

# Control Circuit Transformers

Bulletin Numbers 1497, 1497A, 1497B, 1497D

Topic	Page
1497 Control Circuit Transformer	4
1497A Machine Tool Transformer	9
1497B Control Power Transformer	14
1497D General Purpose Transformer	19

## Additional Resources

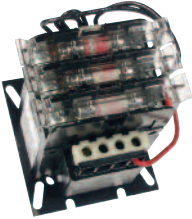



These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <a href="http://www.ab.com">http://www.ab.com</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.



Transformers

				
<b>Bulletin</b>	1497	1497A	1497B	1497D
<b>Type</b>	<b>Control Circuit Transformer</b>	<b>Machine Tool Transformer</b>	<b>Control Power Transformer</b>	<b>General Purpose Transformer</b>
<b>Features</b>	<ul style="list-style-type: none"> <li>• Single, dual, and multi-tap primary voltages</li> <li>• Single phase</li> <li>• EN 60-529 finger-safe protection</li> <li>• RoHS compliant</li> <li>• 50/60 Hz, 50 Hz, or 60 Hz</li> <li>• Optional Fusing</li> </ul>	<ul style="list-style-type: none"> <li>• Dual/Multi-tap</li> <li>• RoHS compliant</li> <li>• Single phase</li> <li>• 50/60 Hz</li> <li>• Optional Fusing</li> </ul>	<ul style="list-style-type: none"> <li>• Dual/Multi-tap</li> <li>• RoHS compliant</li> <li>• Single phase</li> <li>• 60 Hz only</li> <li>• Optional Fusing</li> </ul>	<ul style="list-style-type: none"> <li>• Indoor/outdoor non-ventilated enclosure</li> <li>• Single phase</li> <li>• Exceeds requirements of the Uniform Building Code (UBC) and California Code Title 24</li> <li>• Copper windings provided for all transformers rated 2 kVA and below</li> <li>• Aluminum windings provided for all transformers rated 2 kVA and above</li> <li>• NEMA Type 3R rated enclosures</li> <li>• 50/60 HZ or 60 Hz</li> </ul>
<b>Output Power</b>	63...2000VA	50...3000VA	50...3000VA	0.05...25 kVA
<b>Input Voltage/ Primary Voltage</b>	208...600V 220...550 (50 Hz)	208...575V (50/60 Hz)	120...600V	208...600V
<b>Output Voltage/ Secondary Voltage</b>	24...120V 24...230V (50 Hz)	24...120V (50/60 Hz)	24...240V	120...240V
<b>Insulation</b>	63...2000VA — Class 130 °C (55...80 °C temp. rise)	50...150VA — Class 105 °C (55 °C temp. rise) 200...1500VA — Class 130 °C (80 °C temp. rise) 2000...3000VA — Class 180 °C (100 °C temp. rise)		Class 180 °C (115 °C temp. rise)
<b>Certifications</b>	cULus, CE	cULus	cULus	UL, CSA
<b>Standards</b>	CSA C22.2 No. 66.1, EN 61558, UL 5085-1, 5085-2	CSA C22.2 No. 66.1, UL 5085-1, 5085-2	CSA C22.2 No. 66.1, UL 5085-1, 5085-2	CSA C22.2 No. 47 — M90, UL 1561
<b>Page</b>	<b>Page 4</b>	<b>Page 9</b>	<b>Page 14</b>	<b>Page 19</b>



**Cat. No. 1497-B-HXJX-3-N**  
Control Circuit Transformer, 3-  
pole  
Fuse Block with Optional  
Cat. No. 1491-R150 Fuse Cover



**Cat. No. 1497-C-BASX-0-N**  
Control Circuit Transformer,  
Non-Fused

**Bulletin 1497 — Global Control Circuit Transformers**

Bulletin 1497 Global Control Circuit Transformers are designed to reduce supply voltages to control circuits. The complete line of transformers is available with optional factory-installed or panel-mount primary and secondary fuse block. A dual primary and secondary fuse block is pre-wired and mounted on top of the transformer up to 500VA.

- 63...2000VA
- Single, dual, and multi-tap primary voltages
- Single phase
- EN 60-529 finger-safe protection
- RoHS compliant

**Standards Compliance**

UL 5085-1, UL 5085-2

EN61558

CSA C22.2 No. 66.1

**Certifications**

cULus Listed (File No. E52057;  
Guide No. XPTQ, XPTQ7)  
CE

**Catalog Number Explanation**

Bulletin 1497 Multi-Tap Transformers

1497 - A - M1 - 3 - N  
          a      b      c      d

VA Rating	
Code	Description [VA]
A	63
B	80
C	130
D	200
E	250
F	350
G	500
H	750
J	800
K	1000
L	1600
M	2000

Primary and Secondary Voltage		
Code	Primary	Secondary
M1	240V, 208V	120V (60 Hz)
M2	240V, 208V	24V (60 Hz)
M3	240V, 208V	24V, 120V (60 Hz)
M4	415V, 400V, 380V	115X230V (50 Hz)
M5	415V, 400V, 380V	24V (50 Hz)

Fuse Block Options§	
Code	Block Options
0	0 Primary, 0 Secondary
1	0 Primary, 1 Secondary
2	2 Primary, 0 Secondary
3	2 Primary, 1 Secondary

Factory Installed Options	
Code	Description
N	No Fusing, No Cover

Bulletin 1497 Transformers

1497 - A - BADX - 3 - N  
          a      b      c      d

VA Rating	
Code	Description [VA]
A	63
B	80
C	130
D	200
E	250
F	350
G	500
H	750
J	800
K	1000
L	1600
M	2000

Primary and Secondary Voltage		
Code	Primary	Secondary
HX	208V (60 Hz)	—
AX	240V (60 Hz), 220V (50 Hz)	—
BA*	240X480V (60 Hz), 220X440V (50 Hz)	—
CX‡	600V (60 Hz), 550V (50 Hz)	—
DX‡	—	120V (60 Hz)
JX	—	24V (60 Hz)
SX	—	120V (60 Hz), 110V (50Hz)
JK	—	24V (50 Hz), 26V (60 Hz)

Fuse Block Options§	
Code	Block Options
0	0 Primary, 0 Secondary
1	0 Primary, 1 Secondary
2	2 Primary, 0 Secondary
3	2 Primary, 1 Secondary

Factory Installed Options	
Code	Description
N	No Fusing, No Cover

\* When the primary voltage code **BA** is selected and a 120V AC secondary is desired, the secondary voltage code **SX** should be selected.

‡ VA rating codes **G, H, or J** with primary voltage over 500V have only cULus approval.

‡ Not available for use with primary voltage code **BA**.

§ VA rating codes **H...M** are only available with no fuse block option (0).

**Selecting a Control Circuit Transformer**

For proper transformer selection, three characteristics of the load circuit must be determined in addition to the minimum voltage required to operate the circuit. These are total steady-state (sealed) VA, total inrush VA, and inrush load power factor.

- Total steady-state (sealed) VA is the volt-amperes that the transformer must deliver to the load circuit for an extended period of time — the amount of current required to hold the contact in the circuit.
- Total inrush VA is the volt amperes that the transformer must deliver upon initial energization of the control circuit. Energization of electromagnetic devices takes 30...50 milliseconds. During this inrush period, the electromagnetic control devices draw many times normal current — 3...10 times normal is typical.
- Inrush load power factor is difficult to determine without detailed vector analysis of all the load components. Such an analysis is generally not feasible. Therefore, a safe assumption is 40% power factor.

**Selection Process**

1. Determine the total inrush VA of the control circuits from the table below. Do not neglect the current requirements of indicating lights and other devices that do not have an inrush VA but are re-energized at the same time as the other components in the circuit. Their total VA should be added to the total inrush VA.
2. Refer to the table below, *Regulation Data — Inrush VA*. If the supply circuit voltage (Step 1) is reasonably stable and fluctuates not more than ± 5%, refer to the 90% secondary voltage column. If it fluctuates as much as ± 10%, refer to the 95% secondary voltage column. Go down the column selected until at the inrush VA closest to, but not less than, the inrush VA of the control circuit.
3. Read to the far left side of the chart. The transformer's continuous nominal VA rating is now selected. The secondary voltage that will be delivered under inrush conditions will be either 85%, 90%, or 95% of the rated secondary voltage, depending on the column selected from the table below, *Regulation Data — Inrush VA*. The total sealed VA of the control circuit must not exceed the nominal VA rating of the transformer selected from the table below, *Typical Magnetic Motor Starter and Contactor Data 60 Hz, 120 Volt, 3-Pole*.
4. Refer to the specification tables on the following pages to select a transformer according to the required continuous nominal VA, and primary and secondary voltage combinations.

**Typical Magnetic Motor Starter and Contactor Data 60 Hz, 120 Volt, 3-Pole**

Contactor	NEMA Size						
	0	1	2	3	4	5	
Bulletin 500	192	192	240	660	1225	1490	VA Inrush
	29	29	29	45	69	96	VA Sealed

**Regulation Data — Inrush VA**

Nominal VA Rating	Inrush VA at 40% Power Factor			Power Factor Adjustments	
	85%	90%	95%	Power Factor	Multiply By
63	347	289	216	100%	0.64
80	338	290	229	90%	0.67
130	907	745	541	80%	0.71
200	1267	1039	754	70%	0.78
250	1394	1116	781	60%	0.82
350	2870	2298	1584	50%	0.91
500	3786	3013	2065	40%	1.00
750	7360	5763	3786	30%	1.11
800	7360	5763	3786	20%	1.29
1000	8837	6785	4329	10%	1.50
1600	14921	11328	7070	—	—
2000	20500	14850	9100	—	—



**Fuse Sizing Charts**

**Important:** Select the fuse to protect the control circuit conductors in accordance with the National Electrical Code.

