

General Purpose

Energy efficient dry-type transformers 600 Volt Class, isolation type, single and three phase, 15 kVA through 500 kVA. Indoor and outdoor models available.

Accessories and Optional Design Styles

- Electrostatic shield for quality power
- Wall mounting brackets (500 lbs maximum) (Item WB1C)
- Weather Shields (UL Listed/NEMA Type 3R)
- Stainless Steel Enclosures
- Totally enclosed non-ventilated designs (TENV) (Non UL) *
- Open core and coil designs (UL Recognized)
- Copper Wound designs
- Low temperature designs

Features

- Energy Efficient Compliant to DOE 2016 ¹
- UL Listed/NEMA Type 3R ventilated outdoor enclosures when used with optional weather shields (order separately)
- UL Class 220°C insulation system, 150°C temperature rise under full load
- Terminal board connections and spacious wiring compartment



- Panel enclosure design reduces labor time. Wiring diagram on inside front cover.
- High efficiency for low cost operation
- Single and three phase availability
- Fast delivery
- 10 year limited warranty

Certifications and Compliances

- Listed
- UL 1561

Selection Tables: Single Phase

Group 1: 240 x 480 Volt Primary, 120/240 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ²	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ³	Elec Conn ³	Primary Amps	Secondary Amps
15	ES5H15S	WS-15	28 (711)	16 (406)	16 (406)	210 (95)	1	1	62.5/31.3	125/62.5
25	ES5H25S	WS-15	28 (711)	16 (406)	16 (406)	245 (111)	1	1	104/52.1	208/104
37.5	ES5H37S	WS-17	31 (787)	18 (457)	18 (457)	340 (154)	1	1	156/78	313/156
50	ES5H50S	WS-17	31 (787)	18 (457)	18 (457)	415 (188)	1	1	208/104	416/208
75	ES5H75S	WS-09	44 (1118)	23 (584)	21 (533)	610 (277)	1	1	313/156	625/313
100	ES5H100S	WS-09	44 (1118)	23 (584)	21 (533)	705 (320)	1	1	417/208	833/417
167	ES5H167S	WS-16	46 (1168)	26 (660)	24 (610)	980 (445)	1	1	695/348	1392/695

Group 2 – 120/208/240/277 Volt Primary, 120/240 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ²	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ³	Elec Conn ³	Primary Amps @ 277 V	Secondary Amps
15	ES12H15S	WS-15	28 (711)	16 (406)	16 (406)	215 (98)	1	2	54.2	125/62.5
25	ES12H25S	WS-15	28 (711)	16 (406)	16 (406)	250 (113)	1	2	90.3	208/104

Notes:

1. DOE 2016 refers to Department of Energy CFR (Code of Federal Regulations) title 10, part 431.196).
2. Weather shields (set of two) must be ordered separately.
3. Design Styles and Electrical Connections can be found at the end of the Ventilated Distribution Transformers section.

* Not all optional designs are listed. Contact Technical Services.

Selection Tables: Three Phase

Group A: 480 Volt Δ Primary, 208/120 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E2H15 ³	WS-02	23 (584)	18 (457)	14 (356)	221 (100)	1	5	18.1	41.7
	E2H15S									
30	E2H30 ³	WS-14	28 (711)	23 (584)	16 (406)	310 (141)	1	5	36.1	83.4
	E2H30S									
45	E2H45 ³	WS-14	28 (711)	23 (584)	16 (406)	387 (176)	1	5	54.2	125
	E2H45S									
75	E2H75 ³	WS-30	34 (864)	28 (711)	22 (559)	678 (308)	1	5	90.3	208
	E2H75S									
112.5	E2H112S	WS-30	34 (864)	28 (711)	22 (559)	794 (360)	1	5	135	313
150	E2H150S	WS-10	44 (1118)	33 (838)	21 (533)	1005 (456)	1	5	181	417
225	E2H225S	WS-11	46 (1168)	36 (914)	24 (610)	1368 (621)	1	5	271	625
300	E2H300S	WS-11	46 (1168)	36 (914)	24 (6010)	1479 (671)	1	5	361	834
500	E2H500S	WS-12	65 (1651)	45 (1143)	35 (889)	2457 (1114)	1	5	602	1390

