



Series ES-10 CE Marked Industrial Control Transformers

DONGAN ELECTRIC MANUFACTURING CO. • 2987 FRANKLIN • DETROIT, MI 48207
 800.428.2626 • 313.567.8500 • FAX 313.567.8828 • www.dongan.com

Series ES Industrial Control Transformers are designed to comply with Domestic, North American, and European Union electrical and testing standards. Series ES are UL and Canadian UL Listed by Underwriters Labs. In addition, Series ES are CE Marked, and licensed by the German testing agency TÜV Rheinland under License Number R 9679035.01.

Series ES transformers are the answer to your export needs. With the voltage combinations listed below, and built in approvals, the ES Series provides no-nonsense solutions for control and automation equipment destined for the European Community of nations.

The voltage combinations offered represent some of the most universally used. However, any combination of primary and secondary incorporating voltages of 600 volts and below is available on a short lead time, special order basis. In addition, capacities up to 25 kVA and special temperature rise configurations can be furnished. Please consult your distributor, Dongan Representative, or the factory for special ES Series transformer requirements.

Features

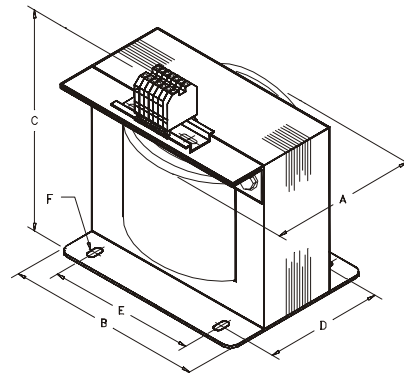
- CE Marked
 - TÜV Rheinland Licensed, R 9679035.01
 - UL Listed, File E3210.
 - CSA Listed
- Agency Compliance
-
- All copper windings.
 - IEC type finger safe terminals.
 - 200°C Insulation System.
 - 50/60 Hertz.
 - Class 1, general use, isolating transformer.
 - All Series ES are provided with an electrostatic shield (earth metal screen).
 - All Series ES are provided with a color coded protective earth (PE) terminal.
 - Consult factory for desired voltage combinations and kVA sizes not listed.

General Information											
Pri. Volts	380/400/416/440 460/480/575	380/416/480	380/400/416	220/380/400/416	Dimensions (inches)						Weight (lbs)
Sec. Volts	110/115/120	120/24 (24 Volts is limited to 20% of max. kVA)	110/220 115/230 120/240	95/115/120	A	B	C	Mounting			
kVA Cap.	Catalog Number	Catalog Number	Catalog Number	Catalog Number				D	E	F	
.150	ES-10100.326	ES-10100.366	ES-10100.376	ES-10100.386	4.00	4.50	5.00	2.75	3.75	.203 x .375	8
.250	ES-10130.326	ES-10130.366	ES-10130.376	ES-10130.386	5.25	4.50	6.00	3.25	3.75	.312 x .625	10
.375	ES-10150.326	ES-10150.366	ES-10150.376	ES-10150.386	6.00	4.50	6.00	4.50	3.75	.312 x .625	13
.500	ES-10170.326	ES-10170.366	ES-10170.376	ES-10170.386	5.25	5.25	6.50	3.25	4.38	.312 x .625	15
.750	ES-10190.326	ES-10190.366	ES-10190.376	ES-10190.386	6.00	6.38	7.50	4.00	5.31	.312 x .625	26
1.0	ES-10200.326	ES-10200.366	ES-10200.376	ES-10200.386	6.50	6.38	7.50	4.50	5.31	.312 x .625	30
1.5	ES-10210.326	ES-10210.366	ES-10210.376	ES-10210.386	6.00	7.50	8.50	4.00	6.00	.312 x .625	36
2.0	ES-10230.326	ES-10230.366	ES-10230.376	ES-10230.386	7.00	7.50	8.50	5.00	6.00	.312 x .625	50
3.0	ES-10250.326		ES-10250.376	ES-10250.386	8.00	7.50	8.50	6.00	6.00	.312 x .625	60
5.0	ES-10300.326		ES-10300.376	ES-10300.386	9.00	9.00	10.00	6.50	6.50	.312 x .625	90

