Westinghouse Electric Corporation
Specialty Transformer Division
Greenville, Pa., U.S.A. 16125

January, 1976
New Information
Mailed to: E, D, C/2072/PL

Non-Standard Type MTA, MTC, Control Transformers Dry-Type: 5000 Volts and Below

Control Transformers Price Modifications

VA	1	2-9	10-24	25+
50	$ 66	$ 31	$ 21	$ 16
75	69	34	24	19
100	71	36	26	21
150	73	38	28	23
200	77	42	32	27
250	82	47	37	32
300	86	51	41	36
350	90	55	45	40
500	96	61	51	46
750	112	77	67	62
1000	126	91	81	76
1500	148	113	103	98
2000	178	143	133	128
3000	217	182	172	167
5000	315	280	270	265

Adders for Special Features

1) 50 Hertz – Add 15%; Refer to Greenville for other frequencies

2) Voltages between 24-90 Volts – **Add $6.00 list**

3) Voltages below 24 Volts – **Add $12.00 list.**

4) Dual Primary – **Add 10%** $5.00 min.

5) Dual Secondary – **Add 10%** $5.00 min.

6) 220/380 Volts Primary – **Use next higher VA base price.**

7) Taps – **Add $5.00 list each to base.**

8) Fungus Proofing – **Add $10.00 list.**

9) Export or special packing – **Add $10.00 list or 10%,** whichever is greater.

Note:
After final list price is determined, refer to SP 46-800, discount symbol STD-5 for applicable multiplier to obtain appropriate net price.

For delivery refer to 46-815 L WE A Shipping Schedule

Printed in U.S.A.

Westinghouse

Control Transformers

Type AP Machine Tool

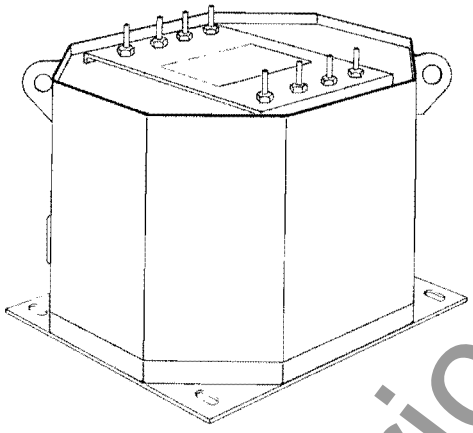
240/480 to 120/240 Volts
60 Cycles, Single Phase

All transformers on this page are listed by Underwriters' Laboratory, Inc. Type AP Machine Tool Transformer.

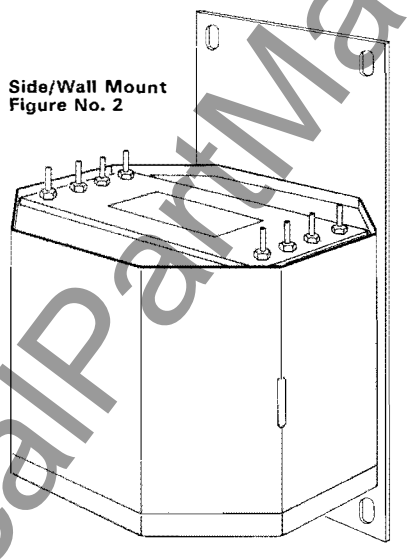
Application The UL listed and labeled type AP transformers provide stepped-down voltages to machine tool control devices. This enables control circuits to be isolated from all power and lighting circuits, thus allowing the use of grounded or ungrounded circuits that are independent of the power or lighting grounds. Greater safety is afforded the operator and the more rugged 115-volt coils can be used on the control devices regardless of the line voltage.

The Type AP control transformers feature an encapsulated core and coil which provides a totally enclosed, non-ventilated construction. Smaller than open core and coil type units, connections are made with the convenient screw type terminal board. For ease of installation two types of mounting are provided. Select a design with the base plate arranged for bottom mounting (Fig. 1) or for side/wall mounting (Fig 2).

Bottom Mount
Figure No. 1



Side/Wall Mount
Figure No. 2

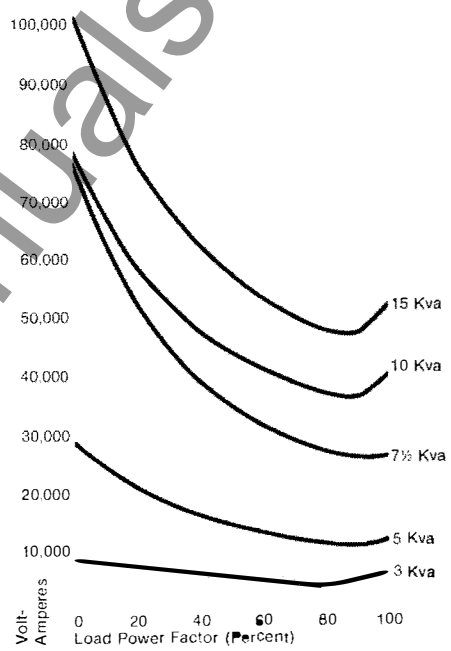


240/480 Volt Primary No Taps to 120/240 Secondary Single Phase, 60 Hertz – Class 155, 80°C Rise – 3 Through 10 Kva
Class 185, 115°C Rise – 15 Kva

Bottom Mount (Figure No. 1)					Side/Wall Mount (Figure No. 2)			
Kva	Catalog Number	Ramad Number	List Price	Net Weight Lbs.	Catalog Number	Ramad Number	List Price	Net Weight Lbs.
3	6F495	.....②	$126	52	6F320	23238	$126	52
5	6F201	.....②	157	80	6F321	23239	157	80
7½	6F202	.....②	216	122	6F322	23240	216	122
10	6F203	.....②	270	133	6F323	23242	270	133
15	6F496	.....②	366	160	6F324	23243	366	160

① For Dimensions, refer to PL 46-830, page 4
② Not normal inventory items.

Performance Data



The purpose of the regulation curves shown is to indicate the volt-amperes which may be taken from the transformer secondary at various power factors and still maintain 95% of the rated secondary voltage. Since most magnetic devices will operate at 85% of rated voltage (NEMA Standard), this provides a safety factor of 10% for undervoltage on the primary.

To use the curves:

1. Vectorially add the maximum inrush volt-amperes to the continuous volt-amperes connected to the transformer.

2. Determine the power factor of the above condition.

For most solenoids, contactors and similar magnetic devices, 20% is reasonable value to use. For motor starting, 50% to 60% is a reasonable value.

3. Locate the point determined by steps 1 and 2 on the graph. Choose the transformer rating whose curve is next above this point. In cases where the point falls slightly above a curve, the safety factor previously mentioned will allow the user to pick the next lower rating if the primary voltage is close to nominal.