Group B: 480 Volt Δ Primary, 240 Volt Δ , Secondary with reduced capacity center tap ⁴, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E5H15 ³	WS-02	23 (584)	18 (457)	14 (356)	221 (100)	1	6	18.1	36.1
	E5H15S									
30	E5H30 ³	WS-14	28 (711)	23 (584)	16 (406)	322 (146)	1	6	36.1	72.3
	E5H30S									
45	E5H45 ³	WS-14	28 (711)	23 (584)	16 (406)	387 (176)	1	6	54.2	108
	E5H45S									
75	E5H75 ³	WS-30	34 (864)	28 (711)	22 (559)	678 (308)	1	6	90.3	181
	E5H75S									
112.5	E5H112S	WS-30	34 (864)	28 (711)	22 (559)	792 (359)	1	6	135	271
150	E5H150S	WS-10	44 (1118)	33 (838)	21 (533)	1009 (458)	1	6	181	361
225	E5H225S	WS-11	46 (1168)	36 (914)	24 (610)	1367 (620)	1	6	271	542
300	E5H300S	WS-11	46 (1168)	36 (914)	24 (610)	1478 (670)	1	6	361	723
500	E5H500S	WS-12	65 (1651)	45 (1143)	35 (889)	2457 (1114)	1	6	602	1204

Notes:

1. Weather shields (set of two) must be ordered separately.
2. Design Styles and Electrical Connections can be found at the end of the Ventilated Distribution Transformers section.
3. Unshielded model.
4. Refer to *Capacity of Center Tap in Center Tap Delta Transformers* at the beginning of this section.

Selection Tables: Three Phase

Group C: 480 Volt Δ Primary, 480Y/277 Secondary, 60 Hz

KVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E81H15S	WS-02	23 (584)	18 (457)	14 (356)	220 (100)	1	8	18.1	18.1
30	E81H30S	WS-14	28 (711)	23 (584)	16 (406)	322 (146)	1	8	36.1	36.1
45	E81H45S	WS-14	28 (711)	23 (584)	16 (406)	387 (176)	1	8	54.2	54.2
75	E81H75S	WS-30	34 (864)	28 (711)	22 (559)	679 (308)	1	8	90.3	90.3
112.5	E81H112S	WS-30	34 (864)	28 (711)	22 (559)	791 (359)	1	8	135	135
150	E81H150S	WS-10	44 (1118)	33 (838)	21 (533)	1001 (454)	1	8	181	181
225	E81H225S	WS-11	46 (1168)	36 (914)	24 (610)	1377 (625)	1	8	271	271
300	E81H300S	WS-11	46 (1168)	36 (914)	24 (6010)	1497 (679)	1	8	361	361
500	E81H500S	WS-12	65 (1651)	45 (1143)	35 (889)	2456 (1114)	1	8	602	602

Group D: 208 Volt Δ Primary, 480Y/277 Secondary, 60 Hz

KVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E84H15S	WS-02	23 (584)	18 (457)	14 (356)	220 (100)	1	10	41.7	18.1
30	E84H30S	WS-14	28 (711)	23 (584)	16 (406)	320 (145)	1	10	83.4	36.1
45	E84H45S	WS-14	28 (711)	23 (584)	16 (406)	390 (177)	1	10	125	54.2
75	E84H75S	WS-30	34 (864)	28 (711)	22 (559)	680 (308)	1	10	208	90.3
112.5	E84H112S	WS-30	34 (864)	28 (711)	22 (559)	799 (362)	1	10	313	135
150	E84H150S	WS-10	44 (1118)	33 (838)	21 (533)	1000 (454)	1	10	417	181

Notes:

1. Weather shields (set of two) must be ordered separately.
2. Design Styles and Electrical Connections can be found at the end of the Ventilated Distribution Transformers section.

