the temperature of 20°C; 2. for load-losses, at the temperature of 75°C and 35% of nameplate load. (Source: Table 4–2 of National Electrical Manufacturers Association (NEMA) Standard TP–1–2002, *Guide for Determining Energy Efficiency for Distribution Transformers*.)

DOE 2016 Energy Efficient Three Phase

Table 14.1: EXN & EX Three-Phase 60 Hz, 208Y/120 Vac Secondary; UL Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level dB	Weight (lbs) *[2]*	Enclosure*[3]*
480 Vac Delta Primary, Aluminum Windings									
15	EXN15T3H	97.89%	6–2.5%2+4–	150	220	4.03%	39 dB	188	17M
30	EXN30T3H	98.23%				3.80%		303	18M
45	EXN45T3H	98.40%				4.10%		369	19M
75	EXN75T3H	98.60%				4.90%	44 dB	515	20M
112.5	EXN112T3H	98.74%				3.70%		724	21M
150	EXN150T3H	98.83%				3.10%		933	22M
225	EX225T3H	98.94%				4.4%	52 dB	1450	25J
300	EX300T3H	99.02%				5.0%		1860	25J
500	EX500T68H	99.14%	4–2.5%2+2–			4.9%	57 dB	2915	30J
600 Vac Delta Primary, Aluminum Windings									
15	EXN15T65H	97.89%	6–2.5%2+4–	150	220	4.32%	39 dB	188	17M
30	EXN30T65H	98.23%				3.70%		324	18M
45	EXN45T65H	98.40%				4.10%		368	19M
75	EXN75T65H	98.60%				4.67%	44 dB	513	20M
112.5	EXN112T65H	98.74%				3.62%		727	21M
150	EXN150T65H	98.83%				3.14%		1002	22M
225	EX225T65H	98.94%				5.2%	52 dB	1450	25J
300	EX300T65H	99.02%				5.3%		1860	25J
500	EX500T79H	99.14%	4–2.5%2+2–			—	57 dB	2915	30J
208 Vac Delta Primary, Aluminum Windings*[4]*									
15	EXN15T3156H	97.89%	192/200/208/216/232/240/248	150	220	4.04%	39 dB	192	17M
30	EXN30T3156H	98.23%				3.22%		363	18M
45	EXN45T3156H	98.40%				4.04%		396	19M
75	EXN75T3156H	98.60%				4.88%	44 dB	526	20M
112.5	EXN112T3156H	98.74%				3.48%		811	21M
150	EXN150T3156H	98.83%				3.22%		1015	22M
240 Vac Delta Primary, Aluminum Windings*[4]*									
15	EXN15T3156H	97.89%	192/200/208/216/232/240/248	150	220	4.04%	39 dB	192	17M
30	EXN30T3156H	98.23%				3.22%		363	18M
45	EXN45T3156H	98.40%				4.04%		396	19M
75	EXN75T3156H	98.60%				4.88%	44 dB	526	20M
112.5	EXN112T3156H	98.74%				3.48%		811	21M
150	EXN150T3156H	98.83%				3.22%		1015	22M
480 Vac Delta Primary, Copper Windings									
15	EXN15T3HCU	97.89%	6–2.5%2+4–	150	220	4.06%	39 dB	222	17M
30	EXN30T3HCU	98.23%				4.08%		356	18M
45	EXN45T3HCU	98.40%				3.44%		399	19M
75	EXN75T3HCU	98.60%				4.99%	44 dB	661	20M
112.5	EXN112T3HCU	98.74%				3.27%		974	21M
150	EXN150T3HCU	98.83%				3.60%		1156	22M
225	EX225T3HCU	98.94%				5.7%	52 dB	1545	25J
300	EX300T3HCU	99.02%				6.0%		1975	25J
500	EX500T68HCU	99.14%	4–2.5%2+2–			4.8%	57 dB	3705	30J

Table 14.2: EXN & EX Three-Phase 60 Hz, 480Y/277 Vac Secondary; UL Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level	Weight (lbs)*[2]*	Enclosure*[3]*
208 Vac Delta Primary, Aluminum Windings *[5]*									
15	EXN15T3155H	97.89%	192/200/208/216/232/240/248	150	220	4.01%	39 dB	191	17M
30	EXN30T3155H	98.23%				3.43%		335	18M
45	EXN45T3155H	98.40%				3.86%		395	19M
75	EXN75T3155H	98.60%				3.94%	44 dB	544	20M
112.5	EXN112T3155H	98.74%				3.67%		735	21M
150	EXN150T3155H	98.83%				3.12%		1020	22M
225	EX225T212H	98.94%	3–5%1+2–			5.8%	52 dB	1450	25J
300	EX300T212H	99.02%				5.2%		1860	25J
500	EX500T212H	99.14%				4.8%	57 dB	2915	30J
480 Vac Delta Primary, Aluminum Windings									
15	EXN15T1814H	97.89%	6–2.5%2+4–	150	220	4.62%	39 dB	191	17M
30	EXN30T1814H	98.23%				3.50%		333	18M
45	EXN45T1814H	98.40%				3.95%		373	19M
75	EXN75T1814H	98.60%				5.03%	44 dB	531	20M
112.5	EXN112T1814H	98.74%				3.53%		730	21M
150	EXN150T1814H	98.83%				3.08%		1012	22M
225	EX225T1814H	98.94%				4.6%	52 dB	1450	25J
300	EX300T1814H	99.02%				5.4%		1860	25J
500	EX500T76H	99.14%	4–2.5%2+2–			—	57 dB	2915	30J

[2] Not for construction, Contact your local Schneider Electric representative for certified prints.
[3] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8
[4] 3156 Catalog Numbers are shipped connected as 240 V.
[5] 3155 Catalog Numbers are shipped connected as 240 V.

Table 14.3: EXN & EX Three Phase 60 Hz, 240 Vac Delta Secondary; UL Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level dB	Weight (lbs) [6]	Enclo-sure[7]
480 Vac Delta Primary, Aluminum Windings									
15	EXN15T6H	97.89%	6-2.5%2+4-	150	220	4.70%	39dB	193	17M
30	EXN30T6H	98.23%	6-2.5%2+4-	150	220	2.99%	39dB	361	18M
45	EXN45T6H	98.40%	6-2.5%2+4-	150	220	4.06%	39dB	369	19M
75	EXN75T6H	98.60%	6-2.5%2+4-	150	220	5.08%	44dB	529	20M
112.5	EXN112T6H	98.74%	6-2.5%2+4-	150	220	3.47%	44dB	730	21M
150	EXN150T6H	98.83%	6-2.5%2+4-	150	220	3.08%	44dB	1007	22M
225	EX225T6H	98.94%	6–2.5%2+4–	150	220	4.5%	52 dB	1820	25J
300	EX300T6H	99.02%	6–2.5%2+4–	150	220	5.2%	52 dB	1960	25J
500	EX500T63H	99.14%	4–2.5%2+2–	150	220	4.9%	57 dB	3090	30J
480 Vac Delta Primary, Aluminum Windings									
120 Volt Center Tap - Limited to 7.5% Loading, Design for Ground Reference and Light Maintenance Loading.									
15	EXN15T6HCT	97.89%	6-2.5%2+4-	150	220	4.70%	39 dB	193	17M
30	EXN30T6HCT	98.23%	6-2.5%2+4-	150	220	2.99%	39 dB	361	18M
45	EXN45T6HCT	98.40%	6-2.5%2+4-	150	220	4.06%	39 dB	369	19M
75	EXN75T6HCT	98.60%	6-2.5%2+4-	150	220	5.08%	44 dB	529	20M
112.5	EXN112T6HCT	98.74%	6-2.5%2+4-	150	220	3.47%	44 dB	730	21M
150	EXN150T6HCT	98.83%	6-2.5%2+4-	150	220	3.08%	44 dB	1007	22M
225	EX225T6HCT	98.94%	6–2.5%2+4–	150	220	4.5%	52 dB	1820	25J
300	EX300T6HCT	99.02%	6–2.5%2+4–	150	220	5.2%	52 dB	1960	25J
500	EX500T63HCT	99.14%	4–2.5%2+2–	150	220	4.9%	57 dB	3090	30J

DOE 2016 Energy Efficient Single Phase

Table 14.4: EE Single-Phase 60 Hz, 120 / 240 Vac Secondary; cULus Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps *[6]*	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level dB	Weight (lbs) *[7]*	Enclosure*[8]*
240 x 480 Vac Primary, Aluminum Windings									
15	EE15S3H	97.70%	480 Vac 6–2.5% 2+4– 240 Vac 3–5% 1+2–	150	220	6.1%	45 dB	215	17D
25	EE25S3H	98.00%				5.9%		275	17H
37.5	EE37S3H	98.20%				6.1%		340	18H
50	EE50S3H	98.30%				5.1%		395	18H
75	EE75S3H	98.50%				5.7%	50 dB	619	21D
100	EE100S3H	98.60%				4.7%		682	22D
167	EE167S3H	98.70%				3.9%	55 dB	982	24D
250	EE250S3H	98.80%				5.7%		1060	25D
333	EE333S3H	98.90%				6.3%	60 dB	1854	31D
600 Vac Primary, Aluminum Windings									
15	EE15S3534H	97.70%	6–2.5%2+4–	150	220	4.0	45 dB	215	17D
25	EE25S3534H	98.00%				4.3		275	17H
37.5	EE37S3534H	98.20%				3.8		400	18H
50	EE50S3534H	98.30%				4.2		450	18H
75	EE75S3534H	98.50%				3.2	50 dB	605	21D
100	EE100S3534H	98.60%				2.9		795	22D
208 Vac Primary, Aluminum Windings									
15	EE15S60H	97.70%	2–5% FCBN	150	220	4.3	45 dB	200	17D
25	EE25S60H	98.00%				4.1		275	17H
37.5	EE37S60H	98.20%				3.6		397	18H
50	EE50S60H	98.30%				5.7		420	18H
75	EE75S60H	98.50%				3.6	50 dB	621	21D
100	EE100S60H	98.60%				6.3		795	22D

