CDE

# Axial Leaded Film Capacitors

## METALLIZED POLYESTER AND POLYPROPYLENE FOR MULTIPLE APPLICATIONS

RoHS COMPLIANT

Intelligent Capacitor Solutions






Cornell Dubiler can address all your capacitor needs. Our lines of rugged, reliable axial leaded film capacitors are available as standard items in many configurations to address a wide range of applications.

CDE maintains manufacturing facilities in China and India to enable quick turn-around for shipping and delivery worldwide. All capacitors are built using Lean Six Sigma manufacturing practices and undergo rigorous quality assurance testing. If you have specialized needs, our flexible manufacturing processes allow us to quickly provide custom configurations.

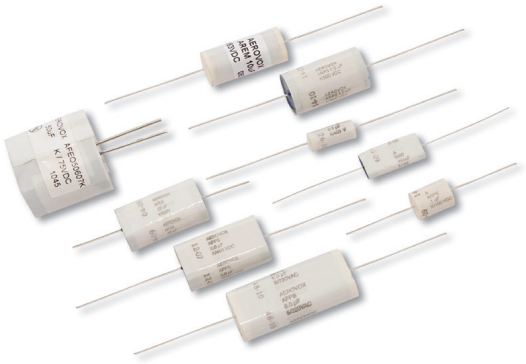


## CDE provides intelligent capacitor solutions.



# Axial Leaded Film Capacitors

**METALLIZED POLYESTER AND POLYPROPYLENE FOR MULTIPLE APPLICATIONS**



## Applications

- Blocking, coupling and filtering (Types AREM and AFEO)
- UPS (Uninterruptible Power Supplies)
- Switching power supply (Type ARPM)
- Pulsing requiring high dV/dt ratings with low DF and ESR (Type ARPM)
- High current AC (Types ARPS and AFPS)

With their wide range of configurations and types, CDE's axial leaded film capacitors are suitable for many different applications. They are available round or flat, and in AC and DC voltage ratings. Wrap and fill capacitors are available in custom packages. All axial leaded film capacitors are UL 94 VO and IEC 695-2-2 certified and RoHS compliant.

### AREM Round and AFEO Flat Axial Metallized Polyester

Types AREM and AFEO are axial leaded metallized polyester capacitors for general purpose use in blocking, coupling and filtering applications.

#### Highlights

- High CV for small size
- Bulk or T&R for AREM; bulk only for AFEO

### ARPS Round and AFPS Flat Axial Metallized Polypropylene Capacitors

Types ARPS and AFPS are designed for high current AC applications.

#### Highlights

- High Current
- Low ESR
- Low DF

### ARPM Axial Metallized Polypropylene Capacitors

Type ARPM is a stable metallized polypropylene capacitor that is ideal for pulsing applications that require a high dV/dt rating with low DF and ESR. ARPM fits well into switching power supply applications.

#### Highlights

- High dV/dt
- Low ESR
- Low DF

### "W" Wrap & Fill

Type W is a tape wrapped axial leaded dry capacitor designed for use in a variety of permanent split-phase capacitor motor applications widely used in ventilating fans, appliances and refrigeration. The AC capacitors provide starting direction by shifting the current in the windings so that the motor simulates the operation of a two-phase motor.

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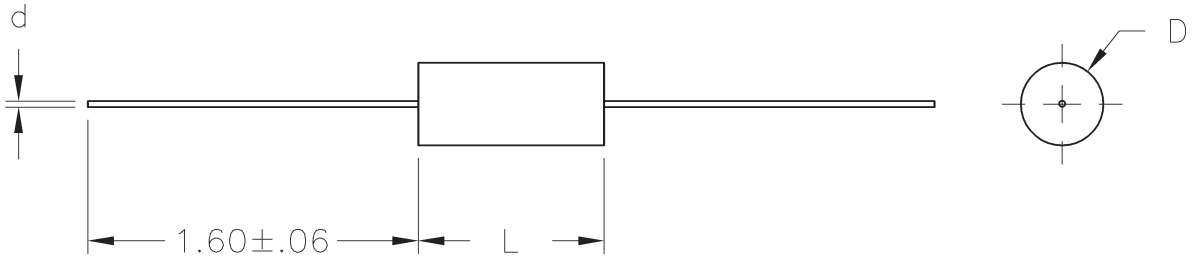
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## Specifications

