

## Industrial Control Transformers



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## Transformers

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## Standards and Certifications

Eaton dry-type distribution transformers are approved, listed, recognized or may comply with the following standards.

## Engineering Standards

| Catalog Product Name                  | UL Standard ① | UL/cUL File Number | UL Listed Control Number | cUL Energy Efficiency File Number | CSA File Number | Insulation System Temp/°C | kVA Single-Phase | kVA Three-Phase | Applicable IEC Standard |
|---------------------------------------|---------------|--------------------|--------------------------|-----------------------------------|-----------------|---------------------------|------------------|-----------------|-------------------------|
| <b>Industrial Control Transformer</b> |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| MTE                                   | 5085          | E46323             | 702X                     | —                                 | —               | 105                       | 0.025–1.5        | N/A             | 61558                   |
| MTK                                   | 5085          | E46323             | 702X                     | —                                 | —               | 180                       | 0.05–5           | N/A             | 61558                   |
| <b>Encapsulated Transformer</b>       |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| AP                                    | 5085          | E10156             | 591H                     | —                                 | —               | 180                       | 3–10             | N/A             | 61558                   |
| AP                                    | 1561          | E78389             | 591H                     | —                                 | —               | 180                       | 15               | N/A             | 61558                   |
| EP                                    | 5085          | E10156             | 591H                     | —                                 | LR60545         | 180                       | 0.05–10          | N/A             | 61558                   |
| EP                                    | 1561          | E78389             | 591H                     | EV157 ②                           | LR60545 ③       | 180                       | 15–50            | N/A             | 61558 ④ / 726 ⑤         |
| EPT                                   | 5085          | E10156             | 591H                     | —                                 | LR60545         | 180                       | N/A              | 3–9             | 61558 ⑥ / 726 ⑦         |
| EPT                                   | 1561          | E78389             | 591H                     | EV157 ⑧                           | LR60545 ⑨       | 180                       | N/A              | 15–75           | 726                     |
| MPC                                   | 1062          | E53449             | 591H                     | —                                 | LR60546         | 180                       | 3–25             | 15–30           | —                       |
| <b>Ventilated Transformer</b>         |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| DS-3                                  | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | 15–167           | N/A             | 60726                   |
| DT-3                                  | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | N/A              | 15–750          | 60726                   |
| KT                                    | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | N/A              | 9–500           | N/A                     |

## Notes

- ① UL 5085 replaces UL 506.
- ② Applies to 25–50 kVA.
- ③ Applies to 25 kVA.
- ④ Applies to 15–25 kVA.
- ⑤ Applies to 37.5 kVA.
- ⑥ Applies to 3 kVA.
- ⑦ Applies to 5–9 kVA.
- ⑧ Applies to 30–75 kVA.
- ⑨ Applies to 30 kVA.

In addition to the above standards, Eaton dry-type distribution transformers are also manufactured in compliance with the applicable standards listed below.

Not all of the following standards apply to every transformer.

**NEC:** National Electrical Code®.

**NEMA ST-1:** Specialty Transformers (C89.1) (control transformers).

**NEMA ST-20:** General-Purpose Transformers.

**NEMA 250:** Enclosures for Electrical Equipment (1000 volts maximum).

**IEEE C57.12.01:** General Requirements for Dry-Type Distribution and Power Transformers (including those with solid-cast and/or resin-encapsulated windings).

**ANSI C57.12.70:** Terminal Markings and Connections for Distribution and Power Transformers.

**ANSI C57.12.91:** Standard Test Code for Dry-Type Distribution and Power Transformers.

**CSA C22 No. 47-M90:** Air-Cooled Transformers (Dry-Type).

**CSA C9-M1981:** Dry-Type Transformers.

**CSA C22.2 No. 66:** Specialty Transformers.

**CSA 802-94:** Maximum Losses for Distribution, Power and Dry-Type Transformers.



## Catalog Number Selection

Industrial Control Transformers, CE Marked Control Transformers—Example: CE0250E2FCE ①

| Type                                                                     |             |               | Transformer Design                                 |  |  | Voltage   |  |  | Modifications                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|--------------------------------------------------------------------------|-------------|---------------|----------------------------------------------------|--|--|-----------|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| C = Industrial control transformer<br>CE = CE Marked control transformer |             |               | A = MTA<br>C = MTC<br>E = MTE<br>K = MTK<br>P = AP |  |  | Primary   |  |  | Type MTE/MTK<br>CE = CE Marked control transformer<br>FB = Factory-mounted two-pole primary fuse block for rejection type fuses<br>FBN = Factory-mounted two-pole primary fuse block for non-rejection-type fuses<br>Q = Secondary fuse clips for 1/4 x 1-1/4 inch fuses ②<br>XX = No secondary fuse clips<br>RT = Ring type terminals for connection to fuse block<br>ES = Electrostatic shield<br>FS = Factory-mounted finger-safe terminal shields |  |  |
| VA Rating                                                                |             |               |                                                    |  |  | Secondary |  |  | Type AP<br>B = Bottom mounted<br>S = Side/wall mounted<br>ES = Electrostatic shield<br>CU = Copper windings                                                                                                                                                                                                                                                                                                                                           |  |  |
| 0025 = 25                                                                | 0350 = 350  | Type AP Only: |                                                    |  |  |           |  |  | Type MTA/MTC<br>FB = Factory-mounted three-pole fuse block (two-pole primary rejection type with single-pole secondary non-rejection type)<br>ES = Electrostatic shield<br>L = Lead terminations                                                                                                                                                                                                                                                      |  |  |
| 0050 = 50                                                                | 0500 = 500  | 0003 = 3000   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0075 = 75                                                                | 0750 = 750  | 0005 = 5000   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0100 = 100                                                               | 1000 = 1000 | 0007 = 7500   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0150 = 150                                                               | 1500 = 1500 | 0010 = 10000  |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0200 = 200                                                               | 2000 = 2000 | 0015 = 15000  |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0250 = 250                                                               | 3000 = 3000 |               |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| 0300 = 300                                                               | 5000 = 5000 |               |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |

## Notes

① For Eaton's dry-type transformers catalog number selection, see Volume 2, CA08100003E.