**Primary Fuse Sizing Chart (When Only Primary Protection is Used)**

Maximum Amp Rating for Current Limiting Fuses Based on Transformer Primary Voltage and the National Electrical Code

VA	208V	220V	240V	277V	347V	380V	400V	415V	440V	480V	500V	550V	600V	690V
63	0.75	0.75	0.75	0.5	0.5	0.4	0.4	0.4	0.4	0.25	0.25	0.25	0.25	0.25
80	1	1	1	0.75	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.25
130	1.5	1.5	1.5	1.25	1	1	0.75	0.75	0.75	0.75	0.75	0.5	0.5	0.5
200	2.5	2.5	2.5	2	1.5	1.5	1.5	1.25	1.25	1.25	1	1	1	0.75
250	3	3	3	2.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.25	1.25	1
350	5	4	4	3	3	2.5	2.5	2.5	2	2	2	1.5	1.5	1.5
500	4	3	3	5	4	3	3	3	3	3	3	2.5	2.5	2
750	6	5	5	4	3	5	5	5	5	4	4	4	3	3
800	6	6	5	4	3	3	3	5	5	5	4	4	4	3
1000	8	7	6	6	4	4	4	4	3	3	3	5	5	4
1600	12	12	11	9	7	7	6	6	6	5	5	4	4	3
2000	12	11	13	12	9	8	8	8	7	6	6	6	5	4

**Primary Fuse Sizing Chart (When Primary and Secondary Protection is Used)**

Maximum Amp Rating for Current Limiting Fuses Based on Transformer Primary Voltage and the National Electrical Code

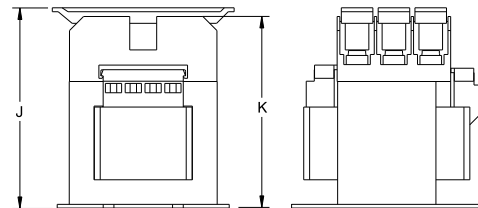
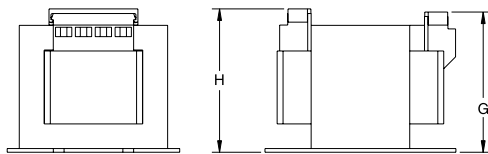
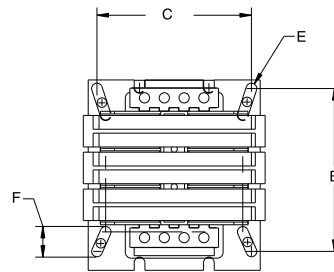
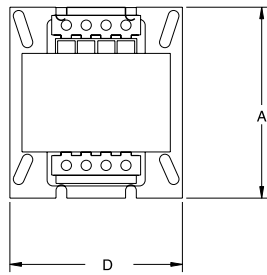
VA	208V	220V	240V	277V	347V	380V	400V	415V	440V	480V	500V	550V	600V	690V
63	0.75	0.75	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.25	0.25	0.25
80	1.5	1.5	1.5	1	1	1	1	0.75	0.75	0.75	0.75	0.5	0.5	0.5
130	3	2.5	2.5	2	1.5	1.5	1.5	1.5	1.25	1.25	1.25	1	1	0.75
200	4	4	4	3	2.5	2.5	2.5	2	2	2	2	1.5	1.5	1
250	6	5	5	4	3	3	3	3	2.5	2.5	2.5	2	2	1.5
350	8	7	7	6	5	4	4	4	3	3	3	3	2.5	2.5
500	6	5	5	9	7	6	6	6	5	5	5	4	4	3
750	9	8	7	6	5	9	9	9	8	7	7	6	6	5
800	9	9	8	7	5	5	5	8	8	8	8	7	6	5
1000	12	10	10	9	7	6	6	6	5	5	5	8	8	7
1600	15	15	15	12	11	10	10	9	9	8	8	7	6	5
2000	20	20	20	18	14	12	12	12	10	10	10	9	8	7

**Secondary Fuse Sizing Chart**

Maximum Amp Rating for Current Limiting Fuses Based on the National Electrical Code

VA	24V	110V	115V	120V	230V
63	4	0.75	0.75	0.75	0.4
80	5	1	1	1	0.5
130	9	1.8	1.8	1.8	0.9
200	13	2.5	2.5	2.5	1.25
250	15	3.2	3.2	3.2	1.5
350	20	4.5	4.5	4.5	2.5
500	30	6.25	6.25	6.25	3
750	45	9	9	9	4.5
800	45	9	9	9	4.5
1000	60	12	12	12	6
1600	100	20	20	20	10
2000	—	25	25	25	12

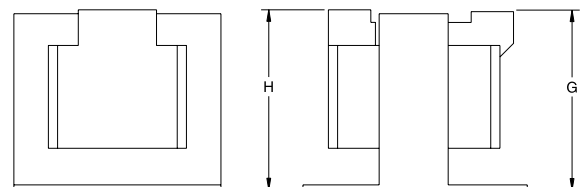
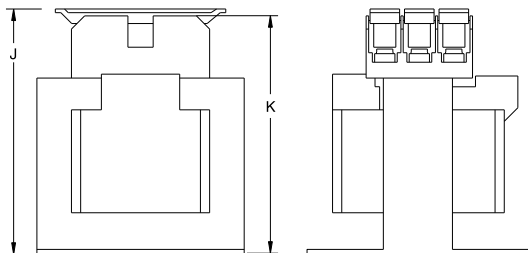
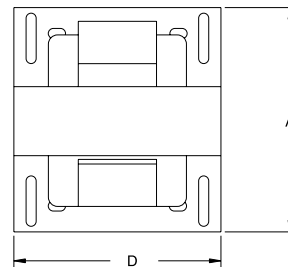
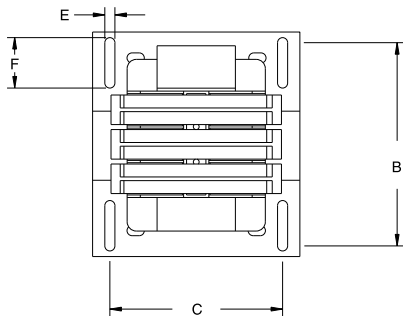
Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.



**Transformer without Fusing**

**Transformer with Fuse Holder and Covers**

VA	A	B	C	D	E	F	G	H	J	K	Approximate Shipping Wt. — lb (kg)	
											Without Top-Mounted Fuse Block	2-Pole Primary and 1-Pole Secondary Top-Mounted Fuse Block
63	3-7/8 (98.00)	3-1/4 (82.55)	3-1/8 (79.38)	3-1/2 (88.90)	7/32 (5.54)	22/32 (18.29)	2-27/32 (72.39)	2-3/8 (73.91)	4-5/64 (103.51)	3-57/64 (99.01)	4-1/2 (2.04)	4-4/5 (2.18)
80	3-7/8 (98.00)	3-1/4 (82.55)	3-1/8 (79.38)	3-1/2 (88.90)	7/32 (5.54)	22/32 (18.29)	2-27/32 (72.39)	2-3/8 (73.91)	4-5/64 (103.51)	3-57/64 (99.01)	4-1/2 (2.04)	4-4/5 (2.18)
130	3-7/8 (98.00)	3-1/4 (82.55)	3-1/8 (79.38)	3-1/2 (88.90)	7/32 (5.54)	22/32 (18.29)	3-3/8 (85.60)	3-13/32 (86.61)	4-45/64 (119.5)	4-35/64 (115.44)	6-7/10 (3.04)	7-3/20 (3.24)

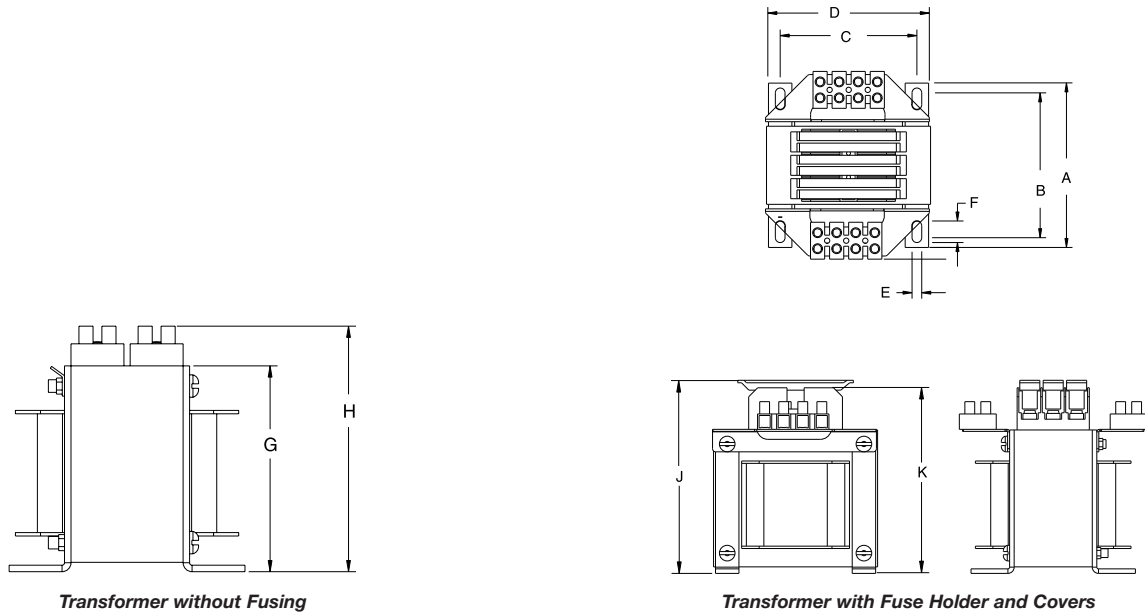


**Transformer with Fuse Holder and Covers**

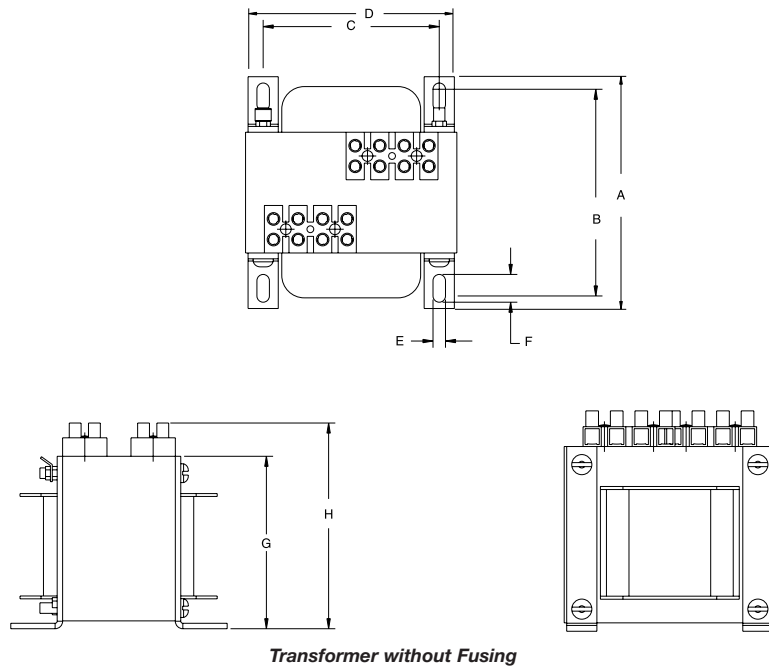
**Transformer without Fusing**

VA	A	B	C	D	E	F	G	H	J	K	Approximate Shipping Wt. — lb (kg)	
											Without Top-Mounted Fuse Block	2-Pole Primary and 1-Pole Secondary Top-Mounted Fuse Block
200	4-7/8 (123.95)	4-7/16 (112.78)	3-3/4 (95.25)	4-1/2 (114.30)	7/32 (5.59)	1-1/8 (28.70)	3-3/8 (85.60)	3-29/32 (86.61)	5-21/64 (135.26)	5-11/64 (131.44)	8-2/5 (3.81)	8-7/10 (3.95)
250	4-7/8 (123.95)	4-7/16 (108.20)	3-3/4 (95.25)	4-1/2 (114.30)	7/32 (5.59)	1-1/8 (28.70)	3-7/8 (98.30)	3-29/32 (98.30)	5-21/64 (135.26)	5-11/64 (131.44)	10-2/5 (4.72)	10-4/5 (4.90)
350	4-7/8 (123.95)	4-7/16 (108.20)	3-3/4 (95.25)	4-1/2 (114.30)	7/32 (5.59)	1-1/8 (28.70)	3-7/8 (98.30)	3-29/32 (98.30)	5-21/64 (135.26)	5-11/64 (131.44)	13-2/5 (6.08)	13-4/5 (6.26)

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.