[6] FCBN = Full Capacity Below Normal.
[7] Not for construction, Contact your local Schneider Electric representative for certified prints.
[8] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8

DOE 2016 Energy Efficient K-Rated Three Phase

Square D offers offers Delta - Wye 30°Phase Shift transformers which reconfigure the harmonic models and mitigate the harmful effects of triplens. UL Listed with the following K-ratings to handle excess heat created by harmonic wave forms, K4 and K13. Available with aluminum or copper windings and 150°C or 115°C Rise with 220C insulation system.

Table 14.5: EXN & EX Three Phase 60 Hz, 30° Phase Shift, 480 Delta to 208Y/120; UL Listed, K-RATED

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level	Weight (lbs) *[9]*	Enclosure*[10]*
480 Delta Primary, 208Y/120 Secondary, Aluminum Windings, 150°C Rise, 220C Insulation, K13 Listed									
15	EXN15T3HNLP	97.89%	6–2.5%2+4–	150	220	4.51%	39 dB	195	17M
30	EXN30T3HNLP	98.23%				4.18%		336	18M
45	EXN45T3HNLP	98.40%				4.71%		400	19M
75	EXN75T3HNLP	98.60%				5.26%	44 dB	580	20M
112.5	EXN112T3HNLP	98.74%				3.70%		802	21M
150	EX150T3HNLP	98.83%				3.00%		1825	25J
225	EX225T3HNLP	98.94%				3.30%	49 dB	1975	25J
480 Delta Primary, 208Y/120 Secondary, Copper Windings, 150°C Rise, 220C Insulation, K13 Listed									
15	EXN15T3HCUNLP	97.89%	6–2.5%2+4–	150	220	4.96%	39 dB	235	17M
30	EXN30T3HCUNLP	98.23%				3.06%		407	18M
45	EXN45T3HCUNLP	98.40%				4.41%		509	19M
75	EXN75T3HCUNLP	98.60%				5.56%	44 dB	700	20M
112.5	EXN112T3HCUNLP	98.74%				3.33%		1000	21M
150	EX150T3HCUNLP	98.83%				4.60%		1545	25J
225	EX225T3HCUNLP	98.94%				3.80%	49 dB	1975	25J
480 Vac Delta Primary, 208Y/120 Secondary, Aluminum Winding, K4									
15	EXN15T3HNL	97.89%	6–2.5%2+4–	150	220	4.30%	39 dB	184	17M
30	EXN30T3HNL	98.23%				3.15%		324	18M
45	EXN45T3HNL	98.40%				4.13%		392	19M
75	EXN75T3HNL	98.60%				5.21%	44 dB	527	20M
112.5	EXN112T3HNL	98.74%				3.80%		713	21M
150	EXN150T3HNL	98.83%				3.37%		1012	22M
480 Vac Delta Primary, 208Y/120 Secondary, Copper Winding, K4									
15	EXN15T3HCUNL	97.89%	6–2.5%2+4–	150	220	4.22%	39 dB	219	17M
30	EXN30T3HCUNL	98.23%				4.23%		358	18M
45	EXN45T3HCUNL	98.40%				3.95%		412	19M
75	EXN75T3HCUNL	98.60%				4.15%	44 dB	548	20M
112.5	EXN112T3HCUNL	98.74%				3.52%		899	21M
150	EXN150T3HCUNL	98.83%				4.35%		1303	22M

[9] Not for construction, Contact your local Schneider Electric representative for certified prints.
[10] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8

DOE 2016 Energy Efficient Watchdog Three Phase and Single Phase

Watchdog transformers, by design, reduce energy consumption at loads greater than 50% loading, giving fewer BTUs/hour at those loading levels. The life expectancy is greater than that of 150°C rise General Purpose units.

- Aluminum or copper windings
- Two temperature rise options: 115°C rise on 220°C insulation systems (15% continuous emergency overload capacity); 80°C rise on 220°C insulation systems (30% continuous emergency overload capacity)

Table 14.6: EXN & EX Three Phase 60 Hz; UL Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level	Weight (lbs) *[11]*	Enclosure*[12]*
480 V Delta Primary, 208Y/120 Secondary, Aluminum Windings									
15	EXN15T3HF	97.89%	6–2.5%2+4–	115	220	3.98%	39 dB	184	17M
30	EXN30T3HF	98.23%				2.92%		324	18M
45	EXN45T3HF	98.40%				3.46%		400	19M
75	EXN75T3HF	98.60%				5.07%	44 dB	527	20M
112.5	EXN112T3HF	98.74%				3.30%		806	21M
150	EXN150T3HF	98.83%				3.29%		1012	22M
225	EX225T3HF	98.94%				4.5%	49 dB	1825	24J
300	EX300T3HF	99.02%				30.0%		1975	25J
500	EX500T68HF	99.14%	4–2.5%2+2–			4.9%	56 dB	3100	30J
480 V Delta Primary, 208Y/120 Secondary, Copper Windings									
15	EXN15T3HFCU	97.89%	6–2.5%2+4–	115	220	3.90%	39 dB	219	17M
30	EXN30T3HFCU	98.23%				3.98%		358	18M
45	EXN45T3HFCU	98.40%				3.72%		412	19M
75	EXN75T3HFCU	98.60%				4.01%	44 dB	653	20M
112.5	EXN112T3HFCU	98.74%				3.42%		899	21M
150	EXN150T3HFCU	98.83%				4.56%		1303	22M
225	EX225T3HFCU	98.94%				6.8%	49 dB	1545	24J
300	EX300T3HFCU	99.02%				5.0%		1975	25J
500	EX500T68HFCU	99.14%	4–2.5%2+2–			4.8%	56 dB	3705	30J
480 V Delta Primary, 208Y/120 Secondary, Aluminum Windings									
15	EXN15T3HB	97.89%	6–2.5%2+4–	80	220	4.01%	39 dB	195	17M
30	EXN30T3HB	98.23%				4.37%		345	18M
45	EXN45T3HB	98.40%				4.10%		416	19M
75	EXN75T3HB	98.60%				5.05%	44 dB	580	20M
112.5	EXN112T3HB	98.74%				2.54%		949	21M
150	EXN150T3HB	98.83%				3.92%		1208	22M
225	EX225T3HB	98.94%				4.6%	49 dB	1975	25J
300	EX300T68HB	99.02%	4–2.5%2+2–			4.4%	56 dB	3100	30J
480 V Delta Primary, 208Y/120 Secondary, Copper Windings									
15	EXN15T3HBCU	97.89%	6–2.5%2+4–	80	220	4.53%	39 dB	235	17M
30	EXN30T3HBCU	98.23%				2.76%		407	18M
45	EXN45T3HBCU	98.40%				4.12%		509	19M
75	EXN75T3HBCU	98.60%				5.61%	44 dB	690	20M
112.5	EXN112T3HBCU	98.74%				3.76%		1146	21M
150	EXN150T3HBCU	98.83%				5.45%		1424	22M
225	EX225T3HBCU	98.94%				6.9%	49 dB	1975	25J
300	EX300T68HBCU	99.02%	4–2.5%2+2–			5.0%	56 dB	3705	30J

Table 14.7: EE Single Phase: 60 Hz, cULus Listed

kVA	Catalog No.	Minimum Efficiency @ 35% 75°C	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Sound Level dB	Weight (lbs)*[11]*	Enclosure*[12]*
240 x 480 Vac Primary, 120 / 240 Vac Secondary, Aluminum Windings									
15	EE15S3HF	97.70%	480 Vac 6–2.5% 2+4– 240 Vac 3–5% 1+2–	115	220	3.5%	45 dB	275	17D
25	EE25S3HF	98.00%				4.0%		340	18H
37.5	EE37S3HF	98.20%				3.7%		395	18H
50	EE50S3HF	98.30%				3.7%		620	21D
75	EE75S3HF	98.50%				3.5%	50 dB	685	22D
100	EE100S3HF	98.60%				3.5%		985	24D
15	EE15S3HB	97.70%		80		1.7%	45 dB	280	17D
25	EE25S3HB	98.00%				3.9%		345	18H
37.5	EE37S3HB	98.20%				3.7%		400	18H
50	EE50S3HB	98.30%				3.6%		625	21D
75	EE75S3HB	98.50%				3.4%	50 dB	690	22D
100	EE100S3HB	98.60%				3.4%		995	24D

Other primary and secondary combinations are available via the Schneider Electric Product Configurator. Contact your local Schneider Electric representative for more information.

