

# How DOE mandates affect Low Voltage Distribution Transformers

## Cross Reference Document for Prefix EE to EX Transformers



The 2005 Energy Act set Low Voltage Distribution Transformers efficiency levels for all products manufactured after January 1, 2007, and also authorized the Department of Energy (DOE) to analyze and mandate levels for all Distribution Transformers.

Following its analysis, the DOE has chosen to increase the levels of efficiency on Low Voltage Transformers for all units manufactured after December 31, 2015. (10 CFR 431.192 April 2013).

This change requires manufacturers to redesign their products to comply with the new levels. The changes in 2007 were mostly core material, whereas this next level of efficiency has affected core configuration, core material, and coil sizes. The mandate also went from three significant digits to four significant digits, requiring less manufacturing variability between units.

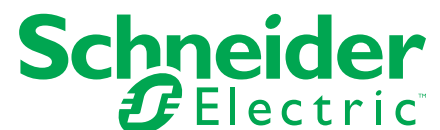
Features	
15-150 kVA	225-750 kVA
<ul style="list-style-type: none"><li>• ½" clearance from the wall</li><li>• Defined conduit entry area on sides and bottom for ease of access</li><li>• Defined area for ground terminals to be landed</li><li>• Terminals – Primary and Secondary separated for ease of identification</li><li>• Terminals located to meet NEC bending radius with published wire range</li><li>• External Mounting 'L' Brackets for installation of PAD mounting hardware</li></ul>	<ul style="list-style-type: none"><li>• ½" clearance from the wall</li><li>• Entire bottom open for conduit entry or floor duct entry</li><li>• Defined area for ground terminals to be landed</li><li>• Terminals – Primary and Secondary separated for ease of identification</li><li>• Terminals located to meet NEC bending radius with published wire range</li><li>• External Mounting 'L' Brackets for installation of PAD mounting hardware</li></ul>



*Schneider Electric is launching a new offering to **not only comply with the next level of efficiency, but incorporates customer feedback from the 2007 EE product launch.** NEC updates are also incorporated into this new offering.*



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**Table 1.0**

Three Phase, 480 Delta to 208Y/120, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T3H	EX15T3H
30	EE30T3H	EX30T3H
45	EE45T3H	EX45T3H
75	EE75T3H	EX75T3H
112.5	EE112T3H	EX112T3H
150	EE150T3H	EX150T3H
225	EE225T3H	EX225T3H
300	EE300T3H	EX300T3H
500	EE500T68H	EX500T68H
750	EE750T68H	EX750T68H

**Table 2.0**

Three Phase, 480 Delta to 208Y/120, Copper Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T3HCU	EX15T3HCU
30	EE30T3HCU	EX30T3HCU
45	EE45T3HCU	EX45T3HCU
75	EE75T3HCU	EX75T3HCU
112.5	EE112T3HCU	EX112T3HCU
150	EE150T3HCU	EX150T3HCU
225	EE225T3HCU	EX225T3HCU
300	EE300T3HCU	EX300T3HCU
500	EE500T68HCU	EX500T68HCU
750	EE750T68HCU	EX750T68HCU

**Table 3.0**

Three Phase, 480 Delta to 208Y/120, Aluminum Windings, 80°C Rise, 220 Insulation System (also crossing 115°C Rise units) Schneider Electric consolidating to One Watchdog Solution

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T3HB	EX15T3HB
	EE15T3HF	
30	EE30T3HB	EX30T3HB
	EE30T3HF	
45	EE45T3HB	EX45T3HB
	EE45T3HF	
75	EE75T3HB	EX75T3HB
	EE75T3HF	
112.5	EE112T3HB	EX112T3HB
	EE112T3HF	
150	EE150T3HB	EX150T3HB
	EE150T3HF	
225	EE225T3HB	EX225T3HB
	EE225T3HF	
300	EE300T68HB	EX300T68HB
	EE300T68HF	
500	EE500T68HB	EX500T68HB
	EE500T68HF	

**Table 4.0**

Three Phase, 480 Delta to 208Y/120, Copper Windings, 80°C Rise, 220 Insulation System (also crossing 115°C Rise units) Schneider Electric consolidating to One Watchdog Solution

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T3HBCU	EX15T3HBCU
	EE15T3HFCU	
30	EE30T3HBCU	EX30T3HBCU
	EE30T3HFCU	
45	EE45T3HBCU	EX45T3HBCU
	EE45T3HFCU	
75	EE75T3HBCU	EX75T3HBCU
	EE75T3HFCU	
112.5	EE112T3HBCU	EX112T3HBCU
	EE112T3HFCU	
150	EE150T3HBCU	EX150T3HBCU
	EE150T3HFCU	
225	EE225T3HBCU	EX225T3HBCU
	EE225T3HFCU	
300	EE300T68HBCU	EX300T68HBCU
	EE300T68HFCU	
500	EE500T68HBCU	EX500T68HBCU
	EE500T68HFCU	

**Table 5.0**

Three Phase, 600 Delta to 208Y/120, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T65H	EX15T65H
30	EE30T65H	EX30T65H
45	EE45T65H	EX45T65H
75	EE75T65H	EX75T65H
112.5	EE112T65H	EX112T65H
150	EE150T65H	EX150T65H
225	EE225T65H	EX225T65H
300	EE300T65H	EX300T65H
500	EE500T79H	EX500T79H