Series ES Single Phase and Three Phase Transformers

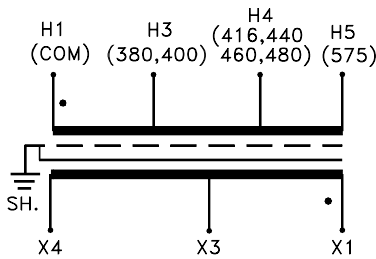
Please see Series ES - CE Marked Single Phase and Three Phase units in the appropriate sections of this catalog. A Certificate of Compliance is available by contacting your Dongan Representative or the factory Customer Service Department.

Dimensions & weights may change.
Consult factory for certified drawings.

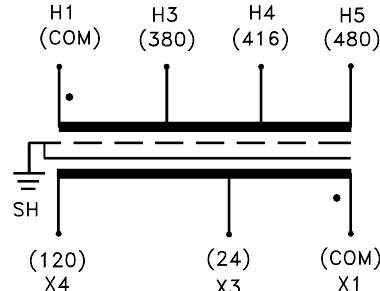


Series ES-10 CE Marked Industrial Control Transformers

Suffix .326			
Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
380	H1 & H3	110	X1 & X3
400	H1 & H3	115	X1 & X3
416	H1 & H4	115	X1 & X4
440	H1 & H4	120	X1 & X4
460	H1 & H4	115	X1 & X3
480	H1 & H4	120	X1 & X3
575	H1 & H5	120	X1 & X4

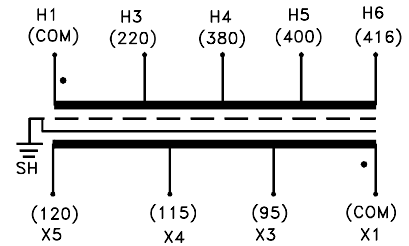


Suffix .366			
Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
380	H1 & H3	24*	X1 & X3
416	H1 & H4	120	X1 & X4
480	H1 & H5		

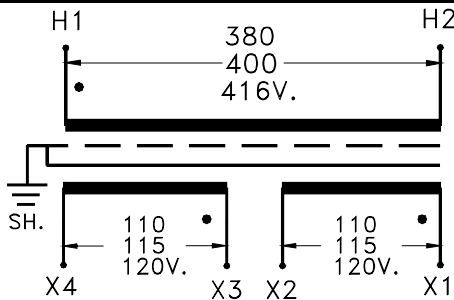


*Maximum permissible load on 24 volt secondary is limited to 20% of the transformer's kVA. When 24 and 120 volts are used simultaneously, the total of both loads must not exceed the total transformer kVA.

Suffix .386			
Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
220	H1 & H3	95	X1 & X3
380	H1 & H4	115	X1 & X4
400	H1 & H5	120	X1 & X5
416	H1 & H6		



Suffix .376				
Primary Connections		Secondary Connections		
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Interconnect	Connect Load Lines To:
380	H1 & H2	110	X1 to X3 & X2 to X4	X1 & X4
400	H1 & H2	115		X1 & X4
416	H1 & H2	120		X1 & X4
380	H1 & H2	220	X2 to X3	X1 & X4
400	H1 & H2	230		X1 & X4
416	H1 & H2	240		X1 & X4
416	H1 & H2	120/240	X2 to X3	X1 & X2/X3 & X4



Series ES - 10

Agency Compliance



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AP12 - Encapsulated Industrial Control Transformers