VA	A	B	C	D	E	F	G	H	J	K	Approximate Shipping Wt. — lb (kg)	
											Without Top-Mounted Fuse Block	2-Pole Primary and 1-Pole Secondary Top-Mounted Fuse Block
500	5-1/4 (133.35)	4-33/64 (114.81)	4-3/8 (111.25)	5-1/4 (133.35)	5/16 (7.87)	45/64 (18.03)	4-17/32 (114.81)	5-1/2 (139.70)	6-3/16 (156.97)	5-15/16 (150.62)	17-3/5 (7.98)	17-19/20 (8.14)



VA	A	B	C	D	E	F	G	H	Approximate Shipping Wt. — lb (kg)	
									Without Top-Mounted Fuse Block	
750	5-3/4 (146.05)	5 (127.51)	4-3/8 (111.25)	5-1/4 (133.35)	5/16 (7.87)	45/64 (18.03)	4-9/16 (114.81)	5-19/32 (137.41)	21-1/2 (9.75)	
800	5-3/4 (146.05)	5 (127.51)	4-3/8 (111.25)	5-1/4 (133.35)	5/16 (7.87)	45/64 (18.03)	4-9/16 (114.81)	5-19/32 (137.41)	21-1/2 (9.75)	
1000	6-3/8 (161.92)	5-3/8 (136.53)	5-5/16 (134.94)	6-3/8 (161.92)	5/16 (7.87)	45/64 (18.03)	5-33/64 (140.21)	6-1/2 (162.56)	37-1/5 (16.87)	
1600	8-1/2 (215.90)	7-1/4 (184.15)	5-3/4 (143.76)	6-3/4 (171.45)	7/16 (10.92)	45/64 (18.03)	5-3/4 (146.05)	7-1/16 (168.66)	50-4/5 (23.04)	
2000	9-1/2 (241.30)	8-1/4 (209.55)	5-3/4 (143.76)	6-3/4 (171.45)	7/16 (10.92)	45/64 (18.03)	5-11/64 (149.86)	7-1/16 (172.47)	61 (27.67)	





**Bulletin 1497A — Machine Tool Transformers**

Bulletin 1497A Machine Tool Transformers are designed to reduce supply voltages to control circuits. The complete line of transformers is available with optional factory-installed or panel-mount primary and secondary fuse block/clip.

- 50...3000VA (50/60 Hz)
- RoHS compliant
- Single phase
- Epoxy encapsulated

**Standards Compliance**

UL 5085-1, UL 5085-2  
CSA C22.2 No. 66.1

**Certifications**

cULus Listed (File No. E52057; Guide No. XPTQ, XPTQ7)

**Catalog Number Explanation**

Bulletin 1497A Machine Tool Transformers

1497A –   a   –   b   –   c   –   d  

<i>a</i>	
VA Rating	
Code	Description [VA]
A1	50
A2	75
A3	100
A4	150
A5	200
A6	250
A7	300
A8	350
A9	500
A10	750
A11	1000
A12	1500
A13	2000
A14	3000

<i>b</i>		
Primary and Secondary Voltage		
Code	Primary	Secondary
M6	220X440V, 230X460V, 240X480V	110, 115, 120V (50/60 Hz)
M7	230/460/575V	115/95V (50/60 Hz)
M8	208/277/380V	115/95V (50/60 Hz)
M18	208/230/480V (50/60 Hz)	120/24V (50/60 Hz)
M19	240X480V (50/60 Hz)	48V (50/60 Hz)

<i>c</i>	
Fuse Block Options*	
Code	Block Options
0	0 Primary, 0 Secondary
1	0 Primary, 1 Secondary
3	2 Primary, 1 Secondary

<i>d</i>	
Factory Installed Options	
Code	Description
N	No Taps

**Note:** For complete list of valid transformer configurations, see Product Selection.

\* Transformers rated 350VA and below use secondary fuse clips. Transformers rated 500VA and above use secondary fuse blocks.

**Selecting a Machine Tool Transformer Selection Process**

- Total steady-state (sealed) VA is the volt-amperes that the transformer must deliver to the load circuit for an extended period of time — the amount of current required to hold the contact in the circuit.
- Total inrush VA is the volt amperes that the transformer must deliver upon initial energization of the control circuit. Energization of electromagnetic devices takes 30...50 milliseconds. During this inrush period, the electromagnetic control devices draw many times normal current — 3...10 times normal is typical.
- Inrush load power factor is difficult to determine without detailed vector analysis of all the load components. Such an analysis is generally not feasible. Therefore, a safe assumption is 40% power factor.

For proper transformer selection, three characteristics of the load circuit must be determined in addition to the minimum voltage required to operate the circuit. These are total steady-state (sealed) VA, total inrush VA, and inrush load power factor.

- Total steady-state (sealed) VA is the volt-amperes that the transformer must deliver to the load circuit for an extended period of time — the amount of current required to hold the contact in the circuit.
  - Total inrush VA is the volt amperes that the transformer must deliver upon initial energization of the control circuit. Energization of electromagnetic devices takes 30...50 milliseconds. During this inrush period, the electromagnetic control devices draw many times normal current — 3...10 times normal is typical.
  - Inrush load power factor is difficult to determine without detailed vector analysis of all the load components. Such an analysis is generally not feasible. Therefore, a safe assumption is 40% power factor.
1. Determine the total inrush VA of the control circuits from the table below. Do not neglect the current requirements of indicating lights and other devices that do not have an inrush VA but are re-energized at the same time as the other components in the circuit. Their total VA should be added to the total inrush VA.
  2. Refer to the table below, *Regulation Data — Inrush VA*. If the supply circuit voltage (Step 1) is reasonably stable and fluctuates not more than ± 5%, refer to the 90% secondary voltage column. If it fluctuates as much as ± 10%, refer to the 95% secondary voltage column. Go down the column selected until at the inrush VA closest to, but not less than, the inrush VA of the control circuit.

3. Read to the far left side of the chart. The transformer's continuous nominal VA rating is now selected. The secondary voltage that will be delivered under inrush conditions will be either 85%, 90%, or 95% of the rated secondary voltage, depending on the column selected from the table below, *Regulation Data — Inrush VA*. The total sealed VA of the control circuit must not exceed the nominal VA rating of the transformer selected from the table below.
4. Refer to the specification tables on the following pages to select a transformer according to the required continuous nominal VA, and primary and secondary voltage combinations.

**Regulation Data — Inrush VA**

Inrush VA at 40% Power Factor				Power Factor Adjustments	
Nominal VA Rating	85%	90%	95%	Power Factor	Multiply By
50	158	139	116	100%	0.63
75	242	213	177	90%	0.65
100	346	302	249	80%	0.70
150	528	461	379	70%	0.75
200	869	743	585	60%	0.82
250	1057	904	719	50%	0.90
300	1418	1200	937	40%	1.00
350	1620	1361	1047	30%	1.12
500	2681	2221	1648	20%	1.27
750	4560	3718	2700	10%	1.45
1000	7568	6118	4185	—	—
1500	15724	12423	8203	—	—
2000	16941	13660	9484	—	—
3000	25680	20180	13797	—	—

**Fuse Sizing Charts**

**Important:** Select the fuse to protect the control circuit conductors in accordance with the National Electrical Code.

**Primary Fuse Sizing Chart (When only primary protection is used)**

Maximum Amp rating for current limiting Class C fuses based on transformer primary voltage and the National Electrical Code

VA	115V	120V	200V	208V	220V	230V	240V	277V	380V	400V	415V	440V	460V	480V	500V	550V	575V	600V
50	1.25	1.25	0.75	0.6	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.25	0.25	0.25
75	1.8	1.8	1.125	1	1	0.75	0.75	0.75	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3
100	2.5	2.5	1.5	1.4	1.25	1.25	1.25	1	0.75	0.75	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
150	3.5	3.5	2.25	2	2	1.8	1.8	1.6	1.125	1.125	1	1	0.75	0.75	0.75	0.75	0.75	0.75
200	5	5	3	2.8	2.5	2.5	2.5	2	1.5	1.5	1.4	1.25	1.25	1.25	1.125	1	1	1
250	3.5	3.2	3.5	3.5	3.2	3.2	3	2.5	1.8	1.8	1.8	1.6	1.6	1.5	1.5	1.25	1.25	1.25
300	4	4	4.5	4	4	3.5	3.5	3.2	2.25	2.25	2	2	1.8	1.8	1.8	1.6	1.5	1.5
350	5	4.5	5	5	4.5	4.5	4	3.5	2.5	2.5	2.5	2.25	2.25	2	2	1.8	1.8	1.6
500	7	6.25	4	4	3.5	3.5	3.2	5	3.5	3.5	3.5	3.2	3.2	3	3	2.5	2.5	2.5
750	10	10	6.25	6	5.6	5	5	4.5	5.6	5.6	5	5	4.5	4.5	4.5	4	3.5	3.5
1000	12	12	8	8	7	7	6.25	6	4	4	4	3.5	3.5	3.2	3.2	5	5	5
1500	20	15	12	12	10	10	10	9	6.25	6.25	6	5.6	5	5	5	4.5	4	4
2000	20	20	12	12	10	12	12	12	8	8	8	7	7	6.25	6.25	6	5.6	5
3000	30	30	15	15	15	15	15	12	12	12	12	10	10	10	10	9	8	8

**Primary Fuse Sizing Chart (When primary and secondary protection is used)**

Maximum Amp rating for current limiting fuses based on transformer primary voltage and the National Electrical Code

VA	115V	120V	200V	208V	220V	230V	240V	277V	380V	400V	415V	440V	460V	480V	500V	550V	575V	600V
50	1	1	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.25	0.25	0.25	0.25	0.2	0.2	0.2
75	1.6	1.5	0.75	0.75	0.75	0.75	0.75	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
100	2	2	1.25	1.125	1.125	1	1	0.75	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4
150	3.2	3	1.8	1.8	1.6	1.6	1.5	1.25	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.6	0.6	0.6
200	4	4	2.5	2.25	2	2	2	1.8	1.25	1.25	1.125	1.125	1	1	1	0.75	0.75	0.75
250	5	5	3	3	2.8	2.5	2.5	2.25	1.6	1.5	1.5	1.4	1.25	1.25	1.25	1.125	1	1
300	6.25	6.25	3.5	3.5	3.2	3.2	3	2.5	1.8	1.8	1.8	1.6	1.6	1.5	1.5	1.25	1.25	1.25
350	7	7	4	4	3.5	3.5	3.5	3	2.25	2	2	1.8	1.8	1.8	1.6	1.5	1.5	1.4
500	10	10	6.25	6	5.6	5	5	4.5	3.2	3	3	2.8	2.5	2.5	2.5	2.25	2	2
750	15	15	9	9	8	8	7	6.25	4.5	4.5	4.5	4	4	3.5	3.5	3.2	3.2	3
1000	20	20	12	12	10	10	10	9	6.25	6.25	6	5.6	5	5	5	4.5	4	4
1500	30	30	15	15	15	15	15	12	9	9	9	8	8	7	7	6.25	6.25	6.25
2000	40	40	25	20	20	20	20	15	12	12	12	10	10	10	10	9	8	8
3000	45	45	35	35	30	30	30	25	15	15	15	15	15	15	15	12	12	12