**Table 6.0**

Three Phase, 240 Delta to 208Y/120, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T67H	EX15T239H
30	EE30T67H	EX30T239H
45	EE45T67H	EX45T239H
75	EE75T67H	EX75T239H
112.5	EE112T67H	EX112T239H
150	EE150T67H	EX150T239H
225	EE225T67H	EX225T239H
300	EE300T239H	EX300T239H
500	EE500T239H	EX500T239H

**Table 7.0**

Three Phase, 208 Delta to 208Y/120, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T211H	EX15T211H
30	EE30T211H	EX30T211H
45	EE45T211H	EX45T211H
75	EE75T211H	EX75T211H
112.5	EE112T211H	EX112T211H
150	EE150T211H	EX150T211H
225	EE225T211H	EX225T211H
300	EE300T211H	EX300T211H
500	EE500T211H	EX500T211H

**Table 8.0**

Three Phase, 480 Delta to 240 Delta w/120CT, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T151HCT	EX15T6HCT
30	EE30T151HCT	EX30T6HCT
45	EE45T151HCT	EX45T6HCT
75	EE75T151HCT	EX75T6HCT
112.5	EE112T151HCT	EX112T6HCT
150	EE150T151HCT	EX150T6HCT
225	EE225T151HCT	EX225T6HCT
300	EE300T151HCT	EX300T6HCT
500	EE500T151HCT	EX500T63HCT

**Table 9.0**

Three Phase, 480 Delta to 480Y/277, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T1814H	EX15T1814H
30	EE30T1814H	EX30T1814H
45	EE45T1814H	EX45T1814H
75	EE75T1814H	EX75T1814H
112.5	EE112T1814H	EX112T1814H
150	EE150T1814H	EX150T1814H
225	EE225T1814H	EX225T1814H
300	EE300T1814H	EX300T1814H
500	EE500T76H	EX500T76H

**Table 10.0**

Three Phase, 208 Delta to 480Y/277, Aluminum Windings, 150°C Rise, 220 Insulation System

kVA	Type EE (OLD)	Type EX (NEW)
15	EE15T212H	EX15T212H
30	EE30T212H	EX30T212H
45	EE45T212H	EX45T212H
75	EE75T212H	EX75T212H
112.5	EE112T212H	EX112T212H
150	EE150T212H	EX150T212H
225	EE225T212H	EX225T212H
300	EE300T212H	EX300T212H
500	EE500T212H	EX500T212H

## Harmonic solutions

Schneider Electric will align this solution to K-9. Based upon 25+ years of market information, the maximum K level seen by a transformer at 100% is K-7. But to allow us to third party list our products (UL® 1561), we will be standardized on K-9. The K-4 and K-13 units will now be one family of products UL listed for K-9. Schneider Electric will also incorporate zigzag secondaries into the harmonic solutions.

**Table 11.0**

Three Phase, 480 Delta to 208Y/120, Aluminum Windings, 220 Insulation System

kVA	Type EE (OLD) K-4, 115°C	Type EX (NEW) K-9, 150°C
15	EE15T3HFISNL	EX15T208HNP
30	EE30T3HFISNL	EX30T208HNP
45	EE45T3HFISNL	EX45T208HNP
75	EE75T3HFISNL	EX75T208HNP
112.5	EE112T3HFISNL	EX112T208HNP
150	EE150T3HFISNL	EX150T208HNP

**Table 12.0**

Three Phase, 480 Delta to 208Y/120, Copper Windings, 220 Insulation System

kVA	Type EE (OLD) K-4, 115°C	Type EX (NEW) K-9, 150°C
15	EE15T3HFISCUNL	EX15T208HCUNP
30	EE30T3HFISCUNL	EX30T208HCUNP
45	EE45T3HFISCUNL	EX45T208HCUNP
75	EE75T3HFISCUNL	EX75T208HCUNP
112.5	EE112T3HFISCUNL	EX112T208HCUNP
150	EE150T3HFISCUNL	EX150T208HCUNP

**Table 13.0**

Three Phase, 480 Delta to 208Y/120, Aluminum Windings, 220 Insulation System

kVA	Type EE (OLD) K-13, 115°C	Type EX (NEW) K-9, 150°C
15	EE15T3HFISNLP	EX15T208HNP
30	EE30T3HFISNLP	EX30T208HNP
45	EE45T3HFISNLP	EX45T208HNP
75	EE75T3HFISNLP	EX75T208HNP
112.5	EE112T3HFISNLP	EX112T208HNP
150	EE150T3HFISNLP	EX150T208HNP

**Table 14.0**

Three Phase, 480 Delta to 208Y/120, Copper Windings, 220 Insulation System

kVA	Type EE (OLD) K-13, 115°C	Type EX (NEW) K-9, 150°C
15	EE15T3HFISCUNLP	EX15T208HCUNP
30	EE30T3HFISCUNLP	EX30T208HCUNP
45	EE45T3HFISCUNLP	EX45T208HCUNP
75	EE75T3HFISCUNLP	EX75T208HCUNP
112.5	EE112T3HFISCUNLP	EX112T208HCUNP
150	EE150T3HFISCUNLP	EX150T208HCUNP

**Schneider Electric USA, Inc**

800 Federal Street  
 Andover, MA 01810  
 Tel: 978-794-0800  
[www.schneider-electric.com/us](http://www.schneider-electric.com/us)