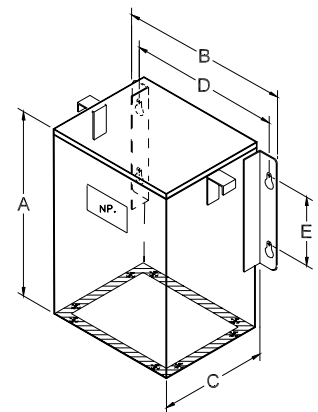
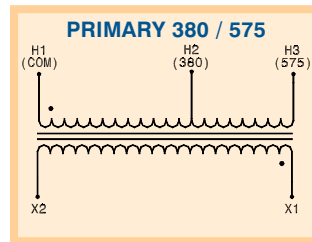
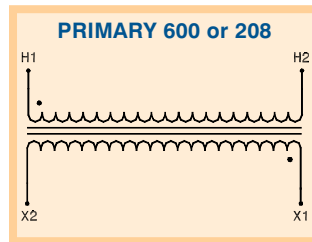
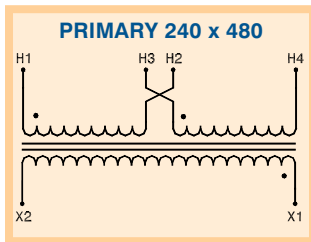
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Series AP12 Industrial Control Transformers are designed to comply with industrial and automotive specifications that require the control transformer to be mounted in a separate enclosure, remote from the main control panel. Series AP12 control transformers eliminate the need to purchase a separate enclosure, as these units are encapsulated within a NEMA 12 enclosure suitable for remote mounting. External or remote mounting of the Series AP12 conserves critical panel mounting space and reduces internal control cabinet temperatures, which can be critical to the reliable operation of many solid state, logic, and thermal control devices.

Features

- **UL Listed, File E3210.**
- **CUL Listed, File E3210.**
- **All copper windings.**
- **NEMA 12 enclosure** and encapsulated core and coil construction.
- **180°C Insulation System and 55°C Temperature Rise** for long service in high ambient environments.
- **50/60 Hertz.**
- **Capacity range from 1 kVA to 10 kVA.**
- Available primary voltages include 208, 240, and 380, 480, 575, 600. Secondary voltage is 120 volts.
- Primary and secondary leads are equipped with ring terminals for convenient connections.
- **Regulation characteristics** equal or exceed the highest industry standards.
- **Electrostatic shield** available as an extra cost option.
- Consult factory for desired voltage combinations and kVA sizes not listed.

General Information											
Pri. Volts	240 X 480	380 / 575	208	600	Dimensions (inches)						Weight (lbs)
	230 X 460			575							
Sec. Volts	120	120	120	120	Height A	Width B	Depth C	Depth D	Mounting		Weight (lbs)
	115			115					E	F	
110	110			110							
kVA Cap.	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Height A	Width B	Depth C	Depth D	Mounting		Weight (lbs)
1.0	AP12-351	AP12-352	AP12-353	AP12-354	10.50	10.00	6.62	6.12	4.00	8.50	50
1.5	AP12-401	AP12-402	AP12-403	AP12-404	12.00	10.81	7.19	6.69	6.00	9.13	68
2.0	AP12-451	AP12-452	AP12-453	AP12-454	14.00	14.00	9.25	8.75	8.00	12.00	97
3.0	AP12-501	AP12-502	AP12-503	AP12-504	14.00	14.00	9.25	8.75	8.00	12.00	120
5.0	AP12-551	AP12-552	AP12-553	AP12-554	14.00	14.38	10.00	9.50	8.00	12.38	149
7.5	AP12-601	AP12-602	AP12-603	AP12-604	15.00	18.00	12.50	12.00	8.00	16.00	198
10.0	AP12-651	AP12-652	AP12-653	AP12-654	15.00	18.00	12.50	12.00	8.00	16.00	225



Dimensions & weights may change. Consult factory for certified drawings.

Series AP12
Wall Mount - Encapsulated - NEMA 12

Series FP12-Encapsulated Industrial Control Transformers

Series FP12 Industrial Control Transformers are similar to the AP12 Series with two important differences. The FP12 Series is 115°C rise (versus 55°C) and they are manufactured with an electrostatic shield between primary and secondary.