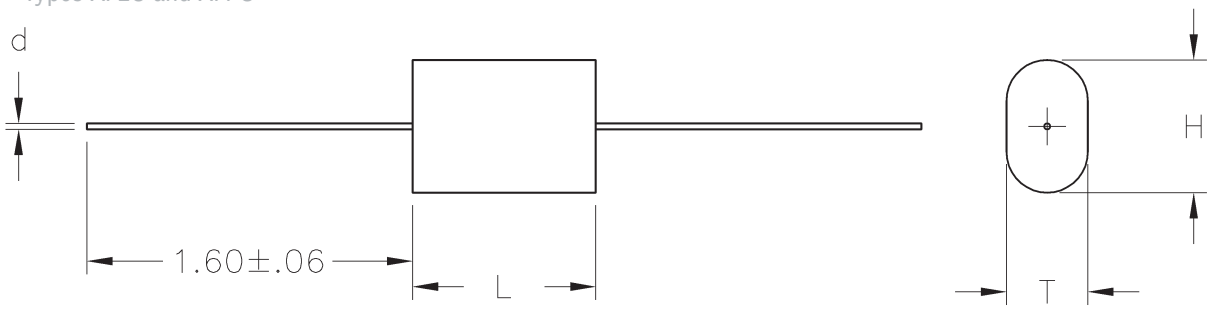
| | |
|---|---|
| **Capacitance Range:** | .001 µF to 20.0 µF (Types AREM and AFEO)<br>.0033 µF to 10.0 µF (Type ARPM)<br>0.47 µF to 20.0 µF (Types ARPS and AFPS) |
| **Capacitance Tolerance:** | ±10% (K) Standard<br>±5% (J) Special<br>±2% (G) Special |
| **Voltage Range:** | 63 VDC (40 VAC) to 630 VDC (220 VAC) (Types AREM and AFEO)<br>150 VDC (90 VAC) to 630 VDC (280 VAC) (Type ARPM)<br>300 VDC (220 VAC) to 600 VDC (300VAC) (Types ARPS and AFPS) |
| **Dissipation Factor:** | ≤0.8% @ 1 kHz (Types AREM and AFEO)<br>≤0.1% @ 1 kHz (Types ARPM, ARPS, and AFPS) |
| **Operating Temperature Range:** | -55°C to +125°C. Full rated voltage @ 85°C, derating linearly to 50% rated voltage at 125°C (Types AREM and AFEO)<br>-55°C to +105°C. Full rated voltage @ 85°C, derating 1.25%/°C from 85°C to 105°C (Types ARPM, ARPS and AFPS) |
| **Dielectric Absorption:** | 0.30% typical (Types AREM and AFEO)<br>0.05% typical (Types ARPM, ARPS and AFPS) |