② Fuse clip covers not available with this option.

Contact your local Eaton sales office for voltage combinations not shown. Use table for catalog number breakdown only. Do not use to create catalog numbers because all combinations may not be valid.

## Type MTE Transformer



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## Type MTE

## Product Description

**Note:** The following pages provide listings for most standard transformer ratings and styles. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

- Epoxy-encapsulated coils

## Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

**Note:** The MTG “open core-coil design” has been superseded by the epoxy-encapsulated core-coil design MTE with no change to dimensions or functionality.

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## Features, Benefits and Functions

- Epoxy encapsulated
- Laminations of high-quality silicon steel to minimize core losses and optimize performance
- Copper magnet wire for high-quality, efficient operation
- Secondary fuse clips where applicable
- Optional primary fusing
- Molded in terminals
- 50/60 Hz operation
- 130°C insulation system standard
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- 25–1500 VA ratings
- Molded-in terminals for maximum durability

## Standards and Certifications

- UL listed
- cUL listed
- RoHS compliant



## Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

## Catalog Number Selection

Please refer to **Page V7-T7-3**.

**Primary:** 200/220/440, 208/230/460, 240/480  
**Secondary:** 23/110, 24/115, 25/120 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 7                | 3.4 (1.5)       | C0050E5E ②   |
| 75  | 7                | 4.8 (2.2)       | C0075E5E ②   |
| 100 | 7                | 5.9 (2.7)       | C0100E5E ②   |
| 150 | 7                | 7.9 (3.6)       | C0150E5E     |
| 200 | 7                | 10.6 (4.8)      | C0200E5E     |
| 250 | 7                | 13.9 (6.3)      | C0250E5E     |
| 300 | 7                | 15.5 (7.0)      | C0300E5E     |
| 350 | 7                | 16.8 (7.6)      | C0350E5E     |
| 500 | 7                | 23.4 (10.6)     | C0500E5E     |

**Universal Design (MTE Epoxy Encapsulated)**  
**Primary:** 240/416/480/600, 230/400/460/575, 220/380/440/550, 208/500  
**Secondary:** 99/120/130, 95/115/125, 91/110/120, 85/100/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 8                | 4.0 (1.8)       | C0050E6U ②③  |
| 100 | 8                | 6.6 (3.0)       | C0100E6U ②③  |
| 150 | 8                | 8.8 (4.0)       | C0150E6U ②④  |
| 250 | 8                | 14.7 (6.7)      | C0250E6U ②④  |
| 350 | 8                | 18.6 (8.4)      | C0350E6U ②④  |
| 500 | 8                | 25.6 (11.6)     | C0500E6U ②④  |
| 750 | 8                | 30.5 (13.8)     | C0750E6U ②④  |

#### Transformers with Primary Fuse Blocks

**Primary:** 240 x 480, 230 x 460, 220 x 440 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses  
**Secondary:** 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 50   | 1                | 2.8 (1.3)       | C0050E2AFB ② |
| 75   | 1                | 3.7 (1.7)       | C0075E2AFB ② |
| 100  | 1                | 4.4 (2.0)       | C0100E2AFB ② |
| 150  | 1                | 6.9 (3.1)       | C0150E2AFB   |
| 200  | 1                | 8.7 (3.9)       | C0200E2AFB   |
| 250  | 1                | 10.2 (4.6)      | C0250E2AFB   |
| 300  | 1                | 11.5 (5.2)      | C0300E2AFB   |
| 350  | 1                | 13.8 (6.3)      | C0350E2AFB   |
| 500  | 1                | 19.4 (8.8)      | C0500E2AFB   |
| 750  | 1                | 28.3 (12.8)     | C0750E2AFB   |
| 1000 | 1                | 29.7 (13.4)     | C1000E2AFB   |
| 1500 | 1                | 40.2 (18.1)     | C1500E2AFB   |

**Primary:** 240 x 480 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses  
**Secondary:** 24 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 2                | 2.8 (1.3)       | C0050E2BFB ② |
| 75  | 2                | 3.8 (1.7)       | C0075E2BFB ② |
| 100 | 2                | 4.4 (2.1)       | C0100E2BFB ② |
| 150 | 2                | 6.9 (3.1)       | C0150E2BFB   |
| 200 | 2                | 8.7 (3.9)       | C0200E2BFB   |
| 250 | 2                | 10.3 (4.7)      | C0250E2BFB   |
| 300 | 2                | 11.6 (5.3)      | C0300E2BFB   |
| 350 | 2                | 13.6 (6.2)      | C0350E2BFB   |
| 500 | 2                | 17.7 (8.0)      | C0500E2BFB   |

#### Notes

- ① See Page V7-T7-11 for wiring diagrams.
- ② 105°C insulation system.
- ③ Type MTG open core-coil universal design has been superseded by Type MTE epoxy encapsulated universal design with no changes to form, fit or function.
- ④ Type MTE epoxy encapsulated universal design.