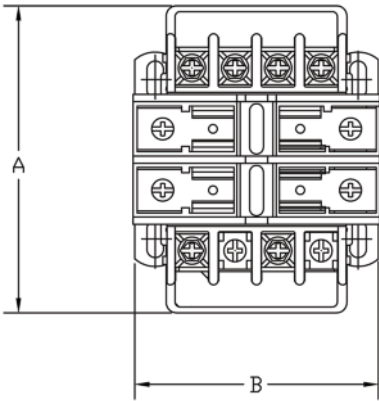
**Secondary Fuse Sizing Chart**

Maximum Amp rating for current limiting midget fuses based on the National Electrical Code

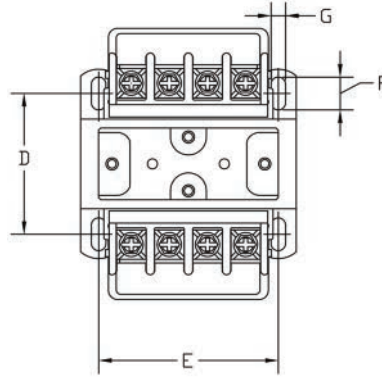
VA	23V	24V	25V	85V	90V	95V	100V	110V	115V	120V	125V	130V	220V	230V	240V
50	3.5	3.2	3.2	0.75	0.75	0.75	0.75	0.75	0.6	0.6	0.6	0.6	0.3	0.3	0.3
75	5	5	5	1.4	1.25	1.25	1.25	1.125	1	1	1	0.75	0.5	0.5	0.5
100	7	6.25	6.25	1.8	1.8	1.6	1.6	1.5	1.4	1.25	1.25	1.25	0.75	0.6	0.6
150	10	10	10	2.8	2.5	2.5	2.5	2.25	2	2	2	1.8	1.125	1	1
200	12	12	12	3.5	3.5	3.5	3.2	3	2.8	2.5	2.5	2.5	1.5	1.4	1.25
250	15	15	15	4.5	4.5	4	4	3.5	3.5	3.2	3.2	3.2	1.8	1.8	1.6
300	20	20	20	5.6	5	5	5	4.5	4	4	4	3.5	2.25	2	2
350	20	20	20	6.25	6.25	6	5.6	5	5	4.5	4.5	4	2.5	2.5	2.25
500	—	—	—	9	9	8	8	7	7	6.25	6.25	6.25	3.5	3.5	3.2
750	—	—	—	12	12	12	12	10	10	10	10	9	5.6	5	5
1000	—	—	—	15	15	15	15	15	12	12	12	12	7	7	6.25
1500	—	—	—	25	25	25	25	20	20	20	20	15	10	10	10
2000	—	—	—	35	35	35	30	30	25	25	25	25	15	12	12
3000	—	—	—	—	—	—	—	45	40	40	40	35	20	20	20



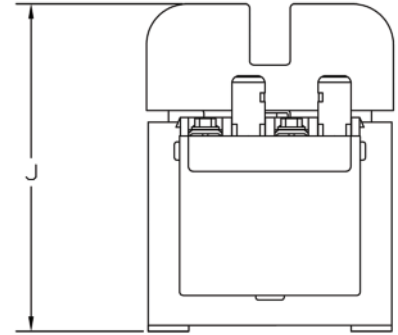
Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.



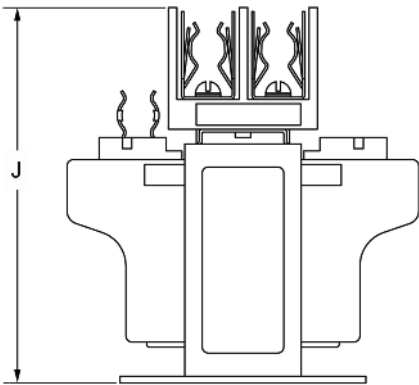
Transformer with 2 Primary Fuse Blocks and 0 or 1 Secondary Fuse Block/Clip (Top View)



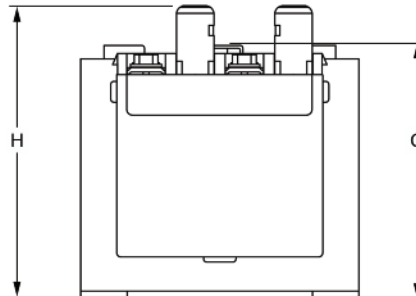
Transformer with 0 Primary Fuse Blocks and 0 or 1 Secondary Fuse Block/Clip (Top View)



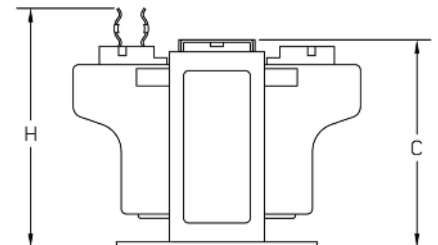
Transformer with 2 Primary Fuse Blocks and 1 Secondary Fuse Block/Clip (Side View)



Transformer with 2 Primary Fuse Blocks and 1 Secondary Fuse Block/Clip (Side View)



Transformer with 0 Primary Fuse Block and Secondary Fuse Block/Clip (Side View)



Transformer with 0 Primary Fuse Blocks and 1 Secondary Fuse Block/Clip (Side View)

VA	Cat. No.	A	B	C	D	E	F	G	H	J	Approx. Shipping Wt. lb (kg)
50	1497A-A1-M6-__-N	3-25/32 (96)	3 (76)	2-23/32 (69)	1-31/32 (50)	2-1/2 (64)	15/32 (12)	1/5 (5)	3-9/64 (80)	4-1/32 (102)	3 (1.4)
	1497A-A1-M7-__-N	4-1/32 (102)			2-1/5 (56)						4 (1.8)
	1497A-A1-M8-__-N	4-17/32 (115)			2-53/64 (72)						4 (1.8)
	1497A-A1-M18-__-N	3-25/32 (96)			1-31/32 (50)						4 (1.8)
	1497A-A1-M19-__-N	4-1/32 (102)			2-27/64 (61)						4 (1.8)
75	1497A-A2-M6-__-N	4-1/32 (102)	3 (76)	2-23/32 (69)	2-27/64 (61)	2-1/2 (64)	15/32 (12)	1/5 (5)	3-9/64 (80)	4-1/32 (102)	4 (1.8)
	1497A-A2-M7-__-N	4-17/32 (115)			2-5/8 (67)						5 (2.3)
	1497A-A2-M8-__-N	4-17/32 (115)	3-3/8 (86)	3-3/64 (77)	3 (76)	2-13/16 (71)			3-15/32 (88)	4-23/64 (110)	5 (2.3)
	1497A-A2-M18-__-N	4-1/32 (102)	3 (76)	2-23/32 (69)	2-27/64 (61)	2-1/2 (64)			3-9/64 (80)	4-1/32 (102)	5 (2.3)
	1497A-A2-M19-__-N	4-1/32 (102)	3 (76)	2-23/32 (69)	2-27/64 (61)	2-1/2 (64)			3-9/64 (80)	4-1/32 (102)	5 (2.3)
100	1497A-A3-M6-__-N	4 (102)	3-3/8 (86)	3-3/64 (77)	2-27/64 (61)	2-13/16 (71)	15/32 (12)	1/5 (5)	3-15/32 (88)	4-23/64 (110)	5 (2.3)
	1497A-A3-M7-__-N	4-1/16 (103)			2-13/16 (71)						6 (2.7)
	1497A-A3-M8-__-N	4-17/32 (115)	3-3/4 (95)	3-23/64 (85)	3 (76)	3-5/16 (80)			3-49/64 (96)	4-21/32 (118)	6 (2.7)
	1497A-A3-M18-__-N	4-17/32 (115)	3 (76)	2-27/64 (61)	2-13/16 (71)	3-5/16 (80)			3-15/32 (88)	4-23/64 (110)	6 (2.7)
	1497A-A3-M19-__-N	4 (102)	3-3/8 (86)	3-3/64 (77)	2-27/64 (61)	2-13/16 (71)			3-15/32 (88)	4-23/64 (110)	6 (2.7)