Selection Tables: Three Phase

Group E: 208 Volt Δ Primary, 208Y/120 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E3H15S	WS-02	23 (584)	18 (457)	14 (356)	222 (101)	1	9	41.7	41.7
30	E3H30S	WS-14	28 (711)	23 (584)	16 (406)	320 (145)	1	9	83.4	83.4
45	E3H45S	WS-14	28 (711)	23 (584)	16 (406)	390 (177)	1	9	125	125
75	E3H75S	WS-30	34 (864)	28 (711)	22 (559)	679 (308)	1	9	208	208
112.5	E3H112S	WS-30	34 (864)	28 (711)	22 (559)	801 (363)	1	9	313	313
150	E3H150S	WS-10	44 (1118)	33 (838)	21 (533)	1004 (455)	1	9	416	416

Group F: 240 Volt Δ Primary, 208Y/120 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E6H15S	WS-02	23 (584)	18 (457)	14 (356)	220 (100)	1	11	36.1	41.7
30	E6H30S	WS-14	28 (711)	23 (584)	16 (406)	311 (141)	1	11	72.3	83.4
45	E6H45S	WS-14	28 (711)	23 (584)	16 (406)	392 (178)	1	11	108	125
75	E6H75S	WS-30	34 (864)	28 (711)	22 (559)	678 (308)	1	11	181	208
112.5	E6H112S	WS-30	34 (864)	28 (711)	22 (559)	799 (362)	1	11	271	313
150	E6H150S	WS-10	44 (1118)	33 (838)	21 (533)	1005 (456)	1	11	361	417

Group G: 240 Volt Δ Primary, 480Y/277 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E85H15S	WS-02	23 (584)	18 (457)	14 (356)	221 (100)	1	12	36.1	18.1
30	E85H30S	WS-14	28 (711)	23 (584)	16 (406)	322 (146)	1	12	72.3	36.1
45	E85H45S	WS-14	28 (711)	23 (584)	16 (406)	392 (178)	1	12	108	54.2
75	E85H75S	WS-30	34 (864)	28 (711)	22 (559)	682 (309)	1	12	181	90.3
112.5	E85H112S	WS-30	34 (864)	28 (711)	22 (559)	798 (362)	1	12	271	135
150	E85H150S	WS-10	44 (1118)	33 (838)	21 (533)	1001 (454)	1	12	361	181

Notes:

1. Weather shields (set of two) must be ordered separately.

2. Design Styles and Electrical Connections can be found at the end of the Ventilated Distribution Transformers section.

Selection Tables: Three Phase

Group J: 480 Volt Δ Primary, 380Y/220 Secondary, 60 Hz

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E79H15S	WS-02	23 (584)	18 (457)	14 (356)	220 (100)	1	7	18.1	22.8
30	E79H30S	WS-14	28 (711)	23 (584)	16 (406)	320 (145)	1	7	36.1	45.6
45	E79H45S	WS-14	28 (711)	23 (584)	16 (406)	387 (176)	1	7	54.2	68.4
75	E79H75S	WS-30	34 (864)	28 (711)	22 (559)	678 (308)	1	7	90.3	114
112.5	E79H112S	WS-30	34 (864)	28 (711)	22 (559)	797 (362)	1	7	135.3	170.9
150	E79H150S	WS-10	44 (1118)	33 (838)	21 (533)	1011 (459)	1	7	180.4	227.9

Group K: 480 Volt Δ Primary, 208Y/120 Secondary, 60 Hz, Copper-Wound

kVA	Catalog Number	Type 3R Weather Shield ¹	Height in (mm)	Width in (mm)	Depth in (mm)	Approx. Ship Weight lbs (kg)	Design Style ²	Elec Conn ²	Primary Amps	Secondary Amps
15	E2H15SCU	WS-02	23 (584)	18 (457)	14 (356)	255 (116)	1	5	18.1	41.7
30	E2H30SCU	WS-14	28 (711)	23 (584)	16 (406)	349 (158)	1	5	36.1	83.4
45	E2H45SCU	WS-14	28 (711)	23 (584)	16 (406)	455 (206)	1	5	54.2	125
75	E2H75SCU	WS-30	34 (864)	28 (711)	22 (559)	781 (354)	1	5	90.3	208
112.5	E2H112SCU	WS-30	34 (864)	28 (711)	22 (559)	923 (419)	1	5	135	313
150	E2H150SCU	WS-10	44 (1118)	33 (838)	21 (533)	1154 (523)	1	5	181	417
225	E2H225SCU	WS-11	46 (1168)	36 (914)	24 (610)	1539 (698)	1	5	271	625
300	E2H300SCU	WS-11	46 (1168)	36 (914)	24 (610)	1662 (754)	1	5	361	834
500	E2H500SCU	WS-12	65 (1651)	45 (1143)	35 (889)	2457 (1114)	1	5	602	1390

Notes:

1. Weather shields (set of two) must be ordered separately.
2. Design Styles and Electrical Connections can be found at the end of the Ventilated Distribution Transformers section.