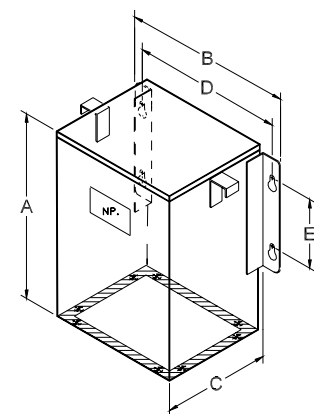
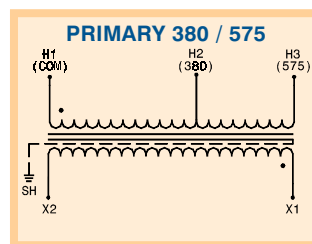
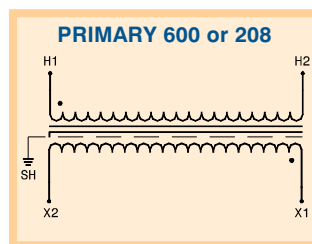
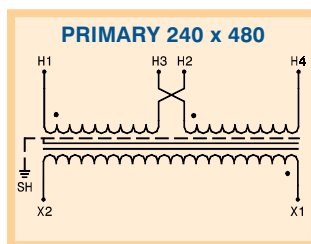
They are designed to comply with industrial and automotive specifications that require the control transformer to be mounted in a separate enclosure, remote from the main control panel.

External or remote mounting of the Series FP12 conserves critical panel mounting space and reduces internal control cabinet temperatures, which can be critical to the reliable operation of many solid state, logic, and thermal control devices.

Features

- **UL Listed, File E3210.**
- **CUL Listed, File E3210.**
- **All copper windings.**
- **NEMA 12 enclosure** and encapsulated core and coil construction.
- **180°C Insulation System and 115°C Temperature Rise** for long service in high ambient environments.
- **Electrostatic Shield.**
- **60 Hz except 380/575-120 which is 50/60 Hz.**
- **50/60 Hz unit weights are approximately 20% higher than those shown.**
- **Primary and secondary leads** are equipped with ring terminals for convenient connections.
- **Regulation characteristics** equal or exceed the highest industry standards.
- Consult factory for desired voltage combinations and kVA sizes not listed.

General Information										
Pri. Volts	240 X 480	380 / 575	208	600	Dimensions (inches)					Weight (lbs)
	230 X 460			575						
Sec. Volts	120	120	120	120	Height A	Width B	Depth C	Mounting		
	115			110				D	E	
kVA Cap.	Catalog Number	Catalog Number	Catalog Number	Catalog Number						
1.0	FP12-351	FP12-352	FP12-353	FP12-354	10.50	10.00	6.62	6.12	4.00	29
1.5	FP12-401	FP12-402	FP12-403	FP12-404	10.50	10.00	6.62	6.12	4.00	38
2.0	FP12-451	FP12-452	FP12-453	FP12-454	12.00	10.81	7.19	6.69	6.00	45
3.0	FP12-501	FP12-502	FP12-503	FP12-504	12.00	10.81	7.19	6.69	6.00	78
5.0	FP12-551	FP12-552	FP12-553	FP12-554	14.00	14.00	9.25	8.75	8.00	97
7.5	FP12-601	FP12-602	FP12-603	FP12-604	14.00	14.38	10.00	9.50	8.00	151
10.0	FP12-651	FP12-652	FP12-653	FP12-654	14.00	14.38	10.00	9.50	8.00	164



Series FP12
Wall Mount - Encapsulated - NEMA 12

Dimensions & weights may change. Consult factory for certified drawings.

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Series ES-11 CE Marked Single Phase Transformers

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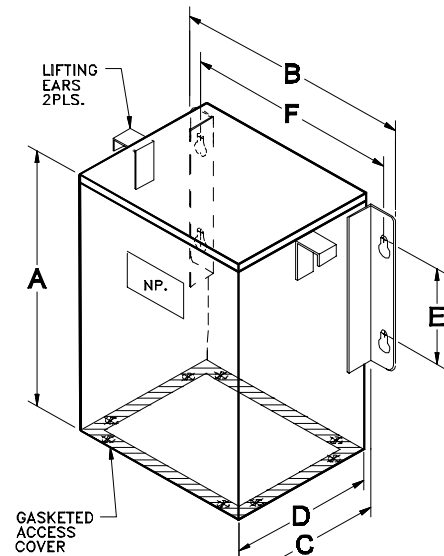
Series ES Single Phase Encapsulated Transformers are designed to comply with Domestic, North American, and European Union electrical and testing standards. Series ES are UL and Canadian UL Listed by Underwriters Labs. In addition, Series ES are CE Marked, and licensed by the German testing agency TÜV Rheinland under License Number R 9679035.01.