Dimensions ▶

Prices effective September 30, 1975; subject to change without notice.
Selling Policy 46-800

September 30, 1975
Supersedes Price List 46-830 pages 11-12
dated April 29, 1966
Mailed to: E, D, C/2072/PL

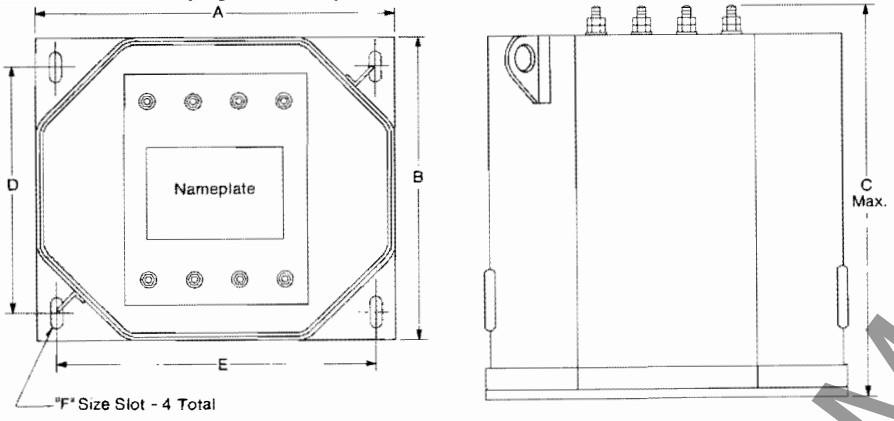
Control Transformers

Type AP Machine Tool

240/480 to 120/240 Volts
60 Cycles, Single Phase

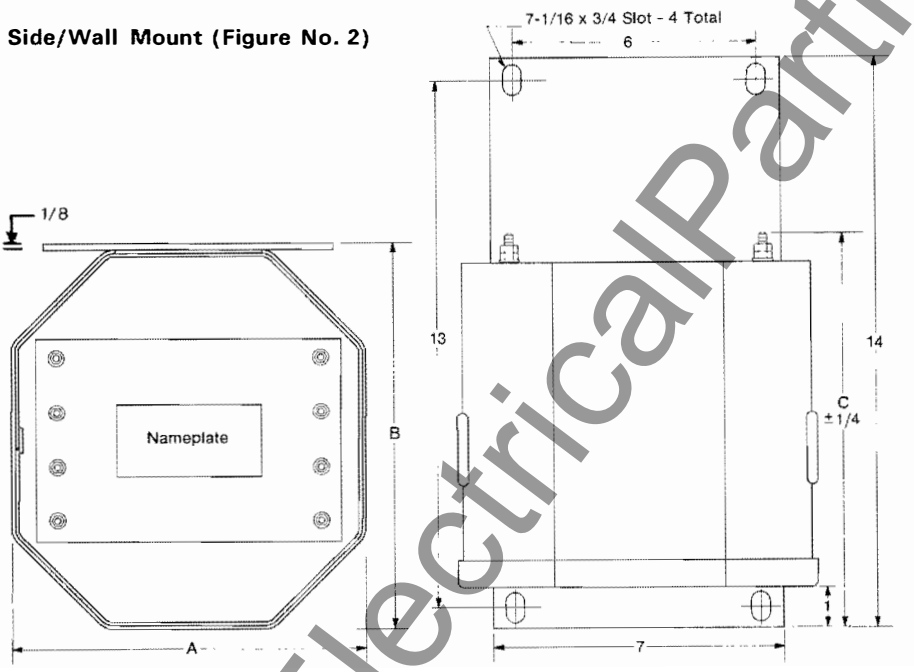
Dimensions in Inches

Bottom Mount (Figure No. 1)



KVA	Approx. Dimension (Figure No. 1)					
	A	B	C	D	E	F
3	7 17/32	7 17/32	8 5/16	6½	6½	9/32 x 17/32
5	9 13/32	8 25/32	9 3/16	7	8	7/16 x ¾
7½	12 1/32	10 13/32	9⅜	8½	10½	7/16 x ¾
10	12 1/32	10 13/32	11¼	8½	10½	7/16 x ¾
15	11 9/32	11 9/32	12½	9½	10	7/16 x ¾

Side/Wall Mount (Figure No. 2)



KVA	Approx. Dimension (Figure No. 2)		
	A	B	C
3	7⅛	7⅝	8⅞
5	8¾	9 9/16	9¾
7½	8⅝	10¾	11⅝
10	10⅛	10¾	11⅝
15	10 7/16	12 9/16	12⅜

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa. 16125
Printed in USA

Westinghouse

Control Transformers

Type MTA, Machine Tool

Class A, 55°C Rise
Single Phase
"Black Line"

All standard transformers 1000 va and below on this page are listed as a recognized component by Underwriters' Laboratory, Inc.

Standard Voltages Type MTA

230/460 Volts to 115 Volts 60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0890	13173	$ 14
75	1F0927	12901	15
100	1F0906	12909	16
150	1F0907	12917	20
200	1F0908	12925	25
250	1F0909	12933	30
300	1F0910	12941	34
350	1F0911	12949	37
500	1F0912	12957	42
750	1F0913	12965	56
1000	1F0914	12973	67
1500	1F0965	12981	86
2000	1F0966	12989	110
3000	1F0967	12997	139
5000	1F0968	13005	223

230/460/575 Volts to 115/95 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0987	13077	$ 20
75	1F0988	13085	22
100	1F0989	13093	24
150	1F0990	13101	28
200	1F0991	13109	32
250	1F0992	13117	39
300	1F0993	13125	42
350	1F0994	13133	47
500	1F0995	13141	56
750	1F0996	13149	63
1000	1F0997	13157	95
1500	1F0998	13165	123

208/380/416 Volts to 115/95 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F1025	13013	$ 20
100	1F1027	.....	24
150	1F1028	13021	28
200	1F1029	.....	32
250	1F1030	13029	39
300	1F1031	13037	42
500	1F1033	13045	56
750	1F1034	13053	63
1000	1F1035	13061	95
1500	1F1036	13069	123

115 Volts to 12 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F3050	10205	$21
100	1F3051	10206	26

115 Volts to 24 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F3052	10207	$21
100	1F3053	10208	26
200	1F3054	10209	32

230/460 Volts to 115/230 Volts 60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F2198	34968	$ 20
75	1F2185	34538	22
100	1F2186	34899	24
150	1F2189	34447	28
200	1F2191	34484	32
250	1F2034	29254	35
300	1F1113	34645	39
350	1F2187	34700	43
500	1F2190	34943	47
750	1F2188	36408	60
1000	1F1687	48780	71
1500	1F1688	51161	90
2000	1F1696	51164	115
3000	1F1690	48143	144
5000	1F1701	51220	235

Add-A-Part Fuse Holders

50 through 750 va,
Style No. 257A574G01 . . . . . **$1.50 List**

1000 through 3000 va,
Style No. 257A564G01 . . . . . **$5.00 List**

For non-standard Type MTA transformers and modifications refer to Westinghouse.

