

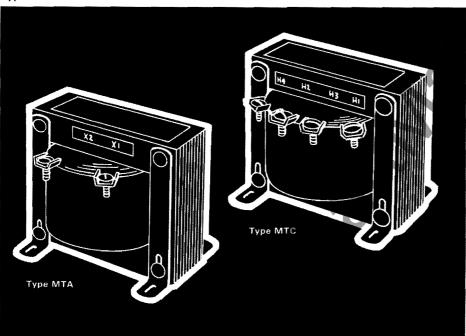
Westinghouse Electric Corporation Specialty Transformer Division Greenville, Pa. U.S.A. 16125 **46-851 D WE A** Descriptive Bulletin

Page 1

## **Control Transformers For Machine Tools**

December, 1975 Supersedes 46-851 D WE A Pages 1 & 2 dated April, 1975 Mailed to E, D, C/2071, 2072/DB

### Types MTA and MTC



### Construction Features Core and Coil Assembly

The proportion of copper and electrical steel has been selected to provide the best performance, greatest reliability and longest life. Type "C" Hipersil® cores are used in all ratings above 750 volt-amperes.

### Mounting

These transformers are designed to keep overall base and height dimensions to a minimum for space-saving panel mounting.

#### Insulation

For the most efficient transformer size either a class A, 55°C rise or a class B, 80°C rise insulation system is selected based upon the VA rating. The assembled core and coil is thoroughly impregnated with a special insulating varnish, Bondar® and baked so as to resist penetration of dust and moisture laden air.

### Wiring

Every standard transformer has a nameplate with connection diagrams and full electrical specifications. Transformer terminals are plainly marked for ease of wiring.

### Add-A-Part Fuse Holder (Fig. 1)

The Add-A-Part fuse holder is available in two different sizes: style number 257A574G01 for ratings through 750 volt-amperes (recommended fuses are ¼" x 1½" Fusetron type MDL or MDX Slo-Blo type 3 AG); and style number 257A564G01 for ratings 1 through 3 kva (recommended fuses are %e" x 2" Fusetron Dual Element Buss Super-Lag).

The fuse holder is applied to the secondary side of the transformer in three simple steps:

- 1. Remove screw from transformer terminal that is to be fused.
- 2. Place fuse holder on terminal. Secure with lock washer and fuse holder screw. Turn holder to desired position before tightening.
- 3. Make connection to fuse holder terminal using the transformer terminal screw.

### Application

Westinghouse Control 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 control transformer line is particularly adaptable on applications where compact construction is demanded. Electrical performance equals or exceeds NEMA, JIC and NMTBA standards.

## "Black Line" Advantages Underwriters' Laboratories, Inc., Listings

Standard 60 and 50/60 cycle units from 50 through 1000 volt-amperes are listed by Underwriters' Laboratories, Inc.

### **Ease of Panel Mounting**

Generous lug-type terminals on the coils are designed and located for maximum accessibility and to keep the overall size of the transformer to a minimum. Slotted mounting feet offer further convenience.

### 100% Testing

Before packaging every transformer is given rigid tests for turns ratio, insulation, continuity and over potential.

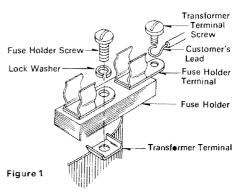
### Excellent Regulation of All Power Factor Loads

The Type MTC is designed specifically for magnetic loads requiring extremely good regulation.

### **Further Information**

Prices: PL 46-830

For type AP encapsulated control transformers 5 thru 10 kva, refer to PL 46-830.