Series ES transformers are the answer to your export needs. With the voltage combinations listed below, and built in approvals, the ES Series provide no-nonsense solutions for equipment destined for the European Community of nations.

Under EC guidelines, connecting transformers to line and load require finger safe connections. While other manufacturers provide leads, Dongan provides finger safe terminals on all ES-11 transformers. This feature eliminates the necessity of a difficult, labor intensive installation of terminals in the wiring compartment by the end user.

The voltage combinations offered represent some of the most universally used. However, any combination of primary and secondary incorporating voltages of 600 volts and below is available on a short lead time, special order basis. In addition, capacities up to 25 kVA and special temperature rise configurations can be

furnished. Please consult your distributor, Dongan Representative, or the factory for special ES Series transformer requirements.



Series ES-11
Wall Mount - Encapsulated - NEMA 12 - IP54

General Information									
Pri. Volts	380/400/416/440 460/480/575	220/380/400/416	Dimensions (inches)						Weight (lbs)
Sec. Volts	110/115/120	120/240	A	B	C	Mounting			
kVA Cap.	Catalog Number	Catalog Number				D	E	F	
.250	ES-11130.326	ES-11130.359	10.50	10.00	6.62	6.12	4.00	8.50	35
.500	ES-11170.326	ES-11170.359	10.50	10.00	6.62	6.12	4.00	8.50	45
.750	ES-11190.326	ES-11190.359	10.50	10.00	6.62	6.12	4.00	8.50	55
1.0	ES-11200.326	ES-11200.359	12.00	10.81	7.19	6.69	6.00	9.13	75
1.5	ES-11210.326	ES-11210.359	14.00	14.00	9.25	8.75	8.00	12.00	90
2.0	ES-11230.326	ES-11230.359	14.00	14.00	9.25	8.75	8.00	12.00	110
3.0	ES-11250.326	ES-11250.359	14.00	14.00	9.25	8.75	8.00	12.00	120
5.0	ES-11300.326	ES-11300.359	14.00	14.38	10.00	9.50	8.00	12.38	150
7.5	ES-11330.326	ES-11330.359	15.00	18.00	12.50	12.00	8.00	16.00	165
10.0	ES-11360.326	ES-11360.359	15.00	18.00	12.50	12.00	8.00	16.00	190
15.0	ES-11380.326	ES-11380.359	15.00	18.00	12.50	12.00	8.00	16.00	270
25.0	ES-11410.326	ES-11410.359	18.00	21.00	10.50	10.00	8.00	19.00	350

Series ES-11 CE Marked Single Phase Transformers

Features

- CE Marked
- TÜV Rheinland Licensed, R 9679035.01
- UL Listed, File E3210.
- CSA Listed thru UL, File E3210
- NEMA 12, IP54 enclosure.
- All copper windings.
- IEC type finger safe terminals.
- 200°C (H) Insulation System.
- 50/60 Hertz.
- Class 1, general use, isolating transformer.
- All Series ES are provided with an electrostatic shield (earth metal screen).
- All Series ES are provided with a color coded protective earth (PE) terminal.
- Consult factory for desired voltage combinations and kVA sizes not listed.