Prices effective May 15, 1974; subject to change without notice.
Selling Policy 46-800

May 15, 1974
Supersedes Price List 46-830, pages 1-2, dated March 20, 1972
E, D. C/2072/PL

Control Transformers

Type MTC, Machine Tool

Triple Voltage, Dual Frequency
Class A, 55°C Rise, Single Phase
"Black Line"

All standard transformers 1000 va and below on this page are listed as a recognized component by Underwriters' Laboratory, Inc.

Standard Voltages Type MTC

240/480-120 Volts, 60 Hertz
230/460-115 Volts, 50/60 Hertz
220/440-110 Volts, 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0890	13173	$ 14
75	1F0891	13181	17
100	1F0892	13189	18
150	1F0893	13197	22
200	1F0894	12758	27
250	1F0895	12766	34
300	1F0896	12774	37
350	1F0897	12782	40
500	1F0898	12790	46
750	1F0899	12798	61
1000	1F0900	12806	73
1500	1F0901	12814	95
2000	1F0902	12822	119
3000	1F0903	12830	156
5000	1F0904	12838	245

Add-A-Part Fuse Holders

50 through 750 va,
Style No. 257A574G01 . . . . . **$1.50 List**

1000 through 3000 va,
Style No. 257A564G01 . . . . . **$5.00 List**

For non-standard Type MTC transformers and modifications refer to Westinghouse.

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa. 16125
Printed in USA

Westinghouse

Control Transformers

Type MTA, Machine Tool

Class A, 55°C Rise
Single Phase
"Black Line"

All standard transformers 1000 va and below on this page are listed as a recognized component by Underwriters' Laboratory, Inc.

Standard Voltages

230/460 Volts to 115 Volts 60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0890	13173	$ 13
75	1F0927	12901	14
100	1F0906	12909	15
150	1F0907	12917	18
200	1F0908	12925	21
250	1F0909	12933	25
300	1F0910	12941	27
350	1F0911	12949	30
500	1F0912	12957	35
750	1F0913	12965	47
1000	1F0914	12973	58
1500	1F0965	12981	76
2000	1F0966	12989	101
3000	1F0967	12997	131
5000	1F0968	13005	211

230/460/575 Volts to 115/95 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0987	13077	$ 18
75	1F0988	13085	20
100	1F0989	13093	22
150	1F0990	13101	25
200	1F0991	13109	30
250	1F0992	13117	36
300	1F0993	13125	39
350	1F0994	13133	44
500	1F0995	13141	53
750	1F0996	13149	59
1000	1F0997	13157	86
1500	1F0998	13165	112

208/380/416 Volts to 115/95 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F1025	13013	$ 18
100	1F1027	.....	22
150	1F1028	13021	25
200	1F1029	.....	30
250	1F1030	13029	36
300	1F1031	13037	39
500	1F1033	13045	53
750	1F1034	13053	59
1000	1F1035	13061	86
1500	1F1036	13069	112

115 Volts to 12 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F3050	10205	$19
100	1F3051	10206	24

115 Volts to 24 Volts 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F3052	10207	$19
100	1F3053	10208	24
200	1F3054	10209	30

230/460 Volts to 115/230 Volts 60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F2198	34968	$ 15
75	1F2185	34538	17
100	1F2186	34899	18
150	1F2189	34447	21
200	1F2191	34484	24
250	1F2034	29254	27
300	1F1113	34645	31
350	1F2187	34700	34
500	1F2190	34943	38
750	1F2188	36408	51
1000	1F1687	48780	62
1500	1F1688	51161	80
2000	1F1696	51164	99
3000	1F1690	48143	136
5000	1F1701	51220	223

Add-A-Part Fuse Holders

50 through 750 va,
Style No. 257A574G01 . . . . . **$1.50 List**

1000 through 3000 va,
Style No. 257A564G01 . . . . . **$4.00 List**

Non-Standard Type MTA Transformers and Modifications

The following information and prices must be used to price any Non-Standard Type MTA Control Transformer not listed in the previous tables.

Base list prices are first determined from the table below; then rules 1 through 10 are applied to the base list price to determine total list price of a non-standard unit.

Non-Standard Base List Prices 90-600 Volts, Single Phase

Volt-Amperes	Base List Price
50	$ 15
75	18
100	20
150	22
200	25
250	30
300	33
350	36
500	42
750	57
1000	70
1500	92
2000	122
3000	157
5000	252

Rule 1: List prices above apply only to 60 Hertz transformers. For 50 Hertz, add **15%** to base list price. Refer to Westinghouse for other frequencies.

Rule 2: For voltages between 24 and 90 volts, add **$6.00** to base list price.

Rule 3: For voltages below 24 volts, add **$12.00** to base list price.

Rule 4: For dual primary, add **5%** to base list price.

Rule 5: For dual secondary, add **5%** to base list price.

Rule 6: For 220/380 volt primary, use the list price of next higher va rating.

Rule 7: For tap voltages, add **$4.75** to base list price.

Rule 8: For fungus proofing, add **$9.50** to base list price.

Rule 9: For export packing, add **$9.50** to base list price.

Rule 10: Quantity Adders: The following additions apply to Non-Standard Transformer List Prices:

Quantity	List Price Addition
1	$50.00
2-9	15.00
10-24	5.00

Prices effective March 20, 1972; subject to change without notice.
Selling Policy 46-800

March 20, 1972
Supersedes Price List 46-830, pages 1-4, dated January 20, 1971
E. D. C/2072/PL

Control Transformers

Type MTC, Machine Tool

Triple Voltage, Dual Frequency
Class A, 55°C Rise, Single Phase
"Black Line"

All standard transformers 1000 va and below on this page are listed as a recognized component by Underwriters' Laboratory, Inc.