## Outline Drawings

### Types ARPS, ARPM and AREM



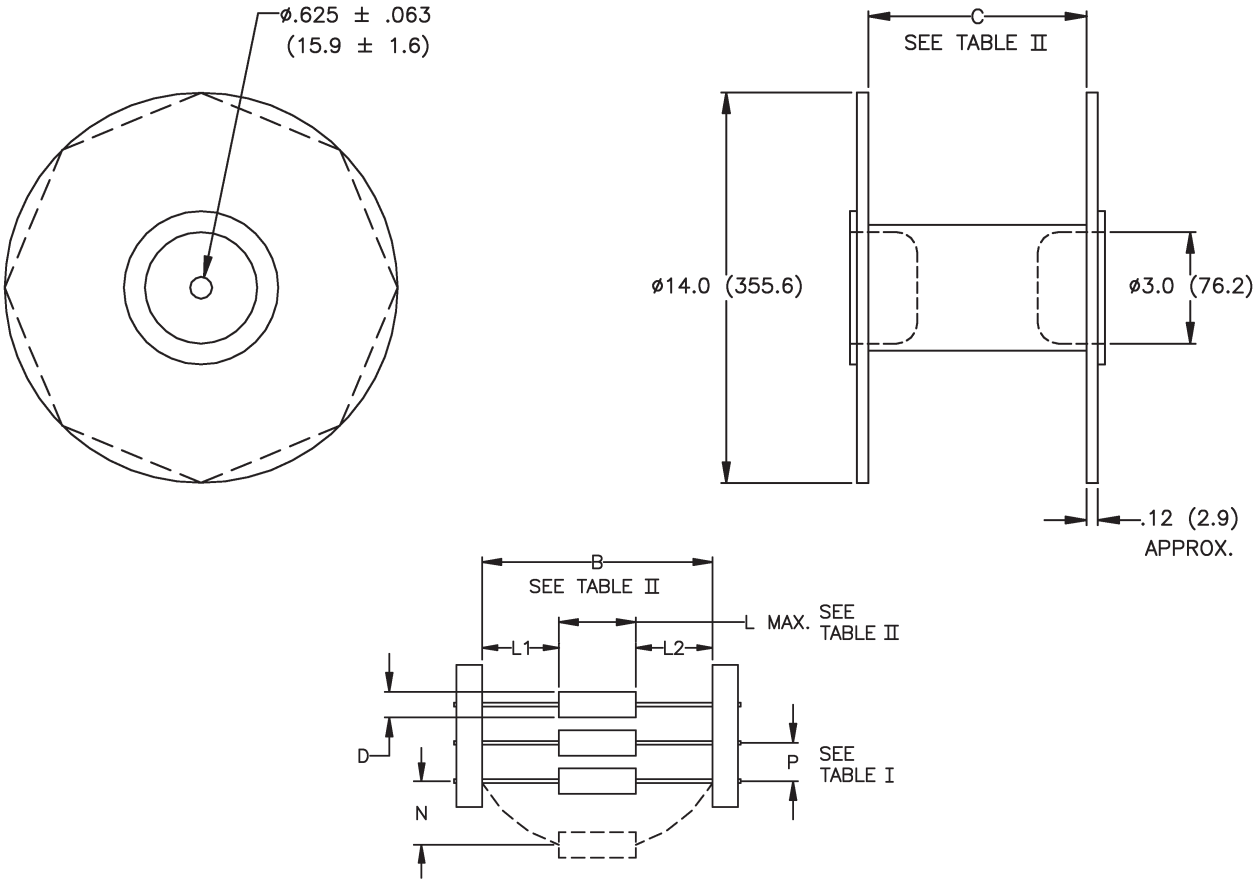

### Types AFEO and AFPS




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## Axial Leaded Tape & Reel Specification

According to EIA-296-E




|L1–L2| < .063 (1.6)

N < .047 (1.2)

### Table I

| D Inches (mm) | P Inches (mm) |
|---|---|
| ≤.20 (5.0) | .20 (5.0) ± .02 (.50) |
| .20 (5.0) – 37 (9.5) | .40 (10.0) ± .02 (.50) |
| .38 (9.6) – .58 (14.7) | .60 (15.0) ± .02 (.50) |

### Table II

| L Max Inches (mm) | Code* | B Inches (mm) | C Inches (mm) |
|---|---|---|---|
| ≤.43 (11.0) | R1 | 2.06 (52.4) ± .06 (1.5) | 2.95 (75) |
| .43 (11.0) < L ≤ .81 (20.5) | R2 | 2.50 (63.6) ± .06 (1.5) | 3.39 (86) |
| >.81 (20.5) | R3 | 2.87 (73) ± .06 (1.5) | 3.74 (95) |