Electrical Connections (Single Phase)

1

240 x 480 Volt Primary,
120/240 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary Voltage	Interconnect	Connect Lines To
504	1 to 2	H1 & H2
492	2 to 3	H1 & H2
480	3 to 4	H1 & H2
468	4 to 5	H1 & H2
456	5 to 6	H1 & H2
444	6 to 7	H1 & H2
432	7 to 8	H1 & H2
252	H1 to 2 H2 to 1	H1 & H2
240	H1 to 4 H2 to 3	H1 & H2
228	H1 to 6 H2 to 5	H1 & H2
216	H1 to 8 H2 to 7	H1 & H2
Secondary Voltage	Interconnect	Connect Lines To
240	X2 to X3	X1 & X4
120-0-120	X2 to X3 X2 to \perp	X1-X2-X4
120	X1 to X3 X2 to X4	X1 & X4

ES5 Series

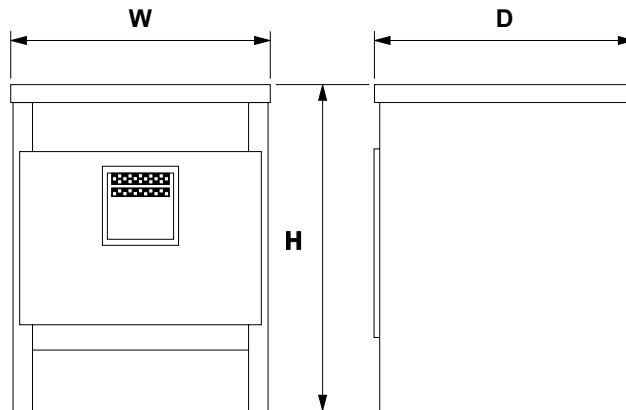
2

120/208/240/277 Volt Primary,
120/240 Volt Secondary
Taps: None

Primary Voltage	Interconnect	Connect Lines To
277	1 to 2	H1 & H2
240	3 to 4	H1 & H2
208	5 to 6	H1 & H2
120	H1 to 4 H2 to 3	H1 & H2
Secondary Voltage	Interconnect	Connect Lines To
240	X2 to X3	X1 & X4
120-0-120	X2 to X3 X2 to \perp	X1-X2-X4
120	X1 to X3 X2 to X4	X1 & X4

ES12 Series

Design Style



Style 1 - Ventilated

Electrical Connections (Three Phase)

480 Δ Volt Primary,
208Y/120 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

5

Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0- X1, X2, X3
1	504	208	120
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		

E2 and 3H Series

** Shield available in electrostatically shielded units only.*

480 Δ Volt Primary,
240 Δ W/120 CT Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

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Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X6-X1, X6-X3
1	504	240	120
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		

E5 Series

** Shield available in electrostatically shielded units only.*

Electrical Connections (Three Phase) cont.

7

480 Δ Volt Primary
380/220 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0- X1, X2, X3
1	504	380	220
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		

E79 Series

8

480 Δ Volt Primary
480Y/277 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0- X1, X2, X3
1	504	480	277
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		

E81 Series

9

208 Δ Volt Primary
208Y/120 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0- X1, X2, X3
1	218	208	120
2	213		
3	208		
4	203		
5	198		
6	192		
7	187		

E3 Series

10

208 Δ Volt Primary
480Y/277 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary X1-X2-X3		Secondary Voltage	
@ Tap	Voltage	H1-H2-H3	H0-H1, H2, H3
1	218	480	277
2	213		
3	208		
4	203		
5	198		
6	192		
7	187		

E84 Series

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240 Δ Volt Primary
208Y/120 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary H1-H2-H3		Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0- X1, X2, X3
1	252	208	120
2	246		
3	240		
4	234		
5	228		
6	222		
7	216		

E6 Series

12

240 Δ Volt Primary
480Y/277 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary X1-X2-X3		Secondary Voltage	
@ Tap	Voltage	H1, H2, H3	H0- H1, H2, H3
1	252	480	277
2	246		
3	240		
4	234		
5	228		
6	222		
7	216		

E85 Series