[11] Not for construction, Contact your local Schneider Electric representative for certified prints.
[12] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8

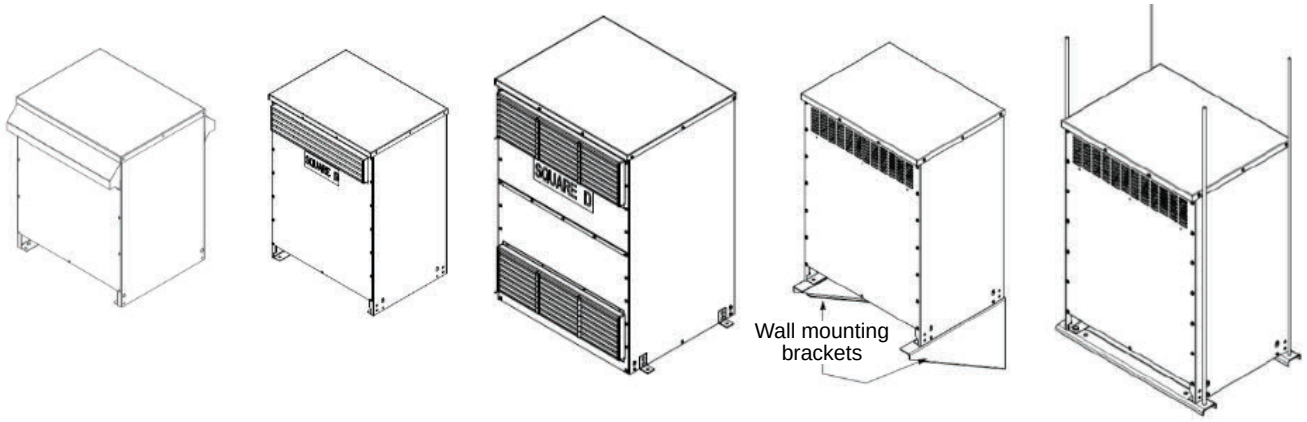
Style D and H—Type 2 Rated
Converts to Type 3R with Weathershield

Style M—Type 2 Rated
Converts to Type 3R
with Weathershield

Style J—Type 1 Rated
Converts to Type 2 with Drip Shield
Converts to Type 3R with Weathershield

Table 14.8: Enclosure Dimensions and Accessories

Enclosure Number/Style		Height		Width*[13]*		Depth		Mounting	Weathershield	Wall Mounting Bracket *[14]*	Ceiling Mounting Bracket *[15]*	Drip Shield
		in.	mm	in.	mm	in.	mm					
17	D	27	686	20	508	16	406	Floor	WS363	WMB361362	CMB363	—
	H	37	940	20	508	16	406		WS363	WMB361362	CMB363	—
18	D	30	762	20	508	20	508		WS363	WMB363364	CMB363	—
	H	37	940	20	508	20	508		WS363	WMB363364	CMB363	—
19	D	30	762	30	762	20	508		WS364	WMB363364	CMB364	—
20		37	940	30	762	20	508		WS364	WMB363364	CMB364	—
21		37	940	30	762	24	610		WS364	—	CMB364	—
22		43.8	1111	32	813	27	686		WS380	—	CMB380	—
24		49.5	1257	35	889	28.5	724		WS381	—	CMB381	—
25		49.5	1257	41	1041	32	813		WS382	—	—	—
26		57.5	1461	41	1041	32	813		WS382	—	—	—
28		60	1524	56	1422	36	914		WS370A	—	—	—
29		68	1727	56	1422	36	914		WS370A	—	—	—
30		71	1803	48	1219	36	914		WS383	—	—	—
31		74	1880	56	1422	40.5	1029		WS384	—	—	—
17	M	23.98	609	21.50	546	21.18	538		7400WS17M	7400WMB17M	7400CMB17M	—
18		28.31	719	25.51	648	24.69	627		7400WS18M19-M	7400WMB18M19M20M	7400CMB18M19M20M	—
19		29.33	745	25.51	648	25.94	659		7400WS18M19-M	7400WMB18M19M20M	7400CMB18M19M20M	—
20		33.50	851	30.08	764	27.44	697		7400WS20M	7400WMB18M19M20M	7400CMB18M19M20M	—
21		37.52	953	31.30	795	28.43	722		7400WS21M	—	7400CMB21M	—
22		40.59	1031	33.66	855	32.56	827		7400WS22M	—	7400CMB22M	—
24	—	—	—	—	—	—	—	—	—	—	—	—
25	J	57.5	1461	40.1	1019	32.75	832	Floor	7400WS25J	—	—	7400DS25J
30		71	1803	48.25	1226	37.9	963		7400WS30J	—	—	7400DS30J
31		76	1930	56	1422	44.5	1130		7400WS31J	—	—	7400DS31J



New Optional Floor Mounting Kit — Enclosures M and J

Table 14.9: Mechanical Lug Kits

Catalog No.	Lugs Per Kit	Wire Range	Cap Screws	Current Range	Grounding Lugs per Kit	Wire Range	Bonding Lugs per Kit	Wire Range
Single-Phase Primary, Single-Phase Secondary, Three-Phase Delta Primary, Three-Phase Delta Secondary								
DASKP100	3	1/0–14 STR	1/4 x 1 in.	Up to 100 A	Not applicable	Not applicable	Not applicable	Not applicable
DASKP250		350 kcmil–6 STR	3/8 x 2 in.	101 to 250 A				
DASKP400		600 kcmil–4 STR (2) 250 kcmil–1/0 STR		201 to 400 A				
DASKP600	6			601 to 800 A				
DASKP1000	9	600 kcmil–2 STR						
DASKP1200	12			801 to 1200 A				
Single-Phase Primary and Secondary, Three-Phase Wye Secondary, Three-Phase Delta with Center Tap								
DASKGS100	5	1/0–14 STR	1/4 x 1 in.	Up to 100 A	1	(4) 2/0 to 14 STR	1	2 to 14 STR
DASKGS250		350 kcmil–6 STR	3/8 x 2 in.	101 to 250 A				

[13] These dimensions are not for construction. Contact your local Schneider Electric.
[14] Wall mounting brackets are used with units weighing no more than 700 lbs.
[15] Ceiling mounting brackets are used with units weighing no more than 1200 lbs.

Table 14.9 Mechanical Lug Kits (cont'd.)

Catalog No.	Lugs Per Kit	Wire Range	Cap Screws	Current Range	Grounding Lugs per Kit	Wire Range	Bonding Lugs per Kit	Wire Range
DASKGS400		600 kcmil–4 STR (2) 250 kcmil–1/0 STR		201 to 400 A				1/0 to 14 STR
DASKGS600	10	600 kcmil–2 STR		601 to 800 A		(4) 350 kcmil to 6 STR		250 kcmil to 6 STR
DASKGS1000	15							
DASKGS1200	20			801 to 1200 A				
DASKGS2000	25			1201 to 2000 A				

Lugs are not supplied with transformer units. They must be purchased separately.

Table 14.10: Ground Lug Kits

Catalog No.	Wire Range
DASKGK1	(4) 2/0 to 14 STR
DASKGK2	(4) 350 kcmil to 6 STR

Table 14.11: Compression Lug Kits

Transformer kVA Sizes	Kit Catalog No.	Terminal Lugs		Aluminum or Copper Conductor Range (AWG or kcmil)	Hardware Included	
		Qty.	Catalog No.		Qty.	Cap Screws
15–37 ½ 1Ø 15–45 3Ø	VCELSK1	8 5	VCEL02114S1 VCEL030516H1	#8–1/0 #4–300 kcmil	8 1	1/4 x 1 in. 1/4 x 2 in.
50–75 1Ø 75–112 ½ 3 Ø	VCELSK2	13	VCEL030516H1	#4–300 kcmil	8 8	1/4 x 1 in. 1/4 x 2 in.
100–167 1Ø 150–300 3Ø	VCELSK3	3 26	VCEL030516H1 VCEL07512H1		3 16	1/4 x 3/4 in. 3/8 x 2 in.
500 3Ø	VCELSK4	34	VCEL07512H1	500–750 kcmil Al 500 kcmil Cu	21	

Schneider Electric Low Voltage Transformers have been qualified to the site-specific requirements of the following listed model building code and/or standard. (International Building Code, California Building Code, Uniformed Building Code). Qualification based on tri-axial shake table test results conduced in accordance with the AC156 test protocol3 (Acceptance Criteria for Seismic Qualification Testing of Nonstructural Components).

- Enclosure 1A to 11A, 12C to 16C, 12B to 15B (Resin Encapsulated Transformers)
- Enclosure 17D to 31D, 17H to 18H, 17K to 22K, 25J to 31J (Ventilated Transformers)
- Enclosure 17K to 20K with wall mounting bracket (Ventilated Transformers)
- Enclosure 17E to 31E (Non-ventilated Transformers)
- Enclosure MPZ A, AA, B, BB, C, CC (MPZB)

Product is Listed for installation in Hospitals State of California–OSHPD Special Seismic Certification Preapproval OSP-0023-10.