** According to EIA-296-E*

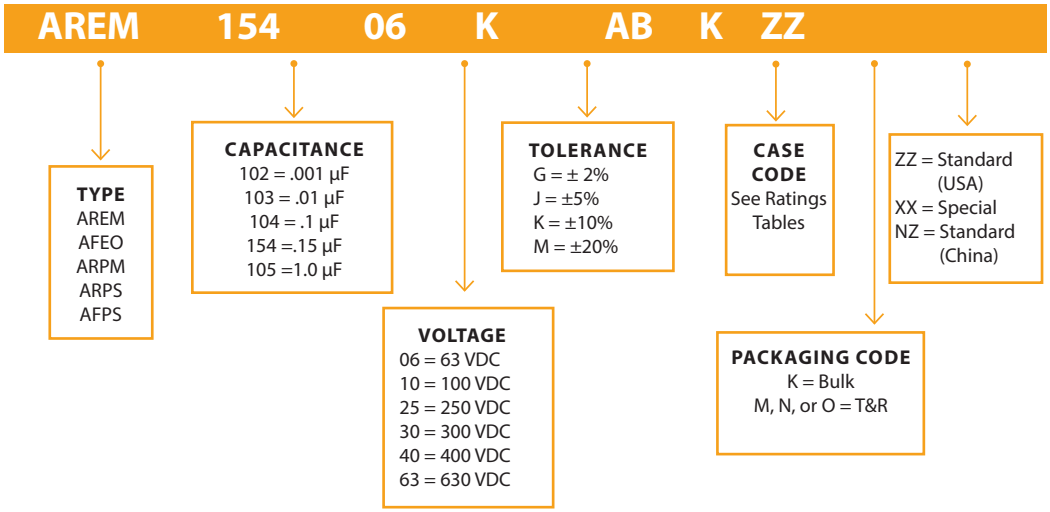
### Table III

| Component Diameter D Inches (mm) | Components per Reel |
|---|---|
| D ≤ .20 (5.0) | 3000 |
| .20 (5.0) < D ≤ .26 (6.5) | 1200 |
| .26 (6.5) < D ≤ .28 (7.0) | 1100 |
| .28 (7.0) < D ≤ .30 (7.5) | 1000 |
| .30 (7.5) < D ≤ .33 (8.5) | 800 |
| .33 (8.5) < D ≤ .41 (10.5) | 500 |
| .41 (10.5) < D ≤ .51 (13.0) | 300 |
| .51 (13.0) < D ≤ .58 (14.7) | 250 |

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## Part Numbering System
## Round and Flat Axials

CDE's part numbering system is a descriptive part number made up of several different components such as voltage rating, capacitance, etc. The descriptors are explained here using AREM15406KABKZZ as a representative part number:




## Type AFEO Flat Axial Metallized Polyester

| CAP (µF) | CDE P/N | DIMENSIONS T x H x L Inches (mm) | CASE CODE | WIRE DIAMETER Inches (mm) |
|---|---|---|---|---|
| **100 VDC (63 VAC)** | | | | |
| 5.0 | AFEO50510KKRKZZ | .42 x .75 x .1.25 (10.7 x 19.1 x 31.8) | KR | .032 (.8) |
| **250 VDC (160 VAC)** | | | | |
| 1.0 | AFEO10525KILKZZ | .30 x .55 x .94 (7.6 x 14.0 x 23.9) | IL | .032 (.8) |
| 5.0 | AFEO50525KPPKZZ | .49 x .98 x 1.25 (12.4 x 24.9 x 31.8) | PP | .032 (.8) |
| 10.0 | AFEO10625KXUKZZ | .55 x 1.05 x 1.76 (14.0 x 26.7 x 44.7) | XU | .032 (.8) |
| 20.0 | AFEO20625K2XKZZ | .73 x 1.25 x 2.26 (18.5 x 31.8 x 57.4) | 2X | .032 (.8) |
| **400 VDC (200 VAC)** | | | | |
| .047 | AFEO47340KADKZZ | .20 x .35 x .56 (5.1 x 8.9 x 14.2) | AD | .025 (.6) |
| .22 | AFEO22440KFLKZZ | .32 x .60 x .94 (8.1 x 15.2 x 23.9) | FL | .032 (.8) |
| 1.0 | AFEO10540KMRKZZ | .45 x.75 x 1.25 (11.4 x 19.1 x 31.8) | MR | .032 (.8) |
| 3.0 | AFEO30540KXUKZZ | .80 x 1.15 x 1.76 (16.2 x 27.4 x 57.4) | XU | .032 (.8) |

*Inquire regarding custom ratings, sizes, and configurations.*

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## Type AREM Round Axial Metallized Polyester

| CAP (µF) | CDE P/N | DIMENSIONS D x L Inches (mm) | CASE CODE | WIRE DIAMETER Inches (mm) |
|---|---|---|---|---|
| **63 VDC (40 VAC)** | | | | |
| 1.0 | AREM10506KGIKZZ | .315 x .807 (8 x 20.5) | GI | .032(.8) |
| **100 VDC (63 VAC)** | | | | |
| 1.5 | AREM15510KKOKZZ | .394 x 1.10 (10 x 28) | KO | .032 (.8) |
| 10.0 | AREM10610K2PKZZ | .729 x 1.30 (18.5 x 33) | 2P | .040 (1.02) |
| **250 VDC (160 VAC)** | | | | |
| .10 | AREM10425KDEKZZ | .256 x .650 (6 x 16.5) | DE | .025 (.6) |
| 2.2 | AREM22525KPOKZZ | .512 x 1.10 (13 x 28) | PO | .032 (.8) |
| 15.0 | AREM15625K4UKZZ | .965 x 1.81 (24.5 x 46) | 4U | .040 (1.02) |
| **400 VDC (200 VAC)** | | | | |
| 1.0 | AREM10540KRPKZZ | .531 x 1.30 (13 x 33) | RP | .032 (.8) |
| **630 VDC (280 VAC)** | | | | |
| 1.0 | AREM10563KRPKZZ | .709 x 1.81 (18 x 46) | 1U | .032 (.8) |

