

## Overview

The C9T capacitor is a polypropylene metallized film capacitor with a cylindrical, aluminium can-type design filled with resin. It uses a 3-phase delta connection and safety device FPU.

## Applications

Typical applications power factor correction.

## Benefits

- VDE Approved
- Overpressure safety device
- High capacitance density
- Long lifetime
- 3-phase delta connections

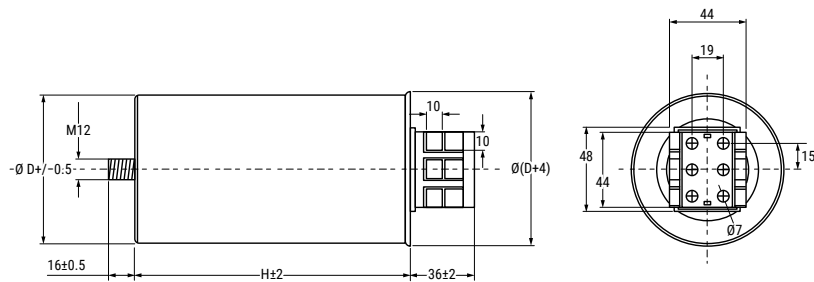


## Part Number System

C9T	S	5	M	D	6137	AAR	X
Series	Type	Rated Voltage (VAC)	Terminal Style	Internal Connection	Capacitance Code (pF)	Internal Code	Tolerance
C9T = Cylindrical Three-Phase Capacitors	S = Slim	5 = 415 6 = 440	M = Screw clamp Terminal	D = Delta	Digits 2 – 4 indicate the first three digits of the capacitance value*. First digit indicates the number of zeros to be added.	AAR = Standard	X = -5%/+10%

\* Capacitance Code (8th – 11th digit) -> Single Capacitive Element Value

## Dimensions – Millimeters



D	H	Mounting Stud (M)
$\pm 0.5$	$\pm 2$	
75	160	M12 x 16
75	230	M12 x 16
75	280	M12 x 16
85	160	M12 x 16
85	230	M12 x 16
85	280	M12 x 16

## Qualifications

Reference Standards	IEC 831-1/2
	Approved VDE-REG.Nr.F064
Protected 10,000 AFC	-25°C to +70°C

## General Technical Data

Reference Standards	IEC 60831-1/2
	Approved VDE-REG.Nr.F064
	UL810 compliant
Dielectric	Polypropylene film
	Non-Inductive type winding
Climatic Category	-25/D - IEC 60831-1
	Maximum: 55°C
	Highest mean over any period of 24 hours: 45°C
	Highest mean over any period of one year: 35°C
Maximum Hot Spot Temperature	+70°C
Endurance Test IEC 60831-2	IEC 60831-2 clause 17.1-17.2

## Electrical Characteristics

Rated Voltage	Un = (see table) Vrms
Over Voltage	IEC 60831-1 clause 20:
	1,10*UN – 8 hours in every 24 hours
	1,15* UN – 30 minutes in every 24 hours
	1,20* UN – 5 minutes in the lifetime
	1,30* UN – 1 minutes in the lifetime
Capacitance Tolerance	-5% +10% (X)

## Mechanical Characteristics

Maximum Torque:	6 [N*m] for Terminal screw
	12 [N*m] for M12 Bolt
Installation	Whatever position
Aluminum deck with self extinguishing UL94 V0 plastic cover	

## Life Expectancy

Life Expectancy	100,000 hours at $U_{rms}$ with $T_{hs} \leq 70^{\circ}\text{C}$
Capacitance drop at end of life	-5% (typical)
Failure rate IEC 61709	300*10 <sup>-9</sup> components/hours

## Test Method

Test voltage term to term (Utt)	2,15* $U_{rms}$ for 2 seconds at 25°C
Test voltage term to case (Utc)	3600 V – 50 Hz for 2 seconds
Relative Humidity	Annual average $\leq 80\%$ at 24°C
	On 30 days/year permanently 100%. On other days occasionally 90%.
	Dewing not admitted
Capacitance Deviation in Temperature Range (-40...+50°C)	$\pm 1.5\%$ maximum on capacitance value at 20°C
Damp Heat	IEC 60068-2-78
Change of Temperature	IEC 60068-2-14
Vibration Strength	IEC 60068-2-6

**NOTICE:** Care should be taken to ensure that there still is electrical clearance of 15 mm between terminations and other live or earthed parts above the capacitor, in case of safety device activation.