Agency Compliance

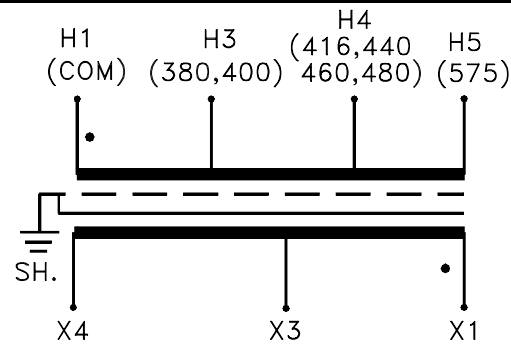


Series ES Three Phase and Industrial Control Transformers

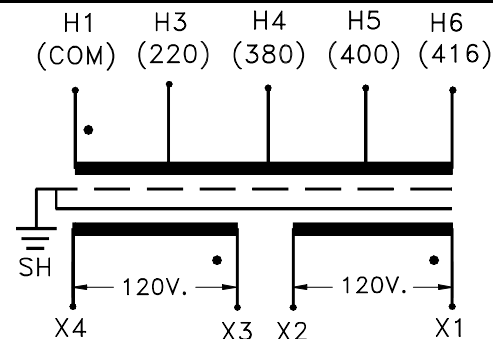
Please see Series ES CE Marked Three Phase on pages 36 - 37 and Industrial Control transformers on pages 82 - 83 of this catalog. A Declaration of Conformity is available by contacting your Dongan Representative or the factory Customer Service Department.

Dimensions & weights may change. Consult factory for certified drawings.

Suffix .326			
Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
380	H1 & H3	110	X1 & X3
400	H1 & H3	115	X1 & X3
416	H1 & H4	115	X1 & X4
440	H1 & H4	120	X1 & X4
460	H1 & H4	115	X1 & X3
480	H1 & H4	120	X1 & X3
575	H1 & H5	120	X1 & X4



Suffix .359				
Primary Connections		Secondary Connections		
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Interconnect	Connect Load Lines To:
220	H1 & H3	120	X1 to X3 X2 to X4	X1 & X4
380	H1 & H4	240	X2 to X3	X1 & X4
400	H1 & H5	120/240	X2 to X3	X1 & X2X3 & X4
416	H1 & H6			



SERIES ES-31 CE MARKED

Series ES Three Phase Encapsulated Transformers are designed to comply with Domestic, North American, and European Union electrical and testing standards. Series ES are UL and Canadian UL Listed by Underwriters Labs. In addition, Series ES are CE Marked, and licensed by the German testing agency TÜV Rheinland under License Number R 9679035.01.

Series ES transformers are the answer to your export needs. With the voltage combinations listed below, and built in approvals, the ES Series provide no-nonsense solutions for equipment destined for the European Community of nations.

Under EC guidelines, connecting transformers to line and load require finger safe connections. While other manufacturers provide leads, Dongan provides finger safe terminals on all ES-31 transformers. This feature eliminates the necessity of a difficult, labor intensive installation of terminals in the wiring compartment by the end user.

The voltage combinations offered represent some of the most universally used. However, any combination of primary and secondary incorporating voltages of 600 volts and below is available on a short lead time, special order basis. In addition, capacities up to 40 kVA and special temperature rise configurations can be furnished.

Please consult your distributor, Dongan Representative, or the factory for special ES Series transformer requirements.



Series ES - 31

Features

- CE Marked
- TÜV Rheinland Licensed, R 9679035.01 Agency Compliance
- UL Listed, File E3210. 
- CSA Listed thru UL, File E3210
- NEMA 12, IP54 enclosure.
- Epoxy Encapsulated.
- All copper windings.
- IEC type finger safe terminals.
- 200°C Insulation System.
- 50/60 Hertz.
- Class 1, general use, isolating transformer.
- All Series ES are provided with an electrostatic shield (earth metal screen).
- All Series ES are provided with a color coded protective earth (PE) terminal.
- Consult factory for desired voltage combinations and kVA sizes not listed.

Three Phase Core & Coil Configurations Available

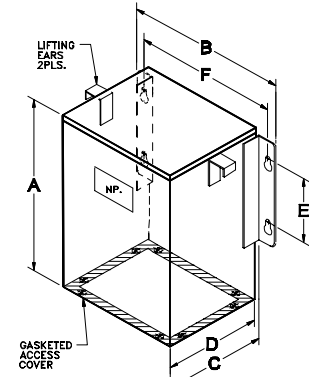
Dongan is licensed by TÜV Rheinland to manufacture CE Marked, three phase core and coil units up to 40 kVA. Please consult your Dongan Distributor or the factory for open style designs of ES three phase transformers.