Ratings, Type MTA®						
Volt- Amperes	Catalog Number	Frame Number	Wiring Diagram	Approx. Wt.: Lbs.		
	Voits to 11!			**(,, EDS.		
50 75	1 F0890 1 F0927	1310 1510	1	2 3		
100	1 F0906 1 F0907	1512 1520	1	4		
150 200	1 F0908	1714	i	7		
250	1 F0909	1717	1	8		
300 350	1 F0910 1 F0911	1723 1727	1 1	10 12		
500 750	1 F0912 1 F0913	1923 1931	1	15 19		
1000	1 F0914	C613	1	19		
1500	1 F0965	C614	1	27		
2000 3000	1 F0966 1 F0967	C827 C828	1 1	36 52		
5000	1 F0968	C829	1	79		
230/460/	575 Volts t	o 115/95 V	olts, 50/60	Hertz		
50	1 F0987	1314	2	2		
75 100	1 F0988 1 F0989	1512 1517	2 2	4 5		
150 200	1 F0990 1 F0991	1714 1717	2	7 8		
250	1 F0992	1723	2	10		
300	1 F0993	1730	2	12		
350 500	1 F0994 1 F0995	1923 1931	2 2	14 17		
750	1 F0996	1943	2	27		
1000 1500	1 F0997 1 F0998	C614 C827	2 2	24 34		
208/380/	416 Volts t	o 115/95 V	olts, 50/60	Hertz		
50	1 F1025	1314	2	3		
100 150	1 F1027 1 F1028	1516 1714	2 2	5 7		
200	1 F1029	1717	2	8		
2 <b>5</b> 0 300	1 F1030 1 F1031	1723 1730	2 2	10 13		
500	1 F1033	1931	2 2	18		
750	1 F1034	1943	_	27		
1000 1500	1 F1035 1 F1036	C614 C827	2 2	25 33		
230/460	230/460 Volts to 115/230 Volts, 60 Hertz					
50	1 F2198	1310	3	2		
75 100	1 F2185	1510	3 3 3 3	2 3 4		
150	1 F2186 1 F2189	1512 1520	3	6		
200	1 F2191	1714	3	7		
250 300	1 F2034 1 F1113	1717 1727	3	8 10		
350	1 F2187	1727	3	12		
500 750	1 F2190 1 F2188	1930 C613	3	15 19		
1000	1 F1687	C613	7	19		
1500	1 F1688	C614	3 3 3	27		
2000 3000	1 F1696 1 F1690	C827 C828	3	36 52		
5000	1 F1701	C829	3	79		

Volt- Amperes	s, Type N Catalog Number	Frame Number	Wiring Diagram	Approx. Wt.: Lbs
115 Volt	s to 12 Vol	ts, 50/60 H	ertz	
50 100	1 F3050 1 F3051	1310 1513	4 4	2 4
115 Volt	ts to 24 Vol	ts, 50/60 H	ertz	
50 100 200	1 F3052 1 F3053 1 F3054	1310 1513 1714	4 4 4	2 4 7
Diagra	ms			
H1	H3 H2	! Н4	ı	
X2		X1		1
Figure 1		χ,		-N
Volts	(	Conn		Line
Volts 460 230 115		Conn H2 H3 H1 H3-H2 H	4	H1-H4 H1-H4 X1-X2
460 230	I	H2 H3		H1-H4 H1-H4
460 230 115	I	H2 H3 H1 H3-H2 H		H1-H4 H1-H4
460 230 115	H3 H2	H2 H3 H1 H3-H2 H	2	H1-H4 H1-H4
460 230 115 H1	H3 H2	H2 H3 H1 H3-H2 H	2	H1-H4 H1-H4
460 230 115 H1	H3 H2	H2 H3 H1 H3-H2 H	2	H1-H4 H1-H4
460 230 115 H1 X3 Figure 2 Volts	H3 H2	H2 H3 H1 H3-H2 H H4 H X	2	H1-H4 H1-H4 X1-X2
H1 X3 Figure 2 Volts 575 4 460 3 230	H3 H2 X2 2	H2 H3 H1 H3-H2 H H4 H X	1	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4
460 230 115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95	H3 H2  X2 2 16 80 15 95	H2 H3 H1 H3-H2 H H4 H X Cann H2 H3 H2 H3 H1 H3-H2 H	1	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X2 X1-X2
460 230 115 H1 X3 Figure 2 Volts 575 460 3 230 115 1	H3 H2  X2 2 16 80 15 95	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3	1	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X3
460 230 115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95	H3 H2  X2 2 16 80 15 95	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3 H1 H3-H2 H	1	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X2 X1-X2
460 230 115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95 2	H3 H2 X2 2 16 80 15 95 08	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3 H1 H3-H2 H	1	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X2 X1-X2
460 230 115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95 2	H3 H2  X2 2 16 80 15 905 18 H3 H2  X2 X2	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3 H1 H3-H2 H	1 14 15 4	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X2 X1-X2
460 230 1115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95 2	H3 H2  X2 2 16 80 15 908 143 H2  X2 X2	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3 H1 H3-H2 H	1 14 15 4	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X2 X1-X2
460 230 1115 H1 X3 Figure 2 Volts 575 4 460 3 230 115 1 95 2	H3 H2  X2  16 80 15 95 08  H3 H2	H2 H3 H1 H3-H2 H H4 H X Conn H2 H3 H2 H3 H2 H3 H1 H3-H2 H	1 14 15 4	H1-H4 H1-H4 X1-X2 Line H1-H5 H1-H4 H1-H4 X1-X3 X1-X2 H1-H5