Accessory Labels–required for Building Inspection–OSHPD		
OSP Label Catalog Number	Products	Enclosure Style
7400CAOSHPDABC	Resin encapsulated, buck boost transformers	Style A, B, C
7400CAOSHPDDH	Ventilated Type EE, drive isolation, auto-transformers	Style D, H
7400CAOSHPDF	Low voltage 750 and 1000 kVA Type EE	Style F
7400CAOSHPDJ	Ventilated Type EX	Style J
7400CAOSHPDK	Ventilated Type EX	Style K
7400CAOSHPDKO	Ventilated Type EX, wall-mounted using Square D brackets	Style K with WMB
7400CAOSHPDMPZB	Mini Power Zone Bolt-on	A, AA, B, BB, C, CC

Resin Encapsulated Three and Single Phase Transformers

Table 14.12: Resin Encapsulated Three and Single Phase Transformers

kVA	Type 3R STD			Type 3R 304 Stainless			Type 4X 304 Stainless					
	Catalog No.	Weight (lbs)[16]	Enclosure [17]	Catalog No.	Weight (lbs)[16]	Enclosure [17]	Catalog No.	Weight (lbs)[16]	Enclosure [17]	Full Capacity Taps[18]	Deg C Temp. Rise	Insulation Class
Three Phase—480 Vac Delta Primary 208Y/120 Vac Secondary, 60 Hz; UL/cULus Listed												
3	3T2F	120	12C	—	120	12C	4X3T2FSS	165	54X	2–5% FCBN	115	180
6	6T2F	145	12C	6T2SS	145	12C	4X6T2FSS	195				
9	9T2F	235	14C	9T2SS	235	14C	4X9T2FSS	290				
15	15T2F	300	14C	15T2SS	300	14C	4X15T2FSS	350				
30	30T2F	660	16C	30T2SS	660	16C	4X30T2FSS	850	55X			
Three Phase—480 Vac Delta Primary 240 Vac Delta Secondary, 60 Hz; UL/cULus Listed												
3	3T5F	120	12C	Via Product Configurator	120	12C	Via Product Configurator	165	54X	2–5% FCBN	115	180
6	6T5F	145	12C		145	12C		195				
9	9T75F	235	14C		235	14C		290				
15	15T75F	300	14C		300	14C		350				
Single Phase—240 x 480 Vac Primary 120/240 Vac Secondary, 60 Hz; UL/cULus Listed												
1	1S1F	21.2	7A	1S1FSS	21.2	7A	Via Product Configurator	48	51X	None	115	180
1.5	1.5S1F	30.1	8A	1.5S1FSS	30.1	8A		55				
2	2S1F	39.1	9A	2S1FSS	39.1	9A		55				
3	3S1F	60	10A	3S1FSS	60	10A		75	52X			
5	5S1F	115	13B	5S1FSS	115	13B		125				
7.5	7S1F	135	13B	7S1FSS	135	13B		150				
10	10S1F	165	13B	10S1FSS	165	13B		180				
15	15S1F	225	15B	15S1FSS	225	15B		390	53X			
Single Phase—480 Vac Primary 120/240 Vac Secondary, 60 Hz; UL/cULus Listed												
3	3S40F	60	10A	3S40FSS	60	10A	4X3S40FSS	75	52X	2–5% FCBN	115	180
5	5S40F	115	13B	5S40FSS	115	13B	4X5S40FSS	125				
7.5	7S40F	135	13B	7S40FSS	135	13B	4X7S40FSS	150				
10	10S40F	165	13B	10S40FSS	165	13B	4X10S40FSS	180				
15	15S40F	225	15B	15S40FSS	225	15B	4X15S40FSS	390	53X			
Single Phase—600 Vac Primary 120/240 Vac Secondary, 60 Hz; UL/cULus Listed												
1	1S51F	21.2	7A	Via Product Configurator	21.2	7A	Via Product Configurator	48	51X	None	115	180
1.5	1.5S51F	30.1	8A		30.1	8A		55				
2	2S51F	39.1	9A		39.1	9A		55				
3	3S4F	60	10A		60	10A		75	52X	2–5% FCBN		
5	5S4F	115	13B		115	13B		125				
7.5	7S4F	135	13B		135	13B		150				
10	10S4F	165	13B		165	13B		180				
15	15S4F	225	15B		225	15B		390	53X			
25	25S4F	300	15B		300	15B		450				
Single Phase—208 Vac Primary 120/240 Vac Secondary, 60 Hz; UL/cULus Listed												
1	1S7F	21.2	7A	Via Product Configurator	21.2	7A	Via Product Configurator	48	51X	None	115	180
1.5	1.5S7F	30.1	8A		30.1	8A		55				
2	2S7F	39.1	9A		39.1	9A		55				
3	Via Product Configurator	60	10A		60	10A		75	52X	2–5% FCBN		
5		115	13B		115	13B		125				
7.5		135	13B		135	13B		150				
10		165	13B		165	13B		180				
15		225	15B		225	15B		390	53X			
25		300	15B		300	15B		450				
Single Phase—277 Vac Primary 120/240 Vac Secondary, 60 Hz; UL/cULus Listed												
1	1S8F	21.2	7A	Via Product Configurator	21.2	7A	Via Product Configurator	48	51X	None	115	180
1.5	1.5S8F	30.1	8A		30.1	8A		55				
2	2S8F	39.1	9A		39.1	9A		55				
3	Via Product Configurator	60	10A		60	10A		75	52X	2–5% FCBN		
5		115	13B		115	13B		125				
7.5		135	13B		135	13B		150				
10		165	13B		165	13B		180				
15		225	15B		225	15B		390	53X			
25		300	15B		300	15B		450				

Table 14.13: Single-Phase—120/240 Vac Secondary 60 Hz; cULus Listed

kVA	240 x 480 Primary Catalog No.	Weight (lbs) [16]	Enclosure[17]	600 Primary Catalog No.	Weight (lbs) [16]	Enclosure[17]	Full Capacity Taps	Degree C Temperature Rise	Insulation Class
0.05	50SV1A	4.2	1A	50SV51A	4.2	1A	None	55	105
0.1	100SV1A	4.5	2A	—	4.5	2A			
0.15	150SV1A	6.2	3A	150SV51A	6.2	3A			
0.25	250SV1B	10.5	4A	250SV51B	10.5	4A		80	130
0.5	500SV1B	13.8	5A	500SV51B	13.8	5A			
0.75	750SV1F	15.5	6A	750SV51F	15.5	6A		115	180

[16] Not for construction, Contact your local Schneider Electric representative for certified prints.
[17] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8
[18] FCBN = Full Capacity Below Normal.

Resin Encapsulated Export Model and Buck Boost Transformers

Single Phase Export Model

These general purpose transformers accommodate voltage systems world wide. Export model transformers 10 kVA and smaller, CE marked in addition to being cULus Listed. For CE marked transformers in other ratings, contact your local Schneider Electric representative for CE marked transformers up to 300 kVA, single and three phase.

Table 14.14: Single-Phase—110 / 220 Vac Secondary; 50/60 Hz; cULus Listed (240 x 480 Vac Primary to 120 / 240 Vac Secondary - 60 Hz only)

kVA	220 x 440 Primary Catalog No.	Weight (lbs)*[19]*	Enclosure*[20]*	Full Capacity Taps	Degree C Temperature Rise	Insulation Class
1	1S67F	21.2	7A	190/200/208/220 x 380/400/416/440	115	180
2	2S67F	39.1	9A			
3	3S67F	55.2	10A			
5	5S67F	135	13B			
7.5	7S67F	165				
10	10S67F	165				

Sealed Single-Phase Buck and Boost

When buck and boost transformers are interconnected as an autotransformer, they can supply small changes in voltage. Wiring diagrams and sizing are available from catalog 7414CT0201 or www.buckboostcalculator.com.
Units can also be used as isolation transformers for:
120 x 240 to 12/24 or 16/32 and 240 x 480 to 24/48 by connecting using the diagram on the nameplate.
NOTE: When used to supply a three-phase four-wire load, the source must be three-phase four-wire.

kVA	120 x 240 Vac Primary 60 Hz		240 x 480 Vac Primary 60 Hz	Weight (lbs)*[19]*	Enclosure*[20]*	Degree C Temperature Rise	Insulation Class
	12/24 Vac Secondary	16/32 Vac Secondary	24/48 Vac Secondary				
0.05	50SV43A	50SV46A	50SV82A	4.2	1A	55	105
0.1	100SV43A	100SV46A	100SV82A	4.5	2A		
0.15	150SV43A	150SV46A	150SV82A	6.2	3A		
0.25	250SV43B	250SV46B	250SV82B	10.5	4A	80	130
0.5	500SV43B	500SV46B	500SV82B	13.8	5A		
0.75	750SV43F	750SV46F	750SV82F	15.5	6A	115	180
1	1S43F	1S46F	1S82F	21.2	7A		
1.5	1.5S43F	1.5S46F	1.5S82F	30.1	8A		
2	2S43F	2S46F	2S82F	39.1	9A		
3	3S43F	3S46F	3S82F	60	See Table 14.15 Enclosure Dimensions, page 14-11.		