Standard Voltages

240/480-120 Volts, 60 Hertz
230/460-115 Volts, 50/60 Hertz
220/440-110 Volts, 50/60 Hertz

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0890	13173	$ 13
75	1F0891	13181	16
100	1F0892	13189	17
150	1F0893	13197	20
200	1F0894	12758	23
250	1F0895	12766	27
300	1F0896	12774	30
350	1F0897	12782	33
500	1F0898	12790	39
750	1F0899	12798	53
1000	1F0900	12806	65
1500	1F0901	12814	84
2000	1F0902	12822	111
3000	1F0903	12830	149
5000	1F0904	12838	231

Add-A-Part Fuse Holders

50 through 750 va,
Style No. 257A574G01 . . . . . **$1.50 List**

1000 through 3000 va,
Style No. 257A564G01 . . . . . **$4.00 List**

Non-Standard Type MTC Transformers and Modifications

The following information and prices must be used to price any Non-Standard Type MTC Control Transformer not listed in the previous table.

Base list prices are first determined from the table below; then rules 1 through 10 are applied to the base list price to determine total list price of a non-standard unit.

Non-Standard Base List Prices
90-600 Volts, Single Phase

Volt-Amperes	Base List Price
50	$ 17
75	20
100	22
150	24
200	28
250	33
300	38
350	43
500	50
750	66
1000	81
1500	104
2000	134
3000	176
5000	277

Rule 1: List prices above apply only to 60 Hertz transformers. For 50 Hertz, add **15%** to base list price. Refer to Westinghouse for other frequencies.

Rule 2: For voltages between 24 and 90 volts, add **$6.00** to base list price.

Rule 3: For voltages below 24 volts, add **$12.00** to base list price.

Rule 4: For dual primary, add **5%** to base list price.

Rule 5: For dual secondary, add **5%** to base list price.

Rule 6: For 220/380 volt primary, use the list price of next higher va rating.

Rule 7: For tap voltages, add **$4.75** to base list price.

Rule 8: For fungus proofing, add **$9.50** to base list price.

Rule 9: For export packing, add **$9.50** to base list price.

Rule 10: Quantity Adders: The following additions apply to Non-Standard Transformer List Prices:

Quantity	List Price Addition
1	$50.00
2-9	15.00
10-24	5.00

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa. 16125
Printed in USA

Westinghouse

Control Transformers

Type MTC, Machine Tool

Triple Voltage, Dual Frequency
Class A, 55°C Rise, Single Phase
"Black Line"

Standard Voltages

240/480-120 Volts, 60 Cycles
230/460-115 Volts, 50/60 Cycles
220/440-110 Volts, 50/60 Cycles

Volt-Amperes	Catalog Number	Ramad Number	List Price
50	1F0890	13173	$ 12
75	1F0891	13181	15
100	1F0892	13189	16
150	1F0893	13197	19
200	1F0894	12758	22
250	1F0895	12766	26
300	1F0896	12774	29
350	1F0897	12782	32
500	1F0898	12790	38
750	1F0899	12798	51
1000	1F0900	12806	63
1500	1F0901	12814	81
2000	1F0902	12822	107
3000	1F0903	12830	144
5000	1F0904	12838	223

Add-A-Part Fuse Holders

50 through 750 va,
Style No. 257A574G01 . . . . . **$0.50 Net**

1000 through 3000 va,
Style No. 257A564G01 . . . . . **1.00 Net**

Non-Standard Type MTC Transformers and Modifications

The following information and prices **must** be used to price any Non-Standard Type MTC Control Transformer not listed in the previous table.

Base list prices are first determined from the table below; then rules 1 through 10 are applied to the base list price to determine total list price of a non-standard unit.

Non-Standard Base List Prices
90-600 Volts, Single Phase

Volt-Amperes	Base List Price
50	$ 16
75	19
100	21
150	23
200	27
250	32
300	37
350	42
500	49
750	64
1000	78
1500	100
2000	129
3000	170
5000	267

Rule 1: List prices above apply only to 60 cycle transformers. For 50 cycles, add **15%** to base list price. Refer to Westinghouse for other frequencies.

Rule 2: For voltages between 24 and 90 volts, add **$6.00** to base list price.

Rule 3: For voltages below 24 volts, add **$12.00** to base list price.

Rule 4: For dual primary, add **5%** to base list price.

Rule 5: For dual secondary, add **5%** to base list price.

Rule 6: For 220/380 volt primary, use the list price of next higher va rating.

Rule 7: For tap voltages, add **$4.75** to base list price.

Rule 8: For fungus proofing, add **$9.50** to base list price.

Rule 9: For export packing, add **$9.50** to base list price.

Rule 10: Quantity Adders: The following additions apply to Non-Standard Transformer List Prices:

Quantity	List Price Addition
1	$50.00
2-9	15.00
10-24	5.00

Prices effective January 20, 1971; subject to change without notice.
Selling Policy 46-800

January 20, 1971
Supersedes Price List 46-830, pages 3-4, dated April 25, 1968
E, D, C/2072/PL

Control Transformers

Type MTC, Machine Tool

Triple Voltage, Dual Frequency
Class A, 55°C Rise, Single Phase
"Black Line"

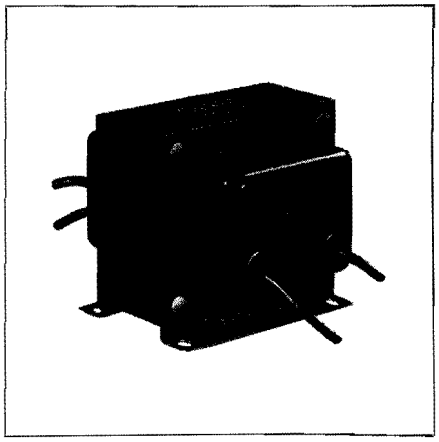
Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa. 16125
Printed in USA

Westinghouse

Control Transformers

Type LC for Control Circuits

Single Phase, 50, 60 Cycles
115 to 600 Volts Hv, 6 to 240 Volts Lv



These control transformers are used in a variety of control circuits for practical and economical operation of small motors, oil burner controls, domestic furnace dampers, relays, heating elements, pilot lights, solenoid operated valves, electrically operated gas valves, switchboard control circuits, burglar alarm systems, signalling systems and similar operations.

Design Features

Transformers are small size and light weight. They may be installed near the load to be supplied -- mounted overhead, beside or in the control panel of the machine served.

Type LC conform to NEMA standards governing manufacture and performance of dry type transformers. Type LC is listed by Underwriters' Laboratories.

Construction Features

The highest quality silicon steel laminations are used in the cores. Annealing, after punching, minimizes losses. Standard transformers are supplied with single primary and single secondary windings. The coils are concentrically wound on special equipment to obtain uniformity and thorough insulation. Class A insulation is used. The core and coil assembly is impregnated with special insulating varnish which excludes dust and moisture.

Leads

Standard, flexible leads are supplied on Type LC transformers.

Rating Information

A stamping containing all rating information is located on the top of each transformer.