x<sub>1</sub>

Line

H1-H2 X1-X2

Ratings, Type MTC <sup>①</sup>						
Volt- Amperes	Catalog Number	Frame Number	Wiring Diagram	Approx. Wt,: Lbs.		
240/480-120 Volts, 60 Hertz 230/460-115 Volts, 50/60 Hertz 220/440-110 Volts, 50/60 Hertz						
50	1 F0890	1310	1	2		
75	1 F0891	1314	1	3		
100	1 F0892	1413	1	3 3 6 7		
150	1 F0893	1517	1	6		
200	1 F0894	1714	1	7		
250	1 F0895	1717	1	8		
300	1 F0896	1722	1	10		
350	1 F0897	1726	1	11		
500	1 F0898	1931	1	20		
750	1 F0899	1943	1	28		
1000	1 F0900	2226		24		
		2236	1	34		
1500	1 F0901	C822	1	35		
2000	1 F0902	C823	1	38		
3000	1 F0903	C824	!	53		
5000	1 F0904	C825	ı	82		
		T 1	470	<u> </u>		

Regulation Data—Type MTC					
Continuous Nominal	Inrush Volt-Amperes at 20% Power Factor				
Volt-	Secondary Voltage				
Amperes	100%	95%	90%	85%	
50	146	207	379	556	
75	211	318	419	518	
100	254	405	547	686	
150	408	755	1,079	1,394	
200	682	1,208	1,680	2,128	
250	1,020	1,623	2,275	2,898	
300	1,212	2,193	3,075	<b>3</b> ,912	
350	1,750	3,171	4,449	5,663	
500	3,315	6,010	8,465	10,820	
750	4,560	8,595	12,345	15,975	
1000	7,410	13,880	19,860	25,640	
1500	9,195	17,790	25.800	33,510	
2000	10,780	20,420	29,580	38,520	
3000	19,350	36,150	52,950	69,810	
5000	27,150	54,400	83,350	114,200	

Printed in U.S.A.

①For dimensions refer to Technical Certification Section 46-870, page 77

x2

Figure 4 Voits

115 115 12 24



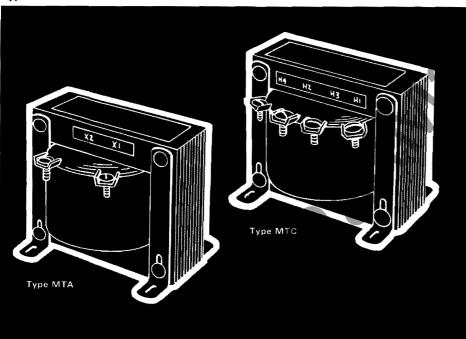
Westinghouse Electric Corporation Specialty Transformer Division Greenville, Pa. U.S.A. 16125 46-851 D WE A Descriptive Bulletin

Page 1

# Control Transformers For Machine Tools

April, 1975 Supersedes DB 46-851 Pages 1-8 dated May, 1967 Mailed to E, D, C/2071, 2072/DB

### Types MTA and MTC



### Construction Features Core and Coil Assembly

The proportion of copper and electrical steel has been selected to provide the best performance, greatest reliability and longest life. Type "C" Hipersil® cores are used in all ratings above 750 volt-amperes.

### Mounting

These transformers are designed to keep overall base and height dimensions to a minimum for space-saving panel mounting.