Style A—Type 3R Rated


Style B—Type 3R Rated


Style C—Type 3R Rated


Style X—Type 4X Rated

3 kVA Buck Boost

Table 14.15: Enclosure Dimensions

Enclosure Number/ Style		Height		Width		Depth		Mounting
		in.	mm	in.	mm	in.	mm	
1	A	5.00	127	4.47	114	3.44	87	Wall
2		5.50	140	4.47	114	3.44	87	
3		5.00	127	4.85	123	3.75	95	
4		5.50	140	5.23	133	4.06	103	
5		6.19	157	6.19	157	4.69	119	
6		6.69	170	6.19	157	4.69	119	
7		8.13	270	6.94	176	5.31	135	
8		8.25	210	8.68	220	6.56	167	
9		9.56	243	8.68	220	6.56	167	
10		10.50	267	8.62	219	6.50	165	
11		12.56	319	8.62	219	6.50	165	
* 3 kVA Buck Boost		14.5	—	8.62	—	6.5	—	—
12	C	13.50	343	14.75	375	9	229	Wall
13	B	14.75	375	9.75	248	11.75	298	
14	C	14.75	375	19.1	485	2.25	311	
15	B	20.00	508	15	381	13.5	343	
16	C	22.00	559	25	635	13.5	343	
51	X	9.5	24	10	25	7.75	20	
52		12	30	13.75	35	13.75	35	
53		24	61	21.5	55	16.38	42	Floor
54		23	58	25.5	65	13.75	35	
55		31.5	80	31.5	80	16.25	41	

These dimensions are not for construction. Contact you local Schneider Electric representative for certified prints.

Fingersafe™ terminal block cover kits for encapsulated transformers can be used to meet touch-safe requirements.

Enclosure	Kit Catlog Number	Description
7A (1 kVA)	7400ENT9	Terminal Block H1, H2, H3, H4, H5, H6, H7, H8, H9, H10 and X1, X2, X3, X4
9A (2 kVA)	7400ENT11	
10A (3 kVA)	7400ENT11	
13B (5–10 kVA)	7400ENT13	

[19] Not for construction, Contact your local Schneider Electric representative for certified prints.
[20] For enclosure styles, see Table 14.15 Enclosure Dimensions, page 14-11

Table 14.16: NV Three Phase; 60 Hz; 208Y / 120 Vac Secondary[21]

kVA	Type 3R - IP 54 Catalog No.	Type 3R - IP 54 Catalog 304 Stainless Steel	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Weight (lbs) [22]	Enclosure[23]
480 Vac Delta Primary, Aluminum Windings								
15	15T3HNV	Via Product Configurator	6–2.5%2+4–	150	220	2.8	—	—
30	30T3HNV					3.5	340	19E
45	45T3HNV					3.3	510	19E
75	75T3HNV					2.5	1025	22E
112.5	112T3HNV					3.3	1250	24E
150	150T3HNV					2.9	2000	25E

Table 14.17: NV Single Phase; 60 Hz; 120/240 Vac Secondary[21]

kVA	Type 3R - IP 54 Catalog No.	Type 3R - IP 54 Catalog 304 Stainless Steel	Full Capacity Taps	Degree C Temp. Rise	Insulation Class	%IZ	Weight (lbs) [22]	Enclosure[23]
240 x 480 Vac Primary, Aluminum Windings								
15	15S3HNV	Via Product Configurator	480 Vac 6 - 2.5% 2+4- 240 Vac 3 -5% 1+2-	150	220	4.4	230	17E
25	25S3HNV					4.1	310	18E
37.5	37S3HNV					4.4	350	18E
50	50S3HNV					3.1	450	21E
75	75S3HNV					2.9	880	24E
100	100S3HNV					1.7	975	25E

Style E—IP55 Rated

Table 14.18: Enclosure Dimensions and Accessories

Enclosure Number/ Style		Height		Width		Depth		Mount-ing	Wall Mounting Bracket	Ceiling Mounting Bracket	Insula-tion Class °C
		in.	mm	in.	mm	in.	mm				
17	E	27	686	20	508	16	406	Floor	WMB361362	CMB363	220
18	E	30	762	20	508	20	508		WMB363364	CMB363	
19	E	30	762	30	762	20	508		WMB363364	CMB364	
21	E	37	940	30	762	24	610		—	CMB364	
22	E	43.75	1111	32	813	27	686		—	CMB380	
24	E	49.5	1257	35	889	28.5	724		—	CMB381	
25	E	49.5	1257	41	1041	32	813		—	—	
26	E	57.5	1461	41	1041	32	813		—	—	
28	E	60	1524	56	1422	36	914		—	—	
29	E	68	1727	56	1422	36	914		—	—	
30	E	71	1803	48	1219	36	914		—	—	
31	E	74	1880	56	1422	40.5	1029		—	—	

These dimensions are not for construction. Contact your local Schneider Electric representative for certified prints.

[21] Lugs are furnished by customer.
[22] Not for construction, Contact your local Schneider Electric representative for certified prints.
[23] For enclosure styles, see Table 14.8 Enclosure Dimensions and Accessories, page 14-8

Sealed, Mini Power-Zone™ Unit Substation

The Square D™ brand Mini Power-Zone™ unit substation from Schneider Electric provides the answer to requirements for a compact unit substation at low amperage ratings.. This complete package yields considerable savings on floor space, installation, and overall cost.

NOTE: Mini Power-Zone unit substations are UL 1062 Listed File E92978 design in a Type 3R enclosure allowing for indoor or outdoor applications. Designed for wall-mounting, the unit substation leverages Schneider Electric components integrated into one device.

- Epoxy resin encapsulated low voltage transformer
- H-frame main circuit breaker
- Secondary main circuit breaker
- Square D panel board or load center allowing for QO™ or QOB™ branch circuit breakers

New!

New MPU solution leverages the latest load center interiors, giving customers more flexibility for branch circuit requirements. Additionally design with a tiered dead front construction. The first dead front allows access to the secondary main circuit breaker, distribution panel board, and the second dead front. The second dead front allows access to the primary main circuit breaker and incoming voltage connection points.

Table 14.19: Distribution System Square D Load Centers (allowing plug-on QO circuit breakers only)

kVA	Catalog No.	Full Capacity Taps[16]	Enclosure	Weight (lbs)	Primary Main Circuit Breaker Rating (A)	Secondary Main Circuit Breaker Rating (A)	Spaces for Branch Circuit Breakers
Single Phase Unit Substation Input: 480 Vac, 18 kAIC; Output: 120 / 240 Vac							
3	MPU3S40F	2–5% FCBN	MPU-A	85	15	15	10
5	MPU5S40F	2–5% FCBN	MPU-A	135	15	30	10
7.5	MPU7S40F	2–5% FCBN	MPU-A	145	20	40	10
10	MPU10S40F	2–5% FCBN	MPU-A	220	30	60	10
15	MPU15S40F	2–5% FCBN	MPU-B	350	60	80	22
25	MPU25S40F	2–5% FCBN	MPU-B	425	100	125	22
Three-Phase Unit Substation Input: 480 Vac 18 kAIC; Output: 208Y / 120 Vac							
15	MPU15T2F	2–5% FCBN	MPU-C	510	40	60	27
22.5	MPU22T2F	2–5% FCBN	MPU-C	670	60	80	27
30	MPU30T2F	2–5% FCBN	MPU-C	695	90	100	27

NOTE: Dimensions should not be used for construction. Contact you local Schneider Electric representative for certified prints.
FCBN = Full Capacity Below Normal

Table 14.20: Bolt-On Circuit Breakers

kVA	Catalog No.				Full Capacity Taps[16]	Enclosure	Weight (lbs)	Primary Main Circuit Breaker Rating (A)	Secon-dary Main Circuit Breaker Rating (A)	Spaces for Branch Circuit Breakers
	18 kAIC		25 kAIC	65 kAIC						
Single-Phase Unit Substation Input: 480 Vac, 18 kAIC; Output: 120 / 240 Vac										
3	MPUB3S40F	MPUB3S40FSS	MPUB3S40FG	MPUB3S40FJ	2–5% FCBN	MPUB-AA	137	15	15	16
5	MPUB5S40F	MPUB5S40FSS	MPUB5S40FG	MPUB5S40FJ	2–5% FCBN	MPUB-AA	187	15	30	16
7.5	MPUB7S40F	MPUB7S40FSS	MPUB7S40FG	MPUB7S40FJ	2–5% FCBN	MPUB-AA	207	20	40	16
10	MPUB10S40F	MPUB10S40FSS	MPUB10S40FG	MPUB10S40FJ	2–5% FCBN	MPUB-AA	237	30	60	16
15	MPUB15S40F	MPUB15S40FSS	MPUB15S40FG	MPUB15S40FJ	2–5% FCBN	MPZUB-BB	367	60	80	28
25	MPUB25S40F	MPUB25S40FSS	MPUB25S40FG	MPUB25S40FJ	2–5% FCBN	MPZUB-BB	442	100	125	28
Three-Phase Unit Substation Input: 480 Vac, 18 kAIC; Output 208Y / 120 Vac										
15	MPUB15T2F	MPUB15T2FSS	MPUB15T2FG	MPUB15T2FJ	2–5% FCBN	MPUB-CC	541	40	60	27
22.5	MPUB22T2F	MPUB22T2FSS	MPUB22T2FG	MPUB22T2FJ	2–5% FCBN	MPUB-CC	701	60	80	27
30	MPUB30T2F	MPUB30T2FSS	MPUB30T2FG	MPUB30T2FJ	2–5% FCBN	MPUB-CC	726	90	100	27