End Covers

Type LC transformers are supplied with end covers to give complete protection and a neat finished appearance.

Voltage Compensation

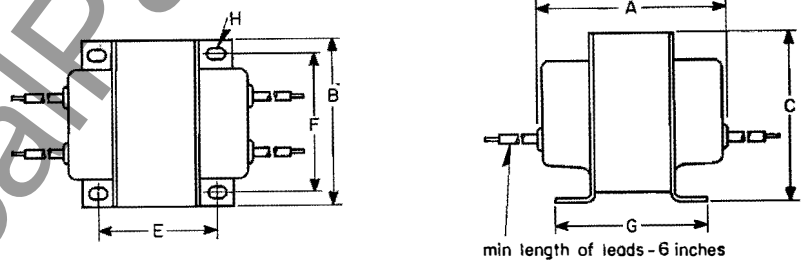
Type LC transformers are designed to NEMA standards. This requires an adjustment in turn ratio to compensate for regulation. These units are compensated to deliver rated kva at 100 percent power factor at approximately rated voltage from the secondary, when rated voltage is supplied to the primary.

When attempting to use a compensated transformer in the reverse direction by applying rated voltage to the low voltage side and loading at rated current on the high voltage side, the output voltage will be considerably lower than rated. The magnitude of this reduction will be approximately equal to twice the normal regulation voltage.

Dimensions in inches

Frame Number	A	B	C	E	F	G	H
1310	2 15/16	3	2 13/16	1 9/16	2 1/2	2 5/16	Slots:
1411	3 1/2	3 3/8	3 1/8	1 11/16	2 13/16	2 1/4	15/64 x 5/16
1512	3 11/16	3 3/4	3 7/16	1 13/16	3 1/4	2 3/8	
1515	4 1/16	3 3/4	3 7/16	2 3/16	3 1/4	2 3/4	
1713	3 15/16	4 1/2	4 1/16	2 5/16	3 3/4	3	
1717	4 7/16	4 1/2	4 1/16	2 13/16	3 3/4	3 1/2	

Type LC



Prices effective August 5, 1969; subject to change without notice.
Selling Policy 46-800

August 5, 1969
Supersedes PL 46-830, pages 5 and 6, dated October 20, 1964.
E, D, C/2072/PL

Control Transformers

Type LC for Control Circuits

Single Phase, 50, 60 Cycles
115 to 600 Volts Hv, 6 to 240 Volts Lv

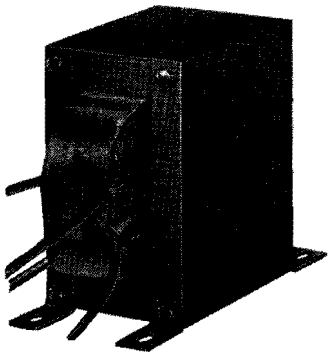
List Prices

Primary Volts	Secondary Volts	Volt-Amperes	LC Style Number	LC Catalog Number	List Price	Frame Number	Approx. Weight: Pounds
115	**6**	25	1741 279	2F450	**$14**	1310	2.3
		50	1741 280	2F451	**16**	1411	3.2
	12	25	1741 281	2F452	**14**	1310	2.3
		50	1741 282	2F453	**16**	1411	3.2
		75	1741 283	2F454	**18**	1512	4.4
		100	1741 284	2F455	**20**	1515	5.5
	24	25	1741 285	2F456	**14**	1310	2.3
		50	1741 286	2F457	**16**	1411	3.2
		75	1741 287	2F458	**18**	1512	4.4
		100	1741 288	2F459	**20**	1515	5.5
		150	1741 289	2F460	**24**	1713	6.9
		200	1741 290	2F461	**26**	1717	8.7
230	**115**	25	1741 291	2F462	**13**	1310	2.3
		50	1741 292	2F463	**15**	1411	3.2
		75	1741 293	2F464	**18**	1512	4.4
		100	1741 294	2F465	**20**	1515	5.5
		150	1741 295	2F466	**24**	1713	6.9
		200	1741 296	2F467	**26**	1717	8.7
460	**115**	25	1741 297	2F468	**13**	1310	2.3
		50	1741 298	2F469	**15**	1411	3.2
		75	1741 299	2F470	**18**	1512	4.4
		100	1741 300	2F471	**20**	1515	5.5
		150	1741 301	2F472	**24**	1713	6.9
		200	1741 302	2F473	**26**	1717	8.7
	230	25	1741 303	2F474	**13**	1310	2.3
		50	1741 304	2F475	**15**	1411	3.2
		75	1741 305	2F476	**18**	1512	4.4
		100	1741 306	2F477	**20**	1515	5.5
		150	1741 307	2F478	**24**	1713	6.9
		200	1741 308	2F479	**26**	1717	8.7
575	**115**	25	1741 309	2F480	**14**	1310	2.3
		50	1741 310	2F481	**16**	1411	3.2
		75	1741 311	2F482	**19**	1512	4.4
		100	1741 312	2F483	**21**	1515	5.5
		150	1741 313	2F484	**25**	1713	6.9
		200	1741 314	2F485	**27**	1717	8.7
	230	25	1741 315	2F486	**14**	1310	2.3
		50	1741 316	2F487	**16**	1411	3.2
		75	1741 317	2F488	**19**	1512	4.4
		100	1741 318	2F489	**21**	1515	5.5
		150	1741 319	2F490	**25**	1713	6.9
		200	1741 320	2F491	**27**	1717	8.7

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa.
Printed in USA

control transformers
type SC for enclosure mounting

single phase • 60 and 50 cycles



application

Type SC transformers provide stepped-down voltages to control devices and enable control circuits to be isolated from all power and lighting circuits, thus allowing the use of grounded or ungrounded circuits that are independent of the power or lighting grounds. The SC line is particularly adaptable on applications where compact construction is demanded. Its dimensions and configurations are such that it will fit standard motor starter boxes. Electrical performance equals or exceeds N.E.M.A., J.I.C. and N.M.T.B.A. standards.