#### Insulation

For the most efficient transformer size either a class A, 55°C rise or a class B, 80°C rise insulation system is selected based upon the VA rating. The assembled core and coil is thoroughly impregnated with a special insulating varnish, Bondar® and baked so as to resist penetration of dust and moisture laden air.

### Wiring

Every standard transformer has a nameplate with connection diagrams and full electrical specifications. Transformer terminals are plainly marked for ease of wiring.

### Add-A-Part Fuse Holder (Fig. 1)

The Add-A-Part fuse holder is available in two different sizes: style number 257A574G01 for ratings through 750 volt-amperes (recommended fuses are ¼" x 1 ½" Fusetron type MDL or MDX Slo-Blo type 3 AG); and style number 257A564G01 for ratings 1 through 3 kva (recommended fuses are %e" x 2" Fusetron Dual Element Buss Super-Lag).

The fuse holder is applied to the secondary side of the transformer in three simple steps:

- 1. Remove screw from transformer terminal that is to be fused.
- 2. Place fuse holder on terminal. Secure with lock washer and fuse holder screw. Turn holder to desired position before tightening.
- 3. Make connection to fuse holder terminal using the transformer terminal screw.

### **Application**

Westinghouse Control 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 control transformer line is particularly adaptable on applications where compact construction is demanded. Electrical performance equals or exceeds NEMA, JIC and NMTBA standards.

### "Black Line" Advantages Underwriters' Laboratories, Inc., Listings

Standard 60 and 50/60 cycle units from 50 through 1000 volt-amperes are listed by Underwriters' Laboratories, Inc.

### **Ease of Panel Mounting**

Generous lug-type terminals on the coils are designed and located for maximum accessibility and to keep the overall size of the transformer to a minimum. Slotted mounting feet offer further convenience.

#### 100% Testing

Before packaging every transformer is given rigid tests for turns ratio, insulation, continuity and over potential.

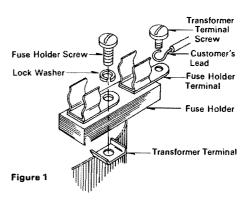
### Excellent Regulation of All Power - Factor Loads

The Type MTC is designed specifically for magnetic loads requiring extremely good regulation.

### **Further Information**

Prices: PL 46-830

For type AP encapsulated control transformers 5 thru 10 kva, refer to PL 46-830.



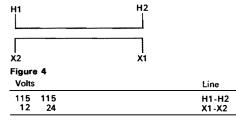
### 46-851 D WE A Descriptive Bulletin

Page 2

Ratings, Type MTA <sup>①</sup>					
Volt- Amperes	Catalo <b>g</b> Number	Frame Number	Wiring Diagram	Approx. Wt.: Lbs.	
230/460 V	olts to 115	Volts, 60	Hertz		
50	1 F0890	1310	1	2	
75	1 F0927	1510	i	3	
100	1 F0906	1512	1	4	
150 2 <b>0</b> 0	1 F0907 1 F0908	1520 1714	1 1	6 7	
250	1 F0909	1717	1	8	
300	1 F0910	1723	1	10	
350 500	1 F0911 1 F0912	1727 1923	1	12 15	
750	1 F0912	1931	1	19	
1000	1 F0914	C613	1	19	
1500	1 F0965	C614	1	27	
2000 3000	1 F0966 1 F0967	C827 C828	1 1	36 52	
5000	1 F0968	C829	i	79	
230/460/5	75 Volts to	115/95 V	olts, 50/60	) Hertz	
	4 50007	4044	•		
50 75	1 F0987 1 F0988	1314 1512	2 2	2 4	
100	1 F0989	1517	2	5	
150	1 F0990	1714	2	7	
200	1 F0991	1717	2	8	
250 300	1 F0992 1 F0993	1723 1730	2 2	10 12	
350	1 F0994	1923	2	14	
500	1 F0995	1931	2	17	
750	1 F0996	1943	2	27	
1000 1500	1 F0997 1 F0998	C614 C827	2 2	24 34	
208/380/4	116 Volts to	115/95 V	olts, 50/60	) Hertz	
50	1 F1025	1314	2	3	
100	1 F1027	1516	2	5	
150	1 F1028	1714	2	7	
200	1 F1029	1717	2	8	
250 300	1 F1030 1 F1031	1723 1730	2 2	10 13	
500	1 F1033	1931	2	18	
750	1 F1034	1943	2	27	
1000	1 F1035	C614 C827	2	25 33	
1500	1 F1036	C621		33	
230/460 V	olts to 115	/230 Volt	s, 60 Hertz	74	
50	1 F2198	1310	3	2	
75	1 F2185	1510	3	3	
100 150	1 F2186 1 F2189	1512 1520	3	4 6	
200	1 F2103	1714	3 3 3	7	
250	1 F2034	1717	3	8	
300	1 F1113	1727	3	10	
350 500	1 F2187 1 F2190	1727 1930	3 3	12 15	
750	1 F2188	C613	3	19	
1000	1 F1687	C613	3	19	
1500 2000	1 F1688 1 F1696	C614	3 3	27	
3000	1 F1696 1 F1690	C827 C828	3	36 52	
5000	1 F1701	C829	3	79	