Dimensions & weights may change. Consult factory for certified drawings.

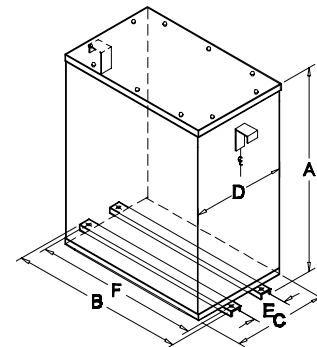
Three Phase Transformers

SERIES ES-31 CE MARKED

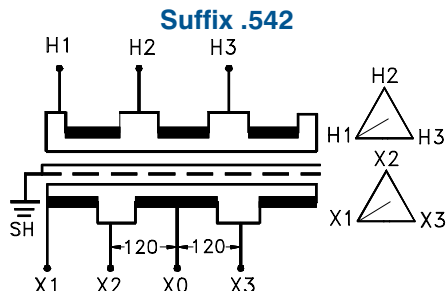
General Information									
Pri. Volts	380 Delta	416 Delta	Dimensions (inches)						Weight (lbs)
Sec. Volts	240 / 120 Delta Center - Tapped	240 / 120 Delta Center - Tapped	A	B	C	Mounting			
kVA Cap.	Catalog Number	Catalog Number				D	E	F	
1	ES-31200.542	ES-31200.552	15.00	18.00	12.50	12.00	8.00	16.00	170
3	ES-31250.542	ES-31250.552	15.00	18.00	12.50	12.00	8.00	16.00	180
6	ES-31310.542	ES-31310.552	15.00	18.00	12.50	12.00	8.00	16.00	200
10	ES-31360.542	ES-31360.552	18.00	21.00	10.50	10.00	8.00	19.00	295
15	ES-31380.542	ES-31380.552	18.00	21.00	10.50	10.00	8.00	19.00	315
20	ES-31390.542	ES-31390.552	27.50	24.75	12.25	12.00	5.00	23.25	430
25	ES-31410.542	ES-31410.552	27.50	24.75	12.25	12.00	5.00	23.25	450
30	ES-31420.542	ES-31420.552	27.50	24.75	12.25	12.00	5.00	23.25	500
40	ES-31450.542	ES-31450.552	27.50	24.75	16.25	16.00	9.00	23.25	535



1 - 15 kVA
Wall Mount - Encapsulated -
NEMA 12 - IP54

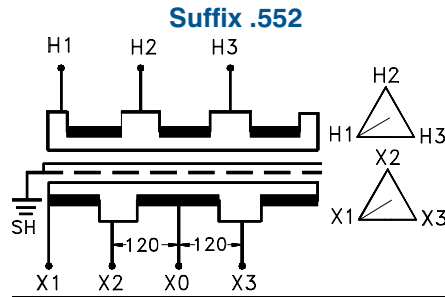


20 - 40 kVA
Floor Mount - Encapsulated -
NEMA 12 - IP54



Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
380 Delta, 3 Phase	H1, H2, H3	240 Delta, 3 Phase	X1, X2, X3
		120 1 Phase*	X0 & X2 X0 & X3

* Single Phase load is limited to a maximum of 5% of nameplate kVA distributed equally on either side of X0.



Primary Connections		Secondary Connections	
Pri. Voltage	Connect Incoming Lines To:	Sec. Voltage	Connect Load Lines To:
416 Delta, 3 Phase	H1, H2, H3	240 Delta, 3 Phase	X1, X2, X3
		120 1 Phase*	X0 & X2 X0 & X3

* Single Phase load is limited to a maximum of 5% of nameplate kVA distributed equally on either side of X0.

Series ES Single Phase and Industrial Control Transformers

Please see Series ES CE Marked Single Phase on page 18 - 19 and Industrial Control transformers on pages 82 - 83 of this catalog. A Declaration of Conformity is available by contacting your Dongan Representative or the factory Customer Service Department.

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