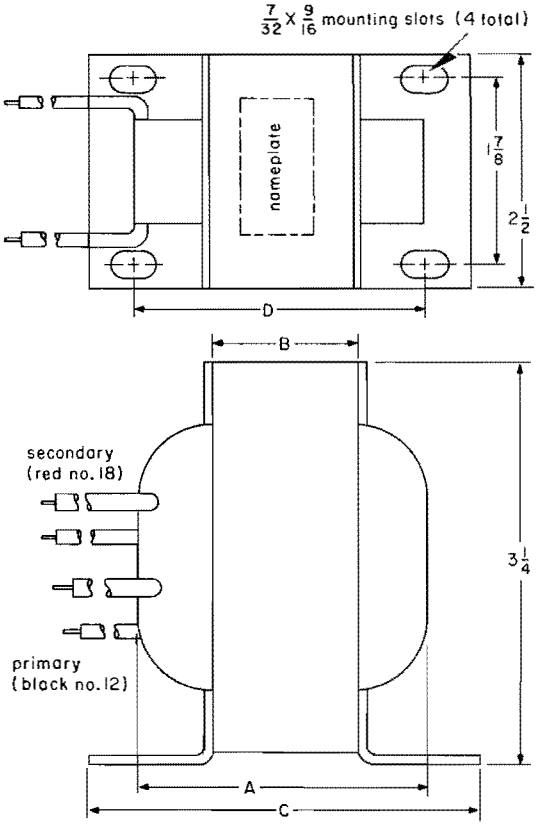
list prices order from TOPS by style number

primary volts	secondary volts	volt amperes	style number	superseded type SD style number	catalog number	list price	frame number	approx. wt. (lbs.)
60 cycle units								
230	115	50	338B200A10	1741 220	1F1733	**$15**	1	3
460	115	50	338B200A07	1741 217	1F1702	**15**	1	3
460	230	50	338B200A08	1741 218	1F1731	**15**	1	3
575	115	50	338B200A09	1741 219	1F1732	**15**	1	3
230	115	100	338B200A05	1741 215	1F1729	**21**	2	5¾
460	115	100	338B200A02	1741 212	1F1703	**21**	2	5¾
460	230	100	338B200A03	1741 213	1F1727	**21**	2	5¾
575	115	100	338B200A04	1741 214	1F1728	**21**	2	5¾
460/230	115	50	338B200A15	1741 246	1F1738	**19**	1	3
460/230	115	100	338B200A01	1741 207	1F1726	**26**	2	5¾
50 cycle units								
380	120	100	338B200A18	1741 256	1F1741	**35**	2	5¾

dimensions ▶

control transformers
type SC

dimensions in inches approximate



frame number	volt ampere	dimension A	B	C	D①
1	50	3	1½	4⅛	3¼
2	100	4¼	2¾	5⅜	4½

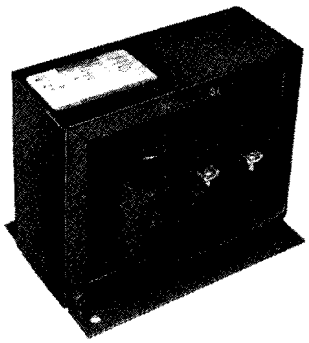
① Frame number 1 will mount on 3⅛" mounting centers.
Frame number 2 will mount on 4⅝" mounting centers.

Westinghouse

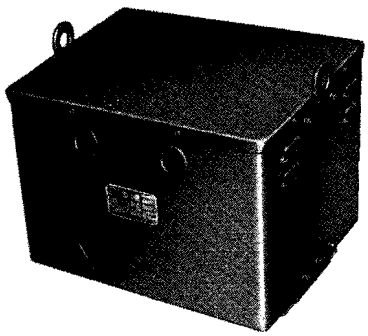
Saturable Core Inductors

Type SCI, Group II Insulation

Air Insulated, 60 Cycles, 80° C Rise
Single Phase, 600 Volts and Below



Open Type SCI



Enclosed Type SCI

List Prices: 3 Thru 15 Kva

The prices shown below cover single phase, 60 cycle apparatus only, with ac voltages of 600, 380, 480, 277, 240, 138, 120 and 69 volts. Where reactors are to be used on three phase systems, three single phase units should be ordered. For three phase applications, inductors must be supplied with ac windings rated for line to neutral volts, whether the load is wye or delta connected. Dc control voltages are 26, 60 and 85. For saturable core inductors 25 kva and below, Westinghouse does not supply magnetic amplifier units or drivers.

Kva Rating of Load ①	Ac Losses at Full Load	List Price	
		NEMA 1 Ventilated Enclosure	Open Type
3	70	**$182**	**$164**
5	110	**234**	**210**
7½	135	**292**	**264**
10	175	**344**	**310**
15	230	**444**	**400**
25	335	**653**	**588**

① Capacities cannot be exceeded. There can be no interpolation of prices. If capacity required exceeds listed rating select next highest size for prices.

Ordering Information

Specify the following when ordering SCI inductors:

1. Number of units.
2. Ac systems voltage and frequency.
3. Available d-c supply voltage.
4. Kva rating.
5. Nature of load and circuit to be controlled.

Further Information:

Description: DB 46-853

Saturable Core Inductors

Type SCI, Group II Insulation

Air Insulated, 60 Cycles, 80° C Rise
Single Phase, 600 Volts and Below

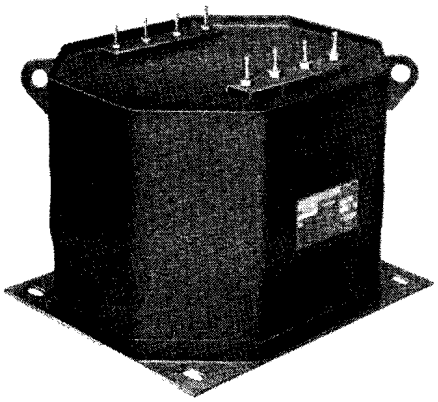
Westinghouse Electric Corporation
Specialty Transformer Division: Greenville Pa.
Printed in USA

Westinghouse

Control Transformers

Type AP Machine Tool

240/480 to 120/240 Volts
60 Cycles, Single Phase



Type AP Machine Tool Transformer

Application

Type AP transformers provide stepped-down voltages to machine tool control devices enabling control circuits to be isolated from all power and lighting circuits, thus allowing the use of grounded or ungrounded circuits that are independent of the power or lighting grounds. Greater safety is afforded the operator and the more rugged 115-volt coils can be used on the control devices regardless of the line voltage. The AP line is particularly adaptable on applications where compact construction is demanded.

Air insulated and cooled by the natural convection of air, these transformers are safe and cannot explode, no toxic gases can be released, and fire hazards are negligible. Elimination of these potential hazards also makes them desirable for installation in hospitals, hotels, theaters, schools, factories, and other working areas where large groups of people are present.

Where space limitations and insurance regulations prohibit the use of liquid-filled transformers, the dry type transformer is the answer.