*Inquire regarding custom ratings, sizes, and configurations.*

## Type ARPS Round Axial Metallized Polypropylene

For new design see type 730P

| CAP (µF) | CDE P/N | DIMENSIONS D x L Inches (mm) | CASE CODE | CURRENT (A) | WIRE DIAMETER (AWG) |
|---|---|---|---|---|---|
| **300 VDC (220 VAC)** | | | | | |
| 1.0 | ARPS10530KROKZZ | .50 x 1.05 (12.7 x 26.7) | RO | 0.7 | 20 |
| 3.0 | ARPS30530K1PKZZ | .71 x 1.25 (18.0 x 31.8) | 1P | 2.0 | 20 |
| 5.0 | ARPS50530K2UKZZ | .74 x 1.75 (18.8 x 44.5) | 2U | 3.3 | 20 |
| 10.0 | ARPS10630K4UKZZ | 1.00 x 1.75 (25.4 x 44.5) | 4U | 6.6 | 20 |

| CAP (µF) | CDE P/N | DIMENSIONS D x L Inches (mm) | CASE CODE | ESR MAX 20 –100 kHz (mΩ) | CURRENT (A) | WIRE DIAMETER (AWG) |
|---|---|---|---|---|---|---|
| **400 VDC (250 VAC)** | | | | | | |
| 1.0 | ARPS10540KCAKZZ | .50 x 1.25 (12.7 x 31.8) | CA | 11 | 9 | 20 |
| 5.0 | ARPS50540K3UKZZ | .86 x 1.75 (21.8 x 44.5) | 3U | 7 | 17 | 18 |
| 10.0 | ARPS10640K9XKZZ | 1.00 x 2.25 (25.4 x 57.2) | 9X | 7 | 18 | 18 |

*Inquire regarding custom ratings, sizes, and configurations.*

See Type 730P for New Designs

## Type ARPM Round Axial Metallized Polypropylene

| CAP (µF) | CDE P/N | DIMENSIONS D x L Inches (mm) | CASE CODE | WIRE DIAMETER Inches (mm) |
|---|---|---|---|---|
| **150 VDC (90 VAC)** | | | | |
| .22 | ARPM22415KDFKZZ | .256 x .718 (6.5 x 18.3) | DF | .025 (.6) |
| .33 | ARPM33415KFFKZZ | .295 x .718 (7.5 x 18.3) | FF | .032 (.8) |
| 1.0 | ARPM10515KKKKZZ | .394 x .938 (10.0 x 23.8) | KK | .032 (.8) |
| 3.0 | ARPM30515KKKKZZ | .650 x .938 (16.5 x 23.8) | KK | .032 (.8) |
| **250 VDC (200 VAC)** | | | | |
| .22 | ARPM22425KGKKZZ | .315 x .938 (8.0 x 24.0) | GK | .032 (.8) |
| .33 | ARPM33425KIKKZZ | .354 x .938 (9.0 x 24.0) | IK | .032 (.8) |
| .47 | ARPM47425KLKKZZ | .413 x .938 (10.5 x 24.0) | LK | .032 (.8) |
| .68 | ARPM68425KPKKZZ | .492 x .938 (12.5 x 24.0) | PK | .032 (.8) |
| 3.0 | ARPM30525KYUKZZ | .669 x 1.75 (17.0 x 44.5) | YU | .032 (.8) |
| 10.0 | ARPM10625K9XKZZ | 1.00 x 2.25 (25.4 x 57.0) | 9X | .032 (.8) |