**Table 1 – Ratings & Part Number Reference**

Capacitance Value	Voltage	Dimensions (mm)		Rated Current	Qn	Operating Frequency	dV/dt	Packaging Quantity	Part Number
μF	VAC	Ø	H	A	kVAR	Hz	V/μs		
3 x 31.1	415	75	160	9	5.0	50	30	12	C9TS5MD5311AARX
3 x 46.0	415	75	160	14	7.5	50	30	12	C9TS5MD5460AARX
3 x 61.5	415	85	160	18	10.0	50	30	9	C9TS5MD5615AARX
3 x 77.0	415	75	230	23	12.5	50	30	12	C9TS5MD5770AARX
3 x 92.2	415	85	230	27	15.0	50	30	9	C9TS5MD5920AARX
3 x 108.0	415	75	280	32	17.5	50	30	12	C9TS5MD6108AARX
3 x 123.0	415	75	280	36	20.0	50	30	12	C9TS5MD6123AARX
3 x 154.0	415	85	280	45	25.0	50	30	9	C9TS5MD6154AARX
3 x 27.4	440	75	160	9	5.0	50	30	12	C9TS6MD5274AARX
3 x 41.1	440	75	160	13	7.5	50	30	12	C9TS6MD5411AARX
3 x 54.8	440	85	160	17	10.0	50	30	9	C9TS6MD5548AARX
3 x 68.5	440	75	230	21	12.5	50	30	12	C9TS6MD5685AARX
3 x 83.0	440	85	230	26	15.0	50	30	9	C9TS6MD5830AARX
3 x 96.0	440	75	280	30	17.5	50	30	12	C9TS6MD5960AARX
3 x 110.0	440	75	280	34	20.0	50	30	12	C9TS6MD6110AARX
3 x 137.0	440	85	280	43	25.0	50	30	9	C9TS6MD6137AARX

(\*) Maximum admissible RMS current.  $T_{hs} \leq 70^{\circ}\text{C}$ .

## Marking

CEI EN 60831/1-2		 Via Sagittario, 1/3 40037 Sasso Marconi (BO) ITALY Tel (+39) 051 939.111 http://www.kemet.com	
<b>ATTENZIONE!!!</b> PER ACCEDERE/DISINSERIRE, ATTENDERE 3 MINUTI METTERE I TERMINALI IN CORTO CIRCUITO E A TERRA <b>ATTENTION!!!</b> AVANT D'OUVRIR/ATTENDRE 3 MINUTES, METTEZ LE BORNES EN COURT-CIRCUIT AT A LA TERRE		<b>ATTENTION!!!</b> TO OPEN SWITCH OFF, WAIT 3 MINUTES PLACE TERMINALS ON SHORT CIRCUIT AND ON GROUND <b>ACHTUNG!!!</b> VOR DEM OFFNEHN/NETZ AUSSCHALTEN 3 MINUTEN WARTEN KURZSCHLIESSEN UND BERDEN	
<b>THREE PHASE SELF HEALING CAPACITOR VDE-REG.-Nr.F064</b>			
PART NUMBER	C9TS6MD6137AARX	M/A	
REACTIVE POWER Qn	25 kvar	RATED CURRENT In	43 A
RATED VOLTAGE Urms	440 V	INSULATING LEVEL	3/8 KV
NOMINAL FREQUENCY Fn	50 Hz	CONNECTIONS	DELTA
TEMPERATURE CLASS -25/0 - INDOOR USE ONLY OVERPRESSURE SAFETY DEVICE - NO PCBs			

— Manufacturer Logo

— Safety Warning

— Self-healing Dielectric and Approval

— Part Number, Batch Number and Production Date

— Rated Reactive Power and Current

— Rated Voltage and Insulating Level

— Rated Frequency and Internal Connections

— Climatic Class

## Environmental Compliance

As a leading global supplier of electronic components and an environmentally conscious company, KEMET continually aspires to improve the environmental effects of our manufacturing processes and our finished electronic components.

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All KEMET power film capacitors are RoHS compliant.

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The selection of raw materials that KEMET uses for the production of its electronic components is the result of extensive experience. KEMET directs specific attention toward environmental protection. KEMET selects its suppliers according to ISO 9001 standards and performs statistical analyses on raw materials before acceptance for use in manufacturing our electronic components. All materials are, to the best of KEMET's knowledge, non-toxic and free from cadmium; mercury; chrome and compounds; polychlorine triphenyl (PCB); bromide and chlorinedioxins bromurate clorurate; CFC and HCFC; and asbestos.

## Dissipation Factor

Dissipation factor is a complex function involved with capacitor inefficiency. The  $\tan \delta$  may vary up and down with increased temperature. For more information, refer to Performance Characteristics.

## Sealing

### Hermetically Sealed Capacitors

As the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor. Such a breach can result in leakage, impregnation, filling fluid, or moisture susceptibility.

### Barometric Pressure

The altitude at which hermetically sealed capacitors are operated controls the capacitor's voltage rating. As the barometric pressure decreases, the susceptibility to terminal arc-over increases. Non-hermetic capacitors can be affected by internal stresses due to pressure changes. These effects can be in the form of capacitance changes, dielectric arc-over, and/or low insulation resistance. Altitude can also affect heat transfer. Heat that is generated in an operation cannot be dissipated properly, and high  $RI^2$  losses and eventual failure can result.

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Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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