VA	Cat. No.	A	B	C	D	E	F	G	H	J	Approx. Shipping Wt. lb (kg)							
150	1497A-A4-M6-__-N	4-1/16 (103)	3-3/4 (95)	3-23/64 (85)	2-13/16 (71)	3-5/16 (80)	15/32 (12)	1/5 (5)	3-49/64 (96)	4-21/32 (118)	6 (2.7)							
	1497A-A4-M7-__-N	4-17/32 (115)			3-3/16 (81)				3-25/32 (96)		7 (3.2)							
	1497A-A4-M8-__-N	5-1/16 (129)							2-13/16 (71)		3-49/64 (96)	7 (3.2)						
	1497A-A4-M19-__-N	4-1/16 (103)										7 (3.2)						
200	1497A-A5-M6-__-N	4-3/8 (111)	4-1/2 (114)	3-31/32 (101)	2-5/8 (67)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	10 (4.5)							
	1497A-A5-M7-__-N				2-63/64 (76)						10 (4.5)							
	1497A-A5-M8-__-N										2-5/8 (67)	10 (4.5)						
	1497A-A5-M19-__-N																	
250	1497A-A6-M6-__-N	4-3/8 (111)	4-1/2 (114)	3-31/32 (101)	2-53/64 (72)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	10 (4.5)							
	1497A-A6-M7-__-N				3-15/32 (88)						10 (4.5)							
	1497A-A6-M8-__-N	2-53/64 (72)									10 (4.5)							
	1497A-A6-M19-__-N				4-3/4 (120)													
300	1497A-A7-M6-__-N	4-3/4 (120)	4-1/2 (114)	3-31/32 (101)	3-3/16 (81)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	12 (5.4)							
	1497A-A7-M7-__-N				6-7/64 (155)						5-1/4 (133)	4-5/8 (118)	3-7/8 (98)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	4-2/5 (112)	5-15/16 (151)
	1497A-A7-M8-__-N	4-3/4 (120)																
	1497A-A7-M19-__-N																	
350	1497A-A8-M6-__-N	4-3/4 (120)	4-1/2 (114)	3-31/32 (101)	3-3/16 (81)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	12 (5.4)							
	1497A-A8-M7-__-N	4-63/64 (128)			3-3/4 (95)						14 (6.4)							
	1497A-A8-M8-__-N	6-7/64 (155)			5-1/4 (133)						4-5/8 (118)	3-7/8 (98)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	4-2/5 (112)	5-15/16 (151)	14 (6.4)
	1497A-A8-M19-__-N	4-3/4 (120)																4-1/2 (114)
500	1497A-A9-M6-__-N	6-7/64 (155)	5-1/4 (133)	4-5/8 (118)	3-7/8 (98)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	4-2/5 (112)	5-15/16 (151)	19 (8.6)							
	1497A-A9-M7-__-N										18 (8.2)							
	1497A-A9-M8-__-N											18 (8.2)						
	1497A-A9-M19-__-N																	
750	1497A-A10-M6-__-N	7-39/64 (193)	5-1/4 (133)	4-5/8 (118)	5-7/8 (149)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	4-2/5 (112)	5-15/16 (151)	28 (12.7)							
	1497A-A10-M7-__-N	8-7/64 (206)									31 (14.1)							
	1497A-A10-M8-__-N	7-39/64 (193)										31 (14.1)						
	1497A-A10-M19-__-N																	
1000	1497A-A11-M6-__-N	7-7/64 (181)	6-3/4 (171)	5-55/64 (149)	4-31/32 (126)	6-1/8 (155)	9/10 (23)	5/16 (8)	4-2/5 (112)	7-3/16 (183)	40 (18.1)							
	1497A-A11-M7-__-N										41 (18.6)							
	1497A-A11-M8-__-N											41 (18.6)						
	1497A-A11-M19-__-N																	
1500	1497A-A12-M6-__-N	8-7/64 (206)	6-3/4 (171)	5-55/64 (149)	6-1/8 (155)	6-1/8 (155)	7/8 (22)	5/16 (8)	4-2/5 (112)	7-3/16 (183)	53 (24)							
	1497A-A12-M7-__-N										55 (24.9)							
	1497A-A12-M8-__-N										54 (24.5)							
2000	1497A-A13-M6-__-N	8-7/64 (206)	6-3/4 (171)	5-55/64 (149)	6-1/8 (155)	6-1/8 (155)	7/8 (22)	5/16 (8)	4-2/5 (112)	7-3/16 (183)	53 (24)							
	1497A-A13-M7-__-N	9 (229)									61 (27.7)							
	1497A-A13-M8-__-N										58 (26.3)							
3000	1497A-A14-M6-__-N	8 (203)	9 (229)	7-41/64 (194)	5-1/4 (133)	7-1/2 (191)	9/10 (23)	7/16 (11)	4-2/5 (112)	8-61/64 (227)	72 (32.7)							





**Bulletin 1497B — Control Power Transformers**

Bulletin 1497B Control Power Transformers are designed to reduce supply voltages to control circuits. The complete line of transformers is available with optional factory-installed or panel-mount primary and secondary fuse block.

- 50...3000VA (60 Hz)
- RoHS compliant
- Single phase
- Epoxy encapsulated

**Standards Compliance**

UL 5085-1, UL 5085-2  
CSA C22.2 No. 66.1

**Certifications**

cULus Listed (File No. E52057; Guide No. XPTQ, XPTQ7)

**Catalog Number Explanation**

Bulletin 1497B Control Power Transformers

1497B – A3 – M11 – 0 – N  
*a**b**c**d*

*a*

VA Rating	
Code	Description [VA]
A1	50
A2	75
A3	100
A4	150
A5	200
A6	250
A7	300
A9	500
A10	750
A11	1000
A12	1500
A13	2000
A14	3000

*b*

Primary and Secondary Voltage		
Code	Primary	Secondary
M11	600/575/550V	120X240V (60 Hz)
M12	120X240V	120X240V (60 Hz)
M13	120X240V	24V (60 Hz)
M14	240X480V	120X240V (60 Hz)
M15	380/400/416V	115X230V (60 Hz)
M16	240X480V	24V (60 Hz)
M17	208/240V	24V (60 Hz)

*c*

Fuse Block Options*	
Code	Block Options
0	0 Primary, 0 Secondary
1	0 Primary, 1 Secondary
2	2 Primary, 0 Secondary
3	2 Primary, 1 Secondary

*d*

Factory Installed Options	
Code	Description
N	No Taps

**Note:** For complete list of valid transformer configurations, see Product Selection.

\* Transformers rated 350VA and below use secondary fuse clips. Transformers rated 500VA and above use secondary fuse blocks.

### Selecting a Control Power Transformer

For proper transformer selection, three characteristics of the load circuit must be determined in addition to the minimum voltage required to operate the circuit. These are total steady-state (sealed) VA, total inrush VA, and inrush load power factor.

- Total steady-state (sealed) VA is the volt-amperes that the transformer must deliver to the load circuit for an extended period of time — the amount of current required to hold the contact in the circuit.
- Total inrush VA is the volt amperes that the transformer must deliver upon initial energization of the control circuit. Energization of electromagnetic devices takes 30...50 milliseconds. During this inrush period, the electromagnetic control devices draw many times normal current — 3...10 times normal is typical.
- Inrush load power factor is difficult to determine without detailed vector analysis of all the load components. Such an analysis is generally not feasible. Therefore, a safe assumption is 40% power factor.

### Selection Process

1. Determine the total inrush VA of the control circuits from the table below, *Typical Magnetic Motor Starter and Contactor Data 60 Hz, 120 Volt, 3-Pole*. Do not neglect the current requirements of indicating lights and other devices that do not have an inrush VA but are re-energized at the same time as the other components in the circuit. Their total VA should be added to the total inrush VA.
2. Refer to the table below, *Regulation Data — Inrush VA*. If the supply circuit voltage (Step 1) is reasonably stable and fluctuates not more than  $\pm 5\%$ , refer to the 90% secondary voltage column. If it fluctuates as much as  $\pm 10\%$ , refer to the 95% secondary voltage column. Go down the column selected until at the inrush VA closest to, but not less than, the inrush VA of the control circuit.
3. Read to the far left side of the chart. The transformer's continuous nominal VA rating is now selected. The secondary voltage that will be delivered under inrush conditions will be either 85%, 90%, or 95% of the rated secondary voltage, depending on the column selected from the table below, *Regulation Data — Inrush VA*. The total sealed VA of the control circuit must not exceed the nominal VA rating of the transformer selected from the table below, *Typical Magnetic Motor Starter and Contactor Data 60 Hz, 120 Volt, 3-Pole*.
4. Refer to the specification tables on the following pages to select a transformer according to the required continuous nominal VA, and primary and secondary voltage combinations.

### Regulation Data — Inrush VA

Inrush VA at 40% Power Factor				Power Factor Adjustments	
Nominal VA Rating	85%	90%	95%	Power Factor	Multiply By
50	158	139	116	100%	0.63
75	242	213	177	90%	0.65
100	346	302	249	80%	0.70
150	528	461	379	70%	0.75
200	869	743	585	60%	0.82
250	1057	904	719	50%	0.90
300	1418	1200	937	40%	1.00
500	2681	2221	1648	20%	1.27
750	4560	3718	2700	10%	1.45
1000	7568	6118	4185	—	—
1500	15724	12423	8203	—	—
2000	16941	13660	9484	—	—
3000	25680	20180	13797	—	—



**Fuse Sizing Charts**

**Important:** Select the fuse to protect the control circuit conductors in accordance with the National Electrical Code.

**Primary Fuse Sizing Chart (When only primary protection is used)**

Maximum Amp rating for current limiting fuses based on transformer primary voltage and the National Electrical Code

VA	115V	120V	200V	208V	220V	230V	240V	277V	380V	400V	415V	440V	460V	480V	500V	550V	575V	600V
50	1.25	1.25	0.75	0.6	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.25	0.25	0.25
75	1.8	1.8	1.125	1	1	0.75	0.75	0.75	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3
100	2.5	2.5	1.5	1.4	1.25	1.25	1.25	1	0.75	0.75	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
150	3.5	3.5	2.25	2	2	1.8	1.8	1.6	1.125	1.125	1	1	0.75	0.75	0.75	0.75	0.75	0.75
200	5	5	3	2.8	2.5	2.5	2.5	2	1.5	1.5	1.4	1.25	1.25	1.25	1.125	1	1	1
250	3.5	3.2	3.5	3.5	3.2	3.2	3	2.5	1.8	1.8	1.8	1.6	1.6	1.5	1.5	1.25	1.25	1.25
300	4	4	4.5	4	4	3.5	3.5	3.2	2.25	2.25	2	2	1.8	1.8	1.8	1.6	1.5	1.5
350	5	4.5	5	5	4.5	4.5	4	3.5	2.5	2.5	2.5	2.25	2.25	2	2	1.8	1.8	1.6
500	7	6.25	4	4	3.5	3.5	3.2	5	3.5	3.5	3.5	3.2	3.2	3	3	2.5	2.5	2.5
750	10	10	6.25	6	5.6	5	5	4.5	5.6	5.6	5	5	4.5	4.5	4.5	4	3.5	3.5
1000	12	12	8	8	7	7	6.25	6	4	4	4	3.5	3.5	3.2	3.2	5	5	5
1500	20	15	12	12	10	10	10	9	6.25	6.25	6	5.6	5	5	5	4.5	4	4
2000	20	20	12	12	10	12	12	12	8	8	8	7	7	6.25	6.25	6	5.6	5
3000	30	30	15	15	15	15	15	12	12	12	12	10	10	10	10	9	8	8

**Primary Fuse Sizing Chart (When primary and secondary protection is used)**

Maximum Amp rating for current limiting fuses based on transformer primary voltage and the National Electrical Code

VA	115V	120V	200V	208V	220V	230V	240V	277V	380V	400V	415V	440V	460V	480V	500V	550V	575V	600V
50	1	1	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.25	0.25	0.25	0.25	0.2	0.2	0.2
75	1.6	1.5	0.75	0.75	0.75	0.75	0.75	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
100	2	2	1.25	1.125	1.125	1	1	0.75	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4
150	3.2	3	1.8	1.8	1.6	1.6	1.5	1.25	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.6	0.6	0.6
200	4	4	2.5	2.25	2	2	2	1.8	1.25	1.25	1.125	1.125	1	1	1	0.75	0.75	0.75
250	5	5	3	3	2.8	2.5	2.5	2.25	1.6	1.5	1.5	1.4	1.25	1.25	1.25	1.125	1	1
300	6.25	6.25	3.5	3.5	3.2	3.2	3	2.5	1.8	1.8	1.8	1.6	1.6	1.5	1.5	1.25	1.25	1.25
350	7	7	4	4	3.5	3.5	3.5	3	2.25	2	2	1.8	1.8	1.8	1.6	1.5	1.5	1.4
500	10	10	6.25	6	5.6	5	5	4.5	3.2	3	3	2.8	2.5	2.5	2.5	2.25	2	2
750	15	15	9	9	8	8	7	6.25	4.5	4.5	4.5	4	4	3.5	3.5	3.2	3.2	3
1000	20	20	12	12	10	10	10	9	6.25	6.25	6	5.6	5	5	5	4.5	4	4
1500	30	30	15	15	15	15	15	12	9	9	9	8	8	7	7	6.25	6.25	6.25
2000	40	40	25	20	20	20	20	15	12	12	12	10	10	10	10	9	8	8
3000	45	45	35	35	30	30	30	25	15	15	15	15	15	15	15	12	12	12