Table 14.21: Enclosure Dimensions and Accessories

Enclosure Number/ Style	Height		Width		Depth		Mounting
	in.	mm	in.	mm	in.	mm	
MPU-A	32.90	836.0	14.00	356	11.80	300	Wall
MPU-B	43.20	1097.0	21.00	533	13.50	343	Wall
MPU-C	45.20	1148.0	27.40	696	13.50	343	Wall
MPU-AA	43.20	—	16.00	—	11.75	—	Wall
MPU-BB	51.00	—	27.40	—	13.50	—	Wall
MPU-CC	51.20	—	27.40	—	13.50	—	Wall

Type T and Type TF

Type T transformers are designed with low impedance windings for excellent voltage regulation and can accommodate the high inrush current associated with contactors, starters, solenoids, and relays. Type T transformers are manufactured using the most advanced insulating materials and are the best choice if size and cost are of concern.

Type TF transformers include factory-installed primary and secondary fuse blocks. Type TF transformers consist of two primary fuse blocks and one secondary fuse block. The primary includes rejection-style clips to increase the AIC ratings for the fuses. Since the fuse blocks are mounted on the top of the transformer, Type TF transformers are interchangeable with Type T transformers except for their increased height.

Selection Guide

1. Determine the inrush and sealed VA of each coil in the control circuit and the VA of all other components.
2. Total the **sealed** VA of all operating coils and the VA of all other loads. (This determines the minimum VA size required for the circuit.)
3. Total the **inrush** VA of all coils that are starting at the same time and all loads and coils that are running.
4. Locate a value in the VA column of Table 14.22 Regulation Chart for Type T, page 14-14, shown below, that is **equal to** or **greater than** the value calculated in step 2.
5. In the VA row selected in step 4, find the inrush value under the appropriate voltage regulation column of Table 14.22 Regulation Chart for Type T, page 14-14, shown below. If this value is **greater than** the calculated value from step 3, this is the correct transformer VA rating.

   If the inrush value on the selected VA row is **not greater than** the calculated value from step 3, use the next higher transformer VA rating, that is, the rating on the next row.

If your supply voltage is stable and fluctuates less than 5%, Schneider Electric recommends you use the 90% secondary voltage column. If your supply voltage is not stable and fluctuates more than 10% we recommend you use the 95% secondary voltage column. We recommend that you never use the 85% secondary voltage column since magnetic devices lose life expectancy if they are continuously started at 85% of rated voltage.

Table 14.22: Regulation Chart for Type T

VA	Inrush VA @ 20% power factor			Inrush VA @ 40% power factor		
	95% Secondary Voltage	90% Secondary Voltage	85% Secondary Voltage	95% Secondary Voltage	90% Secondary Voltage	85% Secondary Voltage
50	193	266	339	151	215	282
75	271	396	20	210	318	430
100	339	499	659	266	404	549
150	666	893	1120	529	731	942
200	588	815	1041	459	659	866
250	1416	1910	2388	1057	1494	1936
300	1634	2184	2709	1194	1681	2169
350	1894	2592	3261	1392	2005	621
500	3197	4104	4981	2374	3195	4019
750	3770	5515	7231	2887	4391	5945
1000	6587	9079	11430	4706	6886	9051
1500	19324	23983	28607	15066	19361	23756
2000	31384	38777	6161	24794	31630	38667
3000	26539	39934	52713	19355	30721	42216
5000	53111	85265	116277	39368	66309	93882

Table 14.23: 240 x 480 V Primary, 120 V Secondary; 230 x 460 V Primary, 115 V Secondary; 220 x 440 V Primary, 110 V Secondary

VA		Type T	Type TF	Weight lbs.	Height				Width		Depth		Accesso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
25	25	9070T25D1	—	2.5	2.58	66	4.00	102	3.00	76	3.09	79	FSC1
50	50	9070T50D1	9070TF50D1										
75	75	9070T75D1	9070TF75D1	3.8	2.89	73	4.18	106	3.38	86	3.34	85	
100	100	9070T100D1	9070TF100D1										
150	150	9070T150D1	9070TF150D1	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
200	200	9070T200D1	9070TF200D1										
250	160	9070T250D1	9070TF250D1	7.1							5.30	135	FSC2
300	200	9070T300D1	9070TF300D1	8.5							4.74	120	
350	250	9070T350D1	9070TF350D1	10.5	3.84	98	5.13	130	4.50	114	5.11	130	
500	300	9070T500D1	9070TF500D1	11.9							5.49	139	
750	500	9070T750D1	9070TF750D1	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
1000	630	9070T1000D1	9070TF1000D1	20.6							6.30	160	
1500	1000	9070T1500D1	9070TF1500D1	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
2000	1500	9070T2000D1	9070TF2000D1	47.0							7.17	182	
3000	2000	9070T3000D1	—	60.0	8.75	222	—	—	9.00	229	7.24	184	
5000	3000	9070T5000D1	—	89.0							9.15	232	

Table 14.24: 208 Vac Primary, 120 Vac Secondary

VA		Type T	Type TF	Weight	Height				Width		Depth		Accesso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D3	9070TF50D3	2.5	2.58	66	4.00	102	3.00	76	3.09	79	FSC1
100	100	9070T100D3	9070TF100D3	3.8	2.89	73	4.18	106	3.38	86	3.34	85	
150	150	9070T150D3	9070TF150D3	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
200	200	9070T200D3	9070TF200D3										
250	160	9070T250D3	9070TF250D3	7.1							5.30	135	FSC2
300	200	9070T300D3	9070TF300D3	8.5							4.74	120	
350	250	9070T350D3	9070TF350D3	10.5	3.84	98	5.13	130	4.50	114	5.11	130	
500	300	9070T500D3	9070TF500D3	11.9							5.49	139	
750	500	9070T750D3	9070TF750D3	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
1000	630	9070T1000D3	9070TF1000D3	20.6							6.30	160	
1500	1000	9070T1500D3	9070TF1500D3	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
2000	1500	9070T2000D3	9070TF2000D3	47.0							7.17	182	
3000	2000	9070T3000D3	—	60.0	8.75	222	—	—	9.00	229	7.24	184	
5000	3000	9070T5000D3	—	89.0							9.15	232	

Table 14.25: 600 Vac Primary, 120 Vac Secondary

VA		Type T	Type TF	Weight	Height				Width		Depth		Accesso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D5	9070TF50D5	2.5	2.58	66	4.00	102	3.00	76	3.09	79	FSC1
100	100	9070T100D5	9070TF100D5	3.8	2.89	73	4.18	106	3.38	86	3.34	85	
150	150	9070T150D5	9070TF150D5	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
200	200	9070T200D5	9070TF200D5										
250	160	9070T250D5	9070TF250D5	7.1							5.30	135	FSC2
300	200	9070T300D5	9070TF300D5	8.5							4.74	120	
350	250	9070T350D5	9070TF350D5	10.5	3.84	98	5.13	130	4.50	114	5.11	130	
500	300	9070T500D5	9070TF500D5	11.9							5.49	139	
750	500	9070T750D5	9070TF750D5	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
1000	630	9070T1000D5	9070TF1000D5	20.6							6.30	160	
1500	1000	9070T1500D5	9070TF1500D5	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
2000	1500	9070T2000D5	9070TF2000D5	47.0							7.17	182	
3000	2000	9070T3000D5	—	60.0	8.75	222	—	—	9.00	229	7.24	184	

Table 14.26: 277 Vac Primary, 120 Vac Secondary

VA		Type T	Type TF*[1]*	Weight	Height				Width		Depth		Accesso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
25	25	9070T25D4	—	2.5	2.58	66	—	—	3.00	76	3.09	79	FSC1
50	50	9070T50D4	—										
75	75	9070T75D4	—	3.8	2.89	73	—	—	3.38	86	3.34	85	
100	100	9070T100D4	—										
150	150	9070T150D4	—	5.5	3.20	81	—	—	3.75	95	3.59	91	
200	200	9070T200D4	—										
250	160	9070T250D4	—	7.1							5.30	135	FSC2
300	200	9070T300D4	—	8.5							4.74	120	
350	250	9070T350D4	—	10.5	3.84	98	—	—	4.50	114	5.11	130	
500	300	9070T500D4	—	11.9							5.49	139	
750	500	9070T750D4	—	11.0	4.51	115	—	—	5.25	133	5.61	143	
1000	630	9070T1000D4	—	20.6							6.30	160	
1500	1000	9070T1500D4	—	34.0	6.17	157	—	—	7.06	179	5.92	150	
2000	1500	9070T2000D4	—	47.0							7.17	182	

[1] TF units are design for line to line voltages on the primary, 277 Vac is a line to neutral voltage.