Volt- Amperes	Catalog Number	Frame Number	Wiring Diagram	Approx. Wt.: Lbs
115 Volts	to 12 Volt	s, 50/60 H	ertz	
50 100	1 F3050 1 F3051	1310 1513	4 4	2 4
115 Volts	to 24 Volt	s. 50/60 H	ertz	
50	1 F3052	1310	4	2
100 200	1 F3053 1 F3054	1513 1714	4 4	4 7
X2 Figure 1 Volts		X1 onn	5	Line
460		onn  2 H3	-	H1-H4
230 115		11 H3-H2 H	4	H1-H4 X1-X2
H1 X3	H3 H2 F	14 HE	U	
Figure 2				
Volts		onn		Line
575 41 460 38		12 H3 12 H3		H1-H5 H1-H4
230 20	18 ▼ H	1 H3-H2 H	4	H1-H4
	5	y	•	X1-X3

X3 X2	X1	
Figure 2		
-		
Volts	Conn	Line
575 416	H2 H3	H1-H5
460 380	H2 H3	H1-H4
230 208	H1 H3-H2 H4	H1-H4
115 115		X1-X3
95 95		X1-X2
	13 H2 H4 (2 X3 X1	
Volts	Conn	Line
460	H2 H3	H1-H4
230	H1 H3-H2 H4	H1-H4
230 115	X2 X3 X1 X3-X2 X4	X1-X4
110	A1 A3-A2 A4	X1 -X4
	112	



### Ratings, Type MTC®

Volt- Amperes	Catalog Number	Frame Number	Wiring Diagram	Approx. Wt.: Lbs.
230/460-	120 Volts, ( 115 Volts, ( 110 Volts, (	50/ <b>60</b> Hert		
50	1 F0890	1310	1	2
75	1 F0891	1314	1	3
100	1 F0892	1413	1	3
150	1 F0893	1517	1	6
200	1 F0894	1714	1	7
250	1 F0895	1717	1	8
300	1 F0896	1722	1	10
350	1 F0897	1726	1	11
500	1 F0898	1931	1	20
750	1 F0899	1943	1	28
1000	1 F0900	2236	1	34
1500	1 F0901	C822	1	35
2000	1 F0902	C823	1	38
3000	1 F0903	C824	1	53
5000	1 F0904	C825	1	82

### Regulation Data—Type MTC

Continuous Nominal	Inrush Volt-Amperes at 20% Power Factor				
Volt-	Secondary Voltage				
Amperes	100%	95%	90%	85%	
50	146	207	379	556	
75	211	318	419	518	
100	254	405	547	686	
150	408	755	1,079	1,394	
200	682	1,208	1,680	2,128	
250	1,020	1,623	2,275	2,898	
300	1,212	2,193	3,075	3,912	
350	1,750	3,171	4,449	5,663	
500	3,315	6,010	8,465	10,820	
750	4,560	8,595	12,345	15,975	
1000	7,410	13,880	19,860	25,640	
1500	9,195	17,790	25,800	33,510	
2000	10,780	20,420	29,580	38,520	
3000	19,350	36,150	52,950	69,810	
5000	27,150	54,400	83,350	114,200	

 ①For dimensions refer to Technical Certification Section 46-870, page 77