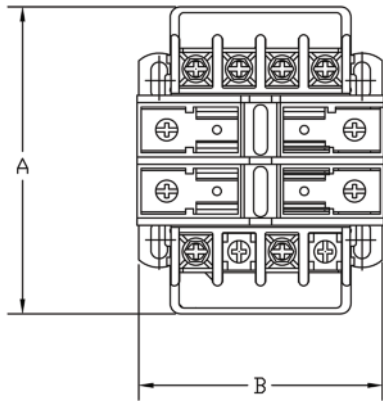
**Secondary Fuse Sizing Chart**

Maximum Amp rating for current limiting fuses based on the National Electrical Code

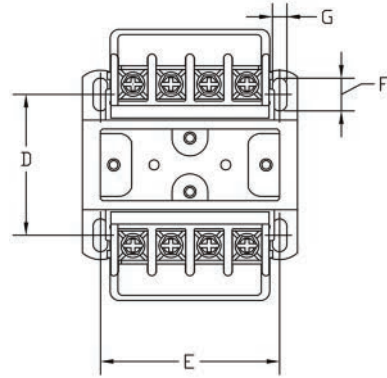
VA	23V	24V	25V	85V	90V	95V	100V	110V	115V	120V	125V	130V	220V	230V	240V
50	3.5	3.2	3.2	0.75	0.75	0.75	0.75	0.75	0.6	0.6	0.6	0.6	0.3	0.3	0.3
75	5	5	5	1.4	1.25	1.25	1.25	1.125	1	1	1	0.75	0.5	0.5	0.5
100	7	6.25	6.25	1.8	1.8	1.6	1.6	1.5	1.4	1.25	1.25	1.25	0.75	0.6	0.6
150	10	10	10	2.8	2.5	2.5	2.5	2.25	2	2	2	1.8	1.125	1	1
200	12	12	12	3.5	3.5	3.5	3.2	3	2.8	2.5	2.5	2.5	1.5	1.4	1.25
250	15	15	15	4.5	4.5	4	4	3.5	3.5	3.2	3.2	3.2	1.8	1.8	1.6
300	20	20	20	5.6	5	5	5	4.5	4	4	4	3.5	2.25	2	2
350	20	20	20	6.25	6.25	6	5.6	5	5	4.5	4.5	4	2.5	2.5	2.25
500	—	—	—	9	9	8	8	7	7	6.25	6.25	6.25	3.5	3.5	3.2
750	—	—	—	12	12	12	12	10	10	10	10	9	5.6	5	5
1000	—	—	—	15	15	15	15	15	12	12	12	12	7	7	6.25
1500	—	—	—	25	25	25	25	20	20	20	20	15	10	10	10
2000	—	—	—	35	35	35	30	30	25	25	25	25	15	12	12
3000	—	—	—	—	—	—	—	45	40	40	40	35	20	20	20



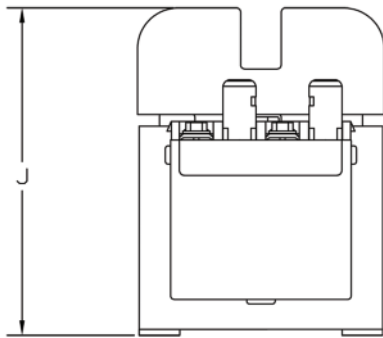
Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.



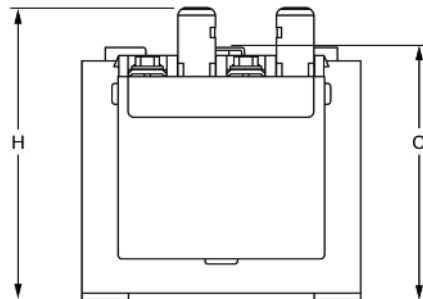
Transformer with 2 Primary Fuse Blocks and 0 or 1 Secondary Fuse Block/Clip (Top View)



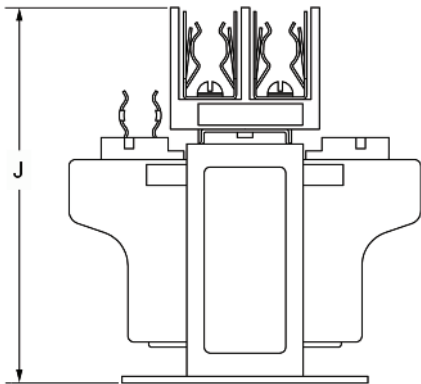
Transformer with 0 Primary Fuse Blocks and 0 or 1 Secondary Fuse Block/Clip (Top View)



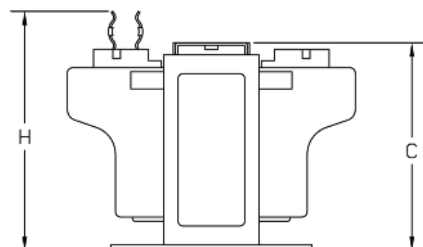
Transformer with 2 Primary Fuse Blocks and 1 Secondary Fuse Block/Clip (Side View)



Transformer with 0 Primary Fuse Block and 1 Secondary Fuse Block/Clip (Side View)



Transformer with 2 Primary Fuse Blocks and 1 Secondary Fuse Block/Clip (Side View)



Transformer with 0 Primary Fuse Blocks and 1 Secondary Fuse Clip (Side View)

# Allen-Bradley Drives

VA	Cat. No.	A	B	C	D	E	F	G	H	J	Approx. Shipping Wt. lb (kg)
50	<b>1497B-A1-M13-0-N</b>	3-25/32 (96)	3 (76)	2-23/32 (69)	1-31/32 (50)	2-1/2 (64)	15/32 (12)	1/5 (5)	3-9/64 (80)	4-1/32 (102)	3 (1.4)
	1497B-A1-M16-0-N										
	1497B-A1-M17-0-N										
75	1497B-A2-M13-0-N	4-1/32 (102)	3 (76)	2-23/32 (69)	2-27/64 (61)	2-1/2 (64)	15/32 (12)	1/5 (5)	3-9/64 (80)	4-1/32 (102)	4 (1.8)
100	1497B-A3-M11-0-N	4-1/16 (103)	3-3/4 (95)	3-23/64 (85)	2-13/32 (61)	3-1/8 (80)	15/32 (12)	1/5 (5)	3-49/64 (96)	4-21/32 (118)	5 (2.3)
	1497B-A3-M12-0-N	4 (102)	3-3/8 (86)	3-3/64 (77)	2-27/64 (61)	2-13/16 (71)			3-15/32 (88)	4-23/64 (110)	
	<b>1497B-A3-M13-0-N</b>										
	1497B-A3-M14-0-N										
	1497B-A3-M16-0-N										
1497B-A3-M17-0-N											
150	1497B-A4-M13-0-N	4-1/16 (103)	3-3/4 (95)	3-23/64 (85)	2-13/16 (71)	3-5/16 (80)	15/32 (12)	1/5 (5)	3-49/64 (96)	4-21/32 (118)	6 (2.7)
	1497B-A4-M14-0-N										
	1497B-A4-M16-0-N										
	1497B-A4-M17-0-N										
200	1497B-A5-M11-0-N	4-3/8 (111)	4-1/2 (114)	3-31/32 (101)	2-5/8 (67)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	10 (4.5)
	1497B-A5-M12-0-N										
	<b>1497B-A5-M13-0-N</b>										
250	1497B-A6-M13-0-N	4-3/8 (111)	4-1/2 (114)	3-31/32 (101)	2-53/64 (72)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	10 (4.5)
	1497B-A6-M14-0-N										
	1497B-A6-M16-0-N										
	1497B-A6-M17-0-N										
300	1497B-A7-M11-0-N	4-3/4 (120)	4-1/2 (114)	3-31/32 (101)	3-3/16 (81)	3-3/4 (95)	15/32 (12)	1/5 (5)	4-2/5 (112)	5-9/32 (134)	12 (5.4)
	1497B-A7-M12-0-N										
	1497B-A7-M13-0-N										
500	<b>1497B-A9-M11-0-N</b>	6-7/64 (155)	5-1/4 (133)	4-5/8 (118)	3-7/8 (98)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	—	5-15/16 (151)	18 (8.2)
	1497B-A9-M12-0-N										
	1497B-A9-M14-0-N										
	1497B-A9-M15-0-N										
750	1497B-A10-M12-0-N	7-39/64 (193)	5-1/4 (133)	4-5/8 (118)	5-7/8 (149)	4-3/8 (111)	1-1/16 (27)	5/16 (8)	—	5-15/16 (151)	28 (12.7)
	1497B-A10-M14-0-N										
	1497B-A10-M15-0-N										
1000	1497B-A11-M11-0-N	7-7/64 (181)	6-3/4 (171)	5-55/64 (149)	4-31/32 (126)	6-1/8 (155)	9/10 (23)	5/16 (8)	—	7-3/16 (183)	40 (18.1)
	1497B-A11-M12-0-N										
	1497B-A11-M14-0-N										
	1497B-A11-M15-0-N										41 (18.6)
1500	1497B-A12-M14-0-N	8-7/64 (206)	6-3/4 (171)	5-55/64 (149)	6-1/8 (155)	6-1/8 (155)	7/8 (22)	5/16 (8)	—	7-3/16 (183)	53 (24)
	<b>1497B-A12-M15-0-N</b>										
2000	1497B-A13-M11-0-N	8-7/64 (206)	6-3/4 (171)	5-55/64 (149)	6-1/8 (155)	6-1/8 (155)	7/8 (22)	5/16 (8)	—	7-3/16 (183)	61 (27.7)
	<b>1497B-A13-M12-0-N</b>										
	1497B-A13-M14-0-N	9 (229)									53 (24)
3000	1497B-A13-M15-0-N	8-7/64 (206)	9 (229)	7-41/64 (194)	5-13/16 (148)	7-1/2 (191)	9/10 (23)	7/16 (11)	—	8-61/64 (227)	78 (35.4)
	1497B-A14-M11-0-N										
	1497B-A14-M12-0-N										
	1497B-A14-M14-0-N										
	1497B-A14-M15-0-N	8-9/16 (217)									



**Bulletin 1497D — 1-Phase General Purpose Transformers**

Bulletin 1497D General Purpose Transformers are generally used for supplying appliance, lighting, motorized machine, and power loads from electrical distribution systems.