Table 14.27: 240 x 480 V Primary, 120/240 V Secondary; 230 x 460 V Primary, 115/230 V Secondary; 220 x 440 V Primary, 110/220 V Secondary

VA		Type T	Type TF[2]	Weight	Height				Width		Depth		Accessory Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D31	9070TF50D31	2.5	2.58	66	4.00	102	3.00	76	3.09	79	FSC1
100	100	9070T100D31	9070TF100D31	3.8	2.89	73	4.18	106	3.38	86	3.34	85	
150	150	9070T150D31	9070TF150D31	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
200	200	9070T200D31	9070TF200D31										
250	160	9070T250D31	9070TF250D31	7.1							5.30	135	FSC2
500	300	9070T500D31	9070TF500D31	11.9	3.84	98	5.13	130	4.50	114	5.49	139	
750	500	9070T750D31	9070TF750D31	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
1000	630	9070T1000D31	9070TF1000D31	20.6							6.30	160	
1500	1000	9070T1500D31	9070TF1500D31	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
2000	1500	9070T2000D31	9070TF2000D31	47.0							7.17	182	
3000	2000	9070T3000D31	—	60.0	8.75	222	—	—	9.00	229	7.24	184	
5000	3000	9070T5000D31	—	89.0							9.15	232	

Table 14.28: 600 Vac Primary, 120/240 Vac Secondary

VA		Type T	Type TF[2]	Weight	Height				Width		Depth		Accessory Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D37	9070TF50D37	2.5	2.58	66	4.00	102	3.00	76	3.09	79	FSC1
100	100	9070T100D37	9070TF100D37	3.8	2.89	73	4.18	106	3.38	86	3.34	85	
150	150	9070T150D37	9070TF150D37	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
200	200	9070T200D37	9070TF200D37									91	
250	160	9070T250D37	9070TF250D37	7.1							5.30	135	FSC2
500	300	9070T500D37	9070TF500D37	11.9	3.84	98	5.13	130	4.50	114	5.49	139	
750	500	9070T750D37	9070TF750D37	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
1000	630	9070T1000D37	9070TF1000D37	20.6							6.30	160	
1500	1000	9070T1500D37	9070TF1500D37	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
2000	1500	9070T2000D37	9070TF2000D37	47.0							7.17	182	
3000	2000	9070T3000D37	—	60.0	8.75	222	—	—	9.00	229	7.24	184	
5000	3000	9070T5000D37	—	89.0							9.15	232	

Table 14.29: 380/400/415 Vac Primary, 115/230 Vac Secondary

VA		Type T	Type TF	Weight	Height				Width		Depth		Accessory Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D33	—	2.5	2.58	66	—	—	3.00	76	3.09	79	FSC1
100	100	9070T100D33	—	3.8	2.89	73	—	—	3.38	86	3.34	85	
150	150	9070T150D33	—	5.5	3.20	81	—	—	3.75	95	3.59	91	
200	200	9070T200D33	—										
250	160	9070T250D33	—	7.1								135	FSC2
300	200	9070T300D33	—	8.5	3.84	98	—	—	4.50	114	4.74	120	
350	250	9070T350D33	—	10.5							5.11	130	
500	300	9070T500D33	—	11.9							5.49	139	
750	500	9070T750D33	—	11.0	4.51	115	—	—	5.25	133	5.61	143	
1000	630	9070T1000D33	—	20.6							6.30	160	
1500	1000	9070T1500D33	—	34.0	6.17	157	—	—	7.06	179	5.92	150	
2000	1500	9070T2000D33	—	47.0							7.17	182	
3000	2000	9070T3000D33	—	60.0	8.75	222	—	—	9.00	229	7.24	184	
5000	3000	9070T5000D33	—	89.0							9.15	232	

Field Installed Fuse Blocks—Design for Line to Line Primary Voltages and Line to Neutral Secondary Voltages

Table 14.30: Accessories

Catalog No.	Voltage Codes			Description	Order Qty
Fuse Kit					
—	D1, D2, D3, D4, D5, D13, D14,D15, D23, D31, D33, D37	D20, D32	D19, D50	—	—
9070FB3A	T25–T200	T25–T150	—	3-pole fuse block for primary and secondary fusing, accommodates 1-1/2 x 13/32 in. midget fuse (2 rejection and 1 non-rejection)	1
9070FB3B	T250–T3000	T250–T2000	T25–T2000		
9070FB2A	T25–T200	T25–T150	—	2-pole fuse block for primary fusing, accommodates 1-1/2 x 13/32 in. midget fuse (2 rejection)	
9070FB2B	T250–T3000	T250–T2000	T25–T2000		
9070SF25A	T25–T200	T25–T150	—	Secondary fuse clips accommodates 1-1/4 x 1/4 in. fuse	10
9070SF25B	T250–T3000	T250–T2000	T25–T2000		
9070SF41A	T25–T200	T25–T150	—	Secondary fuse clips accommodates 1-1/2 x 13/32 in. fuse	
9070SF41B	T250–T3000	T250–T2000	T25–T2000		
9070FB1A	T25–T200	T25–T150	—	Secondary fuse block accommodates 1-1/4 x 1/4 in. fuse	1
9070FB1B	T250–T3000	T250–T2000	T25–T2000		
9070FP1	—	—	—	Fuse puller for TF and FB kits	10

Table 14.31: 208/230/460 Vac Primary, 115 Vac Secondary

VA		Type T	Type TF	Weight	Height				Width		Depth		Accessory Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D20	9070TF50D20	4.0	2.89	73	4.18	106	3.38	86	3.34	85	FSC1
100	100	9070T100D20	9070TF100D20	5.5	3.20	81	4.50	114	3.75	95	3.59	91	
150	150	9070T150D20	9070TF150D20										
250	160	9070T250D20	9070TF250D20	10.5	3.84	98	5.13	130	4.50	114	4.74	120	FSC2

[2] TF designed for line to line primary and line to neutral secondary. If secondary connected in series, fuse block should be disconnected.

Table 14.31 208/230/460 Vac Primary, 115 Vac Secondary (cont'd.)

VA		Type T	Type TF	Weight	Height				Width		Depth		Acceso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
300	200	9070T300D20	9070TF300D20								5.11	130	
350	250	9070T350D20	9070TF350D20	11.9							5.49	139	
500	300	9070T500D20	9070TF500D20	11.0	4.51	115	5.80	147	5.25	133	5.61	143	
750	500	9070T750D20	9070TF750D20	20.6							6.30	160	
1000	630	9070T1000D20	9070TF1000D20	34.0	6.17	157	7.46	190	7.06	179	5.92	150	
1500	1000	9070T1500D20	9070TF1500D20	47.0							7.17	182	

Table 14.32: 240/416/480/600 Vac Primary, 99/120/130 Vac Secondary; 230/400/460/575 Vac Primary, 95/115/125 Vac Secondary; 220/380/440/550 Vac Primary, 90/110/120 Vac Secondary; 208/360/416/520 Vac Primary, 85/104/115 Vac Secondary

VA		Type T	Type TF	Weight	Height				Width		Depth		Acceso-ry Finger-safe Covers
					Type T		Type TF						
UL/CSA/NOM	CE	Catalog No.			in.	mm	in.	mm	in.	mm	in.	mm	
50	50	9070T50D50	9070TF50D50	4.0	2.89	73	4.19	106	3.38	86	4.43	113	FSC23
100	100	9070T100D50	9070TF100D50	7.1	3.20	81	4.50	114	3.75	95	4.70	119	
150	150	9070T150D50	9070TF150D50	8.5	3.84	98	5.14	131	4.50	114	4.74	120	
250	160	9070T250D50	9070TF250D50	10.5							5.11	130	
300	200	9070T300D50	9070TF300D50	11.9							5.49	139	
350	250	9070T350D50	9070TF350D50	11.0	4.51	115	5.81	148	5.25	133	5.61	143	
500	300	9070T500D50	9070TF500D50										
750	500	9070T750D50	9070TF750D50	20.6							6.30	160	
1000	630	9070T1000D50	9070TF1000D50	34.0	6.17	157	7.47	190	7.06	179	5.92	150	
1500	1000	9070T1500D50	9070TF1500D50	47.0							7.17	182	
2000	1500	9070T2000D50	9070TF2000D50	60.0	7.63	194	8.93	227	9.00	229	6.38	162	

Table 14.33: Accessories

Catalog No.	Voltage Codes			Description	Order Qty
—	D1, D2, D3, D4, D5, D13, D14,D15, D23, D31, D33, D37	D20, D32	D19, D50	—	—
9070FSC1	T25–T200	T25–T150	—	2 covers per kit	10
9070FSC2	T250–T5000	T250–T5000	—		
9070FSC23	—	—	T25–T5000		

Table 14.34: 240 x 480 Vac Primary, 24 Vac Secondary

VA		Type T	Weight	Height		Width		Depth		Accesory Fingersafe Covers
				Type T						
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
50	50	9070T50D2	2.5	2.58	66	3.00	76	3.09	79	FSC1
75	75	9070T75D2	3.8	2.89	73	3.38	86	3.34	85	
100	100	9070T100D2								
150	150	9070T150D2	5.5	3.20	81	3.75	95	3.59	91	
200	200	9070T200D2								
250	160	9070T250D2	7.1					5.30	135	FSC2
300	200	9070T300D2	8.5	3.84	98	4.50	114	4.74	120	
500	300	9070T500D2	11.9					5.49	139	
750	500	9070T750D2	11.0	4.51	115	5.25	133	5.61	143	
1000	630	9070T1000D2	20.6					6.30	160	