Design Features

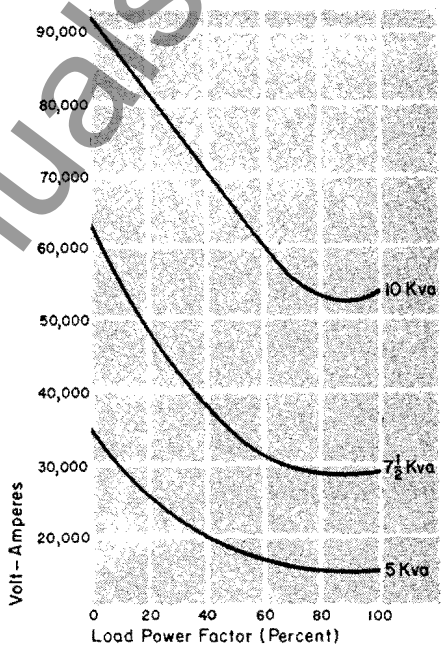
Totally enclosed construction.
Smaller than open core and coil units.
Sound levels lower than standard.
Highest testing standards in the industry.
Meet or exceed NEMA performance requirements.
Screw type terminal boards.

List Prices

240/480 to 120/240 Volts, 60 Cycles. Single Phase, Class B – 80° Rise
Order by style number on TOPS.

Kva	Style Number	List Price
5	6F201	**$150**
7½	6F202	**210**
10	6F203	**260**

Performance Data



The purpose of the regulation curves shown is to indicate the volt-amperes which may be taken from the transformer secondary at various power factors and still maintain 95% of the rated secondary voltage. Since most magnetic devices will operate at 85% of rated voltage (NEMA Standard), this provides a safety factor of 10% for undervoltage on the primary.

To use the curves:

1. Vectorially add the maximum inrush volt-amperes to the continuous volt-amperes connected to the transformer.

2. Determine the power factor of the above condition.

For most solenoids, contactors and similar magnetic devices, 20% is a reasonable value to use. For motor starting, 50% to 60% is a reasonable value.

3. Locate the point determined by steps 1 and 2 on the proper graph. Choose the transformer rating whose curve is next above this point. In cases where the point falls slightly above a curve, the safety factor previously mentioned will allow the user to pick the next lower rating if the primary voltage is close to nominal.

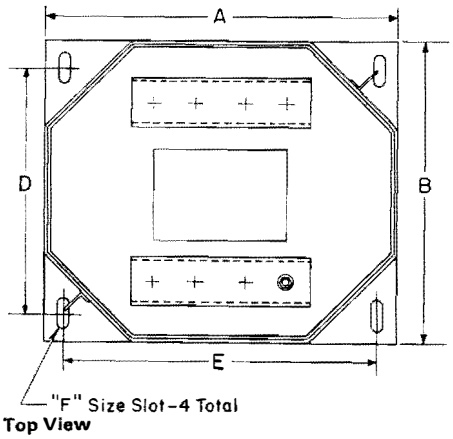
Dimensions ▶

Control Transformers

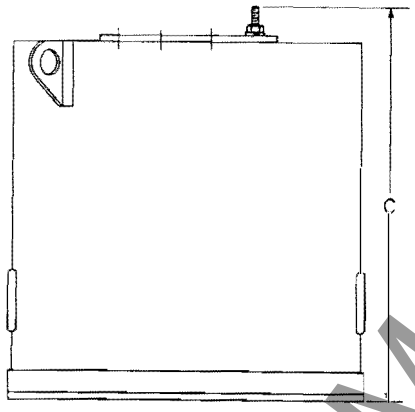
Type AP Machine Tool

240/480 to 120/240 Volts
60 Cycles, Single Phase

Dimensions in Inches



Top View



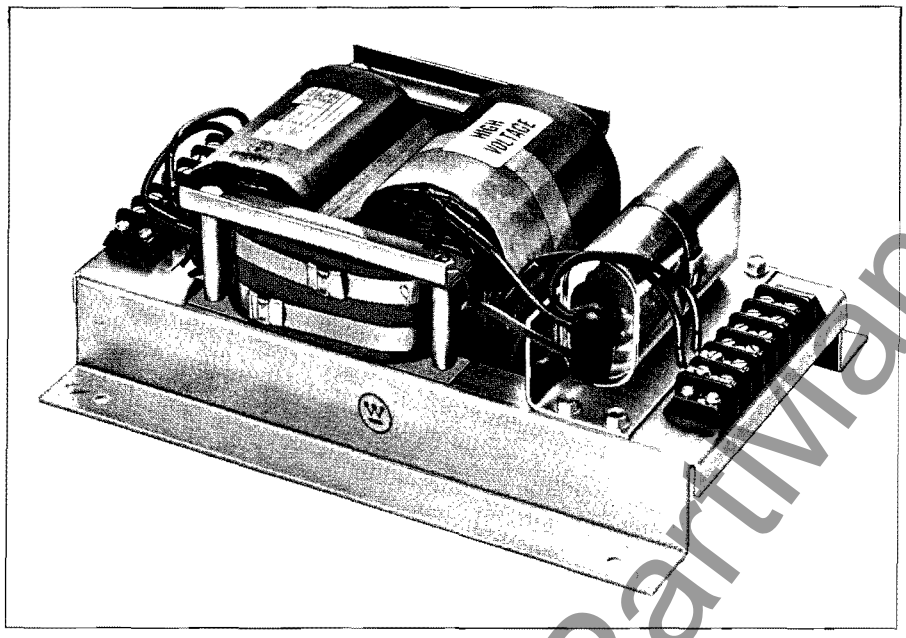
Side View

Kva	Dimension						Net Wt.: Lbs.
	A	B	C	D	E	F	
5	9 13/16	8 25/32	9 1/16	7	8	7/16 × 3/4	75
7½	12 1/32	10 13/32	9 7/16	8½	10½	7/16 × 3/4	120
10	12 1/32	10 13/32	11 7/16	8½	10½	7/16 × 3/4	155

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa.
Printed in USA

Westinghouse

Type SW Transformers



Type SW Transformers

Prices②

Catalog Number	Rating	List Price
1M21	120 Va	$260
1M22	250 Va	390
1M23	500 Va	440
1M24	1000 Va	800

Dimensions and Weights

With Cover Installed

Rating	Height	Width	Length	Weight
120 Va	4⅞"	7½"	12⁹⁄₁₆"	18 lbs.
250 Va	6⅛"	9½"	14⁹⁄₁₆"	33 lbs.
500 Va	6⅞"	10⅝"	16⁹⁄₁₆"	40 lbs.
1000 Va	7¼"	11⅝"	19¹⁄₁₆"	76 lbs.

With Cover Removed

120 Va	4¾"	7½"	11½"	15 lbs.
250 Va	6"	9½"	13½"	30 lbs.
500 Va	6¾"	10⅝"	15¼"	36 lbs.
1000 Va	7"	11⅝"	18"	72 lbs.

② Cover included in price.