- 0.050...25.0 kVA (60 & 50/60 Hz)
- Indoor/outdoor non-ventilated enclosure
- Single phase
- Resin encapsulated
- Exceeds requirements of the Uniform Building Code (UBC) and California Code Title 24
- Copper windings provided for all transformers rated 2 kVA and below
- Aluminum windings provided for all transformers rated 3 kVA and above
- NEMA Type 3R rated enclosures

**Standards Compliance**

CSA C22.2 No. 47 — M90  
UL 1561

**Certifications**

UL Listed (File No. E311296;  
Guide No. XQNX)  
CSA Certified

Your order must include the cat. no. of the control circuit transformer selected.

**Catalog Number Explanation**

**Bulletin 1497D General Purpose Transformers**

$$1497D - \frac{A1}{a} - \frac{M10}{b} - \frac{0}{c} - \frac{N}{d}$$

*a*

VA Rating	
Code	Description [VA]
A1	50
A2	75
A3	100
A4	150
A6	250
A9	500
A10	750
A11	1000
A12	1500
A13	2000
A14	3000
A15	5000
A16	7500
A17	10000
A18	15000
A20	25000

*b*

Primary and Secondary Voltage		
Code	Primary	Secondary
M10	240X480V	120/240V (60 Hz)
M11	600V	120/240V (60 Hz)
M14	240X480V	120/240V (50/60 Hz)
M20	208V	120/240V (60 Hz)
M21	480V	120/240V (60 Hz)
M22	480V	120/240V (50/60 Hz)
M23	600V	120/240V (50/60 Hz)
M24	480V	208V (60 Hz)

*c*

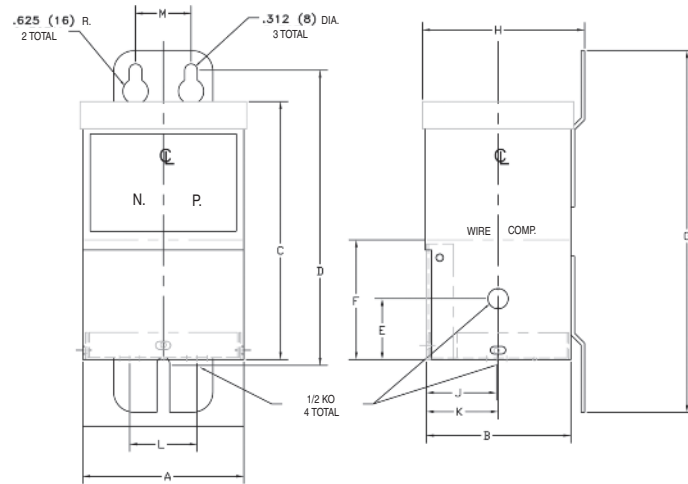
Fuse Block Options	
Code	Block Options
0	0 Primary, 0 Secondary

*d*

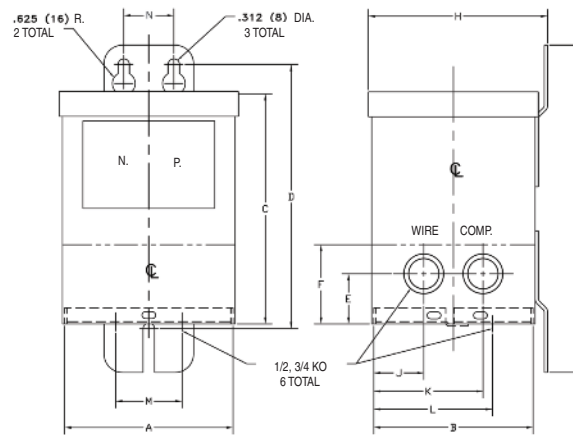
Factory Installed Options	
Code	Description
2	Two 5% taps below rated primary volts
22	2.5% taps: 2 above and 2 below rated primary volts
4	Four 2.5% taps below rated primary volts
N	No taps

**Note:** For complete list of valid transformer configurations, see Product Selection.

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

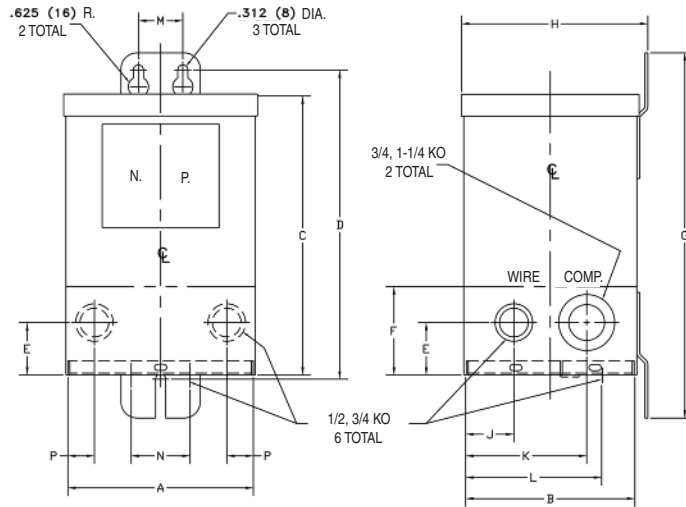


VA (Code)	Primary and Secondary Voltage Code	A	B	C	D	E	F	G	H	J	K	L	M	Approximate Shipping Wt. lb (kg)
														Copper
50 (A1)	M10, M20, M21, M24	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-17/64 (185)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)
	M14	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-3/8 (187)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)
	M11	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-17/64 (185)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)
75 (A2)	M10, M11, M14, M20, M21, M24	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-17/64 (185)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)
100 (A3)	M10, M11, M14, M20, M21, M23, M24	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-17/64 (185)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)
150 (A4)	M10, M11, M20, M21, M24	3-31/32 (101)	3-9/16 (90)	6-23/64 (162)	7-17/64 (185)	1-1/2 (38)	2-61/64 (75)	8-29/32 (226)	4 (102)	1-47/64 (44)	1-49/64 (45)	1-2/3 (42)	1-3/8 (35)	8 (4)



VA (Code)	Primary and Secondary Voltage	A	B	C	D	E	F	G	H	J	K	L	M	N	Approximate Shipping Wt. lb (kg)
															Copper
150 (A4)	M14	4-39/64 (117)	3-33/64 (89)	6-5/16 (160)	7-1/4 (184)	1-3/8 (35)	2-5/32 (55)	8-31/32 (228)	4-1/6 (103)	15/16 (24)	2-9/16 (65)	2-1/2 (64)	1-53/64 (46)	1-3/8 (35)	15 (6)
250 (A6)	M10, M11, M14, M20, M21, M22, M23, M24	4-39/64 (117)	3-33/64 (89)	6-5/16 (160)	7-1/4 (184)	1-3/8 (35)	2-5/32 (55)	8-31/32 (228)	4-1/16 (103)	15/16 (24)	2-9/16 (65)	2-33/64 (64)	1-53/64 (46)	1-3/8 (35)	15 (6)
500 (A9)	M10, M11, M14, M20, M21, M23, M24	4-39/64 (117)	4-23/64 (111)	6-5/16 (160)	7-1/4 (184)	1-3/8 (35)	2-5/32 (55)	8-31/32 (228)	4-29/32 (125)	1-3/8 (35)	3 (76)	3-3/8 (86)	1-53/64 (46)	1-3/8 (35)	16 (7)

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

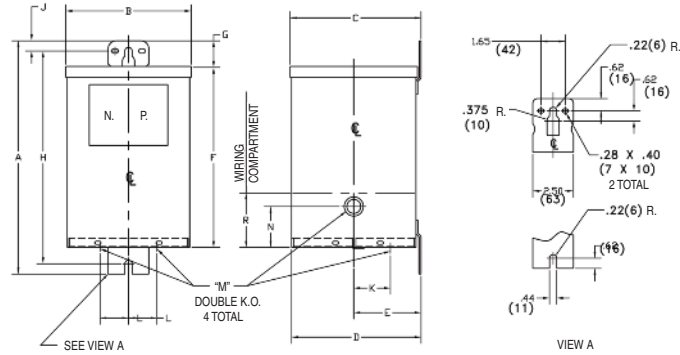


VA (Code)	Primary and Secondary Voltage	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Approximate Shipping Wt.	
																lb (kg)	Copper
500 (A9)	M22, M23	5-47/64 (146)	5-15/64 (133)	8-5/8 (219)	9-35/64 (243)	1-5/8 (41)	2-47/64 (69)	11-9/32 (287)	5-3/4 (146)	1-1/2 (38)	3-3/4 (95)	4-1/4 (108)	1-3/8 (35)	1-53/64 (46)	7/8 (22)	24 (11)	
750 (A10)	M11, M21	5-47/64 (146)	5-15/64 (133)	8-5/8 (219)	9-35/64 (243)	1-5/8 (41)	2-47/64 (69)	11-9/32 (287)	5-3/4 (146)	1-1/2 (38)	3-3/4 (95)	4-1/4 (108)	1-3/8 (35)	1-53/64 (46)	7/8 (22)	24 (11)	
750 (A10)	M10, M14, M20, M22, M23, M24	5-47/64 (146)	5-15/64 (133)	8-5/8 (219)	9-35/64 (243)	1-5/8 (41)	2-47/64 (69)	11-9/32 (287)	5-3/4 (146)	1-1/2 (38)	3-3/4 (95)	4-1/4 (108)	1-3/8 (35)	1-53/64 (46)	7/8 (22)	36 (16)	
* 1000 (A11)	M10, M11, M14, M20, M21, M24	5-47/64 (146)	5-15/64 (133)	8-5/8 (219)	9-35/64 (243)	1-5/8 (41)	2-47/64 (69)	11-9/32 (287)	5-3/4 (146)	1-1/2 (38)	3-3/4 (95)	4-1/4 (108)	1-3/8 (35)	1-53/64 (46)	7/8 (22)	36 (16)	
1000 (A11)	M22, M23	6-1/10 (155)	6 (152)	10-3/4 (273)	11-49/64 (299)	1-3/4 (44)	3 (76)	13-13/32 (341)	6-33/64 (166)	1-7/8 (48)	4-1/8 (105)	4-53/64 (122)	1-3/8 (35)	1-53/64 (46)	1 (25)	50 (23)	
1500 (A12)	M10, M11, M14, M20, M21, M22, M24	6-1/10 (155)	6 (152)	10-3/4 (273)	11-49/64 (299)	1-3/4 (44)	3 (76)	13-13/32 (341)	6-33/64 (166)	1-7/8 (48)	4-1/8 (105)	4-53/64 (122)	1-3/8 (35)	1-53/64 (46)	1 (25)	50 (23)	
2000 (A13)	M10, M11, M14, M20, M21, M24	6-1/10 (155)	6 (152)	10-3/4 (273)	11-49/64 (299)	1-3/4 (44)	3 (76)	13-13/32 (341)	6-33/64 (166)	1-7/8 (48)	4-1/8 (105)	4-53/64 (122)	1-3/8 (35)	1-53/64 (46)	1 (25)	50 (23)	

\* 1" and 1-1/2" knock-outs (two total)

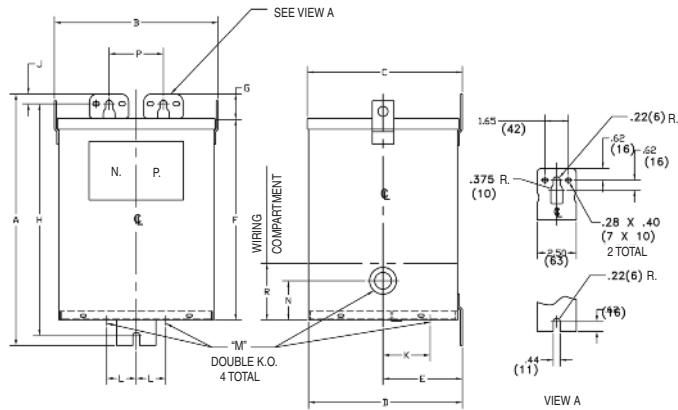
# Allen-Bradley Drives

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.