Table 14.35: 208 Vac Primary, 24 Vac Secondary

VA		Type T	Weight	Height		Width		Depth		Accesory Fingersafe Covers
				Type T						
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
50	50	9070T50D14	2.5	2.58	66	3.00	76	3.09	79	FSC1
100	100	9070T100D14	3.8	2.89	73	3.38	86	3.34	85	
150	150	9070T150D14	5.5	3.20	81	3.75	95	3.59	91	
200	200	9070T200D14								
250	160	9070T250D14	7.1					5.30	135	FSC2

Table 14.36: 120 x 240 Vac Primary, 24 Vac Secondary

VA		Type T	Weight	Height		Width		Depth		Accesory Fingersafe Covers
				Type T						
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
50	50	9070T50D23	2.5	2.58	66	3.00	76	3.09	79	FSC1
75	75	9070T75D23	3.8	2.89	73	3.38	86	3.34	85	
100	100	9070T100D23								
150	150	9070T150D23	5.5	3.20	81	3.75	95	3.59	91	
200	200	9070T200D23								
250	160	9070T250D23	7.1					5.30	135	FSC2
350	250	9070T350D23	10.5	3.84	98	4.50	114	5.11	130	
500	300	9070T500D23	11.9					5.49	139	
750	500	9070T750D23	11.0	4.51	115	5.25	133	5.61	143	
1000	630	9070T1000D23	20.6					6.30	160	

Table 14.37: 120 Vac Primary, 12/24 Vac Secondary

VA		Type T	Weight	Height		Width		Depth		Accesory Fingersafe Covers
				Type T						
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
50	50	9070T50D13	2.5	2.58	66	3.00	76	3.09	79	FSC1
75	75	9070T75D13	3.8	2.89	73	3.38	86	3.34	85	
100	100	9070T100D13								
150	150	9070T150D13	5.5	3.20	81	3.75	95	3.59	91	
200	200	9070T200D13								

Table 14.37 120 Vac Primary, 12/24 Vac Secondary (cont'd.)

VA		Type T	Weight	Height Type T		Width		Depth		Accesory Fingersafe Covers
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
250	160	9070T250D13	7.1					5.30	135	
300	200	9070T300D13	8.5	3.84	98	4.50	114	4.74	120	
500	300	9070T500D13	11.9					5.49	139	FSC2
750	500	9070T750D13	11.0	4.51	115	5.25	133	5.61	143	
1000	630	9070T1000D13	20.6					6.30	160	

Table 14.38: 208/240/277/380/480 Vac Primary, 24 Vac Secondary

VA		Type T	Weight	Height Type T		Width		Depth		Accesory Fingersafe Covers
UL/CSA/NOM	CE	Catalog No.		in.	mm	in.	mm	in.	mm	
50	50	9070T50D19	4.0	2.89	106	3.38	86	3.34	85	
75	75	9070T75D19	5.5							
100	100	9070T100D19		3.20	114	3.75	95	3.59	91	
150	150	9070T150D19								FSC23
200	200	9070T200D19	8.5					5.30	135	
250	160	9070T250D19	10.5	3.84	130	4.50	114	4.74	120	
500	300	9070T500D19	11.0	4.51	147	5.25	133	5.61	143	

Transformer disconnects are available in NEMA Type 1 Standard, NEMA Type 12 Standard, and NEMA Type 1 Mini.

Transformer Disconnects for NEMA Type 1 and Type 12 Enclosures

Square D brand transformer disconnects mount inside or outside a control system enclosure. The transformer disconnect being connected directly to the 480 Vac system controls power for auxiliary, single-phase loads when the main three-phase disconnect is either ON or OFF. The transformer disconnect is normally wired to the line side of the control panel's main disconnect.

This convenient source of 120 Vac power can be used for auxiliary or isolated loads, such as panel lighting, portable power tools, and programmable controller equipment.

Units consist of copper-wound transformers, a disconnect switch, and primary and secondary fuse blocks. All blocks are installed in NEMA Type 1 or Type 12 enclosures.

Transformer disconnects are UL Listed. Use Square D brand Type TF industrial control transformers and Square D brand disconnect switches.

Multiple enclosure options and accessories are available. See catalog 9070CT0301 or contact your local Schneider Electric representative or distributor.

- Standard NEMA Type 1
- Mini NEMA Type 1
- Compact NEMA Type 1
- NEMA Type 12

Contact local Schneider Representative for catalog number and quotation.

Power-Cast™ II

Liquid Filled Pad Mounted

Liquid Filled Substation

Power-Dry™ II

Medium Voltage Distribution Transformers

In 2010 Schneider Electric released energy efficient transformers based on the Department of Energy (DOE) 10 CFR Part 431 Energy Conservation program for Commercial Equipment. On April 18, 2013 the United States Department of Energy (DOE) issued its final ruling on transformer efficiency for liquid-filled and dry-type distribution transformers. The ruling impacts single phase (10 kVA to 833 kVA) and three phase (15 kVA to 2,500 kVA). Distribution transformers manufactured in, or imported into the U.S. and its territories on or after January 1, 2016 are required to comply with the new DOE standards. Schneider Electric medium voltage transformers provide the solution to help end users to comply with this DOE ruling. Our commitment is for you to meet DOE compliance, improve energy efficiency, and create a positive impact on the environment by updating to our energy efficient products.

Table 14.39: Standard Efficiency Levels for Liquid Immersed Distribution Transformers

Single Phase	
kVA	Efficiency %
10	98.7
15	98.82
25	98.95
37.5	99.05
50	99.11
75	99.19
100	99.25
167	99.33
250	99.39
333	99.43
500	99.49
667	99.52
833	99.55
—	—

Three Phase	
kVA	Efficiency %
—	—
—	—
45	98.92
75	99.03
112.5	99.11
150	99.16
225	99.23
300	99.27
500	99.35
750	99.4
1000	99.43
1500	99.48
2000	99.51
2500	99.53

All Efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Procedure 10 CFR 431, Subpart K, Appendix A.

Table 14.40: Standard Levels for Medium Voltage Dry Type Distribution Transformers

kVA	Single Phase			kVA	Three Phase		
	20-45kV BIL Efficiency %	46-95 kV BIL Efficiency %	>/ 96 kV BIL Efficiency %		20-45kV BIL Efficiency %	46-95 kV BIL Efficiency %	>/ 96 kV BIL Efficiency %
15	98.1	97.86	—	45	98.1	97.86	—
25	98.33	98.12	—	75	98.33	98.13	—
37.5	98.49	98.3	—	112.5	98.52	98.36	—
50	98.6	98.42	—	150	98.65	98.51	—
75	98.73	98.57	98.53	225	98.82	98.69	98.57
100	98.82	98.67	98.63	300	98.93	98.81	98.69
167	98.96	98.83	98.8	500	99.09	98.99	98.89
250	99.07	98.95	98.91	750	99.21	99.12	99.02
333	99.14	99.03	98.99	1000	99.28	99.2	99.11
500	99.22	99.12	99.09	1500	99.37	99.3	99.21
667	99.27	99.18	99.15	2000	99.43	99.36	99.28
833	99.31	99.23	99.2	2500	99.47	99.41	99.33

NOTE: BIL means Basic Impulse Level.

NOTE: All Efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Procedure 10 CFR 431, Subpart K, Appendix A.

Style D, NEMA 1 Rated

Style F—NEMA 1 Rated

General Purpose Dry Type Medium Voltage Transformers

All Transformers are built with 220 C Insulation and 150 C Temperature Rise

Optional Temperature Rise of 115 C and 80 C.

Aluminum windings are standard, with an option for Copper Windings

Standard high voltage taps: 4-2.5%, 2FCAN and 2FCBN. Optional 4-2.5% FCBN

1,201–15,000 Vac Single-Phase Indoor Transformers

Enclosure Dimensions will be available with Product Selector output.

Lugs: Furnished by customer.

General Purpose Power-Dry™ II Stand Alone Dry Type Medium Voltage Transformers

Now Supported via product selector:

- Three Phase – 112.5 kVA to 3000 kVA
- Single Phase – 167 kVA to 333k VA
- Aluminum or Copper Windings, 220°C Insulation with 150°C default temperature rise with options for 115°C or 80°C rise

Enclosure is for indoor use only, contact local Schneider Electric representation for outdoor applications.

Primary Voltages 1201 V to 15 KV with taps 2-2.5% FCAN, 2-2.5% FCBN

- 2.4 kV Class @ 30 kV BIL
- 5 kV Class @ 30 kV BIL
- 15 kV Class @ 60 kV BIL

Secondary Voltages:

- Three Phase: 208Y/120, 480Y/277, 240 Delta, 480 Delta, 600 Delta
- Single Phase: 120/240, 277

All secondary voltages are at 10 kV BIL