Specifications

Input	105-125 Volts
Output	120 Volts (±1%)
Regulation	±1%, 500 thru 1000 Va ±1½%, 150 to 500 Va ±2%, 60 to 150 Va
Stabilization	±1% for Rated Variations in Line Voltage
Frequency vs. Output	±1% for 1% Frequency Change
Harmonic Content	3% (FL)
Response	0 to Full Load Output Voltage Transients 20% Recovery Time 2 Cycle
Hertz	60
Electrical Noise	50 DB

For Additional Information, see Descriptive Bulletin 46-854

Type SW Transformers

Westinghouse Electric Corporation
Specialty Transformer Division: Greenville, Pa. 16125
Printed in USA

Westinghouse

Specialty Transformers

Network Power Filter

Network Power Filter

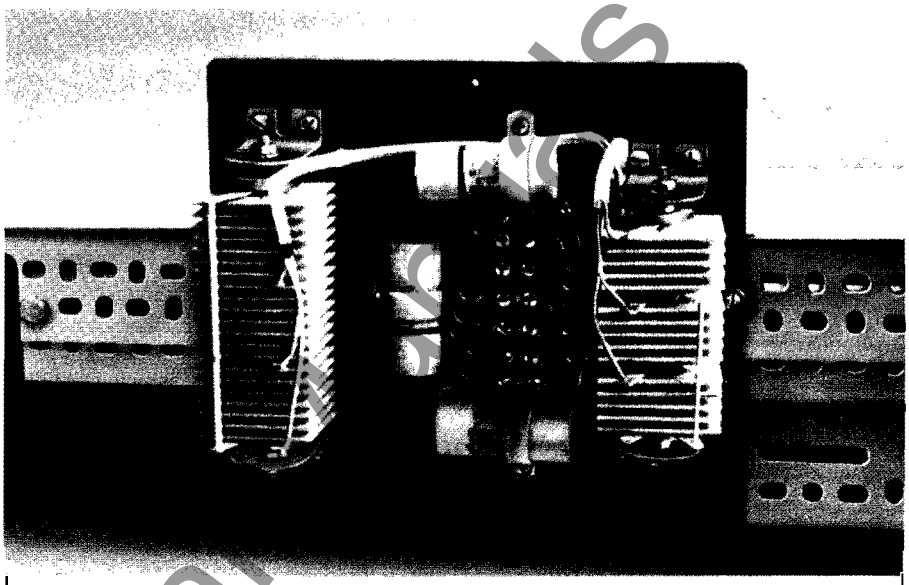
Transient and surge voltages in the output voltage waveform of a computer power supply may cause erratic operation and/or failure of certain of the semiconductor or solid state components of the computer.

The NPF limits the magnitude of transient and surge voltages in the output of the transformer.

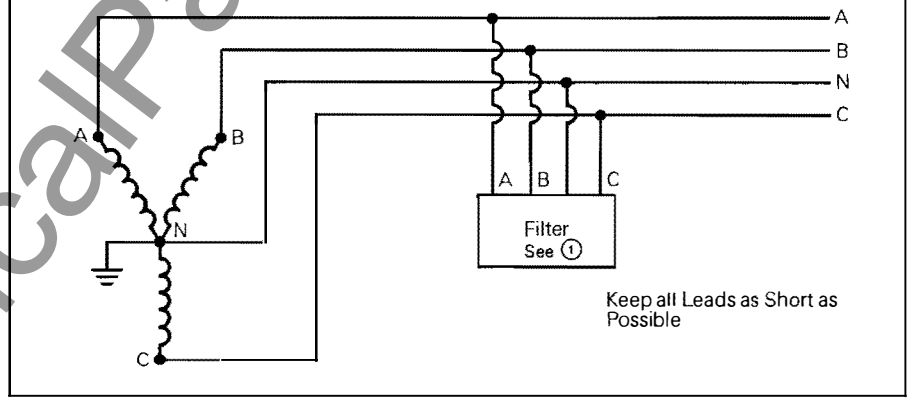
Therefore, it would be desirable to provide a NPF and improve three phase AC power supply for electronic apparatus, such as computers, which will provide complete protection for the connected apparatus against surge and transient voltage.

Line-to-line voltage clamping means, by itself, is not sufficient protection for the output voltage of a three-phase power supply, and that line-to-neutral voltage clamping means, by itself, is also not sufficient protection. Both types of protection are required, in order to protect against substantially in-phase line-to-neutral transient voltages, as well as unbalanced transient voltages. Further clamping the line-to-line and line-to-neutral voltage of a three-phase power supply provides only partial protection for the connected load. Short duration surge voltages having an extremely fast rise and fall time, but a magnitude less than the clamping magnitude, are equally inimical to the solid state devices, as they have a maximum time rate of change voltage rating, which if exceeded will cause them to fail. Further, the short duration, fast rise time voltage pulses are transmitted through the capacitance between the primary and secondary windings of the step-down transformer of the three-phase power supply without transformation, as well as through additional step-down transformers in the connected apparatus for providing the relatively small magnitude control voltages required by certain semiconductor devices. Thus, while these surge voltages may be a relatively small fraction of the magnitude of the distribution voltage of the electrical utility, and may be below the magnitude of the clamping voltage in the three-phase power supply, they may be several times the maximum operating voltage of the semiconductor devices after passing through all of the step-down transformers between the source of the surge potential and the semiconductor devices, since they are not subject to the step-down ratios of the transformers.

This device is a new and improved three-phase AC power supply, which provides complete protection against all of the transient and surge phenomena revealed in the hereinbefore enumerated understanding of their natures. A transient voltage filter is connected to the secondary winding, which includes capacitors connected line-to-neutral, and voltage clamping means applied line-to-neutral, and line-to-line. The capacitors and voltage clamping means cooperate to provide complete transient and surge voltage protection for the connected load, with the capacitors absorbing and smoothing the fast rise time, short duration pulses, and the voltage clamping means absorbing the relatively long time transients having higher magnitudes.®



Transformer Secondary 208Y/120



Keep all Leads as Short as Possible

Catalog Number ①	Transformer Name Plate KVA	List Price ①
1N20	15	$ 300
1N21	30	500
1N22	45	675
1N23	75	850
1N24	112-½	1000
1N25	150	1150
1N26	225	1275
1N27	300	1400
1N28	500	1525
1N29	750	1625
1N30	1000	1750

① Network Power Filter Only

Westinghouse Electric Corporation
Specialty Transformer Division, Greenville, Pa. 16125

Prices effective June 1, 1973, subject to change without notice.
Selling Policy 46-800
Printed in USA

®Patented Dec. 8, 1970
3,546,572

May 29, 1973
New Information
E.D.C./2074/PL