VA (Code)	Primary and Secondary Voltage	A	B	C	D	E	F	G	H	J	K	L	M	N	R	Approximate Shipping Wt. lb (kg)
‡ 2000 (A13)	M22	14-1/4 (362)	7-11/16 (195)	8 (203)	7-15/16 (202)	4-1/6 (103)	11-1/16 (281)	1-5/8 (41)	13 (330)	5/8 (16)	2-1/4 (57)	1-3/4 (44)	1/2, 3/4 (13, 19)	2-1/2 (64)	3-21/64 (84)	69 (31)
* 3000 (A14)	M10, M11, M20, M21, M24	14-1/4 (362)	7-11/16 (195)	8 (203)	7-15/16 (202)	4-1/6 (103)	11-1/16 (281)	1-5/8 (41)	13 (330)	5/8 (16)	2-1/4 (57)	1-3/4 (44)	1/2, 3/4 (13, 19)	2-1/2 (64)	3-21/64 (84)	65 (30)

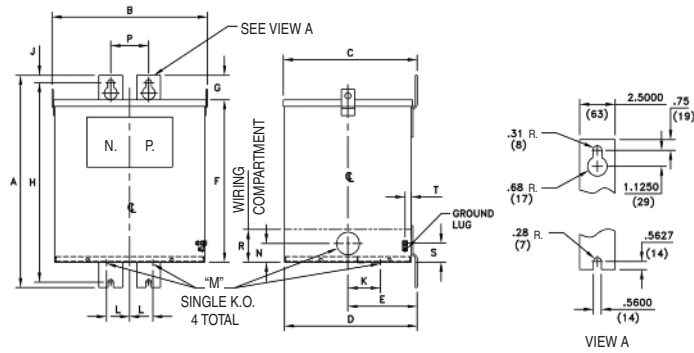
‡ Copper  
\* Aluminum



VA (Code)	Primary and Secondary Voltage	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	Approx. Shipping Wt. lb (kg)
3000 (A14)	M14, M22, M23	16 (406)	10-3/8 (264)	9-57/64 (251)	9-4/5 (249)	5-1/6 (129)	12-53/64 (326)	1-5/8 (41)	14-3/4 (375)	5/8 (16)	3 (76)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	3-15/32 (88)	—	3-39/64 (92)	113 (51)	
5000 (A15)	M10, M11, M20, M21, M24	16 (406)	10-3/8 (264)	9-57/64 (251)	9-4/5 (249)	5-1/6 (129)	12-53/64 (326)	1-5/8 (41)	14-3/4 (375)	5/8 (16)	3 (76)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	3-15/32 (88)	—	3-39/64 (92)	113 (51)	
5000 (A15)	M14, M22	16 (406)	10-3/8 (264)	9-57/64 (251)	9-4/5 (249)	5-1/6 (129)	12-53/64 (326)	1-5/8 (41)	14-3/4 (375)	5/8 (16)	3 (76)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	—	3-39/64 (92)	123 (55)
7500 (A16)	M10, M11, M20, M21, M24	16 (406)	10-3/8 (264)	9-57/64 (251)	9-4/5 (249)	5-1/6 (129)	12-53/64 (326)	1-5/8 (41)	14-3/4 (375)	5/8 (16)	3 (76)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	—	3-39/64 (92)	123 (55)
7500 (A16)	M14, M22	19 (483)	13-3/8 (340)	10-33/64 (267)	10-15/32 (266)	5-7/6 (138)	15-53/64 (402)	1-5/8 (41)	17-3/4 (451)	5/8 (16)	3-3/8 (86)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	1, 1-1/2 (25, 38)	3-3/4 (95)	193 (87)
10000 (A17)	M10, M11, M20, M21, M24	19 (483)	13-3/8 (340)	10-33/64 (267)	10-15/32 (266)	5-7/6 (138)	15-53/64 (402)	1-5/8 (41)	17-3/4 (451)	5/8 (16)	3-3/8 (86)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	1, 1-1/2 (25, 38)	3-3/4 (95)	193 (87)
10000 (A17)	M14, M22	19 (483)	13-3/8 (340)	10-33/64 (267)	10-15/32 (266)	5-7/6 (138)	15-53/64 (402)	1-5/8 (41)	17-3/4 (451)	5/8 (16)	3-3/8 (86)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	1, 1-1/2 (25, 38)	3-3/4 (95)	216 (98)
15000 (A18)	M10, M11, M20, M21, M22	19 (483)	13-3/8 (340)	10-33/64 (267)	10-15/32 (266)	5-7/6 (138)	15-53/64 (402)	1-5/8 (41)	17-3/4 (451)	5/8 (16)	3-3/8 (86)	1-7/8 (48)	3/4, 1-1/4 (19, 32)	2-1/2 (64)	3-15/32 (88)	1, 1-1/2 (25, 38)	3-3/4 (95)	216 (98)

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

**Cat. No. 1491-R150**  
Fuse Cover without Fuse



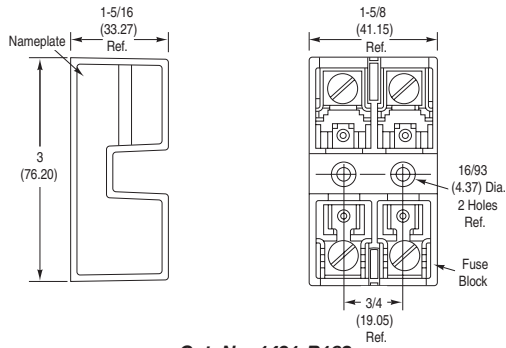
VA (Code)	Primary and Secondary Voltage	A	B	C	D	E	F	G	H	J	K	L
15000 (A18)	M14, M22	23-5/16 (592)	16-11/32 (415)	14- 1/8 (359)	14-1/16 (357)	7-25/64 (188)	18-1/16 (459)	2-19/32 (66)	22 (558)	3/4 (19)	3-7/16 (87)	2-7/16 (62)
25000 (A20)	M10, M11, M14, M20, M21, M22, M24	23-5/16 (592)	16-11/32 (415)	14- 1/8 (359)	14-1/16 (357)	7-25/64 (188)	18-1/16 (459)	2-19/32 (66)	22 (558)	3/4 (19)	3-7/16 (87)	2-7/16 (62)

VA (Code)	Primary and Secondary Voltage	M	N	P	R	S	T	Approximate Shipping Wt.
								lb (kg) Aluminum
15000 (A18)	M14, M22	2 (51)	2-7/16 (62)	4 (102)	4-7/16 (113)	2 (51)	21/32 (17)	375 (170)
25000 (A20)	M10, M11, M14, M20, M21, M22, M24	2 (51)	2-7/16 (62)	4 (102)	4-7/16 (113)	2 (51)	21/32 (17)	375 (170)

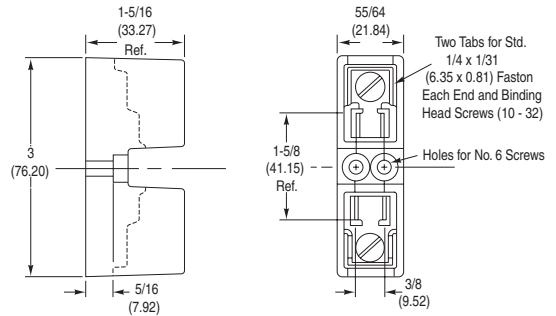
# Allen-Bradley Drives

Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

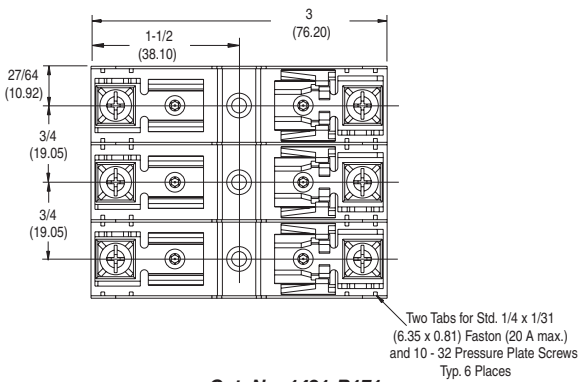
**Note:** Electrical clearance required to top of fuse block.



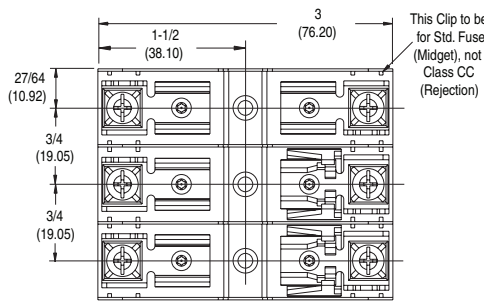
**Cat. No. 1491-R162**  
**Cat. No. 1491-R167**



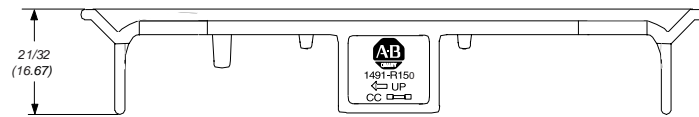
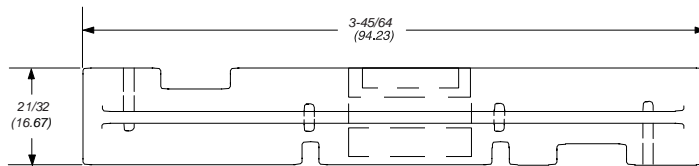
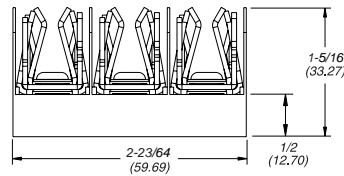
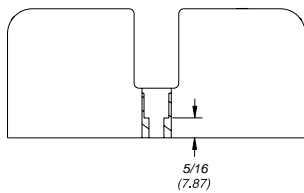
**Cat. No. 1491-R165**



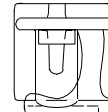
**Cat. No. 1491-R171**



**Cat. No. 1491-R169**



**Cat. No. 1491-R150**





## Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

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### Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444  
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640  
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846