*Inquire regarding custom ratings, sizes, and configurations.*

## Type ARPM Round Axial Metallized Polypropylene (cont.)

| CAP (µF) | CDE P/N | DIMENSIONS D x L Inches (mm) | CASE CODE | WIRE DIAMETER Inches (mm) |
|---|---|---|---|---|
| **400 VDC (250 VAC)** | | | | |
| .047 | ARPM47340KDFKZZ | .256 x .718 (6.5 x 18.3) | DF | .032 (.8) |
| .10 | ARPM10440KHFKZZ | .335 x .718 (8.5 x 18.3) | HF | .032 (.8) |
| .47 | ARPM47440KSKKZZ | .511 x .938 (14.0 x 24.0) | SK | .032 (.8) |
| 2.0 | ARPM20540K1UKZZ | .709 x 1.75 (18.0 x 44.5) | 1U | .032 (.8) |
| 5.0 | ARPM50540K8UKZZ | 1.25 x 1.75 (31.8 x 44.5) | 8U | .032 (.8) |
| **630 VDC (280 VAC)** | | | | |
| .10 | ARPM10363KCCKZZ | .236 x .562 (6.0 x 14.3) | CC | .025 (.6) |

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## AFPS Flat Axial Metallized Polypropylene

For new design see type 761M

| CAP (µF) | CDE P/N | DIMENSIONS T x H x L Inches (mm) | CASE CODE | CURRENT (A) | WIRE DIAMETER (AWG) |
|---|---|---|---|---|---|
| **300 VDC (220 VAC)** | | | | | |
| 3.0 | AFPS30530KRPKZZ | .50 x .87 x 1.25 (12.7 x 22.1 x 31.8) | RP | 2.0 | 20 |
| 10.0 | AFPS10630KWWKZZ | .64 x 1.15 x 2.10 (16.3 x 29.2 x 53.3) | WW | 6.6 | 20 |
| 12.0 | AFPS12630K1WKZZ | .72 x 1.22 x 2.10 (18.3 x 40.0 x 53.3) | 1W | 8.0 | 20 |

*Inquire regarding custom ratings, sizes, and configurations.*

See Type 761M for New Designs

## AFPS Flat Axial Metallized Polypropylene (cont.)

| CAP (µF) | CDE P/N | DIMENSIONS T x H x L Inches (mm) | CASE CODE | ESR MAX 20 –100 kHz (mΩ) | CURRENT (A) | WIRE DIAMETER (AWG) |
|---|---|---|---|---|---|---|
| **400 VDC (250 VAC)** | | | | | | |
| 2.0 | AFPS20540K2PKZZ | .50 x .82 x 1.25 (12.7 x 20.8 x 31.8) | 2P | 9 | 10 | 20 |
| 3.3 | AFPS33540KGBKZZ | .69 x .93 x 1.25 (17.5 x 23.6 x 31.8) | GB | 7 | 15 | 20 |
| 4.7 | AFPS47540KADKZZ | .64 x .95 x 1.75 (16.3 x 24.1 x 44.50 | AD | 7 | 17 | 18 |
| 5.0 | AFPS50540KFDKZZ | .67 x 1.00 x 1.75 (17.0 x 25.4 x 44.5) | FD | 7 | 17 | 18 |
| 10.0 | AFPS10640KBEKZZ | .75 x 1.28 x 2.25 (19.1 x 32.5 x 57.2) | BE | 7 | 18 | 18 |
| **600 VDC (300 VAC)** | | | | | | |
| 1.0 | AFPS10560KHBKZZ | .60 x .80 x 1.25 (15.2 x 20.3 x 31.8) | HB | 8 | 9 | 20 |
| 5.0 | AFPS50560KDEKZZ | .95 x 1.25 x 2.25 (24.1 x 31.8 x 57.2) | DE | 7 | 18 | 18 |

*Inquire regarding custom ratings, sizes, and configurations.*

## About CDE

CDE is a leading manufacturer of capacitors for industrial, medical and specialized applications, with world-class design, manufacturing and testing facilities in New Bedford, MA. Global manufacturing facilities in China and India enable quick turn-around for shipping and delivery worldwide.

CDE capacitors are among the world's most reliable components. Our extensive custom design and development capabilities coupled with broad, standardized product offerings allow us to provide intelligent capacitor solutions that meet or exceed customers' application requirements.

Our aim is to be the best and most sought after provider of capacitor solutions for specialty markets in the world by achieving the highest level of customer satisfaction with extraordinary emphasis on the creation of value and speed to market.

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